



Overview of the National Research Infrastructure Ecosystem and Its Challenges

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List of abbreviations

EAER	Federal Department of Economic Affairs, Education and Research
ERI	Education, Research and Innovation
ERIC	European Research Infrastructure Consortium
ESFRI	European Strategy Forum on Research Infrastructures
ETH Act	Federal Act on the Federal Institutes of Technology
HEI	Higher Education Institution
HedA	Federal Act on the Funding and Coordination of the Swiss Higher Education Sector
R&I	Research and innovation
RI	Research infrastructure
RIPA	Federal Act on the Promotion of Research and Innovation
RIPO	Ordinance to the Federal Act on the Promotion of Research and Innovation
SERI	State Secretariat for Education, Research and Innovation
SNSF	Swiss National Science Foundation
SSC	Swiss Science Council

Summary

Switzerland's research infrastructure (RI) ecosystem is crucial for enabling world-class science, fostering innovation, and maintaining international competitiveness. While the national RI landscape and its evaluation, prioritisation, and funding processes are diverse and complex, greater coordination could strengthen the sustainability and governance of national RIs thereby maximizing their use, benefits, and overall impact.

The State Secretariat for Education, Research and Innovation (SERI) advocates for jointly developed guiding principles to shape RI development, including:

- consistent definitions and criteria for determining national importance, applied uniformly across all actors within Switzerland's Education, Research and Innovation (ERI) system;
- streamlined and transparent processes for the evaluation and funding of RIs, thereby enhancing clarity and efficiency;
- strengthened collaboration among RI funders, with shared development priorities and coordinated planning efforts;
- financial sustainability through robust business models and the strategic use of user-fee mechanisms;
- harmonised monitoring frameworks to systematically assess the performance, impact, and value of RIs and the RI ecosystem.

This paper outlines SERI's reflections on the current state of Switzerland's national RI ecosystem. It identifies key challenges in achieving strategic, sustainable and coordinated development, and aims to foster discussion to inform future policy directions.

Aim

In light of the ongoing discussions on national RIs among various ERI stakeholders and within multiple working groups and initiatives, SERI presents in this paper its **reflections on the current situation and identifies key challenges that need to be addressed to build a more coherent national system, providing a basis for further discussion.**

The following two overarching objectives are in the interests of all ERI stakeholders and therefore guide SERI's actions. The aim is to ensure that:

- Swiss researchers and innovators benefit from access to state-of-the-art RIs, reinforcing Switzerland's strong position in research and innovation on the international stage;
- the funding instruments and infrastructure portfolio cover the diverse needs and specific requirements of RIs;
- an efficient and transparent system is in place for the evaluation, coordination and funding of national RIs.

Basis for reflection

This paper draws on SERI's experience with the Swiss Roadmap for Research Infrastructures and its role as a funder of RIs of national importance under Article 15 of the Federal Act on the Promotion of Research and Innovation (RIPA). It also builds on previous work conducted within the Round Table on the Swiss Roadmap for RIs and incorporates insights from the following papers:

- Swiss Science Council (SSC): a) Terminological and strategical analysis of the concept of research infrastructure (January 2023);¹ b) Recommendations by the SSC on Education, Research and Innovation for the years 2025 to 2028 (August 2023)²
- Swiss National Science Foundation (SNSF): Reflexion and discussion paper – Research Infrastructures in Switzerland (September 2023)³
- Open Research Data Strategy Council: Concept Paper – Research Data Infrastructures: a distinct characteristic in research infrastructures (October 2023)⁴
- European Strategy Forum on Research Infrastructures (ESFRI): a) Report on Funding of Research Infrastructures (June 2024)⁵; b) ESFRI's Position Paper on the Infrastructure Ecosystem (September 2026)⁶
- Swiss Centre of Expertise in the Social Sciences/Swiss National Data and Service Center for the Humanities: Discussion Paper – Towards a Sustainable Swiss Research Infrastructure Policy, Funding and Governance Framework (February 2025)⁷
- swissuniversities: Strategic Vision on National Research Infrastructures (RIs) in Switzerland (December 2025)⁸

¹ [2023_SSC_Report_Lepori_and_Cavallaro.pdf](#)

² [2023_SSC_Stellungnahme_BFI_Botschaft.pdf](#)

³ [SNSF-White-Paper-on-Research-Infrastructures.pdf](#)

⁴ [Concept-Paper-StraCo_V4_2023-10-23-5.pdf](#)

⁵ [ESFRI Report: Funding of Research Infrastructures](#)

⁶ [ESFRI's Position Paper on the Infrastructure Ecosystem | Zenodo](#)

⁷ [Discussion Paper: Towards a Sustainable Swiss Research Infrastructure Policy, Funding and Governance Framework](#)

⁸ [251203_swissuniversities_Strategic_Vision_v.1.pdf](#)

Background

International and national RIs are becoming increasingly important as they are crucial for addressing the growing complexity and scale of modern scientific research. They facilitate collaboration, support emerging technologies, and ensure that research can meet future challenges.

Role of SERI

As the ministry responsible for education, research, and innovation, SERI plays a central role in shaping Switzerland's research and innovation (R&I) landscape. Its responsibilities include:

1. **defining and promoting attractive, internationally competitive framework conditions** for research and innovation in Switzerland, including the necessary legal framework such as the Federal Act on the Promotion of Research and Innovation (RIPA) and the Federal Act on the Funding and Coordination of the Swiss Higher Education Sector (HedA);
2. **maintaining a comprehensive strategic overview** of the entire R&I system to ensure coherence and long-term sustainability through the ERI Dispatch, with a specific focus on the effective coordination of national and international support mechanisms for R&I (e.g. Swiss Roadmap for RIs).

Within these responsibilities, SERI acts as an enabler in the R&I landscape to ensure that:

- appropriate instruments are in place and continuously adapted to meet evolving needs;
- evaluation and funding procedures are developed transparently, based on clearly defined criteria;
- cross-cutting coordination among ERI actors takes place on overarching topics (such as RIs), while respecting the autonomy of Higher Education Institutions (HEIs).

SERI takes into account the diverse positions and interests of stakeholders across the ERI landscape, fostering inclusive and evidence-based policy development.

Alongside its two primary responsibilities outlined above, SERI also has the **role of funder of RIs of national importance** under Article 15 of the RIPA.

The Swiss RI ecosystem

The Swiss RI ecosystem, along with its associated processes, is both diverse and complex. In principle, the various instruments and ERI actors perform distinct functions as shown below.

Table 1: Types of RIs, the associated evaluation and prioritisation process, and the role of ERI actors in implementation and funding

Type	Sub-type	Evaluation and prioritisation	Implementation/Funding
National RI	On Swiss Roadmap for RIs	Roadmap Part I	- HEIs (ETH and cantonal universities): core funding - SNSF: additional funding
	<i>Subset: Large-scale infrastructures</i>		- <i>ETH Domain</i>
	Not on Swiss Roadmap for RIs	Specific evaluation procedures	- HEIs (ETH and cantonal universities): core funding - SERI: subsidiary funding under Art. 15 RIPA (max. 50%) - SNSF: specific RIs/projects
International RI	Distributed/networks – attached to national RI (e.g. ERICs with national node)	Roadmap Part II	- SERI: ministerial representation and financing of membership fees - Funding of national node equivalent to national RI (core funding via HEIs, additional funding via the SNSF/SERI)
	Single-sited	Roadmap Part III	- SERI: core funding

For national large-scale infrastructures in the ETH Domain (such as the Swiss Light Source operated by the Paul Scherrer Institute and the Swiss National Supercomputing Centre operated by ETH Zurich) as well as for single-sited international RIs (such as CERN and the European Southern Observatory) the roles and responsibilities are clearly defined. As such, they are not the focus of the considerations in this paper. Other parts of the national RI ecosystem require attention, as the Round Table discussions have shown. Table 2 outlines the challenges and the work currently under way.

Table 2: Challenges to be addressed and associated ongoing work

Type	Challenge	Ongoing work
National RI	- Planning and coordination among cantonal universities, including alignment with the ETH Domain. - Coordination between university-based funded RIs and those of the federal government (Art. 15 RIPA – evaluation and prioritisation not through Swiss Roadmap for RIs). - Funding by the SNSF: possible funding gaps in the research infrastructure ecosystem that fall within the responsibility of the SNSF, including clarification of the types of costs that can be covered.	- swissuniversities: working group - SERI: mandate for evaluation of instrument Art. 15 RIPA - SERI: mandate to the SNSF⁹
Distributed international RI networks – attached to a national RI (e.g. ERICs with national node)	Planning and coordination between strategic and funding decision for national RIs (by HEIs), additional funding by the SNSF/SERI and decision by Federal Council regarding membership.	To be discussed between HEIs, the SNSF and SERI

Core principles

The initiatives launched by SERI (see Table 2) are underpinned by core principles deemed important for the sustainable development of national RIs:

a) Federal funding is provided by SERI

- **on a subsidiary basis** (max. 50%) for national infrastructures via Article 15 of the RIPA or indirectly via the SNSF
- **on a core funding basis** for international infrastructures (via international treaties) and for national infrastructures within the ETH Domain (via global budget)

The distributed international RI networks attached to national RIs (primarily ERICs) are a special case: the membership fee is covered by SERI, core funding for the national node by the HEIs, and additional funding by the SNSF/SERI.

Federal funding is based on the outcome of the Swiss Roadmap process for RIs, the strategic multiannual planning in the ERI Dispatch and the corresponding budgetary framework adopted by the Parliament.

b) Cantonal HEIs and ETH Domain are responsible for the strategic decisions and long-term financial commitments related to the establishment and maintenance of national RIs. In this context, swissuniversities has commissioned a working group to develop the basis for coordination and selection among HEIs with associated new governance.

⁹ Mandate "Concept for the support of research infrastructures by the SNSF": https://www.sbf.admin.ch/dam/de/sd-web/UZhK6Qlj1UT3/300625_Man-dat%20SNF%20Konzept%20FIS-sig_signiert.pdf

Need for common guiding principles

The national RI ecosystem is shaped by multiple ERI actors. To ensure its coherent development and the efficient use of resources, SERI emphasises the importance of jointly developing guiding principles, anchored in the overarching vision: **Ensuring access to high-quality research infrastructures to reinforce Switzerland's position as a leading research and innovation location.**

The following key components and associated questions should be addressed:

Joint policy

How can RIs be coordinated at national level and how can they be implemented at institutional level? How can resources be effectively pooled to establish internationally competitive and attractive RIs? Is Switzerland well set up to compete internationally? How could the prioritisation process be better linked to funding and governance?

System simplification and efficiency

How can the evaluation, coordination and funding process for national RIs be simplified and made more transparent, based on the outcomes of the Round Table on the Swiss Roadmap for RIs? What measures can be taken to streamline both the organisational framework for RIs and operational efficiency?

Collaboration and coherence

How can collaboration between RIs be promoted to exploit synergies and reduce duplication? How can strategies be implemented to strengthen collaboration between RIs and industry, thereby accelerating knowledge transfer?

Innovation and internationalisation

How can the impact of national investment in RIs be valorised and maximised to foster innovation and practical applications? How can the impact and role of RIs be used to strengthen the international positioning of the Swiss R&I sector?

Agile planning for emerging fields

What governance and funding models are needed to enable agile planning and timely adaptation of RIs in fast-evolving research and innovation domains such as AI?

Financial sustainability

How can long-term funding be secured across the lifecycle of an RI – from concept development to termination? How can the variety of financing models cover the operational costs? How can user fees contribute to the financial sustainability of RIs?

Monitoring

How can a coherent monitoring framework be applied? What are the key performance indicators (KPIs) for measuring success?

Need for the development of a framework for the evaluation, coordination and funding of national research infrastructures

Based on the above-mentioned common guiding principles, a framework for the evaluation, coordination and funding of national RIs should be established to clarify the specific roles of each actor, enhance transparency, and enable a more coherent and strategic approach. To strengthen the overall system, SERI proposes the following points for consideration:

- a) **Definition and criteria:** discussion papers and working groups around RIs should consistently use the same definition of research infrastructures and associated terms. As part of the Round Table on the Swiss Roadmap for RIs, a glossary was developed (see Annexe I – Outcome of the Round Table on the Swiss Roadmap of RIs). SERI encourages the use of this glossary as a common reference. If needed, the definitions can be refined and complemented. A key issue to address moving forward is identifying which RIs warrant coordination at national level. Although the term 'national importance' is frequently used in this context, its definition remains ambiguous and is applied inconsistently. The glossary developed through the Round Table process offers an initial definition. It is essential that the key elements of the definition are aligned, coherent, and consistently applied across instruments. Any further clarifications or criteria should be jointly developed and agreed upon by SERI and the ERI stakeholders, given that they will form the basis for several strategic processes, including the Swiss Roadmap for RIs. However, while the overarching definition should remain consistent, differences in emphasis and weighting may arise to reflect the distinct objectives and functions of individual instruments. Figure 1 provides a visual representation of how national importance could be defined.

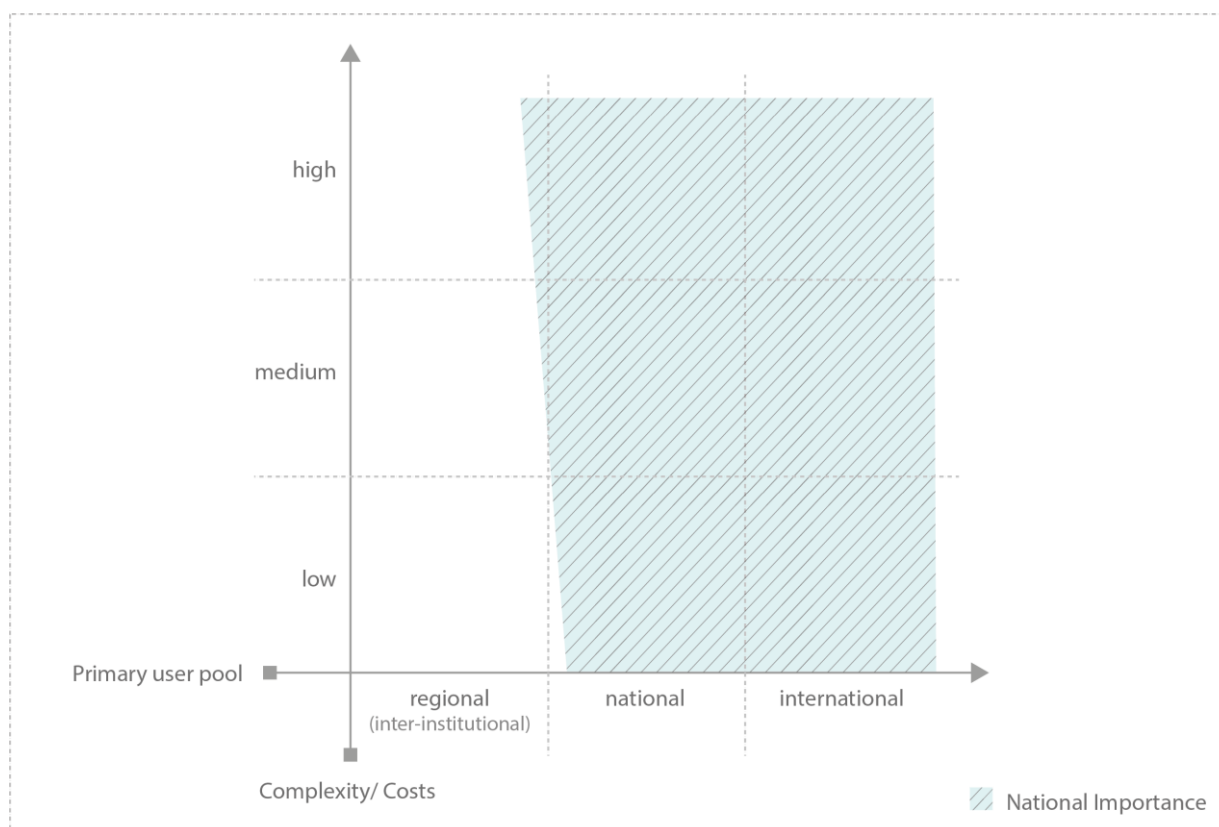


Figure 1: Visual overview of the research infrastructure ecosystem, incorporating a possible identification of RIs of national importance requiring national coordination

- b) **Funding role:** HEIs are identified as the primary funders of national RIs. Significant co-funding is provided through federal instruments, including those managed by the SNSF and SERI. It is imperative to uphold the principle that federal funding is allocated on a subsidiary basis, reserved for infrastructures of clear national and international importance. This funding model ensures that RIs of national importance receive the necessary visibility and recognition at national level, while institutional funding reinforces ownership

and long-term commitment by HEIs. As the primary hosts of researchers who utilise these infrastructures and generate value from them, HEIs play a pivotal role in strengthening the national RI ecosystem.

The above-mentioned principle should be also consistently applied to the funding of national RIs fulfilling the role of a national node for a distributed international RI network (such as ERICs). While the funding of national RIs is the primary responsibility of HEIs, with the SNSF/SERI potentially providing additional funding, SERI is responsible for the ministerial representation and the funding of the membership fee for international RI networks.¹⁰

- c) **Funding/business models and governance:** Clarifying the funding roles should go hand in hand with the joint development of a comprehensive framework that defines:
- sustainable funding models with a viable business model;
 - potential legal structures; and
 - effective governance mechanisms for national RIs.

An overview of existing funding models and their associated legal and governance structures is needed to identify best practices and establish guiding principles. The current absence of such a framework contributes to a fragmented RI landscape and creates uncertainty regarding the establishment and long-term sustainability of future infrastructures.

In addition to core funding, national RIs should be able to define a viable business model in which the use of their services contributes to financial sustainability. This requires researchers receiving project-based funding that explicitly covers the costs of infrastructure usage¹¹. Moreover, the use of national RIs should be actively promoted by research institutions and funding bodies to enhance their visibility, increase utilisation, and strengthen their overall value proposition within the R&I ecosystem. The quality label attributed through the Swiss Roadmap for RIs could serve as a valuable instrument for such promotion, signalling excellence and relevance at national level.

- d) **National coordination setup:** Effective coordination among ERI stakeholders is essential for ensuring that resources are used efficiently and that Switzerland implements the most impactful RIs. Achieving this requires:
- establishing a shared understanding of development priorities within the Swiss RI ecosystem to foster coherence and strategic alignment across the landscape. SERI considers the national RI inventory currently being developed by swissuniversities a key instrument for identifying and defining these priorities. How the coordination gap between the inventory and potential White Papers and Landscape Analysis can be bridged will need to be addressed as part of the Roadmap process.
 - strengthening collaboration among ERI stakeholders in the planning, development, and operation of RIs.
- e) **Monitoring and impact:** The funding of RIs should be linked to specific objectives and associated indicators, taking the lifecycle of RIs into account. Decisions regarding the continuation of funding for existing RIs must be based on a robust and well-founded evaluation of whether these objectives have been achieved. While the current Swiss Roadmap for RIs provides a framework for evaluating new infrastructures and major upgrades, it does not yet encompass the ongoing assessment of existing RIs. SERI considers the establishment of a harmonised and regular monitoring and evaluation process for existing national RIs essential to ensuring the targeted and coordinated development of the Swiss RI ecosystem. In this context, the ESFRI monitoring framework may serve as a valuable source of inspiration.

¹⁰ Decisions on memberships are taken by the Federal Council. Membership fees are covered by SERI.

¹¹ Clarification of cost types to be covered by the SNSF as part of the Mandate "Concept for the support of research infrastructures by the SNSF": https://www.sbf.admin.ch/dam/de/sd-web/UZhK6Qlj1UT3/300625_Mandat%20SNSF%20Konzept%20FIS-sig_signiert.pdf

Conclusion and way forward

Research infrastructures (RIs) play a vital role in enabling cutting-edge science and innovation, fostering collaboration, and ensuring Switzerland's competitiveness in the global research landscape. Different types of RIs are supported by distinct national funding instruments/streams, each fulfilling specific roles. SERI considers it essential to maintain a diverse set of funding instruments for RIs to address their varied needs and the different roles of actors within Switzerland's ERI landscape. At the same time, greater cooperation among funders, combined with a national framework for evaluation, coordination and funding, would provide a stronger foundation for the sustainable and future-oriented development of research infrastructures.

This paper identifies the key gaps that should be addressed: the need for common guiding principles for RIs; defining coordination and prioritisation mechanisms; and clarifying funding roles and responsibilities among ERI actors and SERI. A shared understanding of what constitutes a RI of national importance, along with clearly defined funding models, coordination structures and monitoring frameworks, offers a vital opportunity to enhance efficiency, strengthen governance, and unlock synergies.

In response, SERI has initiated some reforms in collaboration with various ERI actors to support the development of cohesive and comprehensive portfolios that promote excellent RIs across the entire system. In this context, SERI launched the following initiatives:

- firstly, mandated the SNSF to develop a concept for promoting RIs within its remit. The aim is to: a) establish a comprehensible scientific evaluation framework for RIs; and b) assess whether a given type of infrastructure is not funded in Switzerland and should be by the SNSF, together with reflections on which costs the SNSF can cover. This process must be coordinated with the funding mechanisms of universities and other ERI actors, in view of the forthcoming ERI Dispatch 2029–2032.
- secondly, has initiated an external evaluation of Article of the 15 RIPA funding instrument, which falls under its own remit. The findings from this analysis must be incorporated and reassessed within the overall framework in preparation for the next ERI Dispatch 2029–2032.
- thirdly, launched the reform of the Swiss Roadmap process for RIs (see Annexe II). In this context, the universities work together with the federal funding body, the SNSF, to develop proposals for their selection process and an improved coordination process.

These three initiatives are underpinned by core principles that SERI deems critical for the sustainable development of national RIs:

- HEIs bear primary financial responsibility for the establishment and maintenance of national RIs.
- Federal funding by SERI or indirectly through the SNSF is provided on a subsidiary basis.

This model ensures a balanced interplay between institutional ownership and broader visibility, thereby reinforcing both national positioning and international recognition.

SERI, responsible for preparing optimal framework conditions for Switzerland's R&I sector, is committed to improving the overall framework together with the ERI actors. To move forward, a broad, inclusive dialogue among all ERI actors is essential – one that leads to common guiding principles, clear governance arrangements, harmonised evaluation criteria, and a sustainable, transparent funding model. In its role as both the ministry and funder of RIs, SERI will actively contribute to this dialogue.

Annexe I – Outcome of the Round Table on the Swiss Roadmap for RIs

Round Tables (RTs) on the Swiss Roadmap process for RIs were initiated in 2023 with the aim of clarifying the expectations, needs and governance for the planning process. Key topics include:

- defining the role of the different ERI actors within the RI ecosystem;
- establishing a definition of RIs;
- reflecting on improving the planning process of the Swiss Roadmap together with the universities.

Furthermore, a glossary of key terms was established and acknowledged by all RT stakeholders. These definitions should be used as a basis for future discussions and further refined if necessary.

Term	Definition	Function
Research Infrastructure (RI)	“Research infrastructures are facilities, resources and services that are used by the research communities to conduct research and foster innovation in their fields” ¹² .	Distinguished according to criteria ¹³ allowing tailored evaluation and governance within a strategic planning process. Compatible with the European definition: ¹⁴ “‘research infrastructures’ mean facilities, resources and services that are used by the research communities to conduct research and foster innovation in their fields. Where relevant, they may be used beyond research, for example for education or public services. They include major scientific equipment or sets of instruments, knowledge-based resources such as collections, archives or scientific data, e-infrastructures such as data and computing systems and communication networks, and any other infrastructure of a unique nature essential to achieving excellence in research and innovation. Such infrastructures may be ‘single-sited’, ‘virtual’ or ‘distributed’”
National importance/relevance (of an RI)	National and international significance of a research infrastructure for the development of a research area defined as strategically important at national level, with the aim of providing research communities in Switzerland with opportunities for scientific leadership.	
Roadmap	A national and long-term strategic planning and coordination tool, combining top-down and bottom-up approaches.	To take inventory of existing research infrastructures and to identify, prioritise, and evaluate potential future research infrastructures or investment domains to achieve a coherent landscape of research infrastructures of national relevance.
Inventory	A list (or several lists for different clusters) of operating research infrastructures in Switzerland and of international research infrastructures that are relevant to Swiss research. <i>Note: Platform by swissuniversities has an inventory-function.</i>	To create a common understanding of existing infrastructures among ERI actors. Resource to inform the decisions of the ERI actors (funding, evaluation, etc.) Basis for landscape analysis. Showing the “ supply side ” of RIs.

¹² Article 2(6) of the Regulation (EU) No 1291/2013 of 11 December 2013: ‘Establishing Horizon 2020 – the Framework Programme for Research and Innovation (2014- 2020)’.

¹³ Functions of Research Infrastructures can be distinguished according to several criteria, such as: spatial location (single-site, distributed, virtual); scientific fields; objectives (resolving a specific scientific problem, resolving many scientific problems, etc.); cost (low, medium, high) and cost distributions (CAPEX/OPEX); funding sources (the LERI provides a typology of RIs according to their related funding sources i.e., the Academies, the SNSF, Art.15, etc.) or characteristics (Research Facility Infrastructure RFI, Research Data Infrastructure RDI, and/or Coordination Platform

¹⁴ [Regulation \(EU\) No 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020 - the Framework Programme for Research and Innovation \(2014-2020\) and repealing Decision No 1982/2006/EC Text with EEA relevance \(europa.eu\)](http://data.europa.eu/eli/reg/2021/695/oj) Article 2(6); in the meantime the European definition has been slightly adapted: <http://data.europa.eu/eli/reg/2021/695/oj>

White Paper	Reports by the research communities to provide for a (possible) landscape analysis and to inform the decision-makers within the higher education institutions in a concise manner about the situation, future needs, and expectations with regard to research infrastructures in a given scientific field (focusing on the demand side).	Needs assessment of research communities showing the “ demand side ” of RIs.
Landscape Analysis	Analysis that examines how an individual research infrastructure or research infrastructure within a cluster responds to the needs of the research communities. It does this by identifying interconnections, potential gaps, overlaps or bottlenecks between research infrastructures or clusters of research infrastructures.	A relevant tool for assessment and decision-making. This analysis is based on the inventory and the White Papers (supply vs. demand) but can also include further information and needs that are deemed to be relevant for the analysis (foresight etc.).

Annexe II – Evaluation of legal basis

The legal basis providing the framework for the RI ecosystem is as follows:

- [Federal Act on the Promotion of Research and Innovation \(RIPA\)](#)
- [Ordinance to the Federal Act on Promotion of Research and Innovation \(RIPO\)](#)
- [Federal Act on the Funding and Coordination of the Swiss Higher Education Sector \(HedA\)](#)
- [Federal Act on the Federal Institutes of Technology \(ETH Act\)](#)

An evaluation of the legal basis regarding: a) coordination; b) funding; and c) evaluation of research infrastructures is provided below.

Coordination

Several articles of the aforementioned legal frameworks provide insight on the object and method of coordination of RIs.

a) The ETH Act – the role of the ETH Domain

Article 3 of the ETH Act stipulates that the **two federal institutes of technology and the four research institutes within the ETH Domain** and the other **higher education institutions** (HEIs) must coordinate their activities and participate in federal coordination in the higher education sector and research. Furthermore, they are involved in higher education policy coordination and task sharing, in particularly **cost-intensive areas**.

a) The RIPA – the role of SERI

Regarding coordination in general, Article 41 of the RIPA states:

¹ *The Federal Council shall ensure that federal funding for research and innovation is used in a coordinated, economical and effective manner.*

² *If cooperation cannot be achieved through self-coordination, the Federal Council shall take the required measures. To this end, it may in particular give existing commissions specific coordination tasks or set up special commissions.*

³ *It checks, periodically or when required:*

- a. the coordination between national and international support for research and innovation;*

Regarding research infrastructures, Article 41 paragraph 4 of the RIPA states that the Federal Council “*shall take the required measures for the coherent coordination of the Confederation’s **international** support for research and innovation, particularly regarding **cost-intensive research infrastructures**, with: a) development planning within the Federal Institutes of Technology Domain; and b) national coordination of higher education policy and division of tasks in particularly cost-intensive fields.*”

Article 41 of the RIPA does not define what cost-intensive research infrastructures mean. Article 41 paragraph 4 letter b, however, refers to the national coordination of HEIs in cost-intensive fields, which are defined in the HedA.

b) The HedA – the role of HEIs

According to Article 40 paragraph 2 of the HedA, an area is to be considered particularly cost-intensive if the expenses for this area ‘make up a significant portion of the total expenditures in the Swiss higher education sector’. It is the responsibility of the Higher Education Council to determine the particularly cost-intensive areas upon the request of swissuniversities, as well as the division of tasks (Art. 40, para. 1 HedA).

Conclusions:

- Research infrastructures are not defined as cost-intensive areas under the HedA. Given this and the fact that the definition of 'cost-intensive' in the HedA does not automatically apply to the RIPA, it remains open what 'cost-intensive' specifically means in the context of coordinating research infrastructures as outlined in the RIPA.
- The task distribution for the coordination of national research infrastructures is defined in the legal basis as a self-coordination-task of the HEIs. If self-coordination cannot be achieved, the Confederation (SERI) has a role in organising the coordination process between ERI actors and can assign coordination tasks to existing commissions or set up special commissions.

Funding

Funder	Legal basis
HEIs	The RIPA states that the primary funding responsibility lies with the HEIs (subsidiary role of funding by the Confederation/SNSF)
SERI	<u>Article 15</u> of the RIPA stipulates that the Confederation makes contributions to research facilities of national importance, which for research infrastructures are defined as “non-commercial research infrastructures <u>based outside higher education institutions</u> or which are <u>associated with them</u>, in particular auxiliary scientific services in the field of scientific and technical information and documentation”. For research infrastructures according to Article 15, the federal funding amounts to a <u>maximum of 50%</u> of the total expenditure for investments and operations; the contribution is complementary to support provided by cantons, other public institutions, HEIs or private persons and legal entities.
	<u>Article 41</u> of the RIPA stipulates: “It shall coordinate the planning and implementation of national support initiatives in the field of research and innovation which, due to their organisational and financial consequences <u>cannot be implemented within the standard support activities</u> of the research funding institutions and Innosuisse”.
	<u>Article 28</u> RIPA: 1 The Confederation shall support Swiss international cooperation in research and innovation to <u>better position Switzerland as a location for research and innovation, to promote the Swiss higher education sector and to further business, social and environmental interests</u>. 2 In the context of the overall goals for Switzerland's international research and innovation policy, it may promote: a. Switzerland's participation in the development and operation of international research facilities and internationally coordinated research infrastructures;
	<u>Article 29</u> paragraph 1 letter b of the RIPA states that the Federal Council may make “contributions to the following institutions, to enable or facilitate Swiss participation in the experiments and schemes of international organisations and programmes: higher education research centres, ...”

SNSF	<u>Article 10</u> of the RIPA states: “ research infrastructures which serve the development of fields of expertise in Switzerland and which are <u>not within the remit of the higher education research centres or the Confederation</u> ”.
Swiss Academies of Arts and Sciences	<u>Article 11</u> of the RIPA states: “They may support data collections, documentation systems, scientific journals, publications, or similar institutions, which serve as useful infrastructures for the development of fields of expertise in Switzerland and which <u>do not come under the remit of the SNSF or the higher education research centres or do not receive direct support from the Confederation</u> .”

Conclusions:

- The terminology used to describe research infrastructure funding across various articles is inconsistent and open to interpretation.
- The objectives of the different RI funding instruments – and consequently the roles of the respective funders – are formulated in broad terms, allowing flexibility.

Evaluation

Based on Article 55 paragraph 1 of the RIPO, SERI is responsible for the planning instrument adopted under the name ‘**Swiss Roadmap for Research Infrastructures**’:

*“1 SERI shall produce, periodically or as necessary, a **report for the Federal Department of Economic Affairs, Education and Research (EAER) on the status and development of research infrastructures, particularly of large international research facilities and other internationally coordinated research infrastructures in which Switzerland is involved.***

..

*2 When so doing it shall consult the research bodies and federal offices affected and, as necessary, the SSC, and **ensure the necessary scientific expertise.**”*

Conclusion:

- The Swiss Roadmap for RIs has the primary focus of providing an update on the status of development of international RIs and Swiss participation in internationally coordinated RIs. Providing an update on the status and development of national RIs is not specifically required.
- The organisation of the evaluation and the criteria to be applied are not specified.