Training

Innovation Management in Research Infrastructures

Trainer : Marie-Aude RICHARD, Réseau C.U.R.I.E.

Tuesday, February 24

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1.30 pm - Icebreaker

- In the chat, please answer briefly
  - 1- Your role
    - Project manager, researcher, technical staff, support staff…
  - 2- One expectation for today
  - 3- How do you feel when your hear « innovation in research infrastructures »?
    - Curious, motivated, skeptical, (not)concerned…

- Do you require any special accomodations or do you have a disability?
  - We are available at any time should you need us.

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SESSION SCHEDULE

- 1.40pm – 1.55pm : Introduction to Innovation in European Research Infrastructures
- 1.55pm – 2.15pm : From Research Results to Impacts : Key Concepts
- 2.15pm – 2.35pm : Mapping Innovation Potential within Collaborative Projects
- 2.35pm – 2.55pm : Key Principles of Technology Transfer
- 2.55pm – 3.05pm : Your Role in Creating Innovation & Impact
- 3.05pm – 3.20pm : Multiple-choice Questionnaire
- 3.20pm – 3.30pm : Wrap-up & Q&A

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Introduction to Innovation in European Research Infrastructures

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What is a Research Infrastructure (RI)?

- Facilities, resources and services used by research communities
- To conduct research and foster innovation
- Including instruments, data, collections, computing, networks, services…

- General features of RIs
  - High-quality, standardized resources ; shared access ; long-term operation ; specialized expertise ; support for innovation and impact

- ENVRINNOV-Specific RIs
  - Environmental focus
  - Interoperability emphasis
  - Testing innovation pathways

Why innovate in Research Infrastructures?

- Innovation is what ensures RIs' long-term relevance, funding and societal value.
  - Maximize the impact of research outputs
    - Impact shift from « we produce data » to « others rely on our data to act ».
  - Stay at the cutting edge of science and technology
    - Innovation here as methodological advancement, not commercialization
  - Enable cooperation and interoperability
    - Result: a network of infrastructures behaves like one large observatory
  - Respond to societal and policy needs
    - Value emerges when data is translated into actionable evidence for decision-makers.
  - Create opportunities for knowledge transfer and sustainability
    - For stability and continued funding justification

Types of innovation in RIs

- Innovation = a novelty that is adopted and creates value for users

- 4 types of innovation in RIs:
  - Technological innovation
  - Process innovation (including Data innovation)
  - Service innovation
  - Organisational / ecosystem innovation

- Which of these 4 innovations do you think is most important for funding agencies?

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Your turn ☺

- In your daily work, which type(s) of innovation do you contribute to?
  - Technological
  - Methodological & data
  - Service
  - Organisational & collaboration
  - Other

- Share one example of innovation you see or contribute to

Your turn ☺

- Where do you think your RI could create more impact beyond academia?
  - Industry / commercial applications
  - Public agencies / policy makers
  - Local communities / NGOs
  - Other RIs / research networks

- One output or idea + the potential user category

From Research Results to Impacts : Key Concepts

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Research outputs / outcomes / impact

- Outputs -> Outcomes -> Impact
  - Output: thing you produce
    - A new coastal erosion monitoring sensor
  - Outcome: change in behaviour or practice
    - Local authorities use the data for risk assessment
  - Impact: system-level change
    - Long-term coastal planning reduces infrastructure damage

- Adoption
  - Impact requires adoption by users: someone has to take the output and apply it

- Time
  - There is always time between output creation and impact

Innovation management process

- 1 – Detection
- 2 – Qualification
- 3 – Protection
- 4 – Development
- 5 – Transfer / Exploitation
- 6 – Impact Monitoring

- Which step is currently the weakest in your infrastructure?

Intellectual Property

- IP not only to protect but to enable transfer:
  - Trigger ownership clarification and governance discussions
  - Make partnerships negotiable
  - Clear legal status reassures adopters and authorities
  - Organise access conditions via licences

- Main IP forms:
  - Patents
  - Copyright
  - Database rights
  - Know-how / trade secrets
  - Trademarks

- Which IP form do you currently use in your RI most frequently?

Your turn ☺

- A new water quality data analysis software
  - Analyzes multiple rivers for pollution and generates actionable reports
  - Still in the lab; dataset partially collected

- Which IP to protect this output?
- Who are the potential users or adopters?
- What could go wrong if we share it without any IP or agreement?

Mapping Innovation Potential within Collaborative Projects

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Innovation opportunities are often invisible

- Common reasons innovation is invisible
  - Focus on publications and academic outputs
  - Outputs scattered across teams / subdomains
  - No systematic documentation
  - Staff underestimate what could be useful to others
  - Innovation requires integration

- Which of these invisible innovation barriers do you see in your own project?

Upstream vs Downstream innovation in RIs

Feature	Upstream innovation	Downstream innovation
Where it happens	Within the RI, labs	Outside the RI, with users, policy makers, industry
Goal	Improves how research is produced	Improves how research is used
Types	Methods, instruments, protocols, standards	Services, applications, decision tools
Primary beneficiaries	For scientists and engineers	For stakeholders and external actors
Timing	Early in R&D	After outputs are ready for use or testing

- Techno-push and market-pull?

Where to look for innovation potential

- Think along the 4 dimensions
  - Technology & Data
  - Method & Standards
  - Service / User Support
  - Organisation & Collaboration

A practical tool : Innovation Radar

- Step 1: A mapping tool

Output	Technology & data	Methods & Standards	Services & Decision Support	Organisation & Collaboration
Coastal monitoring sensor	Real-time erosion sensor	Calibration protocol	Municipalities anticipate protection works; insurers refine coastal risk zoning	Shared monitoring service
Long-term atmospheric dataset	Data, climate trend indicators	Harmonised measurement methodology	Authorities adapt air quality plans; researchers test climate models;	Open data platforms; partnerships with meteorological agencies
Training module on data analysis	Transferable analytical workflows; reusable scripts	Best-practice guidelines	Engineers improve monitoring interpretation; public agencies gain internal expertise	Capacity-building programmes; joint training schools

A practical tool : Innovation Radar

- Step 2: An evaluation pool

Innovation use	Potential User	Value created	Maturity / Transfer Potential	Transfer path
Erosion warning system	Coastal municipalities	Risk anticipation	Prototype -> Pilot service	Service via platform
Climate trend indicators	Policymakers, climate researchers, public agencies	Policy planning	Validated -> Reusable API	Data licence
Professional training	PhD students, engineers	Skill development	Ready -> Online delivery	Training program

- Step 3: Evaluate feasability (« go / conditional go / no-go »)

Your turn ☺

- Pick 1 output from a typical project in your RI
- Use the Innovation Radar (quickly) to identify potential innovation dimensions
- Evaluate transfer potential using the table columns

Key Principles of Technology Transfer

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Two innovation logics in RIs : different strategies

Innovation Logic	Strategic Objective	Strategic Levers	Indicators of Success	Coastal Sensor Example
Upstream	Keep the RI scientifically leading	Standardisation, Scientific legitimacy, Share improvements with other RIs…	Citations, External reuse…	- Sensor calibrated and tested with reference datasets - Protocol shared across RIs - Internal pilot monitoring coastline variations
Downstream	Ensure the research actually get used	Early user validation, partner selection, sustainability model…	Operational users, feedback incorporated into improvements…	- Sensor data provided via open-access dashboard - Municipalities receive alerts and integrate into planning - User feedback improves alert thresholds

- Pick one of your outputs.
  - Is the strategic objective upstream or mainstream?
  - Which levers could you use?
  - Propose one indicator of success

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The practical pathway to adoption

- 6 steps
  - Identify target users
  - Define value proposition
  - Choose transfer route
  - Engage and test
  - Implement / adopt
  - Monitor outcomes & impact

- Which step do you think is actually the weakest in your RI?

Main transfer routes

- Licensing
- Start-up
- Service provision
- Collaborative research
- Open access

Your turn ☺

- Mini Case : Your RI developed a real-time coastal erosion sensor. It’s calibrated, connected to your data platform, and works reliably.

  Goal: make sure the sensor creates societal impact.

- Identify target users
- Suggest transfer route(s)
- Suggest one concrete action your RI could take tomorrow to move this output toward adoption

Your Role in Creating Innovation & Impact

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Everybody can contribute

- Scientists
  - Publish/communicate
  - Flag promising results early
  - Think about potential users
- Engineers / Technical Staff
  - Improve robustness & reproducibility
  - Document instruments, protocols,…
  - Suggest improvements driven by users
- Data Managers / IT
  - Improve accessibility
  - Ensure data interoperability
  - Prepare datasets and documentation
- Project Managers / Admin Staff
  - Track and record outputs
  - Organize meetings with potential users
  - Include innovation in reporting
- RI leadership
  - Encourage partnerships
  - Allocate time for innovation activities
  - Negotiate and approve agreements
  - AND ALSO
- Service designer
  - Bridge between upstream and downstream
  - Translating scientific outputs into user journeys
- Quality manager
  - Enable legitimacy and adoption
  - Without trust, there is no impact

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Your turn ☺

- One thing you could do differently after today?

- 45 seconds silent thinking time then
  - Your role
  - One action you will try within the next month

Multiple-choice questionnaire

https://static.edusign.com/student/survey-inscription/?hash=vzcz05qmrsg68vh

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Wrap-up & Q&A

Take-home messages

- Innovation already exists inside RIs, small actions make it impactful
- Impact requires tailored strategies
- IP and transfer enable impact, not just revenue
- Everyone in the infrastructure can contribute

Any questions?

See you next May in Vienna!

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