

# THE ANALYSIS OF SMES INNOVATION DEGREE

Vasile ROBU, Professor, Ph.D.

The Academy of Economic Studies in Bucharest

Raluca-Florentina CREȚU, Lecturer, Ph.D.

The Academy of Economic Studies in Bucharest

Cristina-Ștefania CUREA, Assist. prof., Ph.D. candidate

The Academy of Economic Studies in Bucharest

**Keywords:** analysis, innovation efficiency, indicators, innovative SMEs, performance.

**Abstract:** Economics based on knowledge, (re)dimensions the importance of tangible assets, which become fundamental elements for development, for a better market dominant position, and to generate income and to produce, generally, richness. The fact that SMEs value is changing proportional to size and knowledge content seized with staff, at organization level, in products and/or achieved services, makes the investment in engendering of knowledge, research - development, education and professional forming, to become a fundamental demand in performance achievement.

In the context of world-wide level changes, where competition and the new economy based and ruled by knowledge represent fundamental parameters in outlining current role of SMEs in economics, with researching of innovation phenomenon, in this project we propose to analyze fundamental elements to lead us to the analysis of innovation degree, thus obtaining the maximum of effects.

The innovation at enterprise level must be looked to as a complex system, an incorporated process in general strategy of an enterprise which serves the objectives achievement established before of development. In the rival environment conditions, an economic operator focus on market competitors, reacts at moves, and in most of cases (especially for SMEs sector), adopts a imitative and not a innovative behavior. Through adopting this behavior, the enterprise cannot automatically assure market success and more of that, it cannot aspire at a ruling position. The adoption by the economic operator of some processes of technological innovation assures the necessary conditions to correlate the worth creation for customers through the agency of offered products and services and own objectives achievement of development.

Therefore, through technological innovation, the enterprise is tending to orientate on solutions, mean while, through value creation for customer follows continue redefining of problems. The innovative capacity development at enterprise level presumes manifestations support for technical creativeness, through assuming of risks and minimize them through a management of changes proper to organizationally renewal. Through integrating certain aspects that innovation stands for, correlating value-added services for the client (through offered products and services) with the technological innovation requires an indicators system development for enterprise performances monitoring through the innovation dimensions that thus refers to entrances, processes, products and strategies. The innovative process gets influenced by numerous factors. Studying them conducted to several orientations throughout specialists, the classical debate between the demand's first position or the technological opportunities still remains actual, a correct definition and quantification being necessary

for both terms: the technological opportunity and market existing demand and necessity. If a part of the economists, agreeing with Shumpeter, consider the technological opportunity and technical attributes of the inventions as moving forces for the entrepreneurs and their future successes guarantee, another part of the economists, run by Freeman and Schmookler consider that through demand intensification and diversification the innovative activities at the SMEs level gets intensified, because the consumers needs are those orienting the innovative process. The change programmed at an innovative enterprise level presumes, in essence, determining with clarity its position compared with the success results in its activity sector, involving management in the actual state of mind, through creating organizational structures necessary for systematical innovative processes, the openness towards new and the corresponding employee motivation.

In this context, in the last period of time the necessity of introducing audit processes for the innovation level of each enterprise was contoured in order to fundament the political innovation decision. According to some specialists, the audit has to follow an innovational dynamic, analyzed in a multidimensional frame (products innovation and development; process innovation and technology acquisition; leadership; resources, systems and instruments; competitive) that allows the enterprise hierarchy in rapport with the best competitors in that domain.

Innovation productivity is represented by tangible and intangible products (assets) that could generate economical effects.

Innovation efficiency is the productivity on a utilized resources unit.

The innovation impact represents the determined changes on a company's level, but also on the society, by the innovation product.

Innovation efficacy is the measure in which the impact is focalized on the established objectives.

Evaluating the innovation impact has to be done in each of the three phases of the process:

- Initiating the (innovation) project, selecting the research;
- Realizing the (innovation) project;
- Evaluating the (innovation) project implementation.

Evaluating the innovation impact based on a system of indicators presented in table 1 has to supply credible answers for the following questions:

- Which are the domains on which the long term effects of innovation processes manifest?
  - Which are the realizations and effects of implementing innovation at an enterprise level and what are the social and economical effects of it?
  - What is the projected knowledge to be obtained through proposed innovation?
  - What type of benefits could be obtained at the end of the innovation process and what is the confidence level that the medium and long term benefits will be obtained?

Table 1

**The indicators system for innovation impact quantification**

<b>INDICATOR TYPE</b>	<b>CHARACTERISTICS</b>
Impact indicators	Derive from the characteristics belonging to both the products and results of CDT activities; these could be: economical, social, financial, medium, management, etc indicators.
Result indicators	(requests/results, entrance/exist) – refers to a time interval in which innovation takes place SMEedately after it’s finalized.
Effect indicators	(requests/effects) are more complex, they follow for a longer time interval the effects produced by innovation results in various dommain.
Not-normed indicators	Represent a number – absolute value of a certain measurement, without giving any other indication reffering to the process efficiency that conducted to this value.
Normed indicators	Supply a greater information quantity, giving a measurement to the possible improvement, through what was already obtained with refference to what was wanted to be obtained.
Direct indicators	Requests/results/productivity

*Source: „Analiza economico – financiară a inovării la nivelul IMM-urilor” (doctors thesis), chapter IV, by George Bala*

The important components of the innovation process directly measured include:

- Requests/activity (exp: the number of persons working at realizing a research project, the quantity of allocated resources for the research, etc.)
- Results/productivity (exp: articles, articles on a resources unit scale, etc.)

Due to innovation complexity, combining indicators for obtaining a complete image, on the whole, is necessary.

**Innovative SMEs situation in Romania**

Considering the companies that have as a main activity dommain in statutory documents the research and development activity (R&D), it is important to put an emphasis on the fact that, excluding Bucharest – Ilfov that benefits of a special situation, the North – Eastern Region registers the largest SME number – 40 units, an equal value to the one registered in the North – Western Region.

Table 2

## Innovative SMEs situation in Romania

	NORTH-EAST	SOUTH-EAST	SOUTH	SOUTH-WEST	WEST	NORTH-WEST	CENTRE	ILFOV BUCHAREST
No. local units								
2001	31	20	17	19	24	38	22	163
2002	36	24	24	21	31	41	28	209
2003	45	25	25	18	37	45	38	255
2004	40	23	23	20	30	40	32	247
No. engaged persons								
2001	1353	1211	1625	641	915	1125	993	7823
2002	1757	1402	1760	1191	1292	1384	1057	8375
2003	1855	1569	1355	864	1058	1325	843	8702
2004	1429	1599	1308	1091	805	1184	556	10655
Turnover- billion lei								
2001	129	139	291	142	141	150	178	1445
2002	268	196	365	198	226	184	207	2024
2003	370	268	291	155	214	252	187	2511
2004	414	389	390	286	274	261	199	3333

Source: „Rolul IMM-urilor in economia romaneasca, INS 2006”

2004

Also, an emphasis should be put on the fact that the North-Eastern Region is the second classed region considering the innovative SMEs turnover, after the Bucharest – Ilfov Region.

#### SMEs with innovation activities

Generally speaking, a reduced capacity and a low interest from the economical agents is known to appear when referring to research and development and innovation activities – for both their own activities but also for the ones made in collaboration with R&D profile institutions, and also their low research results absorption capacity.

The „România – An Assessment of the Lisbon Scorehead” study elaborated by the Romanian Economy Society in 2004 characterises the innovation situation in romanian enterprises:

- The main competitive source represent the low costs and not the products and technologies degree of innovation;
- New technologies are generally either imported or foreign direct investments made through local efforts.

The statistical investigation regarding the innovation activity made by the National Statistics Institute states that in the North – Eastern Region there is a number of 688 innovation activity enterprises recorded, with a total innovation expenses level in 2004 of 387. 624 mii lei (RON).

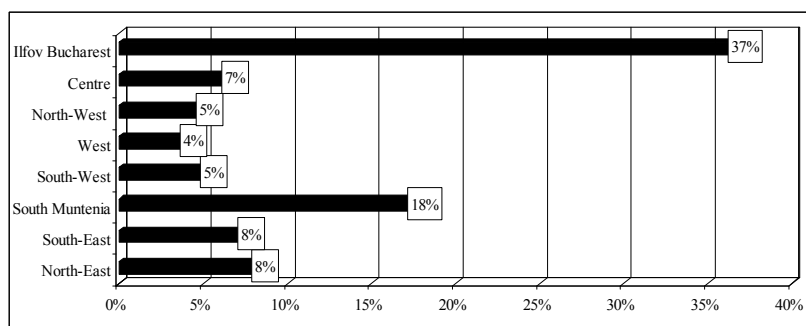
**Table 3****Innovation activity in 2004**

	Enterprises with innovation activities (no & %)	Innovation expenses (mii lei)	Internal research – development expenses (mii lei)	External research – development expenses (mii lei)	Acquisitions equipments, software (mii lei)	Acquisitions another external acquaintances (mii lei)
Romania	5171	4588077	745334	144854	2852917	845972
North-East	688 (13%)	387624	38282	2861	341178	5303
South-East	923 (18%)	347979	37258	4708	305355	658
South Muntenia	457 (9%)	820913	97895	36890	669968	16160
South-West	216 (4%)	246867	57524	5626	179954	3763
West	354 (7%)	191261	27565	12024	148199	3473
North-West	675(13%)	235015	44420	8801	167190	14604
Centre	712 (14%)	305669	62930	13418	219140	10181
Ilfov Bucharest	1176 (23%)	2053749	379460	60526	821933	79183

Source: „Ancheta Inovare in Industrie si Servicii 2004, INS 2006”

In the North – Eastern Region there are 13% of the total number of innovative enterprises, a medium weight considering the fact that in the South-Western Region there is the lowest weight of only 4% and in the Bucharest – Ilfov Region of 23%.

If taking into consideration the volume of innovation expenses made by the enterprises, the North – Eastern Region has a 8, % weight, being on the third place between developing regions, according to the no. 1 graph.



**Graph 1: The percentage of enterprises expenses on developed regions in 2004**

Source: Processing data Table 3

From the point of view of the nature of the innovation efforts, we discover that most small and medium businesses have been concentrated especially on new products (34.73%) and on new technology (32.82%), but only 0.38% concentrated on renewal of the information system.

We distinguish that the number of small enterprises from the North – East Region that did not have innovating approaches is smaller that the national medium. ( 18.70% against 19.98%).

If making a comparative development analysis, we observe that the North – Eastern Region SMEs focus in the smallest measurement on acquiring new products, the registered weight being one of the smallest, but it remarks itself through giving a great attention to new technologies, the recorded value being overpassed only by the South Region. The statistical research about innovation points out the fact that the factors that block the innovation could be separated in three categories: cost factors, knowledge accumulating factors and market factors. In this context, the blockage motive was made by the lack of financial sources, innovation high costs, well-known enterprises dominated market, difficulties in finding cooperation partners, fluctuant goods and innovative services demand or the lack of qualified personnel.

**Table 4**

**Differentiating innovation object depending on the economical SMEs' branch**

INOVIATION DOMAINS	SMALL ENTERPRISES GROUPED ON DEVELOPED REGIONS (%)							
	North-East	South-East	South	South-West	West	North-West	Centre	Ilfov Bucharest
New products	34,73	45,73	50,47	24,00	39,19	37,50	45,09	38,86
New tehnology	32,82	30,15	33,96	12,00	25,68	23,37	18,75	31,44
New managerial and marketing approaches	25,57	21,11	19,34	42,00	36,49	19,74	19,53	19,21
Informatic System	0,38	0,00	0,00	2,00	8,11	0,00	0,00	1,31
Is not the case	18,70	25,13	16,51	22,00	12,16	28,29	14,84	19,65

Source: „Mediul de afaceri, situatia si performantele IMM -urilor in 2006”, CNIPMMR 2006

Analyzing SMEs through the investment in product, processes or organizational innovation percentage point of view, points out that 30,89% of the investigated firms haven't allocated any percentage of investments to innovation.

**Table 5**

**Differentiating innovation investments depending on the regions SMEs place**

INVESTMENTS WEIGHT DEDICATED TO INNOVATION	SMALL ENTERPRISES GROUPED ON DEVELOPED REGIONS (%)							
	North-East	South-East	South	South-West	West	North-West	Centre	Ilfov Bucharest
0%	30,89	16,06	18,50	25,00	11,27	36,99	25,00	16,75
1-5%	15,85	28,19	20,50	29,55	14,08	13,70	15,83	24,40
6-10%	19,11	19,68	16,00	20,45	26,76	16,44	22,50	20,57
11-20%	13,01	12,23	23,55	11,36	22,54	13,70	25,00	21,05
21-50%	13,01	9,04	12,00	6,82	18,31	13,70	3,33	11,48
Over 50%	8,134	4,79	9,50	6,08	7,04	5,48	8,33	5,74

Source: „Mediul de afaceri, situatia si performantele IMM -urilor in 2006”, CNIPMMR 2006

Small enterprises in the North-East region who invest in innovation are characterized by their investment in innovation and high availability to allocate funds in

this direction compared with other regions, therefore 21,4% of them spend 21% of the total invested in innovation, being the third region after Vest and South-Muntenia.

Regarding the technology transfer, the main method of doing, in the North-East Region was by selling the companies to foreign ones who modernized them and the making process obtaining products of high quality with reasonable prices and high productivity. Nevertheless, this method was applied to few of the companies do to the lack of attractively. The deficiencies in the financial department represent a high problem in the modernizing of their production capacity.

Result have shown that the intensity with witch the Romanian companies innovate and use the information technology are less them medium in the EU, nevertheless it has been shown a notable acceleration in this process in the last 3 years, but to recover this gap assistance and consultation is needed .

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