

## **INNOVATIVE ENTREPRENEURSHIP IN A REGIONAL PERSPECTIVE: AN EMPIRICAL RESEARCH ON ROMANIAN START-UPS**

*Mihai CIOC<sup>1</sup>*  
*Minodora URSĂCESCU<sup>2</sup>*

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### **ABSTRACT**

*This paper offers a concise theoretical framework and a detailed analysis of innovative entrepreneurship, under the influence of three regional factors: strategic vision, entrepreneurial culture, and organizational flexibility. Research findings reveal a number of characteristics of innovative entrepreneurship, providing a solid knowledge base both at macro (for focusing public policies) and micro-level (for enhancing business plans). For a more conclusive approach, at macroeconomic level, the research aimed to assess the general features of all innovative start-ups and spin-offs funded in Romania with EU grants between 2007 and 2013, in correlation with the existing policies at national and regional level, and also with the implementation status of other structural funding programs.*

**KEYWORDS:** *innovative start-up; innovative entrepreneurship; spin-off; EU funds; regional development; business development.*

**JEL CLASSIFICATION:** *O32, O38*

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### **1. INTRODUCTION**

In 2007, considering the insufficient development of the innovation sector, the Ministry of Economy launched Priority Axis 2 'Research, Technological Development and Innovation for Competitiveness', within Sectoral Operational Programme 'Increase of Economic Competitiveness' (SOP-IEC). The purpose of this axis was to enlarge the R&D capacity and to increase businesses' access to RDI by fostering cooperation between R&D institutions and enterprises (NASR 2010). It was estimated that achieving this goal will help in increasing the value of R&D expenditures up to 2% of GDP until 2015. Within Priority Axis 2, in 2008 was launched Operation 2.3.1. 'Support for innovative start-ups and spin-offs', as a measure to stimulate innovation activities of start-ups and spin-offs that create added value based on patented or unpatented R&D results, which are applied or transferred by the respective enterprises. Businesses were selected based on a careful analysis of their business plans (NASR 2010). Within Operation 2.3.1., 147 financing contracts were signed between 2007 and 2013. Overall, this figure reflects a lack of interest of potential entrepreneurs for innovative start-ups, even though the share of grant was 90%, approx. 20-30% higher than other operations within SOP-IEC.

With this, the research aims, on the one hand, to investigate the causes that generated a lower interest for this type of innovative entrepreneurship, and, on the other hand, to carry out an empirical study regarding the competitiveness of innovative start-ups and spin-offs funded within SOP-IEC Operation 2.3.1. The findings of the empirical study may give an explanation for why, between 2007 and 2011, the growth rate of R&D investments in the private sector was only 11.8%, less than half when compared with the public sector (MFA 2014). Finally, the research addresses

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<sup>1</sup> The Bucharest University of Economic Studies, Romania, mihaicioc@gmail.com

<sup>2</sup> The Bucharest University of Economic Studies, Romania, minodora.ursacescu@man.ase.ro

the relationship between entrepreneurial culture and competitiveness of innovative start-ups in Romania, both at the national and regional level.

## **2. LITERATURE REVIEW**

The relationship between innovation and development is in many cases indirect and varies according to some individual characteristics such as company age and size (Corrocher, Cusmano and Lenzi 2012).

On the one hand, at macro-level, national and regional policies must be qualitative. Therefore, policies should not necessarily be oriented towards increasing the number of entrepreneurs, but on the creation of productive entrepreneurs rather than destructive ones (Inci 2013). On the other hand, at micro-level, the strategic sustainability behavior is more likely to stimulate products, processes, and organizational innovations (Klewitz and Hansen 2014). Between macro- and micro-levels, there is a reverse connection, in the sense that entrepreneurship is a driver that enhances capital and fosters institutional change (Baumgartner, Putz and Seidl 2013). In fact, according to Fritsch (2013), the most important effect of innovative start-ups on economic growth comes from spurring the competitive environment.

At the macroeconomic level, competitiveness of start-ups is manifested as a synergistic effect. Some authors (Muñoz, Encinar and Otamendi 2013) appreciate that the aggregate behavior of the economy depends not on the individual entrepreneurial efforts, but on the aggregate effect of how entrepreneurs manage to accomplish their activities. According to Ioniță (2011), "trend of the world economy is to aggregate in networks and sub-networks which get more and more of the attributes of the previous, geographic based, economies". Such a strategic vision must not neglect the social component. Therefore, development of innovative entrepreneurship must start from the 'BOP (Bottom of the Pyramid)' (Pervez, Maritz and de Waal 2013), respectively, from the consumers, beyond just focusing on financial results.

The strategic vision must be developed with the involvement of all stakeholders, including civil society besides the industry, state, and academy, as a 'quadruple helix' (Lindberg, Lindgren and Packendorff 2014). Other authors (Groen, Wakkee and De Weerd-Nederhof 2008) appreciate that the social component is part of a four-dimensional space that influences the development of entrepreneurial initiatives, in addition to strategic capital, cultural capital, and economic capital. This component may generate notable financial returns for the enterprise as well (Pervez, Maritz and de Waal 2013). However, in Romania, the effective development of the social economy is prevented by numerous legal and practical obstacles, such as the lack of legal framework at EU and national level, limited knowledge about social entrepreneurship, and constraints in accessing financing (MFA 2014).

## **3. METHODOLOGY**

By Decision no. 9055 of Feb 18, 2008 (NASR 2008), Romanian authorities launched the de minimis aid scheme 'Support of innovative start-ups and spin-offs', within Sectoral Operational Programme 'Increase of Economic Competitiveness' - Operation 2.3.1. The operation was aimed at supporting the creation of innovative start-ups and spin-offs in pursuit of new products and services. Applicants had to demonstrate that they have the legal right to use the results obtained from the research activity (know-how, prototype, license, or industrial property right).

The research was based on an empirical study conducted on 65 innovative start-ups in Romania, founded by Romanian entrepreneurs through non-reimbursable EU funds between 2007 and 2013. The study used public data available on the website of the National Authority for Scientific Research, including information on grant application submitted and approved within O.2.3.1., and also the public list of contracts totalling €24.78 million signed between NASR, as an implementing

body, and 147 innovative new companies, as beneficiaries. The quantitative and qualitative results of the research were correlated with the existing development policies at regional level, and also with the implementation status of other EU funding programs.

#### 4. INNOVATIVE ENTREPRENEURSHIP IN A REGIONAL PERSPECTIVE

In the European Union and in Romania, each region has a number of features both in terms of entrepreneurial culture and innovation potential. Some authors (Baumgartner, Putz and Seidl 2013) even consider that regional policy is responsible in particular for answering the question 'what is entrepreneurship?'

Romania is divided into eight development regions. Each region is characterised by a certain level of the opportunity cost of innovation and by a number of market entrance barriers for innovative start-ups. As we will show later, between these regions there are also significant disparities in the development of the innovative start-up sector. The research is directed towards identifying the causes generating these imbalances and providing solutions that might be used by policy-makers. Muñoz, Encinar and Otamendi (2013) appreciate the necessity of policies that reduce the opportunity costs of innovation, the direct costs of innovation, and also promoting an innovation culture. For Romania, the slow growth of the share of R&D expenditure in GDP relative to the target of 2% shows that innovation policies must not overstate their impact at the micro-level. Berends et al. (2012) even consider that the failure of many policy interventions targeted at SMEs may arise just because decision-makers assume causal principles in their evaluation criteria. In this context, we may consider that the research results are not exhaustive.

A particular feature of innovative entrepreneurship with non-reimbursable funds is the strong influence of external stakeholders, doubled by the contradiction between their objectives and those of internal stakeholders (Table 1).

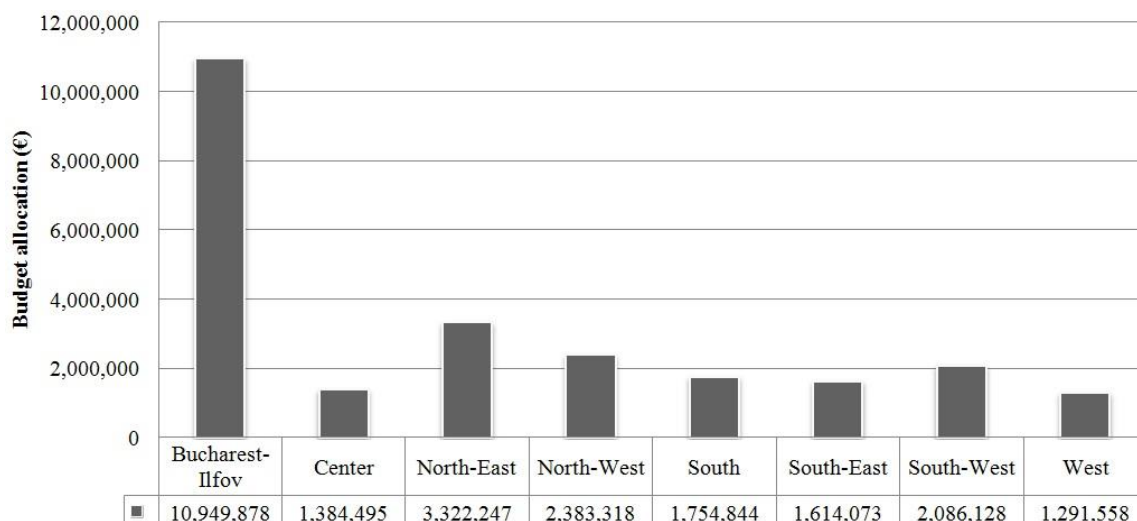
**Table 1 Contradictions between the objectives of internal and external stakeholders**

<i>Criteria</i>	<i>Objectives of internal stakeholders</i>	<i>Objectives of external stakeholders</i>
<i>Relevant stakeholders</i>	<i>Entrepreneurs, management team; project team</i>	<i>Management Authority; Implementation Body</i>
1.Nature of the objectives	Economical	Economic, social, environmental
2.Level of responsibility	High	Moderate
3.Effectiveness formula	(Actual expenses)/(Budgeted expenses) = Optimal	(Actual expenses)/(Budgeted expenses) = 100%
4.Management style	Profit oriented	Bureaucratic
5.Organisational structure imposed	Functional	Project team
6.Human resources	Optimizing staff costs	Creating and maintaining jobs
7.Acquisition policy	Optimizing value for money	Compliance with public procurement procedures

*Source:* authors

Regionally, this contradiction manifests itself differently. On the one hand, it is influenced by the level of specialization of each region, the expertise in attracting European funds, and the development of the business sector. On the other hand, each region applies specific procedures for implementing projects, established by the Regional Implementation Bodies.

In Romania, the innovative start-up sector should be interpreted under the auspices of regional disparities. 44% of financial resources were distributed to the Bucharest-Ilfov region (Figure 1). In this context, one of the main strategic goals of The National Plan of Research & Development and Innovation 2014-2020 is to avoid the excessive concentration of funding in the capital (NASR 2014).



**Figure 1 Regional distribution of innovative start-up grants**

*Source: authors*

At the macro-level, the cost and labour employed in the R&D in businesses (36%) and public institutions (41%) are heavily concentrated in the Bucharest-Ilfov region (MFA 2014). O.2.3.1 evaluation criteria (NASR 2010) had a negative impact on his imbalance, given that no differentiation was made between regions in terms of the maximum share of reimbursable expenses (90% for all projects, regardless of the applicant's headquarter or the location of the investment). By antithesis, other SOP-IEC operations generally grant a supplementary 10% non-reimbursable allowance to other regions than Bucharest-Ilfov, or give extra points when assessing applications from companies in rural or disadvantaged areas, in an attempt to compensate these imbalances. In the last 5 years, the trend was to accentuate regional disparities, given that the share of European funding for innovative start-ups in the Bucharest-Ilfov region has steadily increased from 24.03% (2009) and 34.53% (2010) to 47.16% in 2013.

The imbalance is also reflected by the level of specialization of innovative start-ups in each development region. According to MFA (2014), Romania has a very high level of self-employment (2.1 million, or 25% of total employment) that are associated with subsistence agriculture and with the lack of alternatives rather than with entrepreneurship.

The correlation between the profile of each region and the specialization of innovative start-ups was investigated by considering the overall financial allocation of O.2.3.1 between 2009 and 2013, retaining the top three priority sectors for each region and their share in total subsidies (Table 2).

**Table 2 Regional subsidies for innovative start-ups in priority sectors -Thousand euros-**

Sectors/ Regions	Bucharest-Ilfov	Centre	North-East	North-West	South	South-East	South-West	West
Constructions							168	
Electronics & Automation	1558			358				
Energy & Recycling		177	1045		321			
Food industry						537		185
IT	1763	688		585				333
Nanotechnologies			336		195			
Material Processing				588	536	195		
Health & Medicine	2912	186	514			193	1225	340
Textile & Leather & Wood							168	
Total (priority sectors)	6233	1050	1896	1531	1051	925	1562	857
Total	10950	1384	3322	2383	1755	1614	2086	1292
Degree of specialization	56.92%	75.85%	57.06%	64.22%	59.89%	57.30%	74.86%	66.37%

The most specialised development regions are Central (75.84%) and South-West (74.86%) while the least specialised are Bucharest-Ilfov (56.92%) and North-East (57.06%). Research shows that between grant amount at regional level and the degree of specialization, there is an inverse relationship, meaning that the total investments in innovative start-ups are higher in the less-specialised regions. Microeconomic analysis will explain this situation in terms of concrete economic indicators such as the average cost of R&D job creation or the return on assets. The total level of subsidies reported in the year 2012 was 47.29% of the contracted value of €11.4 million (Table 3).

**Table 3 Grant impact assessment on regions**

Region/KPI	Quantitative KPIs			Qualitative KPIs			
	Gross amount of the grant	Total reimbursements	Expected reimbursements	Share of subsidies in total revenues	Share of expected reimbursements in total expenditures	The ratio between expected reimbursements and total debt	The ratio between fixed assets and the total subsidy
Bucharest-Ilfov	€5,000,750	€1,021,979	€1,344,946	11.74%	14.89%	23.42%	99.01%
Centre	€734,021	€114,422	€223,814	81.14%	82.89%	56.18%	19.43%
North-East	€1,134,662	€311,825	€322,398	64.44%	63.88%	62.94%	25.64%
North-West	€1,263,087	€302,698	€252,028	31.46%	24.94%	31.53%	53.43%
South	€1,248,517	€143,723	€281,812	27.60%	48.74%	30.52%	113.18%
South-East	€781,615	€13,784	€42,091	13.68%	58.11%	25.99%	151.27%
South-West	€727,846	€162,586	€465,458	15.05%	41.18%	111.93%	56.50%
West	€529,740	€141,972	€255,808	29.47%	52.35%	50.30%	83.35%
Total	€11,420,239	€2,212,989	€3,188,355	17.74%	24.47%	33.69%	76.29%

We noticed an imbalance regarding the reimbursement of eligible expenses, meaning that in 2012, due to the resuspension of SOP IEC, the amount of expected reimbursements was 44% higher than the effective reimbursements. Regionally, the most critical situation was registered in South-East (205%), South-West (186%), and Central (95%), while the regions with a good rate of reimbursements were North-East (+3%) and North-West (-17%). Clearly, this indicator has a direct impact on the cash flow of innovative start-ups, also affecting the level of total debt. Furthermore, the high level of expected reimbursements leads to lower profit as the subsidies are taken into account in calculating profits only after the reimbursement.

The impact of unreimbursed expenses is accentuated when the subsidy has a significant share in total revenues, i.e. when innovative start-ups are mainly financed with grants. Globally, this share is acceptable (24.47%), but at regional level we were able to identify certain imbalances. For example, innovative start-ups from the central region are very dependent on subsidies (81.14%), unlike more sustainable start-ups in the Bucharest-Ilfov, for which it is only 11.47%. When this dependence overlaps on a slower settlement of reimbursement claims (ex.: Centre Region), we notice the propagation of other side effects. These effects include a large share of expected reimbursements in total expenditures (82.89% in the Central region) and a high ratio between expected reimbursements and total debt (56.18% in the Central region). On the other hand, less dependence in relation to the grant generated in the Bucharest-Ilfov region a small share of expected reimbursements in total expenditures (14.89%) and also an acceptable ratio between expected reimbursements and total debt (23.42%).

One conclusion that emerges from the above analysis is that innovative start-ups are very sensitive to any policy slippage. The strongest innovative start-ups are those that have managed to finance their expenditures at a rate of 75% from sources other than the grant funding. Start-ups with a share of expected reimbursements greater than 50% of the total expenditures faced major problems of financing, considering that over 50% of total debt was used to finance these expenditures. Given

that a policy aimed at increasing the regional level of entrepreneurship needs enough time and a long-term orientation (Fritsch and Muller 2005), it is recommended that funding programs for 2014-2020 be backed by financial tools to support innovative start-ups that are highly dependent on the implementation of the project idea.

## 5. CONCLUSIONS

Research findings reveal a number of characteristics of innovative entrepreneurship with non-reimbursable financial assistance. These findings provide a solid knowledge base both at macro- (for focusing public policies) and micro-level (for enhancing business plans). The empirical study encourages future research on the perspectives of funding innovative start-ups in Romania and other EU Member States in the new programming period 2014-2020.

A first conclusion is that innovative entrepreneurship in Romania shows little interest, even with government support tools. Entrepreneurial culture, difficulties in capitalising knowledge, and the limited access to financing instruments (loans, guarantees, and risk capital) were the main influence factors of innovative start-up initiatives between 2007 and 2013. However, the general trend reflects a proliferation of innovative entrepreneurship doubled by an improvement in the success rate of grant applications. This rate is still insufficient to ensure a sustainable development within each region.

Another conclusion is that innovative entrepreneurship has developed on the profile of the existing regional disparities in Romania. 44% of financial resources were distributed to the Bucharest-Ilfov region. The research shows that between the amount of the subsidy granted at regional level and the degree of specialization there exists an inverse relationship, in the sense that the global volume of investments in innovative start-ups are higher in the less-specialised regions.

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