

INROAD POLICY BRIEF N°2

RECOMMENDATIONS AND POLICY INSIGHTS

This policy brief builds upon the [InRoad consultation](#) report, the various [Regional Technical Workshops](#) held in Prague, Rome, Hamburg, Aveiro and Wroclaw, as well as an extensive data collection carried out in the form of case studies and interviews. Additionally, this policy brief takes into account the feedback received from the [InRoad Validation Workshop](#), held in Brussels 2.-3. October 2018. Therefore, this policy brief presents the final recommendations and accompanying policy insights developed by InRoad.

The current diversity of approaches and practices for planning and funding research infrastructures (RIs) at national level, as well as the lack of coordination between countries and with the European level, are hindering the long-term sustainability of the European RI landscape. Therefore, InRoad's recommendations aim to support discussions on the alignment of policymaking, roadmapping, funding and business planning for RIs.

The [InRoad Validation Workshop](#) took place as InRoad was reaching the very last phase of the project. Workshop participants discussed the preliminary findings, recommendations and good practices identified by the project, detailed in a [Briefing Note](#). In total, 73 participants from 21 different countries participated in the Workshop. Overall, the participants broadly validated those insights and made complementary suggestions. Following the discussions and feedback, InRoad's recommendations were refined and the [Final Report](#) of the project was completed.

InRoad's [Final Report](#) presents **10 recommendations** in three thematic areas: 1) Higher degree of coordination between national and European RI roadmapping processes; 2) Higher degree of coordination of regional, national and European funding frameworks; 3) Best practices and common standards for RI business planning. The recommendations are completed by evidence collected and illustrated with good practices. Three Annexes to the report provide additional information on the way data was collected and analysed. The following policy brief presents the recommendations in a succinct form.

The relevance of InRoad's findings was made clear throughout various developments, from the Bulgarian presidency's flagship conference on RIs in March 2018 – '[Research Infrastructures beyond 2020 – sustainable and effective ecosystem for science and society](#)' – to the recent [International Conference on Research Infrastructures](#) (ICRI) in Vienna, in September 2018. The launch of the [ESFRI Roadmap 2018](#), a few days before, also allowed European RI stakeholders to take stock of the progress made and developments to come in the European RI landscape. InRoad would also like to acknowledge the [Competitiveness Council conclusions](#) of May 2018, in particular the importance of the conclusions on coordination and long-term sustainability within the European RI landscape.

Therefore, we call upon policymakers at national and EU level, ESFRI, Science Europe, the ERIC Forum, ERF and others to take up our recommendations and insights, and to translate them into direct measures that will enhance coordination and support the diffusion of best practices.



POLICY INSIGHTS AND RECOMMENDATIONS

HIGHER DEGREE OF COORDINATION BETWEEN NATIONAL AND EUROPEAN RI ROADMAPPING PROCESSES

- 1** InRoad recommends that national RI roadmapping processes contain at least the following minimal key elements as a prerequisite for a higher degree of coordination for RI policies at national and EU level:
 - Regular updates of inventories of existing RIs and an identification of needs and gaps (i.e. through landscape analysis);
 - Long-term strategic priorities and a transparent prioritisation of national needs that take into account the European perspectives;
 - Evaluation of RI relevance according to scientific, managerial, strategic and societal dimensions and corresponding monitoring mechanisms, which consider national strategic priorities and scientific needs as well as lifecycle stages, types and missions of the RI;
 - Prioritisation of new and existing RIs in view of the available funding for RIs.
- 2** InRoad encourages better integration of RI roadmapping processes into the national research and innovation eco-systems and across other relevant national policies (education, health, etc.).
- 3** InRoad recommends connecting national RI roadmaps to long-term funding plans.
- 4** InRoad encourages user communities to prioritise their needs with a long-term perspective in order to increase sustainable collaboration in the same and/or interdisciplinary thematic areas.

HIGHER DEGREE OF COORDINATION BETWEEN REGIONAL, NATIONAL AND EUROPEAN FUNDING FRAMEWORK

- 5** InRoad recommends that EU Member States and Associated Countries improve financial predictability and stability across RIs' entire lifecycle and guarantee the ability to provide RI services to a broad user community.
- 6** InRoad calls for closer synergies across regional, national and European levels, both through greater coherence among priority-setting exercises within research and innovation policies and an adjustment of the regulatory frameworks of the different instruments.
- 7** InRoad calls for fostering communication, mutual learning and cooperation through the exchange of information between RIs and other stakeholders, to promote adequate and sustainable RI funding and enhance the societal value of RIs.

BEST PRACTICES AND COMMON STANDARDS FOR RI BUSINESS PLANNING

- 8** InRoad recommends all RIs to develop a business plan in order to align their strategy, resources and goals and to connect their mission with national and international strategic agendas.
- 9** InRoad recommends the use of the business plan as a management tool, in the form of a living document aimed at ensuring the long-term sustainability of the RI.
- 10** InRoad recommends early and continuous stakeholder involvement for the development, implementation and updating of a sound business plan.



1

InRoad recommends that national RI roadmapping processes contain at least the following minimal key elements as a prerequisite for a higher degree of coordination for RI policies at national and EU level:

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- **Long-term strategic priorities and a transparent prioritisation of national needs that take into account the European perspectives;**
- **Evaluation of RI relevance according to scientific, managerial, strategic and societal dimensions and corresponding monitoring mechanisms, which consider national strategic priorities and scientific needs as well as lifecycle stages, types and missions of the RI;**
- **Prioritisation of new and existing RIs in view of the available funding for RIs.**

Considering the diversity of factors driving national RI roadmapping processes, the first step towards a higher degree of coordination would be the development of a common understanding of a minimal set of elements for RI roadmapping. InRoad therefore suggests identifying and sharing **minimal key features of a RI roadmapping process, as prerequisites for a higher degree of coordination.** A shared understanding of those elements would support dialogue and exchanges of experience, thus leading to a higher degree of coordination of RI roadmapping processes in Europe and a less fragmented, more sustainable European Research Area (ERA). Inventories and landscape analyses, long-term strategic priorities and prioritisation of needs, sound evaluation and monitoring methodologies, as well as prioritisation according to the availability of funding are all considered key elements for national RI roadmapping.

For evaluation methodologies, InRoad recommends taking into account the following dimensions (with priority to scientific excellence), and to involve international experts to guarantee the required objectivity and level of expertise.

Scientific dimension Collaboration and degree of internationalisation; strong user base; scientific and technological excellence of the RI; etc.

Management dimension Mission and value proposition; governance and management; impact assessment and societal challenges; user strategy and access policy; data management plan; financial plan and funding framework; stakeholder engagement strategy; communication and outreach; implementation, monitoring and risk management; ethical and regulatory aspects; intellectual property rights management

Strategic dimension Mission; visibility; identified priority areas; industrial relationships; innovation potential; etc.

Socio-economic dimension Education and training; contribution to sustainable development goals; socio-economic impact; etc.



In view of prioritisation, it is important to have a transparent, consultative process that includes all relevant actors, including user communities, funders, RI managers and host institutions. To prioritise RIs according to the available funding, InRoad recommends involving all key stakeholders in charge of providing funding for RIs in the national roadmapping process, e.g. ministries, research funding organisations or agencies, regional authorities, host institutions (universities and other) in order to increase commitment for national and international RIs, as well as to identify joint priorities.

On top of minimal elements for RI roadmapping, **InRoad recommends that national RI roadmaps have a clearly defined scope and purpose**, i.e. in terms of political support for RIs, link to funding, as well as links to national and European policies and programmes. A clear definition of RI that is broadly understood and accepted by all actors involved in the process is also an essential prerequisite.

2 **InRoad encourages better integration of RI roadmapping processes into the national research and innovation eco-systems and across other relevant national policies (education, health, etc.)**

In many countries, there is scope for better integration of RI roadmaps into the national R&I system. Indeed, the importance of RIs and their services is not always well known or understood outside of user communities, funding agencies or other specific actors involved in the RI roadmapping process. For example, authorities in charge of industrial strategies or sectoral research programmes (e.g. health, agriculture, environment) could benefit from being better included into the roadmap process, and conversely, from linking their own strategies with the national RI roadmap.

Regional authorities managing European Structural Investment Funds (ESIF) could play a key role in linking regional, national and European systems through the development of Smart Specialisation Strategies (RIS3). Efforts to better integrate RI roadmaps in that multilevel system could contribute to better linkages with other policies (e.g. energy and environment policies). There are also opportunities to make better use of the RI roadmap to link the represented scientific fields with relevant policy areas, e.g. for instance with the [United Nations Sustainable Development Goals](#) or the [Paris Agreement](#) (2015).

Addressing Sustainable Development Goals and global challenges requires international collaboration between RIs in different regions, efficient data sharing and user cooperation. To this end, policymakers, RI managers and users are encouraged to identify gaps and needs with regard to available data, research services and scientific insight in support of these global objectives. This integration of RI roadmaps and strategies would support both strategic planning and prioritisation, and contribute to the socio-economic impact of RIs. In turn, **this would make the RI roadmaps and strategies at different levels (national and regional) more visible, more sustainable and less vulnerable to changing political cycles.**



3

InRoad recommends connecting national RI roadmaps to long-term funding plans.

In view of long-term sustainability, it is important that prioritised RIs receive funding from the national budget to be constructed, operated and upgraded, as well as terminated (when applicable). Only 24% of the countries studied by InRoad include funding commitments in the RI roadmap, while 59% use the roadmap as an input for funding. In cases where the national RI roadmap is primarily an input for funding decisions at a later stage, e.g. through a competitive funding call, or serves mainly to identify national scientific needs and existing gaps, there is a potential uncertainty for sustainable planning and coordination of RIs at European level.

The existing diversity in the levels of engagement poses certain risks, such as making the funding of RI across Europe unpredictable and inefficient, especially for pan-European RIs. The European level must be taken into account in national roadmaps in order to better match existing and prioritised needs with available RI funding, and therefore to increase the long-term sustainability of the European RI landscape. Thus, **to ensure transparency and foster coordination between and across levels (regional, national, European), InRoad encourages the inclusion of long-term funding plans in the national RI roadmap**, even when it does not include direct funding commitments. For periodic evaluations, monitoring and socio-economic impact assessments, financial commitments and previous investments need to be continuously reviewed and related to the costs of RIs at different lifecycle stages.

4

InRoad encourages user communities to prioritise their needs with a long-term perspective in order to increase sustainable collaboration in the same and/or interdisciplinary thematic areas.

For user communities, **identifying and prioritising common areas of interest with a long-term perspective and finding opportunities for sustainable collaboration within the existing landscape is advisable**. Some communities have longstanding experience in collaborating across borders and advocating for their RI needs in a more unified way (e.g. the particle physics community). It would be beneficial for other communities to adopt such approaches and organise themselves into mono-disciplinary or interdisciplinary groups of common interest. This would enable researchers to exchange experience, share good practices, and identify common needs and priorities. In turn, this would help them form strong user communities and submit common RI projects at national or European level, thus using synergies and avoiding redundancies.

To support this, new ways of learning (e.g. by exchange of experiences between new and established communities, mono-disciplinary or interdisciplinary groups), adequate communication and leadership, as well as incentives to collaborate within and across communities would be needed. Developing policy instruments, as well as funding and award



systems for user communities could strengthen such initiatives. For example, networking grants (e.g. COST) could assist emerging communities.

5 InRoad recommends that EU Member States and Associated Countries improve financial predictability and stability across RIs' entire lifecycle and guarantee the ability to provide RI services to a broad user community.

Budgetary fluctuations and unpredictability in political decision-making are identified not only as challenges for sustainable funding but also as risks in the operation of international largescale facilities. Thus, they need to be addressed in order for Europe to stay at the forefront of science and technology. In light of this, it is particularly important to secure basic funding for the initial period of the operational phase (even in cases where competitive funding is assumed to be a major source of RI budget at later stages), and national contributions for continued operation. At the national level, this requires strategic and budgetary commitments that can be sustained through several governmental mandates.

For RIs of international relevance, securing funding along their lifecycle implies the commitment of different national governments. For RIs based on intergovernmental agreements, the European Research Infrastructure Consortium (ERIC) legal status is often perceived as generating weaker national commitments as the decision is usually taken at the level of a single ministry or funding agency. In this context, **InRoad recommends that, at national level, budgetary commitments for ERICs be planned in a similar way as for intergovernmental organisations.**

Although some RIs are aware of the abovementioned challenges and anticipate the need for predicting the costs for upgrading and even decommissioning, the InRoad case studies demonstrate that they rarely have a clear funding plan for it. Ultimately, **a combination of long-term strategic vision, followed by stable funding and greater commitment from national governments, agencies and institutions would support the sustainability of these state-of-the-art facilities.**

6 InRoad calls for closer synergies across regional, national and European levels, both through greater coherence among priority-setting exercises within research and innovation policies and an adjustment of the regulatory frameworks of the different instruments.

Building and maintaining pan-European RIs requires a combination of regional, national and European Union funds through different types of funding instruments, depending on the different stages of the RI lifecycle. The suitability of those instruments varies depending on the type, scientific domain and lifecycle stage of the RI. Expertise in combining those funding instruments and coordination among these frameworks remains a challenge.

To facilitate this, **a coordinated effort among EU Member States, Associated Countries and the European Commission for the simplification of rules would contribute to**



reducing the overall level of bureaucracy and financial uncertainty. In turn, this would improve long-term organisational and strategic decision-making. In particular, InRoad calls for the simplification and alignment of rules between ESIF (for R&I) and EU Framework Programme for Research and Technological Development – or even the adoption of a common regulation. It is also worth exploring the possibility of complementarity with other funding sources for R&I (e.g. InvestEU, European Investment Bank loans and others).

In cases where the provision of national resources is generally lacking, national commitments tend to be substituted with ESIF, even for pan-European RIs. **Ensuring a transitional period between implementation and operational phase that allows partial funding of operational costs through ESIF** would contribute to bridging existing gaps in funding. This holds particularly true in disciplines like data and High-Performance Computing (HPC), where systems rapidly become obsolete and host organisations are under continuous pressure to cover expenses related to software, support and maintenance. This transitional period would need to be clearly defined (for example not surpass three years), as well as coupled with commitments for national funding. This way, RIs could have their impact and sustainability positively reinforced.

7

InRoad calls for fostering communication, mutual learning and cooperation through the exchange of information between RIs and other stakeholders, to promote adequate and sustainable RI funding and enhance the societal value of RIs.

Considering the diversity of RIs and of available funding instruments for their full lifecycle, there is a need for a more efficient coordination of efforts in aligning existing resources with the needs of each individual facility. As a precondition, this requires a shared understanding among all stakeholders (including funders), supported by a common terminology (e.g. RI, national RI roadmap, lifecycle approach, long-term sustainability, access policy, business planning, and so on). Additionally, complex bureaucratic environments tend to require staff with highly specialised knowledge, even for mid-size projects, in order to fulfil all requirements. Thus, while navigating the information on different funding schemes, some RI managers consider the possibility of **having external help and training on how to apply for funding instruments, including for interregional cooperation.** In addition, there is potential for increasing **exchanges and learning mechanisms between countries with similar characteristics, allowing for the comparison of information and good practices.**

8

InRoad recommends all RIs to develop a business plan in order to align their strategy, resources and goals and to connect their mission with national and international strategic agendas.

The business plan is a relevant tool to align the RI's internal resources with its mission. The use of specific, measurable, attainable, relevant and timely goals (SMART) is a transparent and effective way to ensure performance and impact within a realistic timeframe.



Business plans provide an up-to-date framework for informed decision-making by RI managers and funders. Each stage of a RI's lifecycle is linked to a distinct timeframe with specific targets. Therefore, it is highly advisable for RI managers to apply both short- and long-term thinking when drafting each section of a business plan.

Moreover, the content of a business plan depends on the stage of development and the type of the RI. The business plan has to reflect the mission of the RI, its specificities (governance structure, scientific field, etc.), and those political, legal and economic aspects that are relevant to its mission. Well thought-out guidelines, therefore, may help RI managers identify the most important aspects of their strategy. InRoad recommends the following minimal elements for RI business planning:

- Executive Summary
- Mission and value proposition
- Governance and management
- Impact assessment and societal challenges
- User strategy and access policy
- Data management plan
- Financial plan and funding framework
- Stakeholder engagement strategy
- Communication and outreach
- Implementation, monitoring and risk management
- Ethical and regulatory aspects
- Intellectual Property Rights (IPR) management

9

InRoad recommends the use of the business plan as a management tool, in the form of a living document aimed at ensuring the long-term sustainability of the RI.

InRoad recommends that business plan components be described in a short and concise manner, using diagrams and tables whenever applicable. Then, separate business plan sections can be developed into separate, more comprehensive operational documents, such as Socio-Economic Impact Assessment, Access policy, Data management plan, Financial plan,



Communication, Implementation plan. A concise and regularly updated business plan would facilitate their use as management tools and serve as a reference document.

Successful engagement with existing and potential user communities is seen as a key factor to ensure the operational sustainability of the RI. A description of the potential user communities during the preparatory phase is as important as performing an updated **analysis of the user segments** throughout the RI's lifecycle.

In addition, **monitoring mechanisms** are not only vital to ensure a constant flow of information among all relevant parties, but also to achieve greater organisational efficiency. Key performance indicators (KPIs), when appropriately used, can be a valuable tool to help retain focus on objectives and to better understand the factors involved in achieving them. At the same time, relying on them as a single measure of success can distort the way in which the RI performs and how its performance is perceived. Therefore, it is advisable to combine their use with additional measures, such as regular meetings, periodic internal reports and feedback from external stakeholders.

10

InRoad recommends early and continuous stakeholder involvement for the development, implementation and updating of a sound business plan.

The feedback obtained from some of the case study interviews shows that an early and continued involvement of all stakeholders is vital for the RI's long-term sustainability. Some respondents from the case studies pointed out that the joint involvement of users, host institutions and RI managers in the design of the business plan and in subsequent updates can be useful to obtain feedback, direction and commitment for the long-term RI strategy. This also facilitates the alignment of the RI business plan with the institutional research agenda and institutional strategic priorities.

The requirement from funders and policymakers of a business plan for RI roadmap and funding applications can lead to a greater understanding of the importance of business plans throughout all stages of the RI lifecycle and help further develop a management culture adapted to scientific activity. **A comprehensive business plan is an essential criterion especially when the roadmap evaluation is linked to funding decisions.** Under special circumstances, in cases when the RI project is still in its early stages of development (e.g. design phase), presenting a business case instead of a full business plan can suffice.

Support measures for RI managers can facilitate the exchange of good practices and support coordination. At the European level, different fora (ERIC forum, LEAPS initiative, EIROforum, e-IRG) as well as ESFRI already provide platforms for discussions and sharing of experience. Regarding training activities to improve the professionalisation of RI management, the RI-Train project and the corresponding EMMRI are excellent initiatives, which respond to a real demand and therefore enjoy great popularity. **InRoad calls for a broader offer and extension of training opportunities backed by R&I framework programme funding and other sources.**

