

The impact of insufficient national funding on the performance of Romania's National Research and Development Institutes: The need for diversified funding sources

Aurelia-Ioana Biholar

Politehnica University of Timisoara, Romania
aurelia.biholar@student.upt.ro

Nicușor-Alin Sîrbu

The National R&D Institute for Welding and Material Testing - ISIM Timisoara, Romania
asirbu@isim.ro

Ramona-Raluca Stoia

Politehnica University of Timisoara, Romania
ramona-raluca.balau@student.upt.ro

Anca Drăghici

Politehnica University of Timisoara, Romania
anca.draghici@upt.ro

Abstract

Romania's National Research and Development Institutes (NRDIs) play a strategic role in scientific and technological progress, yet insufficient national funding significantly limits their ability to perform at international standards. The lack of consistent and substantial financial support from national programs affects long-term research projects, technological innovation, and the ability to attract and retain top researchers. This article analyses the impact of budgetary constraints on National R&D Institutes' activities and highlights the necessity of diversifying funding sources. It explores opportunities provided by European funds, public-private partnerships, and private sector financing, emphasizing strategies through which these alternatives can compensate for the lack of national funds. In conclusion, the study argues for the importance of more efficient public policies, an adapted legislative framework, and a strategic vision that facilitates access to diversified financial resources, essential for the advancement of research and innovation in Romania, with global impact.

Keywords: Research funding, funding strategies, public policies for research, European funds, research sustainability.

INTRODUCTION

In an increasingly competitive and innovation-oriented global economy, a state's ability to support science and research is no longer a luxury, but a fundamental condition for sustainable development. In Romania, the National Research and Development Institutes (NRDIs) play an essential role in the production of knowledge, the support of technological progress and the transfer of innovative solutions to industry. However, the reality of the last two decades in Romania shows us that there is a prolonged crisis of public funding, which deeply affects the capacity of the research system and, implicitly, of these institutes to fulfil their strategic mission.

After joining the European Union, Romania had access to significant resources for the development of research through programs such as Horizon, Romania's National Recovery and Resilience Plan (NRRP) or cohesion funds. However, the chronic underfunding from the national budget, the lack of a coherent strategic framework, and the low percentage of absorption of European funds have made the R&D field remain a marginalized field in government practice.

This reality generates negative effects in chain: abandoned projects, outdated infrastructure, exodus of researchers and, finally, reduced international competitiveness. In the absence of a stable and predictable funding mechanism at the national level, research institutes are forced to find alternative solutions for survival in the first place, but also for development, becoming dependent on international funding sources and partnerships with the private sector.

This article investigates the impact of budgetary constraints on the activity of NRDIs in Romania and analyses the strategic role of diversifying funding sources to sustainably strengthen the national research system. Starting from a contextual analysis and supported by a relevant case study - The National R&D Institute for Welding and Material Testing (ISIM) Timisoara, this paper brings to attention a critical reflection on the limits of the current governance model and formulates directions of action to transform research from an underfunded sector into a real engine of national economic and technological development, too.

THE CRISIS OF PUBLIC FUNDING IN RESEARCH IN ROMANIA: DEVELOPMENTS, CAUSES AND CONSEQUENCES

Romania in the landscape of research and innovation in the European Union: between potential and reality

In the context of the comparative analysis of the capacity of the member states of the European Union to support and stimulate research and innovation (R&I), Romania is in a vulnerable position, far from the standards set by advanced European economies. Although I think it has considerable economic potential, Romania continues to have a low level of investment in research and development (R&D) activities, a situation that reflects a deficient historical approach, in which these important activities were perceived as a budgetary burden rather than as a useful tool for economic progress.

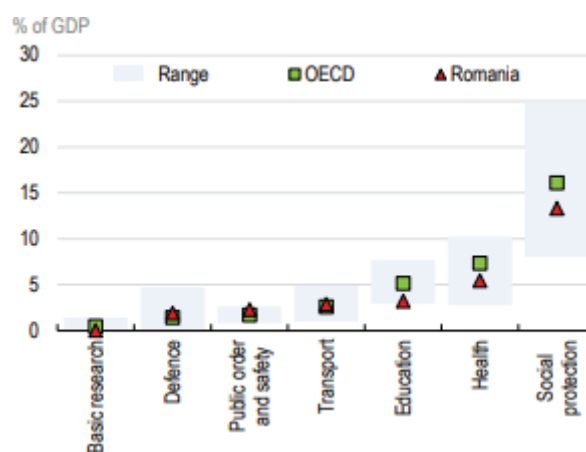
During the post-communist transition period, Romania, like other states in Central and Eastern Europe, faced major difficulties in reconfiguring the R&D system. The lack of a coherent strategy, the limited involvement of the state and the low interest of the private sector have led to stagnation of this essential field. Even in the last decade, there has been no significant progress in terms of the intensity of R&D

investment in relation to Gross Domestic Product (GDP), despite the membership of the European Union and the available funding opportunities (Criste et al., 2024). A study mapping the data for the year 2022 clearly shows this reality: Romania is part of the group of Europe countries that register the lowest values for all three key indicators analysed - GDP per capita, R&D spending (% of GDP) and RQ investments (Criste et al., 2024). This underlines the urgent need for consistent intervention of decision makers. For Romania, the transformation of the R&D field from a consumer of resources into a generator of added value requires the adoption of clear public policies, supported by, first - stable funding and second of all - a functional institutional framework. What is essential is that R&D activities are seen as strategic investments which can support long-term economic growth and strengthen national competitiveness (Criste et al., 2024).

R&D in Romania: chronic underfunding and untapped potential

Romania's economy has shown remarkable resilience in the face of external shocks in recent years, including the COVID-19 pandemic and the energy crisis caused by Russia's invasion of Ukraine. Although economic growth slowed down in 2023, activity remained solid, supported by investments financed from European funds (OECD, 2024). In the context of economic modernization efforts and convergence with OECD standards, R&D continues to be a critical point of the Romanian economy. R&D remains underfunded, fragmented and poorly integrated with the private sector and the entrepreneurial environment (OECD, 2024). According to data included in the 2024 OECD report, gross expenditure on research and development (GERD) is extremely low: only 0.5% of GDP, compared to the OECD average of 2.9%, the share of researchers in the working population is low and investment in research infrastructure is sporadic and most research efforts come from the public and academic sectors, while the private sector contributes modestly, a sign that the system does not sufficiently stimulate applied innovation or public-private collaborations.

Picture 1: General government spending by function



Adapted from OECD (2024, p. 34)

OECD (2024) has listed several structural problems as follows:

- Public funding is volatile, and it is not correlated with strategic priorities. The lack of a clear vision on the priority areas means that the allocated funds are used inefficiently;
- Absorption of European research funds is suboptimal due to excessive bureaucracy, reduced administrative capacity and legislative instability;

- The link between universities, research institutes and the private sector is weak, which affects technology transfer and the patenting of scientific results.

The OECD (2024) points out that without a deep review of R&D policies, Romania is risking being stuck in a "low-tech" economic model, with too little added value, unable to support a sustainable economic growth.

Public financing of R&D in Romania: between budgetary reality and European ambitions

Investments in R&D represent a fundamental indicator of a state's ability to support innovation, economic competitiveness and technological progress. In this context, the Eurostat data published in January 2025 regarding government budget allocations for research and development (GBARD) reveals a worrying context for Romania, which continues to allocate resources significantly below the EU average (Eurostat, 2025). According to the latest data, in 2023, Romania allocated only 25.9 euros per inhabitant from the public budget for R&D activities. This is a value that places Romania in last place in the EU, below Bulgaria (33.1 euros) and Latvia (62.7 euros). The EU average was 275.3 euros per inhabitant, while the leader of the ranking - Luxembourg, allocated 765.3 euros per inhabitant (Eurostat, 2025). This discrepancy reflects not only how chronic the underfunding of the R&D sector is, but also the existence of a public policy vision in which research is not (yet) treated as a national priority.

In the same vein, in the period 2013-2023, Romania registered a modest increase in the budget dedicated to research. While in many European countries' allocations have increased by over 50% (e.g. Poland, Slovenia), Romania is not among the states with a significant evolution. Comparable countries in the region, such as Bulgaria or Poland, have doubled or even tripled their allocations, which further underlines Romania's gap in R&D prioritization (Eurostat, 2025).

ALTERNATIVE FUNDING SOURCES: EUROPEAN FUNDS, PARTNERSHIPS AND COLLABORATION WITH THE PRIVATE SECTOR

The European Commission's 2024 report provides a detailed x-ray on the economic, social and institutional state of Romania, with an accent on the implementation of the reforms undertaken through the NRRP and the use of European funds. Specific challenges are (European Commission, 2024):

- The lack of a stable multi-annual funding framework for R&I;
- Reduced capacity to absorb research funds at the company level;
- Lack of qualified personnel for research activities;
- Insufficient collaboration between universities/public sector and the private sector.

Through NRRP and cohesion policy, Romania has managed to allocate investments and reforms to stimulate innovation, but there is a need for more consistent action to be able to reach the target of 2% of GDP for R&D by 2027. Although Romania has registered significant economic progress in the last two decades, the field of R&I remains one of the most vulnerable and poorly performing sectors. According to the update of the country diagnosis published by the World Bank in 2023, Romania's ability to generate, absorb and capitalize on knowledge is limited by a series of systemic constraints: underfunding, poor integration between relevant actors, lack of qualified personnel and an unpredictable institutional environment.

One of the most obvious challenges Romania's R&D ecosystem faces is the extremely low level of investment in R&D. Available resources, even when they exist, are not managed strategically. The lack of a stable and predictable multiannual budget framework prevents both the continuity of research projects and effective planning at the level of institutions (World Bank, 2023). Collaboration between universities, NRDIs and the private sector is weak and technological transfer mechanisms are underdeveloped. The lack of incentives for applied research and innovation in industry, together with an organizational culture oriented towards survival rather than performance, limits the emergence of a functional innovation ecosystem. The report made by The World Bank (2023) emphasizes that SMEs in Romania are poorly involved in R&I activities, and most firms are far below the EU average in terms of R&D spending, patent applications, or the use of digital technologies.

Romania benefits from unprecedented access to European funds intended for R&I (through NRRP, structural funds and Horizon Europe programs). But low administrative capacity and the lack of a strategic vision negatively affects the absorption of these resources. The report shows us that institutional efficiency and good governance are essential conditions for the efficient use of funds and the stimulation of innovation. Without a consolidation of these components, isolated investments risk not generating a systemic impact (World Bank, 2023).

In the landscape of European R&I policies, Romania is deeply dependent on the financial support of the EU to support its infrastructure and scientific activity. The analysis carried out by Molica and Marques Santos (2024) underlines how the three major funding instruments - cohesion policy, the Horizon 2020/Europe framework program and the Recovery and Resilience Mechanism (RRF) - have combined and complemented each other in supporting regional development in R&I.

In 2014-2020, Eastern European regions, including Romania, absorbed a considerable proportion of the total R&I funds available through cohesion policy - often over 20% of total GERD. In some cases, this proportion exceeded 40%, which highlights a structural dependence on European resources to support scientific activity. By contrast, Romania attracted few funds with the context of the Horizon 2020 program, which are distributed competitively based on scientific excellence. Thus, although cohesion policy provided important support to the less developed regions, the lack of participation in Horizon highlighted the fragility of the innovation capacity of the national R&D ecosystem (Molica and Marques Santos, 2024).

Another analysis was provided by (Militaru et al., 2025) which was structured based on the "Quadruple Helix" (QH) model, which includes: government, industry, academia and the digital environment. Each of these components was evaluated based on some international indicators (e.g. GII, OECD, GEM), with the scope of determining the qualitative technical level (QTL) through the ROMPEDET method - a tool for the comparative evaluation of performance developed in the Romanian management school.

The results for Romania are revealing that (Molica and Santos, 2024):

- Public policies remain poorly implemented and with little impact: Government: QTL = 1135.3.
- University research is poorly supported and collaboration with industry is sporadic: Academy: QTL = 1026.5.
- Romania benefits from great openness to emerging technologies and advanced digital infrastructure: Digital environment: QTL = 2687.9.

THE ROLE OF NATIONAL POLICIES AND REFORMS IN THE RECONFIGURATION OF THE NATIONAL INNOVATION SYSTEM

General overview

A study by Cernat (2024) analyses, through the synthetic control method, the effects that the 2016 research reform had on the country's scientific production and the results are alarming: although the reforms have imposed more demanding standards for academic advancement and scientific publishing, the lack of adequate funding and the historical inconsistencies have led to a significant decline in the total volume of scientific publications and also a massive reorientation towards easy publication channels such as Multidisciplinary Digital Publishing Institute (MDPI) journals.

Reforms prior to 2016 were often cancelled, which created a climate of uncertainty. Publication in low-standard national journals was the norm and the use of conferences as the primary source of scientific dissemination was excessive (Cernat, 2024). The 2016 reform introduced rigorous university promotion criteria, requiring publication in international journals indexed in the Web of Science (WoS) and marginalizing articles from proceedings. However, the government did not accompany this reform with an increase in research funding. On the contrary, budget allocations have fallen drastically, reaching only 0.3% of the national budget in 2022 - the lowest level in recent decades and well below the EU average (1.49%) (Cernat, 2024). This dissonance between formal requirements and available resources has put immense pressure on researchers and institutions without providing them with the means to meet these demands through quality research (Cernat, 2024). Thus, the empirical analysis made by Cernat, (2024) shows that, instead of a qualitative increase in scientific production, Romania registered a global decline in scientific output - estimation suggest that, without the reform, output would have been more than 30% higher -, a collapse of articles in proceedings, from 8156 in 2015 to just 1853 in 2021, an explosion of articles published in MDPI, which came to represent 98.46% of the total increase in articles published in the analysed period and a stagnation of articles published in non-MDPI journals, which indicates a lack of diversification and quality in scientific output. These mutations reflect opportunistic adaptation to formal criteria without a real progress in research quality. Institutions have encouraged publication in open access journals with affordable fees (e.g., MDPI), but without many guarantees of scientific quality. In parallel, issues of academic ethics and plagiarism continued to undermine confidence in the integrity of the system (Cernat, 2024). Furthermore, the research of Cernat, (2024) argues in his study that this situation is not a simple technical failure, but the result of an institutional culture in which informal norms - of the "let it go" type - undermine declared public policies. Although Romania declares that it pursues scientific excellence, its systematic behaviour - underfunding, quasi-tolerance of academic imposture, use of distorted metrics - indicates otherwise.

In the context of increasing attention on the integrity of research, Romania offers a relevant case regarding the impact of national policies on the phenomenon of scientific withdrawals. A recent study of Cernat and da Silva (2025) investigates the evolution of retractions of articles signed by Romanian authors between in the period 2000 - 2022, in relation to research reforms and international editorial practices. The analysis of the 188 withdrawals identified in the period 2000-2022 shows a significant change in the profile of withdrawn publications (Cernat and da Silva, 2025):

- Prior to 2016, most retractions were associated with non-WoS journals (99 vs. 38 WoS);
- After 2016, the ratio reversed: only 16 retractions from non-WoS, but 35 from WoS journals.

This development indicates a shift of withdrawal risk to the area of indexed journals amid intense pressure to publish with "impact factor". The apparent stability of the withdrawal rate in Romania (3.31 before vs. 3.32 after the 2016 reform) is masked by the prevalence of MDPI publications. When these are excluded, the post-reform retraction rate increases by almost 15%, signalling a considerable risk of compromised integrity with quantitative publishing pressure.

In addition, a bibliometric study (Cretu and Grosseck, 2025) based on 10,396 publications which were indexed in WoS between 1975 and 2024 offers a comprehensive perspective regarding development directions, limitations and opportunities in this area. Although the quantity of scientific output has increased considerably since the 2000s, difficulties remain about the quality, the impact and the international integration of this research. A distinctive characteristic of Romanian Educational Research (RER) is the very high share of works published as articles in conference volumes (proceedings): almost 86% of the total of documents analysed. Magazine articles are only 13.6%, and review articles are marginal (only 26 in total). This distribution indicates a predominant orientation towards rapid dissemination rather than the consolidation of knowledge through high-impact peer-reviewed publications. Although the number of citations has increased over the past 20 years, the average citation rate per article remains rather modest, especially for the papers which were presented at conferences. However, there are many Romanian articles that have attracted international attention, especially in the fields of: e-learning, student engagement, teacher burnout, learning styles and competency-based education (Cretu and Grosseck, 2025).

The quality of R&D environment and its impact on entrepreneurial activity in Romania

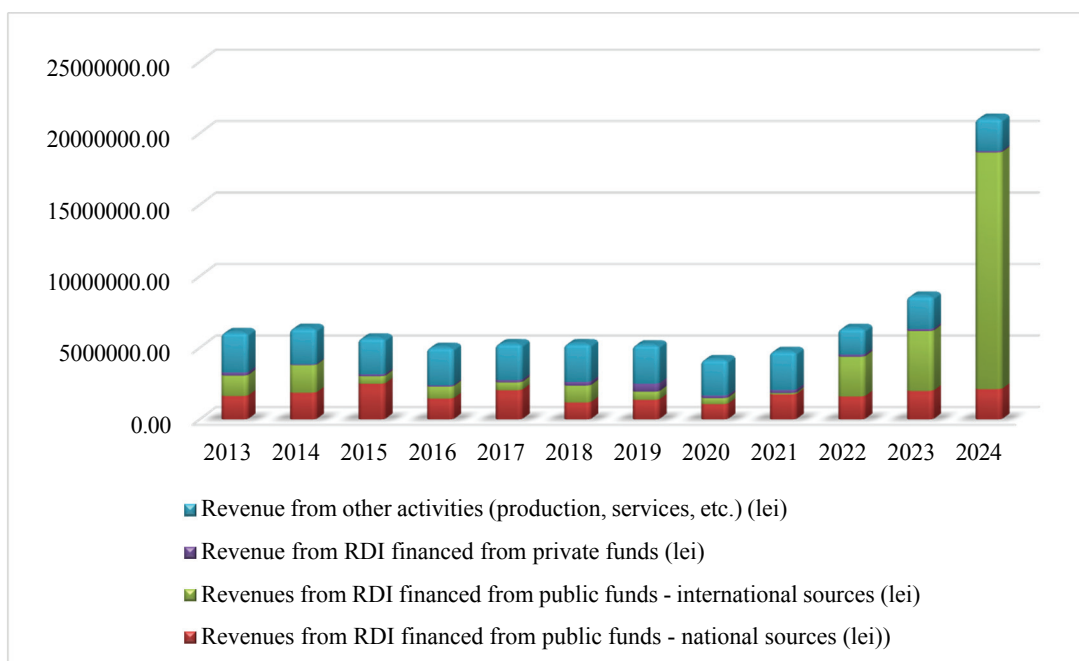
In an economic context increasingly dependent on the ability to innovate and capitalize on research results, as we previously stated, Romania faces major challenges in terms of the efficiency of investments in R&D, but also regarding their transfer to the entrepreneurial environment. Another study shows an empirical analysis on the impact of R&D activities carried out in three different institutional environments: the private sector, the government sector and the university sector. The evaluation is focusing on the relationship between the efforts allocated (inputs) and the effects produced (outputs), analysing both their spatial (comparative) and temporal (effect over time) dimensions.

The analysis made by (Berinde et al., 2024) is based on data collected in the period 2005–2022 from sources such as Eurostat, the National Council of Small and Medium Enterprises in Romania (CNIMMPR) and the World Economic Forum (WEF). The inputs included R&D expenses, their origin (self-financing or not), their distribution in personnel and capital costs, but also the number of full-time researchers. The outputs concerned the performance of the companies: the typology of innovation, the intensity of investment in innovation, the weight of innovation in revenues and indicators of international competitiveness (Global Competitiveness Index). To evaluate the efficiency, Berinde et al., (2024) applied multiple regression analysis and calculated correlation coefficients between inputs and outputs, during a period of four years after the investments were made and the results for Romania in the government (public) sector were the following: a negative impact was registered in the years 1-3, with coefficient values between -0.49 and -0.60, which suggests an initial inefficiency of resource allocations. The positive effect appears only in year 4, with a jump to 0.67, which raises questions about the delay and inefficient management of public resources in this area.

FROM DEPENDENCE ON THE NATIONAL BUDGET TO DIVERSIFIED FINANCING STRATEGIES. CASE STUDY: THE NATIONAL R&D INSTITUTE FOR WELDING AND MATERIAL TESTING - ISIM TIMISOARA

The general analysis of the dynamics of the financing of R&D activities in Romania, which implicitly affects the institutional context of NRDIs from Romania, highlights systemic vulnerabilities, but also emerging opportunities for reform through the diversification of funding sources. To concretely illustrate the positive impact of having alternative funds on scientific and operational performance, this chapter presents a case study centred on The National R&D Institute for Welding and Material Testing Timișoara (ISIM). this case study offers a relevant example of institutional adaptation to the national context of Romania, benefits of attracting European funds and expanding services to the private sector.

Picture 2: Evolution of ISIM revenues by funding sources (2013-2024)



The chart in Picture 2 shows four main categories of revenue sources for ISIM: National public funds; International public funds; Private funds; Revenue from other activities: production, services, etc. The main facts observed are the following:

- Revenues from economic activities (production, services, etc.) represent the most constant and dominant source of income throughout the analysed period. Between 2013 and 2021, these revenues are stable, with values between 2.5 and 2.7 million lei annually. In 2022, a significant decrease is recorded 2.4 million lei, and a slight rebound in 2023-2024, but below prior period levels - a possible effect of the diversification of services to the private sector;
- Revenues from national public funds show significant oscillations during the analysed period. During the period 2015-2017, the level is relatively high, but in 2018-2020 it decreases visibly. After 2022, a relaunch of national financing is observed, but the level still remains below that of previous years.
- Revenues from international funds are modest between 2014-2021. In 2022 there is an important jump (2.77 million lei), signalling a relaunch of ISIM's ability to attract EU funds. There is a

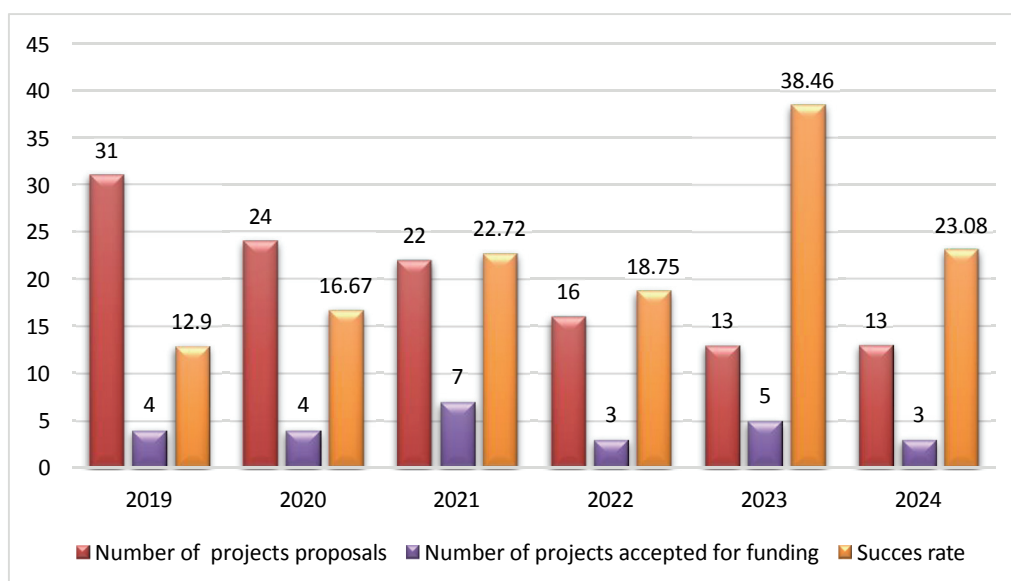
strong increase in 2023 and 2024, reaching the second highest level of all sources in 2024 - a fact that indicates the access to EU or international funds.

- Revenues from private funds are constantly present at a low level in most years of the analysed period. The most visible value is recorded in 2020, but generally these funds do not exceed 10% of total revenues.

ISIM managed through research and development activities, with an average project success rate of 25%, as well as through services and production, to secure both the necessary human resource, which has grown by 60% in the last four years, as well as a stable material and financial base, reflecting a "quasi-economic" operating model, trying and succeeding in compensating for the lack of stable national public funding. Accessing international funds indicates an important strategic change with a positive impact in the context of the lack of national competitions. This reorientation underlines ISIM's management capacity to adapt and capitalize on European opportunities.

National public funding remains fluctuating and after a period of relatively stable support (2016–2018), ISIM suffered from the reduction of national competitions, which shows us the risk of dependence on the state budget. Private funds represent a potential that is still poorly exploited, collaboration with private companies being visible but limited in financial impact. This area could become strategic for diversifying income in the future. The graph in Picture 3 shows the evolution of the following indicators: Total number of proposed projects; Number of projects approved for funding; Success rate (expressed in percentage).

Picture 3: Project success rate [%] for ISIM (2019-2024)



ISIM has demonstrated an adaptive capacity in winning submitted projects, especially after 2021. A progressive reduction in the number of project proposals can be observed, but with a qualitative increase (see 2023). The success rate reaches a historical maximum in 2023 (38.46%), which indicates an institutional maturity in the drafting of project proposals and the selection of competitions. 2024 supports the positive trend, even if it is slightly below the peak level.

The data analysed in the graph on the success rate of submitted projects, correlated with data on the evolution of ISIM revenues by funding sources, show a clear correlation between the efficiency in

winning projects and the income structure of ISIM. This synchronization suggests a direct link between the quality of submitted project proposals and the existence of constant and consistent funding. Also, the decrease in the total number of project proposals, in parallel with the increase in the success rate of them, reflects a selective strategy and focus on viable and competitive proposals, which generates a real impact on the institution's budget. So, the success rate in project competitions is an indicator of financial performance, especially in the context of an underfunded R&D system at the national level. In the case of ISIM, this correlation demonstrates a successful transition to a diversified funding model, in which strategic and intelligent access to European and international funds can compensate for the lack of national resources and can support institutional development in the long term.

The analysis of the Romanian R&D system highlights a rather fragile model, in which NRDIs operate largely under the pressure of insufficient, intermittent and unpredictable public funding. In this context, the lack of a coherent national strategy and the lack of regularly held national project competitions have led to an excessive dependence on state budget revenues and implicitly to a stagnation of the innovation capacity of the NRIs. In contrast to this generalized situation, ISIM stands out as a concrete example of institutional adaptation and financial resilience, reflecting a good practice in terms of diversifying income sources.

CONCLUSIONS AND RECOMMENDATIONS

The analysis of Romania's position within the EU from the perspective of investments in research, development and innovation underlines a deep structural gap compared to member states with advanced economies. The results obtained in the studies confirm that Romania lags European trends, both in terms of the allocation of financial resources for R&D activities, and in terms of the quality of the institutional and regulatory framework that should support this process. To overcome this stagnation and to transform R&I into a vector of sustainable economic development, a strategic and sustained intervention by the Romanian state is more than necessary, as well as an effective mobilization of resources from the private and academic environment. The Romanian state's commitment to research, development and innovation must be confirmed in particular by urgently increasing the level of budgetary allocation for research to a minimum of 2% of GDP, thus avoiding the risk that Romania will remain outside the major circuits of European innovation, lose talents and researchers to other markets and not benefit from the long-term positive impact of research and development on the productivity and competitiveness of the economy.

The increase in the budget allocation of the Romanian state in research, development and innovation must be achieved simultaneously with the approval of co-interest measures of the economic environment to invest in research activities, through packages of fiscal facilities, thus bringing to the same table both the generators and especially the consumers of innovation.

Last but not least, it is necessary for the Romanian state to allocate substantial funds for technology transfer and competitiveness enhancement activities, which should also aim at ranking, from the perspective of the degree of innovation and industrial applicability, the patents and patent applications existing at national level, a useful tool for this being the innoCENTA trading platform, ISIM's registered trademark, which includes over 17,000 patents and patent applications, accessible at www.innocenta.ro, available on Appstore and Google Play in Romania and soon at international level.

The challenges of insufficient national funding could be described as follows:

- Economic crisis and budget constraints - The economic recession has exacerbated the financial constraints faced by Romania's R&D sector, limiting the availability of budgetary resources necessary for research activities. This has resulted in a significant gap between Romania and other EU countries in terms of R&D investment and performance (Sandu, 2010; Sandu & Anghel, 2012);
- Government policy failures - Informational asymmetries and misallocation of public support have led to government policy failures, further hindering the effective distribution of funds for R&D activities (Haapanen, Lenihan & Mariani, 2014);
- Low convergence with EU standards - Despite recognizing R&D as a priority sector, Romania has struggled to align its R&D system with European standards, resulting in a low convergence rate and widening gaps in key R&D indicators (Goschin, Z., Sandu & Goschin, G.-G., 2015).

The following aspects should be considered when the decision-making process is started in the case of diversified funding sources:

- Private sector involvement and support private - public partnerships and collaboration in R&D - Increasing the contribution of the private sector to research & development & innovation (RDI) funding is crucial. Encouraging private investments can help bridge the funding gap and stimulate innovation and economic growth (Mircea-Iosif, 2018; Asandului & Baci, 2010);
- EU funded programs - Leveraging EU-funded programs can provide additional financial support and help Romania close the investment gaps with other EU countries. These programs can also foster the development of a national learning capacity to attract more investors (Coadă & Gogan, 2014);
- Performance-based funding - Implementing performance-based funding mechanisms can ensure a more transparent and efficient allocation of resources, rewarding institutions based on their performance and encouraging higher standards in research activities (Imai, 2022).

Finally, there can be considered potential solutions and recommendations:

- Policy reforms - Reforms in national R&D policies are necessary to prioritize funding allocation and create effective incentives for private sector participation. This includes setting clear benchmarks and performance indicators to guide funding decisions (Sandu & Anghel, 2012; Avram, A., Avram, C. D., & Avram, V., 2014);
- Strategic resource mobilization - Developing strategies to mobilize and utilize limited resources effectively can enhance the performance of RDI activities. This involves setting priorities and designing policies that focus on performance growth and knowledge transfer into the economy (Sandu, 2010);
- International collaboration - Engaging in international collaborations and partnerships can provide access to additional funding sources and expertise, helping to overcome domestic financial constraints and improve RDI performance (Asandului & Baci, 2010).

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