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THE ROLE OF EUROPEAN FUNDING IN ACADEMIC SPIN-OFF CREATION: A TRIPLE HELIX PERSPECTIVE FROM A RESEARCH INSTITUTE

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Abstract: The research introduces a novel model, SEEFIM (Strategic Equity & EU Funding Integration Model), with the purpose of improving the survival rate of research-based spin-off ventures. Following the Triple Helix approach, the new framework aims to encourage research organizations to take equity stakes in the new companies, serving as strategic shareholders. Another key innovation in this model is the inclusion of a management team skilled at securing European and government funding. Using a qualitative case study, the research presents three spin-offs established through European grants in the West Region in Romania and the distribution of research organizations in the same region correlated with the number of RBS created in the period 2007-2022. The findings indicate that including up to 25% equity participation of research-based spin-offs and leveraging European funding mechanisms can greatly boost the growth and competitiveness of academic spin-offs.

Keywords: research-based spin-off, equity shares, universities, parent organization.

1. INTRODUCTION

The development of European intellectual property laws has been marked by the gradual abandonment of the "Professor's Privilege" model in favour of institutional ownership. Although often compared to the Bayh-Dole Act in the USA, which allowed American universities to retain rights to federally funded inventions, the European evolution is far more fragmented (Aldridge & Audretsch, 2011; Astebro et al., 2016). The change began in the late 1990s, with Denmark as the first "motor" of legislative reform, followed by a wave of changes across the rest of the continent between 2001 and 2007 (Geuna & Rossi, 2011). Europe has

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largely adopted the Bayh-Dole-inspired model, in which the research organization assumes ownership of intellectual property and, in return, becomes a shareholder in the company.

This new direction of using the scientifical results in industry for commercial purposes, placing universities as vectors in the regional economic innovation framework.

Research-based spin-offs facilitate how universities and research institutions fulfill their ultimate mission by transferring know-how to commercialize it.

In the literature, research-based spin-offs are seen from various angles: as sources of innovation (Di Gregorio & Shane, 2003; Pirnay et al., 2003), vectors of employment (Rosenberg & Nelson, 1994; Shane, 2004), atypical companies promoting regional development (Bercovitz & Feldman, 2008; Fu et al., 2022). This change requires a shift from passive research management to sophisticated governance models for spin-off entities, in which the university becomes a strategic stakeholder. It is highlighted that the UK had the highest number of universities with equity in spin-offs, followed by Italy and Spain (Marzocchi et al., 2019). The phenomenon was boosted a few years ago in the European Union, especially in Slovakia (Dzupka & Vajda, 2014) and Poland (Wnuk & Mazurkiewicz, 2012).

In Romania, structural European funding programs boosted the creation of spin-offs starting in 2007 (Bibu et al., 2017). In 2024, a total of 85 research-based spin-offs were created through the POC program. The number decreased from 119 spin-offs established in the period 2007-2014. Although technological risks are high, academic spin-offs have a 92% survival rate (Schillo, 2018), being much more resilient than traditional firms due to institutional ties. The survival rate of these entities is impressive, legislative fragmentation and fluctuations in the number of registrations (as seen in the Romanian data for 2024 compared to the period 2007-2014) suggest that success depends enormously on the continuity of funding programs and the maturity of the governance ecosystem.

2. LITERATURE REVIEW

The Bayh-Dole Framework, analyzed by Aldridge & Audretsch (2011) and Thursby & Thursby (2011), is widely regarded as the standard for this regulatory model. It authorizes universities to hold legal and commercial rights to inventions developed from government-funded research. This framework aims to ensure that universities protect intellectual property and strategically license know-how.

This model does not guarantee efficacy, which is influenced by other mechanisms integrated in certain regional economic environment.

Central and Eastern European universities operate within a unique set of obstacles related to the invention validation level and the market.

In developed European economies, the inclusion of the university is a sign of quality validation for external investors, reducing perceived technological risk (Marzocchi et al., 2019).

In recent decades, research organizations have shifted their focus from isolated know-how communities to active growth vehicles. To improve their results, they must produce spin-offs and not coordinate research grants and write scientific papers.

Immediate commercialization of technology patents is influenced by the perspective from which the process itself is viewed: as strategic assets that require equity-based measures and placement in other ecosystems for the long run.

The Triple Helix model was introduced in theory to highlight the context of technology transfer, creating synergies among the three core pillars (Hahn et al., 2024):

Universities or research and development centers that provide the main technological results as patents.

i. The economic environment is seen as market validation of the intellectual property with the purpose of generating revenue.
ii. The government, by offering the legislative framework for these new ventures, also provides ways to protect these patents.

In the structure of a research-based spin-off, the allocation of equity among shareholders is the most important management instrument, as it affects stability, the inventor's motivation, and, ultimately, the attractiveness to external investors.

The work of Bolzani et al. (2021) and Hellmann et al. (2023) highlights that the level of equity held by the research organization and the inventor's long-term incentives are the primary strategic factors to consider.

A research organization should hold no more than 25% to avoid a situation in which the level of attractiveness for investors decreases. This excessive stake can discourage external venture capital, thereby hindering the spin-off's growth potential. Another important aspect concerns the preservation of the founder's incentive.

Zahra et al. (2007) and Bolzani et al. (2021) show that the impact of parent equities, correlated with other linkages, influences the spin-off performance.

In line with the research of Mihali et al. (2022) and Bibu et al. (2017), the present study considers it imperative to involve management team members with extensive experience in European funding programs to ensure funding for the research-based spin-off and to move towards a performance perspective.

Making the transition from scientific results to the final products implies that university management staff should serve as designers. A practical spin-off strategy must use equity management, leverage geographical proximity, and target members with capabilities for accessing European grants.

3. DATA AND METHODOLOGY

In 2021, in Romania, the law no. 477/2021 established the methodological norms and mechanisms for research organizations to participate in the creation and development of spin-off companies. (Figure 1).

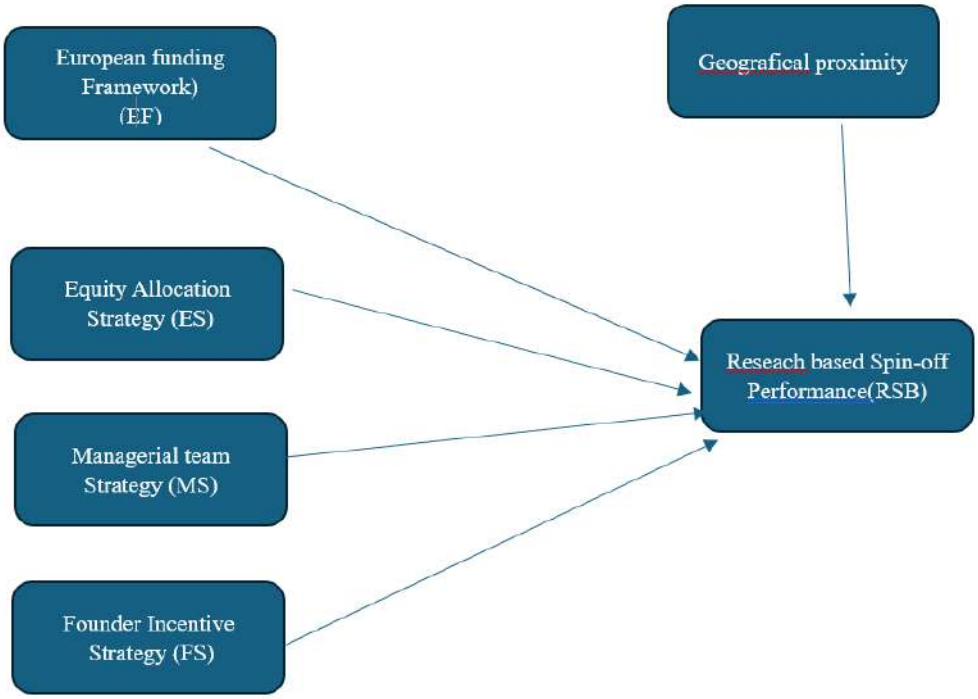


Figure 1. The integrative theoretical model the Strategic Equity and EU Funding Integration Model (SEEFIM) Source: own approach

In 2023, the Law no. 25/2023 amends and complements the legal framework for research and innovation in Romania, particularly Government Ordinance no. 57/2002, which allows research organizations to hold majority control in certain cases

Geographical proximity refers to the relationship of the new ventures with the parent institution in order to have access to infrastructure and technological, social linkages.

The European funding framework (EF) is very important because Romania received grants to establish spin-offs.

The Equity Allocation Strategy (ES) reflects the ownership structure among research organizations, inventors, and other investors with the objective of maintaining investment attractiveness.

Managerial team Strategy (MS) refers to the management team's capability to acquire management skills to access European funds.

Founder Incentive Strategy (FS) means that the inventors must feel they are the primary beneficiaries of their entrepreneurial risks. A strategy that heavily dilutes the founding team in favour of the university or early seed investors risks catastrophic performance drops or the departure of key technical talent.

To validate this model, we use case studies based on 6 interviews with the founders and team management staff, conducted during May-July 2025.

4. RESULTS AND DISCUSSION

This study develops an integrative theoretical model, the Strategic Equity and EU Funding Integration Model (SEEFIM), to explain how universities can improve the survival of research-based spin-offs.

The model is grounded in the Triple Helix perspective, which focuses on the relationship of research institutions, industrial environment, and government. Within this context, universities are not passive knowledge producers and also active vehicles of revenue.

Furthermore, the Bayh–Dole framework specifies the legal framework that allows universities to own intellectual property and participate directly in spin-offs.

The findings of (Iloie & Miclea, 2026) highlight that at a confidence level of 99% research institutes and universities positively influence the creation of research-based spin-offs.

In Figure 2, the distribution of research organizations and RBS in the West Region is presented.

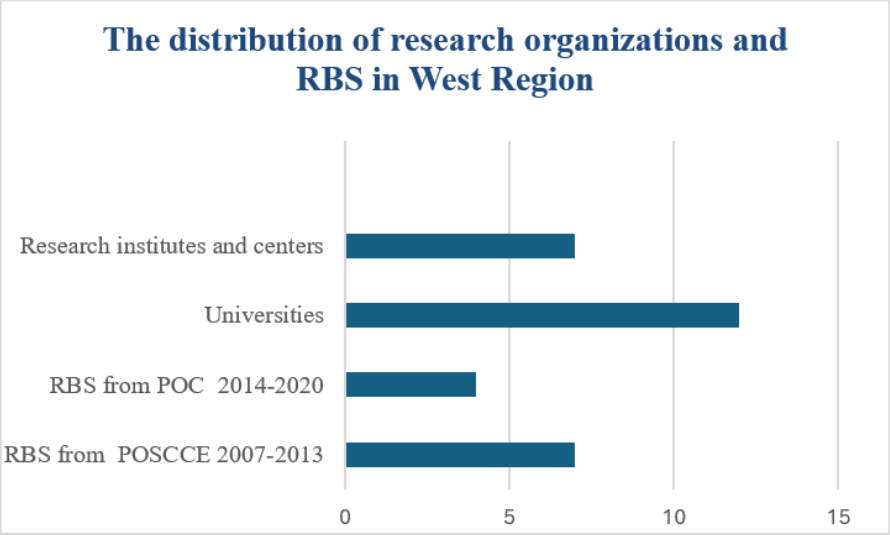


Figure 2. Distribution of research organizations and RBS in the West Region

In the Western Region there are three research institutes subordinated to the Ministry of Research and Innovation (2 in Timișoara and one in Petroșani), two institutes (Cluj-Napoca) and two research centers (Timișoara) under the coordination of the Romanian Academy.

The three research institutes subordinated to the Ministry of Research and Innovation are: INCD in Welding and Materials Testing - ISIM Timișoara; National Research and Development Institute for Electrochemistry and Condensed Matter - INCEMC Timișoara; and National Research and Development Institute for Mining Safety and Anti-Explosive Protection - INSEMEX-S.A. Petroșani.

INCD in Welding and Materials Testing - ISIM Timișoara. The building and land where they operate are owned by a company that was divided into three units, and the other two commercial companies began selling their assets to third parties.

The National Research and Development Institute for Electrochemistry and Condensed Matter - INCEMC Timişoara, was established by the reorganization in 2007 of the Institute of Electrochemistry in Timişoara, the Institute for Condensed Matter Research in Timişoara, the Electrochemistry Laboratory within ICECHIM Bucharest, the ICECHIM Electrochemistry Section in Timişoara.

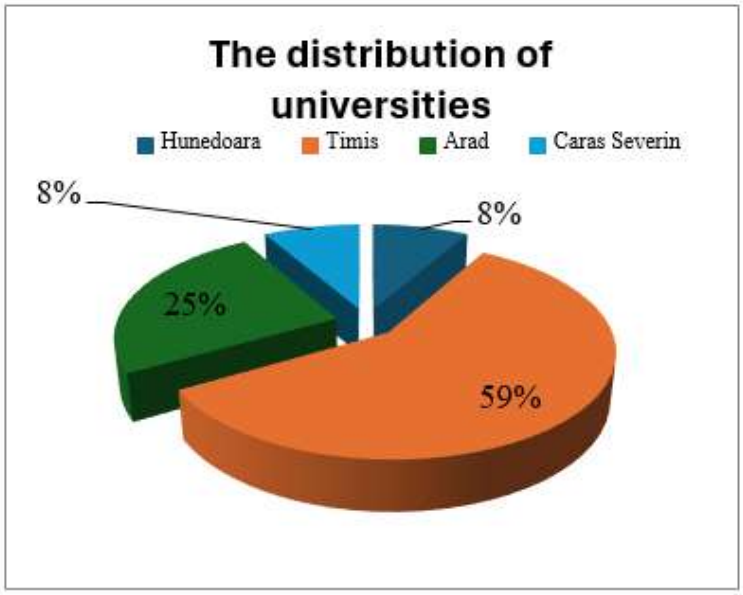


Figure. 3. The distribution of universities on counties in West Region
Source: own approach

Figure 3 presents the distribution of universities on counties in West Region. The majority of the universities are in Timis county.

To outline the dynamics of academic entrepreneurship in Romania, we present three spin-offs (coded RBS1–RBS3) that illustrate different ownership models, technological origins, and growth trajectories (Table 1).

Our qualitative 6 interviews showed that the research-based spin-offs are successful because of balanced ownership levels, in line with Fu et al. (2022).

The first spin-offs were incubated in the institute's scientific park in Timisoara in 2023, aligning with international evidence that infrastructure support increases survival.

RBS 1 is a spin-offs originating from research institutes created under the POC 2014–2020 program, underscoring the significant role of research institutes in generating such entities in the region.

The INO-SEN project, which underpins the company, is funded through the Operational Programme Competitiveness 2014–2020, Priority Axis 1.
The the project contributes to: the West Regional Development Strategy (PDR Vest) 2020 horizon the Integrated Development Strategy of the Timișoara Growth Pole (SIDPCT)

- A research institute in chemistry holds 27% of the company's shares,
- benefiting from the 2021 legislative framework that allows research institutes to become shareholders in limited liability companies (SRLs).

RBS1 represents one of the 10 spin-offs reported for the West Region (Research Institutes / POC 2014–2020), illustrating the practical implementation of innovation and smart specialization strategies outlined in the funding documentation.

Table 1. The main features of the three spin-offs in the establishment phase

RBS Spin-offs	RBS1	RBS2	RBS3
Region	West Region	West Region	West Region
Foundation Year	2022	2016	2008
Structure of shareholders	33%- academic scientist 27%- research institue 40%-privat company	42%- academic professors 28%-private university 30%- privat company	75%-two academic researcher 25%- university
No of Employees (2024)	3	2	1
The field of technology	Sensors for CO2 emissions	Pellets	Custom computer programming services
Parent organization equities in the establishment	27%	28%	25%
Technological ties with parent organization	A patent obtained from a public research institute in Timisoara	A patent obtained in a university in Timisoara	PhD thesis result from a university
Prior entrepreneurial experience of the manager	1 year	15 years	5 years
Academic network ties	It was incubated in a scientific park space within the parent **institute** for its first two years. The management of the company and finance was done by the institute employees. Another patent was	The spin-off implemented a European project with the parent organization. Another patent was submitted in 2020.	The university offered access to the social network. Collaborates with student interns from the parent university

The second spin-off ownership structure shows balanced distribution among academics, a private university, and a private company, reflecting the collaborative models seen in Belgium and Germany (Huyghe et al., 2016).

The third company leveraged the experience of university employees and submitted two European projects to expand into new markets in 2023.(Table 2)

Table 2. The synthesis of the interviews

Variables	Findings
Entrepreneurial experience	Five founders had more than 15 years of experience in managing European projects) business experience (also, while three faced survival struggles due to limited knowledge.
States	Four founders are scientists or professors, while two are entrepreneurs.
Parent support	Seven reported benefits from labs, equipment, or incubation spaces; five highlighted networks and visibility provided by parent organizations.
Main Challenges	Restrictive European rules for grants (5 mentioned), small access market (3 mentioned)
Long-term objectives	Three mentioned that they plan to submit additional projects and will attract team members with extensive experience in European projects.

5. DISCUSSION

The present research focuses on identifying the role played by the close relationship of the research-based spin-offs with the parent institution, the role of the manager's entrepreneurial experience, and the shareholder structure during their stages of development in emergent economies.

Under POSCCE, spin-off creation appears better aligned with regional research capacity in the West Region.

Under POC, the distribution of spin-offs decreased by 0.5%. The difference between the two programs translates into a more competitive environment.

The study demonstrates that institutional density alone does not determine entrepreneurial outcomes in research and innovation. Spin-off ventures require a supportive ecosystem where an industrial mindset and targeted policy support are present.

The research introduces novel insights into the Romanian entrepreneurial ecosystem, where scientific support and team competence are key to accessing government funds.

Furthermore, we outline a theoretical model for university spin-offs, emphasizing how equity participation can outperform traditional licensing by reducing production distortions.

6. CONCLUSION

Academic spinoffs can be considered essential for universities, given their profound impact on regional economic and social development, promoting an entrepreneurial mindset and facilitating the commercialization of scientific advances. This relevance is amplified by the ongoing transition of universities towards an entrepreneurial model, a development that requires the implementation of innovative governance structures to effectively adapt to this ever-evolving landscape. This transition involves not only the generation of new businesses, but also the strategic management of intellectual property and the cultivation of an environment that supports knowledge transfer and innovation ecosystems. Academic spinoffs, specifically, can be a direct manifestation of knowledge generated within the university, the translation of which produces broader economic improvements. This involvement encompasses proactive participation in third-party mission activities, such as promoting spinoffs and facilitating technology transfer, which are integral to a university’s role as an entrepreneurial entity. In this context, spin-offs can be considered essential for demonstrating the societal and economic relevance of academic research, thereby enhancing the university’s reputation and attracting additional funding and talent. Furthermore, they appear to provide a tangible mechanism that facilitates the application of knowledge and skills acquired by students and researchers in practical, market-oriented applications, thereby enriching educational outcomes and promoting a culture of innovation within the academic community. This translates into a direct contribution to economic development by creating high-value-added jobs, stimulating local economies and introducing new products and services to the market. Furthermore, successful university spin-offs can serve as critical instruments for transferring cutting-edge research from academic laboratories into tangible societal benefits, thus actualizing the “third mission” of universities – beyond teaching and research – through direct contributions to economic growth and innovation. This expanded role highlights the transformation of universities into key players in regional innovation systems, frequently going beyond their traditional boundaries to actively participate in the entrepreneurial landscape.

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