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Instrumente Structurale 2014-2020

Lot 3 - Evaluation of ROP 2014-2020 Interventions

EVALUATION REPORT

Theme 1 - Promotion of technology transfer

August 2019

Lot 3 - Evaluation of ROP 2014-2020 interventions

Contract no. 266/19.09.2018

Theme 1 - Promotion of technology transfer

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August 2019

DISCLAIMER

This report is the result of an independent evaluation conducted by the consortium led by the Lattanzio Advisory Spa (Association Leader) and Lattanzio Monitoring & Evaluation Srl (Associate 2), under the contract concluded with the Ministry of Regional Development and Public Administration in September 2018.

The opinions expressed herein are of the consortium and do not necessarily reflect the views of the Contracting Authority, namely the Ministry of Regional Development and Public Administration, nor of the Managing Authority for the Regional Operational Program 2014-2020.

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List of abbreviations

RDA	Regional Development Agency (in Romanian: *ADR*)
MA ROP	Management Authority for the Regional Operational Programme
PA1	Priority Axis 1
LPA	Local Public Authority
ARIES	Association for Electronic Industry & Software (Romanian: *Asociația Română pentru Industrie Electronică și Software*)
BDAS	Sociological Survey Database - an Excel file included in the evaluation document package
EO ROP	Evaluation Office of the Regional Operational Programme (in Romanian: *Biroul de Evaluare a Programului Operațional Regional - BE POR*)
SB	State Budget
CCI	Chamber of Commerce and Industry
CCIA	Chamber of Commerce, Industry and Agriculture
RDI	Research, Development, Innovation
EC	European Commission
ECC	Evaluation Coordination Committee
ESC	Evaluation Scientific Committee
RFD	Regional Framework Document
CCISS	Committee for the coordination of the intelligent specialization strategy
AAC	Academic Advisory Committee
TS	Tender Specification
BoD	Board of Directors
RDI	Research, Development, Innovation
RIC	Regional Innovation Consortium
RCSME	Romanian Centre for SME
ETC	European Territorial Cooperation
TIC	Technology Information Centre
TTC	Technology Transfer Centre
MCST	The Malta Council for Science and Technology
DIB	Directorate of Intermediate Body
EITT	Entities of Innovation and Technology Transfer
EEN	Enterprise Europe Network
GE	General evaluation
ERDF	European Regional Development Fund
SME	Small and Medium Enterprise
TBI	Technology and Business Incubator
ITT	Innovation and Technology Transfer
JRC	Joint Research Centre

ILO	Industry Liaison Office
NGO	Non-Governmental Organisation
SO	Specific Objective
MRI	Ministry of Research and Innovation (Romanian: *Ministerul Cercetării și Inovării*)
MCIS	Ministry of Communications and Informational Society (Romanian: *Ministerul Comunicațiilor și Societății Informaționale*)
DR BI	Development Region Bucharest Ilfov
DR C	Development Region Centre
DR NE	Development Region North-East
DR NW	Development Region North-West
DR SE	Development Region South-East
DR SM	Development Region South Muntenia
DR SWO	Development Region South-West Oltenia
DR W	Development Region West
ReNITT	National Network for Innovation and Technology Transfer
RIS3	Regional Strategies for Smart Specialisation
ROREG	Association of Regional Development Agencies
S3	Smart Specialisation Strategy
IB	Intermediate Body
RDP	Regional Development Plan
GDP	Gross Domestic Product
IP	Investment Priority
PJIMM	County Association for SMEs (in Romanian: *Patronatul Județean al IMM*)
NRDP	National Rural Development Plan
COP	Competitiveness Operational Programme 2014-2020
ACOP	Administrative Capacity Operational Programme
HCOP	Human Capacity Operational Programme 2014-2020
STP	Science and Technology Park
LoI	Letter of Intention
NRDIS	National Research, Development and Innovation Strategy
NSSS	National Strategy for Smart Specialisation 2021-2027
LLC	Limited liability company (in Romanian: *SRL*)
ICT	Information and Communication Technology
TT	Technology transfer
UEFISCDI	Executive Unit for Financing Higher Education, Research, Development and Innovation
UTC	Universitatea Tehnică Cluj-Napoca
UMF	Universitatea de Medicină și Farmacie
UPB	Universitatea Politehnică București

1. Executive Summary

The general objective under ROP 2014-2020 is **the increase of economic competitiveness** and **the improvement of the living conditions of local and regional communities** by supporting the development of the business environment, the infrastructure conditions and the services, to ensure a sustainable development of the regions and make them capable of efficiently manager resources, exploiting their potential for innovation and assimilation of technological breakthrough.

This Evaluation Report submits the evaluation results of the progress achieved in the implementation of ROP 2014-2020, Priority Axis 1 - Promotion of Technology Transfer between 01.01.2016 - 14.05.2019 (reference evaluation date).

1. Conclusions

- ROP 2014-2020 has made a visible contribution to addressing smart specialization;
- The institutional structures developed under ROP to support smart specialization process at regional level are perceived as functional;
- RDA activities for improving the stakeholders' degree of involvement and for creating a participatory process is appreciated positively by both research organizations and companies.

Research enterprises and organizations in the context of PA 1:

- The promotion of the technological transfer contributes to the intensification of the collaboration between them;
- The regional innovation strategy for smart specialization ensures the most efficient use of the development potential and the competitive advantages;
- The support and guidance received from the RDA for the preparation of the projects were at the level of expectations;
- In the opinion of companies' representatives, there is a difference between the expectations regarding partners' association and the contribution of the ROP on this aspect, while the research organizations consider that this aspect has found the appropriate answer through the ROP - PA1.
- The influence of some barriers on the process of results' technological transfer is confirmed: difficult access to finance and high cost of technological transfer
- The systematic process of consultation between the business sector and the research sector is perceived as functional rather by enterprises than by research organizations;

Sociological research based on an opinion poll attended by 59 companies and 43 research organizations shows the following results. Most consider that:

- Access to finance is, to large and very large extent, difficult;

- The high cost of technology transfer is a barrier;
- Ensuring intellectual property is not a barrier for research organizations, but it is for enterprises;
- The low interest in promoting the TT / research entities for the needs manifested by the market / consumers is a barrier in the creation of partnerships for the economic valorization of the results of the applied research.

2. Recommendations

- Stimulating the participation of professional associations in quadruple helix regional partnership structures (research, enterprises, public authorities, community / civil society) and formalizing these structures in a regional association;
- Creation of an interregional network of CRIs (Regional Innovation Committees) within and under the coordination of the Romanian RDAs Association <RoReg>;
- Strengthening the institutional memory and sustainability of the CRIs through continuous education projects in the preparation and during the programming cycle, with the aim of strengthening the administrative capacity of the regional institutional ecosystem for promoting innovation (partnership structure, RDA, CRI, potential beneficiaries of ROP funding);
- The state aid area remains a critical issue. Ideally, the rules applicable to the programs managed directly by the EC, such as HORIZON, shall also apply to FESI investments. Dialogue with DG Competition on the issue of state aid for promoting technology transfer and aligning regulations between DG Regio and DG Research is necessary;
- The analysis of the functioning of the governance mechanism for monitoring and evaluating the implementation of SNSI 2021+ and RIS3 at the highest state level, is necessary for the continuity of the inter-institutional mechanisms at the governmental level;
- Developing the administrative institutional capacity of the MA and the RDAs through the continuous training of specialized personnel on S3 and the monitoring and evaluation of RIS3 implementation, as well as to identify and attract innovative financial instruments for the "financial engineering of high value and high risk integrated projects". Financial support for organizing annual innovation fairs in Romania with international participation, etc;
- Organizing call 2 for operation 1.1.C by simplifying administrative barriers and involving RDAs in the process of revising and updating the Applicant's Guide. Making the most of the lessons learned from the first call;
- Eliminating the stage of letters of interest that restricted the access of potential beneficiaries;
- Simplifying the JRC methodology regarding EDP, especially the plenary session, which in some regions does not work due to the lack of entrepreneurial culture, delays or is considered too standardized in contrast to the creative nature of open innovation;

- It is recommended flexibility in the instrumentation of the JRC methodology in the entrepreneurial discovery processes, in order to facilitate the adaptation to the regional specificity of the entrepreneurial environment (local entrepreneurial culture, the density of the number of SMEs per 1000 inhabitants, the prevalent business models, etc.) and of the research environment. (the incipient local culture of the partnership with the business sector, the prevalence of some specializations in the university environment at county level or even the shortage of university institutions of technical, technological profile close and concerned with applied research, etc.);

- Prioritizing waterfall projects, follow up once with the transition from a technological maturity level to a higher one compared to the integrated projects. Focus on TRL levels 5-8;

- Encouraging the use of already developed research infrastructures that have entered conservation (eg, research infrastructure and laboratories in hospitals could form partnerships that provide services, but they are not income generating entities; at the same time, hospitals cannot finance them during the period of ex-post monitoring) and extending the eligibility of the operational parties, including salaries up to 100%, considering the sub-financing of the RDI;

- OPEN DATA SOURCES to ensure the traceability and transparency of the processes carried out;

- Clearer definition of the initial investment within the guidelines;

- Higher predictability for Technical Assistance WB projects on the three stages (valorisation of prototype research and market acceptability testing - eg NV and NE regions);

- Clear specification in the GS of the supporting documents attesting the completion of the research process and documenting the result that will be the object of economic valorization;

- Eliminating the requirement from GS of 10-year balance sheet financial projections and priority given to cash flow, the capacity to generate financial availability flows;

- Correlation of GS provisions with specific requirements on different calls;

- Facilitating partnerships between universities and LPAs for public co-financing, whilst LPAs should be encouraged to use the research services of the academic environment.

3. Lessons learned

- In the perspective of 2021+ sustainable regional development should be focused on regional economic development in accordance with the economic potential and regional development plans (RDPs) and innovation strategies for smart specialization of each region (RIS3);

- The National Strategy for Smart Specialization (SNSI) must capitalize on RIS3 and the experience gained at the level of the regional partnership structures and the RDAs that coordinated the participatory processes based on a "bottom-up" approach;

- There is a need for constant and systematic dialogue at the level of the regions for the uniform understanding of the aspects regarding innovation and smart specialization, as well as the co-operation of CRI and RDAs in the new project with POCA funding (SIPOCA);

- Progress was made in the preparation of the implementation process to serve also the planning process of the next programming cycle - the ROP has facilitated, together with the EC, through DG Regio and JRC, the implementation process, a true anticipated investment in view to build homogeneous capacities at the level of potential beneficiaries of funds from the eligible regions. Thus, the administrative capacity has been proved at the level of the coordination, management and control system (MA has elaborated a specific and complete regulatory framework, with emphasis on well-drafted guides following iterative processes of consulting the RDAs, as well as the Regional Innovation Committees (CRI) with a role on prioritization and validation of project proposals at regional level);

- The performances at this stage are due to the new tools and mechanisms, such as the methodology for adopting the regional framework document (DCR) and the mechanism for implementing the PA1 in four steps, as well as the technical and financial assistance, guidance and preparation from the ROP and the JRC. To these it has been added the experience gained by the coordination, management and control system of the ROP and by the potential beneficiaries from the business sector and the applied research environment;

- The need to strengthen the administrative capacity still exists and must be subject of constant attention, given the need to fulfill the criteria under the enabling conditions both ex-ante and during the implementation period.

2. Current standing

The PA1 of ROP 2014-2020 is structured around a single Investment Priority (IP) 1.1. which will result in the attainment of 2 Specific Objectives (SO), namely:

- SO 1.1. Increase of innovation in companies by supporting entities of innovation and technology transfer (EITT) in smart specialisation areas;
- SO 1.2. Supporting smart specialisation in less developed regions, selected as pilot regions under 'DG Regio's Initiative for Less Developed Regions';

IP 1.1. seeks to promote investments in R&I, the development of links and synergies between companies, research and development centres and the higher education, in particular to foster investments in product and service development, the technology transfer, the social innovation, the environmental innovation and public service applications, the stimulation of demand, the creation of networks and groups and of open innovation through smart specialisation, as well as to support technological and applicative research activities, pilot lines, early market acceptability testing of products, advanced production and premium production capabilities, especially in the field of key enabling technologies and the diffusion of all-purpose technologies.

In terms of results expected from the implementation of PA1 under ROP 2014-2020, the innovation is necessary for Romania, both at national and development region level, in order for Romania to become / stay competitive by increasing the work productivity in companies, the access to new supply and dispatch markets, the development of higher

value-added products and services and, finally, for creating sustainable jobs in a strong globalised competition.

Investments that are to be achieved under IP 1.1., aiming at reaching the two specific objectives (1.1. and 1.2), address the increase of economic competitiveness through technology transfer with a view to increase the share of innovative SMEs which are open to an approach based on collaboration and partnership.

In the light of ROP interventions as a tool for financing public policies in the field of regional development, the proposed goal can be achieved by creating and developing support entities for innovation and technology transfer, whether public or private, in the less developed regions of the country, in line with the principle of smart specialisation. These investments aim to support the achievement of a more intensive transfer of research results into innovative commercial applications, with an impact on the taking over and dissemination of market research results, whilst also contributing to the growth of the technological progress diffusion rate on the market and in the society, this responding in general to the Europe 2020 Objective regarding the development of a knowledge and innovation-based economy.

The investments proposed through the operations proposed under PI 1.1. seek to strengthen the specialisation resulted at local and regional level, in order to ensure an efficient valorisation of comparative advantages on grounds of natural resources and other favourable factors, and of the relative accessibility to markets and supply chains.

Under the IP 1.1., Specific Objective 1.1., a number of 3 calls for proposals have been organised by the reference evaluation date. The calls are the following, in the chronological order of their launch and considering the preliminary results with which they ended:

- **Competitive call under operation 1.1 C (Call code: POR/2017/1/1.1.C./1)** - Investments for SMEs with the view to implement the result of innovation research in as partnership with EITT - call open between 25 January - 25 August 2018. The applicants eligible under this call for projects were the legal entities established based on Law 31/1990 regarding the companies or cooperatives which fall into the category of SMEs[1] (micro, small, medium-sized enterprises) in partnership with technology transfer entities accredited in accordance with the legal provisions in force. The minimum amount of the non-reimbursable funding applied for was set at the minimum threshold of EUR 25,000, converted into RON using the InforEuro exchange rate valid on the launch of the call for projects, respectively for December 2017. The amount of the requested non-reimbursable financing could not exceed the de minimis ceiling (EUR 200,000 granted over the past three years).
    - A number of 94 financing applications were submitted under this call, out of which 10 applications originating in RD NE[2]are currently in the technical and economic evaluation stage;

[1] Pursuant to Law 346 of 14 July 2004 on stimulating the creation and development of small and medium-sized enterprises, updated

[2] According to the statement of 31 July 2019 posted on the website of MA ROP

- No other applications from the other regions were selected for financing as they did not fulfil the requirements for promotion of technology transfer result for economic valorisation on the market;
- All these applications have proposed solutions to promote innovation through technological modernisation. Eligible applicants and their consultants involved in writing the applications for funding interpreted this operation as an opportunity to extend the activities financed through the investment priorities available under PA 2 of ROP - Improving economic competitiveness;
- The causes that determined the current stage of this appeal, as mentioned by the eligible beneficiaries consulted during the focus groups held regionally, as well as by some of the interviewees, also include the following:
  - weak conceptual clarification, deficiencies of conceptual understanding on the side of the target group, as well as frequent changes brought to the Applicant's Guide, susceptible of leaving room for misunderstandings and misinterpretations;
  - drafting the Applicant's Guide without consulting with RDA and the potential recipients along the way. The consultation took place only during the time period demanded by the decision-making transparency, and the observations, comments and proposals made by the interested applicants did not receive an adequate response nor were taken into account in the final versions of the guidelines with specific requirements.

- **Competitive call under operation 1.1 B (Call code: POR/2018/1/1.1.B./1)** – Supporting Scientific and Technology Parks - call open between 13 August 2018 and 13 April 2019. In this call, a number of funding applications[3] were submitted and accepted in the selection process;
- **Competitive call under operation 1.1 A (POR/2018/1/1.1.A./1)** - Innovation and technology transfer infrastructure - call open between 20 August 2018 and 20 April 2019. In this call, a number of 30 funding applications[4] were submitted, out of which 27 were accepted in the selection process;
- **The fourth call (POR/2018/1/1.1/OS 1.2/1)** addresses the Specific Objective 1.2 - Supporting smart specialisation in less developed regions, selected as pilot regions under 'DG Regio's Initiative for Less Developed Regions'; the call is in an advanced preparation stage[5] and is expected for launch in Quarter IV 2019.

Thus, 126 projects were submitted in total under the 3 calls on Priority Axis 1 by the time of the analysis.

Table 1 Financial allocation under PA 1 ROP and its use

Order no.	Specification	MU	Indicator value

[3] According to the situation on April 30, 2019 presented on the RDA web pages
[4] IDEM
[5] AG Specific conditions for accessing the funds, elaborated in close cooperation with RDA NE and RDA NW, can be publicly consulted on http://inforegio.ro by September 28, 2019.

Order no.	Specification	MU	Indicator value
1	Financial allocation for the program	RON	837,116,659
2	Financial allocation on SO 1.1.	...	...
3	Amount of requested non-reimbursable funds	RON	292,429,300
4	Amount of approved non-reimbursable funds	RON	0
5=3:1	Program accessibility percentage	%	34.93%
6= 3:2	Accessibility percentage on SO 1.1.	%	57.63%

Source: SMIS data, valid on 14.05.2019

According to the distribution of estimated financial allocations at regional level related to the modification of the Regional Operational Program 2014-2020 - The written procedure June 2018, Priority Axis 1 received the amount of MEUR 179.6. Calculated at the average exchange rate of RON 4.46611 for 1 EUR published by NBR for June 2018, the amount of the financial allocation under PA1 is MRON 837.1.

It is worth noting that the examined projects have been submitted for the calls launched under SO 1.1

The accessibility rate of the amounts allocated under the specific objective 1.1. is around 58 %, but the submitted projects are in different evaluation or pre-contracting stages and no financing agreement has been signed by the critical moment of the analysis.

Except for the North-West Region, the allocated level of the non-reimbursable funds was not achieved through the submitted projects in any other region. In addition, even in the regions where a greater number of projects were submitted, many of them did not meet the eligibility criteria and were rejected, which makes the level of the granted allocations be actually even lower than the one presented in the table below:

Table 2 PA1 - Financial allocation and value of submitted projects, per region

Region	Total allocation on SO 1.1. [EUR]	Total allocation on SO 1.1. [RON]	Non-refundable amount of submitted projects [RON]	% value of submitted projects / Allocation on SO 1.1.
North-East	19,061.575	88,847.907	77,076.378	86.75%
South-East	16,176.757	75,401.482	35,915.911	47.63%
South - Muntenia	17,134.732	79,866.699	3,351.539	4.20%
South-West Oltenia	13,030.670	60,737.256	9,478.149	15.61%
West	12,812.949	59,722.437	30,318.144	50.77%
North-West	15,599.792	72,712.190	94,018.741	129.30%
Centre	15,044.602	70,124.394	26,861.142	38.30%
Bucharest – Ilfov	0	0	15,409.295	n/a
Total	**108,861.077**	**507,412.366**	**292,429.300**	**57.63%**

Source: SMIS and Decision MC ROP 96/2018, data valid on 14.05.2019

According to the data taken from SMIS[6], The highest **number of projects submitted** was registered for the call POR/2017/1/1.1.C./1 - Priority Axis 1 - Promotion of the technology transfer, Investment Priority 1.1, Operation 1.1.C - Investments for SMEs for the implementation of a research result - innovation in partnership with an ITT, namely 94 projects, representing 72.9% out of the 129 projects submitted under Priority Axis 1. A number of 32 projects were submitted on the second call - POR/2018/1.1A/1 - Supporting ITT (about a quarter of the total projects under Axis 1), while only 3 projects were submitted on the third call.

Table 3 PA1 – Number of submitted projects and the requested non-refundable amount

Call under Priority Axis 1 - Promotion of Technology Transfer	Number of projects	% in total	Non-refundable amount (ERDF + SB), M RON	% in total
POR/2017/1/1.1.C./1) - Investments for SMEs with the view to implement the result of innovation research in as partnership with an ITT	94	72.9%	78,791.414	26.9%
POR/2018/1.1.A/1- Support to ITT	32	24.8%	187,635.847	64.2%
POR/2018/1/1.1.B./1 (Scientific and Technology Parks – STP)	3	2.3%	26,002.039	8.9%
TOTAL	**129**	**100.0%**	**292,429.300**	**100.0%**

Source: SMIS data, valid on 14.05.2019

However, the value distribution of the non-refundable amounts applied for under the submitted projects is reversed. So, the projects submitted under Call 1.1.A/1 - Supporting ITT have the highest value. They cover 64.2% of all non-refundable amounts (EU contribution + State Budget contribution) requested under Axis 1 by the time of the analysis. In absolute figures, the non-refundable value of the projects submitted under Call 1.1.A. is MRON 187.64 (MRON 165.46 from the EU Budget and MRON 22.18 from the national budget).

Of the 129 projects submitted in total, about 81% are under evaluation and the difference of about 19% (25 projects) are currently at different pre-contracting stages, according to the SMIS data.

Table 4 PA1 - Distribution of submitted projects in various evaluation stages

EVALUATION	1.1.C - SME - ITT partnership	1.1.A.- Support to ITT	1.1.B. - Scientific and Technology Parks - STP	Total
Admitted after administrative control and eligibility check		2	1	3
Complaint rejected after administrative control and eligibility check	4			4

[6] From the comparison of the data recorded in the SMIS and those of the statistical records of the ADR, it is necessary to signal the existence of small differences regarding the number of projects submitted within the calls 1.1.c and 1.1.A of the RD SE and, respectively, the DRC, a situation that needs to be remedied. in SMIS

EVALUATION	1.1.C - SME - ITT partnership	1.1.A.- Support to ITT	1.1.B. - Scientific and Technology Parks - STP	Total
Registered after being contested by MA/IO after the technical and financial assessment	1			1
Registered after being contested by MA/IO after administrative control and eligibility check	14	1		15
Requires clarifications for the administrative control and eligibility check	2	3		5
Rejected after the technical and financial assessment	2			2
Rejected after administrative control and eligibility check	42	2	1	45
To be evaluated	4	17	1	22
Makes a decision / establishes clarification for the technical and financial evaluation	2	1		3
Makes a decision / establishes clarification for the administrative control and eligibility check		2		2
Forwarded for rejection after administrative control and eligibility check	1	1		2
TOTAL	**72**	**29**	**3**	**104**

Source: SMIS data, valid on 14.05.2019

Of the 104 projects being in different stages of the evaluation (as detailed for each specific objective), about half have already been rejected or are being rejected.

Some of the projects being in the pre-agreement phase have been already revoked (24%), while most of them are currently at the stage of submitting requests and receiving clarifications.

Table 5 PA1 - Distribution of submitted projects in various pre-agreement stages

EVALUATION	1.1.C - SME - ITT partnership no.	1.1.A.- Support to ITT no.	1.1.B. - Scientific and Technology Parks - STP no.	Total no.
With request for clarifications	1	1		2
With request to challenge revocation	1			1
With request for other documents	1			1
With clarifications received	12	2		14
Pending creation of file	1			1
Revoked	5			5
Revoked (withdrawn before the signature of the agreement)	1			1

EVALUATION	1.1.C - SME - ITT partnership no.	1.1.A.- Support to ITT no.	1.1.B. - Scientific and Technology Parks - STP no.	Total no.
Total	**22**	**3**	**0**	**25**

Source: SMIS data, valid on 14.05.2019

The regional distribution of submitted projects indicates that more than half of the total number of projects under Axis 1 were submitted in two regions only (39 projects in DR North-East and 27 projects in DR North-West).

Table 6 PA1 - Numerical distribution of submitted projects by region

REGION	1.1.C - SME - ITT partnership	1.1.A.- Support to ITT	1.1.B. - Scientific and Technology Parks - STP	Total	% in total
North-East	32	6	1	39	31,20%
Centre	19	4		23	18,3%
North-West	18	6	1	25	19,8%
South-West Oltenia	11	1		12	9,5%
South - Muntenia	7	4		11	8,7%
West	4	6		10	7,9%
South-East	3	3		6	4,8%
Total	**94**	**30**	**2**	**126**	**100.0%**

Source: According to the situation on April 30, 2019 presented on the RDA web pages

The North-West and the North-East regions, the pilot regions within the 'EC Initiative for Less Developed Regions', demonstrated the highest accessibility rate also in value terms. More than 58 % of the total non-refundable amounts applied for under Priority Axis 1 (171.1 MRON overall) were requested in these two regions.

Table 7 - Numerical distribution of submitted projects by region

REGION	1.1.C - SME - ITT partnership, M RON	1.1.A.- Support to ITT, M RON	1.1.B. - Scientific and Technology Parks - STP, M RON	Total, M RON	% in total
North-West	15,025.218	62,355.464	16,638.059	94,018.741	32.2%
North-East	27,757.793	39,954.606	9,363.979	77,076.378	26.4%
South-East	873.072	35,042.839		35,915.911	12.3%
West	3,372.429	26,945.715		30,318.144	10.4%
Centre	13,904.103	12,957.039		26,861.142	9.2%
Bucharest - Ilfov	5,877.020	9,532.275		15,409.295	5.3%
South-West Oltenia	9,478.149			9,478.149	3.2%
South - Muntenia	2,503.631	847.908		3,351.539	1.1%
Total	**78,791.414**	187,635.847	**26,002.039**	**292,429.300**	**100.0%**

Source: SMIS data, valid on 14.05.2019

The 10 largest projects in terms of total eligible amount (ERDF + National contribution + Own contribution) account for approximately 54 % of the total eligible value of projects submitted under Axis 1.

Table 8 PA1 - The 10 largest projects in terms of total eligible amount

Nr crt.	NUME APEL	TITLU PROIECT	NUME SOLICITANT	TIP ORGANIZATIE	PUBLIC PRIVAT	LOCALITATE	JUDET	REGIUNE	BUGET TOTAL ELIGIBIL
1	1/1.1.B./1 - PARCURI STIINTIFICE SI TEHNOLOGICE - PST	ÎNFIINȚARE PARC ȘTIINȚIFIC ȘI TEHNOLOGIC BIHOR	JUDETUL BIHOR- Consiliul Judetean Bihor	unitate administrativ teritorială nivel județean	Public	Municipiul Oradea	Bihor	Nord-Vest	31,766,135
2	1.1A/1- Sprijinirea ITT	Dezvoltarea Centrului de Transfer Tehnologic al Universitati din Oradea – Smart Industries	UNIVERSITATEA DIN ORADEA	instituție de învățământ superior de stat acreditată	Public	Municipiul Oradea	Bihor	Nord-Vest	27,950,400
3	1.1A/1- Sprijinirea ITT	Consolidare, reabilitare şi reconversie Corp W pentru Centrul de Transfer Tehnologic al Universităţii "Dunărea de Jos" din Galaţi	UNIVERSITATEA „DUNĂREA DE JOS" DIN GALAȚI	instituție de învățământ superior de stat acreditată	Public	Municipiul Galaţi	Galaţi	Sud-Est	27,431,767
4	1.1A/1- Sprijinirea ITT	CONSTRUIRE IMOBIL D+P+3E - CENTRU DE TRANSFER TEHNOLOGIC "CTT-BIOTECH"	UNIVERSITATEA DE STIINTE AGRICOLE SI MEDICINA VETERINARA CLUJ-NAPOCA	instituție de învățământ superior de stat acreditată	Public	Municipiul Cluj-Napoca	Cluj	Nord-Vest	23,449,009
5	1.1A/1- Sprijinirea ITT	CONSTRUIRE IMOBIL D+P+3E - CENTRU DE TRANSFER TEHNOLOGIC "CTT-BIOTECH"	UNIVERSITATEA DE STIINTE AGRICOLE SI MEDICINA VETERINARA CLUJ-NAPOCA	instituție de învățământ superior de stat acreditată	Public	Municipiul Cluj-Napoca	Cluj	Nord-Vest	23,395,388
6	1.1A/1- Sprijinirea ITT	Construire ansamblu de cladiri de birouri si productie industriala pentru Centrul de Transfer și Integrare Tehnologică Industry	GEMINI CAD SYSTEMS SRL	întreprindere mijlocie	Privat	Municipiul Iaşi	Iaşi	Nord-Est	23,006,351
7	1.1A/1- Sprijinirea ITT	Construire centru de transfer tehnologic în nutriție și patologie comparată "COMPAC ,,	UNIVERSITATEA DE STIINTE AGRICOLE SI MEDICINA VETERINARA CLUJ-NAPOCA	instituție de învățământ superior de stat acreditată	Public	Municipiul Cluj-Napoca	Cluj	Nord-Vest	22,878,651
8	1.1A/1- Sprijinirea ITT	Construire centru de transfer tehnologic în nutriție și patologie comparată "COMPAC ,,	UNIVERSITATEA DE STIINTE AGRICOLE SI MEDICINA VETERINARA CLUJ-NAPOCA	instituție de învățământ superior de stat acreditată	Public	Municipiul Cluj-Napoca	Cluj	Nord-Vest	22,878,651
9	1.1A/1- Sprijinirea ITT	CENTRUL DE INOVARE SI TRANSFER TEHNOLOGIC – OVIDIUS INNOVATION HUB	UNIVERSITATEA OVIDIUS DIN CONSTANTA	instituție de învățământ superior de stat acreditată	Public	Municipiul Constanța	Constanța	Sud-Est	22,639,321
10	1.1A/1- Sprijinirea ITT	Dotare centru de transfer tehnologic Petal-CTT Petal, Husi	PETAL SA	întreprindere mijlocie		Municipiul Huşi	Vaslui	Nord-Est	22,626,495

Mention: All the 10 projects in the table above are still pending evaluation. Source: SMIS data, valid on 14.05.2019

Shortly, this axis was at the time of this evaluation in an early stage of implementation, in terms of achievement indicators and outcome indicators.

As a consequence and in line with the evaluation questions reworded during the drafting of the Initial Report, this report's objective was to assess the preparation process for the implementation of PA1 Promotion of technology transfer.

The support from the EC and MA ROP in the elaboration of public policy documents in the field of regional innovation

As for the stage of strategic public policy document adoption, it is worth saying that in 2015, all the development regions save DR NW and DR BI, had an innovation strategy for smart specialisation in place[7] – an expression of certain concerns dating back to the time of *twinning* projects[8] before the first programming cycle 2007-2013.

[7] The North-East Region has ever since 2013 completed its Smart Specialisation Strategy (S3) 2014-2020 in which the sectors with potential for smart specialisation were identified.

[8] Twinning projects

In the meanwhile, since the time of initiatives above, new approaches to the concept of innovation for smart specialisation have been implemented within the EU, which puts the entrepreneurial discovery process as a novelty at the core of concerns[9].

Thus, the new EU methodological regulatory framework comprises:

- **The Elaboration Guideline for Smart Specialisation Strategy - RIS3**, edited since May 2012 by the Joint Research Centre (JRC)[10], under the supervision of Directorates General of the European Commission (EC);
- **The RIS3 Implementation Manual**, edited in June 2016 by JRC and IPTS Sevilla[11].

In the new context, MDRAP through its subordinated MA ROP thought it was necessary to resume the strategic planning (even where S3 existed) in order to reconfirm the objectives, the areas of smart specialisation, as well as the lines and measures of action, and where no such strategic planning documents existed, to draft them and perform the processes according to the new regulations / guidelines / methodologies.

Starting from June 2016, MDRAP, as the line ministry being legally vested as initiator of public policies, through the MA ROP as coordinator of the ROP implementation system, added the following documents to the methodological framework of DG Regio:

- Methodology for elaboration of the Regional Framework Document (RFD) for the Regional Research and Innovation Strategy for Smart Specialisation (RIS3) issued by the Ministry of Regional Development and Public Administration (MDRAP) on 29.06.2016,

and

- The Implementation Mechanism for Priority Axis 1 ROP 2014-2020, issued by MDRAP on 08.06.2016.

These documents, along with the standard forms designed for the letters of intent and the project fiches, were made available to all development regions, and RDA became the regional coordinator and catalyst of the planning efforts meant to accelerate the implementation of PA1 operations based on a strategic, systematic and homogeneous approaches in all eligible regions.

Therefore, starting from 2016, two strategic planning processes are simultaneously conducted for the period between June 2016 and March - April 2017[12], namely:

- The process of developing / updating the Regional Innovation Strategy for Smart Specialisation (RIS3), designed in 3 stages: (1) pilot stage (DR NE, DR NW), (2) stage for extension to other 5 less-developed regions (DR C, DR SE, DR SM, DR SWO, DR W) and (3) DR BI. This exercise is part of the 'DG Region's Lagging Regions Initiative'. The pilot stage ended actually in January 2019 upon approval of RIS3 in the 2 pilot regions by the Regional Development Board (RDB). The stage for

[9] Entrepreneurial discovery process (EDP)

[10] Note: This institution appears with its Romanian name in the documents consulted for the preparation of the report, namely 'Centrul Comun de Cercetare (CCC) al CE' (the EC Joint Research Centre - JRC). These two institutions are one and the same.

[11] The Institute for Prospective Technological Studies (IPTS) is one of EC's seven research institutes.

[12] At the request of some RDAs, the initial period scheduled until January 2017 was extended in order to allow for the identification, collection and submission of project fiches.

extension of assistance to the other 5 less developed regions is currently being implemented, while in DR BI the elaboration of the regional strategy of intelligent specialization was launched. The process was and is still assisted methodologically and technically by the Joint Research Centre (JRC)[13];

- The strategic planning process coordinated by the MA ROP and centred on the application of the Ministry of Regional Development and Public Administration (MDRAP) methodology regarding the RFD, for the proper preparation and accelerated implementation of the current operational program in all 7 regions eligible with financial allocations for this priority axis.

3. Steps of Survey

3.A. Reference literature

Keeping in mind the main purpose of the evaluation, the consultation of the reference literature in continuation of the literature gone through for the preparation of the initial Report, was mainly based on the office documentary analysis of an extended bibliography list (Annex 1 to this report), seeking to highlight the relevant findings on:

- various thematic evaluation practices instrumented in other Member States (MS),
- entrepreneurial support programmes in other regions,
- lessons learned and the identification of the best European practices.

Innovation is a transformation requiring individual or group initiatives that, through acceptance and dissemination, result in economic, political and socio-cultural changes. Innovations can be either radical (discovery of the wheel) or incremental.

In the linear vision of innovation, there are several stages that define the process of technological innovation, namely: (1) generation of ideas, (2) fundamental research, (3) applicative research, (4) development, (5) prototyping, (6) type approval, (7) industrial experimentation, (8) production, (9) marketing.

Attractive in its simplicity, the linear innovation model already demonstrated its limitations. **Let's take Romania, with top performance results in inventions, yet ranked last in Europe in innovation. This is happening precisely because the linear approach to innovation is one of the causes.**

In the systemic theory of innovation, this can be described as a result of interactions between various actors within the so-called innovative systems. The systemic vision of innovation was brought into question by Lundvall[14] (1992), Nelson[15] (1993) and Guth[16] (2004).

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[13] With the proviso that 2 regions, namely DR SE and DR W, carry out RIS3 update processes by promoting EDP on their own, without any on-site assistance from an international JRC expert.

[14] See Lundvall, B.A., Ed. (1992), National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning, London.

[15] See Nelson, R.R., Ed. (1993), National Systems of Innovation: A Comparative Analysis, Oxford.

[16] See Guth, Innovation, Social Inclusion and Coherent Regional Development: A new diamond for a socially inclusive innovation policy in regions, Discussion paper on the Conference on Territorial Cohesion, Galway, 2004

Clusters are an example of application of the systemic theory of innovation, in conjunction with the concepts of individual and institutional learning. The 'four-lobed clover leaf' model used in our country[17] gathers around clusters: (1) the RDI demand (companies), (2) the RDI supply (universities and research institutions), (3) public authorities as the ones in charge of public policy, and (4) organisations acting ad catalysts (technology transfer centres, consultants, regional development agencies etc.) as facilitators and animators of the partnership structure.

More recent theories on concepts such as 'the innovation ecosystem' highlight the role of society as an actor of innovation and thus define a new type, known as 'open innovation' or innovation in the public sector (for instance, in the field of public procurement). These issues are subject to intense debate across Europe. The 'open innovation' concept becomes more and more important. Innovation theorists and practitioners alike appreciate that this approach will be capable of meeting current expectations, anticipating future needs, and generating innovations that cannot be achieved by traditional methods.

Alternatively, it should be emphasized that 'open innovation' is characterized by a heterogeneous approach, but which has the great advantage of helping bring down the borders between organisations, sectors, disciplines and communities with the aim to develop new products, services, processes and practices and generate new knowledge, which on its turn involves increased inclusion, high creativity, greater power to adapt to market requirements and long-term sustainability of results.

Unlike the process of linear innovation (research-development-marketing), the whole process of creating value in an open innovation ecosystem takes a cyclical approach: it repeatedly switches between the generation, research, development and testing of ideas by taking into account new results, adding new knowledge and experience value from the entire ecosystem.

Consequently, 'open innovation' generates value for society as a whole, for the business environment, the academia and the public markets, and this also influences their roles within the ecosystem.

An immediate application of the new innovation paradigms applied at regional level, is the concept of ***smart specialisation***.

Smart specialisation is a regional approach of innovation that involves identifying some strategic areas of intervention based on both the analysis of strengths and of the economic potential, as well as on the entrepreneurial discovery process (EDP), carried out as part of a broad participatory process[18].

The concept of smart specialisation is defined by the following characteristics, namely:

- a knowledge-based economic transformation[19],
- a place-based innovation policy[20],
- a bottom-up process based on evidence[21] ,

[17] Coșniță, D.; Iorgulescu, F. (2016), Analysis of Cluster Competitiveness in Romania, Ed. Economică, Bucharest
[18] http://s3platform.jrc.ec.europa.eu/what-is-smart-specialisation-
[19] A knowledge-based economic transformation
[20] A place-based innovation policy
[21] A bottom-up process based on evidence

- a process of public-private dialogue on the best allocation of public resources[22] .

In Romania, the elaboration of the smart specialisation strategy, resulting in the determination of eligibility of the projects submitted within the investment priority under PA1 ROP, led to a three-dimensional correlation (***see Annex 10.3 List of the smart specialisation areas in the Applicant's Guide 'Specific requirements for accessing funds', Call no. POR/2018/1/1.1.A/1)*** between:

- **The National Research Development Innovation Strategy 2014-2020** (**NRDIS**), being de facto the national Strategy of Smart Specialisation [23] for the current programming period;
- **The regional strategies for smart specialisation** (RIS3) developed by RDA and included in the EC Lagging Regions Initiative and the Regional Framework Document (RFD) elaborated by all the development regions, including the DR BI;
- The National Strategy Competitiveness (NSC) 2015-2020.

The office documentary analysis pointed out that the institutional innovation ecosystem in Romania includes numerous actors and resources needed in the innovation process, such as entrepreneurs, investors, researchers, universities, venture capital providers and investors in the form of equity investments. of companies and other technical and business services, such as designers, financial experts, trainers, etc.[24].

The difference between the innovation ecosystem and other close concepts such as scientific and technological parks, technopoles, regional innovation systems, innovation clusters, etc. is given by:

- A more explicit systemic vision, highlighting the diffusion of innovation in society;
- Digitalisation, with focus on the roles of IT&C technologies;
- Open innovation;
- A greater importance placed on the market[25].

[22] A process of public-private dialogue on the best allocation of public resources
[23] https://www.edu.ro/sites/default/files/_fi%C8%99iere/Minister/2016/strategii/strategia-cdi-2020_-proiect-hg.pdf
[24] Jackson, DJ. (2011), What is an Innovation Ecosystem? National Science Foundation, Arlington
[25] Oh, D-S, et. Al (2016), Innovation Ecosystems. A critical examination, Technovation 54, p1-6.

Figure 1 The 'four-lobed clover leaf' model of Pro Wood. Source: Coșniță D., 2016

An interesting application of the concept in Romania is in the innovation clusters, and accounts for a reflection of the concept of non-linear innovation, and which, in addition to the 3 main categories of actors in the triple helix model (industry, academia and public authorities - the initiators of public policies) also includes catalyst organizations (technology transfer centres, chambers of commerce, consultants, regional development agencies, etc.), in what is known as the quadruple helix / 'four-lobed clover leaf' model. [26]

This taxonomy (industry, academia, public authorities and catalyst organisations) has become a relevant feature for the innovation ecosystems in Romania at national and regional level.

Some relevant actors on the RDI scene in Romania are briefly presented below.

The industry

Clusters are the most important actor in the innovation ecosystem on the industry side. **Romania** is ranked last in Europe in the Innovation chapter, according to the latest European Innovation Scoreboard[27]. Moreover, our country's performance has been steadily declining for the last 8 years (2011-2018). Thus, the RDI expenditure in the public sector represented only 4.9% of the European average in 2018, while the RDI expenditure in the industry registered only a modest 13.3%, and the indicator for SMEs innovating in partnership only 10.7%.

Clusters, non-linear innovation structures, go against the trend as they have achieved outstanding performances rewarded at European level with 3 gold, 11 silver and 58 bronze medals (as of June 2019) by the European Secretariat for Cluster Analysis.

[26] Cosnita, D., Iorgulescu, F., (2016) Analysis of Cluster Competitiveness in Romania, Ed. Economică, Bucharest
[27] https://ec.europa.eu/docsroom/documents/35937

According to the results of the preliminary cluster competitiveness analysis provided by the Romanian Cluster Association, indicators such as the turnover, the number of companies, the exports, the innovation evolved better for clusters than at national level.

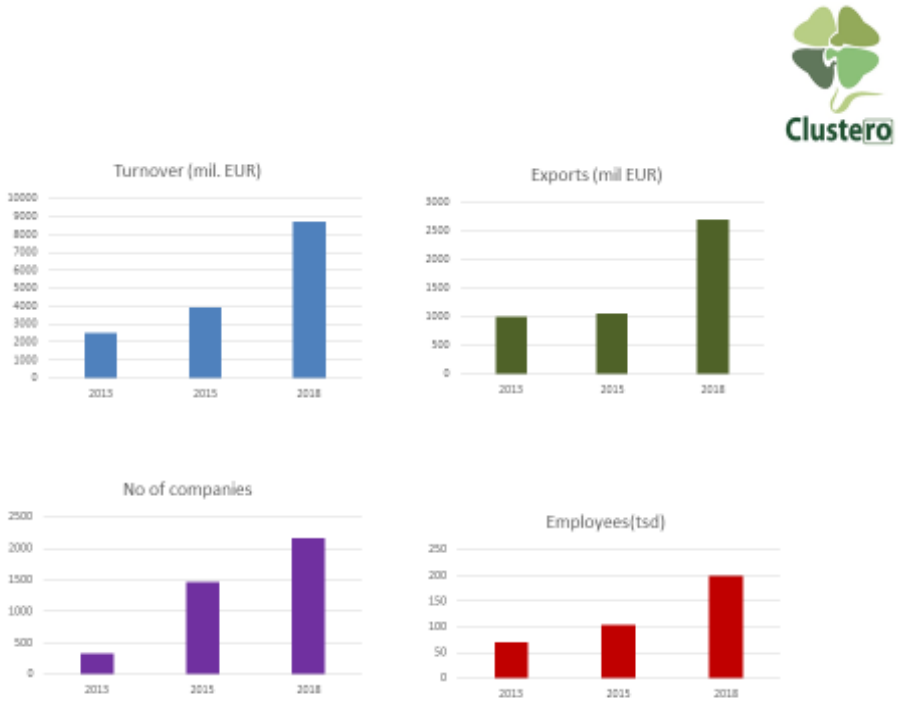

Figure 2 Evolution of macroeconomic indicators in clusters, preliminary data Source: CLUSTERO

Set up in 2011, CLUSTERO (www.clustero.eu) is Romania's national and international body for cluster representation and the most important platform for communication, information sharing and support for the development of clusters based on innovation and internationalisation. Currently, the association gathers 42 clusters active in fields such as textiles, wood and furniture, ICT, renewable energy, agrifood etc., achieving an aggregate turnover of EUR 9 billion, out of which EUR 3 billion in exports made in 2000 SMEs, with a number of 200,000 employees (excluding large corporations which are cluster members, such as Dacia Pitesti).

Research-Development-Innovation

The research-development system includes all the public and private entities in Romania that have research-development-innovation (RDI) as their object of activity. A special role is placed under RDI on the research and development system of national interest that includes:

- national research-development institutes;
- research institutes, centres or units belonging to the Romanian Academy and research and development research institutes, centres or units of branch academies;
- accredited higher education institutions or structures thereof;
- research and development institutes or centres organised within national companies, national enterprises and autonomous national companies.

The research, development and innovation (RDI) system in Romania comprises 263 public RDI organisations and about 600 companies. 56 public organisations are accredited public universities, 46 are national R&D institutes (out of which 43 are coordinated by the Ministry of Research and Innovation (MRI), and 65 are research institutions and centres of the Romanian Academy. The National Network for Innovation and Technology Transfer (ReNITT) comprises 54 specific organisations: technology transfer centres, technology information centres, technology and business incubators, and 4 science and technology parks.[28]

Central government (public policies) and local public authorities

At central level, **the Ministry of Research and Innovation (MRI)** coordinates the implementation of the Strategy and Governance Program in the field of scientific research, technological development and innovation. The elaboration, implementation and monitoring of the National Research-Development-Innovation Strategy (2014-2020) through the National Plan RDI III is relevant in this respect. Part of the ministry's management activity is delegated to the Executive Unit for Financing Higher Education and RDI (UEFISCDI). In addition, MRI coordinates the Intermediate Body on Axis 1 COP, dedicated to the RDI component in support of the economic competitiveness and business development.

The Ministry of Economy is the main promoter of the industrial policy through the NCS 2015-2020 and the New Industrial Policy Document.

The Ministry of Communications and Information Society (MCSI) is responsible for the government's policy in the field of electronic communications, postal services, information technology and information society. Also, MCSI coordinates the Intermediate Body for the Promotion of Information Society.

The Ministry of Regional Development and Public Administration (MDRAP) coordinates the regional development policy at central level, acting as Managing Authority for the Regional Operational Program (MA ROP) and also acting as national or managing authority in the territorial cooperation programs to which Romania is part, such as the type A programs (RO-HU, RO-SRB, RO-MD, RO-UA, Black Sea Basin) respectively 'Danube', INTERREG Europe, URBACT IIII, INTERACT III, ESPON 2020[29].

At regional level, an important role in defining the regional innovation ecosystems is played by the **Regional Development Agencies (RDAs)** as ROP IB, through elaboration of smart specialisation at regional level and acting as catalyst organisations in various clusters, digital innovation hubs, business accelerators and business incubators etc.

Catalyst organisations

Catalyst organisations, of which the most notable are the technology transfer entities within ReNiTT, play an important role in catalysing innovative processes at the regional level.

[28] http://www.research.gov.ro/ro/articol/4481/sistemul-national-de-cercetare
[29] https://www.mdrap.ro/dezvoltare-regionala/-4970/-7572

An important indicator of their activity in the regional innovation ecosystems is the presence in the Enterprise Europe Network (EEN), the largest European network for promoting trade, transnational technology transfer and for supporting SME participation in EU's RDI Framework Program (Horizon 2020), namely: RDA Centre, CCIA Arad, CCIA Bacău (including CIT IND TECH Nord Est), CCIA Brașov (including CIT INFOTEH), UPB, IPA SA București, Fundația CRIMM București, ADR BI, ARIES București, InPulse Partners SRL București (also including CIT InPulse Brașov), INMA București (also including INMA ITA), CEC Bank SA București, ADR Sud Muntenia Călărași, INOE Cluj Napoca (including CIT CENTI), UT Cluj Napoca (including CIT UTCN CUNBM), ARIES Transilvania Cluj Napoca, ADR Nord Vest Cluj Napoca, CCINA Constanța, ADR Sud Vest Craiova, Universitatea din Craiova (including CIT INCESA), IPA SA sucursala Galați, CCIA Galați, PST Tehnopolis Iași, ADR Nord Est Piatra Neamț, ACAROM Pitești, CCI Prahova Ploiești, ICPE CA Sf Gheorghe (incluzând și CTT ICPE CA București), ADR Vest Timișoara (also including CIT Tehimpuls).

Practices in intelligent specialization and thematic evaluation instrumented in other Member States (MS) are presented in Annex no. 20 to this report.

3.B. Data collection

The process of collecting the data needed to carry out the evaluation considered:

- Quantitative data from SMIS and other administrative sources;
- Qualitative data and information derived from:
  - 17 semi-structured, in-depth interviews with responsible persons from the ROP implementation system and other independent experts,
  - 5 focus groups with relevant stakeholders,
  - sociological survey based on opinion polling technique, answered to by 59 companies and 43 research organisations, and
  - the 2 case studies elaborated to illustrate some initiatives and best practices at regional level.

3.C. Description of methodology

The evaluation exercise was based on a sound methodological approach, adapted to the specificity and nature of each evaluation question established in the Tender Specifications (TS) and reviewed in the Initial Report.

Office documentary analysis

The main data sources were examined in this stage, respectively:

- The SMIS database for collection of data on the situation of submitted projects;
- ROP website (htttp://inforegio.ro) for consultation of PA1-specific applicant guidelines and of MC ROP decisions relevant for the implementation of this axis;
- Webpages of RDAs from regions eligible for funding under AP1, for identifying the existing situation as of 30 April 2019 regarding the funding applications (FA) submitted during the open calls on PI 1.1. and the phased stage of the evaluation.
- The strategies for smart specialisation (RIS3) that have been selected for the pilot stage under the 'DG Regio Initiative for Less Developed Regions';

- Analysis of stakeholders in PA1 implementation;
- Selective consultation of the reference literature regarding innovation and smart specialisation.

Interviews

Upon the stakeholder analysis conducted in the preparation of the Initial Report (IR) approved in the Evaluation Coordination Committee (ECC) meeting of 14 May 2019, a number of 17 semi-structured, in-depth interviews with target institutions and interlocutors relevant for the evaluation exercise were conducted. In supporting these interviews, an Interview Guideline was prepared (Annex 6 to IR). Until the submission of this preliminary version, 17 interviews as follows:

- 8 with the management and representatives of the programming departments and / or RIS3 implementation monitoring offices within RDA;
- One interview with representatives from the IB ROP evaluation office within the RDA NW;
- One interview with the head of the innovative financial instrument unit within the same agency;
- One interview with the general director of the Executive Unit for Financing Higher Education and Research Development Innovation (UEFISCDI) within the Ministry of Research and Innovation (MCI);
- 2 interviews with representatives, full members in the Regional Innovation Consortia (RICs) representing Universitatea Tehnică Cluj (UTC) and Universitatea de Medicină și Farmacie (UMF) Iași respectively.
- 2 interviews with representatives AM POR;
- A remote interview via email with JRC representatives;
- An interview with the Directorate of the Intermediate Body (DIB) within the MCI responsible for providing the technical secretariat for the work of the Committee for the Coordination of the National Intelligent Specialization Strategy (CCSI))[30].
- In total, at the interview stage participated 32 representatives [31]of the abovementioned institutions, with the following regional distribution: 6 persons in DR NW, 4 in DR NE, 3 in DR SE, 2 in DR DVO, 3 in DR SM, 3 in DR C, one in DR W and 2 in Bucharest, 2 in JRC, 5 in AM POR, 1 DBI.

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It is worth mentioning that in the preparation of Inception Report, 2 joint working meetings with MA ROP were held on 28 February and 25 March 2019 respectively. The interviews followed the structure of the interview guideline and have been used as a source of documentation in the evaluation report through the minutes concluded after the interviews. The 18 interviews were conducted between 17 May – 6 august 2019, in all development regions, including DR BI. The list of institutions and persons participating in interviews is presented in the annex to the final activity report.

[30] Order regarding the establishment of CCSI no. 458/31 July 2019
[31] The list of interviewees by region will be enclosed to the Activity Report no. 5

Focus Groups (FG):

A number of 5 FGs were planned, out of which 4 at the level of the development regions included in the pilot stage (which went through all the RIS3 update stages), followed the methodological steps of RFD elaboration, letters of intent, project fiches, applications, including the elaboration of integrated projects for the operation under OS 1.2.) and one FG at national level organised on 26 July 2019, which targeted relevant stakeholders at regional and national level. For the conduct of the FG, a Protocol of questions was designed in accordance with the FG Organisation Guideline enclosed as Annex 4 to the approved IR. The protocol of questions for the national FG was submitted for examination by EO ROP, MA ROP, the Programming department and the Scientific Evaluation Committee (Lot 1). Following the comments, observations and proposals for amendments received upon the consolidated examination thereof, the Protocol of Questions for FG was completed sent to EO ROP. The final amended format of the Protocol of Questions for FG (Annex 2 to this report) was instrumented during the 4regional FGs and the national FG.

All the focus groups were organised as planned: 4 FGs in the 2 pilot regions that focused the audience on representatives from the research and entrepreneurial environment in the quadruple helix partnership and separately on project promoters[32], mainly from the integrated structures awaiting for the opening of the call on OS 1.2., and applicants for funding on 1.1.A. The responses of the participants to the regional FGs are recorded and processed in the summary of the reports including findings and conclusions (Annexes 9-12 to this report). The evaluation team conducted the FGs in accordance with the FG Organisation Guideline and provided feedback by submitting the Summary Report to the two agencies with which they worked intensely for the proper organisation of such FGs. Two FGs were organised in Cluj-Napoca and other two in Iași. FGs were organised between 4 - 12 June 2019. The national FG was held on 26 July this year in Bucharest. Guest lists have been prepared in this respect with the aim of covering as wide a range of stakeholders at decision-making level as possible. A number of 14 participants responded to this FG in the following structure: 6 representatives of RDA; 2 representatives from the MA ROP; 3 representatives of UEFISCDI; 1 representative of the Ministry of Research and Innovation (MRI); one representative from the consultancy sector and one project manager from EO ROP.

The questions protocol was sent further for prior examination and approval. Last but not least, it is specified that the national FG was designed in 2 parts, one of consultation based on the Protocol of Questions and another for preliminary validation (validation workshop) of findings, conclusions and proposals for recommendation.

The participants' responses to the national FG are recorded and processed in the summary submitted as Annex 15 to this report, while the validation results from the workshop can be consulted in Annexes 16-18.

[32] Most project promoters, in particular from among those whose applications submitted under call 1.1.C did not respond to the invitation addressed. The lack of response and availability to participate in the evaluation is to a large extent an expression of the frustration, disappointment and lack of results in relation to the funding under this axis.

The sociological survey based on an opinion poll conducted with potential recipients of ROP funding

The purpose of the survey is to identify and measure the presumptive gap between the supply and the demand for technology transfer and the opinions of the potential funding beneficiaries in relation to the topics approached in the evaluation study.

The following preparatory activities were deployed for the organisation of this survey:

- (A) establishment of the observation unit;
- (B) identification of the sample between the participants in the entrepreneurial discovery workshops organized in the pilot phase (RDA NW, RDA NE) and the extension stage (RDA SE, RDA C, RDA SWO, RDA SM[33]). A sampling database was organised based on the lists of EDP participants provided by RDA (Annex 8 hereto);
- (C) preparation of the analysis tools, namely of the 2 questionnaires (one for the observation unit from the research environment and the second questionnaire for companies).

The full methodology package was sent to EO ROP for further examination by CȘE (Lot 1). Based on the feedback received, the research tools have been improved and rendered in their final version (Annex 3 to this report).

The investigation was conducted by telephone by three interview operators upon setting up of a CATI unit at the LME consortium headquarters in Bucharest. The survey interviewers were trained on the basis of a phone interviewing guideline and familiarised with the questionnaire. The questionnaires were tested with the help of two participants who also attended the national FGs, and the survey interviewers were also present during these pilot interviews. Interviews showed that the tool (questionnaire) is functional, respondents understand the content of the questions and can express their answer on the Likert measurement scale used. The acceptability test also revealed that the respondents with time availability feel the lack of a free answer option. In line with the methodology promoted and in order to facilitate the subsequent processing of the collected data, the evaluators decided to close all the questions with multiple choice options. However, in order not to lose the value of the open answers (more difficult to process, grouped by categories, etc.), which bring specific nuances likely to add value to the analysis, it was decided upon testing that a field should be provided on the iSondaje.ro platform, where the completed questionnaires are displayed, for the listing by the survey operators, at the end of each working day on the survey, of the questionnaires filled up.

The electronic questionnaires were collected on iSondaje.ro, an application that allows to verify at any time the progress registered in the collection of primary data. To ensure the operational quality control, the interview is worked on in hard copy, and data are loaded in the application at the end of the day. Evaluators have this way the possibility to check the data entered by survey interviewers. The analysis was conducted based on the plan submitted as Annex 4 to the evaluation report.

[33] RDA NW chose not to be included in the sample due to certain limitations (only 2 out of the 4 planned EDPs were organised until June 21) and constraints related to the lack of prior approval from participants in respect of the transfer of personal data.

The opinion poll-based sociological survey was conducted between the 8-23 July 2019 and addressed all the contact persons from the final list that resulted upon the integration and verification of the information provided by RDA NW, RDA Centre, RDA NE, RDA SE, RDA South Muntenia, RDA SW Oltenia – a list containing 122 companies and 69 research organisations.

A number of 102 respondents agreed to participate in the sociological survey based on an opinion poll: 59 companies and 43 research organisations, with a response rate of 48.4% for respondents coming from the entrepreneurial environment and 62.3% for those coming from the research environment[34].

It is specified that all the listed representatives of the companies and research organisations were contacted by telephone in order to schedule an interview. Conversely, some of the contact details turned out to be out of date and that made it impossible for interviewers to establish any communication. Moreover, some 25-30 clear-cut refusals to participate were received. The grounds for refusal expressed and retained by interviewers included:

- Lack of time;
- Dissatisfaction with rejections of applications and procedural delays (e.g. potential respondents in the automotive industry are of the opinion that the financing process is cumbersome and excessively bureaucratic, and that everything happens so quick in the industry and the letter of intent is no longer valid);
- The contact persons participated in EDP, but have no connection anymore with the RDI;
- They no longer work for the organisations which they participated in EDPs with;
- They do not need the research;
- As a result of the negative appraisals of the Applicant's Guideline, considered to be obsolete, 'it is not in accordance with what is happening';
- Refusals from consultancy firms on the grounds that they cannot fill in the survey although they participated in EDP;
- Large companies requested / preferred / would prefer the electronic questionnaire in order to obtain internal approvals to participate in the survey;
- Re-directing the operator (interviewer) to 3-4 persons until the latter could find the right person who was aware of the topic and had the time to do it led to an extension of searches over time.

Considering the different levels between the regions regarding the advancement in organising the EDP and the consultation events, the number of persons nominated in the lists made available by each RDA varied. This, in addition to the lack of contact details for a part of the listed persons (due to the constraints caused by the application of the GDPR rules), made it impossible in the process of setting up the target group for thee

[34] Note: the sociological survey conducted does not have the statistical relevance of a statistical survey. It is not recommended to subject the results to statistical inference (generalisation to the entire statistical population).

performance of the survey to achieve a balanced distribution of entities in the research environment and the entrepreneurial environment (Figure 3).

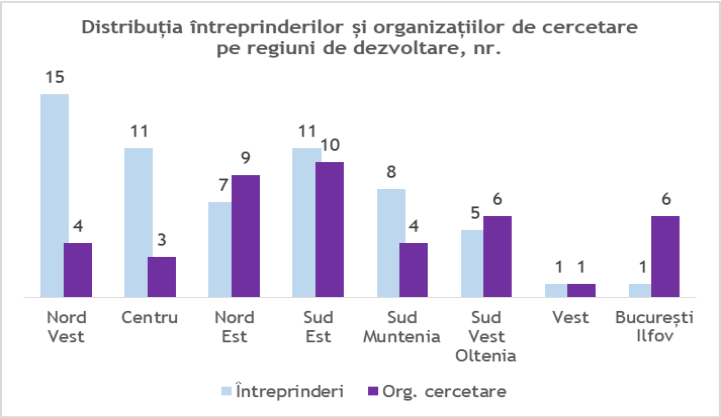

Figure 3 Distribution of respondents by development region (Source: BDAS tables 1a and 1c) [35]

The profile of respondents is the following:

Companies (BDAS – tables 2, 4, 5, 9, 13)

- 30 out of 59 companies are active for less than 10 years
- Most companies (56) are privately-owned;
- Most companies are ranked as SMEs (20 micro-entities, 12 small companies and 11 medium companies);
- 8 participating companies have no personnel involved in the research activity, while 29 have less than 5 and 18 have 5-25 employees involved in RDI;
- Main fields of business: Industry and IT&C services (17), Agri-food (7), Production technologies and machine-tools (7), Environmental technologies and nanotechnologies, as well as advanced materials (6) Textile and leather articles (5).

Research organisations (BDAS – tables 3, 6, 8, 10)

- 32 out of 43 have been active for more than 25 years, plus 7 organisations active for more than 15 years;
- 16 are public universities, 15 are research institutes or research institute subsidiaries, 4 are innovation and technology transfer entities, 2 are private universities;
- 15 organisations have between 51 and 250 employees, 14 organisations have between 10 and 50 employees, 10 organisations have more than 250 and 4 organisations have less than 10 employees;
- Main fields of business: Agri-food (13), Bioeconomy (13), Energy, environment and climate (11), Environmental technologies and nanotechnologies, as well as

[35] All the charts presented in this document have been created upon processing by the evaluation team of the answers provided in the sociological survey; the complete results of the survey, the analysis tables and the charts elaborated can be consulted in the Sociological Survey Database (BDAS) – an Excel file included in the evaluation document package.

advanced materials (9), Industry and IT%C services (9). Other areas mentioned: - Education (7 organisations), Natural Sciences and Engineering (3).

Institutional analysis of the EITT infrastructure

The technology transfer and innovation organisations from Romania originate in the INFRATECH Program carried out between 2004 and 2007 by the National Authority for Scientific Research. This program aimed at creating and developing a national network of innovation and technology transfer entities (technology and science parks, technology and business incubators, technological information centres, industrial liaison offices, technology transfer centres, and so on).

The main instrument used in the institutional analysis of the entities of innovation and technology transfer (EITT) is the fact sheet featuring the following analysis vectors (Annex 5. to this evaluation report draft):

- General information: the legal form, the field of activity linked to the Smart Specialisation Strategy at national and regional level, the relationship with the National Strategy on Competitiveness;
- Funding: the financing sources and their structure (public/private);
- Brief history: vision, objectives, evolution;
- Infrastructure: human resources, equipment etc.;
- Management: entity's performances;
- Clients: entity's position towards the supply and demand of RDI;
- Knowledge base: outstanding results, IPR etc.;
- Axis 1 ROP: the interest manifested for the dedicated calls under ROP.

The results of the analysis highlight the institutional stability of the innovation and technological transfer entities, as well as their poor ability to financially support themselves. The operation for more than 10 years since the end of the INFRATECH program that was dedicated to them, was also possible by accessing existing multi-annual programs at European level, most notably the Enterprise Europe Network; In this way, the ReNITT network is a successful example of the sustainability of some public policy interventions..

The correlation between the EITT accreditation fields and those of smart specialization highlights the need to strengthen the traditional sectors (wood and furniture, textiles, agri-food), sectors with qualifications and low technological intensity[36] but relevant to the regional and national economy in terms of contribution to the GDP, the number of employees and exports, which are facing the challenge of becoming "smart" or disappearing.

Regional development agencies together with innovation clusters and professional associations are pillars on which to catalyze the activity of intelligent specialization processes at regional level, taking into account examples of good practice at international level (Annex no. 20).

[36] low skilled - low tech"

The analysis of the calls for ROP projects Axis 1 highlights the need for better coordination between the ROP MA and the MRI as well as a deeper consultation of the beneficiaries in the process of developing the applicant's guides.

The conclusions converge on the need to strengthen the role of EITT in the development of integrated (eco) regional innovation systems.

The institutional analysis of EITT as technology transfer providers is presented in Annex no.19 to this evaluation report.

Case studies

The current evaluation exercise meets the characteristics of an ex-ante evaluation of the institutional environment for smart specialisation (S3) rather than those of an evaluation of the ROP contribution to the TT. Therefore, in the absence of projects that were completed or, at least, pending implementation, it has been appreciated that the case study remains a relevant evaluation method for a detailed, in-depth analysis. In the aforementioned context, it was agreed that the two case studies (CS) should focus on the best practices promoted within the quadruple helix in the pilot regions. In the field stage, two topics were identified with RDA's help have been the subject of case studies, one in each pilot region. The two case studies are attached to this version of the report (Annex 6), It is estimated that *these 2 case studies* will be of much interest to be shared with the other 5 less developed regions from the second stage of RIS3 elaboration, as well as for the Bucharest Ilfov region in the third stage.

The CS was realised based on the interview taken to target interlocutors from Asociația Reginnova Iași (https://reginnova.org/) and Universitatea Tehnica fron Cluj Napoca, using a case study fact sheet.

Entrepreneurial discovery workshop

In addition to the evaluation methods, an expert evaluator took advantage on 30 May 2019 of the opportunity of the organisation, by RDA SE, of an entrepreneurial discovery workshop in Constanța, addressing two smart specialisation areas of regional interest. The representative of the evaluation team participated in both the plenary section and in the domain-focused working session, namely in the field of tourism. The purpose of this participation was to see how the JRC methodology for EDP is implemented in practice.

3.D. Limitations, restrictions and settlement

Absence of results up to this moment to maintain the enthusiasm and initial commitment of regional partners. The lack of funding contracts was a negative factor that led to the disengagement of some actors from the regional innovation ecosystem or to the building up of frustrations and low interest and participation rate in the consultations initiated at regional level. Although the guest list discussed with RDA was quite comprehensive, only a small number of regional actors, respectively 11 in Cluj Napoca and 17 in Iasi, responded to the invitation to participate in the regional focus groups. Those who came were disappointed and expressed their criticism and pessimism about the future

calls under PA1 ROP, as well as about the results of any other consultations. Following this atmosphere filled with skepticism, manifested even by some participants who decided to take part nevertheless, it was necessary, in order to foster the free expression of opinions and the sharing of experiences in the FG, to proceed to a more comprehensive information about the purpose and objectives of the meeting, so that participants can see the context in which these initiatives are carried out. This time investment in 'breaking the ice' and bringing participants to better feelings, has rendered some of the questions from the drafted protocol to be handled together. The number and the structure of participants in each focus group are presented and can be consulted in Annexes 9, 10, 11 and 12 to this report.

Difficulties in maintaining the FG audience focused on the questions featured in the Protocol and avoiding the risk of returning to the same result-oriented topic, as well as the too lengthy period of time for processing and reaching a final decision. Maintaining the group discussion centred on the questions from the Protocol was greatly supported by the participation in debates of members from two RDA in the 4 FGs conducted over the 2 working days. Owing to the presence of RDA representatives, the participants were able to receive information on the stage of preparation of call 1.2; the evaluation stage of the applications for funding submitted under the calls closed in April; clarifications of questions related to procedure or approach, and concerns of the participants, especially regarding the safeguards on confidentiality of project ideas they shared and other topics.

4. Analysis and interpretation

The initial report defines the following evaluation question (EG), with the related further questions:

- EG. What is the contribution of ROP in the process of smart specialisation at regional level?
  - EG 1.1. What are the **changes in vision** that the ROP has brought in addressing smart specialisation at regional level and in developing synergies in entities for the purpose of technology transfer?
  - EG 1.2. What is the **added value of the processes** developed by ROP in promoting the technology transfer regionally?
  - EG 1.3. What is **the sustainability level of institutional structures** developed under ROP in order to support the process of smart specialisation at regional level?

4.A. Collected data

In phrasing the answers to each of the questions below, the information obtained through the following methodological tools have been considered:

- Statistical data on innovation in Romanian companies;
- Data collected and processed from the Program's SMIS database;
- The documentary analysis and review of the reference literature;

- Interviews with responsible persons from 7 RDA in less developed regions, including IB, RDA BI, UEFISCDI and other relevant actors;
- The mapping and the map disposition of EITT infrastructures;
- The institutional analysis of EITT;
- Sociological survey whose unit of observation includes members of the quadruple helix from the research and entrepreneurial environment, participants to the entrepreneurial discovery workshops organised in the less developed regions;
- Focus group with the participation of representatives from the research and entrepreneurial environment, participating in the EDP;
- Focus group with the participation of relevant national stakeholders;
- Validation workshop session with stakeholders participating in the national FG;
- Case studies

The mechanism for collecting each category of data using the methodological tools briefly described above is presented in the table below.

Table 9 Summarising table of the data collection methods by evaluation question

IE code	Qualitative methods							Quantitative methods, Statistical and administrative sources
	Sociological survey based on an opinion poll using the CATI method	Interview (17)		Focus Group (5)		Case studies (2)	Final validation workshop (1)	
		RDAs of pilot regions and RDAs from other 5 less developed regions;	Regional Innovation Consortia and process facilitators	Quadruple helix members and national decision makers	Project promoters			
EG1 ROP contribution to S3	✓	✓	✓	✓	✓	✓	✓	✓
EG 1.1. Changes in vision	✓	✓	✓	✓			✓	
EG 1.2. Added value	✓	✓	✓	✓	✓		✓	
EG 1.3. Ecosystem sustainability	✓	✓	✓			✓	✓	

Source: own data processing by the evaluation team

4.B. Data analysis

The existence of the Smart Specialisation Strategy was an ex-ante conditionality for the use of ESIF for innovation and competitiveness. The topic was addressed by Romania in NRDIS 2014-2020 (approved by Government Decision 929/2014) - an issue considered to have been insufficiently reflected in the Romanian development regions.

Smart specialisation is a new European industrial and innovation policy. DG for Regional and Urban Policy of the European Commission[37] considers that: *'It became obvious to the European Commission that too much funding was allocated to overlapping projects or to some regional priorities where those regions did not have the necessary skills to make them a reality. The European regions should therefore redirect the structural funds based on a smart specialisation approach, and focus on skills which they excel in or have the potential to reach excellence.'*

In 2014-2015, a few were regions that had already adopted an innovation strategy by decision of the Regional Development Council (CDR), namely the NE, and the West regions. At the same time, there were regions that had not expressed such initiative and concern, such as the NW region and others that were concerned with the strategic approach to innovation. Consequently, although the respective strategies were developed upon extensive consultations and an authentic participatory process, the experience at regional level was much different and there was no homogenous process concept underlying the elaboration.

Moreover, the EU and EC concerns in the field of innovation for smart specialisation were materialised and structured, to such an extent that the JRC Guideline for the elaboration of RIS3 came into being in 2012 in Europe. The JRC's approach places the process of *entrepreneurial discovery* at the heart of the smart specialisation, in which different actors (companies, research institutes and universities, decision-makers from the public sector and the civil society) from a region or a country identify activity niches that promise competitive advantages through collaboration.

Evaluation question EG - What is the contribution of ROP in the process of smart specialisation at regional level?

In phrasing he answers below, data and information obtained through the following evaluation methods and tools have been considered:

- The inquiry among potential beneficiaries of funding
- Group discussions with the relevant stakeholders, including beneficiaries;
- Half-structured interviews with RDA and other stakeholders;
- Final workshop for validation of findings, conclusions and proposals of recommendations.

4.B.1. Evaluation question EG 1.1.

What are the <u>changes of vision</u> that the ROP has brought in addressing smart specialisation at regional level and in developing synergies in entities for the purpose of technology transfer?

In phrasing he answers below, data and information obtained through the following evaluation methods and tools have been considered:

- Half-structured interviews with a group of responsible persons from each RDA;

[37] By Peter Berkowitz, Head of Unit G1 (Smart and Sustainable Growth), Advances in Theory and Practice in Smart Specialisation, authors: Slavo Radosevic, Adrian Curaj, Radu Gheorghiu, Liviu Andreescu, Imogene Wade, 2017, Academic Press

- Group discussions with the relevant stakeholders;
- Sociological survey among potential recipients of funding under PA1 ROP;
- Final validation workshop.

Regional concerns regarding the promotion of innovation and the preparation of the innovation strategy were raised early, dating back to 2004-2006 in the case of DR West, and RDA NE was already having a regional strategy to promote innovation in 2012. Subsequently, as of 2015, most regions had a strategy and concerns to promote innovation at regional level, either through strategic planning documents and / or European-funded projects. The concerns in this direction were justified by the preparation of RDA for taking over the regional management of the European development funds. Other development regions had concerns for supporting innovation at the regional level, translated into projects in association with partners from other countries (for instance, a project of RDA W in partnership with the Technological Institute of Aragon, under the framework program 5, ever since 2002; in 2014 Innovating South Muntenia, under the framework program 6 or within the Enterprise Europe Network (EEN), as is the case with RDA C in the 'Improve' project whose main objective is to conduct an innovation audit at companies, ended in the proposal of a 'roadmap' for the introduction of innovation projects and so on.

The changes in vision that the ROP has brought in addressing smart specialisation at regional level, apart from the changes brought in the implementation of JRC methodology for elaboration of RIS3, can be summarised as follows:

- Stimulating the concerns of development regions for the strategic planning and the adoption of public policy documents in the R&I field through methodology and financial support under the technical assistance axis, which would lead to the smart specialisation of each region depending on the existence of historically accumulated knowledge, as well as the potential of emerging fields;
- The approach proposed through the Methodology for elaboration of RFD for RIS3 issued by the Ministry of Regional Development and Public Administration (MDRAP) on 29.06.2016 is seen to a large extent as a solution to level practices out (given that some regions had RIS3 while others not) and likely to provide the basis for access to funding. The 4-step approach proposed in mid-2016 by the MA ROP, namely (1) drawing up the RFD, (2) identifying project ideas for the elaboration of the Letter of Intent as an expression of the interest by the innovation entities and TT, (3) drawing up the project fiche, and (4) the preparation of the complete funding application for submission in calls 1.1.B and 1.1.A, did not catch regions unaware of the importance of this strategic direction in regional development. This does not affect the appreciation that the four-step methodology was the expression of a strategic approach. RDAs noted the proper structuring of the proposed methodological approach. The approach was highly appreciated in terms of the need to align the readiness stage of all the development regions to the faster start in the implementation of operations under IP 1.1. Of course, there are specific issues that tone the general appreciation. Thus, in some situations, the regions that were included in the pilot stage for the elaboration of RIS3 with JRC's assistance under the 'DG Regio Lagging Regions Initiative' and even some of the regions that had RIS3 going since 2015 (DR West) elaborated by their own, perceived this approach either as a return or as a resumption, repetition of the efforts already

made or a return from the process they still had to go through. For other development regions, such as DR SE, DR C, DR SWO, DR SM, the approach proposed by MA ROP and MDRAP was perceived as a chance to have the regionally adopted strategies updated and the potential recipients of funding in the respective regions participate in the calls under PA1, but also as a way to ensure that the process of identifying the areas of intelligent specialization at regional level complied with the methodological guide and the EC recommendations in this regard. Essentially, the requirement was that the identification of these regional directions be made within the framework of the partnership (quadruple helix) and through the mechanisms of entrepreneurial discovery (the community services were not convinced at the time that the existing innovation strategies respected these recommendations).

- **The top-bottom approach in preparing the RFD and of subsequent phases, including the list of projects**, is appreciated as beneficial in terms of participatory consultation. All the more that the project portfolio attached to the RFD was not updated. Nevertheless, the identification and preparation of the project fiches in the absence of an Applicant's Guide relating to the specific requirements of the calls to be opened is considered non-productive. This fact was later on demonstrated by the big difference between the number of letters of intent submitted and the number of applications for funding that were actually filed under the calls. For instance, there were regions that submitted a number of 14 (RD W), 15 (DR SWO), 36 (DR NE) LoI and the number of applications for funding actually submitted amounted to 2 (DR SWO) and 5 applications from DR NE. The consultation of potential beneficiaries interested at a much earlier stage in the preparation of calls (*more than a year before the opening of calls in August 2018*) was likely to first produce enthusiasm and high expectations and then vanish away upon the appearance of a specific Applicant's Guideline during the public consultation, and leave behind instead a feeling of dissatisfaction with the work submitted in the LoI stages and the elaboration of the project fiches, as well as with the conditionalities and the restrictions imposed by the regulatory framework adopted for the open financing operations. It is considered that it would have been more appropriate to go through these stages when the specific terms of the calls were already defined.

At the same time, a number of negative aspects were identified as follows:

- During the extended period of time since the expression of the interest and of the intention to participate with project proposals, **a number of organisational changes appeared to some of the initial applicants** that were impossible to foresee on submission of LoI. Thus, these changes which occurred between the time of LoI submission and the launch of the call have caused some applicants to no longer meet the initial characteristics described in the LoI and, consequently, lose the quality of eligible entity.
- The methodological rigours[38] and their strict interpretation, on the other hand, prevented a category of new applicants interested at the time of the call launch to

[38]Such as: accepting partnerships only between / with EITT already accredited, without taking into account that there were only work points in the regions, and according to the MCI rules, 2 entities from the same institute could not be accredited at the same time; the requirement regarding the proven previous experience of ITT in the sectors for which the application was submitted (the fields were new and no ITT could demonstrate previous experience); the expiration of the two-year period of validity of the

register in the announced competitions / calls. This situation was perceived as an administrative barrier and was likely to cause concern regarding the transparency and the equal access to funding granted on a competitive basis. In order to maintain wider access to finance by participating as eligible applicants in open calls, and in the context of the withdrawal of interest by many of those who had initially expressed their intention through LoI, some agencies have recommended the creation of partnerships between the initial and the new applicants.

- The launch of the final Applicant's Guideline more than one year after the submission of the LoI and project fiches, with some extra conditions and requirements (*such as those regarding state aid, own contribution of at least 50%, the source of own contribution out of applicant's own revenues and not from the public budget, the overall non-eligibility at the beginning and, subsequently, modified to only 50% of the entity's salary expenses, the requirements related to the EITT authorisation by MCI, etc.*), was likely to undermine the holistic approach of MA ROP (regional strategic framework - project ideas - expression of intent project fiches) and was very well systematised around the 4 steps specified in the methodology content, appreciated to a great extent by the interlocutors.
- This long interval between the time of SI submission and GS launch for call 1.1.C. it is justified by the fact that the MA ROP analyzed - together with the Competition Council, the EC and an expert provided by the Community services - whether there are variants of aid schemes more favorable than the ones proposed, reaching the common conclusion that the proposed ones are in fact not only optimal but only possible. It was in fact an attempt to meet the wishes of the potential beneficiaries to establish the most advantageous co-financing rates for them from the perspective of the state aid. There was no attempt to launch the guides at any cost.
- The recipients of funding and other categories of interlocutors in the quadruple partnership structure, which participated in the regional FG, as well as other interlocutors from RDA, appreciate the competitiveness of calls under MA ROP's approach and disagree with the non-competitive calls. In fact, there are voices saying that, had it been known from the very start that ROP would add SO 1.2 and the financial allocation of MEUR 58.824 (ERDF + SB) for the integrated projects call in the pilot regions for the elaboration / updating of RIS3, the position of the regions regarding the selection of the participants in the pilot stage with assistance from the JRC would have been different.

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accreditation, taking into account the large period of time that has elapsed since the submission of LoI in March 2017 and until the opening of the first call in July 2018, with submission deadline in August 2018, and the fact that the entities had been through the authorisation procedure on their own, the 10-year balance sheet projection, the requirement that the working points be entered in the Articles of Association without taking into account the time sequencing between the issuance of the Articles of Association by the Trade Registry Office upon setting-up and the subsequent approvals for the setting-up of the working points without reflecting / modifying the initial Articles, presenting the documents that attest the completion of a research process without an indicative or mandatory list at AG, or aspects of administrative compliance such as 'certification by electronic signature of the application' by ITT. Generally, the conformity criteria had to be taken out of context by the applicants, without clear guidance and clarification in the AG and / or the annexed funding application form. All interviewees argued that the Applicant's Guidelines were all deficient. The subsequent mismatch between LoI and AG can add up to the exemplifying list, e.g.: The AG required that the list of main activities had to be included in the LoI, although the LoI did not foresee this.

The processed information derived from the opinion poll-based sociological survey conducted among potential recipients of financing through ROP 2014 reveals that the ROP is perceived as having a visible contribution to the change of vision in the approach to the smart specialisation; only 10 out of the 59 companies and 4 out of the 43 research organisations participating in the survey consider this contribution to be small or very small.

Table 10 Opinion of representatives of companies and research organisations on the extent to which ROP contributed to changing the vision in the approach to smart specialisation

Assessing the extent to which ROP contributed to changing the vision in the approach to smart specialisation	Companies		Research	
	No. of respondents	% in total	No. of respondents	% in total
To a very small extent / Not at all	2	3.4%	1	2.3%
To a small extent	8	13.6%	3	7.0%
To some extent	21	35.6%	10	23.3%
To a large extent	***13***	***22.0%***	***14***	***32.6%***
To a very large extent	***14***	***23.7%***	***10***	***23.3%***
Do not know	1	1.7%	5	11.6%
Do not answer	0	0.0%	0	0.0%
	59	100.0%	43	100.0%

Source: BDAS – table 31+32+33

However, research organisations are much more appreciative of companies in this regard. Thus, 24 out of 43 research organisations compared to less than half (27 out of 59) of companies consider that the ROP 2014-2020 has contributed to the change of vision regarding the approach to smart specialisation ***to a large and very large extent*** (BDAS – table 31+32+33).

As for the activity carried out by RDA, the vast majority of the respondents appreciate that they have contributed to a large and very large extent, both to the involvement of the stakeholders and to the creation of a participatory process. Thus:

- 42 out of 59 companies and 34 out of 43 research organisations consider that RDA has contributed to a large and very large extent in improving the involvement of stakeholders (BDAS – table 34);
- 45 out of 59 companies and 35 out of 43 research organisations consider that through the activity carried out, RDA has contributed to a large and very large extent to the creation of a participatory process (BDAS – table 35).

Although the answers provided during the survey were disaggregated by both development region and activity field through the analysis methodology, the small number of respondents does not allow to reach any pertinent findings that would be relevant from these standpoints. Moreover, the complete results of the analysis can be extensively consulted in Annex 7 **Results of opinion poll-based sociological survey** attached to this evaluation report.

4.B.2. Evaluation question EG 1.2.

What is the added value of the processes developed by ROP in promoting the technology transfer regionally?

In phrasing he answers below, data and information obtained through the following evaluation methods and tools have been considered:

- Half-structured interviews with a group of responsible persons from each RDA;
- Group discussions with the relevant stakeholders;
- Sociological survey among potential recipients of funding under PA1 ROP;
- Final validation workshop.

Their correlated analysis resulted in the findings below:

- The added value consists in:
  - **The information and knowledge gain** achieved by both companies in the entrepreneurial environment and organisations in the research environment from having partaken in these advisory and working processes;
  - In a **more clearly-outlined vision of how the workforce will look** over a longer term, coupled with the need to come up with a strategy for the education;
  - In the fact that **these processes helped them to discover each other** and even rediscover themselves;
  - The fact that **it has led to research being oriented towards market needs**, raising public awareness of stakeholders on the need for collaboration and cooperation in integrated projects or in partnership.

The contribution to the development of an institutional communication between the academia and the entrepreneurial environment within the regional quadruple helix partnership adds up. Before starting these processes, there was individual communication taking place between scholars preoccupied by the applicative research and entrepreneurs, which on their turn were in research and innovation, but the institutional communication was almost inexistent before the initiative for the elaboration of RFD and of the project list, before the entrepreneurial discovery workshops for the elaboration / updating of RIS3 were held. According to the tradition dictated by their role, universities focus on education and the main purpose for doing research in the academic environment is related rather to the advancement in the teaching career, evaluation, university accreditation, reputation gain etc. than to economic exploitation.

Thus, the processes developed by the ROP led for the first time to more closeness between the academic environment and the entrepreneurial environment.

Conduct of the entrepreneurial discovery process in the regions

- EDP has contributed to the understanding by the academia that research and innovation must become a way of life and a way to get in touch with the

entrepreneurial environment across several phases of the research process, precisely in order to guide the applicative research to match the needs and thee wellbeing of the innovation consumers';

- The participants became aware after EDP that the fields of business are gradually becoming more interdisciplinary, multidisciplinary and, consequently, that cooperation and partnership are needed to meet the societal challenges that are constantly emerging;
- EDP offered both participants from the entrepreneurial environment and those from the research environment a chance to gain mutual knowledge and after overcoming such obstacles of reluctance and hesitation about sharing project / research ideas due to the initial lack of information, it even made it possible to pre-test ideas;
- EDP also highlighted the behaviour and the opportunistic approach of applicants for funding, rather related to the conditions and requirements of the programmes - operations - calls, precisely to capitalise on the window of opportunity for funding that appeared in the context of severely weakened and under-financed own budgets.

RDA's role in leading processes at regional level

RDA has played a major part in initiating and leading regional consultation processes. This participatory approach goes back before the implementation of JRC methodology regarding the elaboration of RIS3 through the entrepreneurial discovery process. Nevertheless, the added value is acknowledged and the participants translated what the contribution of ROP to these processes was, namely: the establishment of the helix and the gathering of regional actors to the same table; the increase of information, knowledge, awareness by the research to focus more on needs expressed by life, market and entrepreneurial sector; the orientation of the entrepreneurial sector towards innovation and the promotion of new business models'; participation in cluster structures or professional branch associations (e.g. Reginnova NE and so on); mutual sharing of knowledge for the first time between the academic research environment and the private environment and so on.

RDA's involvement as catalyst was crucial and visible. Participants pointed out that there is a dissonance between the RDA's role and its decision-making power. Moreover, aware of the fact that coagulation of pioneering, even disruptive initiatives, cannot occur by itself; in aiming to initiate, facilitate, catalyse the introduction of innovation as a way of life, some agencies are hyperactive and are currently in the situation where they are present in all the regional cluster structures or other associative structures. Consequently, in order not to reach certain particular situations in the conflict of interest area, the issue of an 'exit strategy' would be required from RDA at a certain moment of that initiative / action / movement etc reaching its maturity.

In terms of added value of the processes developed by the ROP in promoting the technology transfer at regional level, the processing of the information provided by the survey participants reveals the following significant issues which, under triangular scrutiny, correlate and continue the findings already derived from interviews and group discussions, namely:

- The most important aspects related to added value are, as far as companies are concerned, bringing partners together and gaining information and knowledge (52

and 46 respectively out of the 59 participating companies appreciate these aspects as being important to a large and very large extent); the opportunity to speak with the same voice, to learn from one another (44 out of 59 companies consider it to be important to a large and very large extent), and the support and guidance received in project preparation (42 out of 59 participants appreciate it to be important to a large and very large extent) come afterwards in order of importance (BDAS - table 38.1-38.4). It is worth mentioning the high, relatively close percentages obtained for all the highlighted aspects, except for the *Support and guidance in project preparation* that the companies consider to be of a much lesser importance compared to the research entities (see the next table);

*Table 11 Opinion of representatives of companies and of research organisations on the **importance** of elements that add value to the processes developed under ROP*

The added value of the processes developed by ROP consists in	% to a large and very large extent	
	Companies	Research
a. Bringing partners together	88.1%	88.3%
b. Gaining information and knowledge	78.0%	81.4%
c. Support and guidance in project preparation	71.2%	83.7%
d. Opportunity to speak with the same voice, learn onee from another	74.6%	83.7%

Source: BDAS - tables 38.1 - 38.4

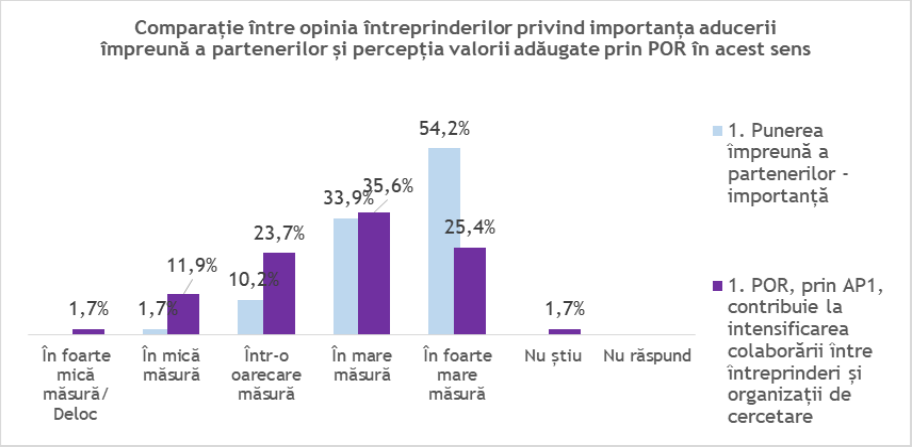

Figure 4 Comparison between the opinion of the companies on the importance of bringing partners together and the perception of the value added under ROP in this regard

- Bringing partners together and the opportunity to speak with the same voice, to learn from one another are also highly important for research organisations (38 respectively 36 out of the 43 participants consider that these issues are important to a large and very large extent); a high and very high importance is also indicated by 36 out of the 43 organisations as regards the support and guidance in project, while the information and knowledge gain is considered important to a large and very large extent by 35 out of the 43 organisations. (BDAS – table 38.1-38.4);
- When discussing the effective way of conducting the processes, 40 out of the 59 respondents from the entrepreneurial environment appreciate that the support and guidance received from RDA for the preparation of the projects were living up to

the expectations to a large and very large extent, and more than half (36 out of 59) consider that ROP, through Priority Axis 1, contributes to a large and very large extent to speeding up the collaboration between companies and research organisations. (BDAS – table 40.1 and 40.2);

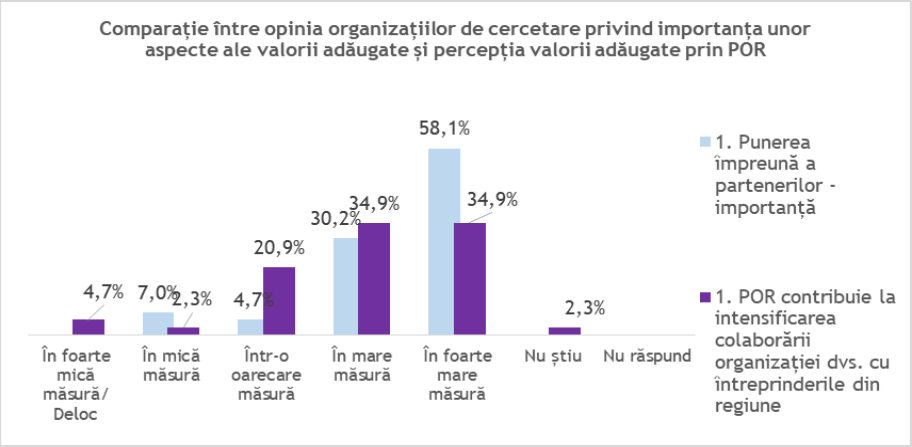

Figure 5 Comparison between the opinion of the research organisations on the importance of bringing partners together and the perception of the value added under ROP in this regard

Table 12 Opinion of companies and of research organisations on the effective way of conducting the processes

Agree to a large / very large extent	Companies	Research
a. ROP through PA1 – Fostering technology transfer contributes to speeding up the collaboration between your company and the research entities and the technology transfer from the region(s) in which you conduct your business	61.0%	69.8%
b. The innovation strategy for smart specialisation elaborated at regional level ensures a more efficient use of the development potential and of the competitive advantages	66.1%	74.4%
c. The support and guidance received from RDA for the preparation of the projects met the expectations	67.8%	86.0%

Source: BDAS – tables 40.1-40.2 and 41.1 – 41.2

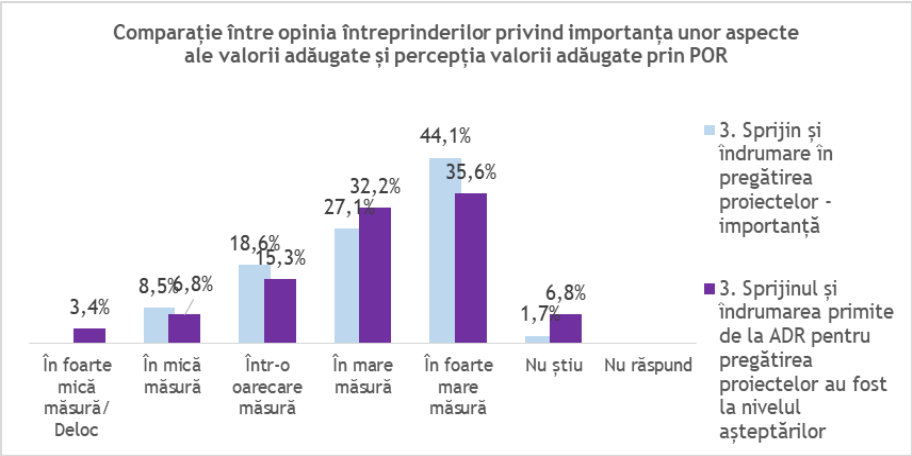

Figure 6 Comparison between the opinion of the companies regarding the importance of the support in the preparation of the projects and the perception of the value added under ROP in this regard

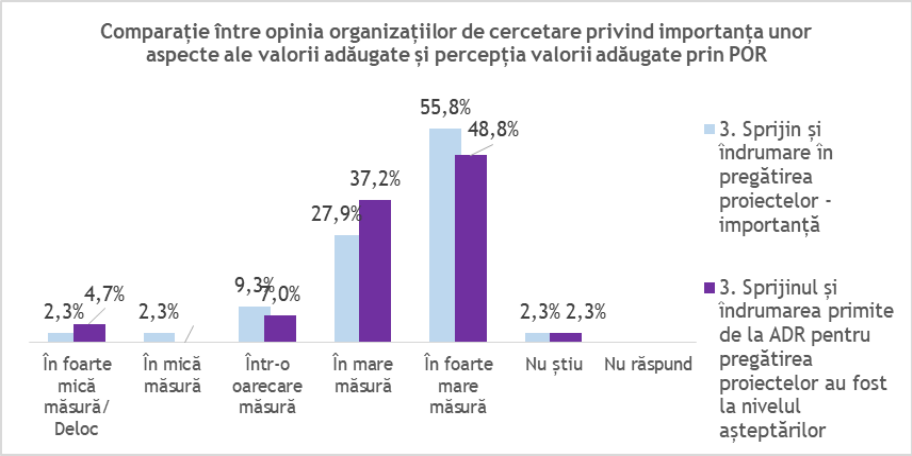

Figure 7 Comparison between the opinion of the research organisations regarding the importance of the support in the preparation of the projects and the perception of the value added under ROP in this regard

- The research organisations participating in the survey have a better opinion than the companies regarding the effective carrying out of processes: 37 out of the 43 respondents from the research environment appreciate that the support and guidance received from RDA for the preparation of the projects were living up to the expectations to a large and very large extent, while 30 out of 43 respondents consider that ROP, through Priority Axis 1, contributes to a large and very large extent to speeding up the collaboration between companies and research organisations. (BDAS – table 41.1-41.2);
- The opinions of research organisations and companies about the innovation strategy for smart specialisation at regional level converge. Thus, 32 out of the 43 respondents from the research environment and 39 out of the 59 respondents from the entrepreneurial environment consider that this strategy ensures, to a large and very large extent, a more efficient use of the potential of development and competitive advantages (BDAS – table 39.2).

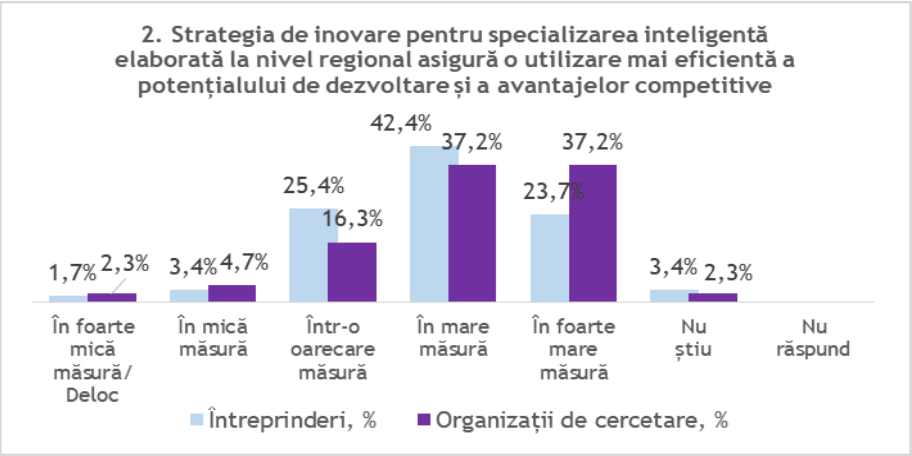

Figure 8 Comparison between the perception of companies and that of research organisations about the innovation strategy for smart specialisation

Therefore, the participants proposed to move from RDA's role as a catalyst to that of a regional sponsor through the authentic decentralization of ROP management at regional level.

Ca o concluzie finală pe baza constatărilor consolidate din cele 3 surse de documentare (*interviuri cu membri CRI, focus grupuri și sondaj pe bază de anchetă sociologică), **the potential recipients of funding under ROP PA1 agreed all that EDPs should be resumed, continued on a regular basis*** because '*they are like the air we breathe*'.

4.B.3. Evaluation question EG 1.3.

What is the sustainability level of institutional structures developed under ROP in order to support the process of smart specialisation at regional level?

In phrasing he answers below, data and information obtained through the following evaluation methods and tools have been considered:

- Half-structured interviews with a group of responsible persons from each RDA;
- Group discussions with the relevant stakeholders;
- Sociological survey among potential recipients of funding under PA1 ROP;
- Best practice study cases in pilot regions under the DG Regio Lagging Regions Initiative[39];
- Final validation workshop.

The institutional innovation system for RFD implementation coordination and monitoring consists of:

- ***the quadruple partnership structure*** - a comprehensive structure, yet open to the inclusion of new members from the four spheres;
- ***The Regional Innovation Consortium (RIC)*** - an advisory body which runs based on its own regulations approved by the Regional Development Council (RDC), through meetings and volunteering;
- ***RDA*** - whose role was essential in the steps taken and in promoting concepts, and which ensures the technical secretariat and the coordination of the current RIS3 implementation with the help of dedicated office and staff in the institution's organisation chart.

The sustainability of the institutional system has been pursued both from a technical and financial point of view, and from the point of view of assuming title over the processes initiated, conducted and in progress. Thus:

- **Technically,** by the fact that RIC, in its current size and structure, represents the quadruple partnership structure on a small scale. Conversely, the number of full members of this advisory body varies essentially from one region to another (11-15

[39] Lagging Regions Report https://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/lagging_regions report_en.pdf

members in DR NW, 25 members in DR C, 36 in DR NE and 41 in DR W). Personal nominations were made on the basis of a desirable profile and competitive selection (call to submit applications), and nominations are made at a high decisional level in the reporting institutions etc.;

- **Financially**: RDA NE is currently ensuring the resources necessary for a proper functioning. As the tasks of these bodies and their responsibilities will increase in the other stages of the RIS3 implementation cycle, RDA seeks to identify financial sources to make sure members are rewarded as the tasks will involve substantial workload (for entire days);
- **Institutionally**: through their involvement in key moments, the transfer of ownership over processes conducted at the regional level;

The participatory exercise of evaluation has also highlighted a number of more critical and reserved perspectives of RIC's role. According to these opinions, this body is an informal discussion forum with an advisory role. In other words, it is not truly part of what we call the institutional system of coordination, management and control for the implementation of RIS3.

Moreover, considering RDA's legal status, these agencies lack both the legal authority to lead the RIS3 implementation process, and the financial incentives needed to implement the lines of actions and measures in RIS3. This is why the implementation plan of RIS3 lacks what is called the '***roadmap***' with the deadlines, the assigned responsibilities and the budget lines allocated at indicative level at least.

The sustainability level of institutional structured developed under ROP in order to support the process of smart specialisation at regional level is also supported from the perspective of potential recipients of funding under PA1 included in the sociological survey.

Table 13 Opinion of the representatives of companies and research organisations about the aspects that contribute to the sustainability of the developed institutional structures

Agree: To a large / very large extent	Companies	Research
a. The partnership structure created is functional	54%	70%
b. The Regional Innovation Council / Consortium constitutes a favourable framework for intensifying the transfer of research results into innovative commercial applications	48%	70%
c. There is a mechanism for the update of the smart specialisation innovation strategy at regional level	48%	56%
d. There is a systematic consultation process between the entrepreneurship sector and the research sector	48%	56%

Source: BDAS – tables 42.1-42.4

The responses of participants are distributed as follows:

- More than two-thirds of the respondent research organisations (30 out of 43) agree to a large and very large extent with the statement that the partnership structure created is functional. The assertion is backed by 32 out of the 59 companies participating in the survey (BDAS – table 42.1);
- As regards the Regional Innovation Council / Consortium, 30 out of the 43 respondent research organisations agree to a large and very large extent that it is a favourable framework for intensifying the transfer of research results into

innovative commercial applications. The opinion is also shared by 28 out of the 59 respondent companies (BDAS – table 42.2).

- More than half (24 out of 43) of the research organisations and 28 out of the 59 companies participating in the survey consider to a large and very large extent that there is a mechanism for updating the innovation strategy for smart specialisation at regional level; 11 responding companies and 9 research organisations state that they are not aware of the existence of such a mechanism (BDAS – table 42.3);
- 24 out of the 43 research organisations and 28 out of the 59 companies participating in the survey agree to a large and very large extent with the assertion that there is a systematic process of consultation between the entrepreneurial sector and the research sector. (BDAS – table 42.4).

Risks for the sustainability of the institutional system

Despite all the precautionary measures indicated, a number of risks regarding the sustainability of the institutional system for monitoring RFD implementation have been identified, namely promoting the interest of a person (*e.g. becoming a member in the AAC can help boost the academic career*) or that of an institution represented by the members, to the detriment of the regional common interest (or leaving it in the background) or the competition between personal and institutional pride which, due to the somehow heterogeneous character of the representation, can erode the initial enthusiasm and cohesion built up until then through RDA's acting as a catalyst;

The following may add up to the risk factor list:

- **the purely advisory role of these bodies** which will eventually turn them into mere decorations;
- **the risk of losing motivation, low involvement**, high absenteeism and mobility between full, alternate and reserve members, because, in the light of current regulations, members work pro-bono and that, assuming the increase of the role and the multiplication of tasks as the portfolio of projects grows and the implementation reaches maturity, raises the issue of a substantial time consumption by RIC members;
- **the relatively immediate perspective of academic elections that will surely entail changes in the university's top leadership**, especially as some chancellors, pro-chancellors, deans and so on are already finishing their second term of office and are no longer eligible to run in the new elections. Therefore, other management forums will be appointed. This will trigger replacements in the RIC, and a policy on the transfer and taking over of institution's mandate by another personality will be needed. It is quite likely that the new management board of universities will need more time to understand and endorse the portfolio of projects identified in the lists at RIS3. This is all the more so it is not only a substantial endorsement of the research topics and their priority in the research plan of the university, but also, above all, about budgetary allocations from other sources of income for the universities (tuition fees, etc.) than the public budget, for the supplementation of university's own contribution to the projects already identified;

- **absence of results so far** that would feed the increased enthusiasm and initial commitment of regional partners. Most of the interlocutors from all four sectors were expecting at that moment at least some funding allocations, if not projects in full swing of implementation. The lack of funding contracts is a risk that leads to the disengagement of some actors from the regional innovation ecosystem or to the building up of frustrations and low interest and participation rate.

As to the aspects that may hinder the performance of research result technology transfer, the examination of the processing of data obtained from the sociological survey lead to the finding that the most important barrier in the path of technology transfer of research results is the difficult access to funding followed by the high cost of the technology transfer. Thus:

- The high cost of the technology transfer is considered to a large and very large extent to constitute a barrier by 36 out of the 59 companies and 28 out of the 43 research organisations that participated in the sociological survey based on an opinion poll. For 6 research organisations and 9 companies, the cost of the transfer constitutes a barrier only to a small or very small extent (BDAS – table 44.1);
- Access to funding is considered to be difficult to a large and very large extent by 31 out of the 43 research organisations and 39 out of the 59 companies participating in the survey (BDAS – table 44.2);
- Difficulties in the process of ensuring the intellectual property are perceived to a large and very large extent to constitute a barrier by only 16 out of the 43 research organisations, while for 17 of them, these difficulties constitute a barrier only to a small or very small extent. 19 companies participating in the survey consider that this aspect constitutes a barrier to a large and very large extent, while for 12 out of the 59 companies it constitutes a barrier to a small or very small extent (BDAS – table 44.3);
- The poor interest on the part of companies in the promotion of TT / research entities respectively for the needs expressed by the market / consumers is considered by 25 research organisations and by 24 companies to constitute a barrier to a large and very large extent (BDAS) - table 44.4) in the creation of partnerships for the economic exploitation of the applicative research results.

4.C. Post-analysis findings

General or contextual findings

Natural structural transformations in the regional economy RDA (e.g. RDA W), with support from some World Bank (WB) projects or on their own (e.g. RDA C, RDA NE) have analysed the evolutions and transformations in the economy of the region over time and identified a series of structural changes. Thus, of course, without generalising in the absence of large-scale studies of national coverage; however, the observations of RDA's personnel specialised in development-programming entail that the configuration of some regional economies has significantly changed over the last 30 years of free market economy or are currently undergoing change (e.g. DR W, DR C, DR NW - from an economic entity based on traditional industries to shaping of an entire value chain in the automotive and IT (DR W) or aeronautical (RDR C) industries, cultural and creative industries (DR NW)

etc. These changes aiming at structural transformations in the economy of the regions have been and are being genuinely performed by the business sector even without funding from the public budget.

Changes of approach in the RDI sector across large companies Until the outburst of the economic and financial crisis in 2008, Romania attracted a significant volume of direct foreign investments. As many multinational corporations are attracted by enabling factors on the economic competitiveness side, namely: the availability of medium and high-skilled labour force, as well as the reduced cost of labour compared to the countries of residence of the 'parent companies'. After Romania's accession to the EU on January 1, 2007, and especially after accession, these comparative advantages appreciated as factors of high competitiveness began to erode and even to be cancelled. In the context of free movement of labour on EU's internal market, the phenomenon of labour migration has settled in and gained new proportions every year until it reached the alarm threshold in the national economy. Thus, it is estimated that approximately 3 - 4 million Romanians work in Eu countries. This labour migration and 'brain drain' phenomenon was supplemented by public policies aiming to increase the national minimum wage, as well as fiscal policies for certain sectors of economic activity (IT, construction), justified by the reaching of the 'alarm threshold' for labour force crisis and by the concerns for the reversal of the phenomenon and its reconversion into a 'brain in' phenomenon. Thus, even in the absence of an analysis on the efficiency and effectiveness of the public policies briefly listed above, interlocutors indicate however that the situation has dramatically changed over the past ten years. From an unemployment rate of 8-9% during the years of financial turmoil, the average annual unemployment rate went below 4% and, in some regions, even below 2%, from the availability of labour force to a severe shortage of manpower in almost all economic sectors. In the context of such changes, many companies which seek continuity on the Romanian market were forced to change their approaches. Thus, some large companies which are able to cause a driving phenomenon across the value chain upstream and downstream, have reconsidered the company / group policy in the field of RDI, which materialized until the occurrence of the market-verified result of research - development - innovation in the 'parent company'. Against the background of conjectural changes of the socio-economic context and following a comparative analysis, these companies have identified segments of the workforce which are able to maintain the initial competitiveness factors, respectively the category of researchers and auxiliary personnel in the field of RDI. Thus, there are development regions (e.g. DR W, DR SM) in which large companies - standard bearers for the regional economy - have employed up to ¼ of the number of research personnel figured out in the statistical records, who had previously worked either in public research institutes or in the academia.

Innovative SMEs internalise their RDI function at the same time with the occurrence and development of a 'speed entrepreneur' category[40] that run companies with a high growth potential. There is also a preoccupation for the internalisation of the RDI function at the level of private initiatives of start-ups and / or SMEs whose main object of business is the research and development of new products (e.g. in DR NE, DR NW in the sector of pharmaceuticals and of food supplements that are at the crossroads between a pill and a food for healthy life, active aging, cosmetics and health care products, agri-food, ICT, etc.). The presence of 'speed' entrepreneurs and of businesses with high growth potential

[40] Known in the speciality literature and entrepreneurial practice as 'gazelles' (fast growing enterprises).

is particularly noticeable in the field of technologies and emerging sectors that appear at the crossroads between traditional sectors or are completely new. Last but not least, official voices in the field of promotion of innovation, belonging to some of the interlocutors consulted during this evaluation exercise, consider that the two phenomena reported are not complementary as this might look at a first glance; on the contrary, the concern of the big companies to internalise the RDI function in the 'daughter company' in Romania or on the RDI 'regional research hub' platforms can be a threatening risk factor that may undermine the independent entrepreneurial approach. Therefore, the public funding could be a measure to encourage the maintenance of the RDI function in the entrepreneurial sector of specialised SMEs. It can be concluded that interested start-ups and speed entrepreneurs react quickly to market opportunities and cannot afford to wait years until a project is operationalised.

Universities focus on applicative research. The results obtained from the research activity (in the form of publications, products / technologies / methods / services) are mainly used to advance the professional career of the teaching staff or to gain public recognition and prestige and, less, for economic valorization. This orientation of capitalizing on the results of the research activities is due to the fact that their main role remains anchored in the educational sphere. As a result, this orientation distinguishes them from the EC acceptance which, through applied research, focuses on the transfer in the market / company of the results and these refer to their materialization in patents, patents, etc. The applicative research is done more in university laboratories, while the public research institutes confine themselves to the fundamental scientific research. EITT represent a chain joint; they act as an intermediary and can only transfer only that which is produced in research laboratories. The applicative research is oriented towards designing new solutions to cater for the needs in the lives of people and of communities. Although universities are more concerned with applicative research, its results, in most cases, are intended for presentation in conferences, writing and publishing doctoral theses, specialised articles in journals and much less for economic valorisation through marketing. Put it differently, the results of the applicative research in the academic world are valorised only on the first two levels of technological readiness[41] and in the development of the academic career of the teaching staff and less directed towards commercial valorisation. The status quo lingers on for a significant number of years without substantial changes, and this affects the innovation culture in Romania. This state of affairs is rooted in and caused by, among others, the gap of perceptions between the research environment and the companies as regards taking the research results from the level of prototyping and type approval and bringing it towards industrial experimentation, manufacturing and economic valorisation in the market.

Moreover, the results of the sociological survey conducted during the current evaluation exercise (see Annex 7 to the evaluation report) places an emphasis on this gap.

- There is a major difference as regards the thorough understanding of company needs.
- The opinions on the benefits brought by the research services and the increase of the interest for these services are relatively convergent, with a little more

[41] TRL

reservation regarding the perception of the respondents from the entrepreneurial environment.

As regards the areas in which the companies are interested by research services, the answers received during the sociological survey from participants to entrepreneurial discovery workshops show a higher level of expectation from the companies as to what the research organisations offer.

Thus, if thee offer meets expectations in terms of scientific and technological consultancy / expertise, there are important differences in the following areas:

- Innovation audit;
- Product validation / certification;
- Development and testing of parts / processes;
- Innovation partnerships.

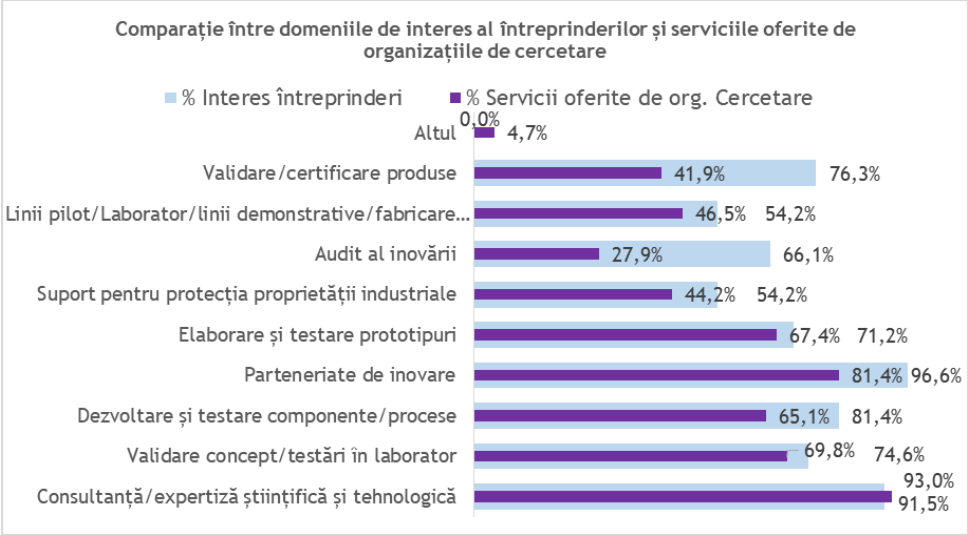

Figure 9 Comparison between the companies' areas of interest and the services offered by the research organisations

<u>The elaboration of RIS3 and of the Regional Framework Document (RFD) by the partnership structures created at regional level under coordination by RDA brought for the first time the universities in direct contact with the entrepreneurial environment and with exponents from the end consumers of innovation</u>. This gave them increased visibility in the social environment and facilitated the reorientation in relation to businesses in the real economy. The finding shared by most interlocutors in interviews and focus groups is of a general nature. However, atypical situations by reference to the situations described above are not excluded. Thus, there are universities, especially technical, agricultural and medical, which are concerned about the economic exploitation of the results of the applicative research performed.

<u>The patent of invention & patent-prototyping-zero acceptability testing model applied in series production or in mass production is estimated to be far too linear and outdated by the realities in the innovation sector.</u> The arguments that have been made to support this finding are as follows:

- The registration of the applicative research results with OSIM as patent of invention or patent is a profoundly bureaucratic, lengthy and relatively costly process. According to Romanian interlocutors, this process can take from 8-9 months to

years. The long waiting period until the file is completed and the patent of invention is granted makes it that the patent thus obtained be no longer a novelty in the field;

- Products and services are becoming more complex and they require not only a single patent of invention or patent; these are current use products (such as mobile phones) that incorporate hundreds of patents of invention and others that are absolute novelty, as well as unique products which do not incorporate results recorded in the form of patents of invention and patents;
- The granting of the patent of invention or the patenting is not a guarantee for commercial success. Patents work in some areas, but in many other areas, they do not make sense (for instance, in the ICT field, discovered or designed innovative solutions are not patented) because the life cycle of the innovation has been reduced to less than 2 years. Therefore, the fast reaction is what characterizes the genuine innovation process. Innovative companies interested in promoting innovation through new products as the fruit of applicative scientific research, cannot admit that this occurs within 2-3 years after the result is obtained.
- 90% of the inventions are not patented! on the other part the patent does not stand for the guarantee of market success. It does not shelter from market failure! It should be more appropriate to encourage another form of knowledge transfer, such as trade secret.

A step-by-step approach is needed for the introduction and promotion of open innovation. Open innovation that underlies the concept of smart regional specialisation is at its core a multi-phased process. Thus, we can distinguish the innovation that places at the centre of its concerns the technological modernisation, the innovation seeking to reshape the production processes until the innovation that results in a structural transformation of the regional economy. Starting from this finding regarding the open and inclusive systemic approach, it is necessary to reconsider the following:

- When designing the conditions in which the call / competition will take place or not, sponsors must also take into account the long cycle of the economic exploitation of the research outcome, driven by the testing of prototype acceptability and the quasi-unknown answer that the market would give. It is very likely that the need may arise as a result of the market response to the so-called 'zero' series to return the prototype to the research environment for redesign, improvement, amending etc. Thus, in this long cycle until placing in production (mass production or production of short series given the volatility of innovation), there are a number of risks that must be shared with the sponsor too. The coverage of these risks cannot be sustained at all by research as this is inherent to any genuine research and cannot remain exclusively the responsibility of the entrepreneurial sector that lacks resources.
- **Co-financing compared to the intensity of the state aid for the region is a major barrier for the academic research environment** (where most of the applicative research is done) and this must be ensured either by the public sector of the local public authorities (LPA) or by the entrepreneurial sector, which prevents the creation of sustainable partnerships. State universities do not have their own resources from extra-budgetary revenues that they can invest in projects financed by ESIF. The most significant extra-budgetary revenues of state universities in the regions come from the tuition fees, mainly those charged to incoming foreign

students. The situation in the regions differs to a large extent from that in Bucharest where the most powerful university centre of the country is located, and even between regions. The presence of the academic sector, with prevalence on specialisations suitable for the applicative research with economic valorisation potential in the NW or NE region, is much different from the one in the DR SE or even in the DR Centre.

- **Private EITT face the conditions required for accreditation and re-accreditation** Accreditation is a long-lasting process in itself, has a limited validity over time while leading to re-accreditation. Therefore, if these processes overlap with a too long process during the organisation of calls and filing procedures, evaluation will entail the exclusion of some of the eligible applicants concerned or the impossibility of signing the financing contract as the initial requirements are no longer met.
- One needs to reconsider the question of state aid in dialogue with DG Competition and other third parties, seeing that the open innovation model and the technology transfer cannot support itself and is not oriented towards the generation of income and financial profit. The research and adaptation of the final product to the requirements of the market goes on along several stages until the economic valorisation, the result of the research following most of the times a 'round path'[42]. On the other side, the risks of distorting fair competition are minimum considering the new niches in the innovative products market. State or non-state aid should not only be viewed from the perspective of income generation through marketing of research results and the treatment of EITT as businesses, but also from the perspective of much wider societal benefits. Reconsidering the issue of state aid is also justified by the alignment with the rules that programs managed directly by the EC, type HORIZON 2020 which also apply to investments from FESI or with provisions from PNCDI III are carried out, for a similar treatment to the potential beneficiaries of funds under PA1 ROP, and in order to precisely avoid the different attractiveness that has already been established between the OP and PNCDI III. The beneficiaries from the research environment are being much more encouraged by requirements and conditions to direct their application for funding to these programs which provide comparative advantages.

A minimum 50% of the project's own contribution value according to European state aid regulations is thought to be excessive and very difficult to set up by eligible applicants both in the research area (EITT, PST) and for SMEs interested in partnering with EITT.

Moreover, the conditionality that this own contribution derives from a source other than the state budget represents an obstacle impossible to surmount by the TT entities from universities. Nearly the majority of universities concerned with applicative research, as well as the transfer of results to the market, are public institutions funded from the state budget. Own revenues account for a small percentage of the university's revenue budget and derive from the tuition fees paid by foreign students and by students admitted without on non-budget places. The situation of these own income and the ability to generate extra-

[42] Taken to the market to test its adaptability, returned to laboratories for testing, redesign, adjustment, etc. Basically, the research does not end with the technology transfer.

budgetary revenues is very different from one university to another, as it relates to the profile of the respective higher education institution, its reputation and location in the major university centres.

Clusters played a role in crossed catalysing and fertilizing of sectoral experiences. The evaluation shows that the clustering phenomenon has contributed to the production of these structural changes in the regional economy. Development regions such as DR NE, DR W, DR NW are among those that have catalysed the emergence of innovative economic, cluster-type agglomerations in the pioneering stage of their development. In nowadays Romania, according to the mapping attached hereto as Annex 2 - List of clusters and stakeholders in TT, there are associations present in IR, indeed in varying numbers across all the development regions, and they proved to be a ferment and a catalyst in the strategic planning process for elaboration of RIS3, RFD with RDA.

The clusters have significantly contributed to both the configuration of the regional quadruple helix partnership, and to the subsequent dissemination of information and knowledge gained through active participation in entrepreneurial discovery processes. Clusters, even though they are not all eligible for the operations under PA1 ROP 2014-2020, turned out, over time, to be a wider communication channel to their members from among which project promoters have emerged, as well as a contributor to undertaking liability and responsibility within the Regional Innovation Consortium (RIC) for the validation of S3 domains and the prioritisation of project proposals at regional level. Last but not least, they have significantly contributed to the actual undertaking of the ownership over the consultative processes for the strategic purpose of differentiating the regional economy by the pillars of the main areas with smart specialisation potential.

The part-to-whole relation between RIS3 and the Regional Development Plan (RDP). The innovation strategy for the smart specialisation of the development regions is essentially a public policy document, part of the Regional Development Plan (PDR), but in a synergy relationship rather than explicitly subordinated to it. RIS3 is adopted by the RDC as a separate document and it came as a natural development in line with the emerging challenges after 2013-2014; however, meeting 'under the same umbrella' is not excluded in the future given the need to ensure consistency and cohesion in the strategic planning document at regional and national level. The part-to-whole relationship between these two policy documents is necessary to ensure the coherence and congruence of the approach, as well as to vest the necessary legal authority in the first document listed above. Moreover, the interviews with stakeholders from the regional innovation ecosystem have revealed pessimistic views regarding the public policy characteristic at regional level as long as the region is not an administrative territorial unit and the strategic leadership and managerial coordination bodies are informal structures whose decisions are of an advisory nature.

RIS3 is and must remain a dynamic and live document a dynamic document and not a formal one, but adaptable to context changes. The main dissatisfaction among the stakeholders at regional level is that the development of Applicant's Guidelines for the 3 calls already organised took a very long time. For instance, as regards GD under 1.1.C - the first call launched in chronological order, its preparation lasted more than 9 months and, taking into account the period during which the call remained open, it goes up to almost one year - a period during which the organisational conditions have changed dramatically. As a result, the project portfolio identified in 2017 could not meet the requirements

imposed in the Applicant's Guideline; thus, many of those who expressed interest under calls 1.1.B and 1.1.A withdrew their intention.

Is RIS3 a public policy document or just a formal document? is a recurring question among the interviewees. Therefore, in order for RIS3 to truly become a regional public policy document, it should be promoted through a normative act that will set out its regulatory framework for proper implementation, as well as the allocation of the necessary funds and the actual responsibilities related to implementation.

On the other side, a financing program, regardless of the source of funds or capitalisation, is a financing tool for one or more national, regional and sectoral public policies. In the particular case of the current evaluation exercise, ROP 2014-2020 is a financing tool for the regional development policy, aiming at reducing the gaps in socio-economic development.

The involvement of ROP and of the system for the coordination, management and control of the funds under this program (respectively the MA and RDA signatories of the delegation agreement for the implementation of the program), in the elaboration and, as the case may be, the update of RIS3 in the 7 less developed regions of Romania, leads to the conclusion that MDRAP', its legal capacity as initiator of public policies in the field of regional development carried out through the ROP AM a series of coordination activities this legal capacity as initiator of public policies, it carried out a series of coordination, guidance and support activities granted at regional level.

Concern for the building and consolidation of the institutional memory, considering the delayed perspective of the institutional maturity of the innovation ecosystem in Romania. Discussion can be held on several tiers in this respect, namely:

- Some interlocutors (constituting a minority opinion) argue that the structures and bodies created at regional level and required under the methodology for elaboration of RIS3 and / or MA ROP for the elaboration of RFD do not actually classify as institutions because they have a purely advisory role, work pro-bono and on an intermittent basis.
- Other interlocutors (representing the majority, however) argue that, although they have taken this aspect into account, measures to strengthen these structures are still needed.
- Thus, the fact that a large number of members in the RIC (e.g. 33 in the DR SWO, 36 in the DR NE, 41 in the DRC) is justified compared to other regions (e.g. 11/15 in DR NW, 25 in DR W) and is likely to ensure the representation and small-scale representativeness of the quadruple helix structure. Also, the structuring on 2 or even 3 categories of members (full, alternate and reserve list) is a safety measure of the representation, participation and ensuring of the quorum needed for the decisions of this body. The representation requirement at the highest institutional level is the second safety measure. Last but not least, the fact that this body, although advisory, operates on an organisation and functioning regulation and its functioning is likely to set the standard for an organisational culture of cooperation, trust, participation and partnership.
- On the one hand, the regions that opted for a smaller number of members in the Management Board / RIC 11-15 members rely their decision on the requirements of the EC methodology and not of MA ROP methodology of RFD elaboration; on the

other hand, the need to come faster to a decision taken by consensus, so that the dynamics and cohesion of the partnership as a whole are protected.

- The structuring elements exemplified and the safety measures highlighted are considered insufficient for the sustainability of these bodies.

There are differences in methodologies and approaches between the JRC methodology fostered by the RDA in the preparation of RIS3 and the UEFISCDI methodology adopted in the preparation of SNS3. Under the SIPOCA 27 project, UEFISCDI advances the approach of entrepreneurial discovery - an iterative process by definition - in order to revise the identified priorities. The revision is necessary due to the emerging economic and technological opportunities and the dynamics of the local economies, and driven by the experience gained from the financed priorities.

In this context, the project '**Development of the administrative capacity of the Ministry of Research and Innovation in the implementation of certain actions established in the National Research, Technological Development and Innovation Strategy 2014-2020**', code **SIPOCA 27** implemented between March 2016 - July 2019, required:

- Monitoring the dynamics of regional innovation ecosystems through a network of observers which have prepared a series of regional reports
- Organising an entrepreneurial discovery workshop in each of the eight development regions of Romania, starting from the areas with economic and innovation potential analysed in the reports of the regional observers and from descriptions of emerging technological opportunities;
- Organisation of four national workshops with the aim to integrate regional input in order to revise the national smart specialisations.

The differences in the approach to the entrepreneurial discovery process between the UEFISCDI methodology and the JRC methodology promoted by RDA in the elaboration of RIS3 can be summarised as follows:

- The entrepreneurial discovery workshops held by UEFISCDI under SIPOCA 27 project aim at ***identifying sub-domains with potential for smart specialisation at regional level***, in line with the specific interests of innovation actors, while those being organised by RDA according to JRC methodology focus on the objective of ***identifying projects ideas coming from innovation actors from the helix quadruple structure, and at prioritising project ideas promoted*** by participants according to the importance for the region and in the light of the previously identified areas of smart specialisation.
- Participation in entrepreneurial discovery workshops being organised by RDA reveals **differences of representation and structure**. Thus, while UEFISCDI claims that it limits the audience to 30 participants, this number is neither indicated nor capped in their regions. There were events in which the UEFISCDI representatives were observers; at the beginning, it happened that these events be attended even by 60 participants[43]. It is appreciated that such a large number of participants does not allow sufficient time to all participants to express their opinion. On the other hand, too small a number does not provide representativeness nor confers a specific weight for the S3 domain which is subject to consultation. UEFISCDI argues that, in

[43] In Iași

its own approach, 50% of the audience is made up of representatives from the entrepreneurial sector, while in their opinion, the actions they are aware of, performed under RDA's coordination and organisation, have suffered from issues relating to a structuring that is adequate for representation of the regional innovation ecosystem.

- The actual participation of an expert from the evaluation team, indeed in a single entrepreneurial discovery[44] workshop, illustrates the opposite of expressed opinions, i.e. RDA's preoccupation to bring at least 36 participants to the plenary phase of the workshop, as an indicator included in the ROP technical assistance project;
- **Differences in the conduct of workshops have been identified.** Thus, in the EDP coordinated by RDA there is a first plenary part focused on several presentations (about ROP, JRC methodology, case studies, successful projects in the university and / or entrepreneurial environment), followed by the work in groups facilitated by and focused on brainstorming project ideas as exhaustively as possible and, finally, the prioritisation by the group, by vote, of 3-4 innovative and highly-appreciated projects of impact for the region. According to UEFISCDI, it should be started from scanning the emerging technologies. The SIPOCA27 implementation team has developed a system called 'technology radar', which scans approximately 30,000 news about technology from around the world every month. Out of this news, a 'turned pyramid' is filtered and generated through which technologies of the future are identified and briefly described as 'cards'. These cards are distributed within the work groups and facilitate the consensual selection by participants of some cards that are considered relevant. Based on these selected cards, the dialogue between the relevant actors is continued. In the opinion of UEFISCDI, the importance of developing a unique system for detecting emerging trends, which combines human evaluators with machine learning algorithms, is highlighted. This mechanism settles in technology domains that look promising[45]. Romania is experiencing this manner of working and is a pioneer in this field, because, in Europe, a similar system, called the 'Innovation Radar', is scheduled to start working only in 2020. Regional workshops organised by UEFISCDI aim to attract and involve stakeholders which are close to and / or relevant for these a priori areas identified, which are invited to explore joint strategies for their development. '

5. Conclusions, recommendations and lessons learned

5.A. Conclusions

The ROP implementation system redesigned both the specific objectives and the strategy for implementation of operations under PA1. Of course, this was a stage success in redesigning the strategic planning process for smart specialisation at regional level.

The analysis illustrates that **this Axis refers to investment priorities in exclusively novelty areas for the research and entrepreneurial environment in Romania.** The

[44] 30 May in Constanța - the organisation of RDA SE on two pre-identified areas of smart specialisation, namely the green technologies, tourism and health

[45] Promising Technological Domains.

novelty of the investment priorities is supplemented by **the mechanism of implementation - an innovative mechanism on its turn - based on participation and the 'bottom-up' approach to ensure alignment with the requirements of the regional business environment.**

A first conclusion appears regarding the need for an approach over a multiple programming cycle upon the correlation between these characteristics and the current state of the innovation sector in Romania. Consequently, this axis and the investment priorities must find their maximum continuity and peak load in the implementation under the 2021-2027 programming cycle.

The time interval remaining from the current programming period should be used to multiply the strategic approach, to identify project lists at regional level and to experiment with different types of calls, for example closed call on the list of pre-identified eligible projects, as well as to offer some demo results to the critical mass of promoters which are expected to join the pioneers of this funding cycle.

As a matter of fact, as one may infer from the multiple findings, the situation at regional level is multi-faceted and the experimentation is a *sine qua non condition* for the demonstrative effect both the applicative research sector and TT entities, and the economic, business sector need in the learning process as regards the promotion of innovation through the technology transfer.

Preparing the PA1 implementation, getting results with demonstration effect and involvement become essential to raise awareness, increase knowledge, level out the understanding of the correct approaches and, last but not least, to stir emulation in the market and achieve the necessary 'momentum' for an accelerated, effective and efficient implementation.

The actors involved and decision makers at national level, as well as the regional stakeholders, are in fact pioneers of a new territory in the process of investigation.

RIS3 have been developed or, as the case may be, updated through a shared local effort and with external assistance. RDA has played an essential role in the coagulation of the quadruple partnership structures and in the management of entrepreneurial discovery processes.

All interlocutors coming from all the institutions agree that ROP and the Management Authority (MA) for ROP played a key, crucial role in the development of RIS3 and RFD. In particular, the second document paved the way for the regions to get funding under PA1. The contribution of ROP and of the implementation coordination system consisted in both the qualified methodology support and the financial support under the technical assistance axis, so that the regional development agencies be able to carry out: the socio-economic analysis that served as a basis for identifying the potential for the smart specialisation of the region; the qualitative researches carried out either internally (RDA C) or through outsourcing to specialised and experienced sociological survey firms and, of course, organise and conduct entrepreneurial discovery workshops on specialisation areas; create the institutional system for validation of RIS3 and prioritise the list of projects, participation of RDA personnel in events abroad, as well as facilitate the participation of RDA staff in the second and third phases of the EC Initiative for less developed regions, in regional public consultation events included in the pilot phase, etc.

However, opinions contrary to the majority trend have been retained upon this analysis. Thus, assuming that RIS3 are validated by full members of the RIC, but finally approved by the RDC, which is a predominantly political structure and an informal body, this document is not actually a regional public policy document. Therefore, even if it will be part of the future RDP or the synergy with this plan will be ensured, it will not become a public policy subject, in the opinion of RIS3 interlocutors, because it does not take the form of a normative act of interest for all the counties in the region, and the action plan is not funded from the budget. In this context, there is a risk that these documents will remain cannot be used documents without any regulatory framework value, as opposed to the future National Strategy for Smart Specialisation (SNS3) and the National RDI Strategy being under preparation by UEFISCDI, which documents will be adopted through the issue of a compulsory type of normative act, at least a Government Decision (GD).

5.A.1. Contribution to the change of vision

ROP contributed by:

- An efficient bottom-up partnership approach involving all relevant stakeholders at regional level;
- A much more active involvement of the business environment in the programming process at the regional level, which is subsequently felt also in the RDP update process in partnership;
- The RFD elaboration methodology was better prepared and harmonised with the EC Guideline for RIS3. As a result, it was thorough and well-structured;
- The elaboration time was sufficient, and the MA ROP was flexible, in order to ensure a real participation of the local and regional actors;
- RDAs have extended the use of entrepreneurial discovery workshops within the JRC-facilitated RIS3 Initiative to the implementation of the 4-step Ma ROP methodology for RFD elaboration. This was enabled by the participation of the RDAs in the extended stage of the 'EC Lagging Regions Initiative' to EDPs held in the 2 regions included in the pilot stage. Thus, a combination of the working methodology for RIS3 and the MA ROP methodology for RFD was achieved, as well as the wide-spread and early diffusion in all development regions;
- The Management Authority for ROP is appreciated for its vision and flexibility proven over time through the extension of expense eligibility to the salary expenses occurred in the research-based area. The 50% percentage is not enough to cover;
- Of course, there are also more critical opinions regarding the overlapping of the two methodologies run in parallel for a period of time, which was likely to generate some confusion amongst the members of the quadruple helix. The confusion was further enhanced by the involvement of certain regional partners in the implementation of the SIPOCA 27 project, financed from the 2014-2020 POCA of UEFISCDI. The confusion was likely to raise concerns about the delay of the opening of calls for submission of applications for funding, which happened only in August 2018;
- The systematic and strategic approach of ROP in the RFD elaboration phase was undermined by the restrictions in the Applicant's Guideline which appeared approximately one year after the expression of interest through submission of LoI.

5.A.2. The added value of processes led in the initiative

Entrepreneurial discovery workshops triggered and facilitated a more systematic organisational learning process

It may be concluded that it helped potential beneficiaries of funding:

- to work in a more structured way for the generation and structuring of the project idea (completion of Annexes 1-3 from the methodology etc)
- to get familiar with the main elements of the future FG;
- to create new partnerships by placing participants from the 4 categories of the quadruple helix to the same table. People who had not met before rallied to outline a project idea that they thought was of common interest and feasible.

However, workshops revealed that **the private sector is looking for a model in the proximity**. However, if it does not find it, yet it sees a niche in the market and a profit margin, it takes this model from outside. Therefore, the actual opportunities for economic use through marketing cannot wait. The biggest profit margins are obtained when the novelty is absolute and the one who brings it on the market is the sole supplier and bidder. It is true that the associated risks are high and solutions to take over and share the risks should be found;

On the other side, **sponsors seek to promote projects that propose innovative, yet failure-free projects**.

This situation in which the bidder and consumer of innovation are placed on one side, and the sponsor and partnership (research- entrepreneurship) on the other side at different poles must change from 2021 on;

On the background, the research activity is among new discoveries led by innovators, pioneers in their field of specialization, those which understand the first benefits of the change proposed in the form of a new product, new revolutionary or incremental technology.

To pick up courage and take on the risks of bringing the results to consumers on the market, **the entrepreneurial sector waits for demonstrations** (*in the form of: experimental stations, demonstrative sites, study visits on research platforms, open-door events, access to open innovation platforms in order to consult the offer of research results, integration into intensive research-oriented clusters, access to laboratory testing services, with the help of simulators, and others*) based on the model of agricultural farms / experimental farming stations in which the research result is sold until they run out of stocks.

A certain competitiveness between the operational programmes is taking account of the comparative advantages in relation to requirements and different funded project management schemes is highlighted. According to the principles underlying the management of ESIF, the operational programs must be complementary and avoid double funding and overlapping. However, a distinct attractiveness and even a certain competition between the OPs has been noticed. '*Under COP, the private sector gets closer to the research sector*', the participants at the FG said. The attractiveness of the research environment for COP is given, among others, by the fact that the partnership relationship

during the implementation of the joint project is more functional as each partner has its own budget.

Alternatively, participants admit that what COP is missing and which can be found in ROP is the vision and the focus on regional development (there are no regional allocations made under COP). This is because COP concentrates on RDBI;

5.A.3. The sustainability of RIS3 NE institutional implementation framework

The institutional governance structure under RIS3 and under the National Research, Development and Innovation Strategy for 2021-2027 is an enabling condition that must be maintained throughout the entire 2021-2027 program cycle. This makes the issue of enhancing the sustainability of the regional institutional innovation system a major concern in the next phase.

Furthermore, in the context of personal mobility in the RIC membership structure, a question is raised as to ensuring the continuity and the construction of the institutional memory on all levels of this institutional ecosystem for RIS3, which currently, except RDA, is and will be formed by ad-hoc, informal structures. The migratory phenomenon at institutional level becomes a normal fact as long as it falls within limits that do not lead to de-structuring. Consequently, a succession policy, but also measures to transfer the pool of knowledge and skills acquired by the people occupying those positions, are needed.

Individual mobility in the structures forming the regional innovation ecosystem for RFD implementation follow-up in relation to the validation and prioritisation of some project ideas in future calls in Priority Axis 1 (PA1) raises the issue of strengthening the institutional memory. Upon the implementation of the MDRAP methodology regarding the elaboration of the RFD, RICs were established as consultative bodies with an immediate role in validating the project ideas that were the basis for the drafting of the letters of intent submitted in the calls 1.1.A and 1.1.B and their prioritisation by reference to the contribution to the implementation of RFD. These bodies have been created in all development regions, including DR BI. The number of members differs significantly from one region to another: from 15 members in the DR NW to 25-36-41 members in the DR W. The large differences from simple to almost triple is justified by the need for small-scale representativeness of the entire quadruple partnership structure. RICs have full and alternate members. There is also a list of reserve members in DR NE, if members from the first two categories are not available. The nomination process was transparent and democratic and relied on a desirable profile of potential candidates. The nomination process was aimed at attracting full members from among people who hold decision-making positions within the institutions co-opted in the RIC. This body operates in all regions under a Regulation and based on meetings and with non-remunerated participation of members. The evaluation revealed that these structures have fully assumed their role in the 4-STEP mechanism of PA1 implementation and are functional. However, the evaluation also identified a number of sustainability risks, which will be presented in the following sections. RDA as coordinator and provider of RIC's technical secretarial activity has already adopted some safety measures to maintain sustainability.

There are risks and vulnerabilities in the use of regional strategic planning results at national level following the application of different methodologies and procedural approaches.

There is a number of concerns expressed in this direction by all parties involved, respectively: RDA, MA ROP and UEFISCDI, originating in the absence of communication along the processes and the different approaches and methodologies.

As such, the absence of constant communication and dialogue between the teams involved in the management of the entrepreneurial discovery processes at regional and national level the sporadic and irregular mutual attendance in events organized by the two institutions, namely RDA at UEFISCDI, and the regional observer or other representatives of UEFISCDI, in the workshops falling into the responsibility, leads to opinions and conclusions which are at least partial or unintentional.

Conclusions on complex topics

Need to assume / share innovation risks with sponsors[46] also in innovative projects. '*In research and in business, the difference will be made by the actuality of the problems and by the rapidity of their settlement*'[47]. Therefore, the research must be oriented towards the needs of consumers, and the funding of the research, as well as the economic valorisation of the results, must be performed quickly in order to respond top the latent market demand. There is a certain inaccuracy in the financing of innovation through promotion of TT based on public grants, as compared with the funding of the economic valorisation of the research results based on public and / or private financing tools, innovative on their turn. Also, the conclusion regarding the need to diversify the alternative sources of RIS3 financing, including by encouraging consortiums to assume the risks of financing projects with help from commercial banks, through the leveraging pf bank lending. Especially in the favourable context in which commercial banks are represented in the RIC structure. The experience in the field of energy efficiency projects from their promotion pioneering stage demonstrates that commercial or development banks on their turn do not assume the role of first stage sponsor, but rather wait for a demonstration effect most often made from public funds, after which they seek to manage the dedicated financing lines / funds, and invest their own funds in higher risk projects only in the third place.

Taking over the result of a research through a patent by the entrepreneurial sector does not guarantee it will be fail-safe. As a consequence, the requirement that the technology transfer be confined to patents of invention and patents is understood by the ROP market more as a safety measure for the bureaucratic formalisation of an applicative research result and represents neither the premise nor, even less, the guarantee for the success of that project that aims to go through the necessary steps towards economic valorisation and meeting the needs of consumers.

[46] Based on the model of other financing instruments which are innovative on their turn: venture capital, private equity

[47] ww.marketwatch.ro/articol/16521/Prof_Ion_Stoica_cel_mai_bine_cotat_specialist_român_în_computer_science_In_cercetare_si_in_business_diferenta_va_fi_facuta_de_actualitatea_problemelor_si_de_rapiditatea_rezolvarii_lor/

Shortening the life cycle of innovative technologies to approximately 2 years, and from this lesson the need to act quickly for the economic valorisation on the market before the innovation and the technology have become obsolete. The economic theory and entrepreneurial practice show that the highest revenue and profit margins are obtained when the supplier of that new product or technology is unique on the market. When there is a significant number of 'followers'[48], the market is divided and the profit margins shrink down to disappearance. Thus, those who wish to stay longer must go back to the strategy of severe cost control in order to stay below the costs of direct or cross-competition caused by substitution products, which appear with the maturity on the life cycle of the product, technology, etc. Therefore, delays in granting any incentive, including the non-refundable financial assistance, cast away the private sector and, in particular, the speed entrepreneurs[49], that is precisely the segment which internalises the RDI function or is among the first champions to understand the benefits of changes brought by promising technologies.

Innovation and smart specialisation cannot rely solely on support from cross-cutting policies (*such as the fiscal policies translated through tax facilities*) or the provision of non-refundable financial assistance. The innovation for S3 and the projects that the regional actors propose should aim at attracting innovative financial instruments, such as: grant arrangements, letters of bank guarantee and letters of bank credit, equity investments[50], attracting venture capital[51], attracting investments from the successful businesses[52], issuing bonds[53], raising the share capital by issuing shares as a participant in the capital market, crowdfunding or combinations between these potential financing sources. Some RDAs understood the need to investigate the new financing instruments and expressed concern[54], and even set up a new function by creating a unit in the organisation chart[55] and hiring staff who studies and promotes the attraction of innovative financial instruments.

Integrated final conclusions.

The ROP implementation system redesigned both the specific objectives and the strategy for implementation of operations under this axis. Of course, this was a stage success in redesigning the strategic planning process for smart specialisation at regional level.

It was also appreciated during a preliminary analysis that this Axis refers to investment priorities in exclusively novelty areas for the research and entrepreneurial environment in Romania. The novelty of the investment priorities is supplemented by the mechanism of implementation - an innovative mechanism on its turn - based on participation and the 'bottom-up' approach to ensure alignment with the requirements of the regional business environment.

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[48] Followers
[49] Fast growing enterprise, also called 'gazelle'
[50] Private equity
[51] Venture capital
[52] Business Angels
[53] Public lending from concerned suppliers and consumers
[54] RDA NE, RDA W
[55] RDA NW

A first conclusion appears regarding the need for an approach over a multiple programming cycle upon the correlation between these characteristics and the current state of the innovation sector in Romania. Consequently, it is highly likely that this axis and the investment priorities find their maximum continuity and peak load in the implementation under the 2021-2027 programming cycle. The time interval remaining from the current programming period would be used to multiply the strategic approach, to identify project lists at regional level and to experiment with different types of calls, for example closed call on the list of pre-identified eligible projects.

Another preliminary conclusion is that **experimenting is a *sine qua non condition* for the demonstrative effect both the applicative research sector and TT entities, and the economic, business sector need in the learning process as regards the promotion of innovation through the technology transfer**.

One conclusion reached so far is that each stakeholder at regional and national level has put too few common experiences together. Communication between these two levels of strategic planning is weak and intermittent, both at decisional and operational level. Thus, during the evaluation exercise[56] in relation to the responsible stakeholders at national level, it remains to be seen to what extent the future national strategy for smart specialisation 2021-2027 will capitalise on the regional decisions already made regarding the areas of smart specialisation established at regional level and how the coherence and congruence / alignment will be ensured between the two levels of strategic planning in line with the Strategic Planning Manual[57]and the Governmental Memorandum whereby the actors, the responsibilities and the deadlines are set out.

5.B. Recommendations

Boosting the increased participation of professional associations in the helix structure as a vehicle for further dissemination and strengthening of partnerships to promote research results would provide a protective net and would favour the wider dissemination of the information and the knowledge gain obtained. Thus, it could contribute under an associative coordination to attracting economic agents into the consortia for the promotion and the internalisation of innovation of a collaborative way, that is likely to encourage the members in assuming the risks inherent to approaching some territories and new exploratory technologies, as well as to the sharing of imminent risks.

Creation of an inter-regional RIC network developed in regions forming part of and coordinated by the Romanian Regional Development Agency Association (RoReg). Taking into account the still non-homogeneous character in terms of size and structure, supplemented by the somewhat uneven practice in the regional profile, the fact that these bodies are yet at the beginning of their activity, as well as the predictable mobility in the representation of individuals, especially in the academic who (it is worth highlighting that they) occupy key positions in these structures, it is advisable to include these advisory structures in a network of communication and cooperation between regions. The main but not exclusive purpose of the RIC network would be related to mutual knowledge, exchange

[56] National focus group and workshop to validate the conclusions and recommendations from the evaluation study.
[57] http://sgg.gov.ro/docs/File/UPP/doc/manual-planificare-strategica.pdf

of information and best practices, homogenisation of approaches in the practice of RIS3 implementation. This network could be created and activated by the RoReg Association through a strategic / non-strategic project under ACOP or HCOP. The evaluation team appreciated that this network, with its own development and readiness strategy, could contribute to increasing inter-regional cohesion in promoting innovation as a way of life for smart specialisation and identifying those areas in which each region has a comparative advantage. At the same time, it would contribute to the growth of mutual trust capital in addressing some promising but emerging fields.

Strengthening institutional memory and RIC sustainability It was found under the current evaluation that the institutional system created through the 4-step PA1 implementation mechanism is functional, assumes decision and the ownership over the processes of RFD elaboration processes, IS, prioritisation and the submission of applications for funding in the open calls. However, people come occupy and leave certain positions in their institutions, there is a natural staff mobility, including in RDAs, and this is what raises the question as to ensuring institutional memory through adequate measures to manage the risk factors and transfer the pool of knowledge acquired by the people co-opted in these structures, as well as the coordination ones within RDA. The transfer and dissemination of the pool of knowledge should concern future technical assistance projects.

Analysis of the functioning of the governance mechanism for monitoring and evaluating the implementation of SNSI 2021+ and RIS3 under the highest decision level in the Romanian State. The measure is appreciated by the stakeholders as necessary to ensure the smooth continuity of the inter-institutional mechanisms at the governmental level. For the moment according to the provisions of the MFE Memorandum with no. 1372 / LH / 10.12.2019 this mechanism is established and functioning within the MCI. With regard to investments from the European Regional Development Fund (ERDF), the Memorandum states that for the period 2021-2027 the MCI together with the MRDPA are responsible for fulfilling the prerequisite "Good governance of SNSI 2021+" related to the public policy objective 1 "A smarter Europe" - an innovative and intelligent economic transformation ".

The national innovation strategy for smart specialisation 2021-2027 and RIS3 must have a governance mechanism placed under a high authority of the Romanian state, while the monitoring of SNS3 implementation should be done by studying 2 alternative options, namely:

- RDAs are designated through a normative act (similar to the delegation act which confirms that the agencies form part of the ESIF coordination, management and control system); or
- MCI as responsible line ministry or through UEFISCDI should create their own entities and network at regional level.

Establishing a dialogue with DG Competition on the issue of state aid for promoting technology transfer and aligning regulations between DG Regio and DG Research because the state aid area remains a critical issue. Ideally, the rules that apply to programs directly managed by the EC, such as HORIZON, also apply to FESI investments. Possibly the co-operation of UEFISCDI and of other strategic partners in the dialogue over and negotiation of some national competition policy measures, on the grounds that the risks of distorting the innovation market through grants by the economic valorisation of the technology transfer are minimal considering the level it started from. Basically, these

market niches are almost non-existent and, as a consequence, there is nothing that can be distorted. On the contrary, in the case of non-state aid financial support, the results, be it in the form of income generation, exceed the limits of economic profit and the (non-monetary) benefits of innovation brought to the market are largely affecting first and foremost consumers, but also of society as a whole.

Resuming calls under operation 1.1.C by simplifying administrative barriers and updating GS with the support and involvement of RDA experts . Aspects that could be considered : the simplification of the administrative and eligibility conditions that proved to be unimaginable barriers for both TT entities and EITT partnerships with SMEs extending the eligibility of projects and expenses to all stages of technology transfer - services - equipment under-used by centres, etc. extending the eligibility of projects and expenses to regional innovation hub projects.

Virtual redistribution of the unused regional funds to operations under PA2 'Improving the competitiveness of SMEs', assuming that the calls are not resumed or there is no time to organise it anymore.

Stimulating the identification of alternative funding sources for projects that propose innovative solutions through economic valorisation of the research results - RDA internalised, venture capital-type office, business angels, participatory interest in the capital of investment funds, issuance of shares and bonds (public loan from consumers, suppliers, etc.); exceeding the stage in which the innovation for S3 is achieved only from subsidies / grants / state aid. Programs that bring venture capital to Romania, teach people how to cooperate with these institutions - different points of view - banks, ministers, etc. - best practices from different countries of the world.

Stimulating the identification of alternative funding sources can be supported by, for example:

- Developing RDA's administrative institutional capacity to identify and attract innovative financial instruments for '*the financial engineering of high-value and high-risk integrated projects*'
- Providing financial support to organise annual innovation fairs with international participation in Romania etc.'

5.C. Lessons learned

Innovation for reaching the goal of smart specialisation of regions is a top priority on the public agenda at the regional level and efforts are being made to attract a sufficient critical mass so that real change occurs and puts its mark on the economic and social well-being. It is necessary to continue these organisational learning processes in order to create a culture of innovation and a critical mass of promoters and supporters.

The following have been retained in the summary of lessons learned:

- In the 2021+ perspective, the sustainable regional development must be centred on the regional economic development in line with the economic potential and the regional development plans (RDP) and innovation strategies for smart specialisation of each region (RIS3);
- In order to ensure a cohesive, consistent approach to strategic planning and taking into account the chronology of the different stages, the National Strategy for Smart

Specialisation (NSSS) must valorise RIS3 and the experience gained by the regional partnership structures and the regional development agencies (RDA) which did pioneering work, highlighted the latent activity in the regions in the field of innovation through technology transfer for smart specialisation, and coordinated the participatory processes based on a bottom-up initiative;

- To be able to valorise results and experience at regional level, it is necessary to establish a constant and systematic dialogue in order to achieve a unitary common understanding of the aspects linked to innovation and smart specialisation, an in-depth common knowledge of the different EU regulations on this matter, as well as co-opting the main links from the regional institutional system of innovation (RIC and RDA) in the new ACOP-funded project (SIPOCA);
- The implementation of PA1 ROP 2014-2020 is in its early stage. Therefore, this evaluation cannot make reference to the degree of achievement indicator and result indicator achievement;
- Alternatively, given the absolute novelty of this axis, ROP focused with the EC, through JRC, on the proper preparation of the implementation process. This concern has been translated into a real estimated investment in the creation of homogeneous capacity at the level of the potential recipients of funding from all the eligible regions, as well as the creation of administrative capacity at the level of the coordination, management and control system (this includes both the MA's ability to elaborate a clear and complete specific regulatory framework, with emphasis on well-drafted guides following iterative consultation processes, an RDA, but also regional innovation consortia (RICs) that would be responsible for the prioritisation and validation of project proposals in the regions). Therefore, the lesson shows us that there has been remarkable, undeniable progress achieved in the preparation of the implementation process, which is likely to also benefit the planning process of the next programming cycle.
- These phase performances, recognized by all the stakeholders, whether consulted by one or more methods during this evaluation exercise, were possible due mainly to new tools and mechanisms such as the methodology for adopting the regional framework document (RFD) and the mechanism for the 4-step implementation of PA1, as well as due to the financial support and the methodological and technical, guidance and preparation assistance from ROP and from the Joint Research Centre (JRC);
- All these have been supplemented by the experience gained by the ROP coordination, management and control system, as well as by the potential beneficiaries from the entrepreneurial and applicative research sector. With all the progress achieved in the training and specialisation of human resources at regional level, as well as of an incipient community of experts in smart specialisation, the need to strengthen the administrative capacity is maintained and must be the subject of constant concerns, whether immediate or future, considering the need to fulfil all the criteria under the enabling conditions, both before programming and throughout the implementation period.