



**The European Network of Research Infrastructures and Industry for
Collaboration**

H2020 INFRAINNOV-02-2019

Grant Agreement Number: 871112



Deliverable Report:

D1.5 Policy Paper on the sustainability of the ENRIITC Network

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Project Deliverable Information Sheet

ENRIITC Project	Project Ref. No. 871112	
	Project Title: ENRIITC - European Network of Research Infrastructures & Industry for Collaboration	
	Project Website: www.enriitc-project.eu	
	Deliverable No.: D1.5	
	Deliverable Type: Report	
	Dissemination Level: Public	Contractual Delivery Date: 30/06/2022 Rescheduled to: 30/11/2022
		Actual Delivery Date: 30/11/2022
EC Project Officer: Antonio VENTURA		

Document Control Sheet

Document	Title: Policy Paper on the sustainability of the ENRIITC Network	
	Version: 1	
	Available at: OwnCloud	
	Files: 20221130-ENRIITC_Deliverable_1.5_Policy_Paper_on_Sustainability_of_Network-2_final	
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List of Abbreviations

BSBF	Big Science Business Forum
CDTI	Centre for the Development of Industrial Technology
DTI	Danish Technological Institute
EATRIS	European Infrastructure for Translational Medicine
ENEA	Energy and Sustainable Economic Development
ENRIITC	European Network of Research Infrastructure and Industry for Collaboration
ERA	European Research Area
ERIC	European Research Infrastructures Consortium
ESA	European Space Agency
ESFRI	European Strategy Forum on Research Infrastructures
ESRF	European Synchrotron Radiation Facility
ESS	European Spallation Source ERIC
GA	General Assembly
ICO	Industry Contact Officers
ILO	Industry Liaison Officers
PERIIA	Pan-European Research Infrastructure/ILOs Association
SZN	Stazione Zoologica di Napoli
TTO	Technology Transfer Officer
WP	Work Package
WPL	Work Package Leader

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Report on Implementation Process and Status of Deliverable

1. Executive Summary

The ENRIITC project has obtained a large success in terms of uptake of the services provided and visibility at the relevant policy levels. The interest received and the huge commitment of the partners create the conditions for the partners' ambition to further sustain the activities that the project has initiated, beyond the project lifetime.

The ENRIITC Partners believe that a suitable legal form to implement, govern and sustain the envisaged activities on the long term could be that of a not-for-profit association, called the ENRIITC HUB, with a distributed architecture, articulated in national "home bases" nested within the RI ecosystem and governed by the ENRIITC partners, steered by the interest of the relevant ILO and ICO communities, and advised by national and EU policy and industry representatives.

The distributed nature of the ENRIITC Hub network will ensure that both the national (including local and regional) level and the European dimension of the RIs are covered. The network will provide the ingredients, the professional environment and the methodology to leverage concrete connections between the RIs and Industry to bring about substantial impact in the professionalisation of the ICO and ILO roles, economic return and societal impact in terms of cohesion, activation of new career paths, regional cohesion and the shaping of suitable programmes involving the RIs and their industrial ecosystem.

The ENRIITC Hub will thus contribute to the new ERA policy objectives n.7, 8 and 15, and strengthen the potential to realise the vision of many relevant policy shapers and policy makers for enhanced innovation perspectives across the RI ecosystem, by filling a gap in the support measures at the interface between RIs and industry, at the national and EU level.

Under these assumptions, we provide a general model and a short-term sustainability plan of the ENRIITC Hub business, in terms of its potential resources and of the transformation process that would lead to the envisaged value creation. The initial sustainability (transition phase 2023-2024) would be provided by: an MoU-based governance between the project partners and a selection of actors from the associated project partners (60 RI and the PERIIA network); a small budget from membership fees (in cash or in-kind); and the voluntary work contributions by the project partners. The operational phase would start in 2025, with an extended membership base and having secured public and private funding to sustain the fuller activity envisaged for the ENRIITC Hub Association.

The first step in this direction shall be taken with the proposition of a Memorandum of Understanding (project deliverable D1.7) to the associate project partners, including 60 RIs and the PERIIA network, where the interest of the community will be sounded for the continuation of the ENRIITC activities along the prospected pathway, and the constitution of a representative governance and of an initial budget (including in cash and in kind contributions), for the transition phase.

2. Background

What is ENRIITC?

The Horizon2020 project “European Network of Research Infrastructures and Industry for Collaboration” (ENRIITC) kicked off in January 2020 with the aim to boost the innovation ecosystem in Europe around Research Infrastructures (RIs) by building a network of industry officers with the critical mass to act together and engage better with industry.

The RI innovation ecosystem is characterised by a large diversity of players and interests, operating both to maximise return on investment on a relatively short time scale, and to strategically improve competitiveness in science and innovation at the European level. This poses many challenges for a sustainable way of collaboration between research infrastructures and industry. ENRIITC was conceived to respond to these challenges.

ENRIITC is 11 Partners and 60+ registered Associates. This team has established a pan-European link of Industrial Liaison and Contact Officers (ILOs/ICOs) to enable mutual learning, to map collaboration potential between RIs and industry, and to develop and refine strategies and best practices to foster these collaborations. By raising awareness in industry for collaboration opportunities at research infrastructures, the under-exploited innovation potential at RIs will be unlocked and societal and economic benefits will be maximised across the whole innovation value chain.

What has been achieved so far during the project?

- **Creation of an active 500-strong ILO and ICO network:** ENRIITC successfully initiated and established an impressive pan-European initiative of more than 500 members, bridging RI industry officer roles and engaging in industry.
- **Community building:** These members engaged in cross-sector discussions in several different activities such as the ENRIITC Focus Groups, the ENRIITC your Knowledge online training webinars and the hugely successful #ENRIITCyourCoffee series.
- **Networking events:** ENRIITC managed to organise three large physical events (the project kick-off meeting and two brokerage events) and played a key role in defining the agenda for novel initiatives such as the ESS pilot brokerage event at TechConnect Europe (Malmö, 2021) and the ESRF pilot brokerage event at Les Rendez-vous Carnot (Lyon, 2021). Finally, numerous narrow-scope events were organised by the partners and associates.
- **Strategic recommendations for RIs:** ENRIITC has developed a set of recommended key actions for RIs that want to engage with industry (D3.1 and D3.2). The recommendations include preliminary models for interacting with the existing innovation ecosystems around research infrastructures.

Identification of issues to be tackled to improve RI-industry connections:

- The community is diverse, covering many scientific disciplines, countries and types of infrastructure (distributed, single sited),
- The roles of ICO and ILO are often poorly defined and even disconnected from the strategy of the host organisation and this prevents exploiting the innovation potential for co-development,
- A model for implementing the recommended key actions at the RIs needs to be developed,

- RIs remain mainly isolated in the innovation ecosystems and recommendations for how to engage were presented in D3.2,
- The PERIA network has managed to gather European ILOs in an informal network which should be giving a more solid foundation in a joint ILO-ICO sustainable platform,
- ILOs and ICOs face similar challenges and barriers for engaging companies and should learn and interact with one-another. In the innovation area, the issue to exploit the synergies to improve impact is still unresolved. A portal for showcasing RIs’ services tailored to industry is missing, although initiatives have been taken for the environmental domain.

3. The need for ENRIITC

Over the last 2,5 years ENRIITC has shown that there is a need for such a platform, connecting both ILOs and ICOs, and all the stakeholders in the RI ecosystem. ENRIITC is now the only existing platform bringing together all the ESFRI scientific domains to boost innovation through strong collaborations with industry. Moreover, ENRIITC is bridging the gap between the different RIs offering them a place to exchange experiences and strengthen the opportunities to collaborate with industry.

ENRIITC visibility outside the typical RI sphere, engaging with stakeholders from relevant science driven ecosystems, offers opportunities for RIs to demonstrate their high potential and to position themselves as key players in these ecosystems.

A platform like ENRIITC will thus be able to support the implementation of the new ERA on many aspects, and strengthen the EU RI landscape on the innovation and industry aspects.

The platform should therefore be sustained to pursue the efforts, already successfully put in place (training, events, connectivity...), and further enhance the capabilities of RIs to be an engine for innovation.

4. Role of ENRIITC in the new ERA

The new ERA Policy Agenda¹, annexed to the Council conclusions on the ERA governance, sets out 20 concrete ERA actions for the period 2022-2024 to contribute to the priority areas defined in the Pact for Research and Innovation.

In particular, ENRIITC ties in explicitly with a number of actions:

- Upgrade EU guidance for a better knowledge valorization (7)
- Strengthen sustainability, accessibility and resilience of research infrastructures (8)
- Build-up research and innovation ecosystems to improve excellence and competitiveness (15)

In “*Making Science happen*” (ESFRI White Paper, March 2020) ESFRI considers that the following are needed for a stronger Europe:

- *Reinforce the position of Research Infrastructures as an essential pillar of the European Research Area, forming a healthy, sustainable and integrated Research Infrastructure*

¹ ec_rtd_era-policy-agenda-2021.pdf

ecosystem that strives for scientific excellence with impact, and provides transnational services, supporting education and skills development.

- Enhance the role of Research Infrastructures as truly strategic investments across borders of sectoral domains, contributing to European strategic agendas and enabling European research and innovation to address pressing and complex societal challenges.
- Develop and exploit the potential of European Research Infrastructures as knowledge and innovation hubs, integrated into local communities, forming the basis of European competitiveness, with regional impact and global outreach.
- Further strengthen the coherence between European, national and regional priorities and policies for Research Infrastructure development and funding.
- Exploit the potential of Research Infrastructures as major promoters of Open Science providing FAIR (data which meet principles of findability, accessibility, interoperability, and reusability) and quality certified Open Data, supporting their contribution to the success and impact of the European Open Science Cloud and so strengthening their capacity to serve their users.
- Better use the potential of the ESFRI to contribute to the development of coherent Research Infrastructure policy and investment in Europe, ensuring its appropriate capacity to that end.

EIROforum supports these views in its paper “Research Infrastructures: Value and Impact for European Science, Industry and Society”, May 2020);

“[...] RIs are pivotal in sustaining and enhancing the competitiveness and world-class excellence of European science, and have significant value for and impact on European industry, society and economy, as demonstrated by examples in the Annex of this paper. European Research Infrastructures:

- *Harness scientific expertise that drives discoveries and creation of knowledge;*
- *Offer access to researchers from Europe and beyond to the best and in some cases, unique, state-of-the-art facilities;*
- *Enable integration of research communities from all countries in Europe;*
- *Maintain the world-class excellence of European science*

RIs are also drivers of innovation as they need to develop advanced instruments and a variety of cutting-edge technologies. These developments are often done in close collaboration with industry, and lead to both incremental and breakthrough innovation. Knowledge and technology transfer from RIs to industry via collaborative R&D activities, procurement of goods, equipment and services, and the creation of spin-off companies is of significant benefit for European industry. RIs now become key drivers for the continuous cycle of technology developments, which can feed the cycle of innovation well beyond their respective scientific areas. Research Infrastructures provide numerous benefits to European society and economy, either directly, through addressing societal challenges or industrial needs, or indirectly through training and education, as well as knowledge and technology transfer.”

Now also the **European Innovation Council (EIC)** has entered the stage, sharing a vision (April 2020) to:

“[...] disrupt the way the EU supports breakthrough technology and innovation. Rather than playing it safe, EIC funding must accept high-impact ideas, which are usually considered too high a risk for common investments. The EIC must be ready to be patient and accept the failures that are inherent to breakthrough technological research, especially in science-driven deep-tech. This is not about taking “stupid” risks, but taking the investment risk that the market alone will not accept, especially in cases where novel technologies and business models have the long-term potential to bring enormous societal benefits. The EIC must bring together communities of science and entrepreneurship that have been disconnected, or only loosely linked, for too long.”

In its conclusions on 28 October 2022 on the New European Innovation Agenda, the Council “acknowledges the vital role of research infrastructures, technology infrastructures, and testing and experimentation facilities, as regional competence hubs, including the network of European Digital Innovation Hubs, which attract and integrate a broad range of R&I stakeholders in a solution-oriented and multidisciplinary way, facilitate acquisition of new knowledge, accelerate the uptake of new technologies by companies, and function as a catalyst for place-based innovation.

This demonstration a strong correlation between the European Research Area and the European Innovation Ecosystem, where Research Infrastructures have a clear role as interface between fundamental research and innovative uptakes.

And finally, destination #4 of the Horizon Europe Research Infrastructures Work Program is putting a focus on:

“[...] innovative scientific instrumentation, tools and methods, which advance the state-of-art of European RIs, and show transformative potential across scientific domains, serving a wide community of users and/or new areas of research and underpinning the provision of improved and advanced services. Co-development with industry, including SMEs, as well as training of RI staff for the operation and use of new solutions are important aspects. Consideration should be given to the potential exploitation of the innovative solutions at industrial level. Cutting-edge technologies will also enhance the potential of RIs to contribute addressing EU policy objectives and socio-economic challenges.”

ENRIITC has been supporting these views by bringing together the relevant stakeholders to strengthen the community around Research Infrastructures in many countries and domains. Our different community-building activities (meetings, webinars, focus groups, etc.) have been much appreciated, and we think that the community that we have been building has a true added value. It is now time to think about the next steps to sustain this added value to serve the policies of the European Commission.

Based on the results of the project thus far, we identified a number of guiding principles that are important in establishing a sustainable community:

- Research Infrastructures should be regarded explicitly as part of a specific innovation ecosystem on a European scale,
- The uniqueness of this ecosystem is that it can facilitate and support science and innovation along sustainable and long duration value chains, ranging from low to high Technology Readiness Levels (TRLs); from new technology development to technology transfer and product development,
- In order to give these value chains the required continuity and perspective, cooperating partners need to share vision and commitment during the entire life cycle,

- Obstacles to these goals need to be removed on a truly European scale, sharing common standards and a multidisciplinary approach, leading to level playing fields for all partners.

So, actions are required to reinforce the ecosystem of RIs, to support long duration partnerships across borders and domains, and foster the community that gives ENRIITC the added value compared to already existing communities and networks. A new paradigm seems to emerge: there is a demand for more focus on the entire value/innovation chain, the need for more continuity and perspective in partnerships. That also requires a strong vision and commitment during the entire life cycle of collaborations. And to create this, the community should be kept united and supported, across disciplines, across countries and with a strong European and common approach. This is an explicit and strong ambition of the EU that is once more expressed for instance in the upcoming European Innovation Ecosystems program (EIE, 2023-2024).

As a sustainable long-term platform, ENRIITC could play a role in that context to support the EIC Forum (actions in 2023 and 2024):

“The EIC Forum will foster in an informal manner, enabling framework conditions and flows of information, knowledge, talent and best practices among actors of innovation ecosystems and the EIC, to fully harness the potential of innovation. The Forum will act as an interface between the sections of Pillar III of Horizon Europe, ensuring coordination between the EIC and the EIT, as well as with other relevant sections of Pillar I and II. By involving also other relevant Directorates General (DGs) from the Commission, the Forum will aim at promoting a coherent and inclusive approach to EU innovation ecosystems, by co-creating and co-designing policies and instruments.”

5. Anchoring and sustainability: ENRIITC2.0

The activities of ENRIITC, funded by the EC, have clearly met a need in the community to share knowledge and experiences to establish partnerships between RIs and industry. So, now the question arises how to support this community in a next phase to further develop and maintain the policies and instruments to sustain the achievements. Discussions within ENRIITC led to several options that will be discussed in the last chapter of this document. And obviously, it requires a clear mission, vision and strategy.

From what ENRIITC has learned in the past few years a mission has emerged for a possible continuation of the project:

“ENRIITC2.0 will reinforce the ecosystem around RIs by offering a platform for exchange of experiences and practices to all the stakeholders with the aim to promote science-to-business relations and increase the capability of industry to contribute to scientific excellence, across countries and domains.”

ENRIITC2.0 shares the notion that innovation is created in a multidisciplinary environment characterized by a strong commitment and vision of all the relevant partners in a collaboration. In the case of RIs, the big challenge is to sustain and support these often-long-lasting collaborations, from start to finish.

The strategy of ENRIITC2.0 will focus in particular on the RI-industry collaboration. *Areas of intervention* were distinguished, and are presented in the following chapter.

6. Areas of intervention

a. Professionalize the sector and networks

The ENRIITC network fosters two main groups, the ILOs and the ICOs.

Each group has their own specific mandate and activities which are very different from each other. Some ILOs and ICOs have very narrow and targeted activities, whilst others have a wider mandate and flexible approaches, with some ICOs having very much an “intrapreneurial” mandate. The activities of ENRIITC (mainly under WP2) confirmed these differences and identified needs for improvement and professionalization. There is also a strong need to develop mutual understanding of the role and importance of the ILO and ICO functions.

Objectives

- To develop a clear understanding of the scope of the missions/mandates of both roles in order to create awareness of the type of mutual support available within each group.
- To create more systematic exchange between the two groups, and ultimately create a strong network of professionals in order to facilitate the collaboration between RIs and industry by establishing a shared database of contacts (ILOs, ICOs, companies).
- To explore the added value of including the Innovation Procurement Officer (IPO) as a third group to support ILOs and ICOs when necessary.

(1) Industry Liaison Officers

Objectives

- To empower PERIIA as the official representative of EU ILOs.
- To support the professionalization of the ILOs by developing training material and platforms for sharing best practices.
- To assess the potential from expanding the ILO mandate to include the innovation/co-development aspects, and industry using RIs, and thus building a relationship with ICOs.
- To assess the need to expand the ILO role to other ESFRI domains

PERIIA is a recently established European network which organizes the diverse ILO community. The network could be further developed into a sustainable structure and repository for knowledge and training material with the support of ENRIITC.

There is a need to understand how to professionalize ILOs, and recognize the full potential of the role of ILOs. One could envisage the role to evolve to a more global mission where ILOs would support industry as supplier, but also promoting industry as an RI user, RI collaborator, and co-creator from within their national networks with industry. Discussions in ENRIITC showed that the willingness to do so was highly dependent on available funding and the corresponding national mandate.

Synergy can be created between raising georeturn, stimulating georeturn and knowledge transfer (at various levels) which are currently appreciated differently according to the type of ILO employer: the ILOs employed by a governmental agency focus on georeturn, while those employed by public research organizations have a more diverse focus including collaboration and technology transfer. To a certain extent the concept of georeturn favors national return on investment on a relatively small timescale. Innovation models that put more emphasis on co-development and technology transfer might improve trans-national collaborations to boost innovation on a European level.

(2) Industry Contact Officers

Objectives

- Agree on the definition and scope of an ICO.
- Create a network of ICO (similar to PERIA).
- Develop support structure for training and best practice exchange.

It is clear that there is a huge difference in the role of an ICO depending on the nature of the RI (whether distributed or single sited), its maturity, its ambitions with industry and its scientific domain. Time and again in the ENRIITC project, we saw that many RI staff members touch upon different aspects of the ICO role.

There is furthermore a discrepancy in the definition of the ICO role, since the description from the EC topic² includes supplier companies which most often is handled by a separate procurement group at the RI. To add to the confusion, at many facilities, the term ILO (industry liaison officer) actually covers the engagement with industrial users of the RI. Clearly, there is a need to agree on the terms and harmonize the scope and typical job description of the ICO and decide which functions deals with suppliers, users and technology transfer.

Within this, it must be recognized that ICO roles will vary between RIs as mentioned above – no one recipe will fulfil all ICO potential tasks.

As part of this discussion, it should be investigated if a third group should be added to the landscape, namely the procurement officers. Certainly, the biggest challenges will come from distributed RIs or otherwise early stage RIs, which still utilize the administration office of some university or other institution hosting this early stage of development.

Another point that ENRIITC should evaluate is the need and, if any, the approach for an ICO network to exchange best practices and information. One can imagine that such a network could then work hand in hand together with PERIA (representing the ILO network) and an IPO (Industry procurement officers) network (to be agreed and identified) to attract industry towards RIs, whether as a supplier, a user or a co-creator. Having two (or three if agreed) dedicated networks working in partnership as well as together with other stakeholders (EU networks, funding agencies, etc.) could have a strong impact and generate better results overall.

(3) Collaboration models

IPR is a very important topic for companies including whether and how they will be able to use IPR when using an RI. At the moment, the re-use of the ideas coming from RIs in other areas is extremely difficult, as there is no credit for it. ENRIITC could envisage how that could be better functioning proposing capacity building activities on IPR management. Such activities could also explore the possibilities for distributed RIs to group IPR at the coordination office, and develop an RI community of practice (access experts or learn how to do better) available to all the ENRIITC partners.

Finally, distributed data can be shared with industry, but there is a need for proper licensing, work flows for tailoring, etc. There are a lot of questions around this. Models for sharing RI data with industry could be addressed by ICOs, including sharing best practices.

² **Industry Contact Officers (ICO)** are research infrastructure staff in charge of developing business relations with all potential industrial suppliers of innovative components or services as well as encouraging the economical use of their facility by private players

b. Activate the common ground: innovation

Innovation is part of the common area where both ICOs and ILOs can collaborate together and have a direct impact on industry. However, it is clear that innovation can be reinforced through stronger collaborations between ICOs, ILOs and industry. A closer collaboration would provoke more opportunities and ideas across the value chain. However, a clear mandate is still missing.

Objectives

- To raise awareness within RIs on opportunities related to collaboration and innovation as an additional track for RIs going forward (new business/services opportunities, new technologies, etc.)
- To explore the innovation topic further to better understand the possibilities and scope of action for ICOs and ILOs, and for collaboration with industry. To identify synergies and challenges for ICOs and ILOs and develop capacity building activities.

Paths to be explored cover activities related to:

- ✓ Technology and knowledge transfer / exchange
- ✓ Industry-RI co-development for technological and societal innovation
- ✓ IPR management
- ✓ Innovation procurement

(1) Technology and knowledge transfer/exchange

Knowledge transfer from RIs to companies could facilitate innovation. This is currently under-explored for RIs in general, although there are some examples like CERN and ESA which have a very active knowledge transfer program that could inspire other RIs. Depending on the scientific domain of intervention, technology transfer between RIs might also be relevant. It should be noted that exchange of knowledge, rather than only transferring knowledge, can lead to the creation of new knowledge. There is an untapped potential from allowing the (proprietary) technology at companies to solve RI challenges (e.g. in advanced instrumentation) together with the RI.

Intermediate companies that learn the technology and how to use the research facility and provide added value access for industry could also be an element to be further explored.

(2) Co-development

In our ambition to strengthen collaboration between RIs and industry, co-development and co-design have been identified as powerful instruments, with several case studies pointing at the mutual benefits for involved industry and RIs. Co-design and co-development are something that especially SMEs could be interested in, and which RIs can investigate further.

Co-development creates opportunities for companies to develop new markets and thus leads to stronger economic and societal impact.

(3) Spin-out companies

Some RIs have successfully managed to create a huge impact by facilitating spin-out start-ups based on knowledge or technology from the RI. The spin-outs are global players and generate important benefits even outside the RI host region. The spin-offs maintain the engagement with the RI and, thus, benefit the strategic R&D partnerships and international knowledge interactions and spill-overs between industry and the RI. This could be further explored and discussed with other stakeholders such as universities, technology brokers and venture capitalists.

(4) Innovation procurement

The opportunity for future collaboration in the area of patents/IPR could reside, for example, within innovation procurement where one could see discussions/collaborations between the RI procurement and technical teams on what is to be purchased. This could result in identifying needs for specific development, which could involve the technology protection via patents.

c. Integrate into innovation ecosystems

Objectives

- Identify relevant stakeholders (allies) for joint action partnerships towards industry outreach and relationship building (whether as a supplier, user, co-creator)
- Establish channels for engagement with industry on the opportunities/services existing when dealing with RIs (demonstrate the added values)
- To promote the innovation capacities and economic impact of RIs within the RIs but also within the entire innovation ecosystem in order to boost the recognition of RIs as a full partner of innovation

RTOs fulfil a role in the innovation ecosystem and have a good established relationship with industry. Further dialogue with RTOs should assess potential synergies where both parties see the benefit from engaging with each other. From the political level, the EC is pushing for RTOs and RIs to work together, e.g. via EC topics such as HORIZON-INFRA-2022-DEV-01.

Identifying and engaging with clusters, hubs, and industry organizations/associations, etc. in direct contact with or run by industries (e.g. aerospace clusters, incubators, chamber of commerce, association of metallurgy...) should also be explored.

Similarly, universities may be closely engaged with companies and can bridge the gap between RIs and industry. Collaboration could also include discussions with their TTOs to exchange best practices on business models. Research infrastructures already tap into the (well developed) university start-up support systems, especially where the RI has links, as many do, to a local university. However, it must be recognized that the main task of the universities is to spin-out their own technologies – not the technologies of RIs.

Special emphasis should be on SMEs and start-ups (both as users and suppliers) since innovation is often fostered here, while these companies at the same time are experiencing many barriers to enter the Big Science market. SME innovation, especially for low TRLs, is also a prioritized area for the EC. For suppliers, the ILO networks should be used to engage relevant companies.

d. Fast adoption of emerging technologies

Objectives

- To understand how new emerging technologies can be used to increase RI-industry engagement.
- To be aware of the key enabling technologies serving the RIs including A.I., machine learning, digitalization of services.

The RI area have proven to be an effective nurturing ground for emerging break-through technologies such as the touch-display and world-wide-web emerging from CERN. ICOs/ILOs should be aware of future technological developments, e.g. A.I. and machine learning. To be aware of upcoming trends and game changers are important challenges that would help RIs understand the industry needs, and adapt their support in a pro-active manner.

The ENRIITC network can be used to support each ICO/ILO with best practice dissemination, training, exchanges, presentation of latest technologies and their use by RI, by industry, etc. And keep ILOs/ICOs informed on the development, tools, services that can help them fulfilling their role.

Supplementary and topical EC financing should be available to explore and adopt new technologies in collaborations between RIs (ICOs), companies and the surround ecosystems, including ILOs. The ATTRACT funding scheme can be highlighted as a worthy initiative.

All of this translates into possible options for sustainable (business) models to sustain the ENRIITC activities.

7. Sustainability Plan

The ENRIITC Partners believe that this network should continue to be active beyond the project lifetime. In particular, they believe that a suitable legal form to implement, govern and sustain the envisaged activities could be that of a not-for-profit association, with a distributed architecture, which would be called the ENRIITC Hub. The Association would thus be articulated in national “home bases” (the nodes), associated with an RI, preferably a public research institute but also possibly encompassing private partners with a clear connection to the RI landscape (fig.1).

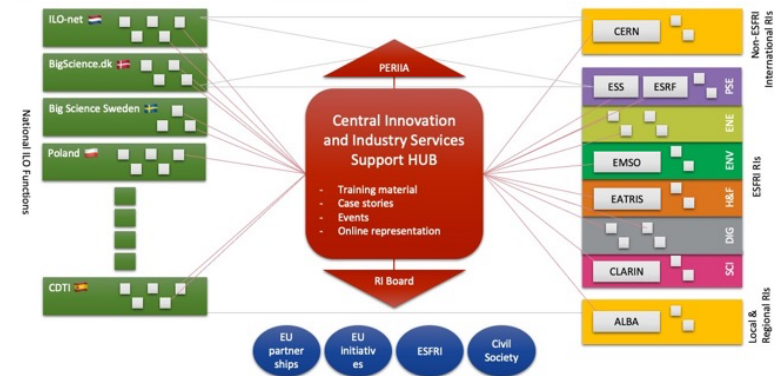


Figure 1: the ENRIITC Hub structure

Under these assumptions, we hereby attempt to model and plan the ENRIITC Hub near-future business, in terms of its potential resources and of the transformation process that would lead to the envisaged value creation.

**Input
The ENRIITC Hub team**

This is composed of the current project partners. This team well represents the diversity of the environment in which the network would operate, both in terms of ILO and ICO representatives as well as in terms of disciplines (PHYS, ENV, SSH, H&F) and reference communities (ILOs, ICOs).

The ENRIITC Hub Stakeholders

The main stakeholders of this network are the RI-ICO community and the RI-ILO communities, the latter already organised in a network of their own. These stakeholders are associated with the project since the onset. It is envisaged that these stakeholders would be ready to contribute a small membership fee (5Keur) to allow the ENRIITC activity to transition from the current project phase to a post-project spin-off phase (2023-2024), until more substantial funding from EC projects and service fees become available and allow the ENRIITC Hub to become fully operational (2025-onward).

Additional relevant stakeholders are represented by the European Strategic Forum on Research Infrastructures (ESFRI), which embodies a main policy driver, together with the European Commission (EC), with an interest in realising the RI-industry connection, towards the multiplication of the impact potential of the RIs on societal innovation and industrial competitiveness. Relevant funding could become available through these policy-related stakeholders to support the ENRIITC efforts towards common objectives. These interests might also be leveraged at the national/regional level supporting local RI-industry connections and exchanges.

From the private sector, some EU-level associations and institutions could also represent parties with an interest to support the ENRIITC development and avail of the ENRIITC products.

Process

Governance

ENRIITC would need to transition its governance from the current project structure to a legal entity governance form in a few years, where: the Team and the Stakeholders would be represented, through a body called the General Assembly; and: where both the EU and the national interests could bring their steer and where sectoral experts could provide their advice. In particular, a Steering Committee would be populated by PERIIA and ERIC-Forum representatives; an advisory body would host representatives of national authorities, ESFRI, and associations, bringing in both the policy and industrial interests. In the transition phase, the governance would be relying on a Memorandum of Understanding, while Statutes would further formalise the governance during the operational phase of the Association.

Personnel

The ENRIITC Hub would be run by an executive team initially composed of voluntary personnel among the ENRIITC project partners and with the in-kind contributions by its main stakeholders, such as PERIIA and the associate RIs. In the operational phase, a budget should be available to support the contract of salaried personnel.

Equipment needs and management

The ENRIITC Hub would run its activities in the same way as in the project and would need only some computers, a secure data storage, and reliable internet connection, which can be obtained at any of the partners' premises. This "equipment" would be used to operate the ENRIITC website and LinkedIn platform. In time, more complex platforms could be implemented but the requirements for their operations would still be as light.

Output

Economic Output

The Hub would produce a series of tailored services for the national and EU RI communities, for a fee, which would be worked out upon request. The services would include:

- Short training events and summer schools to support the professionalisation of the ILO and ICO figures
- Brokerage events, which would be organised on the back of main events (e.g.: BSBF; ICRI, others), as well as ad hoc to stimulate localised interests, bringing together both the industry and RI representatives, mainly aimed at activating knowledge exchange, co-development and collaborations;
- Marketing strategy
- Project writing for industry-RI collaboration

Non-ECONOMIC output

The Hub would produce free services for its members, such as:

- Networking activities, through online platforms;
- Catalogue of RI and service offer;
- Policy Advice in the form of reports, white papers, towards the ESFRI and EC bodies.
- Project writing that would bring additional funding

e. Timeplan for the establishment of the ENRIITC Hub Association

Transition phase 2023-2024 (Post-project phase for the establishment of the ENRIITC Association)

2023

- BUDGET: €10K (may also be in-kind)
- HR: 2 FTEs (volunteers from the ENRIITC project partners)
- Activities:
 - Review business models for a fully-fledged ENRIITC (e.g.: Core Technologies for Life Science; ASTP Proton);
 - Connecting with stakeholders to capture needs;
 - Costing of activities and market analysis;
 - Marketing strategy elaborated on the basis of the market analysis;
 - Securing resources (project lobbying, project writing; securing memberships; checking of which ENRIITC partners can participate in the HUB and in which form; Commitment by other human resources from RI associates/PERIIA; exploring funding availability from institutional spin-offs grants, EC grants, ESFRI support measures; EIC support);
 - Some operational activities (maintain the current on line activities such as the ENRIITCYourCoffee and the ENRIITC Website)
 - Establishing collaborations with sister networking activities (ASTP, CatRIs, etc.)

- Expected cash returns: €10K (in membership fees)

2024

- BUDGET: €150K (75% in cash; 25%in-kind)
- HR: 2 FTEs (volunteers from the ENRIITC project partners)
- Operational activities:
 - Connecting with stakeholders;
 - Securing resources (project lobbying, project writing; securing memberships);
 - Some operational activities (maintain the current on line activities such as the ENRIITC café, and the ENRIITC Website)
 - Establishing collaborations with sister networking activities (ASTP, CatRIs)
 - Review business plan for the operational phase
 - Ensure governance
- Expected cash returns: €100K (in membership fees, advertisement, grants);

Operational phase onset

2025

- €250K€ (75% in cash; 25%in-kind)
- HR: 2 FTE – employed through project grants and membership fees; Full swing operational activities;
- Operational activities (All paths activated)
 - Short trainings modules
 - Summer school
 - Brokerage events
 - Securing resources
 - Project writing for industry-RI collaboration
- Expected cash returns: €450K (in membership fees, advertisement, grants);

8. Envisaged Impact

It is envisaged that the ENRIITC Hub Association will bring a relevant impact in the RI landscape filling a gap in the support measures at the interface between RIs and industry, at the national and EU level. The distributed nature of this network will ensure that both the national (including local and regional) level and the European dimension of the RIs are covered. The network will provide the ingredients, the professional environment and the methodology to leverage concrete connections between the RIs and Industry to bring about substantial impact in the professionalisation of the ICO and ILO roles, economic return and societal impact in terms of cohesion, activation of new career paths, regional cohesion and the shaping of suitable programmes involving the RIs and their industrial ecosystem.

Science	Economy	Society and Policy
<ul style="list-style-type: none"> ○ Improved access practices for industry users ○ Professionalisation of sectors ○ Increased networking 	<ul style="list-style-type: none"> ○ Innovation ○ Activation of new career paths ○ National /EU return on investments for RI development ○ Regional Hubs for innovation/cohesion ○ Increased number of users lowering the cost of the RI, ○ Increased networking 	<ul style="list-style-type: none"> ○ Integration ○ Activation of new career paths ○ Regional Cohesion ○ Shaping of innovation policies and programmes

9. Conclusions/recommendations

The ENRIITC project has obtained a large success in terms of uptake of the services provided and visibility at the relevant policy levels. The interest received and the huge commitment of the partners create the condition for the ambition to further sustain the activities that the project has initiated, beyond the project lifetime and also in the absence of an immediate income stream.

The model described in this deliverable for the realisation of a sustainable ENRIITC Hub is, while general, grounded in the thought-out process that the partners are committed to deliver. In the coming months, the work of this partnership will need to address a cost and benefit analysis, to capture the market needs, and to finalise a marketing strategy, to support this endeavour from the second semester of 2023.

The first step in this direction shall be taken with the proposition of a Memorandum of Understanding (project deliverable D1.7) to the associate project partners, including 60 RIs and the PERIA network, where the interest of the community will be sounded for the continuation of the ENRIITC activities along the prospected pathway and for the constitution of a representative governance and an initial budget (including in cash and in kind contributions) for the transition phase.

10. Quotes and references

European Infrastructures and the Europe 2020 Strategy "Inspiring Excellence", Carlo Rizzuto, ESFRI Chair 2008-2010:

- "RIs in Europe will serve as high-performance platforms for cooperation among universities, enterprises and research institutes. The resulting innovation ecosystem will spur new ideas, solutions and innovations of benefit to the European economy and society, as well as science. Special attention should be paid to nurturing the SMEs that supply them, collaborate with them, or spinoff from them."

Carlos Moedas, Commissioner for Research, Science and Innovation:

- "Open innovation is about involving far more actors in the innovation process, from researchers to entrepreneurs, to users, to governments and civil society. We need open innovation to capitalise on the results of European research and innovation. This means creating the right ecosystems, increasing investment, and bringing more companies and regions into the knowledge economy."

Giorgio Rossi, ESFRI "Innovation-oriented cooperation of Research Infrastructures" vol. 3:

- "The open innovation model does include Research Infrastructures at the supply side of new knowledge and also as effective testbeds of innovative devices that can be benchmarked against mature technologies in performing research. Detectors of particles, X-rays, neutrons, and their associated ultrafast, low noise electronics are developed first and qualified later by their adoption by RI for advanced research, yielding very direct innovation in all field of applications in medical, environmental, information, production monitoring. Reference signal sources, from light emission devices to precision clocks, are again developed and qualified by adoption at RIs. In the bio-medical sector RIs make available samples, images, protocols that continuously enrich the knowledge basis for open innovation to flourish. In the broad-band communication of data and high power / high throughput computing, as well as in environmental observation and modelling, or in societal studies, the RIs provide again the most advanced testbeds for innovation.