The ENVRI Innovation Resources Toolbox: A New Initiative by the ENVRINNOV project to support Innovation by and for the ENVRI community

The ENVRINNOV project is excited to introduce the **"ENVRI Innovation Resources Toolbox"**, an essential component of a new Innovation Resources section for the ENVRI community to be hosted on the ENVRI-HUB.

The toolbox represents a bottom-up approach, as it is planned to be co-designed by the ENVRI community for the benefit of all ENVRI stakeholders. Specifically, the toolbox is being developed by the ENVRINNOV project consortium, which includes RIs from all four ENVRI subdomains at varying maturity levels, to serve as a dynamic resource, supporting innovation and collaboration across the ENVRI community. A first draft of the toolbox has been put together by the ENVRINNOV Consortium. To develop it further, the ENVRINNOV consortium plans to incorporate input from the wider community, to ensure that the final result meets the diverse needs of all ENVRI stakeholders.

The ENVRI Innovation Resources Toolbox initiative is part of the ENVRINNOV project. The ENVRINNOV project is working towards co-designing, testing, and validating an Innovation Roadmap for the ENVRI community. This roadmap will set a pathway to establish and operate an ENVRI Innovation Hub (EIH), that will support the development of advanced technologies and services. Among the project's key objectives are conducting a landscape analysis in the ENVRI ecosystem to identify needs and gaps in regards to innovation services, the definition and promotion of innovation strategies and the implementation of co-creation mechanisms between ENVRIs, industry, and the scientific community, all by engaging with the European Strategy Forum on Research Infrastructures (ESFRI) and Research and Innovation (R&I) ecosystems. More information and updates about the ENVRINNOV project can be found [here](#).

Why is it important to boost Innovation in ENVRIs?

As noted by the "ESFRI Strategy Working Group on Environment" in their Landscape Analysis of the environment domain, engaging ESFRIs on a coordinated innovation path is critical for better filling their current and future technological development needs and service gaps. Whilst several ENVRIs have consistently engaged with aspects of innovation within the scope of past projects, innovation has not yet been substantially addressed in a coordinated manner within the Environmental domain. Considering the previous needs and outlined in previous ENVRI-cluster initiatives ([ENVRI-FAIR](#), [ENVRI PLUS](#)) and to further advance these efforts, ENVRINNOV is moving forward towards the creation of the ENVRI Innovation Hub (EIH), to strengthen the existing framework and facilitate the establishment of a centralized hub to drive innovation for and by the ENVRI community.

Defining Innovation

By innovation, in the context of this initiative, we mean the process through which new or considerably improved products, services, technologies, methods, business models, or other solutions are brought about.

More specifically, the ENVRINNOV project is in line with the interpretation of innovation as "invention + adoption", meaning that it considers the whole innovation process, including idea generation, R&D and commercialization or other type of exploitation.

ENVRINNOV is also aligned with the EU strategy of Open Innovation, which promotes opening the innovation process to people with experience in fields other than academia and science. This implies that an organization doesn't only rely on their own internal knowledge, and resources to drive innovation, but also uses external sources (through collaboration with the private sector, or feedback from end-users), at any stage of the innovation process (see Figure 1, Table 1).
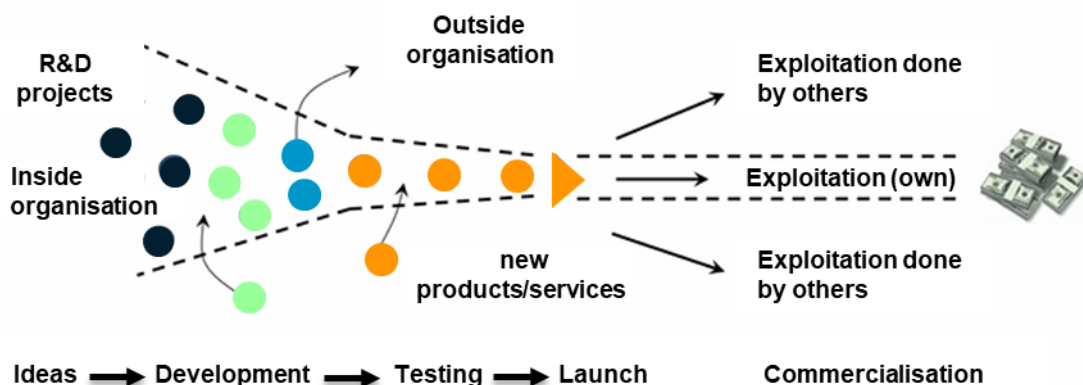

Figure 1. Open innovation funnel model
(adapted by Chesbrough, Henry. (2003). Open Innovation: The New Imperative for Creating and Profiting From Technology.)

Table 1. Comparison of closed and open Innovation characteristics (adapted by Chesbrough, Henry. (2003). Open Innovation: The New Imperative for Creating and Profiting From Technology.)

Aspect	Closed innovation	Open innovation
Idea Generation	Internal R&D only	Both internal and external sources
Development	Entirely within the organisation	Collaboration with external partners
Commercialization	Marketed and sold by the organisation alone	Includes joint ventures, licensing, and partnerships
Control	High control over IP and processes	Shared IP and collaborative processes
Speed	Potentially slower due to reliance on internal resources	Typically, faster due to external inputs and collaborations
Resource Utilisation	Limited to internal capabilities	Leverages external expertise and technologies

The ENVRI Innovation Resources Toolbox

The ENVRI Innovation Resources Toolbox will be a component of the ENVRI Innovation Hub (EIH) and will provide open access to a range of innovation tools and resources, designed to support and enhance the work of the entire ENVRI community in dealing with innovation activities. To ensure the Toolbox meets its community's diverse needs, it will be developed with active input, testing by and feedback from the ENVRI community but also key innovation ecosystem stakeholders (private sector, public sector, policymakers).

The toolbox will include a wide array of tools, guidelines, best practices and methodologies tailored to address the unique challenges faced by the ENVRIs trying to adopt the overall innovation process. Therefore, support is essential throughout the innovation process: from concept generation, the creation of partnerships, technology development and technology transfer, to commercialisation. Establishing methods of industrial engagement is crucial to bridge the gap between research and the market.

The toolbox will be useful to all ENVRI community members either individual RIs or RPOs, and to staff of various roles such as researchers, scientists, managers, officers or any other personnel whose work is involved with the adoption of new technologies and services or engagement in innovative projects. It will be particularly beneficial for those in roles such as Industrial Liaison Officers (ILOs), Industrial Contact Officers (ICOs), Outreach and Communications Officers, Project Coordinators and Managers, Policy Advisors and more.

Once launched, the Toolbox, complemented by additional Innovation supporting features in the ENVRI-HUB such as the ENVRI Catalogue of Services and the ENVRI Innovation Training Program, will serve as an essential platform for fostering innovation, offering tools and resources that can be utilized by a wide range of professionals and organizations within the environmental research infrastructure community.

Toolbox Contents

The first offline draft of the ENVRI Innovation toolbox has been recently developed, and its preliminary content structure is outlined below.

1. **Collaboration tools:** Resources to support the facilitation of collaborations with different types of stakeholders for innovation purposes, such as:

    - **Collaboration Checklist:** a practical tool with critical steps to consider towards a successful collaboration (e.g. needs assessment, identification of stakeholders, collaboration agreements)
    - **Collaboration canvas:** a practical tool to be used at the stage of initial engagement with partners to help define the what, who, and how of the collaboration
    - **Networking Tools:** including a list of events, conferences, web tools for networking, partners' search and outreach (pan-european, per domain, per technology sector)
    - **Funding opportunities**: relevant to specific collaboration models (e.g. per TRL level, Public-private partnerships, etc.)
    - **Agreement templates:** Collaboration and confidentiality agreements templates and guides, such as Non-Disclosure Agreements (NDA), Memorandum of Understanding (MoU), Data or material transfer agreements
    - **Success stories**: compilation of collaboration success stories from across the ENVRI community to highlight and demonstrate the positive impact ENVRIs had in different sectors.
    - **Innovation self-assessment and step-guide tool**: A practical tool that will assist RIs to initiate and plan new collaborations with partners (RIs/RPOs, companies, governmental bodies) based on the technology or service need, and considering critical points for success (TRL level, development needs, agreements/contacts needs, disclosure and IP protection needs, etc).
    - **Innovation collaboration model's matrix:** A summary of collaboration models that could occur with and within the ENVRI community. Identifying the most relevant model of collaboration can help accelerate initiation and planning of a successful innovation process, as well as facilitate an efficient business plan. It can also assist in considering the different stakeholders that ENVRIs could collaborate with on matters of innovation, as well as the end users of their results. The outline can be shown below:

ENVRI Innovation collaboration models (technology centric)			
Partnerships	**Need**	**TRL**	**Users**
A. Joint R&D Project			
A1. Intra-RIs co-development	New or improving of existing technology or service	Low, medium to high	RIs,RPO, private, governmental agencies
	Combination of existing technologies for scientific services	Mixed	RIs,RPO, private, governmental agencies
A2. Industry-RIs co-development	New or improving of existing technology	Low, medium to high	RIs,RPO, private, governmental agencies
A3. Mixed partners co- development	New or improving of existing technology	Low, Mixed to high	RIs,RPO, private, governmental agencies
B. Contract Research			
B1. Single RI-Industry development	New idea or problem requires solution	Low, mixed to high	Private, society
B2. Industry-Single RI development	New idea or problem requires solution	Low, mixed to high	RIs, society
C. Commercialisation Services			
C1. Single RI / no partnership	Providing scientific service	High TRL	RIs, RPO, private, governmental agencies, society
	Providing access to facilities and know/how	High TRL	RIs, RPO, private
	Providing consultation services	mixed	RIs, RPO, private
C2. RIs-Industry	Licensing, joint venture, spin-off	high	private

2. **Technology Development tools:** Resources supporting the Technology Development process, such as:

- **Technology Readiness Levels (TRLs) assessment tool**. The TRL is a necessary assessment for a specific technology in any innovation process stage, whether you are looking for funding, looking to initiate a co-development partnership, planning further technology development or want to assess your ready-to-market product.
- **Technology Development case studies:** from across the ENVRI community, to highlight success stories and best practices. An open call to gather input from across the ENVRI community will be issued as part of the ENVRINNOV project. Pilot case studies from different subdomains (Atmosphere, Biosphere, Geosphere) focusing on the development of new technologies or services through different modes of collaboration are currently underway as part of ENVRINNOV. More details can be found here, while progress and results will be shared as the ENVRINNOV project moves forward.

3. **Technology Transfer Tools:** Resources to support commercialization or other type of Technology Transfer, and Intellectual Property Rights (IPR) Management, including:
- **Introduction to Technology Transfer** (web resources, guidelines)
- **Agreement templates** (collaboration agreements, confidentiality agreements, material transfer agreements, data transfer agreements, website resources, guidelines)
- **Introduction to IPR Basics** (web resources, available on-line webinars, guidelines)
- **IPR Management** (web resources, available on-line webinars, guidelines)
- **IP in Open Science and Open Innovation guidelines**

4. **Additional Resources:** relevant to Innovation Support, such as:

- **Digital innovation platforms and toolboxes** by other European and global clusters.
- **Labels and standards**: relevant certifications that may enhance trustworthiness to boost collaborations and marketability and facilitate commercialisation.

Get Involved!

The ENVRINNOV project invites participation and feedback from the ENVRI community, to further develop the toolbox and move ahead with digitalizing it on the ENVRI-HUB. Your experiences and feedback would be invaluable in shaping a platform that meets the diverse needs of our community.

In addition to the toolbox, as part of the ENVRINNOV project, we are also developing an updated Catalogue of ENVRI Innovation Services, and an Innovation Training Programme for the ENVRI community.

The aim is for these resources to be specifically tailored to the needs of the ENVRI Community. To ensure this is achieved, pilot runs will be organized for testing with a small group of ENVRI community stakeholders, before moving to a wider launch.

If you are interested in being part of our pilot testing group , providing feedback, or receiving project updates, please complete the form here, to join the project mailing list.

For any other enquiries, get in touch via e-mail with:
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For more information, please visit the ENVRInnov project website.