

# SCALING UP ROMANIA

A POLICYMAKER'S  
TOOLKIT

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## INTRODUCTION

This report was prepared under the Romania Startup Ecosystem Strategy project, funded by the European Commission's (EC's) Directorate General for Structural Reform (DG REFORM). This project comes at the request of Romania's North-East Regional Development Agency (NE RDA) and Rubik Hub and comprises the following interlinked deliverables:

- Output 1: Report summarizing inputs for an entrepreneurship strategy (aka "National Startup Ecosystem Strategy") to be developed by the Romanian authorities;
- Output 2: Report summarizing policy and instrument toolkit for implementation of the Startup Ecosystem Strategy (this document);
- Output 3: (Pivoted) Presentation on startup agencies' genesis and recommendations for Romania;
- Outputs 4 & 5: Notes conceptualizing relevant study visits and value-added partnership options for ecosystem events; and
- Output 6: Stakeholder consultations and training workshops.

This report, "Scaling Entrepreneurship in Romania: A Policymaker's Toolkit," presents key considerations for the operationalization of Romania's first National Startup Ecosystem Strategy and constitutes the abovementioned Output 2.

**Romania's entrepreneurship ecosystem remains nascent.** To better understand how to accelerate its development, the World Bank, in partnership with the EC, the NE RDA, and Rubik Hub, launched a suite of activities that included:

- Conducting a diagnostic of Romania's firms and entrepreneurship ecosystem through a combination of publicly available data, reports, and original analysis,<sup>1</sup>
- Conducting a (partial) Public Expenditure Review (PER)<sup>2</sup> to evaluate the design and functionality of Romania's current policy instruments for science, technology, and innovation (STI) with a focus on entrepreneurship;
- Engaging Romania's entrepreneurship ecosystem through a series of Strategy Working Group sessions that culminated in the identification of the "Top 12 Interventions"<sup>3</sup>; and
- Organizing a series of "Ecosystem Showcases" that put a spotlight on the historical and contemporary trajectory of peer and aspirational ecosystems, among many other capacity-building activities.

**Output 1, "Report summarizing inputs for an entrepreneurship strategy (aka the National Startup Ecosystem Strategy)" and this Output 2, "Report summarizing a policy and instrument toolkit for implementation of the National Startup Ecosystem Strategy," are interconnected reports that present key considerations for the operationalization of Romania's first National Startup Ecosystem Strategy.** Output 1 is an evidence-driven analysis of Romania's current entrepreneurship ecosystem as well as a study of innovative firm dynamics. It also summarizes a review of Romania's current policy instruments supporting research, innovation, and entrepreneurship as well as briefly outlines policy recommendations for the entrepreneurship ecosystem. Output 2 presents a mapping of Romania's current policy mix in support of research, innovation, and entrepreneurship as well as a functional analysis of key programs. Output 2 also presents a more detailed consideration of policy recommendations outlined in

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1. See the report "Starting Up: Entrepreneurship Ecosystems in Romania."

2. See Part 2 of this report.

3. See Annex A of this report for the list of the Top 12 Interventions.

Output 1, in combination with stakeholder-driven interventions. Considered together, these reports combine evidence-driven analysis with stakeholder inputs and present the rationale for a comprehensive package of reforms to support high-growth entrepreneurship via the operationalization of the National Startup Ecosystem Strategy.

**Output 2 (this document) comprises two standalone parts:** Part One analyzes the functionality of existing policy instruments. Part Two proposes additional policy recommendations to address deficiencies in the existing policy mix with a view to increasing the entry of high-quality firms and the number of high-growth Romanian firms (that is, firms that successfully scale up).

**Output 3 presents the different establishment pathways followed by entities supporting startup ecosystems with recommendations for establishment of such an entity in Romania.** This builds on the policy recommendation for the establishment of a one-stop agency (or “ecosystem hub”) included in Outputs 1 and 2. This recommendation was ranked second by Romanian entrepreneurship stakeholders on their list of the Top 12 Interventions to build the ecosystem. The objective of establishing a one-stop agency is to address the persistent problem of weak institutional capacity and centralize the entrepreneurship agenda under an institution empowered to implement Romania’s first ever National Startup Ecosystem Strategy.

**Outputs 4 and 5 are presented jointly to conceptualize relevant study visits and value-added partnership options for the Romanian ecosystem.** It does through the discussion of historical trajectories of peer and aspirational ecosystems to guide Romania’s ecosystem as it evolves. This note also surfaces additional organizations and partnerships with which Romania can promote knowledge transfer on how to build nascent ecosystems in the specific priority areas identified by ecosystem stakeholders.

**Output 6 is a presentation that summarizes all the stakeholder consultations and training workshops conducted under this project.** This includes, but is not limited to:

- Ecosystem Showcases (8). Featured Ecosystems include New York City, Boston, Helsinki, Israel, Paris, Estonia, Serbia, and Portugal; and
- Workshops for the project’s core working group on findings from the World Bank’s flagship reports: *High-Growth Firms: Facts, Fiction, and Policy Options for Emerging Economies* (Grover Goswami, Medvedev, and Olafsen 2019) and *Europe 4.0: Addressing Europe’s Digital Dilemma* (Hallward-Driemeier et al. 2020), as well as a workshop on creating a Theory of Change for the National Startup Ecosystem Strategy and “Effective Governance Models for Innovation Agencies” (Aridi and Kapil 2019)..

These activities were undertaken to (i) build implementation capacity of the project’s core working group to draft and implement a National Startup Ecosystem Strategy and (ii) deepen international linkages and networks among key actors in Romania’s entrepreneurial ecosystem with their counterparts in peer and aspirational ecosystems.

## TABLE OF ACRONYMS

COVID-19	Coronavirus disease 2019
CTO	Chief technology officer
CVC	Corporate venture capital
DESI	Digital Economy and Society Index
EC	European Commission
EIDES	European Index of Digital Entrepreneurship Systems
EIF	European Investment Fund
EIS	European Innovation Scorecard
ERDF	European Regional Development Fund
EU	European Union
ESOP	Employee stock options plan
GDP	Gross domestic product
IB	Intermediate body
ICT	Information and communication technologies
IP	Intellectual property
IT	Information technology
KPI	key performance indicator
M&E	monitoring and evaluation
MA	Managing authority
MORID	Ministry of Research, Innovation, and Digitalization
MSMEs	Micro, small, and medium enterprises
NCBIR	Poland's National Center for Research and Development
NE RDA	North-East Regional Development Agency
OECD	Organisation for Economic Co-operation and Development
OP	Operational programme
PER	Public Expenditure Review
POC	Programul Operațional Competitivitate
POCU	Programul Operațional Capital Uman
POR	Programul Operațional Regional
R&D	Research and development
SMEs	Small and medium enterprises
STEM	Science, technology, engineering, and mathematics
STI	Science, technology, and innovation
TRL	Technology readiness level
TTO	Technology transfer office
VC	Venture capital
VCs	Venture capitalists

# EXECUTIVE SUMMARY

Romanian policymakers include all categories of entrepreneurs—including micro, small, and medium enterprises (MSMEs), as well as necessity and opportunity entrepreneurs—in their considerations of “entrepreneurship”. This phenomenon of bundling entrepreneurship under the generalist label of MSMEs is not exclusive to Romania and is observed in other countries. However, it is not always helpful from a policy perspective. At the request of the Romanian ecosystem stakeholders, this report focuses on strengthening the policies, programs, and institutions essential for promoting growth-oriented startups, particularly involving technology or digital firms.

**Our analysis of Romania's current policy mix demonstrates that policymakers do not clearly distinguish between startups and small and medium enterprises (SMEs) and thus the former remain underserved despite their promise.** Startups have many unique characteristics that distinguish them from other firms and SMEs: they are typically young, highly innovative, work with emerging technology, in nascent sectors, and are often still trying to establish a scalable business model. There are fundamental differences between a young startup attempting to scale within a new industry, and an old SME with little growth ambition in a traditional sector: even though they may be the same size, their core characteristics and the resources on which they draw will be quite distinct. For example, the high technical risk or market risk of many startups means that risk finance such as seed or venture capital is often appropriate, but these will not be interested in established firms with no growth ambition. *For these reasons, startups are best considered as a specialist subset of SMEs with particular needs, and hence requiring specific policies, programs, and instruments.* See table 0.1 below for a side-by-side comparison of startups vs SMEs.

**TABLE 0.1** Difference Between Startups and SMEs

	STARTUPS	SMEs
Aspiration	<ul style="list-style-type: none"> <li>Scalable business, high growth</li> </ul>	<ul style="list-style-type: none"> <li>Stable growing business, earn profits</li> </ul>
Growth rate	<ul style="list-style-type: none"> <li>Faster</li> </ul>	<ul style="list-style-type: none"> <li>More gradual</li> </ul>
Risk	<ul style="list-style-type: none"> <li>High technology and market risk</li> </ul>	<ul style="list-style-type: none"> <li>Dominant market risk</li> </ul>
Funding	<ul style="list-style-type: none"> <li>Often seek early and large-scale funding through public support, “friends, family and fools,” and equity investors such as angel, seed or VCs, IPOs, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Self-funded via organic growth or financed from bank loan, public support, “friends, family and fools,” etc.</li> </ul>
Product	<ul style="list-style-type: none"> <li>In search of a unique and profitable business model, often enabled by or related to advanced technologies</li> </ul>	<ul style="list-style-type: none"> <li>Often successful business models and numerous products</li> </ul>
Nature of support	<ul style="list-style-type: none"> <li>Support in the nascent stages and critical first years</li> <li>Focus more on founders' capabilities</li> </ul>	<ul style="list-style-type: none"> <li>Support for mainly established businesses</li> <li>Focus on firm managerial capabilities over founders</li> </ul>
Kind of support instruments	<ul style="list-style-type: none"> <li>Main support from specialized enablers such as accelerators, incubators, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Main support from non-specialized enablers such as enterprise/export development agencies, traditional BDS providers</li> </ul>
Results timeline	<ul style="list-style-type: none"> <li>Results more mid-/long-term</li> </ul>	<ul style="list-style-type: none"> <li>Results more immediate/mid-term</li> </ul>

Note: BDS = business development services; IPOs = initial public offerings; SMEs = small and medium enterprises; VCs = venture capitalists.

**On the cusp of the new European programming period, Romania has a major opportunity to recalibrate its approach to innovation and entrepreneurship policy.** The EU's Recovery and Resilience Facility makes some €29 billion available in loans and grants to support reforms and investments in Romania to mitigate the economic and

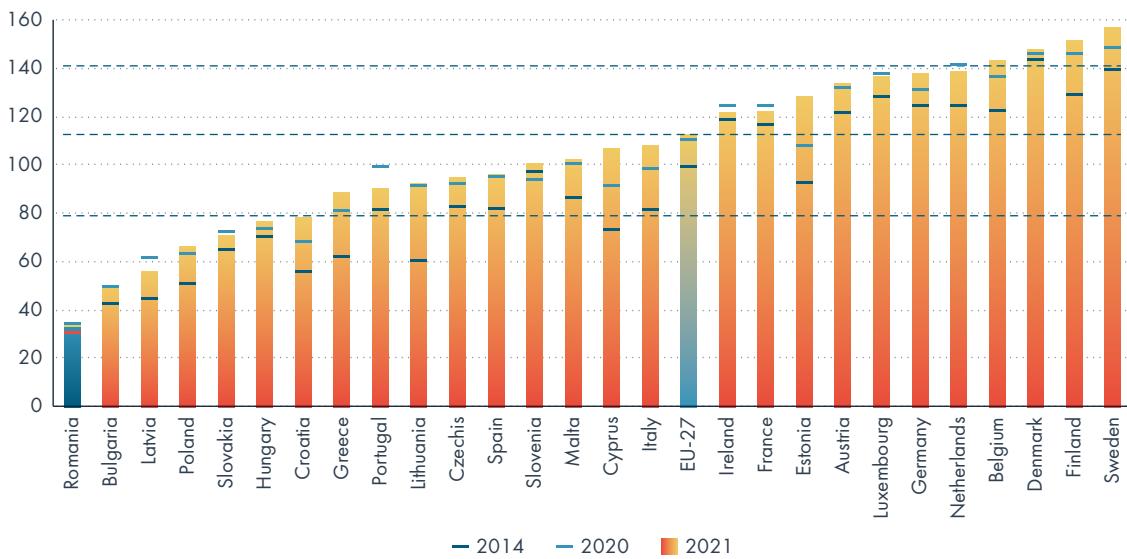
social impact of the COVID-19 pandemic, while €44 billion will finance the Operational Programs under the 2021 programming period. €6 billion of the amount allocated through the Recovery and Resilience Plan are destined to the digital transition while €3.7 billion will finance the Operational Program Smart Growth, Digitalization, and Financial Instruments. The Recovery and Resilience Plan allocated financial resources to modernize the research sector and support the private sector in adopting digital technologies, but gaps seem to have remained—particularly in providing an instrument tailored to the specific needs of innovative firms and startups.

## Insights from the “Starting Up: Entrepreneurship Ecosystems in Romania” Report

**According to the European Innovation Scoreboard, Romania is a laggard in terms of its innovation and entrepreneurship performance.** Romania's innovation performance is also a critical factor when measuring the strength of its entrepreneurship ecosystem. On some measures, the gap between Romania's performance and the rest of the European Union (EU) has widened over the past decade. This review is therefore intended to support Romania in developing and implementing a set of policies that improve the country's innovation and entrepreneurship ecosystem.

**Romania performs poorly on STI vis-a-vis its European peers.** Innovation is a key driver of growth and productivity. However, according to the EC's European Innovation Scoreboard (EIS) 2021—an index intended to measure the overall performance of EU Member States' innovation systems—Romania has the weakest innovation system within the EU (figure 0.1). Performance actually declined between 2012 and 2020 relative to the rest of the EU: the innovation gap between Romania and other countries widened.

**FIGURE 0.1** European Innovation Scoreboard Index 2021



Source: European Innovation Scoreboard 2021.

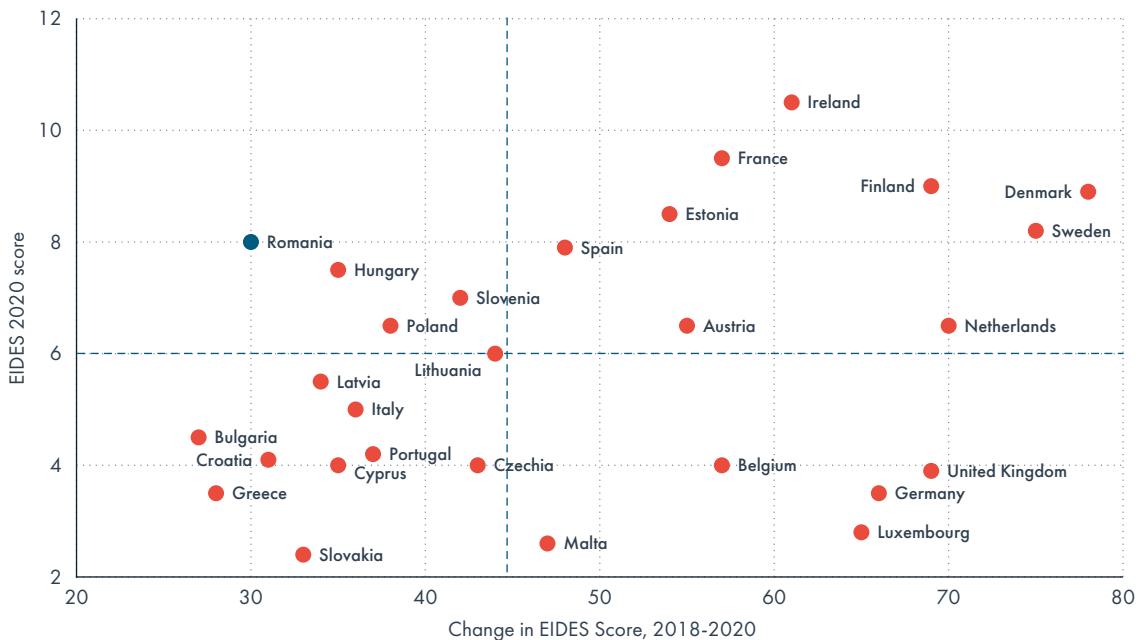
Note: Colored columns show countries' performance in 2021, using the most recent data for 32 indicators, relative to that of the EU in 2014. The horizontal hyphens show performance in 2020, using the next most recent data, relative to that of the EU in 2014. Grey columns show countries' performance in 2014 relative to that of the EU in 2014. For all years, the same measurement methodology has been used. The dashed lines show the threshold values between the performance groups, where the threshold values of 70 percent, 100 percent, and 125 percent have been adjusted upward to reflect the performance increase of the EU between 2014 and 2021. EU = European Union. EU-27 = The 27 EU member states excluding the United Kingdom.

**Romania performs poorly across the board on innovation.** Examining specific components of the European Innovation Scoreboard (European Commission 2021), Romania ranked last for Human Resources (a composite measure based on education), second-last for Attractive Research Systems (a composite measure based on scientific publications), third-from-last for Digitalization (a measure based on the level of digital technologies and includes two indicators, broadband penetration among enterprises and the supply of individuals with above basic overall digital skills; this dimension replaces the European Innovation Scoreboard 2021 dimension

on Innovation-Friendly Environment), fifth-from-last for Finance and Support (a measure based on public sector research and development (R&D)), last for Firm Investments (a measure based on business sector R&D), last for Innovators (a composite measure based on numbers of SMEs innovating), last for Linkages<sup>4</sup> (a composite measure based on collaborative R&D and publication), last for Intellectual Assets (a composite measure based on intellectual property registration), last for Employment Impacts<sup>5</sup> (a composite measure based on employment in knowledge intensive or fast-growing enterprises), and eleventh-from-last for Sales Impact<sup>6</sup> (a composite measure based on knowledge intensive exports).

**Romania also performs poorly on entrepreneurship.** The European Index of Digital Entrepreneurship Systems (EIDES) provides a more specific composite measure of Romania's entrepreneurship ecosystem. This index considers factors relating to culture and informal institutions, formal institutions, regulation and taxation, market conditions, physical infrastructure, human capital, knowledge creation and dissemination, finance, networking and support. EIDES ranks Romania 26th of 28 countries, although this index suggests that some improvement has been made between 2018 and 2020. Research also suggests that time is required to build the factors that contribute to entrepreneurial activity; for this reason, a country's current position on the index may not reflect the recent changes in the ecosystem. Nevertheless, this index suggests a deficiency in Romania's current entrepreneurship policies, albeit with some improvement in conditions since 2018 (see figure 0.2 below).

**FIGURE 0.2** EIDES Scores Against Change in Score 2018 – 20



Note: EIDES = European Index of Digital Entrepreneurship Systems.

**Although firm entry levels are relatively high, the quality of Romanian firms at entry remains an issue, with Romanian firms are also less likely to innovate or scale up compared to their international peers, suggesting deficiencies in the entrepreneurship ecosystem.** Entrepreneurship ecosystems comprise physical capital and infrastructure, human capital, access to finance/capital, regulations, support organizations, and access to markets. Other critical dimensions include culture—including attitudes towards entrepreneurship, knowledge capital

4. Linkages includes three indicators measuring innovation capabilities: collaboration efforts between innovating firms, research collaboration between the private and public sector, and job-to-job mobility of human resources in science & technology.

5. Employment impacts measures the impact on employment and includes two indicators: employment in knowledge-intensive activities and employment in innovative enterprises.

6. Sales impacts measures the economic impact of innovation and includes three indicators: exports of medium and high-tech products, exports of knowledge-intensive services, and sales resulting from innovative products.

and social capital—which can impede or promote knowledge transfer between successful entrepreneurs and nascent startups. While firm entry itself is not a barrier, quality of firms at entry is a concern due to low levels of innovation and scaling up suggesting that there are barriers in the Romanian ecosystem that are preventing firms from achieving desirable outcomes.

**Skilled talent, whether as founders or workers in high-growth firms, contributes to high-quality firms at entry and scale up.** Romania has a high proportion of science, technology, engineering, and mathematics (STEM) graduates, but this is not translating into a high share of R&D personnel in businesses, and many employers see the low-quality skills developed by the graduates to be a challenge. Although STEM training may be necessary for producing R&D personnel, data suggest that it is insufficient. One potential explanation for the gap may be “brain drain” (Gavriloaia 2020). In 2017, a significantly larger share of Romanians with a doctorate, masters, or college degree were living in a state different than the one in which they were born, compared to 2008 (Eurostat 2022). The differences amount to 144 percent between 2017 and 2008. Additionally, employment is a dominant motive among Romanian emigrants (OECD 2019b). While Romania has the fifth largest diaspora group in the world, and this is rapidly growing, this possibly signals continuous concerns about viable domestic employment opportunities.

**Improvement in entrepreneurship quality will also require more market opportunities for young and small businesses, both domestically and abroad.** Barriers are preventing smaller firms from participating in public procurement. Public sector can create an important market for many startups and play a role in stimulating innovation. While recent reforms have improved awareness, current public procurement processes and platforms are still perceived as difficult to access for startups and other small firms. According to the most recent data available (2019), SMEs bid on 35 percent of public procurement contracts but are awarded only 5 percent of them. Regarding access to external markets, Romania has fewer exporters than peer countries and uses a smaller proportion of imports in its exports. Only 17 percent of Romanian firms export more than 1 percent of their sales (compared to 29 percent of Slovakian firms). The use of e-commerce remains low, but uptake of e-commerce platforms has accelerated during the COVID-19 pandemic. Romania saw the share of firms selling online rise to 19 percent in 2020 from 9 percent in 2018. However, there remains vast unrealized potential: less than 20 percent of firms received even 1 percent of their revenue via online sales.

**Access to finance for startups and innovative firms remains a challenge.** Romanian public sector financing mechanisms are not tailored for small firms and startups because they tend to favor post-revenue firms, which may have the effect of supporting incumbents over new entrants. Moreover, equity and debt financing for research and development remain below the EU average (European Commission 2017).

**Romania's regulatory environment is not optimized for entrepreneurs and startups.** This includes reforms to Romania's company formation process, supporting distressed businesses, improving the ease of exiting a business, investing into startups, and intellectual property (IP) protections. This is because policymakers do not clearly distinguish between startups and SMEs and thus the former remain underserved by the existing regulatory environment (and policy mix).

**Though entrepreneurship is accorded reasonably high social status, increasingly considered a desirable career choice, and widely promoted by the media, Romania ranks low on indicators of social capital.** Low social capital, which has been observed by the EU (European Commission 2017), is also evident in the ecosystem where stakeholders reported siloed networks and limited collaboration and connectedness between stakeholders, reinforcing the perception of ecosystem fragmentation. There also appears to be a limited “give back” mentality in Romania.

**“Intangible” entrepreneurial factors, such as risk appetite, attitudes towards entrepreneurship, and cultural mindset, are difficult to shift, though policymakers can ensure regulatory frameworks create an enabling environment for startups and entrepreneurs to start, scale up, and/or exit.** Romanian authorities have introduced numerous policy instruments to support innovation and entrepreneurship. These ought to be revisited with the view to confirm to what extent they support the important issues identified in terms of entry and growth of specifically high-growth firms. Part One analyzes the functionality of existing policy instruments. Part Two proposes additional policy recommendations to address deficiencies in the existing policy mix with a view of increasing the number of high quality and high-growth Romanian firms.

**This report is divided into two main parts.** Part One examines Romania's Instruments for Entrepreneurship and contains analysis conducted by the World Bank team. It culminates with recommendations to improve the functionality of the Romania's policy instruments. Part Two presents Policy Recommendation Notes for consideration as operational elements accompanying Romania's National Startup Ecosystem Strategy. These could easily serve policymakers preparing Romania's future science, technology, and innovation (STI) policy mix for the upcoming EU financing perspective. Most of the policy recommendations presented in this report overlap with the Top 12 Interventions identified by the Romania entrepreneurial ecosystem, revealing significant alignment between the analytical findings and the demand for policy by key ecosystem stakeholders. Please see *Annex A. Top 12 Interventions Identified by the Romanian Entrepreneurial Ecosystem* for an overview of the Top 12 Interventions. At the request of the North-East Regional Development Agency (NE RDA), two additional Policy Recommendations are included within, "Scale up through exports" and "Implementing Startup Visas". The team recommends additional analysis to inform a "Transform Public Procurement" recommendation that improves domestic market access for startups.

## Part One

**Part One provides an analysis of Romania's STI policy instruments related to entrepreneurship.** Innovation and entrepreneurship are key drivers of growth and productivity. An appropriate and effective portfolio of policy instruments relevant to innovation and entrepreneurship is thus important in driving economic growth, creating high-quality jobs, and increasing living standards, all of which are important objectives for Romania as it continues to advance its development. This analysis leverages the first two modules of the World Bank's Public Expenditure Review (PER) framework (Correa 2014; Cirera and Maloney 2017).

**Part One is composed of two sections: an analysis of the current policy mix followed by a closer examination of the functioning of selected Romanian STI support programs.** The first section (the "policy mix analysis") examines the numbers and expenditures of the portfolio of instruments with regard to their objectives, types of intervention, beneficiaries, and so on. The second section (the "functional analysis") assesses the functionality and governance of selected Romanian STI support programs. This exercise has its limitations because it was based on incomplete program data, a limited number of interviews and secondary research undertaken between late-2020 and mid-2021, and had to make several assumptions. However, it follows closely the methodology of the first two stages of the PER and provides reasonable indications both on the relevance of the policy mix and program functionality. This review did not cover instruments managed by the European Investment Fund (EIF) or look in detail at the public funding of research, IP regulations or technology transfer. Thus, Part One indicates areas where additional data collection and analysis would be needed to confirm some of the initial findings on STI presented in this report. Nevertheless, the analysis clearly identifies several areas where there is scope for improvement. Particularly, it makes suggestions about reforms to the overall policy mix and gaps in support, as well as issues relating to the design, implementation, and overall governance of instruments.

### Key Findings: Policy Mix Analysis

**The current portfolio of policies is highly concentrated.** Significant resources are devoted to a few instruments, and a 'long tail' of much smaller instruments that are likely to be operating below their optimum scale. Rationalizing or scaling some of these smaller instruments ought to be considered.

**Most instruments have multiple top-level objectives.** For example, some instruments combine productivity improvement objectives with job creation objectives. This may suggest a lack of clarity in the design of instruments. Together with the large number of small instruments, this suggests that few are likely to target important objectives, and some are likely to be ineffective.

**There are gaps in intermediate-level objectives.** We recommend the development of instruments that address management practices, linkages with foreign firms, and market access, as a means of achieving top-level objectives.

**There are important gaps in support for entrepreneurs and early-stage startups.** There is little specialization among instruments focused on the private sector. We recommend the development of more targeted instruments for early-stage, pre-profit, startups, and individual entrepreneurs—as well as the intermediary organizations that

support such startups, such as incubators and accelerators. Some “entrepreneurship” instruments may reinforce the role of incumbents rather than encourage the growth of innovative startups.

**Most instruments have multiple intervention mechanisms.** Different mechanisms typically require different capabilities that are not complementary and are rarely found in one agency or office at the same time. We recommend that instruments that invoke multiple mechanisms simultaneously be reviewed.

**Grants are the dominant intervention mechanism.** This may be appropriate in a relatively under-developed innovation and entrepreneurship ecosystem. However, it is important to remember that not every element of the ecosystem can necessarily be resolved through public money. In Romania missing complementary aspects likely merit inclusion of other kinds of financial instruments and technical assistance.

## Key Findings: Functional Analysis

**Logic models are consistently weak.** The analysis found a persistent weakness in the logic models (or theories of change) of instruments. Developing and articulating these models should enable better accounting of inputs and activities by managing authorities (MAs), as well as improved targeting of the instrument. It should also prompt ideas for alternative instruments and mechanisms, which would assist with rationalization of the portfolio and the development of a wider range of mechanisms.

**Instruments' budgets were often mis-sized.** This suggests that some rationalization—or expansion of the more successful programs—may be warranted.

**Instrument-level evaluation needs to be improved.** Evaluation is currently stronger at the Priority Axis level. Improved evaluation at the instrument level would also support rationalization of the portfolio by providing information about which instruments should be scaled up and which may need to be discontinued.

**Administrative burdens for many beneficiaries are still high.** There has been a significant effort by managing bodies to simplify the application processes for support schemes and reduce the bureaucracy for applicants. However, there are still indications that these processes remain overly complex for applicants. For example, the fact that startups and SMEs often need to hire consultants and advisors in order to apply for government support schemes is an indicator that the application processes are overly complex. Notably, this may have the effect of shifting support away from the earliest stage resource-scarce firms, where it is most needed.

**Bureaucratic burdens for administrators are also significant.** Auditing of instruments (multiple times) appears to impose a significant burden on administrative teams. Bureaucratic friction is likely to be increased by the structure of many instruments, which have both an MA and a separate intermediate body (IB); this may be a necessary condition of some European funding but is unlikely to be optimal.

## Policy Recommendations

**Part Two presents evidence and stakeholder-driven policy recommendations separated into Notes for consideration as inputs into Romania's National Startup Ecosystem Strategy.** These Notes will form the basis of a comprehensive package of policies to be considered for implementation by the Romanian Authorities. While Part One presents recommendations on how to improve Romania's current policy and instruments mix for STI with a special focus on entrepreneurship, Part Two presents details on the kinds of policies, programs, and institutions that would be needed to implement a high-growth entrepreneurship ecosystem. Many of the policy recommendations presented in this report overlap with the Top 12 Interventions identified by stakeholders of the Romania entrepreneurial ecosystem, revealing consistency between the analytical findings and the demand for policy by key actors. Upon final consultation with the NE RDA, two additional Policy Recommendations were included as Notes, “Scale up through exports” and “Implementing Startup Visas.” The recommended approach to implementation draws upon a wider review of the literature on the impact of programs to support entrepreneurship, including the World Bank's *A Practitioner's Guide to Innovation Policy* (Cirera et al. 2020).

The policy recommendations are categorized by:

- Policies—legislative reforms and regulations to create an enabling environment for entrepreneurship, particularly high-growth firms to thrive.
- Programs—financial and non-financial support that targets entrepreneurs, firms, and other ecosystem actors.
- Institutions—the entities and rules that are critical to govern the implementation of the national entrepreneurship agenda.

The table 0.2 below illustrates the categorization. It is possible for policy recommendations to span two or three categories given their foundational and cross-cutting nature, as indicated by table 0.2 below.

**TABLE 0.2** Categorization of Policy Recommendations

Refocus attention on starting and scaling high-quality innovative firms Improve governance & functionality of existing instruments		
Policies	Programs	Institutions
<ul style="list-style-type: none"> <li>• Recalibrate the policy mix for starting and scaling high quality innovative firms and improve the functionality of instruments</li> <li>• Reform Regulations to Strengthen Entrepreneurship &amp; Investments</li> <li>• Improve Entrepreneurship Education</li> <li>• Incentivize innovation to foster knowledge spillovers into the private sector</li> <li>• Promote the Digital Economy</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthen Ecosystem Enablers</li> <li>• Create a Startup Fund</li> <li>• Build and Promote a Network of Romanian Founders &amp; Diaspora</li> <li>• Implement Startup Visa Program</li> <li>• Scale-Up through Exports</li> </ul>	<ul style="list-style-type: none"> <li>• Establish a one-stop agency or “ecosystem hub”</li> </ul>

Source: World Bank Group.

## Part Two contains elaborations on the following 11 policy recommendations

### Policies

1. Recalibrate the policy mix for starting and scaling high quality innovative firms by (a) Improving the functionality of instruments, and (b) Implementing a comprehensive package of reforms tailored to high quality innovative firms (that is, the National Startup Ecosystem Strategy).
2. Reform regulations to strengthen entrepreneurship and investments refers to initiatives that ease starting and exiting a business; incentivizes appropriate sources of financing into startups; and addresses Intellectual Property (IP) protections.
3. Implement Startup Visas refers to immigration incentives to attract skilled talent and investors.

### Programs

4. Strengthen ecosystem enablers refers to a pilot program to build capacity and deepen networks and linkages of Romanian ecosystem actors.
5. Create a Startup Fund refers to establishing a fund that directly invests into riskier stage firms.
6. Build and promote a network of Romanian founders and diaspora refers to leveraging exposure and expertise of successful founders and diaspora to advise on critical issues such as market access and resources.

7. Scale-up through exports refers to initiatives to help Romanian startups access international markets.

## Institutions

8. Establish a one-stop agency or “ecosystem hub” refers to the formation of a centralized institution to implement programs and policies identified under the National Startup Ecosystem Strategy and the Startup Fund.

## Policies, Programs, and Institutions

9. Improve entrepreneurship education and strengthen the role of universities in the ecosystem refers to human capital related measures to improve the quality of Romanian startups.

10. Incentivize innovation to foster knowledge spillovers into the private sector refers to ensuring startups and firms can benefit from R&D infrastructure.

11. Promote the Digital Economy identifies three subcomponents for consideration by Romanian policymakers. They are (i) promoting e-commerce platforms; (ii) increasing digital skills; and (iii) improving managerial capabilities to enable technology adoption.

These recommendations also identify prioritization (or sequencing), time sensitivity, and “quick wins”<sup>7</sup> (see table 0.3.). Our codification reflects the following:

- *Mission critical* refers to activities that are (i) extremely time sensitive because the government is currently designing the new programming period, which provides an opportunity to embed critical policy recommendations; and (ii) lay the groundwork for the implementation of complementary *Flagship* recommendations in the future. If these recommendations are not immediately prioritized and programmed, Romanian Authorities risk not supporting these for another programming cycle.
- *Flagship* refers to critical programs that should be undertaken to further development of Romania’s emerging entrepreneurship ecosystem.
- *Foundational long-term* refers to essential complementary activities, that are not exclusively in the domain of entrepreneurship policy, and that require a longer-term horizon to bear fruit.

**TABLE 0.3** Prioritization of policy Recommendations

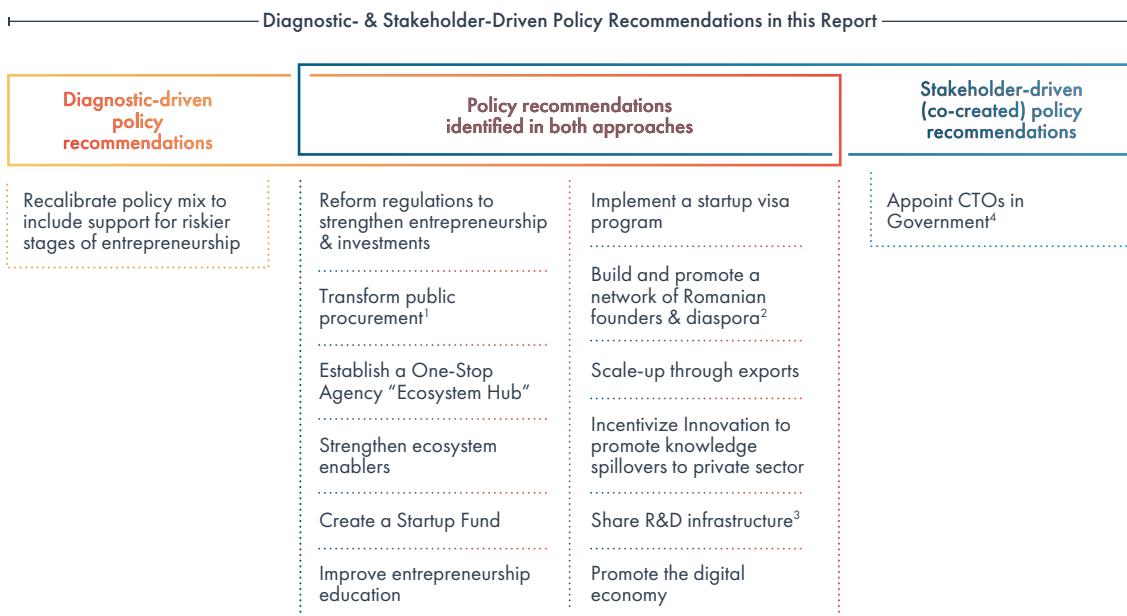
Policy Recommendations	Prioritization	Time Sensitive	Quick Win
Recalibrate the policy mix for starting and scaling high quality innovative firms by (a) Improving the functionality of instruments, and (b) Implementing a comprehensive package of reforms tailored to high quality innovative firms	Mission critical	Yes	Yes
Reform regulations to strengthen entrepreneurship & investments	Mission critical	Yes	Yes
Establish a one-stop agency or “ecosystem hub”	Mission critical	Yes	Yes
Strengthen ecosystem enablers	Flagship	Yes	
Create a startup fund	Flagship		

7. This refers to whether it is visible, has immediate benefit, and can be delivered quickly.

Policy Recommendations	Prioritization	Time Sensitive	Quick Win
Improve Entrepreneurship Education and strengthen the role of Universities in the ecosystem	Flagship	Yes	
Implement Startup Visa Program	Flagship	Yes	Yes
Build and promote a network of Romanian founders and diaspora	Flagship		
Scale-up through exports	Flagship		
Incentivize innovation to foster knowledge spillovers into the private sector	Foundational longterm	Yes	
Promote the digital economy	Foundational longterm	Yes	

Figure 0.3 illustrates the overlap between evidence- and stakeholder-driven policy recommendations. Our analysis and interventions identified through the bottom-up strategy development process identified several similar policies, programs, and institutions. The major value addition of the data-driven diagnostic stems from the analysis of public instruments supporting STI and entrepreneurship, which identified an urgent need to recalibrate the policy mix and improve its functionality. the Romanian ecosystem also identified the need to appoint chief technology officers (CTOs) in government. While we concur with this recommendation, the authorities need to prioritize several other foundational interventions for the CTO recommendation to be fruitful.

**FIGURE 0.3** Overlap between Evidence- & Stakeholder-Driven Policy Recommendations



*Notes:*

1 This recommendation is incorporated into the "Reform regulations to strengthen entrepreneurship & investments" intervention

2 This recommendation overlaps with an activity identified under the "Scale-Up through Exports" stakeholder-driven intervention

3 This recommendation is incorporated into the "Incentivize Innovation to promote knowledge spillovers to private sector" intervention

4 We concur that this is a critical recommendation but there are many other foundational aspects that need to be prioritized given the foundational nature of this activity

**Estimated total costs for all proposed 11 interventions.** (See table 0.4.) The breakdown is as follows:

**TABLE 0.4** Estimated Costs for Proposed Policy Recommendations

Activity	Estimated Cost (€)†
1 Recalibrate the policy mix for starting and scaling high quality innovative firms by (a) Improving the functionality of instruments, and (b) Implementing a comprehensive package of reforms tailored to high quality innovative firms	15 million
2 Reform regulations to strengthen entrepreneurship & investments	2.6 million
3 Establish a one-stop agency (or “ecosystem hub”)	12.05 million
4 Strengthen ecosystem enablers	14.5 million
5 Create a startup fund	61 – 111 million
6 Improve Entrepreneurship Education and strengthen the role of Universities in the ecosystem	38.5 million
7 Implement a Startup Visa program	750,000
8 Build and promote a network of Romanian founders and diaspora	2.5 million
9 Scale-up through exports	7.325 million
10 Incentivize innovation to foster knowledge spillovers into the private sector	246 million
11 Promote the Digital Economy	150 – 300 million
Total	550.225 – 750.225 million



## PART ONE

# **AN ANALYSIS OF ROMANIA'S POLICY MIX AND FUNCTIONALITY OF ITS ENTREPRENEURSHIP PROGRAMS**

## CHAPTER 1

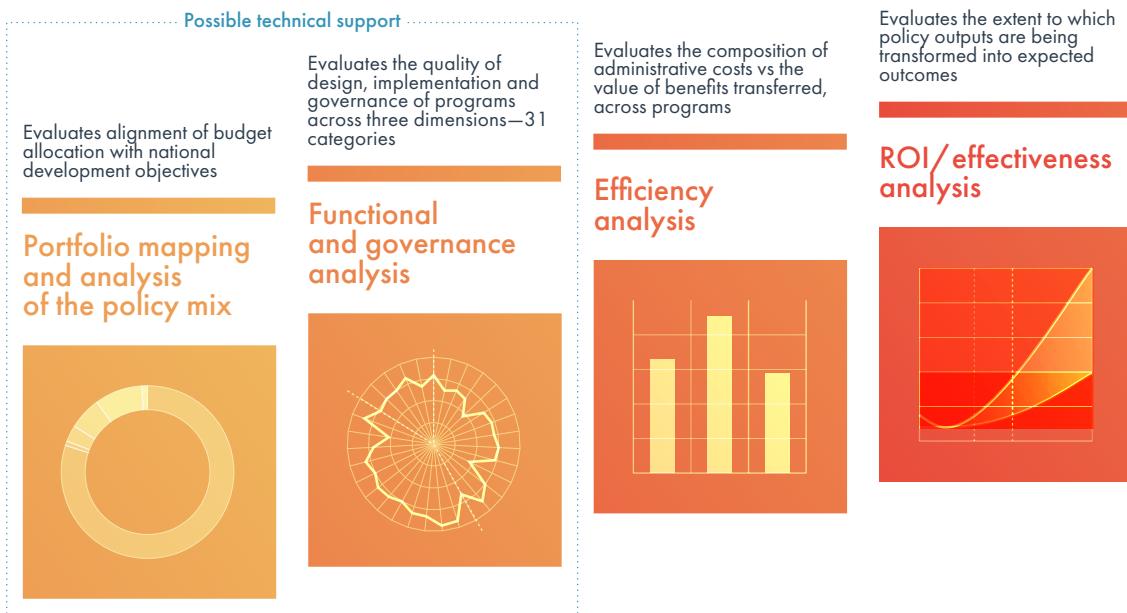
# OVERVIEW

**Comprehensive and targeted policy can help stimulate entrepreneurial activity, giving rise to economic growth, innovation and job creation.** An appropriately tailored portfolio of policy instruments can encourage and support the needs of a given entrepreneurship ecosystem. However, poorly designed public instruments can displace or inhibit private initiative and innovation. It is therefore important to undertake periodic reviews of the policy mix, specific instruments, its targets, and recalibrate this based on the evolving needs of the entrepreneurship ecosystem.

**Part One of this report reviews Romania's instrument set in support of entrepreneurship.** Entrepreneurship support is a subset of the broader set of science, technology, and innovation (STI) instruments. The report follows the first two modules of the World Bank's Public Expenditure Review (PER) methodology, which is aimed at determining the quality of government measures to enhance the competitiveness of the country's economy.

**The full PER in STI consists of four main components.** They are (1) STI portfolio mapping and analysis of the policy mix; (2) functional and governance analysis; (3) efficiency analysis; and (4) effectiveness analysis. The modular methodology was refined in several analogous PER exercises in other European Union (EU) countries and beyond, including Bulgaria, Croatia, and Poland. It was calibrated to support EU authorities throughout the lifecycle of financial perspectives, from planning through mid-term program calibrations to post-programming impact evaluations. When fully implemented, the STI PER documents the quality of the state's interventions in STI and its ability to enable the achievement of the social, economic and cultural objectives of the nation. The complete PER methodology with all its modules is illustrated in figure 1.1 (Correa 2014; Cirera and Maloney 2017).

**FIGURE 1.1** Schematic of the PER Stages



Source: World Bank Group

Note: PER = Public Expenditure Review; ROI = return on investment.

**Part One, Analysis of Romania's Existing Policy Mix and Functionality, includes the first two modules of the four-stage PER:** (1) the policy mapping and policy mix analysis, and (2) the functional and governance analysis.

**Due to data limitations, the conclusions offered within are preliminary, yet indicative of reality.** Some conclusions are substantial enough to suggest potential policy improvements in the areas of entrepreneurship, innovation, and research and development (R&D). However, owing both to limited data availability and access to public program managers, most findings need more in-depth investigation to fully ascertain the public policy consequences of what is observed. This consideration is essential to keep in mind when interpreting the conclusions presented at the end of this portion of the report.

**Romania's science, technology, innovation, and entrepreneurship system performs poorly, with significant opportunity for stronger public policy intervention.** Innovation is a key driver of growth and productivity. As presented in the Introduction, Romania has the weakest innovation system within the EU, as measured by the indicators of the European Innovation Scoreboard (EIS) (European Commission 2021). In fact, performance declined between 2012 and 2020 relative to the rest of the EU: the innovation gap between Romania and other countries widened. It follows that there is significant room for improvement in Romania's current STI policies. On the current trajectory, the existing policies will be insufficient to close the innovation gap between Romania and other EU states.

## 1.1 DEFINITION OF “INSTRUMENT”

**The PER STI methodology distinguishes public policy “instruments” by their causal mechanisms.** The PER focuses on specific public interventions in STI. The definition of a public policy “instrument” is based on the causal mechanism that the intervention invokes to produce the desired changes in the given area of interest. The definition of instrument used here may differ from the nomenclature of the Romanian government. The definitions used in the regulations serve to identify budget categories that allow a clear reference to the fiscal order. The definition used here is based on the need for the PER methodology to associate budget categories with effects on society and the economy. Doing so requires distinguishing instruments by means of the causal mechanism by which the desired results are expected to occur.

**Scholarships for postgraduate studies abroad are one example.** In order to increase the population of highly qualified people with world-class experience, the state offers scholarships for postgraduate studies abroad for national students. The intervention, a subsidy in the form of a scholarship in this case, allows students to cover the high costs of their studies. In return, the country receives the benefits of the contributions of these graduates when they return. In this case, the mechanism for granting scholarships with the transfer of resources involved is an instrument of the state's STI policy. Its implementation operates under the assumption that the country will not have the human resources in the necessary quantity and quality for its development unless it intervenes with the scholarships, and that these students will return to the country following their studies.

## CHAPTER 2

# POLICY MIX ANALYSIS

## 2.1 PURPOSE

**This section covers the first module of the PER of STI policy in Romania.** It includes policy measures in the areas of entrepreneurship, as well as areas of innovation and research and development (R&D) that are potentially relevant for entrepreneurship. This also allows policymakers to understand entrepreneurship with the backdrop of the broader STI policy mix.

**The budget analysis examines the relationship between expenditures and objectives.** In the budget analysis of the policy mix, the focus is on the relation of the expenditures in each instrument and the entire set of instruments (that is, the “policy mix”) with the patterns of objectives, types of intervention, beneficiaries and the features of firms, in the case of instruments aimed at the private sector. This analysis provides a baseline for the interpretation of further stages of the PER in STI policy.

## 2.2 METHOD

**The first step was to compile a list of relevant instruments and programs involving public resources.** This list explicitly included sub-national (regional), national, and supra-national (EC) sources, provided that the instrument was at least partially administered within Romania and the recipients themselves were within Romania. This long list included several programs from the Programul Operațional Competitivitate (POC), a 2014-20 program supported by the European Regional Development Fund (ERDF) and intended to increase competitiveness and economic development by improving information and communication technologies (ICT), research, and innovation; the Programul Operațional Regional (POR), a regional development program in Romania, also supported by the ERDF, whose purpose is the development of infrastructure and business environment; the Programul Operațional Capital Uman (POCU); the European Program for the Competitiveness of Small and Medium Enterprises (COSME); and the European Investment Bank (EIB). This stage did not, however, include block funding to universities and research organizations for basic research, nor did it include all European Investment Fund (EIF) funding.

**Programs were then filtered for relevance.** Having compiled the list of programs, these were filtered for their relevance for entrepreneurship. Only programs with direct or indirect relevance to entrepreneurship were included. Thus, programs that supported private sector digitalization were retained, for instance, because some of these programs might benefit digital startups. However, programs relating only to digitalization of government were excluded.

**Budget data was extracted from available documents and estimates are likely incomplete.** This data was based on publicly available documents concerning the relevant instruments, as well as mySMIS, a common data portal for many of the European-funded programs. The data set was not complete, with some programs having no identifiable budget data. It is therefore important to note several caveats: first, data might be skewed by external reporting factors. Second, where programs had no budget data identifiable, estimates were made based on past programs or other sources, which might be inaccurate. Third, some programs covered a wide range of activities including entrepreneurship; in such cases, the proportion of spending that was relevant was estimated based on numbers reported by the managing authorities (MAs) at the operational program level. Fourth, some instruments targeted multiple analytical categories such as multiple firm sizes or multiple objectives; where this was the case, the total budget of the instrument was divided equally between the components.

**Budgets were standardized over time.** The years of implementation for instruments were standardized assuming that the starting year was the year of the first call, and that the end year was the projected end year (with EU funds running to 2023, as per regulations, unless otherwise stated). The total budget of the instrument was then divided evenly by the number of years from the start year until the projected end year. The resulting averages were multiplied by the number of years passed since launch and summed up in the case of multiple calls. Although we recognize that the real spending profile of many programs is unlikely to be spread uniformly in this way, this average allows an approximate comparison of budgets for programs of different lengths. We also recognize that, in the case of instruments with multiple calls, there is an issue regarding overlapping calls; the methodology may lead us incorrectly to assume that a greater proportion of the budget is spent in years where calls overlap.

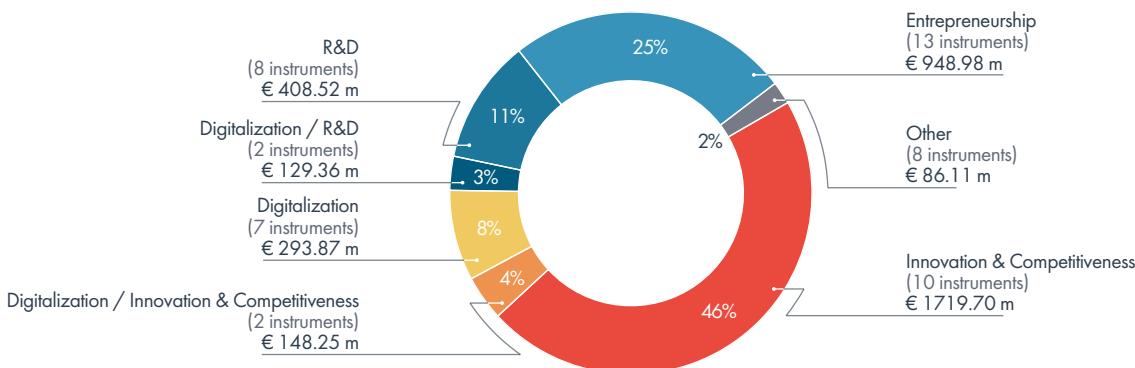
**Conclusions should be considered carefully.** Given the various caveats about the data and the process, the level of accuracy is not 100 percent. Therefore, analysis and recommendations made within this report should be treated with caution, even though they tend to mirror reality.

## 2.3 FINDINGS

### 2.3.1 BUDGET

**The overall policy mix comprises some 50 instruments with a budget allocation over €3.7 billion.** These figures relate to the total budget allocation, including European funds (but excluding EIF investments) over the period under consideration. The available data for sources of funding shows that EU funding versus national funding is received in approximately a ratio of 3:2. This includes national co-financing and private sector funds that may be leveraged by public funding, although this ratio should be interpreted cautiously because there are missing official values for several national instruments.

**FIGURE 2.1** Distribution of Estimated STI Public Budget Allocation in Romania by Top-level Objective, 2014–20, in € Million and %



Note: Policy mapping of 50 instruments (2014–20), of which 13 were affiliated with entrepreneurship, 11 were affiliated with digitalization, 12 with innovation and competitiveness, and 10 with R&D. Primarily European Structural and Investment Funds (ESIF) and national funds.

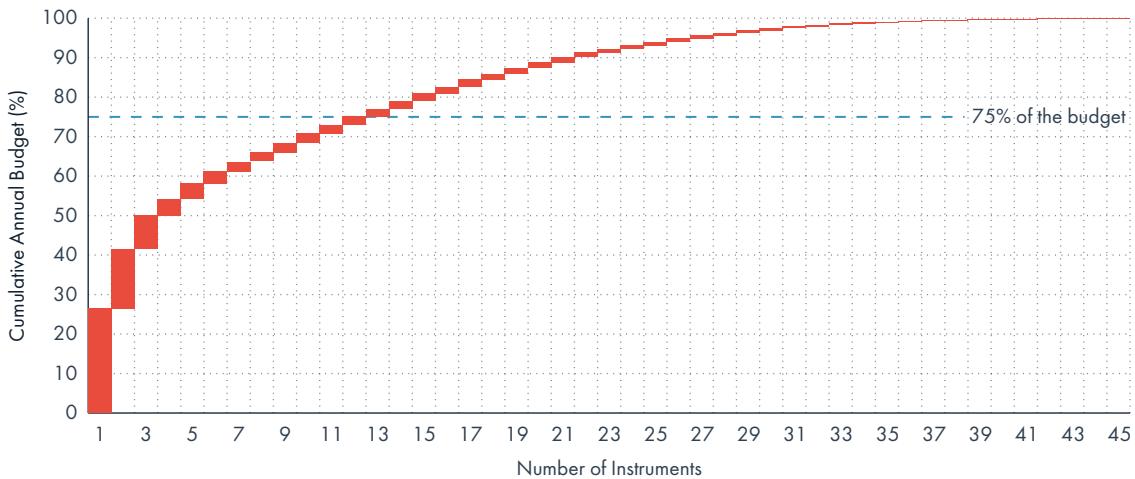
**A little over one-quarter of the policy mix has entrepreneurship as its core objective.** Thirteen of the 50 instruments, with a related total budget allocation of €949 million, have entrepreneurship as an explicit goal. The remaining three-quarters of the policy mix relate primarily to innovation & competitiveness, R&D, or digitalization. These, however, may be considered indirectly relevant to entrepreneurship or the development of the broader ecosystem.

**Standardizing STI budgets over time provides an estimated annual budget allocation of €577 million.** As discussed above, instruments vary in duration. If one adjusts for this, dividing each instrument's allocated budget over the instrument's years of operation and then summing these, the average total annual budget amounts to €577 million. (Alternatively, if one presumes that all spend will occur within the current seven-year funding period, as used for EU instruments, then the annual expenditure may instead be estimated at around €534 million.) This assumes that the budget of each instrument is distributed equally over their years of operation. It also assumes that all instruments are operating concurrently, which is representative of the most recent period under investigation (2019–20), but not necessarily for earlier years.

**Low absorption means that this is likely an overestimation of actual expenditures.** The fact that a budget has been allocated does not mean that the amounts were actually spent or that the projects consummated. It is common knowledge that Romania has very low absorption rates—that is, the proportion of budgets that are actually spent in time. This occurs for several reasons, including a lack of suitable institutional capacity at various levels. Data from October 2020 indicates that this absorption rate was only 34.7 percent for programs administered by the Human Capital Program (POCU), 31.8 percent for the Regional Operational Programme (POR), and as low as 26.5 percent for the Competitiveness Operational Programme (POC). In what follows, we have typically referred to the *allocated budget* because this better reflects governmental priorities. However, it should be noted that the *actual* expenditure on innovation and entrepreneurship are likely much lower due to the low absorption rate.

**There is a high concentration of resources in a few instruments.** The graph below illustrates the cumulative annualized budget, sorted from largest to smallest instrument. It shows a significant concentration of allocated financial resources in a few large instruments. The three largest instruments—one under the *Programul Ajutoare de stat pentru finanțarea proiectelor pentru investiții* and two under the *Programul Operațional Regional* (POR)—account for half of the annualized budget. Three-quarters of the total annualized expenditure is directed towards roughly a quarter of the total number of instruments analyzed in this exercise.

**FIGURE 2.2** Cumulative Annualized Budget by Number of Instruments



Source: World Bank Group

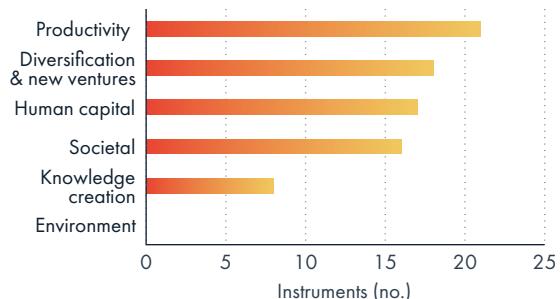
**A corollary of the high concentration of resources in a few instruments is that there are many small instruments that may not have the scale necessary to have an impact even if they are well designed and implemented.** Although it is not unusual to find such a distribution of budgets—a similar pattern is found in other countries—it is important to recognize that, at the individual instrument level, the smaller instruments may represent a disproportionately large administrative effort. More than half the instruments in this set involve less than €5 million average annual expenditures.

### 2.3.2 OBJECTIVES

**In terms of general objectives, the profile of the policy mix seems focused on developing the business ecosystem.** Twenty-one (21) instruments focus on productivity improvements, 18 on new ventures and diversification, and 17 on skills and jobs. Knowledge creation, however, is represented by less than half the number of instruments focusing on other objectives. Furthermore, there are no entrepreneurship instruments focusing explicitly on the role of startups in addressing environmental or climate change objectives.

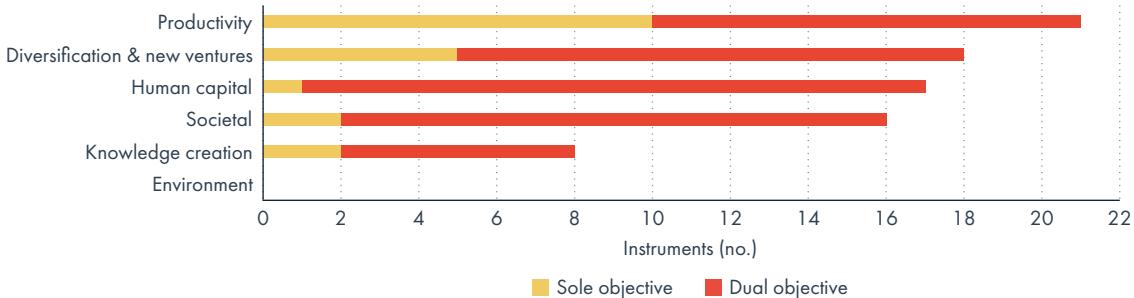
**Most instruments focus on multiple general objectives.** Thirty of the 50 instruments in this set are focused on two general objectives simultaneously. The instruments focused on social development and human capital objectives are the ones that most often share their aim with another objective (Fig. 2.4). In other words, there are very few instruments that focus solely on these objectives exclusively. On the other hand, about half the instruments that focus on productivity, do so exclusively.

**FIGURE 2.3** Instruments by General (Top-Level) Objective



Source: World Bank Group

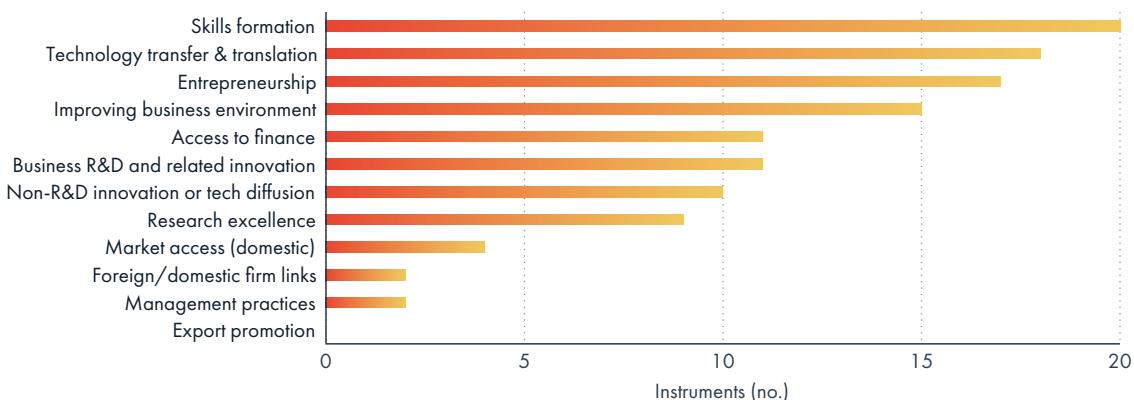
Note: Instruments can have multiple objectives.

**FIGURE 2.4** Number of General Objectives Supported by Instruments

Source: World Bank Group

**It is also possible to classify instruments according to more specific objectives, which may be considered as the intermediary route by which the general objective is to be achieved.** For example, an instrument might have the ultimate goal of improving productivity, and approach this via improving management practices, or technology adoption, or something else. Note that although some of the specific objectives are likely to be more closely linked with some of the general objectives than others, they are not necessarily subsets of the general objectives.)

**The most common specific objectives are technology transfer, skills formation, business environment improvement and entrepreneurship, but many instruments have multiple specific objectives (figure 2.5).** Between 15 and 20 instruments include one of the top four as their specific objective. On the other hand, management practices, linkages with foreign firms, and market access are addressed by very few instruments (fewer than 5 for any one of them).

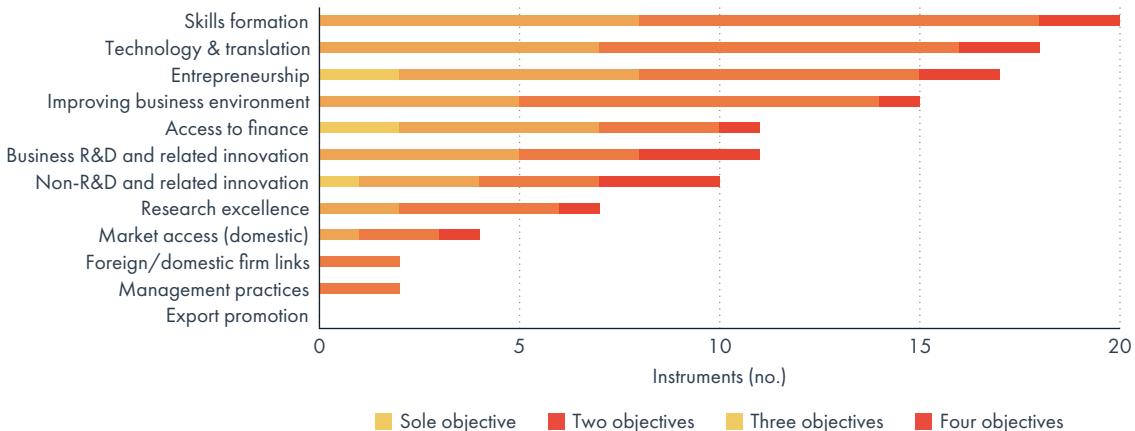
**FIGURE 2.5** Instruments by Specific (Intermediary) Objective

Source: World Bank Group

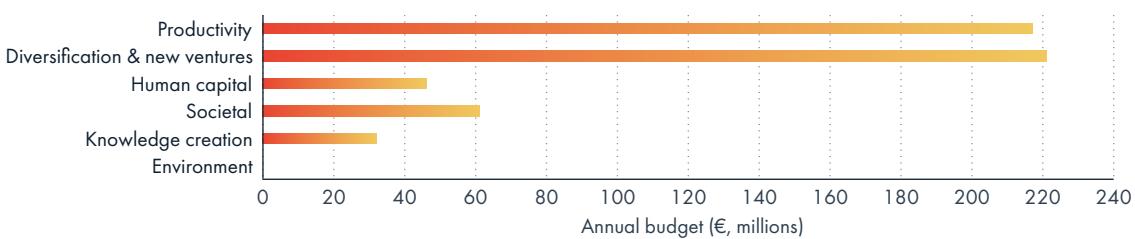
Note: Instruments may be counted more than once.

**Many instruments have multiple specific objectives, and several instruments have four of them.** Although skills formation and technology transfer may seem to be the two most common objectives for instruments, *none of the instruments are strictly dedicated to these objectives*.

**The lion's share of the resource allocations (around three-fifths of the total budget) goes to two general objectives: productivity growth and diversification/new ventures.** The other objectives reflect a small fraction of the annualized expenditure. Thus, the distribution of expenditures by general objective reveals a significantly different picture from the one produced by the number of instruments per objective. About as many instruments are dedicated to societal development and human capital as to productivity growth and diversification/new ventures; however, the budget dedicated to the instruments focused on societal development and human capital is much smaller than the budget dedicated to the instruments that focus on productivity and diversification.

**FIGURE 2.6 Instruments by Specific Objective (Sole versus Mixed)**

Source: World Bank Group

**FIGURE 2.7 Annual Budget by General Objective**

Source: World Bank Group

Note: Where instruments have multiple objectives, the budget is split evenly across them.

**Two specific objectives receive large shares of the budget expenditures: (a) non-R&D innovation with technology adoption and diffusion and (b) access to finance (figure 2.8).** Technology transfer, improving the business environment, and entrepreneurship follow at about half the size of expenditures of the larger ones. Other specific objectives receive significantly smaller budget allocations. Thus, the distribution of expenditures by specific objectives shows a significantly different pattern from the distribution of the number of instruments by specific objectives.

**FIGURE 2.8 Annual Budget by Specific Objective**

Source: World Bank Group

Note: Where instruments have multiple objectives, the budget is split evenly across them.

### 2.3.3 TYPES OF INTERVENTIONS

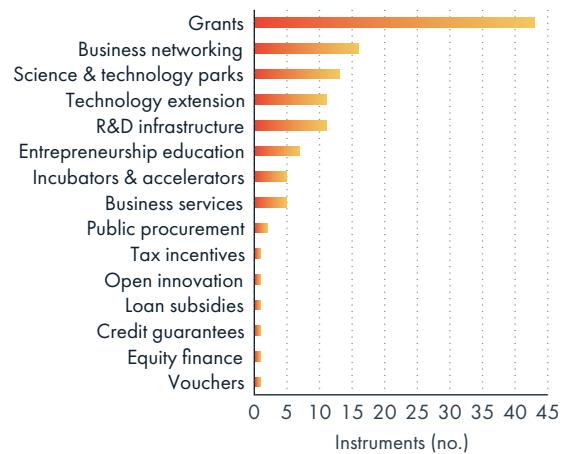
**Grants (including matching grants) are the preferred method of intervention.** Forty-three of the 50 instruments are in this category (figure 2.9). The type of intervention represented by each instrument is an important feature of public policy, and the combination of types of intervention reflects the multiple causal mechanisms that the government's strategy invokes to obtain the desired STI results: if the distribution by objectives indicates what public authorities want to achieve, the distribution by types of intervention indicates how they are acting. (See appendix B for a more complete description of these classifications.)

**Several instruments use more than one intervention mechanism simultaneously.** In some cases, the use of multiple intervention mechanisms may be associated with the fact that several instruments are centers or organizations that contain multiple types of intervention within them. However, this is not the case for all instruments; other instruments are not centers or organizations but nevertheless have multiple intervention mechanisms. This pattern of multiple intervention mechanisms per instrument is consistent with that observed in other less developed innovation systems.

**For example, the largest instrument invokes three different intervention mechanisms: vouchers, tax incentives, and infrastructure.** These are not easy to manage together given the different assumptions in each. Vouchers are instruments to purchase R&D services performed by another entity selected by the beneficiary. Tax incentives apply to the beneficiaries for their own performance of R&D. Infrastructure financing is a supply side instrument for public goods (research facilities in higher education institutions, for example). This combination is highly unusual. Another example is the fifth largest program in the portfolio—2.1.B Incubatoare de afaceri (POR 5)—which provides not only grants but also business services, early-stage infrastructure, collaborative networks and education for entrepreneurship. In this case, because the purpose of the instrument is to set up incubators, the funding to set it up and the incubators' activities are included as specific objectives. This case is less problematic, but the reporting confuses the level at which the intervention operates. The only valid mechanism in this case is the grant. Networking and training, for example, are not carried out by a government agency. It could be the case that the grant to set up incubators is provided in combination with training, networking and business services by a government agency. In that case, the intervention would be a portfolio and would have to be designed as such. The evidence does not suggest this is the case for this intervention.

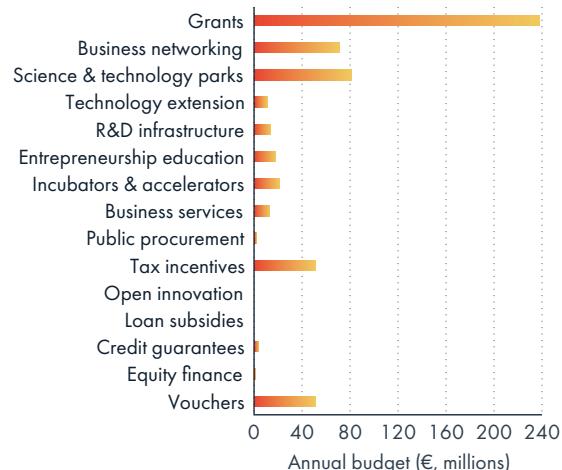
**Grants also dominate the budget.** The distribution of resources (Figure 2.10) again confirms the dominant role of grants, with science & technology parks, business collaboration networks, vouchers, and tax incentives leading in importance.

**FIGURE 2.9 Number of Instruments by Type of Intervention**



Source: World Bank Group

**FIGURE 2.10 Estimated Annual Budget by Type of Intervention**

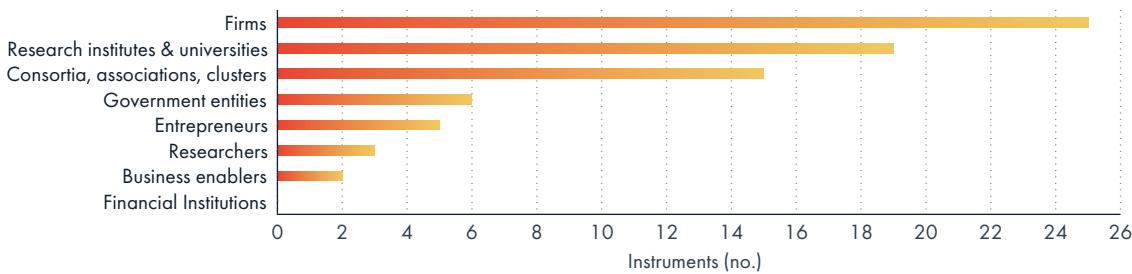


Source: World Bank Group

### 2.3.4 TYPES OF BENEFICIARIES

**Half of the instruments benefit firms.** Universities or research institutes are next, followed by business consortia, clusters, or associations (figure 2.11). This is consistent with the prominence of productivity and diversification as key objectives of STI policy.

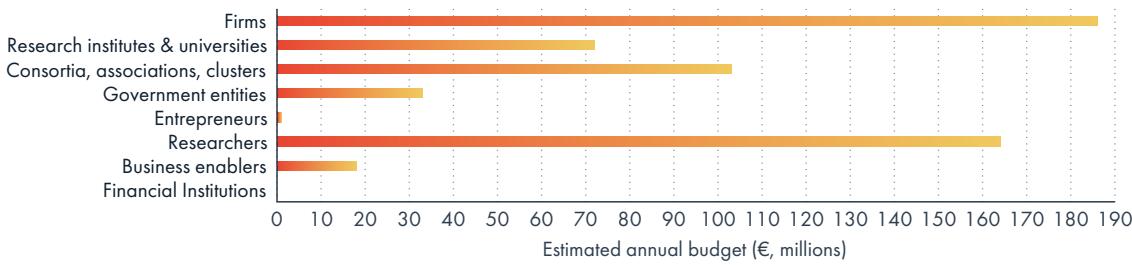
**FIGURE 2.11** Number of Instruments by Type of Direct Beneficiary



Source: World Bank Group

**Firms are also the main recipients of funding, but individual researchers follow closely.** (Figure 2.12) The budget emphasis on individual researchers was not reflected in the number of instruments. This means the three instruments focused on individual researchers as beneficiaries have, on average, larger budgets than the 25 instruments focused on firms. Business consortia and associations still appear prominently in budget expenditures, but universities and research institutes receive a smaller proportion of resources given the number of instruments. (It should be noted that there are other funding instruments for universities that were not examined in this PER because they did not relate to entrepreneurship.) It is also very notable that business enablers—including accelerators and incubators—appear to have both a relatively low number of instruments and a relatively small overall budget directed towards them, and individual entrepreneurs have very little direct funding.

**FIGURE 2.12** Estimated Annual Budget by Beneficiary

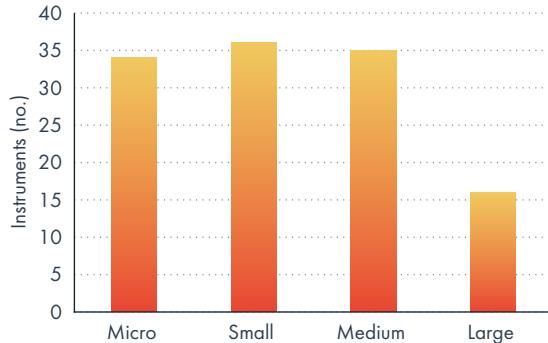


Source: World Bank Group

### 2.3.5 FIRM CHARACTERISTICS

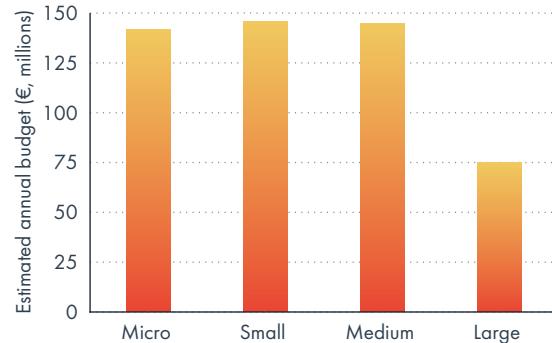
**Instruments focused on firms primarily target micro, small, and medium enterprises (MSMEs).** The policy instruments that indicate firms among their foci (that is, most of the instruments) are uniformly distributed across MSME firm sizes. Large firms are targeted by fewer than half as many instruments as those targeting the other firm sizes (figure 2.13). The distribution of disbursed funds by projects to various beneficiaries might reveal that certain types of firms received more support than others. However, information on beneficiaries of disbursed funds and patterns of supported projects was not available. It was only possible to determine the documented aim of the instruments.

**SThe allocation of yearly average budgets follows the same pattern.** (Figure 2.14). Both the number of instruments and the budget allocations show that many instruments target several firm sizes simultaneously. In fact, 35 of the 50 instruments target at least 3 of the 4 different firm sizes.

**FIGURE 2.13 Instruments by Firm Size**

Source: World Bank Group

Note: Instruments may be counted more than once. Micro = 0 – 9 employees; Small = 10 – 49 employees; Medium = 50 – 249 employees; Large = 250 or more employees

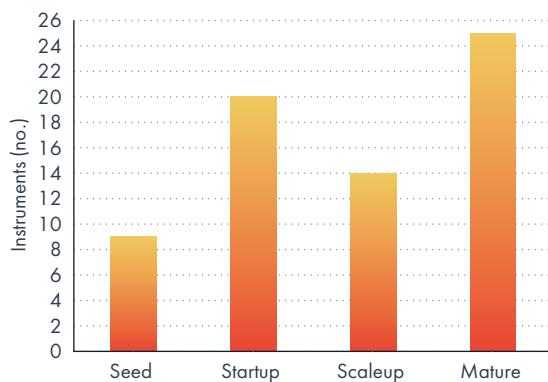
**FIGURE 2.14 Estimated Annual Budget by Firm Size**

Source: World Bank Group

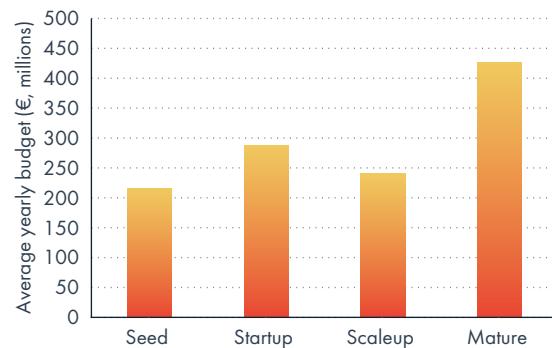
Note: Micro = 0 – 9 employees; Small = 10 – 49 employees; Medium = 50 – 249 employees; Large = 250 or more employees

**Few instruments target firms at the seed/pre-seed phase.** If one looks at firm maturity instead of size, a slightly different picture emerges. The distribution of the number of instruments by firm life cycle shows that the seed/pre-seed phase has fewer than half of the number of instruments of the other three phases on average (figure 2.15).

**Mature firms receive more monitoring and evaluation (M&E) budget allocation than early-stage firms.** Twice as much funding is available to mature firms as to firms in the other stages of development (Figures 2.15 and 2.16). The other three stages, which could be interpreted as higher-risk propositions, receive roughly half of the mature firms' average yearly budget.

**FIGURE 2.15 Instruments by Firm Maturity**

Source: World Bank Group

**FIGURE 2.16 Yearly Average Budget by Stage of Firm Maturity**

Source: World Bank Group

## CHAPTER 3

# FUNCTIONAL ANALYSIS

## 3.1 PURPOSE

**This section covers the second stage of the PER of STI policy in Romania.** It aims to assess the functionality and governance of selected Romanian STI support programs, thus providing evidence-based recommendations for improving the design, implementation, and governance of the country's STI portfolio. The analysis assesses the *functionality*, rather than the impact, of STI support instruments; functionality, here, refers to the quality of processes involved in creating and implementing each instrument, including the design, implementation, M&E systems, human resources, and governance (the instrument's integration and interactions with other programs, institutions, and regulations).

## 3.2 METHOD

**The methodology for the analysis is based on a comprehensive analytical framework benchmarked to international best practices.** The analytical framework, developed by the World Bank, scores support programs along a total of 30 variables: 14 related to program design, 12 related to implementation, and 4 related to program governance (figure 3.1). See Annex B. *Instruments Examined* for the overview of examined instruments. See Annex C. *Detailed Findings of the Functional Analysis* for more detailed findings from the Functional Analysis, including the approach for the data classification. The functionality of each program is scored on a scale of 1 to 5 for each variable, where 5 denotes international best practice. A score of 3 should not necessarily be interpreted as 'average' but as a functional aspect that is satisfactory but has room for improvement.

**FIGURE 3.1** Summary of Functional Analysis Indicators

DESIGN	IMPLEMENTATION	GOVERNANCE
Origin	Learning	Relationship between instruments
Justification	Solicitations	Relationship between institutions
Relationship with portfolio	Eligibility criteria	Relationship with other policy frameworks—awareness and adjustment
Objectives	Application and selection process	Relationship with other policy frameworks—severity of limitations and modifiability
Choice of instrument	Information management	
Logic model	Project closures and follow-up	
Inputs	Budget management and organizational quality	
Activities	Roles and autonomy	
Outputs	Staff and training	
Beneficiaries	Incentives	
Selection criteria	Process monitoring	
Audiences	Monitoring & evaluation implementation	
Results and impact		
Monitoring & evaluation design		

Source: World Bank Group

The analysis aims to reveal whether key elements of effective innovation policies have been met in three key areas:

- **Design.** Public interventions must be designed through a process covered by the rule of law and consistent with general national or regional goals for research and innovation. They must be properly justified and address real problems, avoiding the trap of addressing false failures. This justification can also help avoid capture of public resources by certain vested beneficiaries. Once a system failure is identified, policy makers should consider the full range of alternative intervention designs rather than simply copying existing programs. By design, interventions should follow a clear, well-articulated logic model that helps depict the shared relationships and causal linkages between program inputs, activities, outputs, and outcomes and logically connect them to higher-level strategic objectives. Logic models should define indicators for inputs, activities, outputs, and outcomes that allow for M&E of program performance.
- **Implementation.** Processes for administering the program, including application, selection, and reporting, should be clear and transparent, and knowledge management systems should be in place to allow for systematic learning and improvement of the instrument during implementation. Implementing agencies must have adequate human resources and organizational structures to administer the program, and staff should have training opportunities and incentives that are relevant to program performance (rather than generic to public administration staff). Internal and external M&E of the instrument should take place, and, critically, evaluation results should be used to improve and adapt the program.
- **Governance.** Coordination mechanisms should be in place to minimize overlap and enhance complementarities between the instrument and other programs and agencies. Implementing staff should also be aware of external laws and regulations that can inhibit the implementation of the instrument and should be proactive in taking steps to adapt for optimal operation of the instrument.

**This analysis covers nine instruments supporting STI covering the period 2014 to 2023.** Together, these nine instruments represent around €1.4 billion of the €3.7 billion of the total allocated funding (around 37 percent). However, many of the remaining set of 50 instruments fall under the same operational programs and ministries, and so will share some similar characteristics. The key agencies and ministries interviewed (which included the Ministry of EU Funds and Investments; the Ministry of Public Works, Development and Public Administration; and the Ministry of Finance) were responsible for the administration of the bulk of the instruments in the policy mix (instruments totaling €3.2 billion of the €3.7 billion), and in many cases confirmed that other instruments were designed and operated in similar fashion to those ones under analysis. Thus, although the functional analysis only examined nine instruments, there is reason to believe that this sample reflects the wider policy mix. Nevertheless, the observations and conclusions from this analysis should be viewed as indicative of possible issues but not necessarily conclusive, as the small sample may not capture many potential areas of interest regarding practices that affect the functionality of the overall set of STI policies.

**The analysis was based on semi-structured interviews.** Interviews were held with key staff from the instruments concerned, each scored by a team composed of a minimum of three interviewers, in order to try to minimize interviewer bias. On occasion, multiple interviews were held for one instrument, either because administration of an instrument was split across organizations, or because clarification was needed. It is important to note that the National Authorities were not the primary client of this project and agreed to participate at the request of regional authorities. As a result, the project did not have the internal motivation to connect with the project's potential as an opportunity for learning and continuous improvement. Therefore, the interviews were not as informative and lacked the detailed narratives about organizational culture and tacit knowledge that was made available for the functional analysis in other countries. Some information was gleaned from reports by stakeholders rather than the program managers themselves. However, the perception of outsiders cannot substitute for direct reports from the managers themselves.

## 3.3 OVERVIEW OF FINDINGS

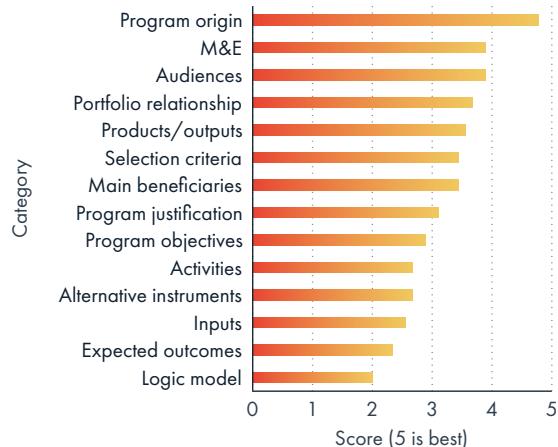
**Romania's scores show some areas that are ripe for improvement.** Some scores are higher than others. In addition, there is significant variation within indicators when considering the average scores in comparison to the maximum and minimum score for each indicator across the set of instruments included in the analysis. We discuss design, implementation, governance, and issues related to variation.

**Several of the areas show influence from EU regulations.** In general, EU regulations appear to have had a positive impact on functionality, including in the program origins, closure, M&E, and coordination mechanisms. However, we also noted areas where unclear or inadequate EU rules may have contributed to low scores, particularly in the use of logic models and the consideration of alternative instruments. We suggest that it would help Romanian authorities to differentiate more clearly between *compliance* and *functionality*: these are not the same, and several instruments appeared to demonstrate a focus on the former at the expense of the latter.

### 3.3.1 DESIGN

**Among the design indicators, those related to the use of logic models, accounting of inputs and activities, and the proper identification and measurement of outcomes deserve special attention.** The areas of specific opportunity for improvement are reflected in the indicators with lower scores in figure 3.2. The problem areas have average scores below 3, the middle of the range or point of indifference. The high average score for program origin is also noticeable. The remaining indicators have average scores slightly above 3, reflecting better practices but with room for improvement. The existence and application of a logic model and the proper cataloging of inputs and activities are two areas of concern. The lower scores of these indicators reveal a possible disconnect between the destination of the expenditures of the instrument and the administrative costs incurred to implement it given that cataloging of inputs and activities relates directly to the ability to estimate such costs. The quality of the definition of objectives of the instrument and the determination of outcomes and impacts are other areas of concern. For example, objectives are often self-referential statements to the need for the instrument. In other words, in the case of funding instruments, the objective of an instrument is to provide funding in a certain area because there is little funding or support in that area. This sort of statement of objectives is circular and begs the question of why the government must support it and what outcomes are expected from providing it.

**FIGURE 3.2 Average Scores for Design indicators**



Source: World Bank Group

**The program origin has good practices in general, which is explained by the processes required by the operational programmes (OPs) of the EU framework.** These processes are highly formalized requiring documentation and good rationales for inclusion of instruments in their funding schemes. This avoids pitfalls related to arbitrary reasons, imitation, or undue influences. However, it is possible that this origin has also affected deeper consideration of some other design features; more than once, interviewees commented that design of an instrument had been determined or heavily influenced by the European Commission (EC) rather than having been designed by the Romanian authority itself following a consideration of various alternatives.

**The relatively high average score for inclusion of an M&E system deserves further scrutiny.** The score for this indicator is mainly due to the existence of a centralized data gathering and reporting system, which offers good infrastructure for data and information management when it comes to M&E. However, it is well known from other countries that such centralized systems are often tailored to general government investments and expenditures and so do not include specific items that are tailored to science, technology and innovation policies.

**Moreover, the fact that both objectives and outcomes are not as good raises the question of how the system operates in relation to the instrument implementation.** Most of the responses received from the interviews revealed that program managers did not distinguish the objectives, inputs, activities, outputs, and outcomes of projects from the policy or instrument, and it appeared that M&E was often weaker at the instrument level than at the program level or Priority Axis level. Supported projects do not automatically aggregate to successful government interventions, and so the outcomes of these instruments may not be good enough to influence the system, even if each individual project within it has good results. Therefore, the design of the M&E system may not be what the instrument really needs. We therefore recommend that this aspect of functionality is examined in closer detail in the future.

### 3.3.2 IMPLEMENTATION

**Among the implementation indicators, eligibility and selection criteria, budgets, and incentives associated with staff performance are of concern.** The implementation indicators related to eligibility, budget, staff performance incentives, and process monitoring have lower average scores. Scores on these indicators fall below the midrange of the scale (as shown in figure 3.3 below). The application process reflects the side of the beneficiaries in relation to submitting proposals and expecting a decision in a timely manner. There is some variety across instruments, but the division of labor in processing applications with different roles given to different entities (financial and technical assessments, for example) and some repetition in verification processes limit timely responses.

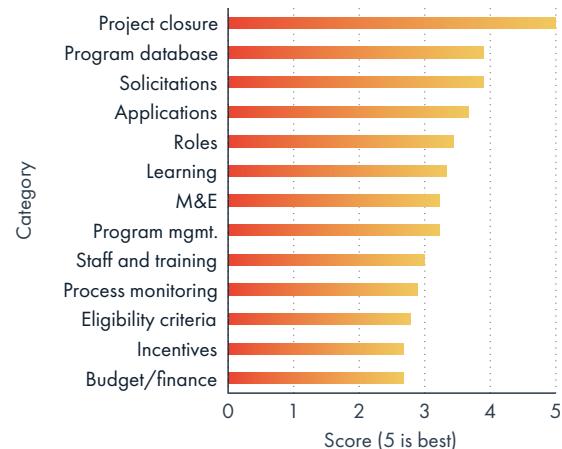
**The budget indicator average score is relatively low.** This reflects the difficulties that many instruments have in executing it, and not having a good understanding of the demand for the specific focus in the design of the solicitations. There were problems with both undershoot and overshoot, suggesting that instrument budgets are not designed commensurate with instrument goals.

**Romanian STI instruments are not hiring specialized human resources, connecting performance assessment with program goals, or monitoring for continuous improvement.**

Most of the reporting on management and staffing indicated a degree of satisfaction with the structure and availability of human resources. However, the scores may overestimate the actual situation because it was common to hear during interviews that the public service system operated under general rules, and the managers did not think much of the relation between those and the specifics of the STI policies under study. There is consensus in developed nations and the analytical literature on management of public support for R&D and innovation that specialized human resources are necessary with flexible entrepreneurial approaches to public management. In this vein, the performance assessment of staff was not related to the content of the instruments. This disconnect between performance assessment and program goals occurs in other areas and is the general established process of public service. Similarly, the processes of public management were not monitored for continuous improvement, which is reflected in its lower average score.

**Implementation capacity requires further examination.** We suspect that implementing capacity is lacking in Romania as it is in neighboring countries for which functional analyses were also conducted. Reasons to suspect that this may be a constraint include the fact that some instruments did not seem to have enough skilled staff nor many opportunities for improving their own staff. This is reinforced by evidence from other World bank projects (such as the “Supporting Innovation in Romania’s Catching-Up Regions” project) as well as from ecosystem stakeholders. Regrettably, we were unable to examine this in detail as our research did not allow direct observation of the working conditions, nor was the Romanian Government the ultimate client. However, we suggest that it warrants closer attention.

**FIGURE 3.3 Average Scores for Implementation indicators**



Source: World Bank Group

Note: M&E = monitoring and evaluation.

**Many instruments were structured in a way that is likely to increase administrative costs.** It is notable that many instruments were structured in a way that involved both an MA and an intermediate body (IB) working in coordination. This was generally reported as working satisfactorily, with clearly defined responsibilities. However, from a management theory perspective, as well as from practical experience of similar situations in other countries, it seems unavoidable that this structure will introduce some additional friction and costs. For example, in case adjustments are needed during instrument implementation or impediments arise due to application of regulations or EC rules, this arrangement might call for consultations and lengthy negotiations. Situations such as these were found in all other countries in the region where a functional analysis was conducted (Bulgaria, Croatia and Poland). A follow up of this analysis may be necessary to assess the proper operation of this division of labor to understand whether the functionality of any instruments is affected.

### 3.3.3 GOVERNANCE

**The analysis found relatively good internal and external coordination mechanisms (coordination with programs within the agency and with other agencies),** as shown in figure 3.4 below. This is partly because programs within the EC's 'priority axes' have some coordination mechanisms built in. However, in some cases those mechanisms could be utilized further to provide more strategic perspectives on the related programs.

**The functional analysis also found several instances of entrepreneurship programs being constrained by European State Aid rules.** This was primarily due to the State Aid rules not being well-adjusted to the innovation support by government interventions. However, these rules are not easy to change, and managers were typically aware of these rules and their constraints but cannot change or mitigate their effect.

**FIGURE 3.4** Average Score for Governance Indicators



Source: World Bank Group

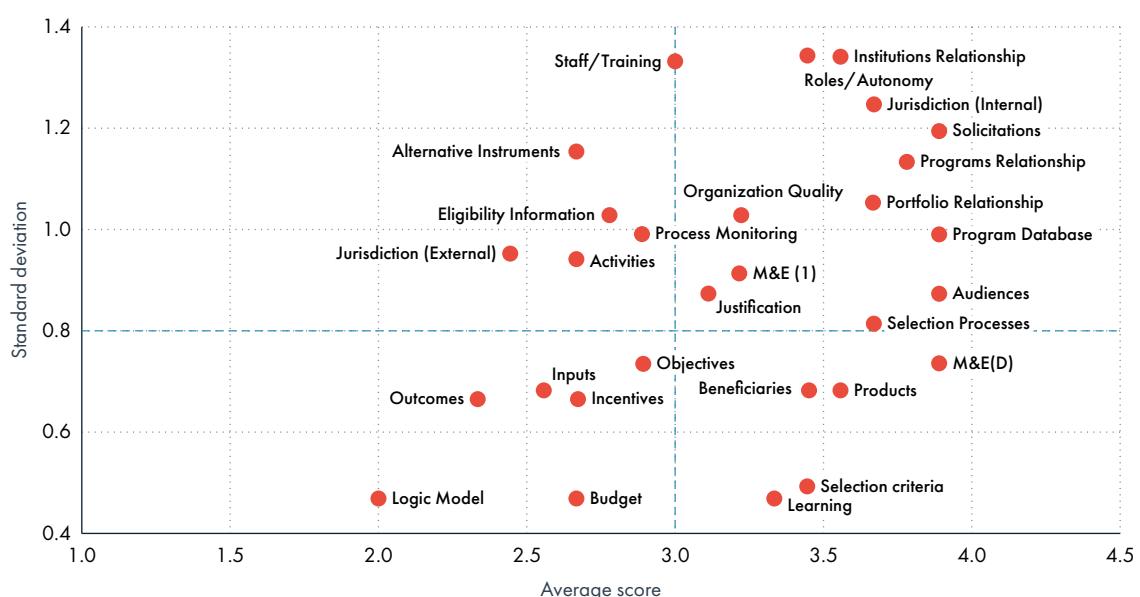
### 3.3.4 EVIDENCE FROM VARIATION

**There is significant variation in the scores across indicators for this set of instruments, indicating opportunities for learning within Romania.** Variation refers to how well policy instruments scored against the best-case scenario, according to global practice. Higher scores are coded in green, average scores are coded in yellow, and lower scores are coded in red. The combined radar graphs in figure 3.5 illustrate variance of public instruments. This chart shows the maximum and minimum scores for each indicator in addition to the average score for each indicator. Some indicators have relatively high scores in at least one instrument, even when the average is quite low. Conversely, several indicators have the lowest possible score as well. This indicates that there is potential for internal learning from the examples of better practices in some of the instruments.

**Comparing scores and variability reveals system wide strengths, needs for system wide improvements, and opportunities for learning from within.** Another view of the variation of scores across programs is presented in figure 3.6 below, which plots the average score per indicator on the horizontal axis and the standard deviation on the vertical axis. Indicators that fall in the upper two quadrants (those with high standard deviations) are areas within the set of policies with a high potential for internal learning, as there are programs in these areas with both high scores (good practices) and low scores (poor practices). Variables that fall in the upper left quadrant show great variation in scores but lower averages, so learning opportunities may be the greatest in these areas. Variables in the bottom left quadrant are those with both low scores and low standard deviation, indicating the need for systemwide improvement with few, if any, examples of good practices in this set of policies. Indicators in the bottom right quadrant are those with high scores and low standard deviation, indicating areas of systemwide strength.

**FIGURE 3.5** Functional Analysis Results—Scores by Category across the Set

Source: World Bank Group

**FIGURE 3.6** Average Score and Standard Deviation Across All Instruments

**There are several indicators that seem to need systematic improvement.** These indicators (in the lower left quadrant) are design indicators associated with the use of logic models, inputs and activities of the instrument rather than supported projects, and the matter of setting instrument objectives and definition of specific outcomes and impacts. There is also an implementation indicator in this group, namely, the budget, that seems also to be a systemic issue.

**There are significant opportunities for learning, including from internal capabilities.** The indicators in the upper left quadrant where there are significant opportunities for learning, including from internal capabilities, include the consideration of an alternative instrument for the same objective on the design side, the eligibility criteria and application information and process monitoring on the implementation side, and the effect of rules from other jurisdictions.

**Mixed indicators and strengths.** There are many indicators in the upper right quadrant that have averages above the midpoint but also rather high variance, indicating that there are cases with poorer practices in those areas as well. Finally, there are a few indicators that show good practices systematically, shown in the lower right quadrant. These are the origin of instruments and their closure practices. These two indicators benefit from OP requirements that establish clear rules for these areas of design and implementation. Accounting for products of the instrument, identification of beneficiaries and selection criteria in design, and ability to learn systematically from experience with the instrument are other areas of better practice. There is some more variation on the M&E by design that is in this quadrant by a small margin, which is related to how well adjusted the centralized digital platform used for M&E is to the needs of specific instruments. See Annex C. *Detailed Findings of the Functional Analysis* for more detailed findings from the Functional Analysis.

## CHAPTER 4

# CONCLUSIONS

The analysis above leads to various conclusions about the policy mix and function of the instruments that Romania is using to promote entrepreneurship.

**The first conclusion that may be drawn is that the concentration of spending on a few instruments leaves many smaller instruments that may be ineffective.** Within the complete collection of STI instruments at the national level (the “policy mix”), spending is highly concentrated on a few instruments. The largest instrument amounts to about half the yearly average budget, while three of the 50 instruments account for half the total average yearly budget. This high concentration means that the remainder is composed of many instruments with small budgets that are probably not of sufficient scale to have an impact, given that some of the administration costs are likely to be fixed.

**Second, the issue with the small scale of many instruments is compounded by the fact that many of them aim for several objectives simultaneously.** Along with the high concentration of the budget on a few instruments, many instruments attempt to achieve a diversity of objectives (both general objectives and specific objectives), and there is overlap between them. The combination of a relatively large number of instruments with small budgets and several objectives suggests that there may be lack of clarity in the design of instruments to focus the intervention. Most instruments already have a relatively small scale, and the problem is compounded by the lack of specialized focus, because more resources are required to attend to multiple objectives. Having many interventions with small budgets and complex purposes raises an important question about the potential effectiveness of the policy mix.

**Third, most instruments assume that money is the only barrier to achieving changes in the innovation system.** This assumption can be inferred from the fact that most instruments use grants or matching grants as the mechanism of intervention. The dominance of grant-based subsidies is not unusual. It is present in many countries. However, it must be kept in mind that grants assume that the only problem that needs resolution from the public intervention perspective is lack of money and that all other factors contributing to innovation, entrepreneurship, productivity and competitiveness are available or reachable if money is made available. This assumption is almost certainly false: it is highly unlikely that this is the true condition of the STI system in Romania or any other nascent innovation system.

**Moreover, grants can sometimes have negative effects.** The potential negative effects can include market distortion (for example, disadvantaging other businesses that do not receive grants, thereby distorting investment and other economic activity), grant dependency (for example, creating organizations that cannot compete without grants or subsidies and so rely on continued public support) and lobbying (for example, increasing the incentive for firms to lobby the government instead of engaging in productive activities). Given the stage of development of Romania’s ecosystem, we suggest that such distortionary effects are not a concern at this time. Nevertheless, it is important to review the effectiveness of grants as agents of change in STI. (For example, recent work on technology adoption suggests that managerial practices and the lack of knowledge and skills within the firms is often a greater barrier to adoption than the access to the material technology itself, so grants solely for technology acquisition are likely to have limited impact.)

**Many instruments use multiple intervention mechanisms that are unlikely to be effective in all of their dimensions.** Numerous instruments invoke multiple causal mechanisms to influence the system. In addition to the previous observations about the small scale of a great majority of instruments and the diversity of their objectives, it is very difficult for them to be effective in all these dimensions. Given the expected complexity of multiple types of intervention, the administrative cost of these instruments is very likely to exceed their specific budget and significantly reduce their chances of impact. Different mechanisms typically require capabilities that are not complementary and are rarely found in one agency or office at the same time. Therefore, instruments that have multiple forms of intervention may create challenges for efficient administration and should be reviewed.

**In addition to the diversity of objectives and types of intervention, many instruments also indicate multiple types of beneficiaries.** All the comments on the multiplicity of intervention mechanisms are applicable here. The best practices for managing public instruments suggest specialization in terms of beneficiaries, even within the same class. This finding is another reason to recommend a rationalization of STI instruments.

**The lack of specialization among instruments focused on the private sector may further challenge their effectiveness.** There is little specialization among instruments focused on the private sector. Many of them simultaneously

target firms of several sizes and life cycle stages. However, firms of different sizes and stages of the life cycle face very different challenges and have different needs. Experience indicates that each of these business activity segments requires special skills to serve them (For example, the policies to support a small startup with high-growth ambition, potentially working in a field of emerging technology, may be very different from the policies needed to support SMEs in general.) It is very difficult for a uniform set of interventions to effectively address all these issues simultaneously. Small instruments with such an ambitious spectrum of care requirements are highly unlikely to have such capabilities. It is worth considering fine-tuning these instruments to address a better characterization of firm needs by targeting their intervention.

**In addition, where targeting exists, this may sometimes be counterproductive to the creation of new high-growth ventures.** For example, several instruments are targeted at mature firms (regardless of their size) than for firms in the very early stages of starting up; this may potentially reinforce the role of incumbents rather than encouraging the growth of innovative startups. In addition, several instruments are available only to firms that are already profitable; however, experience from other countries suggests that many startups that are high growth (and ultimately very profitable) may undergo a considerable pre-revenue period, during which they are focused on growth and user-adoption. Relatedly, many instruments specifically target established technologies at high technology readiness levels (TRLs), that is, mature, market-ready technologies; however, a supportive innovation ecosystem needs to provide support for technologies across the spectrum of technology readiness, from the laboratory to the market.

**Very few instruments address management practices, linkages with foreign firms, or market access.** Academic research indicated that these play an important role in technology adoption and exporting respectively, but these areas receive little attention. Moreover, although skills formation and technology transfer seem to be the two most common objectives for instruments, none of the instruments examined by this study were strictly dedicated to these objectives.

**Business enablers and individual entrepreneurs have little direct funding.** In many ecosystems, business enablers—including accelerators and incubators—play an important role. However, such organizations appear to have both a relatively low number of instruments and a relatively small overall budget directed towards them. Individual entrepreneurs (as opposed to firms) also have very little direct funding.

**There are consistent weaknesses in the logic model of instruments.** The functional analysis of the instruments showed that logic models were generally weak, as were the models' associated inputs, objectives, outcomes and incentives. Weaknesses in the logic model of instruments, as well as mediocre justification of the programs, may possibly be linked with the origins of some instruments. In some cases, the starting point for the development of an instrument appears not to have been the internal identification of a market failure and the subsequent development of a logic model, but rather a desire to follow the direction of the EC and the Priority Axis objectives. However, it is important fully to understand the rationale and logic of the Commission's guidance, and to translate this into a logic model for each instrument; a clearer logic model and justification will then support numerous other aspects of each instrument's development, such as more specific objectives and outcomes, better accounting of inputs, improved targeting, and consideration of alternative instruments.

**Instruments' budgets were often mis-sized.** This includes both undershoot and overshoot. This issue is likely related to the problem of having many interventions with small budgets. This again suggests that some rationalization—or expansion of the more successful programs—may be warranted.

**Greater evaluation at the instrument level is needed.** M&E was often weaker at the instrument level than at the program level or Priority Axis level. There appeared to be good processes for evaluating the overall impact of the portfolio of instruments, and also relatively good processes for tracking and evaluating individual projects that are supported by a specific instrument. However, evaluation and comparison of the instruments themselves seems to be less clear. Improving this will allow better decisions about how to rationalize the policy mix.

**The administrative structure of several instruments appears sub-optimal.** Many instruments were structured with an MA and an IB. This seems very likely to introduce some additional friction and costs. Although this structure may be a necessary condition for some European funds, it is important to pay close attention to the interface

between organizations. Improved process monitoring may help assess this friction and determine whether it is improving or worsening over time. In general, the dual role of EC rules and regulations was perceived in Romania as well as in neighbors that also receive EU structural funds. On the positive side, origination of policies, rules for closures, engagement with stakeholders are constructive elements of following EC guidance to set up the instruments along the axes of the EC OP in the country. On the other hand, in some areas compliance with the rules is substituted for better functionality because more technically sophisticated logic models and indicators useful for guiding M&E and implementation generally are not developed beyond minimum compliance requirements. The project did not have sufficient information on similarities and/or differences with nationally funded instruments to carry out a comparison.

**Implementation capacity requires further examination.** There were suggestions from the research, supported both by ecosystem stakeholders and other World Bank research, that implementation capacity might be a significant constraint.

## CHAPTER 5

# **RECOMMENDATIONS TO IMPROVE POLICY MIX AND FUNCTIONALITY OF ENTREPRENEURSHIP PROGRAMS**

**The following presents recommendations to improve the functionality of the existing policy mix with an indicative timeframe.** Short-term refers to activities that can be accomplished within 18 months – 2 years and medium term refers to activities that can be accomplished within 2 – 5 years. Many of these activities are categorized as short-term due to the confluence of the programming period. The timing of this exercise coincides with Romania's review and development of new operational programming. Lessons from this analysis can be applied to the future policy mix, especially when it comes to improving program management, which impacts how programs are designed, implemented, and evaluated.

#1: Rationalize the overall portfolio of instruments, to reduce the number of small instruments that are likely to be ineffective due to their scale. (Short-term)

#2: Improve instrument-level evaluation, to enable better comparison of instruments' effectiveness, and hence inform ongoing decisions about which instruments to scale up, with attention to smaller pilot instruments that may hold promise. Such evaluations should look at both efficiency and effectiveness, following modules 3 and 4 of the PER STI methodology. (Short-term)

#3: Clarify the instrument's objective (that is, the rationale or specific market failure it is trying to address) and consider instruments that are more focused and specific. Although multi-purpose instruments can be effective (and rationalization may push towards fewer instruments that are more general in scope), the current portfolio of multi-purpose instruments is likely to have a diluted impact. It may also make instrument-level evaluation and comparison more difficult. (Short-term)

#4: Ensure that in the comprehensive set of instruments, there are specialized ones designed for companies in the early stages of technology readiness and market readiness, and for companies with aspirations for scale. There needs to be more support targeted towards pre-revenue startups and individual entrepreneurs. This includes addressing management practices, linkages with foreign firms and market access. This also includes separate, dedicated instruments for skills formation and technology transfer, rather than these being joint objectives alongside others. (Short-term)

#5: Instruments should have an explicit logic model—a hypothesized chain of causes and effects leading to the desired outcomes. Further development of such models is linked with clearer justification for each instrument, and should enable better accounting of inputs, improved targeting of the instrument, as well as prompting ideas for alternative instruments. (Short-term)

#6: Further support private-sector business enablers, including accelerators and incubators. In most ecosystems, these have an important role to play, although in Romania such organizations currently have a relatively small overall budget directed towards them. (Short-term)

#7: Consider a wider range of mechanisms besides grants, tailored appropriately to type of firms and stage of firms. Grants are useful financing mechanisms for the earliest stages of entrepreneurs, including startups and firms with riskier business models, who often rely on self-financing. For other types of firms, loan guarantees, tax incentives, and reforms to public procurement may be as effective as grants in some circumstances, while having a less distortionary effect on markets and reducing the risk of grant-dependency. (Short-to-medium term)

#8: Continue to reduce the administrative burden on applicants. Many instruments showed good signs of having been simplified or otherwise reformed to make it easier for applicants. However, the fact that many applicants still rely on third-party consultants and advisors indicates that there is room for further improvement. (Short-to-medium term)

#9: Be aware of the administrative burden on staff. It was apparent from interviews that the burden of audits and other internal administration is a considerable cost in the management of many instruments. Particularly where instruments are sub-scale, this will reduce their impact. There may be opportunities to increase staff motivation. (Short-to-medium term)

#10: Formalize learning and make better use of available data. Although there are clearly processes for the systematic improvement of instruments, these could be further developed. In particular, there may be value in using the program database to analyze instruments further and understand how to make adjustments. This will be further enhanced when combined with logic models that have clear views of instruments' inputs, processes, and outputs, and accounting of these resources (for example, the time taken at each stage). (Short-to-long term, continuous.)



## PART TWO

# EVIDENCE- AND STAKEHOLDER-DRIVEN POLICY RECOMMENDATIONS

A REVAMPED & PRIORITIZED ENTREPRENEURSHIP POLICY  
MIX – NOTES ON POLICIES, PROGRAMS, AND INSTITUTIONAL  
INTERVENTIONS

## CHAPTER 6

# OVERVIEW OF POLICY RECOMMENDATIONS

**Part Two presents Policy Notes for the operationalization of Romania's National Startup Ecosystem Strategy and its future entrepreneurship policy.** While Part One presents recommendations on how to improve Romania's policy mix for STI and entrepreneurship, this chapter takes a comprehensive approach by prioritizing key recommendations to improve the ecosystem for high-growth entrepreneurship in Romania. Many of the policy recommendations presented in this report naturally overlap with the Top 12 Interventions identified by the Romania entrepreneurial ecosystem, revealing consistency between the analytical findings and the demand for policy by key actors. See Annex A. Top 12 Interventions Identified by the Romanian Entrepreneurial Ecosystem for an overview of the Top 12 Interventions as identified by the Romanian entrepreneurship community. Upon final consultation with the North-East Regional Development Agency (NE RDA), additional stakeholder-driven recommendations are developed in Part Two, "Scale up through exports" and "Implementing Startup Visas." The recommended approach to implementation draws upon a wider review of the literature on the impact of programs to support entrepreneurship, including the World Bank's *A Practitioner's Guide to Innovation Policy* (Cirera et al. 2020).

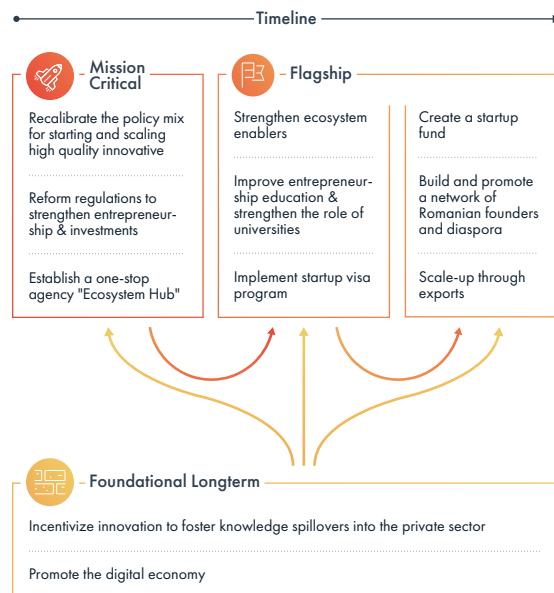
**Each Policy Note follows a similar structure, including objective, target beneficiaries, alignment with Top 12 Interventions, rationale, approach, (possible) implementation body, risks, notional costing (amount)<sup>8</sup>, timeline, and key performance indicators (KPIs).** The proposed timeline for implementation is categorized as short-term (within 2 years), medium-term (within 2–5 years); and long term (5 or more years). Where possible, notional costing is provided. With these considerations in mind, the recommendations are presented sequentially because many interventions are intertwined and depend on implementation of other critical elements. The policy recommendations are categorized by:

- Policies—legislative/regulatory reforms to create an enabling environment for high-growth entrepreneurship to take root and thrive;
- Programs—programs that target entrepreneurs, firms, and other ecosystem actors; and
- Institutions—governance and entities essential for the entrepreneurship agenda.

The figure 6.1 illustrates the proposed sequencing and prioritization of the policy recommendations, which also take into account time sensitivity and “quick wins”<sup>9</sup>. Our codification reflects the following:

- **Mission critical** refers to activities that are (i) extremely time sensitive because the government is currently designing the new programming period, which provides an opportunity to embed data-driven and “SMART”<sup>10</sup> policy recommendations based; and/or (ii) lay the groundwork for future recommendations. If these recommendations are not immediately prioritized, Romanian Authorities risk missing its economic objectives.
- **Flagship** refers to critical activities that should be undertaken to further development of Romania's emerging entrepreneurship ecosystem.
- **Foundational long-term** refers to critical activities that require a longer time horizon to come to fruition because there are other “foundational” elements that need to be sequenced and prioritized first.

**FIGURE 6.1** Sequencing of the Policy Recommendations



8. This will require further calibration with input from the Authorities.

9. This refers to whether it is visible, has immediate benefit, and can be delivered quickly.

10. This refers to the following framework: Specific, Measurable, Attainable, Relevant, and Time-Bound.

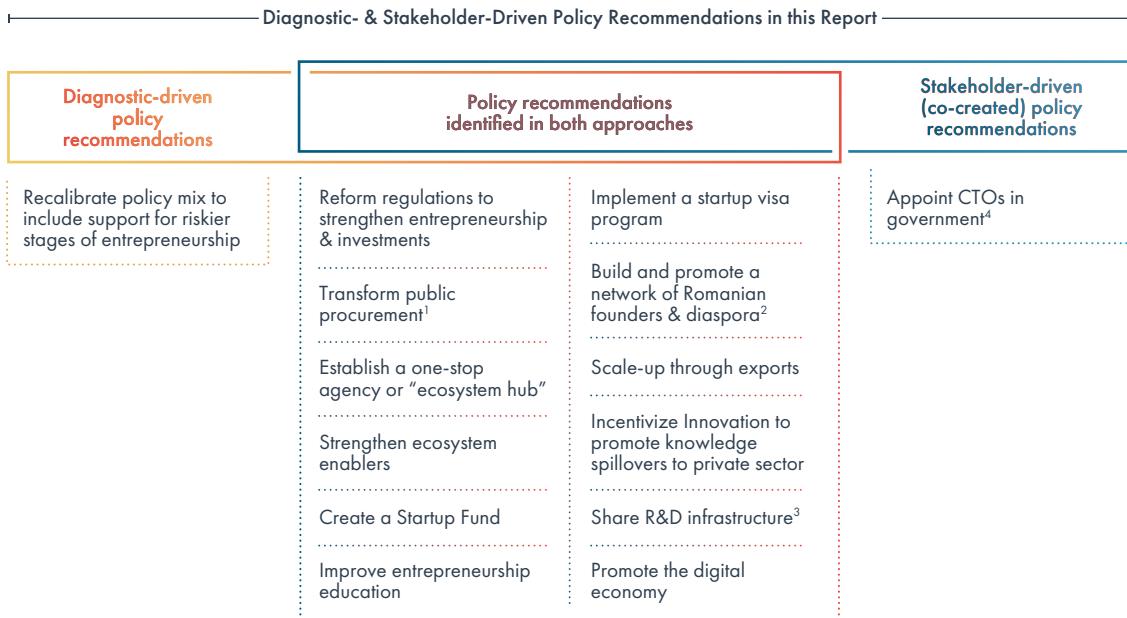
The table below illustrates the categorization. It is possible for policy recommendations to span two or three categories, as indicated by table 6.1 below. The figure 6.2. below illustrates the overlap between evidence- and stakeholder-driven policy recommendations. Our analysis and interventions identified from the bottom-up strategy development process identified a number of similar policies, programs, and institutions. The main differences are based on an analysis of public instruments supporting STI and entrepreneurship, our analysis identified an urgent need to recalibrate the policy mix and improve its functionality; and the Romanian ecosystem identified a need to appoint chief technology officers (CTOs) in government. While we concur with this recommendation, the Authorities need to prioritize other critical interventions.

**TABLE 6.1** Categorization of Policy Recommendations

Refocus attention on starting and scaling high-quality innovative firms Improve governance & functionality of existing instruments		
Policies	Programs	Institutions
<ul style="list-style-type: none"> <li>• Recalibrate the policy mix for starting and scaling high quality innovative firms and improve the functionality of instruments</li> <li>• Reform Regulations to Strengthen Entrepreneurship &amp; Investments</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthen Ecosystem Enablers</li> <li>• Create a Startup Fund</li> <li>• Build and Promote a Network of Romanian Founders &amp; Diaspora</li> <li>• Implement Startup Visa Program</li> <li>• Scale-Up through Exports</li> </ul>	<ul style="list-style-type: none"> <li>• Establish a one-stop agency or "ecosystem hub"</li> </ul>
<ul style="list-style-type: none"> <li>• Improve Entrepreneurship Education</li> <li>• Incentivize innovation to foster knowledge spillovers into the private sector</li> <li>• Promote the Digital Economy</li> </ul>		

Source: World Bank Group.

**FIGURE 6.2** Categorization of Policy Recommendations



Note:

<sup>1</sup>This recommendation is incorporated into the "Reform regulations to strengthen entrepreneurship & investments" intervention

<sup>2</sup>This recommendation overlaps with an activity identified under the "Scale-Up through Exports" stakeholder-driven intervention

<sup>3</sup>This recommendation is incorporated into the "Incentivize Innovation to promote knowledge spillovers to private sector" intervention

<sup>4</sup>We concur that this is a critical recommendation but there are many other foundational aspects that need to be prioritized given the foundational nature of this activity

**Estimated total costs for all proposed 11 interventions.** The breakdown is as follows:

**TABLE 6.2** Estimated Costs for Proposed Policy Recommendations

Activity	Estimated Cost (€)
1 Recalibrate the policy mix for starting and scaling high quality innovative firms by (a) Improving the functionality of instruments, and (b) Implementing a comprehensive package of reforms tailored to high quality innovative firms	15 million
2 Reform regulations to strengthen entrepreneurship & investments	2.6 million
3 Establish a one-stop agency ("or ecosystem hub")	12.05 million
4 Strengthen ecosystem enablers	14.5 million
5 Create a startup fund	61 – 111 million
6 Improve Entrepreneurship Education and strengthen the role of Universities in the ecosystem	38.5 million
7 Implement a Startup Visa program	750,000
8 Build and promote a network of Romanian founders and diaspora	2.5 million
9 Scale-up through exports	7.325 million
10 Incentivize innovation to foster knowledge spillovers into the private sector	246 million
11 Promote the Digital Economy	150 – 300 million
<b>Total</b>	<b>550.225 – 750.225 million</b>

## POLICY RECOMMENDATION 1

# RECALIBRATE THE POLICY MIX FOR STARTING AND SCALING HIGH QUALITY INNOVATIVE FIRMS BY (A) IMPROVING THE FUNCTIONALITY OF INSTRUMENTS, AND (B) IMPLEMENTING A COMPREHENSIVE PACKAGE OF REFORMS TAILORED TO HIGH QUALITY INNOVATIVE FIRMS

ZZ

MISSION CRITICAL



TIME SENSITIVE



QUICK WIN



GOVERNMENT SUPPORT NEEDED



### — OBJECTIVE —

Refocus attention on starting and scaling high-quality innovative firms



### — TARGET BENEFICIARIES —

Young, innovative firms at the earliest stages of technology-readiness and market-readiness and ecosystem enablers



### — RATIONALE —

As discussed in Part One of this report, Romania's current policy mix for STI and entrepreneurship is not optimized for firms at the earliest stages and entrepreneurs, nor does it address the quality of firms at entry and the limited number of high-growth firms in the ecosystem. Romania hovers at round 3 percent of high-growth firms compared to 11.4 percent in peer countries. This reflects policymakers' limited understanding of how startups differ from small and medium enterprises (SMEs) because many instruments target post-revenue firms.

Our functional analysis of existing support programs reveals that:

- Many instruments are under-disbursing, suggesting misalignment between the instrument's objectives and target beneficiaries.
- Several instruments are targeted at mature firms (regardless of their size) rather than for firms in the very early stages of development.
- Additionally, several instruments are available only to firms that are already profitable. This likely excludes high-growth startups because they typically undergo a considerable pre-revenue period, during which they are focused on growth and user-adoption. During this stage, high-growth startups typically rely on grants or financing from accelerators, angel investors, or venture capitalists (VCs).
- Relatedly, many instruments specifically target established technologies at high TRLs (that is, mature, market-ready technologies); however, a supportive innovation ecosystem needs to provide support for technologies across the spectrum of technology-readiness.

- Individual entrepreneurs (as opposed to firms) have little direct funding.
- Very few policy instruments benefit ecosystem enablers, such as incubators, accelerators, and other critical actors. Efforts to recalibrate the policy mix must also include improving attention to national and localized entrepreneurship ecosystems. As discussed in a forthcoming recommendation, Romania's subnational entrepreneurial ecosystems vary in quality of support, which in turn, translates to limited support to startups and innovative firms.
- Some instruments existed because of the direction of the EC, rather than having been identified as a particular systemic failure.
- Administrative costs for program management are high because it requires coordination between an MA and an IB.
- M&E capabilities of program staff are weak, limiting opportunities to understand the impact of existing instruments and scaling up of programs that are meeting and/or exceeding program objectives. This indicates a need to improve capabilities of program implementors for design, implementation, and governance, with a special focus on M&E.



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**APPROACH**

This recommendation is divided into three specific sub-categories:

- (1A) Rebalancing the policy mix,
- (1B) Improving functionality of the policy mix; and
- (2) Passing and implementing a comprehensive package of reforms, that is, the National Startup Ecosystem Strategy.

## PART 1A: REBALANCING THE POLICY MIX

As a first step towards rebalancing the policy mix, policymakers should rationalize the overall portfolio of instruments, to reduce the number of small instruments that are likely to be ineffective due to their scale with a view to reallocate these resources to launch new instruments targeting earlier-stage firms. There are many instruments with small budgets that are probably not of sufficient scale to have an impact, given that some of the administration costs are likely to be fixed.

Policymakers should also clarify the instrument's objectives and target beneficiaries. Many instruments list multiple objectives simultaneously and/or target multiple types of beneficiaries. It is very difficult for them to be effective in all these dimensions. Given the expected complexity of multiple types of interventions, the administrative cost of these instruments is very likely to exceed their specific budget and significantly reduce their chances of impact.

## PART 1B: IMPROVING FUNCTIONALITY OF THE POLICY MIX

Romania currently has limited institutional capacity to design, implement, and evaluate instruments for firms at both levels. Relatedly, monitoring impact of programs is weak and there are missed opportunities in identifying high-performing policy instruments and applying those implementation lessons to other support programs.

Other activities to improve functionality of the policy mix include improving program governance, simplifying application processes to reduce administrative burden for potential beneficiaries as well as program staff; and improving the selection process.

## PART 2: PASSING AND IMPLEMENTING A COMPREHENSIVE PACKAGE OF REFORMS, THAT IS, THE NATIONAL STARTUP ECOSYSTEM STRATEGY

Many countries are consolidating regulatory reforms under an entrepreneurship strategy, or under a Startup or Small Business Act. Such entrepreneurship strategies typically include specific policy support and funding instruments for riskier firms in the earliest stages when the rationale for public intervention is greatest. Romania's access to finance interventions embedded within the strategy should be informed by an in-depth study on the existing entrepreneurial finance. The startup ecosystem strategy also needs to take a nuanced approach towards supporting firms. While support to firms at the ideation stages remains a gap in public sector instruments, there also needs to be a focus on providing support for startups throughout the entrepreneurial lifecycle.

Romania's National Startup Ecosystem Strategy should also include the establishment of a new institution, a one-stop agency or "ecosystem hub," that will be responsible for implementing programs and policies for entrepreneurs.



### — POLICY AND IMPLEMENTATION BODY —

This agenda would benefit from commitment at the highest level of the Government. This is currently led by the Ministry of European Funds with support from the relevant line ministries including the Ministry of Entrepreneurship and Tourism; Ministry of Research, Innovation, and Digitalization (MORID); and Ministry of Economy. At the implementation level, this is delegated to MAs of Ministries and Regional Development Agencies dealing with Regional Operational Programs.



### — RISK —

A key risk for Recommendation 1, as well as Recommendation 2, is that this will require a high degree of internal coordination, including coordination with other strategies such as the Digitalization Strategy. The champion of these reforms will have to be able to work with authority and credibility across the multiple departments and other bodies concerned; this will require strong leadership and political support.

Other key risks include lack of awareness among policymakers about the specialized needs of start-up firms, which include a specialized ecosystem with funding, access to networks, mentors, and markets. Rebalancing the policy mix (1A) and improving functionality of the policy mix (1B) also requires buy-in and coordination from the EC, MAs and the IBs

Further risks include lack of a cohesive approach to supporting startups, such as a national startup ecosystem strategy and lack of a centralized institution, such as a one-stop agency or "ecosystem hub" to lead implementation on this agenda. In many countries, innovation agencies oversee public interventions for STI and entrepreneurship, whereas startup support organizations engage in advocacy around the special needs of innovative growth-oriented firms. Romania lacks such institutional capacity.



### — AMOUNT —

€15 million based on preliminary costing of calibrating policy mix plus capacity building to introduce functionality improvements on design, implementation, governance, and evaluation.

## RECALIBRATE THE POLICY MIX FOR STARTING AND SCALING HIGH QUALITY INNOVATIVE FIRMS

Additionally, estimated total costs for all policy recommendations are as follows:

Activity	Estimated Cost (€)
1 Recalibrate the policy mix for starting and scaling high quality innovative firms by (a) Improving the functionality of instruments, and (b) Implementing a comprehensive package of reforms tailored to high quality innovative firms	15 million
2 Reform regulations to strengthen entrepreneurship & investments	2.6 million
3 Establish a one-stop agency (or "ecosystem hub")	12.05 million
4 Strengthen ecosystem enablers	14.5 million
5 Create a startup fund	61 – 111 million
6 Improve Entrepreneurship Education and strengthen the role of Universities in the ecosystem	38.5 million
7 Implement a Startup Visa program	750,000
8 Build and promote a network of Romanian founders and diaspora	2.5 million
9 Scale-up through exports	7.325 million
10 Incentivize innovation to foster knowledge spillovers into the private sector	246 million
11 Promote the Digital Economy	150 – 300 million
Total	550.225 – 750.225 million



### TIMELINE

Short-to-Medium-to-Long Term

There is an immediate opportunity associated with the preparation of the new Operational Programs under the 2021 – 7 financial perspective. Once set in place, the policy mix will need to be continuously revisited and recalibrated to meet the evolving needs of the sector, including at mid-term of the Operational Programming period. Long term activities will include capacity building, including in the areas of governance and M&E.



### KPIs

Outputs

- Recalibrated mix of policies and instruments, resulting in a higher proportion of funding specifically targeted at startups and the ecosystem
- Passage of National Startup Ecosystem Strategy

Outcomes

- Improved public sector capacity for design, implementation & governance of entrepreneurship instruments (reflected in improved score in Functional Analysis assessment)
- Improved functionality of public resources to startups and the ecosystem (reflected in improved score in Functional Analysis assessment)
- Increase in number of startups successfully accessing public support
- Improved allocation of public resources to startups and the ecosystem

## POLICY RECOMMENDATION 2

# REFORM REGULATIONS TO STRENGTHEN ENTREPRENEURSHIP AND INVESTMENTS



**MISSION CRITICAL**



**TIME SENSITIVE**



**QUICK WIN**



### — OBJECTIVE —

Reform regulations to create an enabling entrepreneurship ecosystem. Specifically, reforms that digitalize company formation process, scaling-up, receiving investments, improve ease of exiting a business, intellectual property (IP) rights, and accessing public procurement opportunities.



### — RATIONALE —

Business environment is preventing firms from growing, scaling, and investments to occur



### — APPROACH AND TOTAL COSTS FOR COMPREHENSIVE PACKAGE OF REFORMS —

This recommendation is divided into four reform areas. The total costs for each reform area is listed in the table below.

Activity	Estimated Cost (€)
Digitalize company formation (to promote ease of starting a business)	1 million
Support distressed businesses and ease exits	400,000
Catalyze investments into startups	400,000
Clarify intellectual property rights	400,000
Improve access to public procurement opportunities	400,000
Total	2.6 million

## DIGITALIZE COMPANY FORMATION



### — RATIONALE —

When it comes to ease of starting a business, Romania has met objectives established by the EC's Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW), "Start-up Procedures". It takes 1 – 3 days to register a business and costs €26 (target is €100 or less). This is currently a paper-based procedure.



### — APPROACH —

Digitalizing the company formation process can further reduce the number of steps and time to complete all procedures. By the end of 2022, the Government of Romania, through the national recovery

and resilience plan (NRRP), commits to adopt legislation to simplify and digitalize firm entry and exit in line with EU's Digitalization Directive, remove redundant procedures, consolidates various licensing processes under a new one-stop-shop for industrial licenses and authorizations.



#### — IMPLEMENTATION BODY —

The implementation body for this reform is the Ministry of Entrepreneurship and Tourism in coordination with the National Trade Registry Office and other agencies facing firms.



#### — RISK —

As with Recommendation 1, these tasks require significant internal co-ordination, a strong champion and political support. Lack of coordination between the key agencies is a key risk, as is ineffective management of transition, including software development, testing and conversion/migration, and lack of coordination with other Government projects aiming at digitalizing the public sector (for example, establishment of the Government Cloud, adoption and enforcement of the interoperability framework, insufficient training for staff in public agencies, low uptake among target groups).



#### — AMOUNT —

€1 million



#### — TIMELINE —

Short Term



#### — KPIs —

Output

- Elimination of paper-based registration procedures

Outcome

- Number of companies registering online



#### — ALIGNMENT WITH TOP 12 INTERVENTIONS —

Intervention 1: Reform Startup & Investment Related Regulations

## SUPPORT DISTRESSED BUSINESSES AND EASE EXITS



#### — RATIONALE —

Although Romania performs well on entry of new firms, it does not have a high share of tech startups and especially high-potential startups. Much entrepreneurship in Romania is driven by necessity, rather than opportunity, with many firms lacking the ambition to innovate or other characteristics to become high-growth firms. Additionally, Romania does not have a culture that destigmatizes "rapid business failure" and promotes serial entrepreneurship. Easing firm exit and providing entrepreneurs the possibility of discharge of debts and the possibility of a fresh start would help reduce the number of so called "zombie firms" and encourages the reallocation of resources to more productive new entrant firms, while encouraging further entrepreneurship.



### — APPROACH —

This requires a major shift in mindset among policymakers, including by considering a special track optimized for high-risk business models and technology startups within existing distressed firm frameworks through early warning and restructuring tools, but especially exit. The lack of awareness of current insolvency legislation also appears to be a key barrier to accessing policy support, and barriers to receiving this support will need to be identified specifically for this set of firms. The EU Directive on Restructuring and Insolvency (Directive EU 1023/2019)<sup>11</sup>, which aims to align pre-insolvency proceedings across the EU Member States, highlights the need for all EU member countries (including Romania) to open possibilities for a second chance for honest natural person entrepreneurs.



### — IMPLEMENTATION BODY —

The implementation body for this reform is the Ministry of Entrepreneurship and Tourism with inputs from the Secretariat General of the Government, the Ministry of Economy, the Ministry of Justice, the National Trade Registry Office.



### — RISK —

Policymakers need to understand that viability is a complex and nuanced concept that needs to account for several factors, especially complicated during the pandemic. Influencing cultural mindset around firm failure is viewed as a less tangible activity.



### — AMOUNT —

€400,000 to support the ongoing implementation of the Directive and provide capacity-building training for insolvency administrators and analyzing and improving the early warning tool systems so that firms get early support.



### — TIMELINE —

Short-to-Medium Term



### — KPIs —

#### Outputs

- Publication of national regulations adopting the EU Directive on Restructuring and Insolvency (Directive EU 1023/2019)
- Specialized track for distressed micro and small business as well as natural person entrepreneurs to file for expedited insolvency proceedings
- Number of insolvent startups, natural person entrepreneurs and micro/small firms supported to exit market by expedited liquidation means.
- Number of distressed but viable startups receiving financial and nonfinancial support.

#### Outcome

- Increase in serial entrepreneurship
- Perceived improvements in regulatory environment

11. The EU Restructuring and Insolvency Directive covers preventive restructuring frameworks, discharge of debt and disqualifications, and measures to increase the efficiency of procedures was adopted in 2019. While Member States were supposed to transpose the Directive into national law by mid-July 2021, 23 out of 27 Member States notified the Commission that they encountered particular difficulties in implementing this Directive and opted for the extension of the implementation period by one year. Therefore, by mid-July 2022 national legislation should conform with the Directive.

## CATALYZE INVESTMENTS IN STARTUPS



### — TARGET BENEFICIARIES —

Primary beneficiaries are early-stage investors and secondary beneficiaries are startups and innovative firms



### — RATIONALE —

Romanian startups rely on self-financing and are unable to scale effectively. Startups, on average, do not access traditional capital markets for scaling up. Instead, they rely on angel investors, VCs (including corporate venture capital), and/or crowdfunding platforms.



### — APPROACH —

Introduce or strengthen regulations to incentivize private sector investment activity in growth firms. This includes regulations around stock options, angel investment, corporate and venture capital regulations, and crowdfunding.

- **Enable Stock Options for Employees:** Employee ownership and compensation, via stock options, are used as incentives by high-growth firms in many startup ecosystems. Provision of stock options allows cash-strapped startups to compete for talent against larger (but less innovative) companies, by attracting employees with the potential substantial financial gains that may result from a successful exit. Current Romanian legislation is perceived as unfavorable for the creation and use of ESOPs (employee stock options plans).
- **Angel and (Corporate) Venture Capital Investor Incentives:** Venture capital is a critical resource for many startups. This may take a variety of forms, including 'Angel' funding and corporate venture capital (CVC).<sup>12</sup> In many ecosystems, public policy instruments are thus used to incentivize venture capital; these often take the form of tax incentives (for example, the United Kingdom's Enterprise Investment Scheme and Seed Enterprise Investment Scheme) and co-investment funds. Current Romanian incentives are perceived as insufficient, and the legislation surrounding business angel and business angel syndicate investment is also seen as unfavorable and confusing. It is therefore suggested that a clearer package of incentives for early-stage investors is needed.
- **Crowdfunding:** In Romania, as in other ecosystems, crowdfunding is filling a critical gap in early-stage financing for startups. In line with the EU Directive on Crowdfunding, we suggest developing and publishing equity crowdfunding guidelines or regulations for Romania.



### — IMPLEMENTATION BODY —

The implementation body for this reform is the Ministry of Finance in collaboration with the Ministry of Investment and EU Projects and the Ministry of Entrepreneurship and Tourism.



### — RISK —

This requires coordination between several entities because they are each responsible for a piece of the entrepreneurship agenda. The reforms should also be informed by the private sector, specifically investors and other ecosystem actors.

12. Traditional venture capital (VC) is no longer the only way for startups to raise money. Many corporations are investing in startups, even startups that operate outside of the corporate's own vertical. Global accelerator 500 Startups publishes regular insights on the state of corporate-startup engagement, which includes CVC (500 Startups 2019).

**— AMOUNT —**

€400,000 (This is for the clarification and development of clearer guidelines only; potential incentives, such as tax relief for seed investors, are not included in this figure.)

**— TIMELINE —**

Short-to-Medium Term

**— KPIs —****Output**

- A package of clear guidelines and incentives for investors (angel investing, crowdfunding, (corporate) venture capital) and startup employees, including guidance regarding ESOPs.

**Outcomes**

- Increase in financing of young firms (<5 years)
- Increase in financing of growth-stage firms
- Perceived improvements in investment environment

**— ALIGNMENT WITH TOP 12 INTERVENTIONS —**

Intervention 1: Reform Startup & Investment Related Regulations

## CLARIFY INTELLECTUAL PROPERTY RIGHTS

**— TARGET BENEFICIARIES —**

Entrepreneurs, researchers, and early-stage firms using proprietary technology

**— RATIONALE —**

Regulations surrounding the ownership and commercialization of IP, especially that derived from universities and publicly funded research, are widely seen as confused, conflicting and vaguely worded, requiring expert legal advice to interpret, and leaving much uncertainty concerning liabilities (which may include criminal offences for errors) (European Commission et al. 2021). The net result is to hinder commercialization of IP and the formation of spinouts. Although there is an existing obligation for universities (and other research institutions) in receipt of public funding to attempt to transfer this technology, this obligation alone will not result in the desired impact unless and until the broader legal and regulatory landscape is clarified.

**— APPROACH —**

The government should review, clarify and consolidate the regulations regarding IP ownership and commercialization, including the legal basis by which universities and R&D institutes own or transfer ownership of spinouts. A potential example for Romania to emulate is the United States' Bayh-Doyle act, which empowers universities to take ownership of inventions made with publicly funded research, sets appropriate incentives for both universities and researchers and clarifies the equity share and revenue royalties of universities according to global best practice, and encourages private-sector in-

vestment to turn basic government-funded research into tested and approved products that are manufactured domestically. This should be complemented by IP workshops and other awareness-raising programs to disseminate updated guidance on IP protections.



#### — IMPLEMENTATION BODY —

The sponsoring body for this reform is MORID, and the implementing body will be UEFISCDI.



#### — RISKS —

This reform needs to be tied to a longer-term reform of Romania's innovation system. Clarifying IP protection, including if IP rights can be sold, licensed, or transferred, is critical, but its impact will be diminished if broader reforms to the innovation system are not enacted.



#### — AMOUNT —

€400,000



#### — TIMELINE —

Short-to-Medium Term



#### — KPIs —

Outputs

- Publication of clear guidelines for IP ownership and commercialization, especially IP arising within universities or public research organizations

Outcomes

- Increase in number of spinouts formed using university-originated IP
- Increase in number of startups holding patents
- Perceived improvements in regulatory environment



#### — ALIGNMENT WITH TOP 12 INTERVENTIONS —

Intervention 6: Incentivize Innovation

## IMPROVE ACCESS TO PUBLIC PROCUREMENT OPPORTUNITIES



#### — TARGET BENEFICIARIES —

Primary beneficiaries are startups, public procurement officers and managers, and public authorities and agencies. Indirect beneficiaries are the general public (via better public services).



#### — RATIONALE —

Public sector can create an important market for many startups and play a role in stimulating innovation. Although recent reforms have improved awareness, current public procurement processes and platforms are still perceived as difficult to access for startups and other small firms. Streamlining pub-

lic procurement, with particular attention to the needs of innovative startups, can expand the domestic market for startups while simultaneously helping bring beneficial innovations into the public sector.



### — APPROACH —

With assistance from the World Bank, the National Public Procurement Agency has been undertaking significant reforms of the public procurement system (World Bank 2020b). We recommend conducting a rapid analysis of existing public procurement policies, platforms, and systems to identify how startups (as opposed to other MSMEs) can be better integrated into the public procurement system; this should also seek to identify the extent to which startups are applicants and winners of tenders.

This analysis may benefit from a review of how other countries are approaching inclusion of young firms within their public procurement systems, in order to identify common barriers. For example, we suggest the review consider whether startups (and other MSMEs) are excluded through the use of qualification criteria such as International Organization for Standardization (ISO) certification or indemnities; whether public bodies over-specify tenders (for example, assuming the use of legacy technologies and approaches, and thus inadvertently excluding innovative solutions); whether large tenders can be broken into smaller pieces in order to fall within the capacity of smaller firms; and whether tenders are advertised in sufficient time to allow smaller firms to identify these and respond appropriately. The review should also attempt to measure the proportion of public procurement processes that are publicized through the existing e-procurement system (for example, whether this is in fact 100 percent), as well as the percentage of respondents and successful winners that are startups (as opposed to other MSMEs).

Although data concerning applicants and winners of tenders is published by the Public Procurement Agency annually (for example, ANAP 2021), we recommend that this data should ideally be made available on a real-time basis, ideally with an application programming interface (API) to the dataset; increasing the openness and timeliness of data concerning procurement will assist in identifying sectors or bodies that are able to work more effectively with startups or SMEs, and hence suggest practices that might be adopted by other bodies.

Furthermore, we suggest that there may be benefit in experimenting with novel procurement models such as Challenge Prizes—an ‘outcome-led,’ approach-agnostic model that has been used effectively elsewhere to drive innovation and encourage new suppliers. Providing dedicated training to procurement personnel concerning such innovative procurement processes, as well as the differences involved in working with startups, may also be beneficial; this could potentially be managed by the proposed one-stop agency or Startup “ecosystem hub” (see recommendations below).



### — IMPLEMENTATION BODY —

The implementation body for this reform is the National Public Procurement Agency, under the General Secretariat of the Government.



### — RISKS —

This reform needs to be tied to the new national public procurement strategy and to longer-term reform of Romania’s innovation system.



### — AMOUNT —

€400,000



### — TIMELINE —

Short-to-Medium Term



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**KPIs**

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**Outputs**

- Increased publication of open data surrounding public procurement, including the share of startups and SMEs amongst tender respondents and tender winners.
- Publish adaptation of public procurement guidelines to be more inclusive of startups
- Simplified procedures (fewer steps, reduced time taken) for startups to respond to tenders on the e-procurement system
- Number of training courses for innovative procurement methods run for public officials (as per the new strategy).
- All public tenders listed on e-Procurement portal (target 100 percent)
- More public bodies experimenting with novel procurement models (for example, challenges)
- Increase in tenders that are ‘outcome-led’ (that is, not prescribing the approach or technology)

**Outcome**

- Increased number of startups responding to public procurement tenders
- Increased number of startups awarded public procurement tenders
- Perceived improvements in regulatory environment



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**ALIGNMENT WITH TOP 12 INTERVENTIONS**

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Intervention 10: Transform Public Procurement.

## POLICY RECOMMENDATION 3

### ESTABLISH A ONE-STOP AGENCY (OR “ECOSYSTEM HUB”)



MISSION CRITICAL



TIME SENSITIVE



QUICK WIN



GOVERNMENT SUPPORT  
NEEDED



#### — OBJECTIVE —

Creation of a new, agile institution to centralize critical entrepreneurship and ecosystem initiatives under one agency.



#### — TARGET BENEFICIARIES —

Romanian Entrepreneurial Ecosystem including digital startups, high-growth firms, investors, ecosystem enablers, diaspora, and other public authorities



#### — RATIONALE —

The Romanian Startup ecosystem faces several challenges, including a lack of understanding of startups and how they differ from other SMEs, and reliable data about the ecosystem as a whole. SME legislation and the policy mix do not take into account the needs of young, growth-oriented firms with novel technology or new business models. There is also poor coordination between policymakers and startup ecosystem stakeholders. Despite promising regional clusters, Romanian startups have no coherent national voice to champion their needs.

Research shows a wide variety of successful models, differing in purpose, structure, and the type of instruments and interventions they manage (Glennie and Bound 2016). Nevertheless, Aridi and Kapil (2019) identify common ingredients of success in such agencies, particularly in emerging national innovation and entrepreneurship ecosystems such as Romania's, including a clear but adaptable mission, technically capable staff, effective governance and management structures, diagnostic-based interventions, robust M&E, sustainable funding, and strategic partnerships and networks. It will be important for the organization to receive sufficient and continuous budget, and to be able to recruit appropriate talent; this might require exceptions to salary caps.

Some specific examples of bodies that might serve as a template for this agency include the Israeli Innovation Authority (a government-funded entity—established under the Chief Scientist's Office—that administers an R&D Fund for startups, an Incubator Program, and extensive startup programming); La French Tech (a publicly-funded initiative to showcase French startups, promote entrepreneurial exchanges between them, and increase the coherence of public policy regarding startups); Poland's National Center for Research and Development (NCBIR, which administers approximately €3 billion in funding for R&D-intensive startups and firms); Startup Poland (a non-governmental organization established to advocate for startups to policymakers); Serbia Innovation Fund (administers early stage programs for R&D intensive startups and collaborative research programs with industry); Coadec (a privately-funded initiative to provide a voice for United Kingdom digital startups to policymakers); and Techleap.nl (which provides programs, tools, and resources for startups). Ruta, a public joint venture in the special innovation district of Medellín, Colombia, is one further interesting example. It had a strong “bottom up” drive from regional stakeholders and attracted attention from national leaders once it showed promise.

In post-transition economies, very often the innovation or startup programming and agencies are established under the auspices of a ministry in charge of research, innovation, science, and technological development (Poland, Croatia, Serbia, Bulgaria, Kazakhstan) given that these ministries tend to have a stronger understanding of the nature of technology driven startups and the need to support R&D and innovation intensive companies in collaboration with the research sector. They also see it as a critical opportunity to prevent brain drain of young researchers or even promote brain gain from the among diaspora or international technical and research talent. Most importantly, however, is the importance of having a ministry with ownership and willingness to champion this cross-cutting agenda of innovation and entrepreneurship. And alliances with ministries in charge of industry and economy are not only natural but also highly desirable in the long term as these tend to very often be involved in critical business environment regulations (starting/closing a business, bankruptcy, investors regulations, R&D tax credits, etc.) that are necessary for the formation and growth of a healthy innovation and entrepreneurship/startup ecosystem, including the startups/scaleups, investors, and enabler organizations.

This would assist in clarifying the policy distinction between startups and SMEs, help negate issues of policy capture by incumbents (by providing a different cabinet-level champion), assist in promoting technology transfer and science-driven spinouts, and ensure that the agency remains focused on.



## — APPROACH —

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We recommend that the first step should be to draft a ‘blueprint’ of the new agency, taking into consideration the different roles that it might play. The overall objective of establishing an ecosystem hub is to create an institutional framework and implementation capacity to address structural challenges for startups, scale-ups, and facilitators of innovation and entrepreneurship support. However, there are many different models of innovation agency or startup agency, and we recommend that the structure of this organization be determined after the strategy has been developed. Potential roles for this agency include:

- Role 1—Advocate: Identifies and promotes the specialized needs of seed, startup, scale-up phase companies and their investors.
- Role 2—Think and Do Tank: Pilots new interventions and tests their relevance for startups and the innovation and entrepreneurship ecosystem. This could include support for the design and implementation of programs to support ecosystem enablers or facilitating adoption and creation of digital technologies by the private sector (as addressed in Pillar III—Business Environment of this plan).
- Role 3—Connector: Facilitates systematic communication between ecosystem actors and contribute to the integration and articulation of the positions of actors in the innovation ecosystem.
- Role 4—Capacity builder: Develops and implements programs to increase the capacity of the enabler organizations in the innovation and entrepreneurship ecosystems. This may be funded under the Recommendation above ('Policy Recommendation: Strengthen ecosystem enablers') but delivered by the Agency.
- Role 5—Funder: Supports the design and management of funding programs (grants, loans, venture capital) or acts as a vehicle for the design and implementation of relevant non-financial/technical assistance public programs.
- Role 6—Evidence-gatherer: Establish systematic approaches to data collection and analysis on the innovation and entrepreneurship, including to generate evidence on the efficiency and effectiveness of public policies and programming supporting startups and ecosystem development. Leverages this evidence to proactively increase awareness among the general public and report to policymakers on innovation, digitalization, and entrepreneurship issues.

Whether or not all these roles can be pursued simultaneously is a question that should be determined by the ‘blueprint’. All six potential roles are valuable, but there may be value in a tighter focus during the initial establishment of the agency. Further considerations for its establishment include:

- Ensuring that the Agency remains agile in order to adapt to ‘radical uncertainty’ and the rapid pace of change that often accompanies innovative startups
- An initial focusing on short and medium-term strategy, generating evidence to build the case for long-term strategy.
- Launching a well-crafted marketing and communications campaign to generate awareness among ecosystem actors. (For example, La French Tech leveraged the national mascot, the rooster, as part of its communications campaign. This quickly became synonymous with the movement and the mission.)
- Developing diagnostics to understand National Innovation System gaps and global trends to inform evolving agency missions and to design and implement policy interventions.
- Implementing robust M&E. Many agencies—for example, the Croatian Agency for SMEs, Innovation and Investments (HAMAG-BICRO)—use external organizations to measure program outputs. Developing internal M&E capabilities would enable evaluation efforts to be integrated into the development and implementation of new interventions and can be used to improve agency operations.
- Leveraging partnerships to enable access to financial resources as well as technical capabilities.
- Identifying sustainable funding. Some agencies’ reliance upon one source of funding (for example, fluctuating government funding) creates uncertainty and can lead to operational and programmatic challenges. For example, EU Structural Funds represent up to 80 percent of the budget of Poland’s NCBIR.



#### — IMPLEMENTATION BODY —

The Ministry of Research, Innovation, and Digitization or the Ministry of Entrepreneurship and Tourism would likely be the sponsoring authority for this policy recommendation. This could also possibly be an initiative established jointly by the Regional Development Agencies.



#### — RISKS —

Key risks include identifying a ministry to sponsor the establishment of this entity. This may be a challenge because some policymakers are hesitant to establish a new agency. Other risks are retaining skilled staff, ensuring good M&E practices to prove traction and build business case for longer-term support, and securing public funding for activities.



#### — AMOUNT —

Preliminary costs are suggested as follows:

Activity	Estimated Cost (€)
Drafting a blueprint for the establishment of a one-stop agency, including governance and operations, and sequencing of roles and programs	500,000
Sub-Total	500,000
Establishing & Staffing the Agency	
Overhead costs (rent, utilities, equipment)	500,000
Staffing	5.25 million

<b>Activity</b>	<b>Estimated Cost (€)</b>
Marketing & Communications	1 million
Developing robust M&E system	250,000
<b>Sub-Total</b>	<b>7 million</b>
<b>Activities / Programs of the Agency</b>	
1 – Advocacy: research, publications, lobbying	350,000
2 – “Think and Do Tank”:	[Cost of piloting new interventions will depend on the interventions selected]
3 – Connector: subsidy for 1 x major ecosystem event per year, plus at least 12 smaller events per year	3.5 million
4 – Capacity builder: Programs to increase the capacity of the enabler organizations	[Funded under Recommendation above]
5 – Funder: Advice concerning the design and management of funding programs, plus a “signposting” function for entrepreneurs	350,000
6 – Evidence-gatherer: systematic data collection and analysis	350,000
<b>Sub-Total</b>	<b>4.55 million</b>
<b>Total</b>	<b>12.05 million</b>



## — TIMELINE —

Short-to-Medium Term



## — KPIs —

The Agency “blueprint” should detail how the Agency will be evaluated and select KPIs appropriate to its chosen roles. For KPIs related to capacity building, see the suggested KPIs for ‘Strengthen Ecosystem Enablers’. If the Agency adopts other functions as suggested elsewhere, the relevant KPIs should apply. We suggest that other KPIs may include:

### Outputs

- Publication of the Agency “blueprint”
- Number of publications by the Agency
- Number of downloads of publications
- Number of visits to Agency website
- Number of email / phone enquiries received by Agency
- Number of ecosystem events held
- Number of attendees at ecosystem events
- Number of capacity-building courses delivered
- Attendees of capacity-building courses
- Number of entrepreneurs contacting the Agency (for example, for assistance with grants)

### Outcomes

- Perceived value of Agency by startups (possibly measured by Net Promoter Score)
- Quality of advice from the Agency, as perceived by policymakers
- New connections made within the ecosystem



## — ALIGNMENT WITH TOP 12 INTERVENTIONS —

Intervention 2: Establish a one-stop agency for the Startup Ecosystem.

## POLICY RECOMMENDATION 4

# STRENGTHEN ECOSYSTEM ENABLERS



FLAGSHIP



### — OBJECTIVE —

Improve the quality of entrepreneurship support provided by ecosystem enablers in Romania



### — TARGET BENEFICIARIES —

Ecosystem enablers, including but not limited to incubators, accelerators, angels, VC funds, corporates interested in launching or improving their startup support programs, public actors.



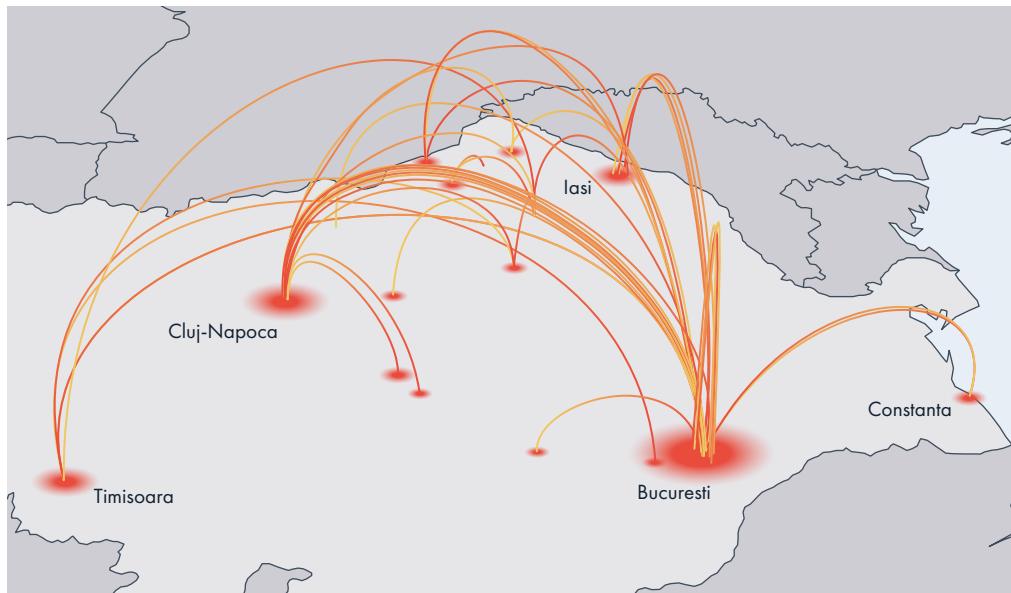
### — RATIONALE —

In most ecosystems, ecosystem enablers (or ‘startup support organizations’) play an important role. There is evidence, for example, that accelerators can not only improve various success measures for startups that receive their services but may also play a wider ecosystem coordinating function (Bone et al. 2019). However, at present there are relatively few such enablers in Romania, and those that exist are of limited capacity and variable quality. Most lack a rigorous M&E framework, which limits opportunities for learning and suggests the need for sharing good practices more widely. As indicated by the policy mix analysis above, there are relatively few instruments that are devoted to supporting ecosystem enablers, meaning that many ecosystem enablers are under-resourced and rely on financing and support from donors.

In addition, existing ecosystem enablers are concentrated primarily in the Bucharest-Ilfov region, with few entrepreneurship support structures outside of the main hubs. Enabler organizations located beyond the main hubs tend to have weaker access to networks, including financial capital and capacity building. Given that the Bucharest-Ilfov region has the highest rate of new firm creation and highest share of young and high-growth firms, it is understandable that private-sector enablers would choose to locate themselves here, where demand is greatest. However, this concentration risks exacerbating regional economic disparities.

Data suggests that the major ecosystems outside the Bucharest-Ilfov region are around Cluj-Napoca, Iasi, Timisoara and Constanta. However, the data also suggests that startups in these other ecosystems remain highly dependent upon the Bucharest ecosystem for university talent and facilities, accelerators, and funders (figure 6.3).

**FIGURE 6.3 Local Ecosystems Connectedness**



Source: World Bank Group Romanian Startup Survey 2020.

Note: The links represent the connections between the entities in the Romanian startup ecosystem. The weight of the lines represents the importance of these links (the number of connections between the cities). See <https://romania.data593.com/romania> for a high-resolution scalable version of this map.



### — APPROACH —

We suggest the need for a program to strengthen ecosystem enablers across Romania. The aim of such program would be to build overall capacity (especially outside the Bucharest-Ilfov region), to improve quality and performance measurement, and to increase the connections between enablers (in order to encourage sharing of good practice, as well as their access to resources).

The program should also include capacity-development grants for ecosystem enablers (potentially requiring matched funding from other sources such as local authorities, venture capitalists or corporates). Such grants could be spent in various ways, including such activities as subsidized maker-spaces, rapid-prototyping facilities and the provision of stipends from accelerators to entrepreneurs in order to allow founders to concentrate on startup-building activities (as is common in many other accelerator programs).

We note that several well-established accelerators (outside Romania) have established programs on behalf of other sponsoring organizations. Attracting international acceleration programs into Romania may therefore be an alternative way to establish programs in country and to expand capacity.



### — IMPLEMENTATION BODY —

This will be implemented by the Ministry of Research, Innovation, and Digitalization.



### — RISKS —

Key risks include limited collaboration between sub-national ecosystem actors. This also requires additional financing to execute program activities.



— **AMOUNT** —

Initial costs for this activity are an estimated €14.5 million.

Activity	Estimated Cost (€)
Analysis of enabler organizations	300,000
Networking/twinning and capacity-building program for ecosystem enablers to improve targeting of desirable ecosystem outcomes	13 million
Program Design and Evaluation of Enabler Support	1.2 million
Total	14.5 million



— **TIMELINE** —

Short-to-Medium-to-Long Term



— **KPIs** —

Outputs

- Funding provided for capacity building of core competencies of enablers (including internationally)
- Funding provided for collaborative program development with partners or other enablers (for example, universities, high schools, business associations, digital innovation hubs (DIHs) diaspora networks, founder networks, chambers of commerce, conference providers, etc.)
- Number of ecosystem enablers upskilled, including in performance measurement

Outcomes

- Improved performance of ecosystem enablers (improved investment readiness of companies, improved linkages to international ecosystems)
- Number of startups supported by enabler organizations
- Number of startups raising financing
- Amount of financing raised by startups
- Number of collaborative programs and events provided jointly by enablers
- Greater transparency and performance-reporting by enablers



— **ALIGNMENT WITH TOP 12 INTERVENTIONS** —

Intervention 4: Strengthen Ecosystem Enablers

## POLICY RECOMMENDATION 5

### CREATE A STARTUP FUND



FLAGSHIP



GOVERNMENT SUPPORT NEEDED



#### — OBJECTIVE —

Improve access to finance for Romanian startups



#### — TARGET BENEFICIARIES —

Romanian startups at the pre-seed, seed, and Series A stages



#### — RATIONALE —

Risk finance is a critical requirement for starting and scaling new firms. However, the Romanian venture capital sector is under-developed, meaning that venture capital remains difficult to access. Numbers of VC deals, and total value invested, are low in comparison with other European countries—although numbers of deals and transaction value increased quite rapidly between 2019 and 2021. As discussed in the policy mix analysis above, available public instruments prioritize post-revenue firms and do not provide financial support for firms at the earliest and riskiest stages.



#### — APPROACH —

This recommendation proposes establishing a new public fund to increase amount of direct capital into startups and riskier stage firms.<sup>13</sup> The design of the Startup Fund and its instruments should be informed by an in-depth study of the existing entrepreneurial finance landscape, including the existing supply of Corporate Venture Capital and investment from overseas VC firms, as well as estimates of likely demand from Romanian startups and specific financing gaps.<sup>14</sup> However, we suggest that careful consideration be given to its establishment as a co-investment fund, in order to encourage the development of private sector VCs, rather than displace this activity.

Although the fund could be government owned, it is strongly recommended that it involves private-sector partners and management expertise, including a performance-driven process for investment selection and due consideration of the need to develop a pipeline of sufficient deal-flow to sustain the development of private sector investors. There may be opportunities to leverage the diaspora network (see recommendation below) to identify co-investors.

In terms of fund size and stage, there is a particular need for pre-seed- and seed-stage funding in Romania, so we suggest that a sizeable portion of the fund should be dedicated to these stages. The exact size of the fund should be determined following the proposed study. However, to provide an indication of size, we note that average pre-seed rounds in Romania were around €150,000 in 2021, with seed rounds averaging around €1 million. A fund of €91 million would thus allow approximately twenty pre-seed investments per year plus ten seed investments per year, over a period of 7 years (assuming no co-investment and no growth in round sizes; co-investment would obviously permit a greater number of investments and/or allow some of the fund to be reserved for later stages.)

13. In recognition of the public sector's role in supporting startups, many countries are launching specific finance instruments. This list includes France, Serbia, Chile, and many others.

14. Though the EIF recently conducted an landscape analysis to inform a Fund of Funds intervention within the National Resilience and Recovery Plan, riskier stage firms, including startups, still appear to be unserved or underserved by this proposed instrument.

We further recommend that the fund be developed in coordination with the startup grant schemes discussed below (see ‘Incentivize innovation to foster knowledge spillovers into the private sector’), because grants may, to an extent, displace the need for equity-based fundraising (or vice versa). At the present time, we suggest that both recommendations are needed; however, it may be appropriate to shift resources from one instrument to the other in response to changing ecosystem needs.



### — IMPLEMENTATION BODY —

We suggest that the Ministry of Research, Innovation and Digitalization could be responsible for initial study and design of the fund. However, the establishment of the fund could be overseen by another national body such as the one-stop agency (or “ecosystem hub”), with subsequent management being overseen by this body, or by an independent board. In either case, we suggest that such the fund should have strong private-sector investor involvement and governance mechanisms.



### — RISKS —

Improper design can potentially displace or otherwise harm the development of private sector venture capital. Insufficient private sector expertise can lead to poor investment decisions or terms that dissuade private sector investors from subsequent investment. Policymakers lack awareness of how a startup fund differs from a SME fund. The one-stop agency, proposed as one potential implementation body, has yet to be established.



### — AMOUNT —

Approximate costs are as follows:

Activity	Estimated Cost (€)
Conducting an in-depth entrepreneurial finance study	1 million
Establishing an Investment Committee	5 million
Staffing for Startup Fund (employees)	5 million
Funds (to be disbursed to beneficiaries)	50 – 100 million
Total	61 – 111 million



### — TIMELINE —

Short-to-Medium Term



### — KPIs —

Outputs

- Number of total investments made at pre-seed, seed or Series A
- Amount of financing deployed at pre-seed, seed or Series A
- Number of private investors involved in fund due diligence

Outcomes

- Number of pre-seed, seed or Series A rounds in total
- Amount of co-investment by private investors at pre-seed, seed or Series A
- Number of co-investments by private investors at pre-seed, seed or Series A



### — ALIGNMENT WITH TOP 12 INTERVENTIONS —

Intervention 5: Create a Romanian Startup Fund.

## POLICY RECOMMENDATION 6

# IMPROVE ENTREPRENEURSHIP EDUCATION AND STRENGTHEN THE ROLE OF UNIVERSITIES IN THE ECOSYSTEM



FLAGSHIP



GOVERNMENT SUPPORT NEEDED



### — OBJECTIVE —

Improve quality and reach of entrepreneurship education by improving the translational role of the education system and partnership with industry.



### — TARGET BENEFICIARIES —

Students and University Staff including management



### — RATIONALE —

Universities can play many important roles in stimulating entrepreneurship—such as inspiring students and cultivating an entrepreneurial mindset, providing entrepreneurial skills, directly assisting the formation of spinouts, and transferring technologies to existing young firms to enable them to become more innovative. However, most of these functions are weaker in Romania than in other European countries. Although Romania has a high share of science, technology, engineering, and mathematics (STEM) graduates, this has not translated into high numbers of innovative startups.

Many leading entrepreneurial universities (such as the Stockholm School of Business, Aalto University in Finland, the Massachusetts Institute of Technology (MIT) Berkely, Stanford, and many others) aim to complement formal entrepreneurship education with campus extracurricular activities, including hackathons, competitions, acceleration and even access to VC funding from the university. This type of practical education helps to support the change of culture and mindset within the university and creates an ‘in-campus startup ecosystem’.

In contrast, however, the quality of Romanian entrepreneurship education is a particular concern. Although there have been numerous programs to improve entrepreneurial training, many entrepreneurs still complain that their university education did not provide them with appropriate knowledge or skills, with academic teaching of entrepreneurship being perceived as low quality, outdated, insufficiently practical and disconnected from real-world experience. This is exacerbated by the fact that many teachers and lecturing staff have limited exposure to the private sector. Entrepreneurial skills also pose considerable challenges to university management, including staff responsible for overall planning and budgeting and academic development.

In addition, university technology transfer offices (TTOs) are relatively undeveloped. In many other ecosystems, university spinouts are an important contributor to the total numbers of startups, especially at the higher-technology end of the spectrum. However, a functional review of the Romanian R&D system (World Bank 2011) that examined the institutional framework for commercialization found that technology transfer capabilities were weak, potentially hampering the formation of spinouts (as well as other mechanisms such as licensing) and contributing to the low levels of innovation amongst Romanian firms. There is some evidence that Romanian universities file patents merely to satisfy the requirements of funding instrument, and mostly without a clear commercialization strategy. Limited

## IMPROVE ENTREPRENEURSHIP EDUCATION AND STRENGTHEN THE ROLE OF UNIVERSITIES IN THE ECOSYSTEM

resources and the lack of a strategic approach also means that most patent applications never proceed beyond local filing and are not taken to the Patent Cooperation Treaty (PCT) phase or beyond.

The lack of linkages between research organizations and firms has significant impact upon Romanian business, as discussed in the following recommendation (as well as in the interlinked *Output 1*). Various approaches to improve linkages are being trialed in the World Bank's current 'Supporting Innovation in Romanian Catching-up Regions' project. This project supports the EC's efforts to build the institutional capacity of Romanian catching-up regions to design and implement regional Innovation & Entrepreneurship support programs based on international good practices. Under this engagement, the World Bank is building the capacity at the regional level, to design and roll out innovation programs. The conclusions of that project should be read alongside these Recommendations.



### — APPROACH —

Several previous projects funded by the EC have tried to improve entrepreneurial skills training and 'third mission' activities within Romanian universities. In addition, a number of highly relevant pilot programs were implemented in the World Bank project 'Supporting Innovation in Romanian Catching-up Regions'. We therefore recommend that a review of these projects is undertaken before new initiatives are launched or these programs are scaled.

In addition, we suggest that this section should be read with reference to the others; specifically, there may be opportunities to combine entrepreneurial skills training with digital skills training (as discussed under 'Promote the Digital Economy'), and a need to co-ordinate the supply-side interventions discussed in this section with the demand-side interventions of the following section ('Incentivize innovation to foster knowledge spillovers into the private sector').

With that said, we recommend that several actions would improve entrepreneurship education for students, for career counselors and university lecturers, as well as building wider entrepreneurial capabilities within these institutions, and engagement with the wider ecosystem:

### REMOVING REGULATORY HURDLES FOR ENTREPRENEURIAL EDUCATION

Exposure to successful entrepreneurs may be expected to inspire and encourage prospective entrepreneurs, as well as helping entrepreneurial education remain relevant and up to date. Currently, however, many ecosystem members believe that the regulations for guest lecturers at schools and universities prevent entrepreneurs and mentors without a teaching qualification from speaking to students. These regulations should be relaxed or clarified to allow educational institutions to provide students with more direct exposure to entrepreneurs and industry experts.

### INFUSING ACADEMIA WITH ENTREPRENEURS AND INDUSTRY EXPERTS TO FACILITATE KNOWLEDGE TRANSFER

As well as inviting guest lecturers, universities should improve and encourage mobility between the private sector and academia more broadly. This may require changes to staff recruitment policies; for example, it is common for academic institutions to place heavy emphasis on the publication history of academic staff, but the output of papers is likely to be reduced while working in industry.

## EDUCATOR TRAINING & STUDY VISITS

For existing university professors and lecturers to increase their practical knowledge about entrepreneurship, and ensure that this is up to date, we propose a program to ‘educate the educators,’ including facilitating lecturer exchange programs—for example, inviting entrepreneurs to visit leading institutions in Romania, as well as funding study visits of Romanian academic staff to visit highly entrepreneurial universities and well-developed startup ecosystems abroad. Closer links between universities and enabler organizations could also be part of this action.

## INCENTIVES & METRICS FOR ENTREPRENEURSHIP & ENTREPRENEURIAL EDUCATION

Existing obligations on universities to attempt to facilitate technology transfer, and to report the impact of this, are insufficient motivators for entrepreneurial behavior amongst staff and students. We suggest the need to develop and implement specific incentives—at both an institutional level and an individual level—for universities, high schools, and other formal and informal education institutions, in order to encourage both entrepreneurship and entrepreneurial education. These incentives may be financial—such as specific public funding that is linked with entrepreneurial outcomes. However, they could also be non-financial—such as rewarding entrepreneurial experience or industry involvement by staff with faster promotion (or even specifying this a requirement for career progression); the allocation of free time to entrepreneurial activities; or the prestige of awards.

To accompany this, we suggest that the annual metrics for enterprise engagement that universities are required to publish should be expanded to include a wider range of entrepreneurship and enterprise activities. This might include the number of students participating in startup events (for example, hackathons and business plan competitions); the number of students receiving enterprise education lessons; the number of students or staff attending time-bound practical residencies in firms, the number of student spinouts, etc.

## ESTABLISHING AN ADVISORY COUNCIL FOR EDUCATIONAL REFORMS

To ensure that entrepreneurship education remains as relevant as possible, we recommend the establishment of an advisory group or council comprising of public representatives and key stakeholders from the Romanian startup ecosystem (incubators, accelerators, VCs, angel investors, founders, industry representatives and diaspora). This body would work with policymakers and institutions to help identify possible ongoing educational reforms. The same body could also advise on the action above in terms of determining metrics that members consider most relevant and in terms of advocating for other measures that may promote academic-industry mobility and enterprise awareness (such as sponsored scholarships, etc.).

## EXPANSION OF RESEARCH VALORIZATION FUND

The World Bank's project on 'Supporting Innovation in Romanian Catching-up Regions' piloted the application of research valorization grants in two regions. Such grants are not intended to fund basic research, but to test or demonstrate the potential for the commercial application of previous research. Qualifying activities may include market research and analysis, demonstrating technical feasibility / proof-of-concept, certifying and compliance (for example, demonstrating that a technology can meet a particular industry requirement) and so on.

We recommend that this pilot scheme be reviewed and expanded. We suggest that grants ranging from around €25,000 per project (for market research and industry engagement) up to around €100,000 (for production of prototypes and demonstrators) would be appropriate, with the expectation of funding 5 programs per year per region. Applicants should be required to demonstrate clearly how the proposed valorization activities will increase the prospect of commercialization.

We emphasize that the purpose of such funding is not to fund spinouts for the entire journey from lab to market, but to help develop promising early-stage ideas to the point where they have been sufficiently de-risked to find traction and funding from the private sector. This requires that the private sector be sufficiently capable and incentivized to continue development, which is likely to depend upon complementary actions (including other recommendations within this report). We therefore recommend that this program is closely monitored to ensure that the size of grants and appropriate, and that the stage of development of the technologies is sufficiently mature. Moreover, as institutional capacity develops, and as research staff develop greater entrepreneurial awareness and intent, demand for the fund is likely to increase. Ongoing M&E of the fund is therefore important, and policymakers should consider expanding the fund as appropriate.

## EXPANSION OF TECHNOLOGY TRANSFER CAPABILITY BUILDING PROGRAM

The World Bank's 'Supporting Innovation in Romanian Catching-up Regions' project has also piloted grants for capacity-building programs within Romanian university TTOs. We recommend an expansion of this program. Specifically, we suggest that funding should be made available to support the Romanian National Network for Innovation and Technology Transfer (ReNITT) in developing and promoting good practice and training courses. Funding should also be provided to connect individual TTO staff more closely with international networks such as the Association of Science and Technology Professionals (ASTP) and the Association of University Technology Managers (AUTM) in order to increase exposure to good practice. This should be done in conjunction with the recommendation above concerning clarification and awareness-raising of regulations relating to IP ownership and commercialization.

## ENABLING BETTER USE OF RESEARCH & DEVELOPMENT INFRASTRUCTURE

One mode of collaboration between startups (and other firms) and universities concerns the use of research facilities and infrastructure. Many universities possess significant publicly funded facilities (for example, specialist manufacturing / rapid prototyping equipment, testing and inspection facilities) that are unaffordable for firms but that may be of significant benefit in developing innovative products and

## IMPROVE ENTREPRENEURSHIP EDUCATION AND STRENGTHEN THE ROLE OF UNIVERSITIES IN THE ECOSYSTEM

services. Much of this infrastructure has been catalogued<sup>15</sup> but remains poorly signposted to startups and other firms, with a lack of clarity concerning the processes by which firms may obtain access. We therefore propose a pilot accessibility program. This pilot program would seek to identify suitable incentives for universities to share their infrastructure, as well as identifying barriers (for example, concerns over liability, damage, or trained staff), suggesting template agreements, and checking that infrastructure is correctly mapped. This is currently being piloted by the Structured Contract Research Program being undertaken by World Bank in collaboration with universities in two regions of Romania.



### IMPLEMENTATION BODY

The Ministry of Education, with the support of the Higher Education central agency in charge of higher education programs and enhance innovation, Executive Unit for the Financing of Higher Education, Research, Development and Innovation (UEFISCDI), should be the sponsoring authority for this policy recommendation in joint consultation with the Ministry of Entrepreneurship and Tourism and Ministry of Research, Innovation and Digitalization. The Ministry of Education would also be advised by a board comprising public representatives and key stakeholders from the Romanian startup ecosystem (incubators, accelerators, VCs, angel investors, founders, and diaspora).



### RISKS

This intervention requires a multi-pronged policy approach, addressing capabilities of students, professors, trainers, and knowledge networks. This intervention also requires leadership from the Ministry of Education. There is a risk that additional reporting requirements impose additional costs for institutions and individuals, and that entrepreneurial behavior becomes overly skewed towards the chosen metrics. The Ministry of Education can use UEFISCDI or a relevant body as the link between universities, funding authorities, research centers, industry, entrepreneurs, and other stakeholders to mitigate this risk.



### AMOUNT

Approximate costs are as follows:

Activity	Estimated Cost (€)
Examining and removing regulatory hurdles related barriers to recruiting entrepreneurial staff	400,000
Educator training and study visits	10 million
Developing incentives and metrics for university entrepreneurship activities	5 million
Review and development of translational / entrepreneurial metrics	100,000
Expansion of the Research valorization fund	14 million
Expansion of the Technology transfer capacity-building program	5 million
Enabling better use of R&D infrastructure (Expansion of Structured Contract Research pilot)	4 million
Total	38.5 million



### TIMELINE

Medium-to-Long Term

15. <https://eiris.eu>



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**KPIs**

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**Outputs**

- Published revised or clarified regulations concerning guest lecturers (to enable entrepreneurs and mentors without a teaching qualification to become more closely involved with schools and universities)
- Number of university staff attending entrepreneurship training, study visits or exchange programs
- Published incentive plan for universities to encourage entrepreneurship and entrepreneurial education
- Published list of annual metrics for enterprise engagement that will be required from universities. This should be determined following consultation, but we suggest that this is likely to include:
  - Number of students participating in startup events (for example, hackathons and business plan competitions)
  - Number of students receiving entrepreneurial education lessons
  - Number of students or staff attending time-bound practical residencies in firms
  - Number of student spinouts
- Number of contracts for facilities hire or use

**Outcomes**

- Increase in number of university staff working in collaboration with industry
- Increase in number of staff with industry experience
- Increase in number of students pursuing entrepreneurship (for example, participating in business plan competitions, forming startups, working within startups)
- Increase in number of university spinouts



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**ALIGNMENT WITH TOP 12 INTERVENTIONS**

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Intervention 3: Improve Entrepreneurship Education.

## POLICY RECOMMENDATION 7

# IMPLEMENT A STARTUP VISA PROGRAM



FLAGSHIP

TIME  
SENSITIVEQUICK  
WINGOVERNMENT SUPPORT  
NEEDED

### — OBJECTIVE —

Attract international talent to mitigate existing “brain drain” through a “brain gain” approach.



### — TARGET BENEFICIARIES —

Romanian Startups



### — RATIONALE —

As noted in the previous recommendation, Romania suffers a ‘brain drain’ of talent. As well as making better use of the emigrant diaspora, we suggest this drain should be countered through pro-active ‘brain gain’ measures, aimed at attracting talent and other resources into Romania.

Startup Visas (also referred to as ‘Entrepreneurs Visas’ or ‘Innovators Visa’) are used by over 30 countries across the world to attract immigrant entrepreneurs who are deemed likely to contribute to the local economy. Typically, such visas enable residency for a period, subject to certain conditions—which may include an assessment of the feasibility of the applicant’s business idea and its potential scalability, sponsorship by an ecosystem enabler in the host country, proof of sufficient capital or other means to support themselves and any dependents, and foreign language skills. Some schemes also apply criteria relating to the startup’s age, investment, or turnover; a few schemes, such as Lithuania’s Startup Visa, also limit startups to specific technology sectors. In some cases, a Startup Visa converts to a permanent residency visa if certain conditions are met.

Several Startup Visa schemes extend to investors, too. For example, Portugal’s Startup Visa offers a fast track to foreign investors (and their dependents) from non-EU countries to obtain a Residence Permit in Portugal. To be eligible, investors must invest €175,000 into a business incubator including €25,000 of capitalization into the venture. Investors are also required to work with a business incubator for three years (Harvey Law Group 2022). A few schemes, such as that offered by Startup Chile, also aim to attract entrepreneurs from abroad to become mentors of local entrepreneurs, and then later aim to leverage these connections as an overseas network for growth.

In addition to Startup Visas, numerous countries—including Romania (The Romanian Parliament 2022)—offer a ‘Digital Nomad’ visa, which typically targets remote workers, including freelancers. These travel authorizations are relatively easy to obtain, like tourist visas, but allow longer stays and permit visa holders to work during their stay, provided they do so independently and remotely. In order to qualify for this visa, workers must typically prove they will have regular income for the duration. Some countries, such as Croatia and Italy, offer tax exemptions or detaxation of all income generated to attract such workers (Smartphone ID 2022). (See Annex E. List of Countries with a Startup Visas and/or Digital Nomad Visas for a table of countries that provide immigration incentives for entrepreneurs, freelancers, and investors.



## — APPROACH —

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We recommend a Startup Visa scheme to provide a simple fast-track for immigrant entrepreneurs or investors wishing to relocate to Romania.

We suggest that development of a Romanian Startup Visa program should start with a review of international examples, to identify good practices. However, we suggest that an effective Startup Visa scheme is likely to have:

- Well-defined policy objectives that clearly identify potential desirable spillovers from attracting entrepreneurs & digital nomads
- An assessment of the likely costs of the scheme, with the fiscal cost of incentives being systematically tracked and published. (This should also consider indirect effects, such as what may happen if Romania enters a ‘bidding war’ race with other jurisdictions for talent)
- Clear information about program that is provided to applicants in a user-friendly and accessible format.
- A simple process for applicants.
- An objective assessment process with clear guidelines (for example, a points-based assessment that minimizes opportunities for assessors’ bias, bribery, or malfeasance).
- Incentives that are clearly laid out in law and not negotiated on a case-by-case basis.
- Incentives that are linked to clearly defined policy objectives.
- M&E mechanisms that can verify whether the policy objective of Startup Visa incentives is being accomplished and can evaluate the cost-effectiveness of the scheme.
- Support and involvement from ecosystem enablers who are willing to assess applicants’ business plans and sponsor applications.
- Effective safeguards that prevent abuse.

In addition, we recommend an expansion of the existing ‘digital nomad’ scheme because there are likely to be spillover benefits for startups arising from an increased concentration of high-quality digitally experienced talent, even if such individuals are not entrepreneurs themselves. Various studies have shown that promoting such mobility stimulates an exchange of ideas that foster and encourage economic growth.<sup>16</sup> Other possible spillover effects include increased usage of online platforms, which can help push adoption within Romania.



## — IMPLEMENTATION BODY —

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Implementation of this recommendation is likely to require collaboration between the Ministry of Research, Innovation and Digitalization; the Ministry of Interior; the Ministry of Foreign Affairs; and the Ministry of Labor and Social Protection.

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<sup>16</sup>. One such study found that scientific migration stimulates the quality of research and the biggest gainers from migration could be the labs that attract people from different backgrounds and disciplines to create a dynamic team. For more information, see: Hunter, Philip. “Brain drain, brain gain or brain sharing? New studies of the migration routes of scientists show that international mobility benefits all parties including countries that are net exporters of researchers.”



— RISKS —

There is a risk that the scheme could be abused by people seeking entry into Romania without genuine entrepreneurial intentions. There is a risk that the firms created are low quality and do not create economic impact or new jobs. There is a risk that entrepreneurs are unwilling to relocate to a nascent entrepreneurship ecosystem that is not yet conducive to scale-up of high-growth firms and startups, especially during a pandemic. There is a risk that Digital Nomad visas do not result in the expected knowledge spillovers.



— AMOUNT —

Implementation and enforcement of a Startup Visa should not be much more expensive than other visa types. Costs of designing such a Startup Visa program and any specialized incentive schemes are assumed to be up to €750,000. This covers rapid benchmarking of other global Startup Visa programs, including a cost-benefit analysis of accompanying dissemination and talent and investor retention programs.



— TIMELINE —

Short-to-Medium Term



— KPIs —

Outputs

- Published review of global Startup Visa schemes
- Number of “Romanian Startup Visas” granted
- Number of “Digital Nomads” recognized in the scheme
- Number of ecosystem enablers co-sponsoring Startup Visas to attract international talent for ecosystem building

Outcomes

- More skilled global talent in Romanian firms
- More skilled global founders in Romanian firms
- Number of ecosystem enablers co-sponsoring Startup Visas to attract international talent for ecosystem building



— ALIGNMENT WITH TOP 12 INTERVENTIONS —

Intervention 7: Implement Startup Visas.

## POLICY RECOMMENDATION 8

### BUILD AND PROMOTE A NETWORK OF ROMANIAN FOUNDERS AND DIASPORA



FLAGSHIP



#### — OBJECTIVE —

Leverage expertise, exposure, and networks of successful Romanian founders and diaspora



#### — TARGET BENEFICIARIES —

Romanian ecosystem enablers, Romanian diaspora, Successful Romanian founders (as defined by ability to scale-up)



#### — RATIONALE —

Human capital is vital for the development of startups. However, it is well-known that Romania has for several years suffered from a ‘brain drain,’ with much top talent leaving the country. In addition, the pandemic has dramatically accelerated remote working across the globe, giving rise to new risks of a “virtual brain drain,” whereby talent is (remotely) poached by overseas firms and is thus unavailable to local startups. However, the presence of a large Romanian diaspora (the fifth largest diaspora group in the world) also creates a significant opportunity: a network that can support Romanian entrepreneurs in expanding overseas, as well as potentially acting as investors and advisors. Moreover, the globalization of talent also creates opportunities to gather ideas, insights, and best practices from across the globe that can be applied to support the starting and scaling of firms in Romania. Successful Romanian startups and Romanian diaspora have greater expertise, exposure, and networks than the general population of Romanian tech startups.<sup>17</sup>

In addition, there are opportunities to improve the visibility of Romanian startups and technology in other countries. Doing so will help raise the profile of the ecosystem among potential customers, investors, and other ecosystem participants, improving both market access and foreign investment into Romanian startups. (See also the recommendations below concerning “Scale-up through exports”; these recommendations should be coordinated.)



#### — APPROACH —

We recommend the creation and curation of a new network of Romanian founders and diaspora that connects with Romanian ecosystem enablers. The initial core of this network may be identified using existing databases of high-growth startups, including diaspora entrepreneurs and female entrepreneurs. It may potentially also include prominent business leaders, researchers, investors and so on.

<sup>17</sup>. This refers to a representative sample of tech startups by age, region, and sector that focuses on young digital and high-tech manufacturing businesses. This subset comprises all firms in Romania that are under five years old and are classified as digital (computer programming and software development, and other digital) and high technology manufacturing. This dataset has a total of 24,502 firms, and a representative sample of 542 firms was used in this survey. The sample was stratified by region (Bucharest metropolitan area, Cluj, Brasov, and other regions) and by sector (core digital, other digital, and high-tech manufacturing). The sector definition was informed by observing the predominance of similar activities in the PitchBook/CB Insights data. The sampling frame was based on Lista Firme, which has the contact information for all active firms in the Romanian Business Registry.

The launch of this network should be supported by a wide-reaching marketing and communications campaign, leveraging use of tech blogs, popular social media platforms, and other media.

This network will require a clear value proposition for members to join, as well as ongoing curation and regular “value-adding” events in order to ensure it remains sufficiently attractive for members to remain involved. We suggest that this may require testing or piloting in advance of the network’s creation, but it may include: networking events (potentially hosted by local embassies or consulates); opportunities to influence Romania’s ambitious national startup support strategy; media exposure and opportunities to showcase successful startups at leading industry events (for example, Slush, VivaTech, the Consumer Electronic Show).

Members of this network should also be incentivized to participate in a Romanian ecosystem capacity-building program. The objective of this will be to bridge knowledge transfer gaps between ecosystem enablers who lack access to critical resources and networks, as well as developing a stronger culture of “giving back,” which exists in many other successful ecosystems. The network could, for example, help identify experienced mentors for startups; provide advice on exporting and overseas market conditions; help connect talent with firms; advise the startups fund (see recommendation above); and help share good practice amongst angel networks and VCs. Although mentors and advisors should arguably be willing to provide their time *pro bono*, as is the case in other ecosystems, this is not yet an established component of Romanian startup culture and so we recommend that compensation be provided to ensure their participation and commitment.

Beyond building capacity for ecosystem enablers, the network of successful founders and diaspora may also act as an advisory group for policymakers wishing to develop future entrepreneurship policies and programs. Again, we suggest that consideration be given to compensation.



## IMPLEMENTATION BODY

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We suggest that the implementation body for this reform is the Ministry of Entrepreneurship and Tourism. The network itself could potentially be managed by one of the ecosystem enablers (for example, the University of Bucharest, given that many of the diaspora are alumni). However, it could also be a stand-alone network with independent management.



## RISKS

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A key risk is the willingness of successful Romanian founders and diaspora to join a network, maintain involvement and participate in activities. This may be mitigated to some extent through honorary titles or compensation mechanisms.

Total Costs for Comprehensive Package of Reforms:

Activity	Estimated Cost (€)
Initial establishment of network of founders and diaspora	250,000
Ongoing program curation (for example, network manager salary and office costs)	350,000
Program of events and activities, including overseas networking events for diaspora (for example, 2 events per year for 7-year program duration, across 10 key ecosystems)	1,400,000
Deepening linkages to ecosystem enablers (for example, compensation for mentors and advisors, roundtables)	500,000
<b>Total</b>	<b>2.5 million</b>



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**TIMELINE**

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Formalizing a Romanian founders and diaspora network can be accomplished in the short-term. (It will, however, require ongoing management.) Deepening linkages to ecosystem enablers can be accomplished in the short-to-medium term. Involving Romanian founders and diaspora as policy advisors on critical priorities can be accomplished in the short-to-medium-term.



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**KPIs**

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**Outputs**

- Size of network (number of individuals, diaspora, including number of total founders, female founders who are members)
- Number of events organized by network
- Number of attendees at events organized by network
- Number of new introductions made between founders / diaspora and ecosystem enablers
- Number of new introductions made between founders / diaspora and policymakers

**Outcomes**

- Numbers of advisors and mentors of Romanian firms found through the network
- Numbers of angel investors & VC investors in startups, originally connected through the network
- Number of Romanian founders and diaspora involved in policy advisory boards



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**ALIGNMENT WITH TOP 12 INTERVENTIONS**

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Intervention 9: Startup to Scaleup through Exports.

## POLICY RECOMMENDATION 9

# SCALE UP THROUGH EXPORTS



FLAGSHIP



GOVERNMENT SUPPORT NEEDED



### — OBJECTIVE —

Help digital startups grow and scale by widening their market opportunities.



### — TARGET BENEFICIARIES —

Startups seeking to expand into foreign markets



### — RATIONALE —

The domestic market is too small for many innovative firms, so exporting is crucial in enabling them to scale-up. This recommendation focuses on improving access of Romanian startups to overseas markets through diplomatic missions and leveraging the Romanian founders and diaspora network (see recommendation above) in critical markets.

The domestic market for many digital startups is inhibited by low level of digital skills and limited use of e-commerce platforms among the general public (see also Recommendation 11). Unfortunately, export rates among Romanian firms are also very low in comparison with other countries. Many entrepreneurs report being dissuaded from exporting because they do not understand the conditions and culture in overseas markets, and do not know where to start. This is exacerbated by the under-development of overseas networks; by the lack of understanding of startups amongst trade attachés and related civil servants; and by a lack of appropriate skills and confidence amongst entrepreneurs. There is also a perceived lack of support from government and Romanian trade offices abroad for startups seeking to internationalize. Furthermore, many entrepreneurs report poor perceptions of Romanian startups abroad, which may present a further barrier to exporters.

Fortunately, there is evidence suggesting that, once a firm starts exporting, further expansion into other overseas markets is easier. We therefore recommend that attention be focused on persuading Romanian startups to take their ‘first step’ and begin exporting. Other countries have sought to make this easier by providing overseas facilities where first-time exporters can find a ‘soft landing’ before developing better local connections; one example is Australia’s Landing Pads, which is a network of physical locations in key markets that provide flexible office space and support in establishing local connections.

In addition, there is a need for better strategic advice to startups, as there is a tendency for Romanian firms to target ‘aspirational’ markets, such as Estonia, rather than basing their choice of markets on knowledge of existing trade links, diaspora connections and so on.



## — APPROACH —

We propose a package of several measures:

- It is recommended that policymakers start with an analysis of barriers to export for Romanian digital startups and innovative firms. This should examine other startup internationalization programs to identify good practice, identify critical markets and a strategy for ‘soft landing pads,’ and understand the presence of, and possible support from, Romanian diaspora (as per the recommendation above). Such a study will inform the following actions.
- Encouraging Economic Counsellors / Commercial Attachés within Romanian diplomatic missions (embassies and consulates) located in key markets to promote Romanian startups (for example, through specialized awareness-raising events involving high-quality Romanian entrepreneurs and key stakeholders from local startup ecosystems).
- Improving the reputation of Romanian startups through an annual showcase of leading firms and talent at global startup events. This should include participation in reputable international events or tradeshows (such as Global Startup Award, the Biotech Showcase, TC Disrupt, 4YFN, Slush, etc.).<sup>18</sup> Funding should be made available for subsidized attendance at such events; this could be run as a public call, open to individual entrepreneurs. We also suggest that there may be value in subsidizing enabler-led ‘study missions’ to key markets. This could potentially be an extension of the existing Program to Support Internationalization of Firms (PINT) but should have a specific focus on high-growth potential startups.
- Domestic “export readiness” program for startups. This program would aim to increase the number of exporting startups by providing basic information about the processes and regulations related to exporting, and the factors to be considered when entering foreign markets. It would build upon the analysis of export barriers to address key concerns or gaps in knowledge amongst startups. The program would also convey information about trade missions and other development activities.
- Piloting an international network of “landing pads”. These would be physical locations in key markets (for example, United States east coast, United States west coast, London, Tel Aviv, Singapore—to be determined by the study) that provide flexible office space—like a coworking space—for incoming Romanian startups. Importantly, the Landing Pads would have close links to local Embassies, in order to provide advice on immigration, visas, etc., as well as local diaspora. They would also seek to foster peer-to-peer interaction and learning between Romanian startups located in the Landing Pad and may also run networking events to connect incoming startups with Romanian expats. Chambers of Commerce should also play a role here (for example, creating campaigns to help startups export). The strategy for the development of this network should be developed as part of the first action; we suggest that it might be appropriate to start with a 2-year pilot in 3 key locations, which is then expanded.



## — IMPLEMENTATION BODY —

The implementation body for this reform includes the Ministry of Entrepreneurship and Tourism, Ministry of Foreign Affairs, Export Promotion Agencies, the Department for Romanians Abroad, Romanian Embassies / Diplomatic Corps in critical markets in coordination with the Romanian founders and diaspora network.



## — RISKS —

The key risk is coordination between the various ministries and agencies. Additionally, there needs to be a pipeline of viable, high-growth firms, ready for export. Other risks include lack of critical mass of

18. Romania hosted its first country pavilion during the 2019 TechCrunch Disrupt conference in Berlin.

firms in a given sector.



### — AMOUNT —

The following provides estimated costs for types of activities:

Activity	Estimated Cost (€)
Strategic plan for the promotion of startup exports, including development of strategy for pilot Landing Pads and analysis of existing barriers	500,000
Grants for Startup Diplomacy / Showcase events	1 million
Grants for Startup- / Enabler-led study missions and visits to key startup events	1 million
Export Readiness Programs	2 million
Landing Pads pilot – Annual Rent (for example, in coworking space hub) <sup>19</sup> for 2 years	125,000 x 3
Landing Pads pilot – Staffing* (2 full-time representatives) * this can be complemented by leveraging locally based diaspora	250,000 x 3
Landing Pads pilot – Program Budget (for example, networking events; specific expert advice or content)	500,000 x 3
Evaluation of Landing Pad pilot program	200,000
<b>Total</b>	<b>7.325 million</b>



### — TIMELINE —

Short-to-Medium-to-Long Term



### — KPIs —

#### Outputs

- Publication of a strategic startup export and “landing pad” pilot plan
- Number of Romanian Startup visit / showcase events held overseas
- Number of attendees of Romanian Startup visits / showcase events held overseas
- Number of recipients of Competitiveness Program training
- Number of “landing pads” established
- Number of startups hosted / facilitated by “landing pads”

#### Outcomes

- Increase in percentage of startups exporting (>1 percent of revenue)



### — ALIGNMENT WITH TOP 12 INTERVENTIONS —

Intervention 9: Startup to Scaleup through.

19. Indicative costs based on lowest-cost option available through PlugnPlay, a large startup campus in Silicon Valley that has successfully attracted numerous corporates, startups, and international actors (Plug and Play 2022).

## POLICY RECOMMENDATION 10

### INCENTIVIZE INNOVATION TO FOSTER KNOWLEDGE SPILLOVERS INTO THE PRIVATE SECTOR



FOUNDATIONAL  
LONGTERM



TIME  
SENSITIVE



GOVERNMENT  
SUPPORT NEEDED



#### — OBJECTIVE —

Foster knowledge spillovers into startups and the private sector by leveraging universities and research and development institutes.



#### — TARGET BENEFICIARIES —

Universities, research and development institutes, and startup founders



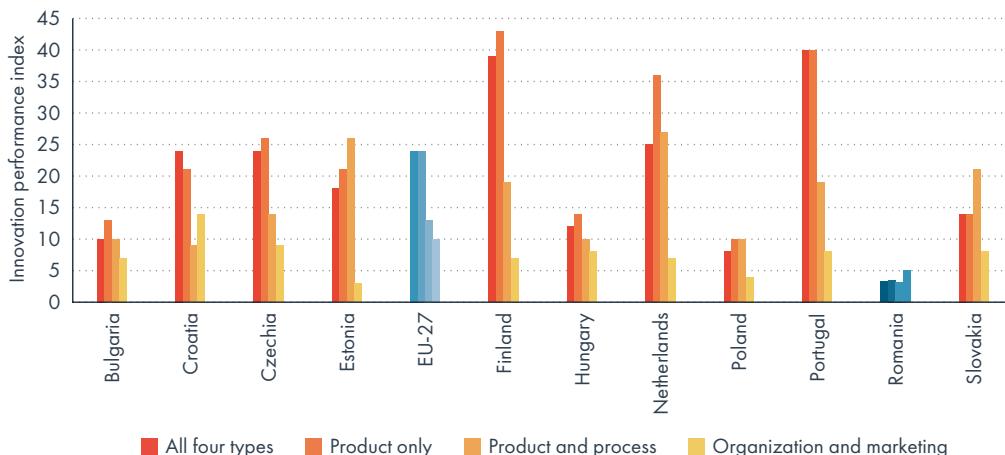
#### — RATIONALE —

The previous recommendation (“Improve Entrepreneurship Education and strengthen the role of Universities in the ecosystem”) sought to stimulate the supply of innovation from public research. However, if this supply is not met with a corresponding demand from within the private sector, then it is unlikely to result in more innovations being brought to market. This recommendation therefore aims to encourage the demand side of innovation within the private sector, which is currently relatively weak in comparison with other European countries. This recommendation is *not* intended to address the wider gaps relating of technology adoption and non-R&D innovation that exist within Romania, which we recognize as important, but which are beyond the scope of this report.

Despite large investments in R&D infrastructure projects, public sector investments are not translating into private sector innovation, nor is there substantial demand from private sector firms to build upon the innovations of universities and research institutes. As mentioned in the introduction, and discussed in depth in the interlinked *Output 1* report, Romanian firms are significantly less likely to innovate than the EU average. Only 10 percent of Romanian firms introduced a new or significantly improved process or service in the previous twelve months, compared with an average of 60 percent for the EU (Eurostat 2018). Moreover, small firms are especially unlikely to innovate in Romania. Large firms are twice as innovative as smaller firms, whereas across the EU the difference is only 30 percent. The gap between Romanian firms and their international competitors is seen in all types of innovation, although it is especially large in the innovation of new products (see figure 6.4):

In addition, Romanian firms have a low production of IP. Romania has around 20 patent applications per billion regional gross domestic product (GDP) in purchasing power standards (PPS); this contrasts with Poland, Croatia, and Bulgaria each filing over 30 patent applications per billion GDP, and innovation leaders such as Israel filing over 140 patent applications per billion GDP (European Commission 2020a).

One important reason for this is the lack of strong linkages between Romanian firms and universities. Various measures of university-industry collaboration and collaboration between innovative SMEs and other organizations (for example, European Commission 2021b) suggest that Romania lags its counterparts in this regard. This means that public sector investments in university research are not translated effectively into private sector patents and related innovations.

**FIGURE 6.4** Innovation Performance by Type of Innovation

Source: Eurostat 2018.

Note: Innovation refers to the implementation of a new or significantly improved product (good or service), process, marketing method, or organizational method in business practices, workplace organization, or external relations. EU-27 = the 27 European Union member states excluding the United Kingdom.



## — APPROACH —

Various approaches to building linkages between research organizations and firms are being trialed in the World Bank’s “Supporting Innovation in Romanian Catching-up Regions” program, although most of the interventions piloted in that program are “supply-side” focused. We suggest that several activities can be taken now to stimulate the demand side of this technology transfer, including:

### INCENTIVIZING R&D IN EARLY-STAGE FIRMS

Existing R&D incentives appear to be inadequate in stimulating the necessary activity in firms and are relatively limited in comparison with many EU countries. Total direct government funding of business R&D, as a percentage of GDP, is well below the European average (OECD and European Commission 2021). (As an example, Poland allocated €3 billion of €3 billion in the last programming period to business R&D support).

One important incentive mechanism is R&D tax credits. Current Romanian R&D relief has remained relatively unchanged in recent years and permits a deduction of 50 percent of costs. However, by comparison many other countries offer much more generous relief: for example, the United Kingdom R&D tax relief scheme permits a “super deduction” of 230 percent of qualifying R&D costs for SMEs. We therefore recommend an expansion of R&D relief.

However, although R&D tax credits are effective at stimulating R&D (Bloom, Griffith, and Van Reenen 2002), such schemes still require that firms to fund the R&D themselves, prior to claiming relief. This incentive is thus more helpful for scaling firms than for driving R&D in young startups and other firms that are not yet revenue positive. As was discussed in the Policy Mix (see Part One of this document, section 2.3.5), there is already a bias in the existing mix of instruments towards mature, profitable firms. Increasing R&D tax credits are unlikely to correct this bias and may exacerbate it.

For this reason, we recommend that an expansion of R&D credits be accompanied by direct grant funding for R&D, targeted specifically at startups and small firms—which, as noted in Part One of this

## INCENTIVIZE INNOVATION TO FOSTER KNOWLEDGE SPILLOVERS INTO THE PRIVATE SECTOR

report, are often not the primary target of existing instruments. Such grants should be developed with consideration to the various recommendations in Part One: for example, they should have specific focused objectives, low administrative burdens for applicants, low bureaucratic burdens for administrators, a clear logic for the intervention, and robust instrument-level evaluation. This is likely also to require an expansion of the institutional capacity to distribute such funding. In addition, the grants should be coordination with the startup investment fund (see recommendation above: ‘Create a startup fund’) because, as previously noted, grants and equity investment may displace each other to a degree.

Because costs for grants and tax reliefs will depend both on the exact design of the instruments, the definition of qualifying R&D and the uptake by firms, we recommend that new instruments are pilot-ed for a limited period in order to gauge demand, with budget allocated for a comprehensive evalua-tion of the schemes.

### ENCOURAGING CONSORTIA FOR COLLABORATIVE RESEARCH

Many countries encourage collaborative research between firms and research organizations using collaborative research grants, which are restricted to collaborative partnerships or consortia. Such collaborations are known to encourage the exchange of both explicit knowledge and tacit knowledge, with university collaborations being associated with innovative, new-to-market products (Belderbos, Carree, and Lokshin 2004; Chun and Mun 2012). Larger research consortia may also be particularly helpful in reducing coordination failure and in stimulating ‘pre-competitive’ research or other re-search of low appropriability (that is, difficult for any one firm to capture for its own competitive advan-tage—meaning that there is a reduced incentive for any one firm to invest in its production, even if it benefits the sector as a whole).

We suggest that collaboration formation and consortium formation should be encouraged through the creation of a new collaborative research grant scheme, explicitly requiring the involvement of at least one university partner and at least one private sector firm (ideally an SME). The scheme could initial-ly be targeted towards solving specific societal challenges, such as climate change or sustainability, for which open calls for proposals are invited. Responding consortia or partnerships should be led by a private sector firm, in order to ensure a focus on commercial applications. We suggest that universi-ty partners should still have their costs funded at 100 percent, and that private sector partners may potentially receive a subsidy of their eligible costs, depending on the firm size and the nature of the project. As with the action above, this is likely also to require an expansion of institutional capacity in order to administer the scheme.

### ESTABLISHING KNOWLEDGE TRANSFER SECONDMENTS

We recommend that technology- and knowledge-transfer (both explicit and tacit) is further promot-ed through the public funding of knowledge transfer secondments. Such a scheme would subsidize the secondelement of members of academic staff into a firm for a duration, with the specific purpose of encouraging knowledge transfer. It could potentially also operate in reverse—that is, subsidizing the movement of an industry researcher into a university or other research institution. Secondments would be time-limited but tailored to the needs of the firm. For example, secondments under the Knowl-edge Transfer Secondments (KTS) scheme funded by the United Kingdom’s Engineering and Physical Sciences Research Council (EPSRC) may last between 6 weeks and 2 years. Proposed secondments should be appraised by a panel, including senior academics, to determine the quality and feasibility

## INCENTIVIZE INNOVATION TO FOSTER KNOWLEDGE SPILLOVERS INTO THE PRIVATE SECTOR

of the proposed project, and the likely business impact that may result from knowledge transfer. The scheme could potentially be managed at the sub-national (regional) level. Establishment of the scheme will need to address regulatory issues within universities that may inhibit the mobility of researchers.

### INNOVATION VOUCHERS

The recommendation above proposes a scheme to encourage Universities and other research organizations to make available their research equipment and infrastructure. To complement this, we propose a scheme targeted at startups and other firms to subsidize the cost of research relating to the use of these facilities. This would take the form of an ‘innovation voucher,’ which would use public funds to pay for a portion of R&D costs in qualified research organizations. We suggest that the value of the voucher should be relatively small, with the application process for vouchers being relatively ‘light-touch’ to encourage their adoption; for example, the vouchers could pay for up to €10,000 of facilities use and accompanying academic expertise. We suggest that a proportion of matched funding should be requested from firms using the vouchers, in order to prevent abuse.



#### IMPLEMENTATION BODY

The Ministry of Research, Innovation, and Digitalization—although some of the recommended actions could be administered regionally. This should also be implemented in coordination with the bodies responsible for the Startup Fund.



#### RISKS

Key risks include lack of good quality firms because many firms are pursuing opportunity entrepreneurship. Other risks include lack of coordination between several public authorities because the innovation agenda is fragmented across several entities, including UEFISCDI.



#### AMOUNT

The following costs are tentative:

Activity	Estimated Cost (€)
Pilot program for enhanced R&D tax reliefs for startups and scaleups	50 million
Direct grant funding of startups and young SMEs (for example, grants of €100,000 x 10 firms per year x 8 regions x 7-year period)	56 million
Grant programs for collaborative research consortia (for example, grants up to €500,000 x 20 per year nationally x 7)	70 million
Pilot of knowledge transfer secondment scheme (aiming for 30 movements in 8 regions, per year)	50 million
Pilot program for infrastructure access vouchers / subsidies (for example, 250 firms per region over period)	20 million
Total	246 million



#### TIMELINE

Short-to-Medium Term but also needs to incorporate a longer-term view.



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**KPIs**

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**Outputs**

- Number of startups (& SMEs) applying for R&D tax relief
- Number and value of grants distributed
- Number of startups (& SMEs) participating in collaborative research consortia
- Number of individuals participating in knowledge transfer secondments
- Number of vouchers awarded
- Number of firms participating in research infrastructure access pilot

**Outcomes**

- Increase in total R&D activity by SMEs
- Increase in number of patents filed by SMEs
- Increase in number of new products or services provided by SMEs



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**ALIGNMENT WITH TOP 12 INTERVENTIONS**

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Intervention 6: Incentivize Innovation; Intervention 8: Share R&D Infrastructure.

## POLICY RECOMMENDATION 11

# PROMOTE THE DIGITAL ECONOMY



FOUNDATIONAL  
LONGTERM



TIME  
SENSITIVE



GOVERNMENT  
SUPPORT NEEDED



### — OBJECTIVE —

Create a domestic market for startups by promoting use of digital products, services, and platforms.



### — RATIONALE —

Many high-growth startups are digital. However, Romania ranks 27th of 27 EU Member States in the 2021 edition of the Digital Economy and Society Index (DESI), with low internet use and digital skills inhibiting the domestic market for digital firms.

While Romania ranks highly on connectivity (10<sup>th</sup> in the DESI for this component), it ranks lowly on most indicators measured by this index including being 25<sup>th</sup> on Integration of digital technology in businesses' activities, with only 17 percent of SMEs selling online and only 33 percent of SMEs having at least a basic level of digital intensity; and 26<sup>th</sup> on human capital, with only 31 percent of individuals having basic digital skills (compared to EU average of 56 percent), 10 percent of individuals having above basic digital skills (compared to EU average of 31 percent); and 35 percent of individuals having at least basic software skills (compared to EU average of 58 percent); and 6 percent of firms offering ICT training. Firms and consumers are thus unable to make the most of the opportunities afforded by digitalization and e-commerce, still less the next wave of digital innovation relating to "Web3" protocols and distributed ledger technology.



### — APPROACH AND ESTIMATED COSTS FOR COMPREHENSIVE PACKAGE OF REFORMS —

This recommendation is divided into four specific subcategories. The total costs for each subcategory are listed in the table below.

Activity	Estimated Cost (€)
Category 1: Promoting e-commerce platforms	50 – 100 million
Category 2: Increasing Digital Skills	50 – 100 million
Category 3: Improving Managerial Skills	50 – 100 million
<b>Total</b>	<b>150 – 300 million</b>



### — RISKS —

Activities under this intervention could take a long time to develop because they are linked to other factors. While use of e-commerce platforms accelerated during the pandemic, uptake of digital technologies could remain superficial, and Romania may not fully benefit from productivity transformations needed for firm recovery. Developing skills to consume digital technologies and building trust in digital systems are also longer-term activities.



— **KPIs** —

Romania's performance across various pillars of the Digital Economy is measured annually and published in the Digital Economy and Society Index (DESI). An overarching outcome is Romania's improved ranking on this index.

## COMPONENT 1: PROMOTING E-COMMERCE PLATFORMS



— **OBJECTIVE** —

Increase Romania's use of transactional technologies vis-à-vis uptake in use of e-commerce platforms



— **TARGET BENEFICIARIES** —

Firms selling online and customers buying online



— **RATIONALE** —

Romania's rates of e-commerce—buying goods and services online—are the lowest in Europe. Because e-commerce is a transactional technology (Hallward-Driemeier et al. 2020), it has the potential to improve the inclusion of smaller firms, including startups, and reach new markets in rural and remote areas. Though use of e-commerce increased somewhat as a result of COVID-19, the addressable domestic market for many firms remains limited.



— **APPROACH** —

The government can promote use of e-commerce through education and capacity-building pilot, thus building the domestic market for many startups. There should also be a more coherent voice for e-commerce within government because at present it is unclear where responsibility resides. It is also recommended that Romania conduct an in-depth analysis on the e-commerce landscape to identify regulatory bottlenecks. We note that, in Qatar, the Ministry of Transport and Communications launched an e-commerce portal to serve as a central resource for information, communication, and support for both merchants and shoppers.

Policymakers also need to consider whether Romania's current physical infrastructure (as opposed to digital) promotes physical connectivity between regions and counties. The quality of physical infrastructure impacts business logistics, including shipping logistics for e-commerce.



— **IMPLEMENTATION BODY** —

The implementation body for this activity is the Ministry of Research, Innovation, and Digitalization in coordination with the Ministry of Entrepreneurship and Tourism.



— **RISKS** —

Romania may not fully benefit from productivity transformations needed for firm recovery because consumption of digital products and services is linked to digital skills and usage of other digital platforms including financial services. As reflected in Romania's DESI ranking, Romania ranks poorly on percentage of population with basic and above basic skills.



— **AMOUNT** —

Estimated costs for a pilot program range from €50 million to €100 million



— **TIMELINE** —

Short-to-Medium Term



— **KPIs** —

Outputs

- Percentage of individuals shopping online
- Percentage of firms (including MSMEs) selling online

Outcomes

- Increase in number of firms selling online
- Increase in e-commerce turnover

## COMPONENT 2: INCREASING DIGITAL SKILLS



— **OBJECTIVE** —

Increase basic and above-basic digital skills among the Romanian population.



— **TARGET BENEFICIARIES** —

Romanian consumers who lack basic or above basic digital skills; digital startups (indirectly)



— **RATIONALE** —

Romania has serious digital skills gaps, societally and in the workforce. Less than one third of people aged between 16 and 74 have at least basic digital skills (56 percent in the EU as a whole), while some 3 percent have basic software skills (EU average: 58 percent) (European Commission 2021a). Increasing digital literacy will increase the addressable domestic market for digital startups (as well as producing a wide range of other benefits, such as improving productivity and expanding access to digital services). The low uptake of platform technologies (including e-commerce) highlights the reality that the diffusion of even basic transactional technologies is not automatic, even with the high access to broadband internet. Users' digital literacy and the availability of digital skills matter because they determine the extent to which users turn to platform technologies and the extent to which startups are able to find domestic markets (Hallward-Driemeier et al. 2020).



— **APPROACH** —

We recognize that there have been numerous studies of the issue of digital skills, both from the World Bank Group and other organizations (for example, Melhem and Jacobsen 2021). We are also aware that the Authority for the Digitalization of Romania is coordinating efforts to improve digital skills, and we underscore the importance of this. Following the recommendations of the World Bank Group report *Europe 4.0: Addressing the Digital Dilemma* (Hallward-Driemeier et al. 2020), we suggest addressing digital skills at multiple levels. In primary and secondary education, students should be exposed to basic coding and other digital skills as early as primary school. The Romanian Education board should update tertiary education curricula to meet changing skills requirements (for example, including an understanding of "Web3" technologies—see Lentini and Gimenez (2019) and World Bank (2020a))

for more detailed analysis of future skills needs). Universities can ensure that their curricula remain relevant with guidance from the advisory council for educational reforms suggested in Recommendation 6. Given the pace of technological change, lifelong learning opportunities should be supplied for all ages, and should include not only technical skills but also skills for adaptability.

One example of how to encourage basic skills development in society is seen in Estonia, which established the National Estonian Digital Skills and Jobs Coalition to decrease the digital skills gap by focusing on programs that can train large portions of the population in digital skills. The coalition includes policymakers, service providers, and information technology (IT) training companies. It has developed self-funded and large-scale training initiatives that aim to lessen the digital skills gap. The purpose of these activities is to lower the number of people in Estonia that do not use computers or the Internet to 5 percent (European Union 2021).. Estonia is also embedding digital skills at within primary and secondary education to ensure that future workforce is equipped with basic and above basic digital skills.



#### — **IMPLEMENTATION BODY** —

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The implementation body for this activity is the Ministry of Research, Innovation, and Digitalization in coordination with the Ministry of Education, the Ministry of Labor and Social Solidarity and the Authority for the Digitalization of Romania (attached to the Ministry of Research, Innovation and Digitization).



#### — **RISKS** —

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This activity will take several years to materialize.



#### — **AMOUNT** —

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Estimated costs for a pilot program range from €50 million to €100 million..



#### — **TIMELINE** —

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Medium-to-Longer Term



#### — **KPIs** —

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##### Outputs

- Percentage of individuals with basic digital skills
- Percentage of individuals with above basic digital skills
- Percentage of individuals shopping online
- Percentage of individuals banking online

##### Outcome

- Increase in use of Internet services
- Increase use of digital platform

## COMPONENT 3: IMPROVING MANAGERIAL SKILLS



### — OBJECTIVE —

Upgrading managerial capabilities to promote adoption and use of digital technologies can contribute to the use of transactional technologies<sup>20</sup> to contribute to the development of Romania's digital economy.



### — TARGET BENEFICIARIES —

SMEs



### — RATIONALE —

Managerial practices are important for digitalization: harnessing the benefits of digital technology needs complementary capabilities, and the firms that benefit the most from digital technologies are those that also have better access to key technical, managerial, and organizational skills (OECD 2019a). Low managerial quality, lack of ICT skills and poor matching of workers to jobs curb digital technology adoption and hence the rate of (Andrews, Nicoletti, and Timiliotis 2018). IT is complementary to management practices (and that, because small firms typically have worse management practices, the impact of IT may be less for such firms) (Bloom, Sadun, and Van Reenen 2012). In short, firms that have better management practices are more prone to adopting digital technologies and doing it faster.



### — APPROACH —

The government should pilot a managerial skills training alongside digital education for SMEs to increase Romanian firms' productivity. The government can also introduce incentives for collaboration among firms, such as through vouchers for innovation. In the case strengthening managerial capabilities to drive performance leveraging digital technologies, incentives should address the main barriers for managers to drive firm-level digitalization, namely preferences and behavioral bias, information constraints, weak external and internal incentives, need of complementary investments, coordination problems, and lack of trust. Therefore, programs should on the one hand encourage the assimilation and demand of digital technologies through focusing on managerial capabilities and on the other support the supply of digital technologies for entrepreneurs / managers. Simultaneously, public interventions should generate enabling conditions for firm-level digitalization. Overarching programs typically facilitate tailored assistance, and often provide financial support for entrepreneurs. Hence, overarching programs provide tools for complementary investment, both managerial and financial. Main types of interventions include; a) managerial capability / digital maturity assessment tools (conducted by an expert and/or self-assessed) to access tailored support, designing and deploying business plans, etc., b) provision of financial support, such as vouchers and grants for managerial upskilling, software upgrading, test new digital technologies, technical assistance and business advisory services, and enabling conditions for digital adoption, c) access to awareness campaigns, workshops, events, and d) provision of public goods such as training courses.



### — IMPLEMENTATION BODY —

The implementation body for this activity is the Ministry of Research, Innovation, and Digitalization.

20. Transactional technologies better match supply and demand to facilitate market transactions by lowering information asymmetries; examples include digital e-commerce platforms and blockchain.



— **RISKS** —

The uptake of digital could remain superficial and Romania may not fully benefit from productivity transformations needed for firm recovery. Firms need to continuously invest in managerial skills but may lack resources and awareness of how to accomplish this.



— **AMOUNT** —

Estimated costs for a pilot program range from €50 million to €100 million.



— **TIMELINE** —

Medium-to-Long Term



— **KPIs** —

Outputs

- Number of firms using digital platforms
- Number of firms investing in innovation
- Number of managers upskilled on (digital) productivity tools

Outcomes

- Increase in digital adoption by firms
- Improvements in digital uptake by firms



— **ALIGNMENT WITH TOP 12 INTERVENTIONS** <sup>21</sup> —

Intervention 11: Appoint Chief Technology Officers in Government<sup>22</sup>; Intervention 12: Build Confidence in Digital.

21. This recommendation is much broader than the related Interventions identified by the Romanian ecosystem.

22. We concur that this is a critical recommendation but there are many other foundational aspects that need to be prioritized given the foundational nature of this activity.

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## ANNEX A

# TOP 12 INTERVENTIONS IDENTIFIED BY THE ROMANIAN ENTREPRENEURIAL ECOSYSTEM

### **Intervention 1: Reform Startup and Investment Related Regulations**

Specifically:

- a. Stock options
- b. Digitization of company formation
- c. Venture capital regulations
- d. Crowdfunding
- e. Angel investment
- f. Corporate venture capital

### **Intervention 2: Establish a one-stop agency for Startup Ecosystem**

Its role could include:

- a. Advocacy
- b. Think and Do Tank
- c. Connector
- d. Capacity-builder
- e. Funder
- f. Data-gatherer

### **Intervention 3: Improve Entrepreneurship Education**

Specifically:

- a. Entrepreneurship education
- b. Infuse academia with entrepreneurs
- c. Expose lecturers to entrepreneurship

### **Intervention 4: Strengthen Ecosystem Enablers**

Proposed activities:

- a. Capacity building for enablers
- b. University collaboration with European Digital Innovation Hubs (eDIHs) / chambers of commerce / business associations
- c. Organization of a Romania Ecosystem Summit

### **Intervention 5: Create a Startup Fund**

This entails:

- a. Establishing the fund
- b. Cocreating the investment thesis
- c. Monitoring fund targets

## **Intervention 6: Incentivize Innovation**

Including:

- a. Enterprise sector collaboration
- b. Tech transfer capability fund
- c. Clarification of unclear tech transfer legislation
- d. Promoting in-house research & development (R&D) activities in firms

## **Intervention 7: Implement Startup Visas**

Introducing:

- a. Startup visas
- b. Incentives for digital nomads

## **Intervention 8: Share R&D Infrastructure**

Including:

- a. Developing an open access policy
- b. Mapping and dissemination
- c. Pilot program for accessibility

## **Intervention 9: Startup to Scaleup through Exports**

To improve access to markets, activities include:

- a. Establishing an overseas 'Landing Pads'
- b. Showcasing Romanian startups
- c. Creating a diaspora entrepreneurs' network

## **Intervention 10: Transform Public Procurement**

Reforms to perceived barriers to public procurement opportunities include:

- a. Training for public sector officials
- b. Targeting SMEs / startups
- c. Challenge prizes

## **Intervention 11: Appoint Chief Technology Officers (CTOs) in Government**

Proposed activities to help the public sector play a critical role in this agenda:

- a. Funding CTO roles at the city, regional, and national levels
- b. Building political legitimacy on all levels
- c. Introducing sandboxes and testbeds to promote experimentation and innovation

## **Intervention 12: Build Confidence in Digital**

Promote Internet use and market access through:

- a. E-commerce education
- b. "Trust in E-commerce" body
- c. Clarifying ministerial responsibilities

## ANNEX B

# INSTRUMENTS EXAMINED

The program included in the policy mix of 50 instruments were as follows. An asterisk (\*) indicates that this program was also included in the functional analysis.

Internal Code	Program	Instrument
EEA	Romania – SMEs Growth Programme (EEA and Norway Grants 2014 – 2021)	Romania – SMEs Growth Programme (EEA and Norway Grants 2014 – 2021) *
FININVEST	Programul „Ajutoare de stat pentru finanțarea proiectelor pentru investiții”	Schema de ajutor de stat avand ca obiectiv stimularea investițiilor cu impact major in economie, instituita prin Hotararea de Guvern nr. 807 din 2014 *
POC1	POC (Programul Operațional Competitivitate)	Investiții în departamentele de CD ale întreprinderilor *
POC18	POC (Programul Operațional Competitivitate)	Schema de ajutoare de stat si de minimis sub forma de investitii de capital de risc pentru IMM-uri *
POC2	POC (Programul Operațional Competitivitate)	Clustere de inovare *
POC3	POC (Programul Operațional Competitivitate)	Întreprinderi inovatoare de tip start-up și spin-off *
POC4	POC (Programul Operațional Competitivitate)	Întreprinderi nou-înființate inovatoare *
POC7	POC (Programul Operațional Competitivitate)	Parteneriate pentru transfer de cunoștințe *
POCU1 – 3	POCU (Programul Operațional Capital Uman)	Romania Start Up Plus *
POCU1 – 3	POCU (Programul Operațional Capital Uman)	Romania Start Up Nation
IMMINVEST	IMMINVEST	Programul de susținere a Întreprinderilor Mici și Mijlocii – IMM INVEST ROMÂNIA (program aimed at ensuring the liquidity and working capital of SMEs affected by COVID-19)
POC10	POC (Programul Operațional Competitivitate)	1.1.3 – FINALIST-IMM
POC11	POC (Programul Operațional Competitivitate)	1.1.3 – COMPLEMENT
POC12	POC (Programul Operațional Competitivitate)	1.1.3 – RO-EIT
POC13	POC (Programul Operațional Competitivitate)	1.1.3 – RO-ESFRI-ERIC
POC14	POC (Programul Operațional Competitivitate)	1.1.3 – CENTRE-SUPPORT
POC15	POC (Programul Operațional Competitivitate)	1.1.3 – CATEDRE-ERA
POC16	POC (Programul Operațional Competitivitate)	1.1.3 – TEAMING
POC17	POC (Programul Operațional Competitivitate)	1.2.1 Proiect tehnologic inovativ
POC19	POC (Programul Operațional Competitivitate)	2.1.1 Îmbunătățirea infrastructurii în bandă largă și a accesului la internet
POC20	POC (Programul Operațional Competitivitate)	Secțiunea E-guvernare și interoperabilitate
POC21	POC (Programul Operațional Competitivitate)	Secțiunea E-guvernare și Open Data
POC5	POC (Programul Operațional Competitivitate)	Atragerea de personal cu competențe avansate din străinătate
POC6	POC (Programul Operațional Competitivitate)	Proiecte de investiții pentru instituții publice de CD/ universități
POC8	POC (Programul Operațional Competitivitate)	Dezvoltare rețele de centre CD – Secțiunea I
POC8	POC (Programul Operațional Competitivitate)	Proiecte de tip CLOUD și de infrastructuri masive de date

<b>Internal Code</b>	<b>Program</b>	<b>Instrument</b>
POC9	POC (Programul Operațional Competitivitate)	1.1.3 – RO-ECSEL
POC9	POC (Programul Operațional Competitivitate)	Dezvoltarea RoEduNet
POCU1 – 3	POCU (Programul Operațional Capital Uman)	Diaspora Start Up
POCU4	POCU (Programul Operațional Capital Uman)	Bursa student antreprenor
POCU5	POCU (Programul Operațional Capital Uman)	Innotech Student
POR1	POR (Programul Operațional Regional)	Operațiunea C – IMM sau IMM în parteneriat cu ITT pentru investiții de transfer tehnologic
POR2	POR (Programul Operațional Regional)	Operațiunea B – Sprijinarea parcurilor științifice și tehnologice
POR3	POR (Programul Operațional Regional)	Operațiunea A – Sprijinarea entităților de inovare și transfer tehnologic (ITT)
POR4	POR (Programul Operațional Regional)	2.1.A – Microîntreprinderi
POR5	POR (Programul Operațional Regional)	2.1.B – Incubatoare de afaceri
POR6	POR (Programul Operațional Regional)	2.2.A – IMM
PSIC1	Programul 1.2 Resurse umane pentru CDI	M1.2.1.1 Sprijinarea pregătirii unei noi generații de cercetători
PSIC2	Programul 2.1 Transfer de cunoștințe	M2.1.1.1 Parteneriate pentru transfer de cunoștințe
PSIC3	Programul 2.1 Transfer de cunoștințe	M2.1.1.2 Sprijinarea clusterelor de inovare
PSIC4	Programul 2.2 Stimularea investițiilor CDI din partea sectorului privat	M2.2.1.1 Implementation venture capital instruments for CDI
PSIC5	Programul 2.2 Stimularea investițiilor	M2.2.1.2 Sprijinarea cererii de inovare
PSIMM2	Programul 1.2. Înființarea de întreprinderi	M1.2.1.2. Programul Național Multianual pentru dezvoltarea spiritului antreprenorial printre femeile din sectorul IMM – Femeia antreprenor
PSIMM3	Programul 1.2. Înființarea de întreprinderi	M1.2.1.2. Programul Național Multianual pentru dezvoltarea spiritului antreprenorial printre femeile din sectorul IMM – Femeia manager
PSIMM5	Programul 1.3 Sprijin IMM	M1.3.1.2. Programul Româno-Elvețian pentru IMM-uri (Aria tematica 5)
PSIMM6	Programul 1.3 Sprijin IMM	M1.3.1.3. Programul Național Multianual pentru sprijinirea Meșteșugurilor și Artizanatului – 2019
PSIMM7	Programul 1.3 Sprijin IMM	M1.3.1.3. Programul Național Multianual pentru sprijinirea Meșteșugurilor și Artizanatului – 2020
PSIMM8	Programul 1.3 Sprijin IMM	M1.3.1.4. Program pentru dezvoltarea și modernizarea comercializării serviciilor și produselor
PSIMM9	Programul 1.3 Sprijin IMM	M1.3.2.1. Programul UNCTAD / EMPRETEC pentru România
PSMM4	Programul 1.3 Sprijin IMM	M1.3.1.1. Programul Național Multianual pentru micro-industrializare

## ANNEX C

# DATA CLASSIFICATION

The guide used for classification of general and specific objectives was as follows:

<b>General Objectives: Economy/society outcomes</b>	These are desired impacts or effects of the intervention. Mark <b>direct objectives only</b> .	Productivity growth, firm upgrading in existing business, technology adoption and diffusion	General-purpose instruments that aim to improve the productivity and performance of <b>existing businesses</b> .
	Diversification, new ventures, new markets	Instruments that have an explicit purpose to support <b>new businesses, start-ups, new sectors or new markets</b> .	
	Knowledge creation	Instruments that have an direct purpose to improve knowledge and research excellence.	
	Jobs, skills, and human capital	Instruments that have a direct purpose to improve the level of human capital, such as training, capacity building, improvement of managerial capabilities, fostering science, technology, engineering, and mathematics (STEM) skills, etc.	
	Societal development outcomes, inclusion	Instruments that have a direct purpose to improve social inclusion (for example, innovative solutions to serve disadvantaged groups or instruments targeted towards such groups, start-ups for services with social objectives, etc.)	
	Environment, climate change	Instruments that have a direct objective to improve the environment (renewable energy, energy efficiency, etc.)	
<b>Specific Instrument objectives</b>	Scope and objective of the instrument relation to the objectives of innovation support. <b>Mark direct objectives only</b> . Multiple objectives may be selected. If the objective changed during the lifetime of the call, fill out according to the latest change and provide an explanation in the last field of this section.	Research excellence	Instruments that have a principal objective to improve the quality of research, usually at universities or research institutes.
		Technology transfer and science-industry collaboration	Instruments that have a principal objective to facilitate the transfer of knowledge from universities, research centers and other knowledge providers to the private sector.
		Business R&D and R&D-based innovation	Instruments that support and incentivize principal R&D in existing businesses.
		Non-R&D innovation, technology adoption/diffusion	Instruments that support the adoption of new technologies or innovation equipment, instruments related to product, process or business model innovation that do not require a formal R&D process.
		Management practices	Instruments that have a principal objective to improve the quality of management practices in enterprises.
		Access to finance	Instruments that have a principal objective to improve access to finance for innovation. It is not sufficient that the call provides financing, it must also have measures to sustain such access in the future through financial intermediaries.
		Export promotion	Instruments that have a principal objective to increase exports (including export financing, quality of exports, etc.)
		Skills formation	Instruments that have a principal objective to train workers and capacity building in areas principally linked to the innovation agenda.
		Entrepreneurship	Instruments that have a principal objective to improve the quality and quantity of entrepreneurship – training in elements of entrepreneurship culture (excluding management practices, new business entry, etc.)

<b>Specific Instrument objectives (cont.)</b>	Improving business regulatory environment/business climate	Instruments that have a principal objective to improve the business climate as it relates to the innovation agenda, with specific activities, for example, deregulation, process simplification, etc.
	Market access and integration	Instruments that have a principal objective to enter new markets through supplier development programs, cluster formation etc.
	R&D infrastructure	Instruments that have a principal objective to create R&D infrastructure.
	Environment, climate change	Instruments that have a principal objective to address climate change or environmental challenges.
	Government technological innovation, adoption and diffusion	Instruments that are targeted at government improvement with technological solutions.
	Regional development	Instruments that have a principal objective to directly reduce regional disparities and support for specific regions and the integration of markets.
	Has the instrument objective changed over the life of the program (yes/no), and if so, why?	This field should be used to indicate whether the objective of the call was changed over the lifetime of the call, and to explain why.

## ANNEX D

# DETAILED FINDINGS OF THE FUNCTIONAL ANALYSIS

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## D.1 PROGRAM ORIGIN

**The program origin indicator refers to the formal process(es) through which an instrument was created.**

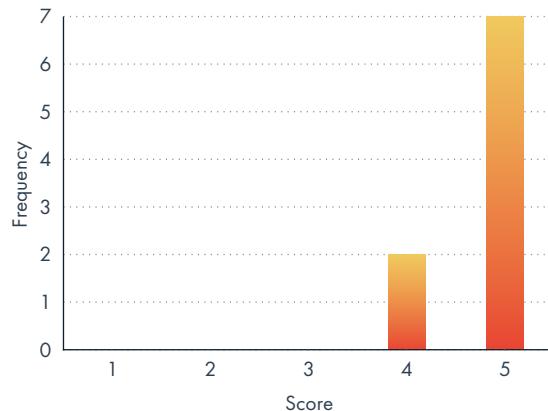
The origin of a policy instrument must be embedded in processes covered by the rule of law and consistent with the general high-level goals for which it is intended as an intervention. The identification of the problem being addressed and the means to address it must be grounded in actual evidence through a systematic and rigorous appraisal of the issue and the options to reach the goals set to address it.

**The scores for this indicator are close to best practices for this small set of Romanian instruments.** (See figure A.D.1) As noted earlier, most of these instruments are funded by the operational programmes (OPs) and developed as part of the formal operational program process. The downside of this is that, on occasion, the external origin of the program appears to have influenced other design features.

### Best Practices

- If the program is a continuation of another program, it must be adapted to the current circumstances, and this improvement should be based on a reasonable diagnosis and evaluation of the previous version of the program.

**FIGURE A.D.1** Distribution of Program Origin Scores



Source: World Bank Group

Note: A score of 5 indicates best practice.

- Programs should be explicitly linked to strategic objectives relevant to the policy area in question. Programs cannot constitute an end in themselves.

## D.2 PROGRAM JUSTIFICATION

**The program justification indicator refers to the presence of specific diagnostics of the particular market or system failure that an instrument is intended to address.** The justification should be detailed in program documentation and reports and provide an analysis or sensible estimation of the size or intensity of the failure and the impacted population.

**Justification scores are midrange or less, except for two instruments.** The diagnosis of market or system failure can be improved and the evidence for it, when mentioned, could be more specific. It is one of the indicators with both a mid-range average and standard deviation, as reflected in the distribution below (figure A.D.2). Several instruments can improve on this issue.

**The rationale for some instruments may not be grounded in known systemic failures.**

Some interviewees reported that the primary reason that an instrument existed was because of the direction of the EC, rather than having themselves identified a particular systemic failure.

**Best Practices**

- Diagnostic that covers all the aspects of the market or system failure with evidence and rationale for the need of the specific intervention.

## D.3 PORTFOLIO RELATIONSHIP

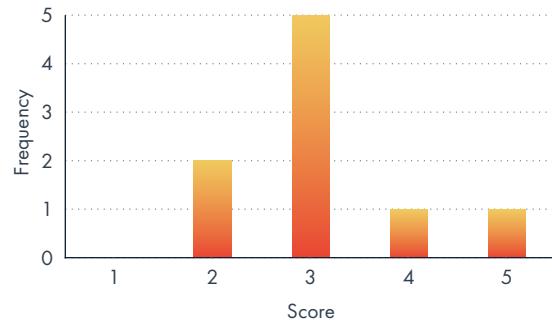
**The portfolio relationship indicator analyzes how a program operates in relation to all other related and relevant programs—at both the national and the European level.** The scoring on this indicator includes potential conflicts, complementarities, or overlaps with the rest of the policy mix. A coherent science, technology, and innovation (STI) policy mix is characterized by dynamic and complementary policy portfolios. For example, a policy portfolio that supports innovation in companies may have instruments that target companies at different stages of development, with complementary instruments as companies evolve in capabilities, size, market presence, and so on.

**Several instruments receive good practice scores.** (See figure A.D.3.) The fact that the instruments are proposed within the OP and the consideration of their relevance in the OP portfolio explains the good performance observed. There are some instruments whose role in the policy mix may be suboptimal.

**Best Practices**

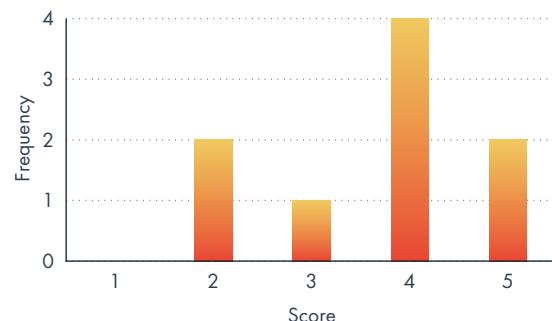
- Instrument design should include a diagnostic analysis of potential conflicts, complementarities or overlaps with the rest of the relevant programs

**FIGURE A.D.2** Distribution of Program Justification Scores



Source: World Bank Group

**FIGURE A.D.3** Distribution of Portfolio Relationship Scores



Source: World Bank Group

## D.4 PROGRAM OBJECTIVES

**The program objectives indicator focuses on the objectives and goals that connect the instrument to desired system-level changes, such as productivity growth, market competitiveness, knowledge creation, and so on.** These objectives should be measurable and achievable, with concrete targets.

**Several instruments score at or below mid-range largely due to lack of measurable objectives at the system level.** (See figure A.D.4.) Many instruments specify objectives in terms of project or beneficiary achievements rather than the overall effects of the instrument on the innovation system or economy. Some instruments specify objectives in terms of activities or products of projects rather than changes in the Romanian innovation system. Several instruments also have mixed or unclear objectives.

### Best Practices

- Objectives should be clear and measurable, with concrete targets.
- Objectives should be explicitly tied to the system level changes expected from the intervention.

## D.5 ALTERNATIVE INSTRUMENT

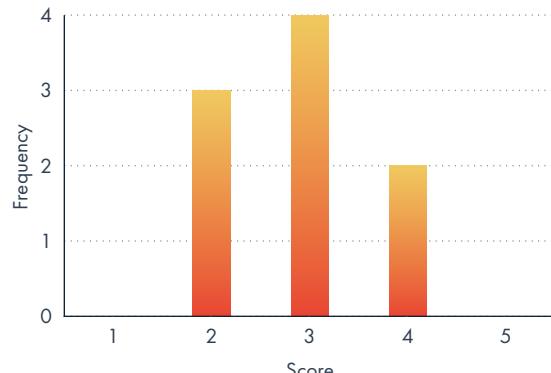
**The alternative instrument indicator is closely tied to program justification, in the sense that it evaluates whether different approaches were considered that can tackle the identified failure that an instrument is intended to address.** Cost tradeoffs between alternative instrument designs should be considered. Where approaches based on international examples are being copied, the designs should be adapted with consideration of the local context and capacity of national implementing bodies.

**Many instruments did not consider alternative models of intervention for the stated objectives.** The scores for the consideration of an alternative instrument show considerable variability with an average below mid-range (figure A.D.5).

### Best Practices

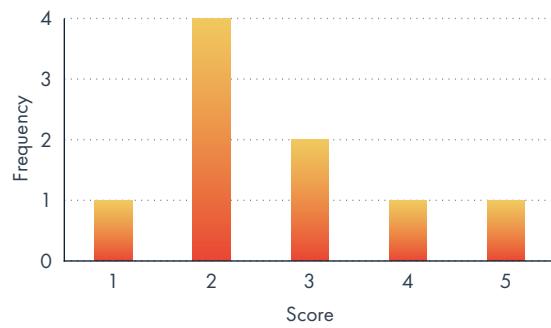
- A high-scoring program on this indicator should have included a coherent consideration of different ways for government intervention considering both national and international practices;
- A high-scoring program should be able to present high-level justification of the selection for the particular approach selected.

**FIGURE A.D.4** Distribution of Program Objectives Scores



Source: World Bank Group

**FIGURE A.D.5** Distribution of Alternative Instrument Scores



Source: World Bank Group

## D.6 LOGIC MODEL

**The logic model indicator measures whether programs have an explicit logic model that connects the inputs, outputs, and expected outcomes of the program with clear and measurable indicators.** The logic model<sup>23</sup> should be well articulated, and the expected results should be feasible. Logic models should be updated regularly as programs evolve over time.

**Most instruments in Romania lack a logic model.** (See figure A.D.6) Romanian instruments consistently score worst on the logic model indicator. The logic of interventions is articulated at the OP level, which is required by the European Commission (EC), and is also sometimes present at the level of individual projects but not at the actual intervention level. This ties into the weaknesses in instrument objective setting and outcome/impact indicators that are discussed below.

### Best Practices

- The highest score on this indicator is given to instruments with full explicit logic model with high quality components;
- If an explicit logic model does not exist, at least an implicit one does; and
- The logic model is used and updated regularly.

## D.7 INPUTS

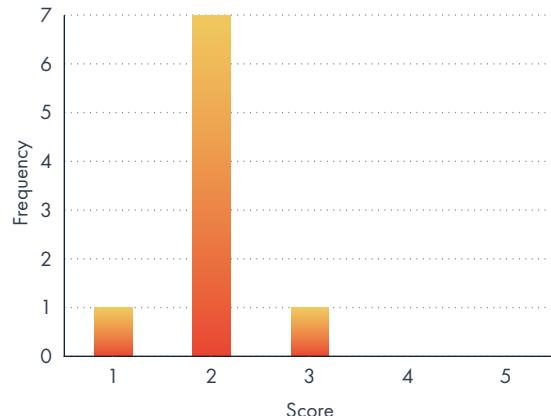
**The inputs indicator measures whether program inputs are explicitly defined and consistent with a logic model.** They should cover all resources needed to implement the program, including administrative and operational costs. Costs should be monitored throughout the implementation phase.

**There is only one instrument in Romania that has an above mid-range score on inputs.** (See figure A.D.7.) Cataloging that exists is incomplete and focused only on obvious resources. It is of little value to compute administrative costs at the instrument level.

### Best Practices

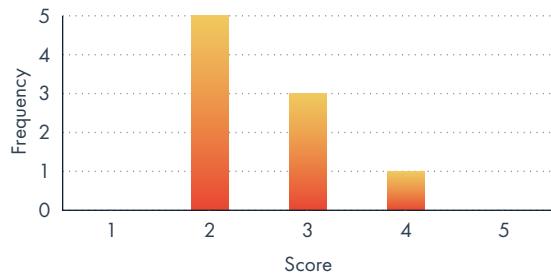
- A high-scoring instrument on this indicator is one where all inputs (including administrative costs) have been clearly identified and budgeted inside the logic model.
- Inputs include all or most of the resources needed to achieve the objectives.

**FIGURE A.D.6** Distribution of Logic Model Scores



Source: World Bank Group

**FIGURE A.D.7** Distribution of Inputs Scores



Source: World Bank Group

23. Also known as a logical framework (“logframe”) or theory of change (ToC).

## D.8 ACTIVITIES

**The activities indicator measures whether all activities needed to achieve the project objectives have been cataloged and are consistent with the logic model.**

Activities should be consistent with inputs and outputs (that is, all activities have a purpose and help to reach the desired outputs).

**There are two issues with activities in Romania.** One is that many activities needed to implement instruments are not considered in the design and planned in advance. The second issue is that many instrument activities are confused with those beneficiaries are expected to carry out in projects. The scores for activities have larger variability. (See figure A.D.8)

### Best Practices

- Instruments with full and explicit catalog of all necessary activities for achieving the desired objectives;
- Activities are consistent with inputs and outputs (that is, all activities have a purpose and help to reach the desired outputs).

## D.9 PRODUCTS/OUTPUTS

**The products/outputs indicator measures whether all program outputs and products have been explicitly identified.** They should be consistent with all activities and outcomes in order for the desired results to be achieved. All outputs should be operationalized and measurable.

**The overall scores for products and outputs are a bit higher in Romania because most of the indicators that are actually specified are product indicators.** (See figure A.D.9) Their connection with outcomes and impacts are not always well articulated.

### Best Practices

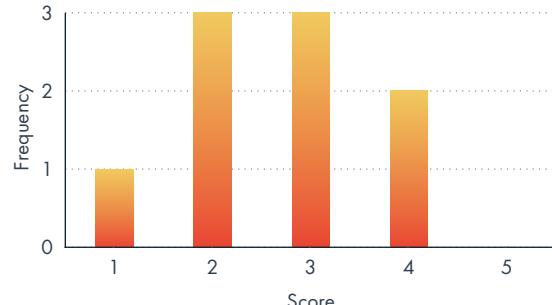
- A high-scoring instrument on this indicator should have explicit and complete identification of products related to its logic.
- Their relation to outcomes and impact should be explicitly stated.
- Products/outputs of activities are operationalized and measurable.

## D.10 MAIN BENEFICIARIES

**The main beneficiaries indicator focuses on whether the beneficiaries targeted in the project design are consistent with the overall logic of the instrument.** Beyond that, they should also be specified in such a way that can maximize the program efficiency. Criteria for targeting and quantitative measures should be provided in a transparent manner.

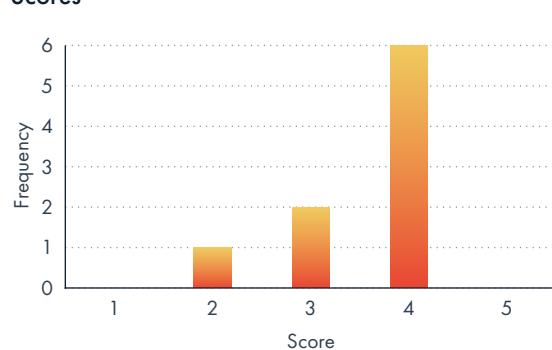
**In Romania, beneficiaries are well defined but poorly targeted.** The selected instruments score around the mean or above on this indicator (see figure A.D.10). In all cases, beneficiaries are well defined, but maybe missing either clarity of their justification or optimal targeting. What is generally missing is specific tailoring of the beneficiaries

**FIGURE A.D.8 Distribution of Activities Scores**



Source: World Bank Group

**FIGURE A.D.9 Distribution of Products/Outputs Scores**



Source: World Bank Group

needed that goes beyond the generic sector or size criteria (for example, specific targeting of startups or R&D-intensive firms within the much larger pool of SMEs). The best-performing instruments on this indicator have explicitly tailored their beneficiaries in order to achieve maximum results.

#### Best Practices

- The selection of beneficiaries should be explicit and coherent with the objectives;
- There should be a clear strategy for reaching the target group effectively.

## D.11 SELECTION CRITERIA

**The selection criteria indicator refers to whether selection criteria are consistent with both the objectives and the logic model of an instrument.** The design of the selection criteria should be such that it will lead to the maximum potential impact on the targeted population. The criteria should be transparent, simple, and easy to understand.

**Instruments in Romania include information about selection criteria in their design, but the information needs to be more detailed.** The scores on this indicator are also mid-range and up. (See figure A.D.11). The instruments included in the design at least some specification of what would have amounted to a good application submission by potential beneficiaries. The ones that score higher included more detailed criteria to use later in the assessment of proposals.

#### Best Practices

- The selection criteria with the highest scores are those that are clear and coherent.
- They should lead to reaching the population with greater impact.
- The criteria should be transparent, simple, and easy to understand.

## D.12 AUDIENCES

**The audiences indicator refers to whether all important program stakeholders can provide input into the instrument design and instrumentation process.** There should be formal mechanisms in place for stakeholders to provide input into instrument design and implementation. Instruments should account for non-beneficiary stakeholders and their role for the success of the instrument.

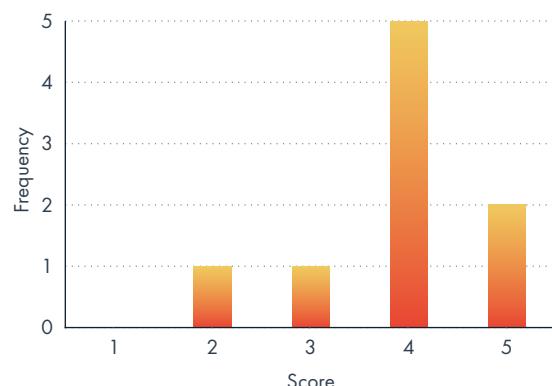
**Several scores on this indicator are on the higher end, showing that there are clear mechanisms for stakeholder consultations for many instruments in Romania.** (See figure A.D.12.) The ones with lower scores can use the better-performing instruments to learn how to improve their own procedures.

**FIGURE A.D.10 Distribution of Main Beneficiaries Scores**



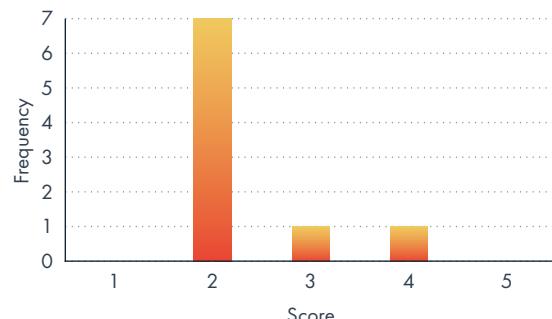
Source: World Bank Group

**FIGURE A.D.11 Distribution of Selection Criteria Scores**



Source: World Bank Group

**FIGURE A.D.12 Distribution of Audiences Scores**



Source: World Bank Group

### Best Practices

- The best-scoring instruments on this indicator should account for non-beneficiary audiences and their role in the success of the instrument.

## D.13 EXPECTED OUTCOMES AND IMPACTS

**The expected outcomes and impact indicator refers to whether outcomes and impacts at the program level are well defined and connected to desired changes at the system level.** They should also be connected to measurable results and assessment indicators. Impact indicators should be integrated in the broader policy context on a country or regional level. Criteria should be included for tracking the evolution of outcomes that allow for ending program participation if it becomes clear that program objectives will not be met (as opposed to ad hoc closure at the end of a contract or other extrinsic reason not related to results).

**Many instruments in Romania lack measurable and coherent impact indicators.** The overall score of the selected instruments for expected outcomes and impacts is the second lowest for any indicator observed in the functional analysis, with an average of 2.33 (see figure A.D.13). The main problem arises from the lack of measurable and coherent impact indicators. An underlying issue is that the absence of a logic model leads to a lack of connection between outputs and outcomes.

### Best Practices

- The expected outcomes and impact should be explicit, coherent, observable and measurable.
- They should be integrated fully with other policies, inside and outside the sector.
- They should be used as a performance measure.
- Criteria are included for tracking the evolution of outcomes that allow for ending program participation if it becomes clear that program objectives will not be met (as opposed to ad hoc closure at the end of a contract or other extrinsic reason not related to results).

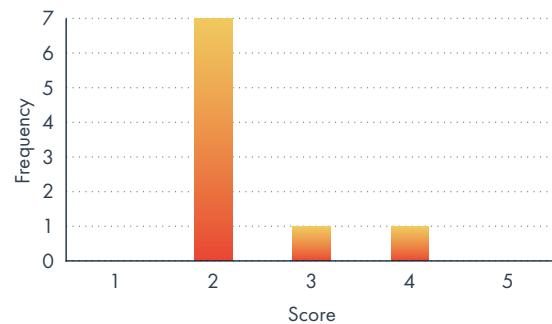
## D.14 MONITORING AND EVALUATION (DESIGN)

**The monitoring and evaluation (M&E) design indicator checks whether there is an integrated M&E system embedded in the design phase of the instrument.**

(See figure A.D.14) The indicators chosen should be high quality operationalization of outcomes and impacts. Data collection methods must be realistic, and in cases when external data is used, adjustments should be made to guarantee that the system would meet the specific needs of the instrument. If M&E for the instrument relies on external M&E systems, adjustments or accommodation of the system must be made to fit the specific needs and aims of the instrument to avoid distorting the instrument logic to accommodate external bureaucratic requirements that do not favor its functionality.

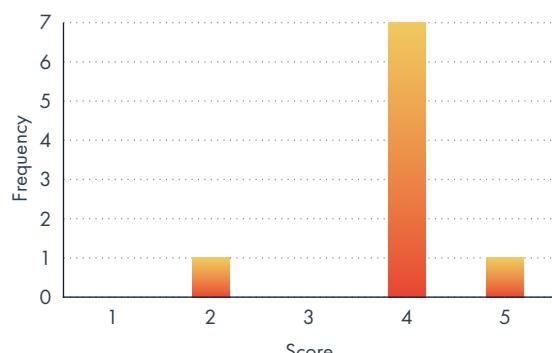
**A centralized system for tracking instruments is in place in Romania, but its connection with M&E**

**FIGURE A.D.13** Distribution of Outcomes/Impacts Scores



Source: World Bank Group

**FIGURE A.D.14** Distribution of M&E (Design) Scores



Source: World Bank Group

Note: M&E = monitoring and evaluation.

**processes is hard to gauge.** All but one of the instruments had an above mid-range score. These scores were due mostly to the centralized system that is used for capturing all information for the instruments and the projects they support. The exact adaptation of this system to M&E processes for individual instruments was difficult to gauge. The higher score on this indicator seems somewhat contradictory with the lower scores on objectives and outcomes/impacts that it would be building towards. This score may overestimate the quality of the M&E design at the instrument level.

#### Best Practices

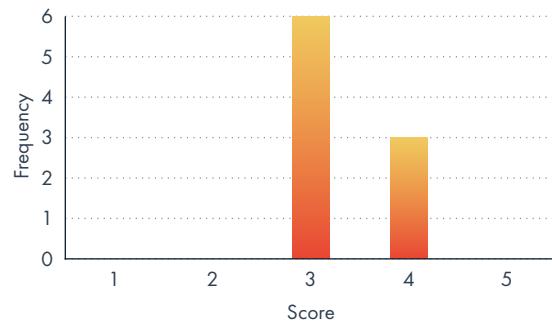
- An M&E system that is well connected with the program itself and the quality key performance indicator (KPI).
- If M&E for the instrument relies on external, administration-wide or organization-wide M&E systems, specific adjustments or accommodation of the system must be made to fit the specific needs and aims of the instrument. Practitioners should avoid distorting the program logic to accommodate external bureaucratic requirements that do not favor its functionality.
- M&E indicators are high-quality operationalizations of outcomes and impacts and are not to be confused with indicators of activities or outputs.
- Realistic methods of data collection have been considered for the measurement of indicators.

### D.15 LEARNING

**The learning indicator refers to formal learning processes used for systematic improvements of instruments.** Learning processes should be used to improve instrument design and implementation procedures, with systematic and formal documentation of the changes being made.

**Learning is happening in Romania, but it is not being documented systematically or formally.** (See figure A.D.15) The scores on this indicator are in the mid-range and slightly above. There was evidence of learning and adjustment from experience and a certain level of documentation of what was learned. There was no fully implemented knowledge management system, though.

**FIGURE A.D.15 Distribution of Learning Scores**



Source: World Bank Group

#### Best Practices

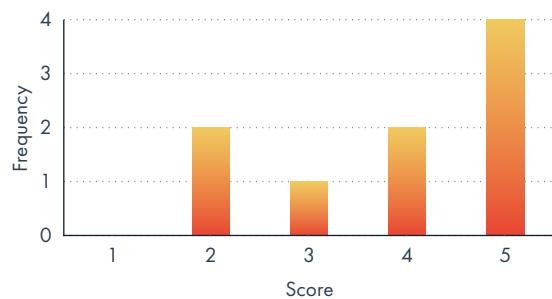
- The best-scoring instrument on this indicator should apply the learning process in the design of the instrument with systematic and formal documentation used for long-term improvement.

### D.16 SOLICITATIONS

**The solicitations indicator refers to the processes for launching calls for proposals and whether they are reasonable and consistent with the logic model and objectives.** Adjustments on subsequent calls for proposals should be well-documented and made with full justification aligned with the program objectives. Where appropriate, calls should be published regularly and have consistent, predictable calendars.

**In Romania, the scores for solicitations show high variability with some instruments showing good practices in processes for managing solicitations.** (See figure A.D.16.) Some of the lower-scoring instruments could learn from

**FIGURE A.D.16 Distribution of Solicitations Scores**



Source: World Bank Group

the better-performing ones. However, the connection between the ongoing budget execution issues and the solicitation processes may not have been clearly captured in this indicator, overestimating the average performance score.

#### **Best Practices**

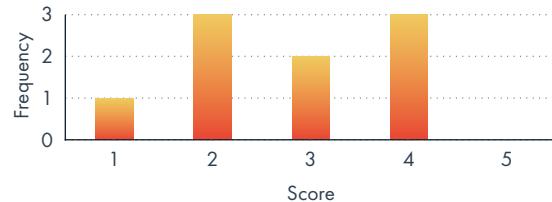
- The best-scoring instruments are those where adjustments on the calls of proposals are well-documented, made with full justification aligned with the program objectives.
- Where appropriate, calls are published regularly and have consistent, predictable calendars.

## D.17 ELIGIBILITY CRITERIA AND APPLICATION INFORMATION

**The eligibility criteria and application Information indicator focuses on the eligibility criteria set to reach the target population.** They should be clear and transparent and all needed information should be publicly available. Selection information should be collected and analyzed, including lists of applicants, scores awarded to submitted proposals, and other pertinent information related to the submission and selection process. This information should be made available to applicants, as much as general privacy regulations allow. The dissemination of information on eligibility and selection and is consistent with the target population should be appropriate.

**In Romania, lower scores on eligibility criteria and application information reflect difficult or burdensome application processes.** The score for eligibility criteria and application information is one of the lowest in the implementation area at 2.78 but shows great variability (see figure A.D.17). This means, as we see in the distribution, that several instruments have above mid-range scores. The lower scores reflect a difficult or burdensome application process that may require that applicants seek external help (such as external consultancies or agents) to satisfy the application requirements, which imposes a cost.

**FIGURE A.D.17** Distribution of Eligibility Criteria and Application Information



Source: World Bank Group

#### **Best Practices**

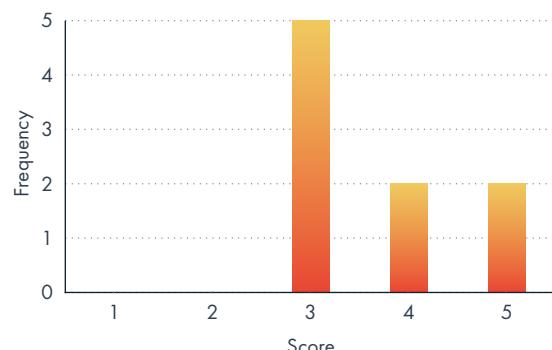
- Instruments with transparent selection process, coherent with the target group;
- Instruments where the gathered information is used to improve and adapt future selection criteria;
- The candidates selected and the amount of money assigned to them are known to the public; and
- The administrative burden does not lead to a need for additional resources to submit applications.

## D.18 APPLICATION AND SELECTION PROCESS

**The application and selection process indicator refers to the mechanisms for project selection used by the implementing body, which should be agile, transparent and responsive.** The committees responsible for award decisions should be composed of relevant, independent experts appointed in a justified and transparent manner. The mechanism for appealing award decisions should be accessible and clear.

**The average score of this indicator is from the mid-range and higher.** Several instruments had agile, transparent and professional selection processes. (See figure A.D.18.) Several were in the mid-range, having some weaknesses in the timeliness of the selection process, which was vulnerable to the effects of appeals that changed the entire ranking of applications.

**FIGURE A.D.18** Distribution of Selection Processes Scores



Source: World Bank Group

### Best Practices

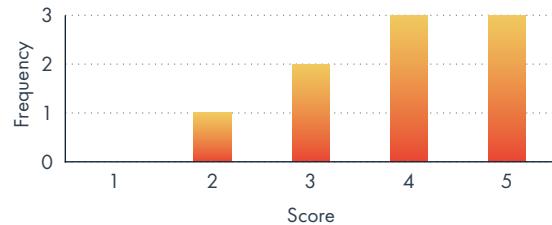
- The best scoring instruments should have transparent, agile, and responsive selection processes;
- Clear appeal and conflict resolution channels should be in place; and
- The award decisions should be fully justified and the committees should be set up with the best practices regarding expertise and conflicts of interest.

## D.19 PROGRAM DATABASE

**The program database and information indicator refers to the presence of database systems that track participants, projects, follow-ups, outputs and other data relevant to the program.** The system should be used to make adjustments of the solicitations themselves, increase responsiveness to participants' concerns, and contribute to the general improvement of management and design of the program, and should be usable by other programs across the portfolio.

**In Romania, Instruments mostly rely on the centralized data system, but it is not clear how well the system is tailored to the specific needs of each instrument or whether the information in the central database was used to its full extent.** (See figure A.D.19) The program database indicator has a high average score but also high variability reflecting some unevenness in the consistency with which information about the progress of projects was either available or used by the instrument managers. They mostly rely on the centralized data system, which contains all project information and reporting. The degree to which it was tailored to the specific needs of each instrument was not clear in all cases. In addition, it was not clear whether the information from the program database was used to its full extent in understanding how to make adjustments to the instrument or the solicitations.

**FIGURE A.D.19** Distribution of Program Database Scores



Source: World Bank Group

### Best Practices

- The best scoring instruments should have information and a follow up system in place and the data gathered should be used in order to improve the performance of the program.
- The system is used to make adjustments to the calls themselves, to increase responsiveness to participants' concerns, and to contribute to the general improvement of program management and design. It is also usable by other programs.

## D.20 PROJECT CLOSURES

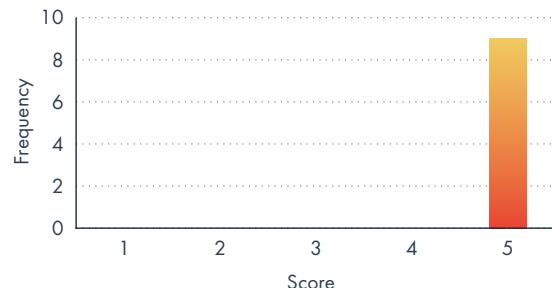
**The project closures indicator focuses on the presence of beneficiary completion or closing reports.** The information obtained from it can be used for learning and improving the impact of the program.

**Romania scores perfectly on this indicator.** This perfect score (see figure A.D.20) reflects the clear and transparent regulation of the OP on termination of projects that are not meeting requirements of their contract.

### Best Practices

- Closure criteria and reporting should be fully specified with high quality reports and post-closure results.

**FIGURE A.D.20** Distribution of Program Closure Scores



Source: World Bank Group

## D.21 BUDGET

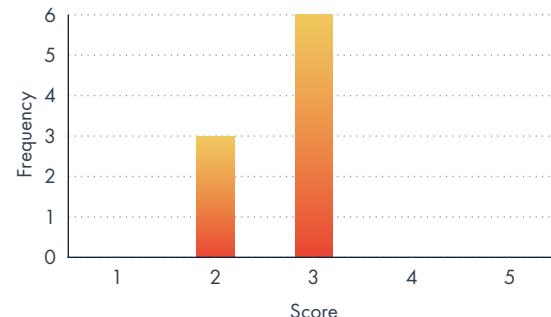
**The budget and financial resources indicator refers to whether resources are appropriate for the implementation of the program.** There should be accountability in the executing of the program and subcontracting entities.

**In Romania, this indicator has a low average score below the mid-range of 2.67.** (See figure A.D.21.) Several instruments have had problems in executing their budgets in a timely fashion and estimating correctly the demand for the particular focus of the intervention.

### Best Practices

- The best scoring instruments have adequate financial resources with proper control and execution mechanisms in place.
- Budgets are estimated accurately for the potential demand for the intervention.
- Program execution and subcontracting entities are subject to accountability standards.

**FIGURE A.D.21** Distribution of Budget Scores



Source: World Bank Group

## D.22 PROGRAM MANAGEMENT

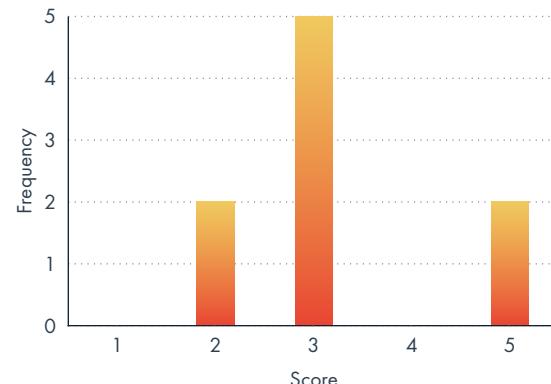
**The program management and organization quality indicator looks at whether the organizational structures in place are appropriate for administering the instruments.** The organizational structure should ensure minimization of external and internal pressures in the implementation of the program and should be reviewed for functional adequacy given changing requirements with new policies and instruments.

**In Romania, using a division of labor based on managing authorities (MAs) and implementing bodies may impose costs.** The management and organization quality indicator has a bimodal distribution, with two programs having perfect scores and the rest mid-range or below. (See figure A.D.22.) The higher scores are due to the involvement of institutions such as the European Economic Area (EEA) and Norway Grants Program that carry out the implementation of the instrument. The rest are housed in the ministries under regular public service regimes. As required by the OP, some use a division of labor involving MAs and implementing bodies that are not always aligned with needs of the instrument. Although interviewees generally reported that this division of labor was usually well-handled, it seems clear that this structure imposes some costs and inefficiencies on the overall process.

### Best Practices

- The organizational structure does not have too many levels that make it difficult for information to flow to the implementers
- The organizational structure ensures minimization of external and internal pressures in the implementation of the program
- The organizational structure is reviewed for functional adequacy given changing requirements with new policies and instruments. It is done using organizational effectiveness indicators.

**FIGURE A.D.22** Distribution of Organization Quality Scores



Source: World Bank Group

## D.23 ROLES AND AUTONOMY

**The roles and autonomy indicator evaluated the level of autonomy that implementers had to introduce changes and whether clear roles were in place regarding program implementation.** The implementing body should have the capacity to introduce changes and be capable of resolving conflicts and responding to significant changes in the political or economic environment.

**Romania exhibits mixed performance on this indicator.** This indicator also shows a bimodal distribution, in part due to the same reason given before (higher scores for the involvement of foreign implementers) but also due, possibly, to different internal arrangements running collections of instruments (see figure A.D.23). Some offices are run better than others and this is reflected in the perception of program managers.

### Best Practices

- The best-scoring instrument should maintain a clear definition of roles to eliminate stress and operate legitimately; and
- Mechanisms for managing change and conflict resolution should be in place.

## D.24 STAFF AND TRAINING

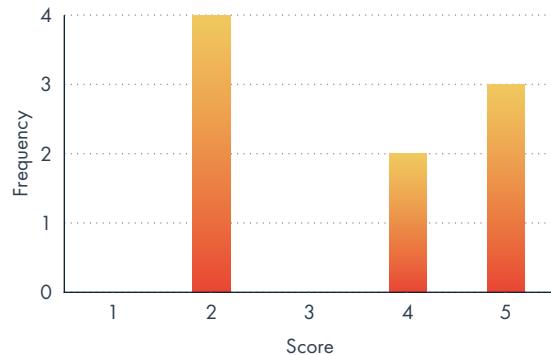
**The staff and training indicator evaluates the level of training and experience of the implementing staff.** This includes assessing whether the number of staff is adequate to implement the program.

**Romanian instruments scored from the bottom to the top.** This indicator has an enormous variability with an average score of 3, exactly in the middle. (See figure A.D.24.) The heterogeneity in the perceptions of opportunity for skill enhancement and the adequacy of the staff and skills may be due to local conditions within the ministries. Some of these issues are difficult to gauge with videoconferencing interviews that do not allow for direct observation of the work conditions. Some instruments did not seem to have enough skilled staff nor many opportunities for improving their own staff. Others thought they were sufficient.

### Best Practices

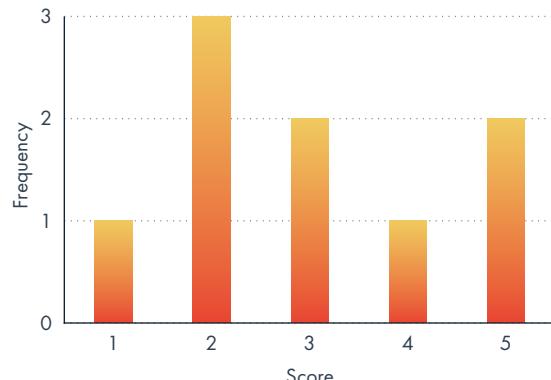
- The best-performing instruments on this indicator have staff with exceptional experience and high-quality educational background; and
- There are formal training opportunities and incentives for advancement.

**FIGURE A.D.23** Distribution of Roles/Autonomy Scores



Source: World Bank Group

**FIGURE A.D.24** Distribution of Staff/Training Scores



Source: World Bank Group

## D.25 INCENTIVES

**The incentives indicator refers to the presence of clear and explicit criteria for assessing staff performance.**

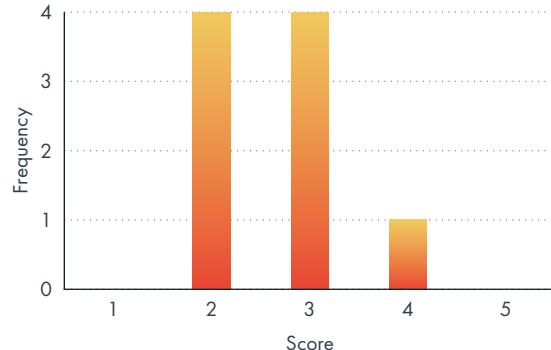
Awards and punishments should be linked to clear established criteria and related to the individual's duties and the performance of the instrument.

**The average score on the incentives for performance and their relation to the instrument outcomes is low and reflects a separation of the staff performance evaluation from the performance of the instruments they manage.** (See figure A.D.25) Staff performance follows standard hierarchical procedures with evaluations down the chain of command by the direct supervisor. However, several staff commented that performance management was “all stick and no carrot.”

### Best Practices

- Instruments are managed by staff that are being evaluated based on well-specified criteria. The management has clear mechanisms for rewarding good and punishing bad performance, tied to the successful achievement of program goals.

**FIGURE A.D.25 Distribution of Incentives Scores**



Source: World Bank Group

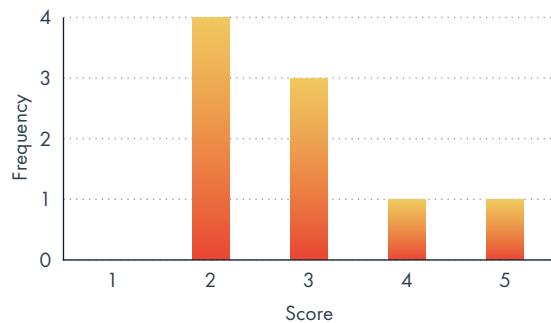
## D.26 PROCESS MONITORING

**The process monitoring indicator checks for the presence of an audit and monitoring system with clear indicators for monitoring program implementation.**

This system should be applied periodically, and reports should be submitted and presented to higher authorities. Monitoring should aim for effective oversight without becoming oppressive.

**Except for the two instruments with higher scores, most are in the mid-range or below.** (See figure A.D.26.) The latter group of instruments are subject to the standardized audit procedure on a national level. Simultaneous audits seem to be problematic. That is to say, in some cases the lower scores were due to the perceived bureaucracy of too much monitoring, rather than too little.

**FIGURE A.D.26 Distribution of Process Monitoring Scores**



Source: World Bank Group

### Best Practices

- Instrument subject to robust administrative process monitoring with quality measurement of indicators.
- The process should appear periodically and inform timely decisions from management.

## D.27 MONITORING AND EVALUATION (IMPLEMENTATION)

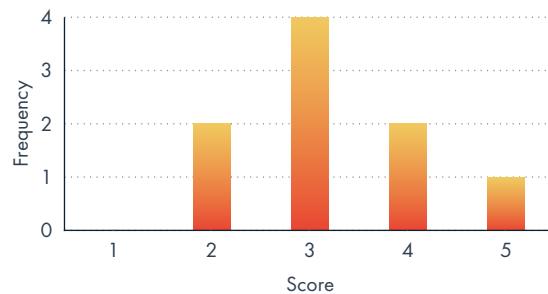
**M&E in implementation refers to the presence of a formal M&E system that operates continuously and is used to modify programs and generate impact evaluations.** The information should be collected at all indicators levels and the latter should be improved with time. There must be an impact assessment, as well as mechanisms for learning and adapting the program. Programs should be revised based on implementation lessons.

**The implementation of M&E has high variability and an average score above the mid-range.** (See figure A.D.27.) This is partly due to the instrument managed by a foreign agency that has a perfect score. The rest of the scores also seem high when compared to practices in peer countries using similar M&E infrastructure. More emphasis was put on the existence of the centralized digital infrastructure than on specific M&E practices for continuous improvement. This score is probably overvalued.

### Best Practices

- The best performing instrument should have a formal high-quality M&E program that operates continuously and is used to modify programs and generate impact evaluations.
- Information is collected for indicators at all levels (activities, products, etc.). Indicators are adapted and improved with time.
- Programs have been revised based on implementation lessons.

**FIGURE A.D.27** Distribution of M&E (Implementation) Scores



Source: World Bank Group

Note: M&E = monitoring and evaluation.

## D.28 PROGRAM COORDINATION

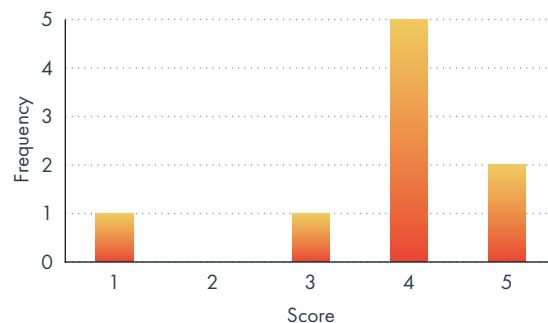
**The program coordination indicator refers to whether a program acknowledges the existing portfolio of STI programs and has established good coordination and communication with other programs.** In cases when overlaps occur, they should be resolved as programs are combined or coordinated. Explicit complementarity criteria should exist for the overall effectiveness of related programs.

**The Romanian agencies manage collections of instruments within the OP and have built-in mechanisms of coordination among them.** As a result, the average score is relatively high, above the mid-range. (See figure A.D.28.) There was not much clarity about the strategic significance of this coordination mechanism.

### Best Practices

- The best-performing instruments are those that acknowledge the existing programs and have established good coordination and communication.
- In cases when overlaps occur, they are resolved as the programs are combined or coordinated.
- Explicit complementarity criteria exist for the overall effectiveness of related programs.

**FIGURE A.D.28** Distribution of Program Coordination Scores



Source: World Bank Group

## D.29 INSTITUTIONAL COORDINATION

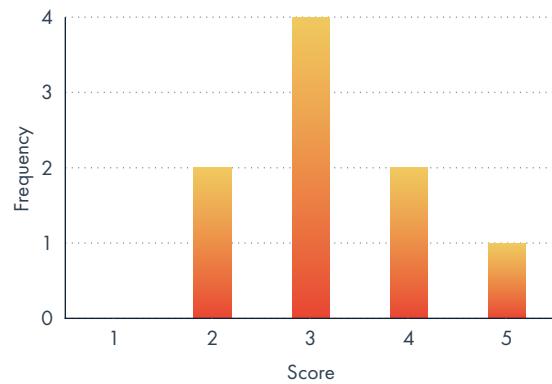
**The institutional coordination indicator refers to coordination and participative mechanisms with other public and private institutions.** Evidence of joint work with other institutions should be in place.

**In Romania, the coordination of institutions is a product of the similar mechanisms among MAs and implementing bodies that are required by the OP.** (See figure A.D.29.) The question of how this coordination results in improvement of design for future cycles, taking into consideration synergies and complementarities, remains unclear.

### Best Practices

- The best performing instruments are those that have established formal coordination mechanisms with evidence of collaborative work and design.
- Joined and coherent strategic management should be present.
- There needs to be evidence showing that work and joint design processes take place with other institutions.

**FIGURE A.D.29 Distribution of Institutions Coordination Scores**



Source: World Bank Group

## D.30 INTERACTION OF JURISDICTIONS (AWARENESS)

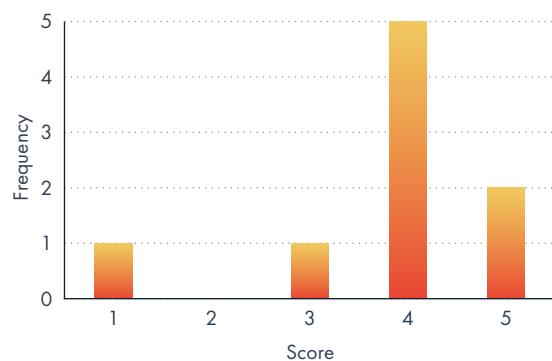
**The internal interaction of jurisdiction rules and regulations indicator refers to the implementing staff's knowledge of laws and regulatory constraints.** Programs should be adapted based on jurisdictional limitations, and program staff should be capable of taking action to leverage positive or mitigate negative factors.

**For the most part, program managers are aware of jurisdiction rules that affect the potential for performance of the instruments they manage.** (See figure A.D.30.) State-aid regulations are especially problematic and difficult to work around.

### Best Practices

- The best scoring instruments are the ones where the implementing body is fully aware of and acknowledges the jurisdiction interactions.
- The best scoring instruments are the ones where the implementing body has taken action to adapt the program based on the jurisdiction rules and regulations for optimal performance.

**FIGURE A.D.30 Distribution of Interaction of Jurisdictions (Awareness) Scores**



Source: World Bank Group

## D.31 INTERACTION OF JURISDICTIONS (SERIOUSNESS)

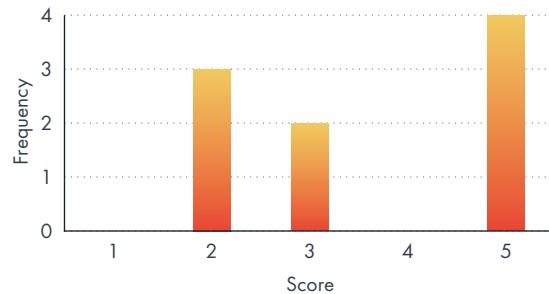
The interaction of jurisdiction rules and regulations (seriousness of external constraint) indicator refers to the degree to which the general legislative and regulatory environment inhibits program implementation and effectiveness and the degree to which any regulatory obstacles are modifiable.

For some instruments in Romania, the state-aid regulations were a difficult obstacle to overcome, as reflected in the instruments with lower scores. (See figure A.D.31.) Except for those run by a foreign or external agency, the ones with higher scores may reflect a misperception of how the obstacles work, simply accepting conditions uncritically. Those scores seem too high, given experiences elsewhere in the region.

### Best Practices

- Degree to which general legislation or regulation can leverage the program impact.
- Degree, likelihood, and timeliness to which these obstacles are modifiable.

**FIGURE A.D.31** Distribution of Interaction of Jurisdictions (Seriousness) Scores



Source: World Bank Group

## ANNEX E

## LIST OF COUNTRIES WITH A STARTUP VISAS AND/OR DIGITAL NOMAD VISAS<sup>24</sup>

Country	Program	Program Type
Australia	Business Innovation and Investment (Provisional) Subclass 188 (Entrepreneur Stream)	Entrepreneur
Austria	Red-White-Red Card for Startup Founders	Startup
Canada	Start-up Visa Program	Startup
Cayman Islands	Cayman Enterprise City (CEC)	Entrepreneur
Chile	Start-Up Chile	Startup, investor
Cyprus	Cyprus Startup Visa Scheme	Startup
Denmark	Start-up Denmark	Startup
Estonia	Estonia Digital Nomad Visa	Digital Nomad
Estonia	StartUp Visa Estonia	Startup
Finland	Start-up Entrepreneur Residence Permit	Startup
France	French Tech Visa	Startup
Georgia	Remotely from Georgia	Digital Nomad
Germany	Self-Employed Residence Visa	Entrepreneur
Ireland	Start-up Entrepreneur Programme (STEP)	Entrepreneur
Israel	Innovation Visas Program for Foreign Entrepreneurs	Entrepreneur
Italy	Italian Startup Visa	Startup
Japan	Startup Visa	Startup
Latvia	Latvia Startup Visa	Startup
Lithuania	Startup Visa Lithuania	Startup
Malaysia	Malaysia Tech Entrepreneur Programme (MTEP)	Entrepreneur
Netherlands	Dutch Startup Visa	Startup
New Zealand	Entrepreneur Work Visa	Entrepreneur
New Zealand	Global Impact Visa	Entrepreneur
Portugal	StartUP Visa	Startup, investor
Rwanda	W2 – Entrepreneur in Information Technology and related activities	Entrepreneur
San Marino	San Marino Startup Visa	Startup
Singapore	EntrePass	Entrepreneur
Spain	Entrepreneur Visa Program	Entrepreneur
Sweden	Self-Employed Residence Permit	Entrepreneur
Thailand	SMART S (Startup) Visa	Startup

24. Based on data from Future Work Present (2020) and NanoGlobals (2021).

Country	Program	Program Type
United Arab Emirates	Ras Al Khaima Economic Zone	Entrepreneur
United Arab Emirates	Dubai Silicon Oasis Authority	Entrepreneur
United Arab Emirates	Fujairah Creative City	Entrepreneur
United Arab Emirates	DMCC	Entrepreneur
United Kingdom	Innovator Visa	Startup
United Kingdom	UK Start-up Visa	Startup

**FIGURE A.E.1** International Good Practice Guidelines for Developing an Incentive Scheme Such as a Startup Visa Program

