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ITALY

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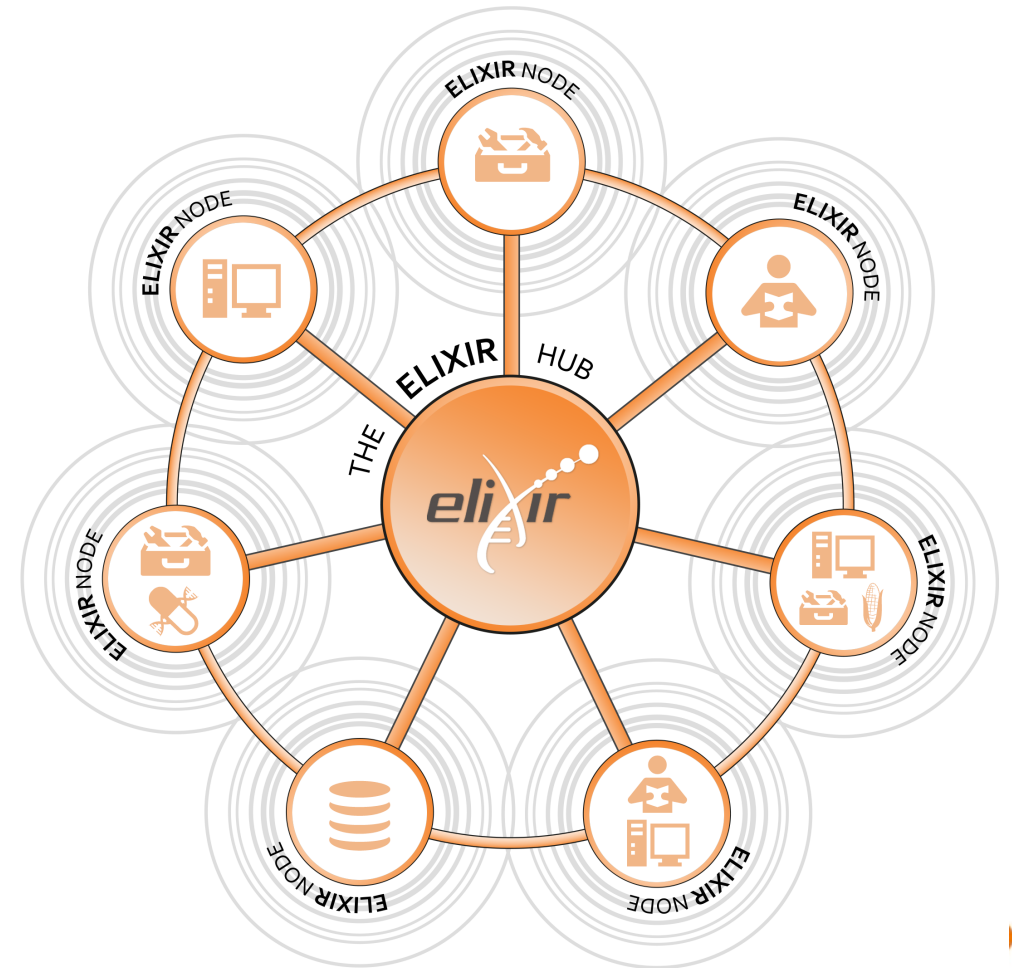
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A distributed infrastructure to scale with the challenge

ELIXIR data infrastructure for Europe's life science research sector

ELIXIR Nodes build local bioinformatics capacity throughout Europe

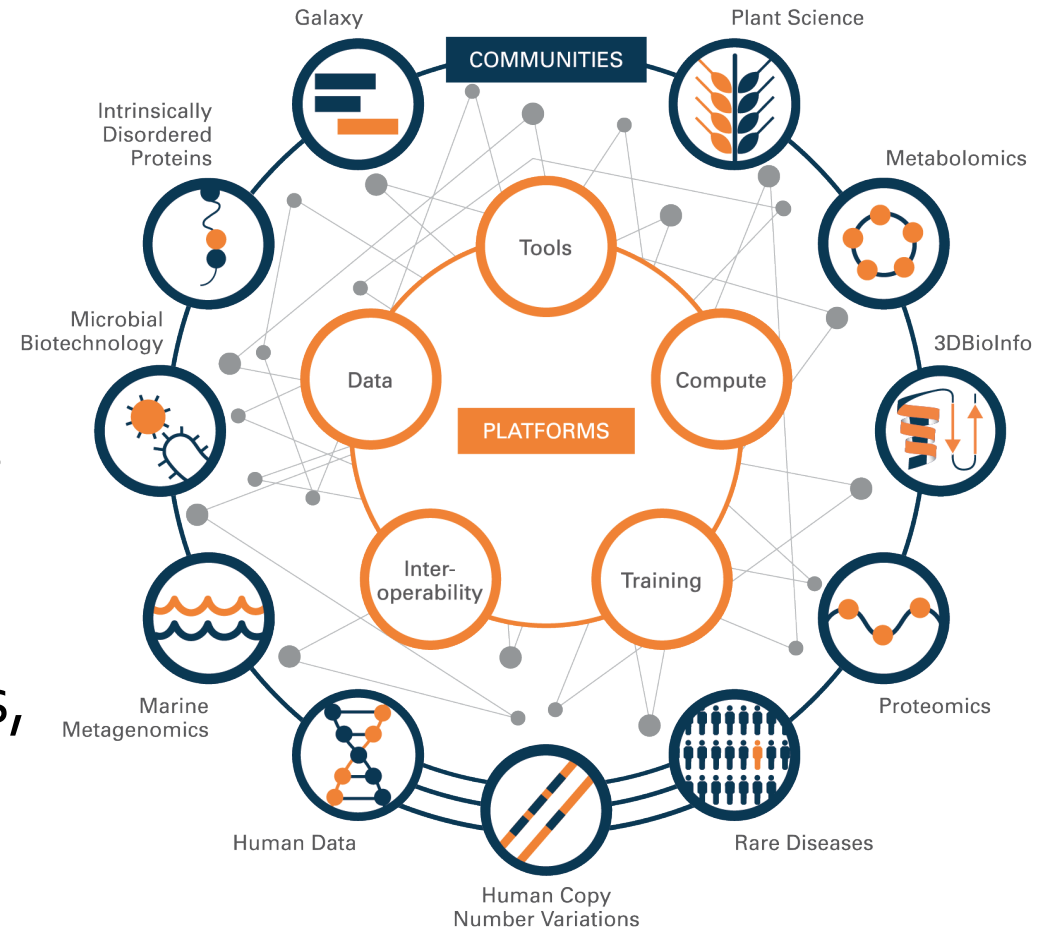
ELIXIR Nodes build on national strengths and priorities



















ELIXIR Structure

Five technical platforms for
Compute, Data, Tools,
Interoperability, and Training

Complemented by Communities
for Marine metagenomics, Plants
sciences, Proteomics,
Metabolomics, Galaxy, Human
Data Communities (Rare diseases,
Federated human data, Human
copy number variation),
Intrinsically Disordered Proteins
and Microbial biotechnology



ELIXIR Members

			
Belgium	Czech Republic	Denmark	EMBL
			
Estonia	Finland	France	Germany
			
Greece	Hungary	Ireland	Italy
			
Luxembourg	Israel	Netherlands	Norway
			
Slovenia	Portugal	Spain	Sweden
			
Switzerland	United Kingdom		

ELIXIR Observer



Cyprus



ELIXIR Staff Exchange Programme Empowering ELIXIR Nodes to measure and communicate their performance and impact

Date of submission: 1 October 2019

Date of approval: 12 November 2019

Project partners

Project lead – Name	Node
Ana Portugal Melo	ELIXIR PT
Project members – Name	Node
Christine Stansberg	ELIXIR NO
Francesca de Leo	ELIXIR IT

Activities

- 1) Assess the ‘state of play’ (i.e. baseline) in the three Nodes, defining existing critical and other impact indicators and their audiences.
- 3) Cross check the results with the existing frameworks (OECD and ESFRI), assessing what data exist already, or could be collected, and how.
- 4) Cross analyze the results from different Nodes, and include other Nodes contributions to suggest a shared approach for impact assessment of the ELIXIR National nodes.
- 5) Elaborate lessons-learned, conclusions and recommendations.

Project timeline⁴

When	What	Activities
Jan 2020	Kick off workshop and 1st joint working session, in Portugal	Report on baseline and gaps in indicators. Compare with existing frameworks
Feb 2020	Skype call among members and Impact Assessment Officer	Monitor progress
Mar 2020	Mid-term workshop and 2nd joint working session, in Italy	Cross-analyse first results
Apr 2020	Skype call among members and Impact Assessment Officer	Monitor progress
May 2020	Skype call among members and Impact Assessment Officer	Monitor progress
June 2020	3rd joint working session and final workshop and, in Norway	Finalise results and prepare outreach

State of the art- Methodologies



Report of the ESFRI WORKING GROUP ON MONITORING OF RESEARCH INFRASTRUCTURES PERFORMANCE (WG MONITORING)

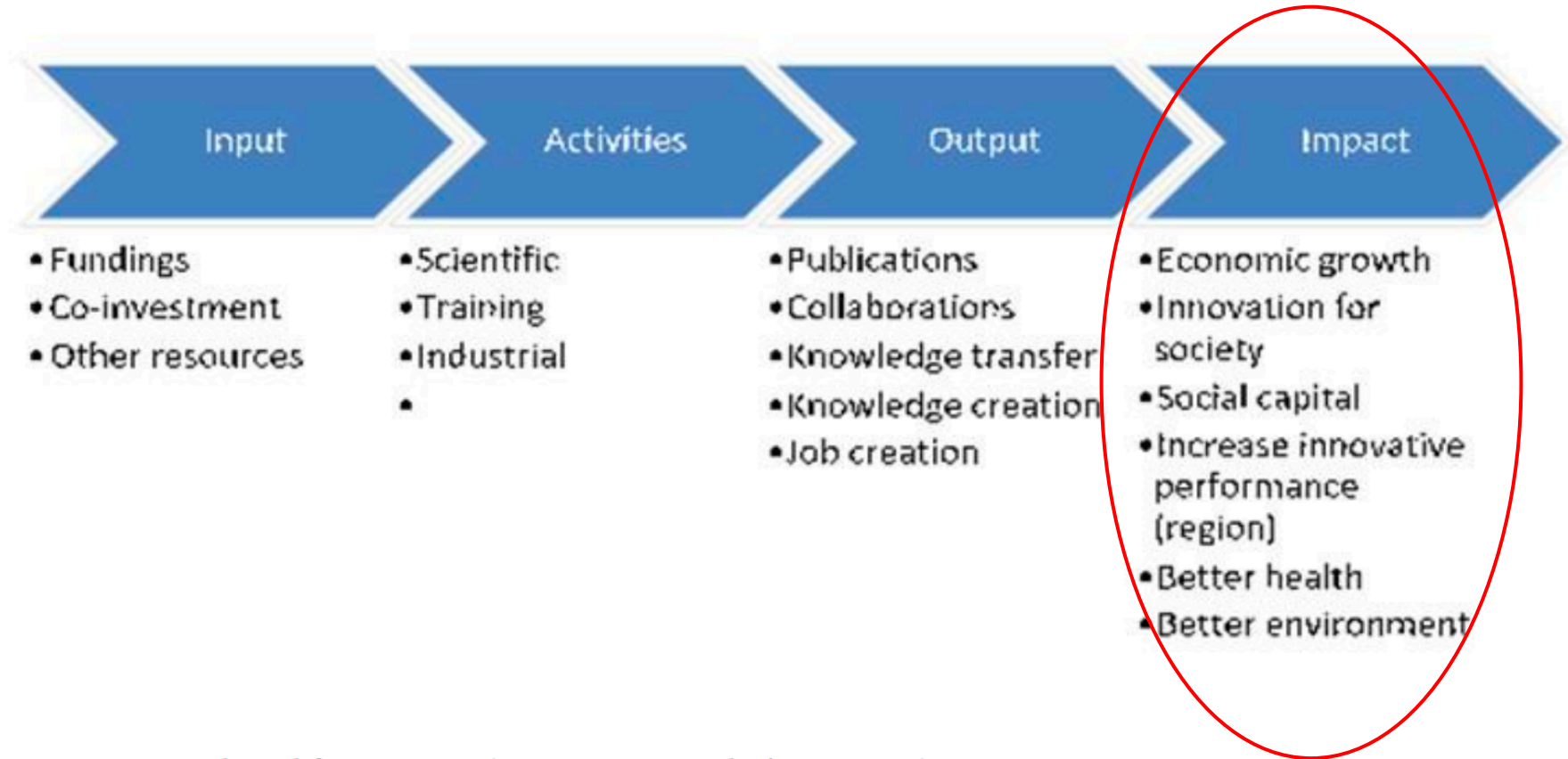
September *(insert date)* 2019

This version – September 4th 2019

Executive Summary



Framework



Source: Adapted from CSIRO (Barratt, Wang and Binney, 2016).

IMPACT should be **RACER** (Relevant, Accepted, Credible, Easy to Monitor, Robust)

Examples of indicators to measure impact assessment

Human Capital Impact

[basis, accessible through internal monitoring]

- number of continuously employed scientists (locally)
- number of continuously employed scientists (entire RI)
- number and duration of stays of Post-docs/Professors
- number and duration of stays of MSc./PhD students
- number and duration of internships
- number of trainees
- grants for trainees: Grants for trainees to follow RI trainings¹
- number of technical staff
- number of administrative/ research management staff
- number of training measures
- number of students (national/international, master/PhD) trained within RI¹
- training programmes for higher education students¹, (short-term/ long-term), number of attendees³
- knowledge sharing and improvement:
number of conferences and seminars within RI / organised by RI¹

[impact, requires external analyses, surveys, estimations, ...]

- satisfaction of people trained¹
- number of masters and PhD from local universities using the RI¹
- academic career advances after leave (promotion, takeover of new chair)
- salary increase after leave
- career advances through qualification in (international) science administration
- career advances through technical qualification
- prevention of brain drain / increase qualification level of population²

Economic / Innovation Impact

[basis, accessible through internal monitoring]

- persons employed by RI (FTE)¹²
- new tax payers: employees living in the local areas for at least 3 years¹
- direct (local) expenditure of RI, employees & visitors x multiplier¹
- number of regional and local suppliers¹²
- beamlines or other facilities in operation²
- production capacities (of drugs, etc.)²
- number of patents filed¹²
- list of technologies developed
- joint technological developments with industry¹
- collaborative projects with industry / with regional industrial partner¹³
- number and value of patents¹
- collaborative projects with industrial partners¹
- co-patenting with companies¹³
- patent citations³
- number of students working in enterprise and using RI¹
- use of a novel technique or procedure²[internal monitoring of transfer pathway]
- number of projects funded by industry¹ (total, national, regional)
- list of technologies licensed, Spin-off created (if any)/ start-ups¹³
- survival rate of start-ups, spin-offs³
- spin-off/ start-up lifecycle (number of years)³
- number, value, technological ambition of collaborations by partner type (firm size/sector)
- number and volume of private enterprises' utilisation of RIs facilities for experiments and tests
- number of regional firms using RIs¹
- number, value, technological ambition of procurement by partner type (firm size/sector, regional/national/supra-national)¹³
- use of software tools outside RI (business)³
- usage of RI information (e.g. via browser)¹
- use of accessible data sets outside RI (business)¹
- efficiency gains through use of RI data¹
- stimulating use of new technologies²

[impact, requires external analyses, surveys, estimations, ...]

- industrial sales impact: Number of new products, services³
- technology level impact: Number of new technologies, designs and prototypes³
- market creation impact
- market expansion impact
- increased economic activity / improved job opportunities in the region²
- impact on behaviour or wellbeing,
e.g. decrease in mortality rate due to use of drug or treatment, reduced dependence on fossil fuel due to increased use of renewable energy²

Societal Impact

[basis, accessible through internal monitoring]

- tracking of visitors at RI
- public awareness: Visitors on RI website¹
- tracking of school classes and or university courses visiting²
- RI at exhibitions, science fairs, TEDs, lectures, workshops engaging the public
- open days or other public promotion events: number of events, number of visitors¹
- outreach activities: People engaged in outreach activities¹
- gender balance (employees, users)²

[impact, requires external analyses, surveys, estimations, ...]

- inclusion of topics in schools and academic curricula
- presence of RI related topics in social media and the press, number of followers¹³
- presence of RI in (local, regional) online media¹²³
- number of visitors to RI exhibitions³
- energy saving: Stories/ label/ evaluation¹
- waste management: Stories/ label/ evaluation¹
- gender balance: Stories/ label/ evaluation¹
- corporate social responsibility: Stories/ label/ evaluation¹
- contribution to inclusion goals: creation of jobs that enhance social inclusion
- increased trust in science²

Policy Impact

[basis, accessible through internal monitoring]

- presence of RI in relevant thematic committees
- presence of RI in relevant standardisation committees
- participation of RI in exchanges with relevant policy makers¹³
- participation of RI in local/ regional networks (e.g. clusters, innovation networks)
- contracts (number, volume) with a specific country, region, industry²
- public awareness / taxes going to RI³
- contracts with public services³
- number of reports / databases to support public policy³

[impact, requires external analyses, surveys, estimations, ...]

- take up of new topics proposed by RI as funding sections
- notable changes in regulations
- notable changes in funding
- provision of expert advice in public policy¹
- production of resources (databases, biobanks, informatics resources) in support of public policies¹
- production of experimental/observational data in support of public policies¹

Source: RI-Paths Workshop
(June 2019, Cambridge)



Delivery and expected outcomes

Main output=approach for impact assessment starting from existing frameworks (OECD, ESFRI).

Delivery=national-level frameworks starting from the OECD and ESFRI indicator lists customized to own needs and specificities.

Outcome=the lessons-learned, conclusions and recommendations useful to other ELIXIR Nodes, and other life science research infrastructures.

In collaboration with the **ELIXIR Hub**=transfer new knowledge and experience back to pan-European (ESFRI) and international policy forums (OECD), as well as inform its own internal impact processes.

First assessment: Characterization of Impact Assessment in the **Annual Reports** of Research Infrastructures from the ESFRI Roadmap in 2018

The first ESFRI Roadmap of RI was produced in 2006.

In 2018: 55 Research Infrastructures (RI), 27 distributed, 25 are in Landmark status.

From these, **13 produced annual reports (AR) in 2018.**

Analysing the 2018 annual report of the landscape distributed RIs:

- Several types of references that may be related to performance and impact can be retrieved.
- These are dispersed throughout the different sections of the reports and sometimes are not measurable **indicators.**
- RIs are not completely aware of the need to assess impact, most of the indicators retrieved account **RIs performance and not directly impact.**
- the **OECD indicators** are easier to identify and classify than those proposed by the **ESFRI.**
- Among the OECD framework, **scientific indicators** are generalized over the considered reports.
- All AR offer **economic and technological indicators.** **Training indicators** are not available in some AR
- The variation in indicators selected by the different research infrastructures may be attributed to differences in the RIs goals, mission and vision.
- It is noteworthy that 3 (ICOS, CESSDA and ESS) from these 13 RIs recently produced **Impact Assessment reports.** This is the next assessment.