

EVOLUTION OF THE INNOVATIVE SERVICES AND THEIR ROLE IN ECONOMIC DEVELOPMENT OF ROMANIA

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Abstract

Innovative services refer to those categories of services, due to the scientific and technical progress, namely the new economy, information economy, representing a relatively new concept that we are trying to define by this work. It also raises the question: "To what extent innovative services help clarify the leadership of the tertiary sector in the Romanian economy?" And "how default tertiary sector contributes innovative services to growth?". In order to achieve a vision of innovative services and how they can revolutionize the entire tertiary sector of Romania, in search of an answer to the two questions we use several indicators to help us understand how they evolved and how they have contributed innovative services to growth more precisely: employees in research and development of the business environment, economic activities and by occupation, researchers from the research - development, by sector of performance, typology of innovators, the turnover of innovative enterprises, the activities and size of the trade in services, etc.. In this sense we will use statistics provided by the National Statistics Institute but also by other bodies which surveyed in this sense and of course bibliographical works which have debated this very interesting and current topic.

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1. Introduction

It highlights, in some own approach of this period, that traditional production factors have been overthrown by two different factors, namely: material factor which includes parts of tangible capital and human factor aspects of pure energy and intellectual factors included innovation, information, knowledge, science, entrepreneurship. The fact that intellectual-intensive services (Jivan, 1998) have strong effects in some economies and

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their development is very true, if we refer to the Japanese economy where research and education structure are the "place of honor".

Many authors concerned about the issue of services has reached the opinion that they have attained the maturity reported economic and technological landscape Alic, (1994); Amable and Palombarini (1998), Jeremy Howells (2000). A sustained growth enjoyed during this time intellectual services, in knowledge-intensive, and among these stands out the ones found in the literature as the intensive business Service in knowledge (KIBS), services which holding a role increasingly more important in the knowledge-based economy Miles (1993), OCDE (1996); Lamberton (1997); Alic (1997), Jeremy Howells (2000).

In present, the role of services based on Internet and those to be implemented with the help of leading-edge technology indicates that certain types of industries that use such services now have an active role on the market, in most cases becoming leaders in their field of activity. These service categories are associated with information and communication technologies (ICT) and they are linked to new forms of transactions based on e-commerce and the internet. These new ICT firms mediated by KIBS are now increasingly more considered very important in industry. Therefore, the service sector has changed through the emergence of new types of participants in the sector. These firms are making original, innovative activities and sometimes unique things which, in many cases, would not have been possible twenty years ago.

The services are still in the shadow of previous conceptual delimitations shadow, in the sense that in the tertiary sector the scientific and technical progress, entering with a rate much slower than in other sectors, aspects which have led to the constraint of their development (Petit, 1986). It speaks more and more about the intellectual property system in services field bringing to the forefront the protection of innovations based on services (Andersen and Howells, 1998).

2. Conceptualization of innovative services

The innovative services represent a new concept of services, significantly improved compared to the traditional concept of services, it is increasingly common in practice. Innovations in services have the potential to change profoundly innovative aspects in other sectors and to support the company's growth

The specialists in the field have identified three types of services which have the capacity of innovation, namely:

1. Networks, distribution and mediation services which link consumers, businesses and supply chains and help to improve the distribution of goods and information to the members of the society.
2. Utilities and infrastructure services, such as telecommunications, energy and waste disposal, services which offer greater added value for their customers.
3. Intensive business service in knowledge which to support customers, companies and workers for upgrading of technology used, organizational processes, and business models, as well as the transfer of knowledge and experience between sectors.

These innovative services are usually sophisticated from the technical point of view. They relate to users ' needs and cares of change and impact on the environment or society,

and aimed at finding solutions, which often appeal to technology, to be able to be resolved.

This correlation of users' requirements with sophisticated technology enables companies to fundamentally change processes, to design, develop and deliver goods and services to the client. They help transform market channels, business models, providing the clients modern payment systems, and in consequence, high quality service. They cause companies to interact and support innovative services, thus being able to help at generating and enhancing integrated innovation cycles in the economy.

The future economic prosperity will depend on passing over the constraints of society's productivity and innovation, aspects which concern in an attempt to generate added value and new archetypes currently, thus coming to support the economy and companies who carry out economic activity in the global market, thus that they become more competitive and innovative.

Successful services firms manage to remain competitive through innovation, because no the manner in which a service is designed and delivered has a impact on buying decision to the consumer, but also that innovative element retrieved from the respective service whereby it becomes vastly superior compared to the services offered by competing firms.

Innovation in services can be understood by the apparition of a new service, an international change in the offer of services, a service which provides a benefit to customers as well as a significant improvement in the profitability of the firm.

Services firms can innovate in three ways Dorothy I. Riddle (2008):

1. The changes to services directly, or for what is offered to clients. Innovative services are the ones that didn't exist before, or who have been redesigned substantially for to respond more effectively to the needs of our clients. These innovations are most evident to the customer.

2. The changes to the delivery of services, or developing service provision. Innovative service processes include new or improved production, as well as new methods of distribution, often linked to the integration of new information technologies in the process of distribution of services.

3. Changes in the organizational structure and management: organizational innovations include new or improved management techniques (for example, total quality management), revised organizational structure significantly, and implementation of corporate new or changed substantially strategies. These innovations are the least obvious for customer.

In modern society with which we face, innovation represents a complex and vital process, because as has been proven over time, through it can meet in a more individual requirements or larger communities. If we refer to the enterprises, it is necessary to maintain a permanent innovation process in order to be competitive on the market. "Modern management, under the globalization economy can ensure the success of a company's market, taking into account at least 5 major factors that allow capitalization of opportunities offered by the new economy, namely:"

- The passage from information to knowledge, as a natural evolution of information technology;

- The transition from the bureaucracy to networks through evolution, so that economic units to create and utilize effective strategic business network
- The passage from training to education-learning, continuous forms in real time.
- The passage from a local or national mission, at one transnational mission, to maintain a profitable growth through globalization

The services must be transformed when they disrupt traditional marketing channels, processes and business models, in order to improve customer satisfaction, significant so as to have a major impact on the economy as a whole.

There is a paradigm shift in terms of economy and value and business structures at worldwide. The role of services in modern business strategy is the determining one, because its offer a great deal of technical and social infrastructure of the economy.

The innovation consists in the successful exploitation of new ideas — this definition applies to all firms in the economy and it is equally relevant for innovations in the field of services.

While innovations in tangible products can be more easily recognized, probably because of their physical nature, there are many excellent examples of innovation in the field of services as follows:

a. In the case of the airport runway, the landing area, an important role has a classic service, which is intangible and developed jointly by users of air transport services, by transport service providers in close touch with the services of air traffic control. Despite the fact that the tracks of landing, from year to year, are increasingly congested major airports continues to increase the capacity of the landing. This was achieved through innovations such as improved efficiency in operations on the ground, a large portion of them being carried out without additional built tracks.

b. The financial services and they appear as a fine example of innovative services in the sense that many banks now offer a wide range of on-line services, facilitated by ICT, such as internet banking, ' ' -which is a model of innovation introduced via the Internet. This innovative system allows customers to access accounts available anywhere in the world in front of an electronic device connected to the internet and also to achieve different function which until now was moving to the Bank's headquarters. This innovative service add value by reducing time and costs because a transaction on-line takes only a few minutes and costs are zero, more often than not giving it even discounts for payments made online.

c. In the field of sales there have been many innovations particularly in the retail trade and one of the most important being considered using barcodes. The introduction of barcode scanners linked to information and communication technologies have vastly improved retail sales.

3. The evolution of innovative services in Romania

Research and development services are the main support of the economic and social progress. These services comprise several components (Al Jivan) namely: basic research, applied research, experimental development. The specificity of research and development services is that offers novelty items compared to what is known at the time of their delivery.

The funds allocated for delivery of research and development services differ from country to country depending on the degree of development, in the developed economies making up well-represented in GDP, namely 2-3%. Most of these services are provided to the State.

As regards intensity of research and development activity, namely the share of expenditure for this activity in GDP, we can say that Romania is among the last places to this ranking with a share (although increasing the analysis period) of 0.54% of GDP, well below the intensity of the research-development in the EU recorded 1.8% of GDP. On the same level stands and countries such as Malta, Greece, Cyprus, Slovakia, Bulgaria. Over 1% of GDP expenditure on research and development are found in the Czech Republic, Luxembourg, Hungary, On top of that list are Finland, Sweden, Austria, France, Germany and Denmark. If we continue the analysis in terms of the proportions of expenditure on research- development in GDP in the new situation of higher education in Romania is one of the best falling to 0.13% compared to 0.41% in the EU27.

In order to achieve an image of innovative services as well as the way in which these revolutionizes the entire services sector of Romania and contribute to the economic development of our country we present few indicators that help us understand how it works in the context of economic mechanisms of so called „innovative services”.

We consider it extremely necessary to see how to grow the number of employees from research and development activities in the business sector. (Table no 1)

From a brief analysis on the number of employees in the research or development activity in the field of business, we see an upward trend from 8271 thousand persons in 2010, at 10002 thousand persons in 2011. Analyzing attentively, we observe a fluctuation in connection with the number of employees, by registering it either increases or decreases in staff depending on the scope of work.

Thus, there are areas of activity such as agriculture, forestry and fisheries, where decrease is extremely steep decline from 1091 employees in 2010 at 143 employees in 2011. Also, in this trend fits extractive industry; processing industry of which stands out the manufacture of textiles; manufacture of basic pharmaceutical products and pharmaceutical preparations; manufacture of other non-metallic mineral products; production of cars, machinery and equipment, were recorded out of the number of employees in the field of research and development services. There are still areas in which it concentrates the entire labor force of research and development such as: manufacture of computers and electronic and optical products; food industry and last but not least, the services sector has registered an increase from 2354 thousand persons in 2010, at 6712 thousand persons in the year 2011, the year in that 3150 thousand persons representing the employees in the field of research and development.

So in this unfavorable economic context, in which we are still, services are proving a pretty solid, with a great capacity to generate jobs, and especially innovative services in the field of research, as it is well seen from the above table, this field of innovative services that almost half of the number of persons working in the field of services.

It is eloquent as we present and statistical data about employees in the field of research-development by sector of performance.(table no 2)

We observe from the data presented in the previous table that if in 2008 the evolution of employees in research and development activities has been an oscillating with declines in 2007 and a record number in 2008, in the period ahead is a sharp decrease in register, so that in 2010 we have had over 4,000 employees less. The role of research activities in achieving solutions for getting out of the crisis is found in increasing substantially in 2011.

We also see that in 2011 there is a change in the proportion of employees in total, in the sense that if researchers have registered declines, technicians and other categories of employees with specific research activities have increased significantly. It is noticed that most employees are in the Government sector, followed by the business sector and academic field. Evolution is similar to the existing overall employees in the research and development sector. In 2011 the share of total employees in research and development in Romania is as follows:

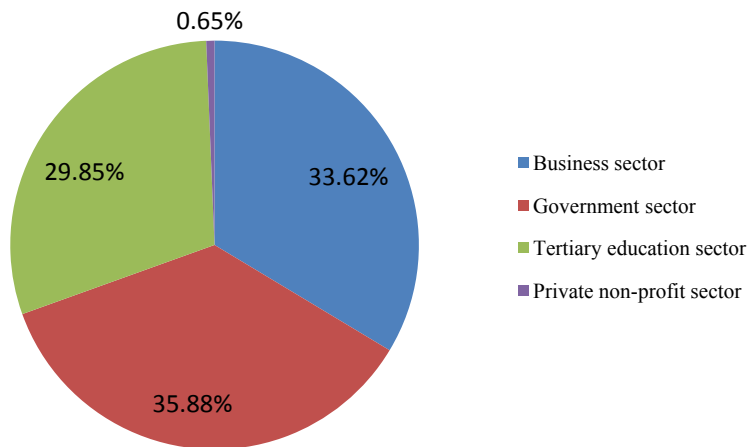


Figure 1 The share of sectors in total employees in R & D in 2011

In table no. 3, we see that innovative enterprises in Romania have evolved positively during the period 2002-2008 after which register a fall with 1870 of innovative enterprises, decrease sustained by the industry which has registered a downward evolution as a whole. In the field of services, innovative enterprises are fewer, but the decrease is more moderate.

Innovative enterprises in services had a sustained evolution in the sense that from 2002 when only 1076 tertiary sector enterprises used results of research development in 2008, these companies are almost 4 times more which enables us to say that technical progress becomes accessible and this particular area. According to the typology of enterprises we present forwards the typology of innovators in 2010 by the main activities.(table no 4)

We see that the share of innovative enterprises in the whole enterprise is 30.8%, the most numerous being those who use non-technological innovation. Most large share have

large enterprises (56,4%), aspect found and by activity. Regarding tertiary sector, we observe that a total of 11588 enterprises, 3677 are considered innovative enterprises, i.e. 31,7% a higher share than in the case of industrial activities. And here's the most innovative enterprises employ non-technological innovation specifically 2295 enterprises.

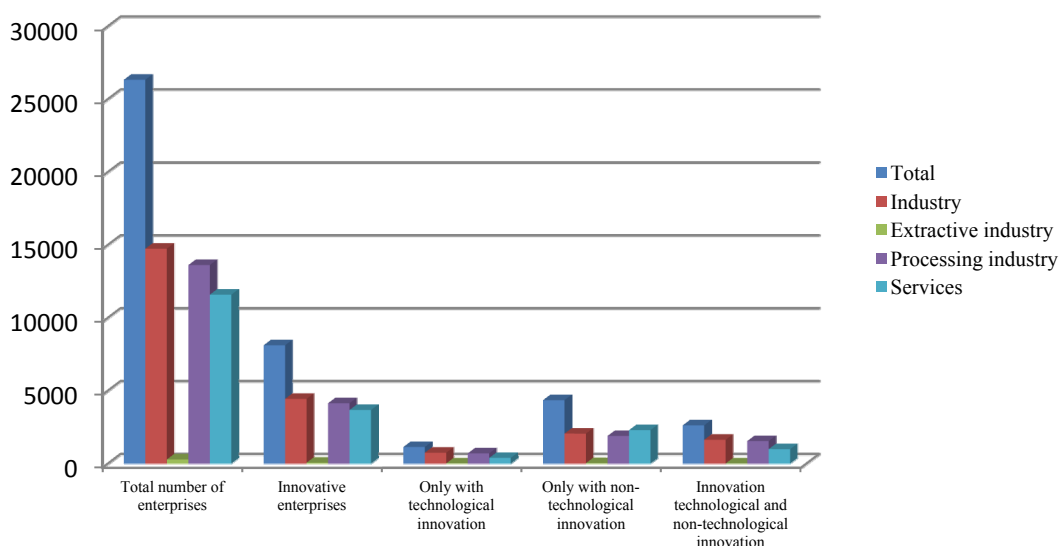


Figure no. 2 Innovative enterprises by the main activities of the economy in 2010

For an eloquence image of the innovative services in Romania, we present and turnover both in services and in other areas of activity in order to make a comparison (table no 5)

We observe that the overall turnover, the largest share hold innovative enterprises with 58.5%. In the industry, this share is increased 63.4%, namely, excelling in the extractive industry. In the services sector, the turnover achieved in innovative enterprises holds 53% of the total turnover, percentage held by large enterprises which have a share of 75% and less than small ones with a share of 32%.

Conclusions

The first conclusion we can extract is that the services field lately we are witnessing an acceleration of scientific and technical progress of the intervention, this is the least accessible sector for new discoveries. Internet and computer services have contributed to the sustained development of new types of services, the so-called innovative services. Successful services firms manage to remain competitive through innovation, because no the manner in which a service is designed and delivered has a impact on buying decision to the consumer, but also that innovative element retrieved from the respective service whereby it becomes vastly superior compared to the services offered by competing firms.

In what concerning the statistical data presented, we have reached the following conclusions:

- in this unfavorable economic context, in which we are still, services are proving a pretty solid, with a great capacity to generate jobs, and especially innovative services in the field of research, as it is well seen from the above table, this field of innovative services that almost half of the number of persons working in the tertiary sector

- innovative enterprises in Romania have evolved positively during the period 2002-2008, after which there is a decrease of innovative enterprises in the field of services but decreased is more moderate than in the case of other business areas

- The innovative enterprises in services had a sustained evolution in the sense that from 2002 when only 1076 enterprises from tertiary sector used development research results, in 2008 these companies are almost 4 times more which enables us to say that technical progress becomes accessible and this particular area.

- We observe that a total of 11588 enterprises from tertiary sector, 3677 are considered innovative enterprises, i.e. 31, 7% a higher share than in the case of industrial activities. And here's the most innovative enterprises employ non-technological innovation specifically 2295 enterprises.

- The turnover achieved in innovative enterprises holds 53% of the total turnover, percentage held by large enterprises which have a share of 75% and less than small ones with a share of 32%.

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Employees from research-development activity from the sector of the business environment, by economic activities

1. Table no.1

CAEN Rev. 2								
			Researchers		Technicians and assimilated		Other categories of employees	
	2010	2011	2010	2011	2010	2011	2010	2011
Business sector – total	8271	10002	5853	3518	1022	2396	1396	4088
from which on the activities								
Agriculture, forestry and fisheries	1091	143	351	18	188	10	552	115
Extractive industry	18	-	14	-	4	-	-	-
Processing industry	4170	2879	2907	1168	583	798	680	913
Production and supply of electricity and heat, gas, steam and air conditioning	502	142	373	95	83	32	46	15
Water supply; sanitation, waste management, decontamination activities	11	38	11	6	-	29	-	3
Construction	125	88	111	12	11	59	3	17
Services	2354	6712	2086	2219	153	1468	115	3025
of which: research and development	869	3150	721	1318	84	615	64	1217

Source: National Institute of Statistics, Statistical Yearbook, 2012

Employees from research-development activity, by sector of performance and occupation

Table no. 2

	2006	2007	2008	2009	2010	2011
<i>Employees – total</i>	29340	28977	30390	28398	26171	29749
<i>Researchers</i>	19021	18808	19394	19271	19780	16080
<i>Technicians and assimilated</i>	4496	4361	4620	3991	3139	5132
<i>Other categories of employees</i>	5823	5808	6376	5136	3252	8537
<i>Business sector</i>	13761	13107	11525	10758	8271	10002
<i>Researchers</i>	7708	7754	6309	6127	5853	3518
<i>Technicians and assimilated</i>	2289	2202	2100	1491	1022	2396
<i>Other categories of employees</i>	3764	3151	3116	3140	1396	4088
<i>Government sector</i>	8381	8786	10312	8708	8704	10675
<i>Researchers</i>	5585	5818	6169	5744	5590	5846
<i>Technicians and assimilated</i>	1703	1754	2026	1670	1659	1900
<i>Other categories of employees</i>	1093	1214	2117	1294	1455	2929
<i>Tertiary education sector</i>	7101	6931	8433	8824	9054	8879
<i>Researchers</i>	5652	5104	6839	7310	8245	6563
<i>Technicians and assimilated</i>	493	392	476	827	414	834
<i>Other categories of employees</i>	956	1435	1118	687	395	1482
<i>Private non-profit sector</i>	97	153	120	108	142	193
<i>Researchers</i>	76	132	77	90	92	153
<i>Technicians and assimilated</i>	11	13	18	3	44	2
<i>Other categories of employees</i>	10	8	25	15	6	38

Source: National Institute of Statistics, Statistical Yearbook, 2012

Innovative enterprises (product, process, organizational, abandoned, unfinished, marketing) by activity

Table no 3

Activities	Years				
	2002	2004	2006	2008	2010
	UM: Number				
Total	3983	5171	6013	9986	8116
Industry	2907	3489	3789	6003	4439
Extractive industry	23	33	44	81	61
Processing industry	2832	3402	3675	5698	4143
Thermal and electrical energy, gas and water	52	54	70	:	:
Production and supply of electric power and heat, gas, hot water and air conditioning	:	:	:	58	71
Water distribution, sanitation, waste administration, decontamination activities	:	:	:	166	164
Services	1076	1682	2224	3983	3677

Source: National Institute of Statistics, Statistical Yearbook, 2011

Typology of innovators in 2010 on the types of enterprises

Table no 4

	Total number of enterprises	Innovative enterprises	The share of innovative enterprises with total enterprises	Only with technological innovation	Only with non-technological innovation	Innovation technological and non-technological innovation
Total	26330	8116	30,8	1137	4353	2626
Small Enterprises	20379	5613	27,5	805	3227	1581
Medium-Sized Enterprises	4836	1874	38,8	241	938	695
Large Enterprises	1115	629	56,4	91	188	350
Industry	14742	4439	30,1	747	2058	1634
Small Enterprises	10637	2769	26,0	516	1392	861
Medium-Sized Enterprises	3246	1182	36,4	153	543	486

Large Enterprises	859	488	56,8	78	123	287
Extractive industry	283	61	21,6	17	32	12
Processing industry	13620	4143	30,4	704	1895	1544
Small Enterprises	9913	2632	26,6	489	1298	845
Medium-Sized Enterprises	2983	1092	36,6	144	498	450
Large Enterprises	724	419	57,9	71	99	249
Water supply, sanitation	646	164	25,4	21	90	53
Production and supply of electric power and thermal	193	71	36,8	5	41	25
Services	11588	3677	31,7	390	2295	992
Small Enterprises	9742	2844	29,2	289	1835	720
Medium-Sized Enterprises	1590	692	43,5	88	395	209
Large Enterprises	256	141	55,1	13	65	63

¹⁾ Enterprises with more than 9 employees in the fields of industry (CAEN Rev. 2 sections B, C, D, E) and services (CAEN Rev. 2 sections: H and K and divisions, 46, 58, 61, 62, 63 and 71).

The turnover of innovative enterprises, by activities and size classes in 2010
Table no. 5

	Turnover for all enterprises (thousand lei in current prices)	Turnover of innovative enterprises (thousands lei current prices)	In% from total
Total	580659532	339489595	58,5
Small Enterprises	108080006	35314050	32,7
Medium-Sized Enterprises	148342548	65432493	44,1
Large Enterprises	324236978	238743052	73,6
Industry	304241045	193010915	63,4
Small Enterprises	33607524	11132830	33,1
Medium-Sized Enterprises	63098827	30622818	48,5
Large Enterprises	207534694	151255267	72,9
Extractive industry	24407495	18335839	75,1
Processing industry	220195545	139952052	63,6
Small Enterprises	25738870	8549005	33,2
Medium-Sized Enterprises	51822513	24830110	47,9
Large Enterprises	142634162	106572937	74,7
Production and supply of electric power and thermal	30138209	46552319	64,7
Water distribution and sanitation	13085686	4584815	35,0
Services	276418487	146478680	53,0
Small Enterprises	74472482	24181220	32,5
Medium-Sized Enterprises	85243721	34809675	40,8
Large Enterprises	116702284	87487785	75,0

Source: National Institute of Statistics, Statistical Yearbook, 2012