



Access to Research Infrastructures: Process and modalities

Module 3 – User needs and Experience

- Sabine Philippin (CNRS, France) – 23 Octobre 2024

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Mission 4 "Education and Research" - Component 2: "From research to business" - Investment
3.1: "Fund for the realisation of an integrated system of research and innovation infrastructures"



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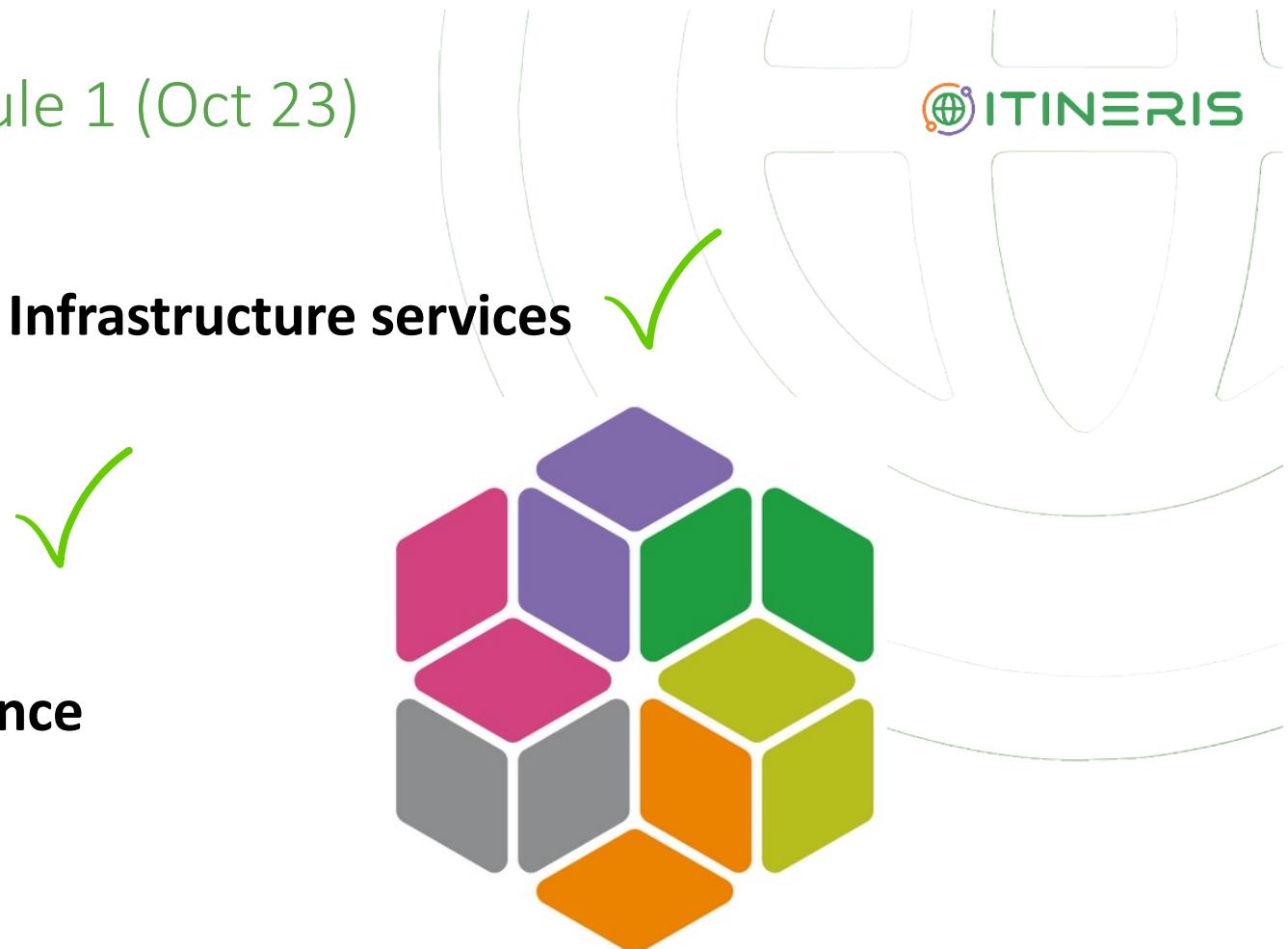


Overview of Training Module 1 (Oct 23)

I. Introduction to Research Infrastructure services

II. Access legal framework

III. User needs and experience



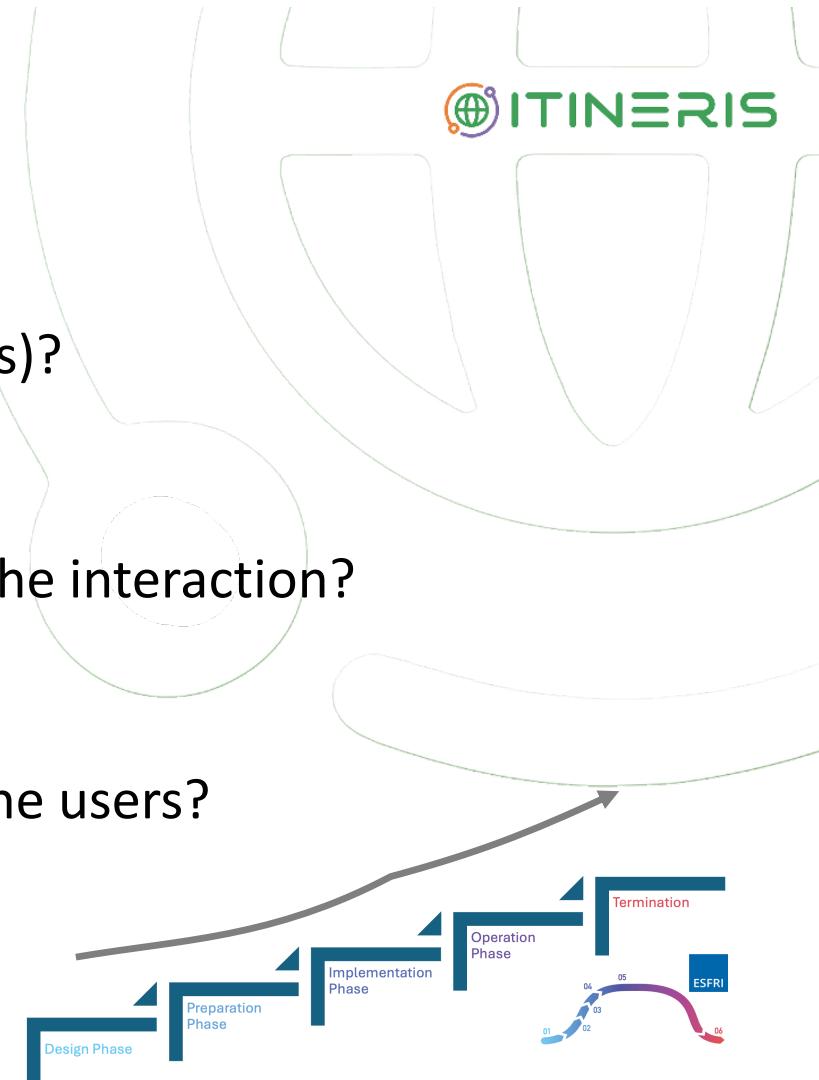
III. User Needs and User Experiences

RI User Strategy

- Who are the users of the RI (and its services)?
- What are the user needs?
- User experience: how easy and positive is the interaction?
- How to develop the services over time?
- How to engage and collect feedback with the users?

Tools & Monitoring

Target Users - Training exercise

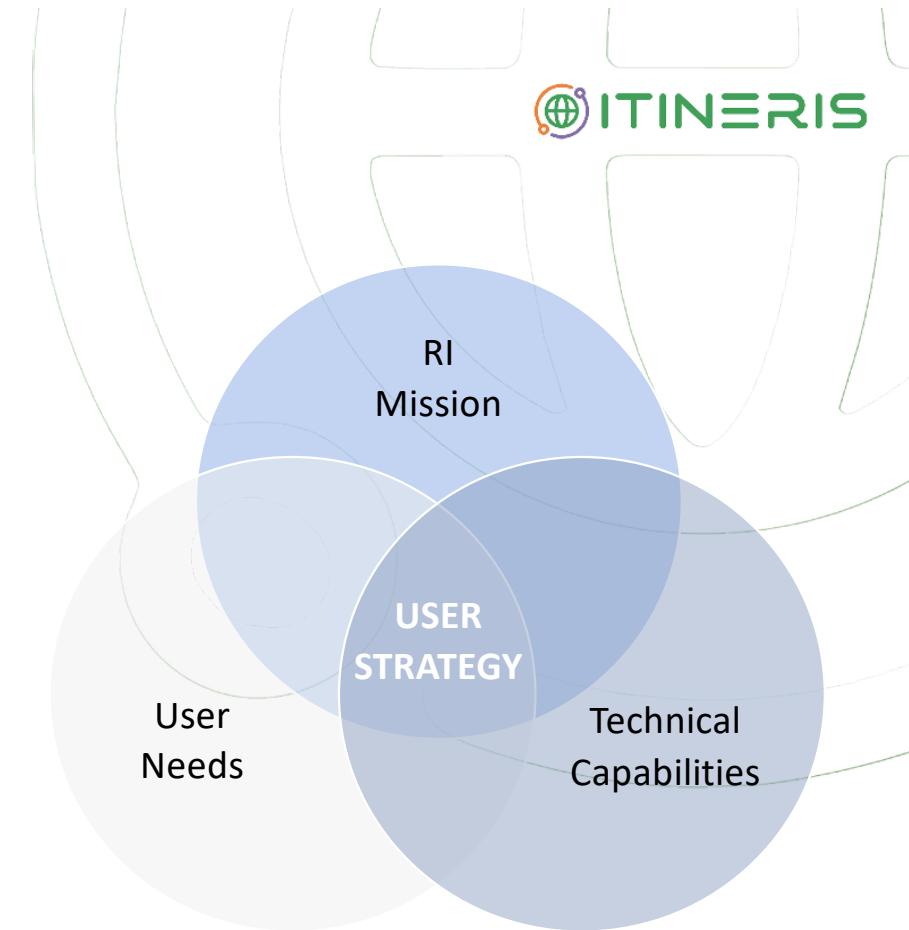


How difficult do you think it is to gather information about our user community(ies)?



What is a User Strategy?

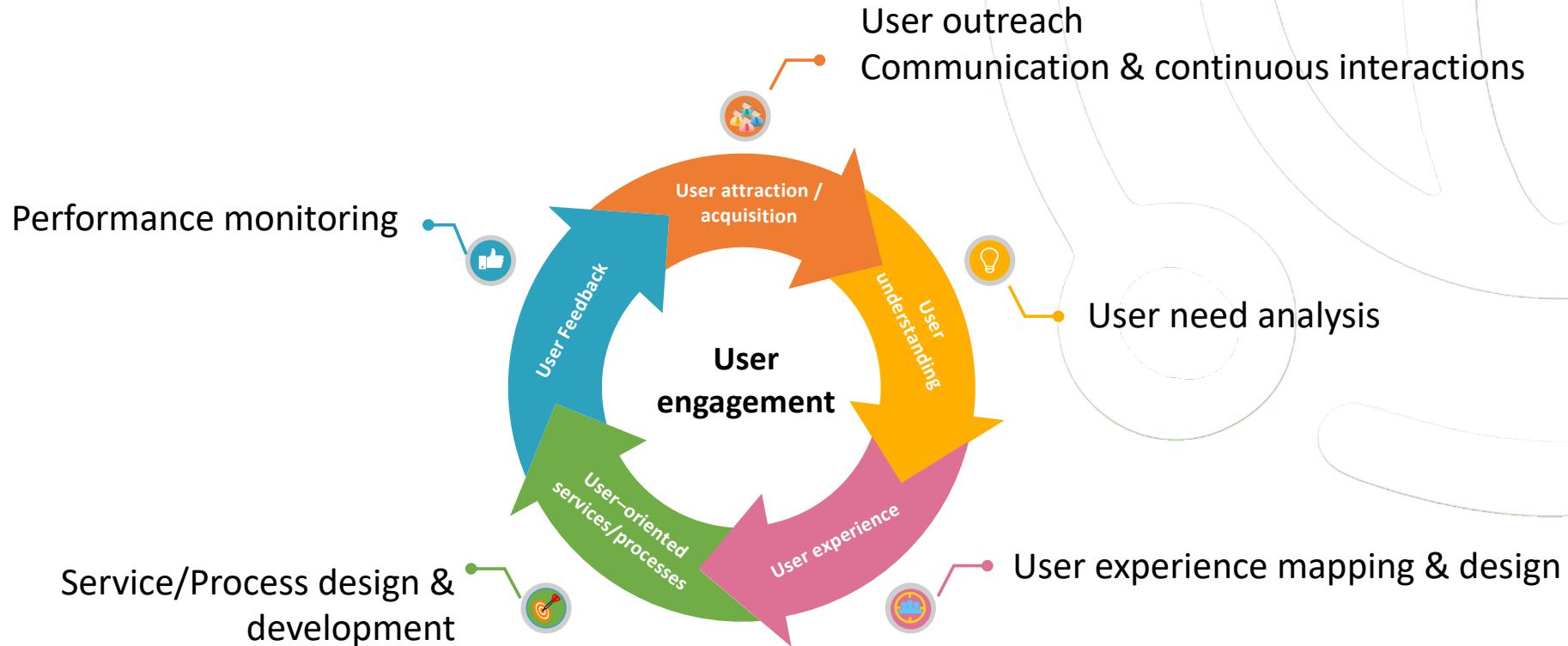
- 🕒 **Plan** → address and understand the users, their behaviour and interactions
- 🕒 **Approach** → Defining the goals, priorities and plan of action required for a provision of services to its users that effectively meet their needs
- 🕒 **User-centric design** → Success is driven by the experience and satisfaction of the users. Basis of RI operations and strategic development
 - Knowledge about users and user needs
 - Continuously designing and developing the services



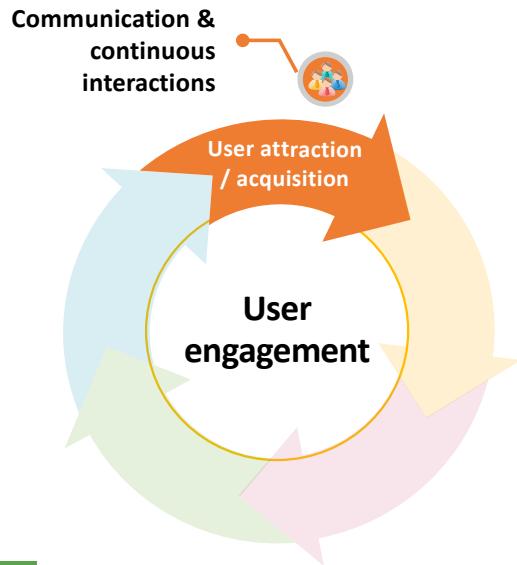
Who are our (most important) users?



User Strategy Cycle



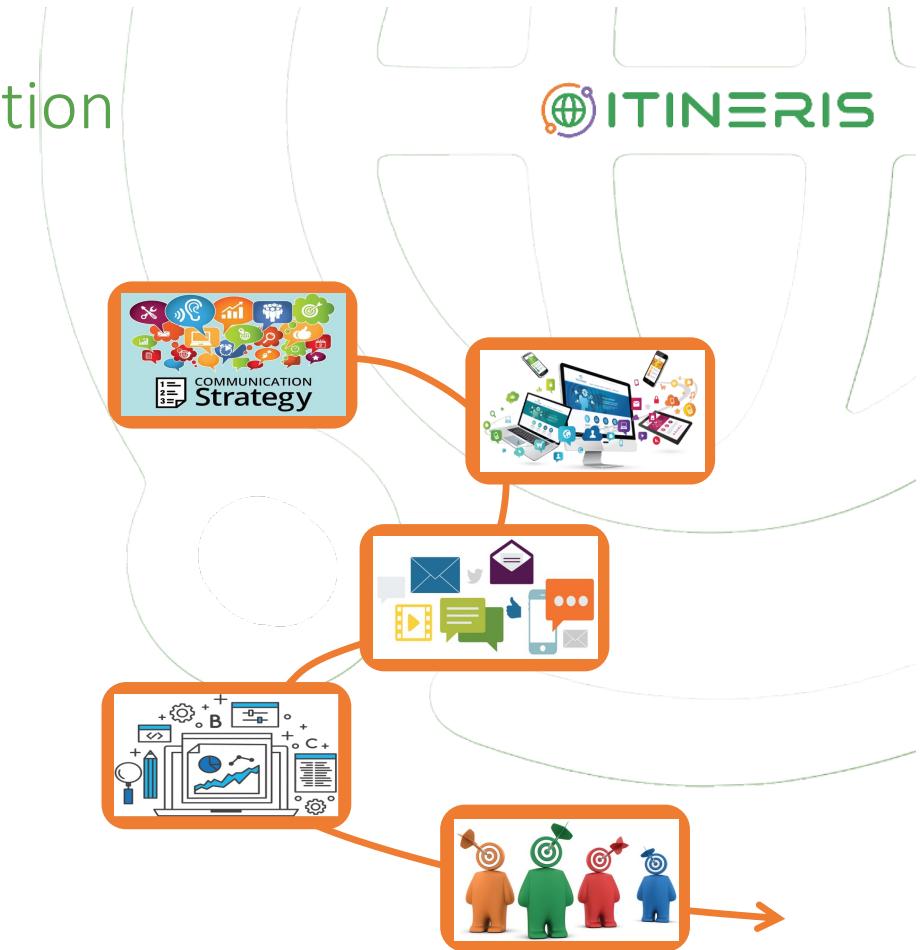
User Strategy Cycle - Attraction & Interaction



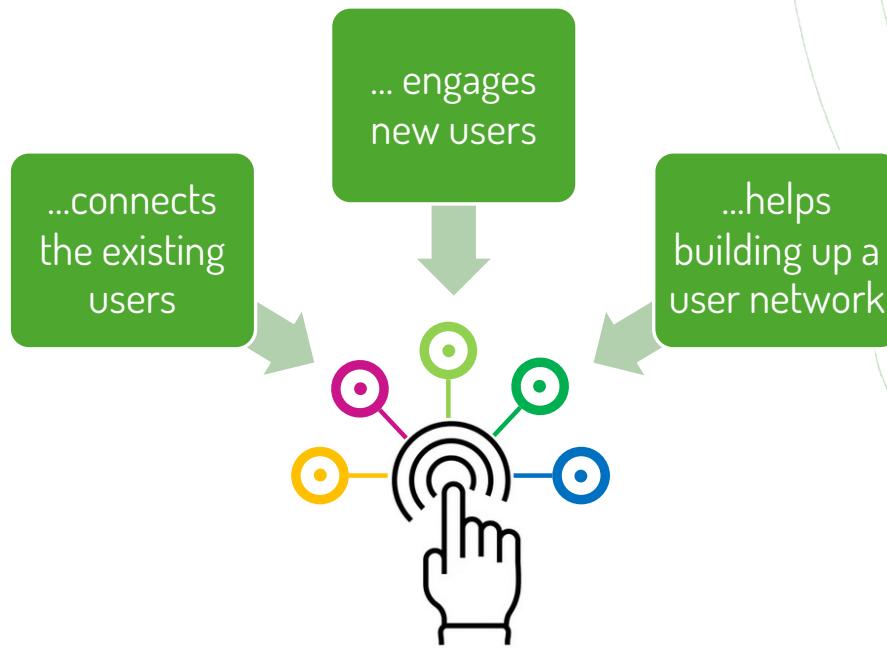
- 🌐 Consolidated communication strategy is key for reaching out to users and effective user interaction
- 🌐 Important driver for promoting successful access
- 🌐 Promoting attractiveness and increasing visibility of RI services
- 🌐 Advertisement of access opportunities
- 🌐 Attracting and engaging the users
- 🌐 Reaching out to wider user communities

User Strategy Cycle - Attraction & Interaction

- Effective communication strategy
- Efficient communication tools
- Relevant communication channels
- Appropriate message
- Knowledge about target audience → user



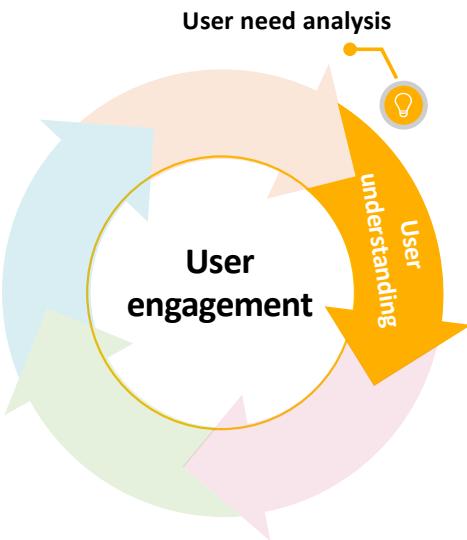
User Strategy Cycle - Communication & Interaction



User communities evolve, new users need to be engaged

A solid user interaction is a **continuous effort**

User Strategy Cycle – User needs & understanding



- RI services, resource and products aim at serving the needs of users → **know the users and their needs**
- **User needs evolve continuously** and require continuous developments of services within a RI to meet these needs
→ match and develop suitable capabilities
- An effective user strategy necessitates knowledge about the user needs and requirements to be ensured by the RI
→ **flexibility to adjust to emerging and future needs**

What type of evolution and developments may be expected in relation to the user needs?

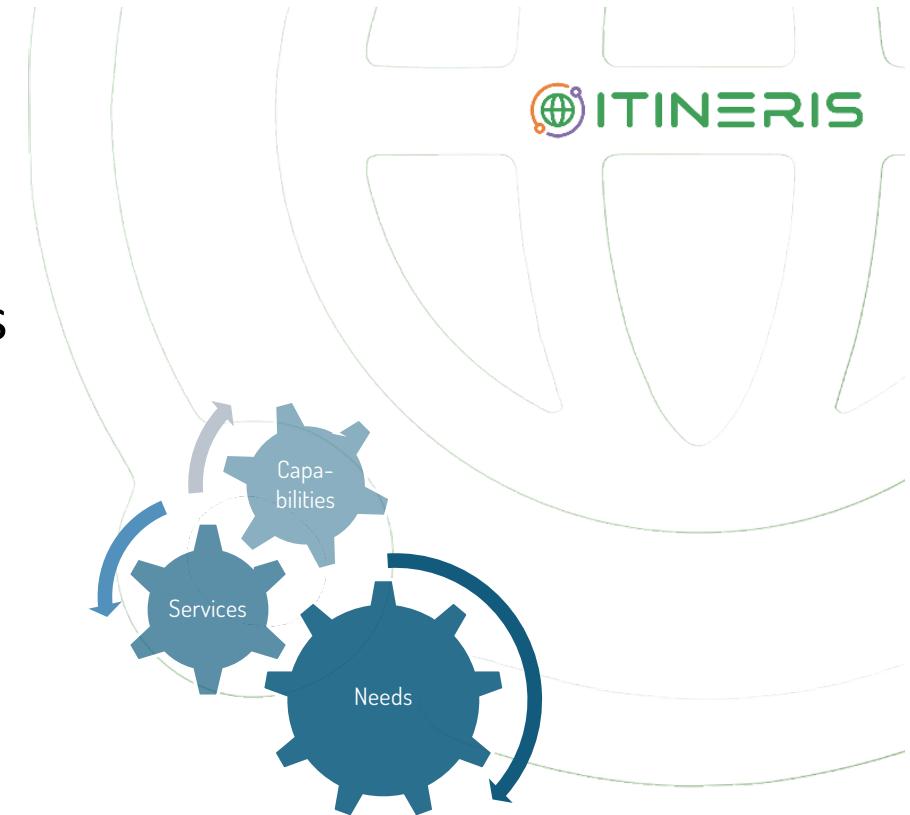


User Strategy Cycle – User & Needs

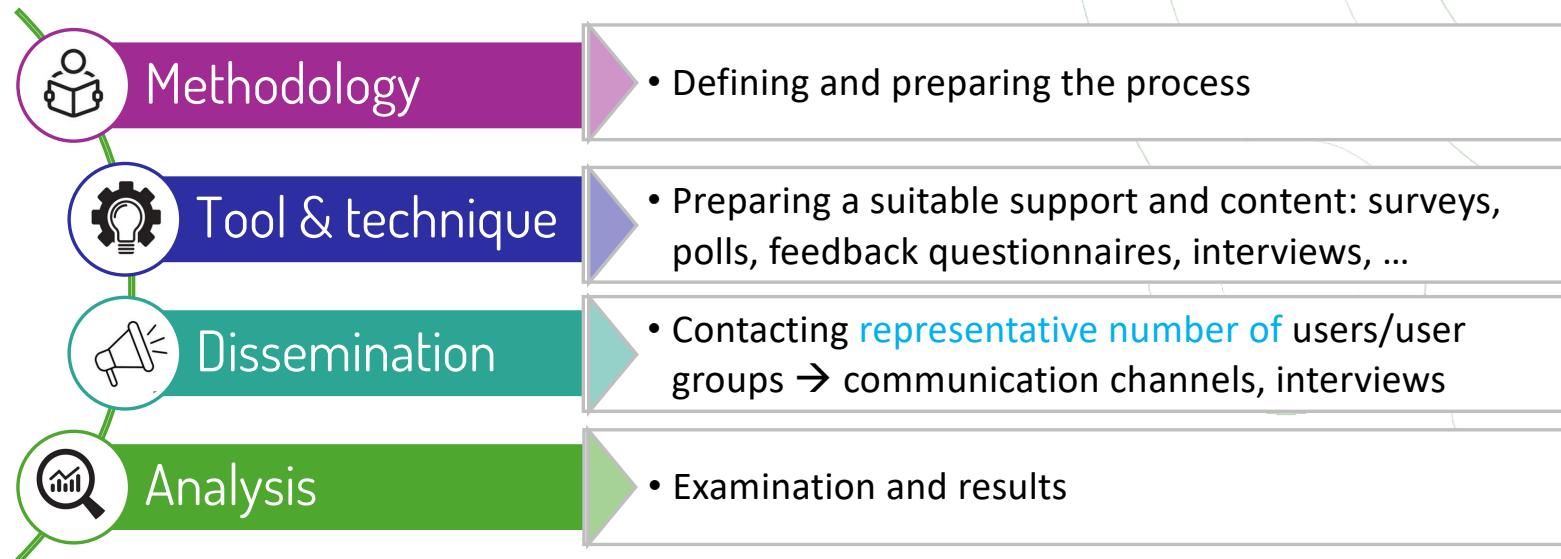
④ Knowledge about the user communities connected to the RI

- Categories of users
- User origins and background
- Size of user communities
- User scientific activities and interest

⑤ Identifying the user needs



User Strategy Cycle – Identifying the user needs



User Strategy Cycle – Identifying the user needs...

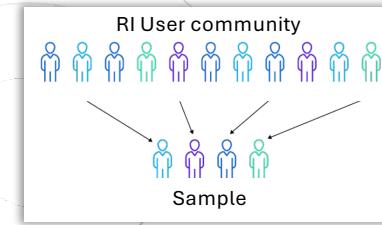


...may be challenging:

🌐 « Contacting a representative number of users »

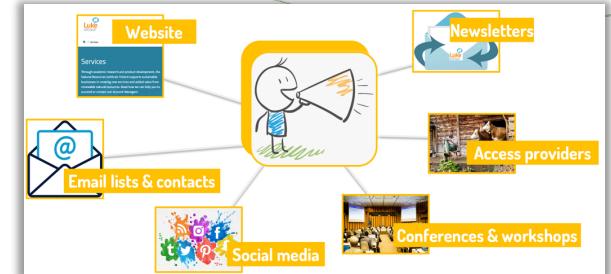
→ accurately representing the RI's user communities

→ required to have statistical value

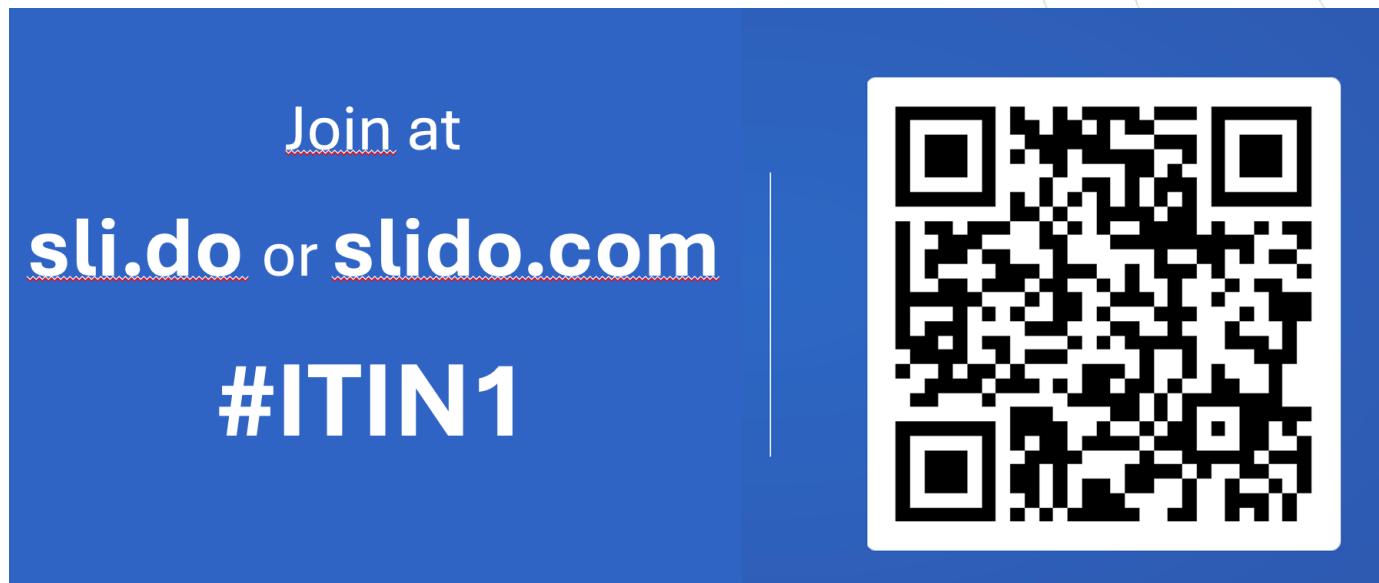


🌐 Ensuring representativeness is often very tricky !

🌐 Using wide and effective communication channels

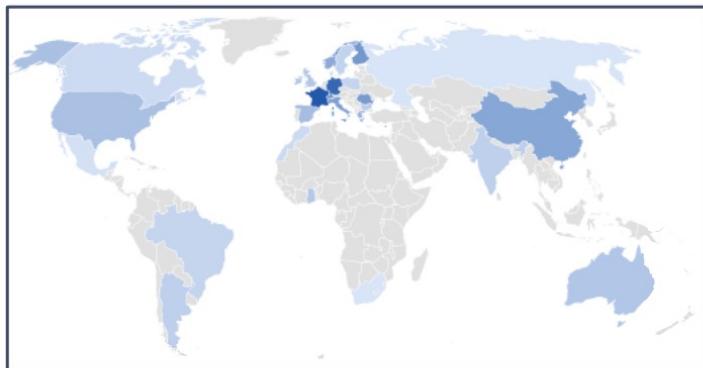


What information should be collected for identifying the
RI users and their needs?

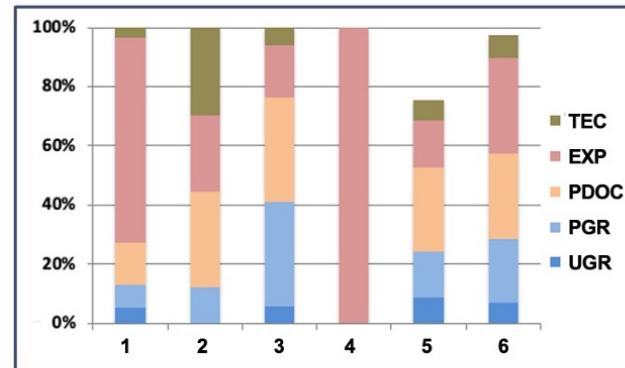


Examples of results from user needs analysis

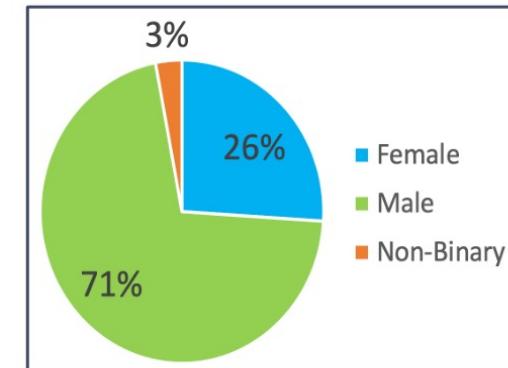
User origin and number



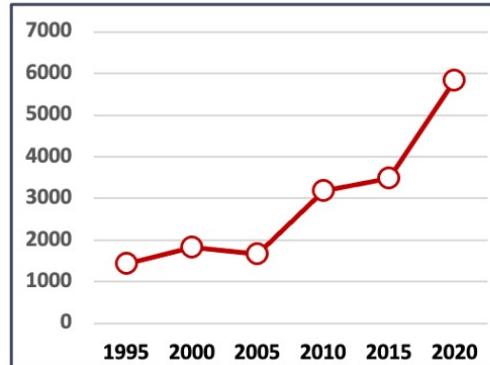
User profile



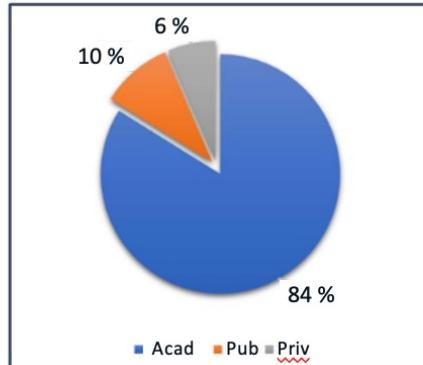
Gender



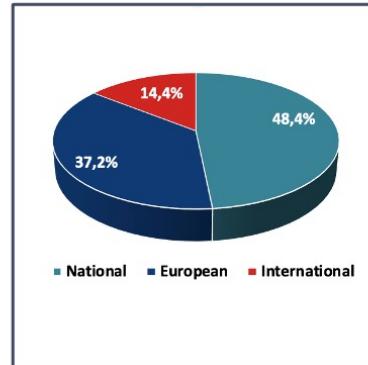
User number



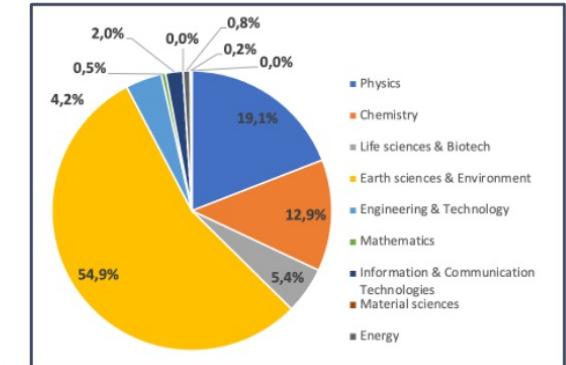
User type I



User type II



User scientific fields[▲]



Evolving user needs



Monitoring user needs



Regularly reconducting
user needs analysis



Building and maintaining an
inventory on user needs

Training exercise on target users

USER PERSONA CANVAS			
 <p>Name: _____</p> <p>Age: _____</p> <p>Occupation: _____</p> <p>Profile: _____</p> <p>Internal trigger: _____</p> <p>Technology used/Fav. Apps-social: _____</p>	Persona type _____	Author _____	Date _____
	Key Activities	Key resource used	
	Challenges and interests	Needs	
	Preferred method of communication	Channel	
	What makes this user get involved	Challenges to engagement	
	Reasons to use your service(s)	Obstacles to using your service (s)	



- Gathering information about target user types
- Understanding users' needs and behaviour
- Expected profile of fictional user

→ Start by defining a target user (general categories)

Target users

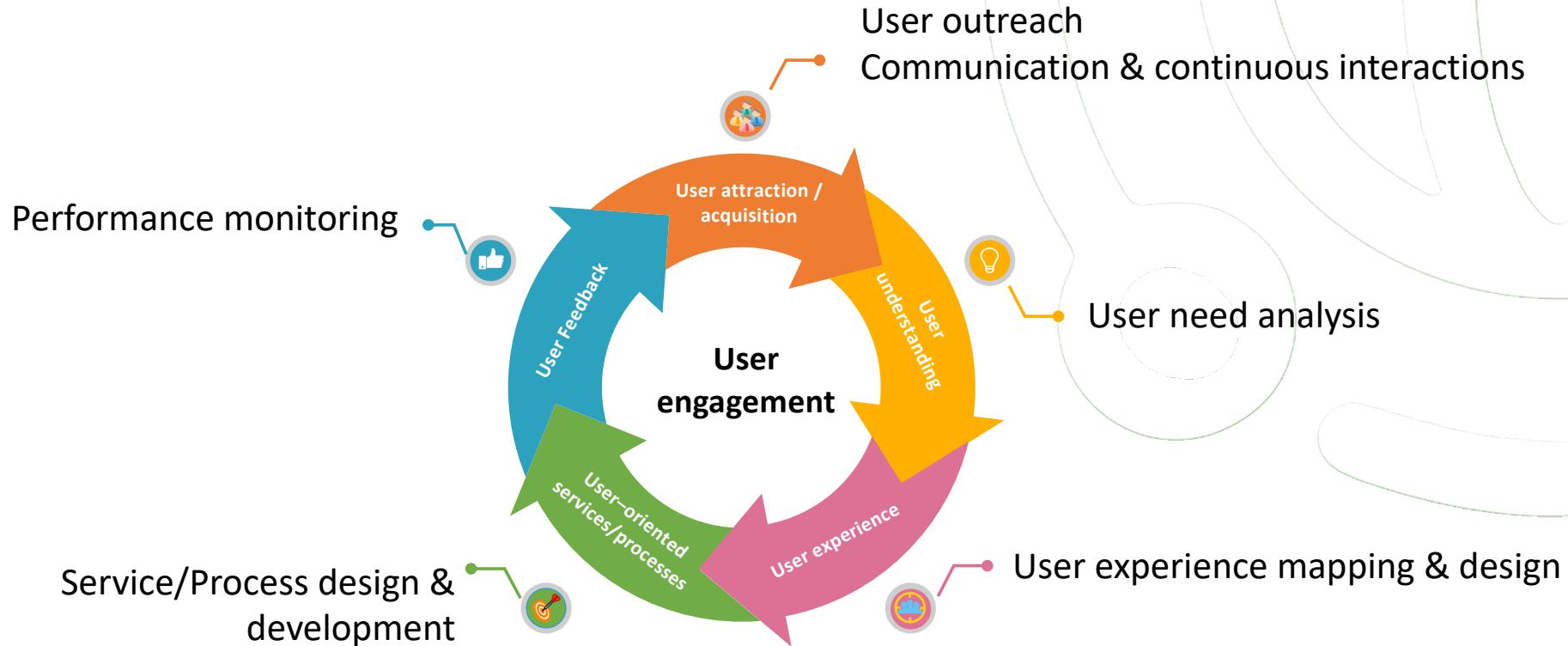


User	Description	Examples for needs
Academic researcher		
Industry and private sector		
Public sector		
International organisations		
Education		
NGOs, non-profits		
Citizen scientists		
...		

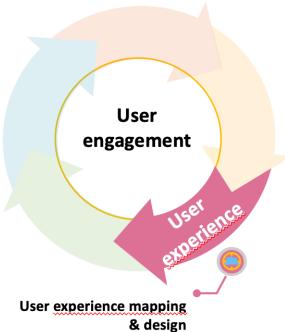
Target users

User	Description	Examples for needs
Academic researcher	Scientists, post-docs, PhDs, students	Data, databases, specialised state-of-the art instrumentation, representative ambient environments, training, scientific expertise, technical support
Industry and private sector	Companies, start-ups	Tailored and specific expert services for technical developments, prototype testing, industrial applications
Public sector	Ministries, government agencies, policy-making institutions, agencies of public interest (e.g., environmental monitoring, health, space agencies)	Reliable data and analytical tools (e.g., evaluation of policies, hazard management, risk mitigation), regulation strategies, policy decisions
International organisations	Global institutions (UN, EU), international research institutions	High-quality research data and tools (e.g., to address pandemics, climate change, ..), international collaboration on global challenges & societal questions
Education	Educators, teachers	Educational material, data for teaching, hand-on learning tools
NGOs, non-profits	Organisations working on social, humanitarian, environmental projects	Scientific data and analytical tools to support advocacy, policy change, social impact initiatives
Citizen scientists	Non-professional individuals	Access to real-time data, user-friendly tools for monitoring projects
...		

User Strategy Cycle

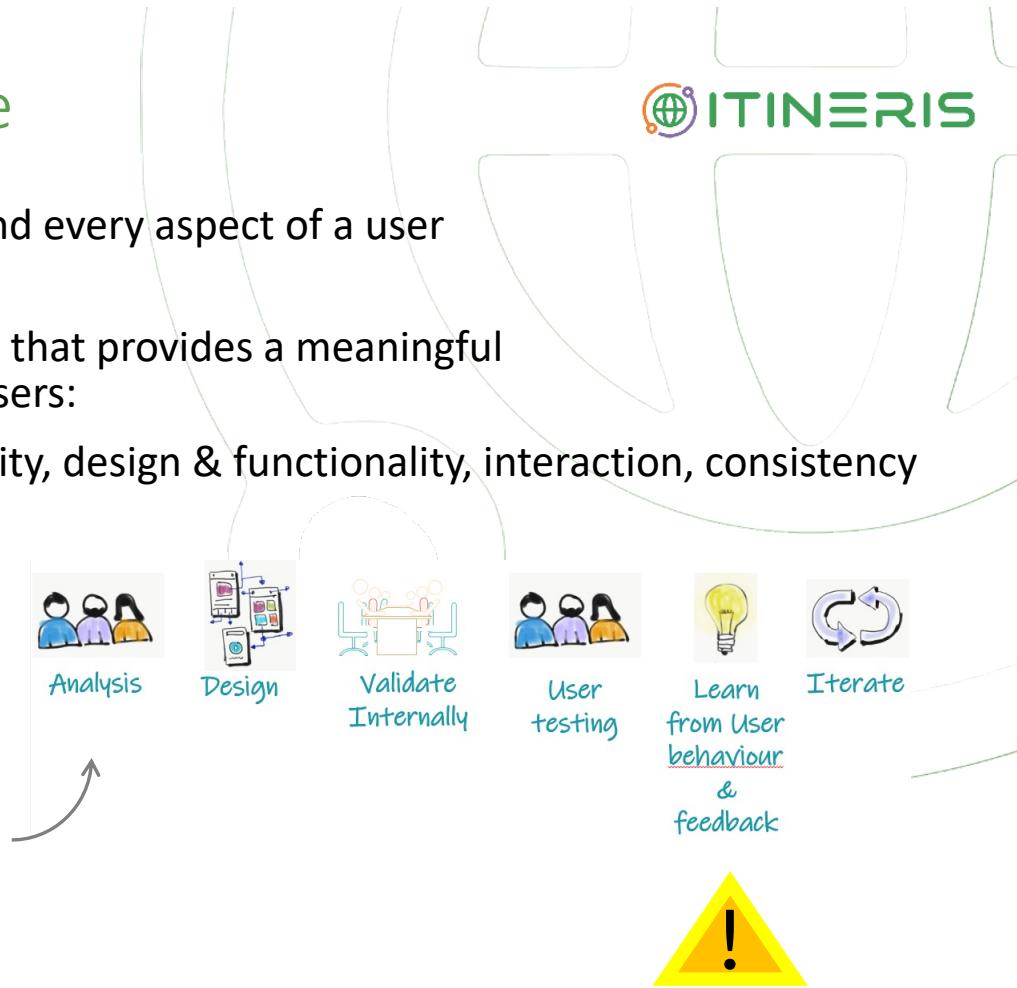


User Strategy Cycle – User experience

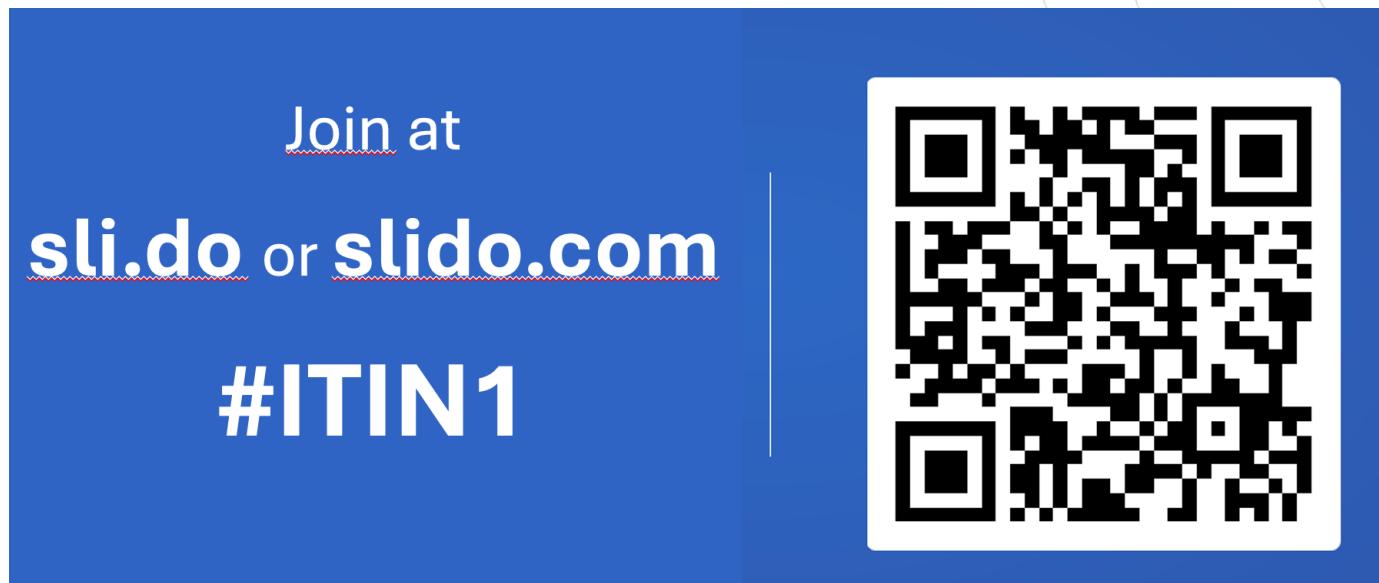


- Consider the overall experience and every aspect of a user when **interacting** with a RI
- Goal: Create a process and system that provides a meaningful and satisfying experience to the users:
 - Attractivity, accessibility, usability, design & functionality, interaction, consistency
 - Identifying blocking points
- Iterative process for optimising touchpoints, to be identified

Key questions on the access experience	
Only to users	To users and providers
<ul style="list-style-type: none"> How was the access organized? What's the most problematic and hard part about your experience of access to Facilities? (open text) 	
<ul style="list-style-type: none"> Please describe how you got access to facilities (sequence of main steps in the process, e.g. answer to a call, suggestion by acquaintances and/or colleagues, etc.) (open text) 	
<ul style="list-style-type: none"> Overall, how easy or difficult did you find the procedure to get access to facilities and services? (extremely difficult, somewhat difficult, neither difficult nor easy, somewhat easy, extremely easy) 	
<ul style="list-style-type: none"> Why? (Open text) 	
<ul style="list-style-type: none"> Did you receive proper assistance before, during and after your access experience (application, selection, service fruition, ...)? Y/N 	<ul style="list-style-type: none"> Did you receive proper assistance before, during and after your provider experience (application, selection, service fruition, ...)?
Please comment.	
How would you describe your overall access experience (extremely satisfactory, somewhat satisfactory, neutral, somewhat poor, extremely poor)?	
What would you suggest as possible improvements?	



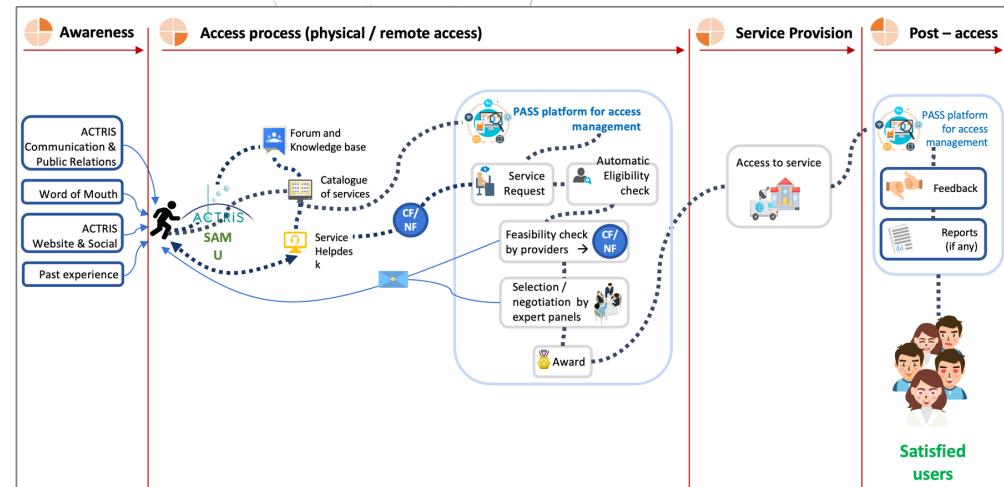
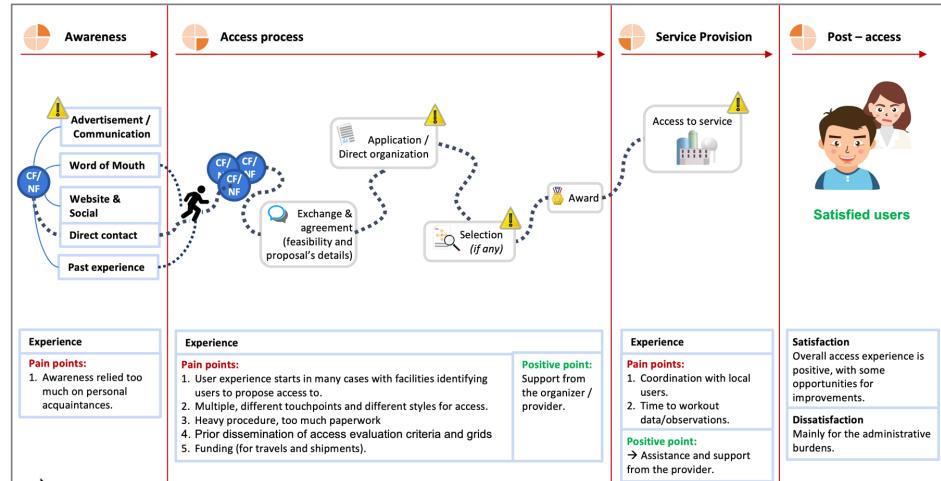
Where may be potential pain points when interacting with users within a RI?



User Strategy Cycle – User experience

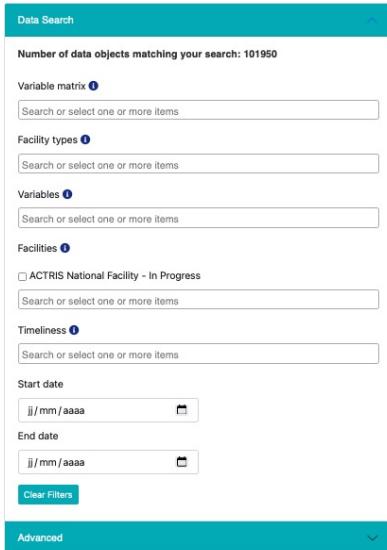


Use case 1: User onboarding, access and service provision (example ACTRIS)



User Strategy Cycle – User experience

Use case 2: Access to data and data analysis tools



Data Search

Number of data objects matching your search: 101950

Variable matrix ?
Search or select one or more items

Facility types ?
Search or select one or more items

Variables ?
Search or select one or more items

Facilities ?
 ACTRIS National Facility - In Progress
Search or select one or more items

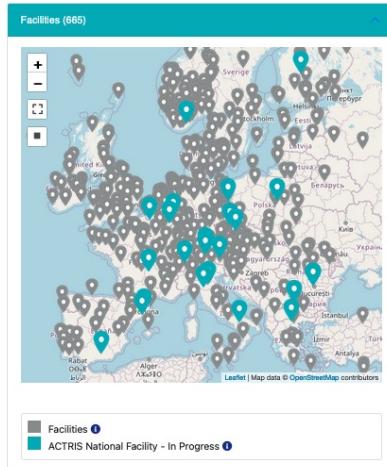
Timeliness ?
Search or select one or more items

Start date jj/mm/aaaa

End date jj/mm/aaaa

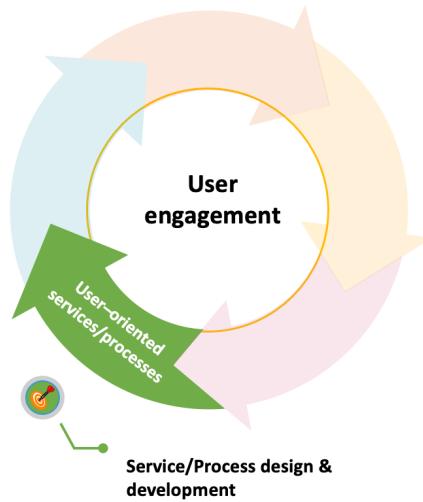
Clear Filters

Advanced



- Pain point steps identified, e.g.:
 - Intuitive service catalogue and navigation
 - Well-organised data repository
 - Functionalities: searching, preview, multiple-choice plotting, download options, dashboards, visualisations, etc.
 - User support & help functions
- Benefit (user perspective):
 - Improving user's workflow and interaction from data discovery to data availability

User Strategy Cycle – Service development



- >User centric approach: continuous alignment of services and process to match the user needs



- Balancing user needs with operational requirements**

- User feedback integration

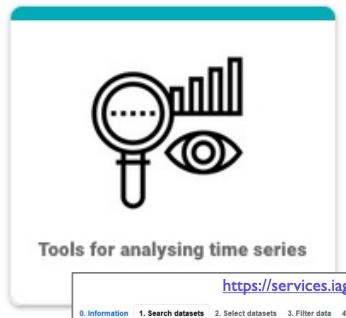
- Iterative development

- Key outcome:

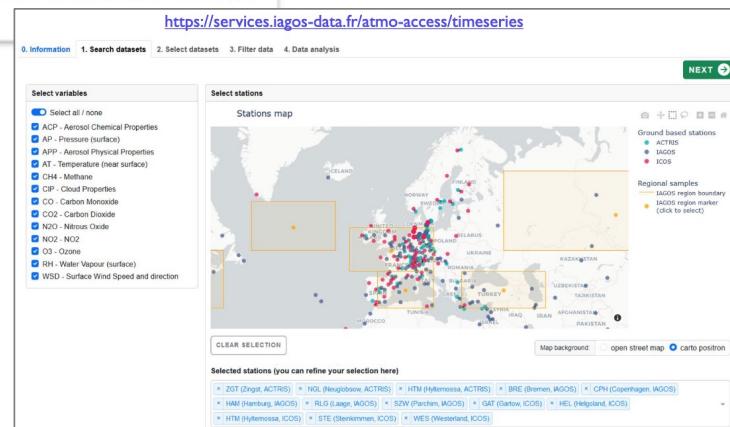


User Strategy Cycle – Service development

Use case 1: Development of a new, advanced online service (example ATMO-ACCESS)



Tools for analysing time series



- **User-centred development process:**

- 1) Research:

- User need assessment (survey, interviews → user persona)
- Identifying interface and tools (platform, data sets, FAIR principles, version control)

- 2) Feature design: interface and backend processes

- Data management, analysis, visualisation, functionalities, compliance with data policy

- 3) Implementation, testing and feedback

- 4) User training + support

- 5) Launch

- 6) Iteration

- **Outcome:** creating and delivering an upgraded, easy-accessible and user-friendly novel collaboration tool for data analysis

-

Is there a difference between the user experience and a service development?



User strategy –UX vs Service development

User experience

Interaction between users and service (RI)

Interface, specific pain points

User perspective

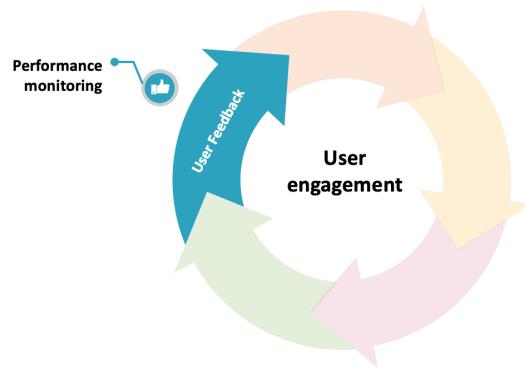
Service / Process development

Entire service lifecycle for creating, developing and delivering a service

Entire service process as a whole, involving both front-end (user-face) and back-end (facility, operations)

User needs vs operational capability and efficiency

User Strategy Cycle – Performance monitoring



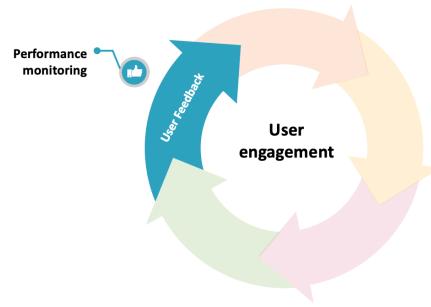
💡 Why is performance monitoring important?

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User Strategy Cycle – Performance monitoring



🌐 Why is performance monitoring important?



✗ Continuous monitoring and assessment of access activity



✗ Decisions made based on reliable data



✗ Performance evaluation



✗ Identifying problems (early)



✗ Continuous improvement



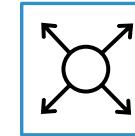
✗ Measuring success



✗ Accountability and transparency



✗ Forecast trends

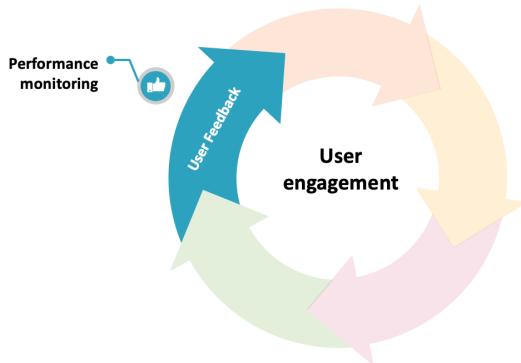


✗ Benchmarking



✗ Risk management

User Strategy Cycle – Performance monitoring



Monitoring using performance metrics

- Using access statistics for quantitative and qualitative performance evaluation
- Tracking and assessing the effectiveness of the strategy

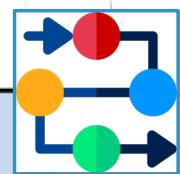
Metric type	KPIs → Application for access and service provision
Organisational metrics	<ul style="list-style-type: none">• Quality of managing the access process and service provision• Interactions, reporting, result dissemination
Operational metrics	<ul style="list-style-type: none">• Quantity of services offered• Access provided
User metrics	<ul style="list-style-type: none">• Size and extent of the user community• User interest and satisfaction
Strategic metrics	<ul style="list-style-type: none">• Progress• Relevance and impact of the services provision
Financial metrics	<ul style="list-style-type: none">• Cost effectiveness of the service provision• Relevance to RI's financial sustainability

KPIs – Organisational metrics

- Quality of managing the access process and service provision
- Interactions, reporting, result dissemination



Category	Performance Indicator	Definition
Visibility	Number of pages views on ACTRIS website TNA part	Measure of visibility and web presence
	Time spent in exploring the ACTRIS TNA pages	Measure of relevance of service catalogue
	Number of impressions on ACTRIS TNA related tweets	Measure of visibility in social media



Category	Performance Indicator	Definition
Access process	Number of user helpdesk requests	Measure of capacity for stimulating user interest
	Average duration of access process, in weeks (from date of user request to acceptance by SAMU)	Measure of ACTRIS readiness for regular processing of user requests
	Average duration of evaluation of user request by selection panel, in weeks	Measure of readiness of review panel
	Level of access provider satisfaction of access process and interactions	Measure of access providers satisfaction: not satisfied (1), slightly satisfied (2), moderately satisfied (3), very satisfied (4), extremely satisfied (5)
	Level of reviewers satisfaction of access process and interactions	Measure of access providers satisfaction: not satisfied (1), slightly satisfied (2), moderately satisfied (3), very satisfied (4), extremely satisfied (5)
	Level of users satisfaction of access process and interactions	Measure of access providers satisfaction: not satisfied (1), slightly satisfied (2), moderately satisfied (3), very satisfied (4), extremely satisfied (5)
	Level of SAMU satisfaction of access process and interactions	Measure of SAMU satisfaction: not satisfied (1), slightly satisfied (2), moderately satisfied (3), very satisfied (4), extremely satisfied (5)

KPIs – Operational metrics

- Quantity of services offered
- Access provided



Category	Performance Indicator	Definition
Access statistics	Number of services requested by users	Measure of user demand
	Number (and percentage) of requested services accepted	Measure of quality of user request
	Number (and percentage) of projects provided vs planned	Achievement of project goals
	Quantity of access provided to users in units of access	Measure of the quantity of access provided, expressed in corresponding units of access of the service concerned access
	Number (and percentage) of access provided vs planned	Achievement of project goals
	Percentage of physical/ remote access provided in units of access	Measure of operational capacity for access provision as a function of access type

KPIs – User metrics

- Size and extent of the user community
- User interest and satisfaction



User access

Category	Performance Indicator	Definition
	Number of user requests for access received by SAMU	Measure of the total number of requests received from users
	Number of individual users served	Measure of the ACTRIS capacity to serve users
	Number (and percentage) of user served vs planned	Achievement of project goals
	Number of users per country	Measure of the origin of users per country
	Percentage of users originating in the 17 potential ACTRIS member countries	Measure of the user base within the RI perimeter
	Percentage of users originating in European countries and associated states	Measure of the user base within Europe
	Percentage of user groups originating in countries outside Europe	Measure of the user base worldwide and of the capacity for international collaboration

36

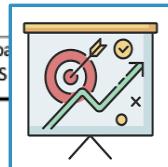


Category	Performance Indicator	Definition
User type	Number of users per scientific field	Measure of the capacity for attracting users from other domains
User type	Number (and percentage) of users from academic and public research organisations	Measure of users from academic and public research organisations
User type	Number (and percentage) of users from public sector	Measure of users from public sector
User type	Number (and percentage) of users from private sector (business and industry)	Measure of users from private sector
User profile	Percentage of new users	Measure of attracting new users
User profile	Percentage of young users (students, early career scientists, ...)	Measure of training capacity
User profile	Percentage of female users	Measure of gender balance

KPIs – Strategic metrics

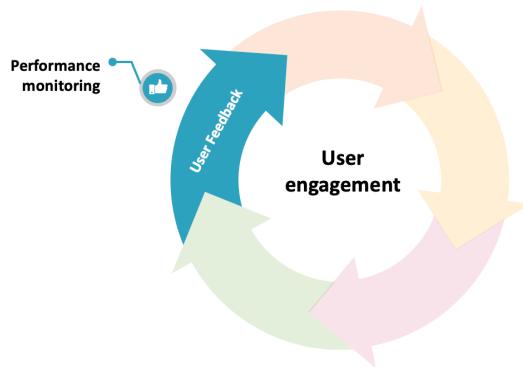
- Progress
- Relevance and impact of the services provision

Category	Performance Indicator (suggested KPIs are indicated in bold)	Value type	Definition
Impact on communication	Increase in number of communication activities	quantitative	Measure of dissemination capacity
	Number of citations of ACTRIS-related publications	quantitative	Measure of enlarged scientific audience
	Number of communications in media	quantitative	Measure of public visibility
Impact on outreach	Increase in number of user requests	quantitative	Measure of growth of user needs
	Increase in number of services provided	quantitative	Measure of growth of service capacity
	Increase in number of users served	quantitative	Measure of growth of user community
Impact on technology	Increase in number of users from different countries	quantitative	Measure of growth of user community
	Increase in number of users in the atmospheric domain	quantitative	Measure of capacity needs in ACTRIS



Category	Performance Indicator (suggested KPIs are indicated in bold)	Value type	Definition
Impact on technology	Increase in number of users from other than atmospheric domain	quantitative	Measure of cross-disciplinary capacity
	Increase in new services offered to users	quantitative	Measure of capacity to adapt to evolving user needs
	Number of citations of ACTRIS-related publications	quantitative	Measure of relevance of research output due to ACTRIS
Impact on training	Number of peer-reviewed papers resulting from use to services	quantitative	Measure of production of knowledge due to ACTRIS services
	Increase of measurement quality	qualitative	Measure of capacity for improvement: very low (1), low (2), moderate (3), high (2), very high (5)
	Degree of technological development (instrument testing, development, new products)	semi-quantitative	Measure of capacity for technological development resulting from services: very low (1), low (2), moderate (3), high (2), very high (5)
Impact on training	Increase in number of young users and early career scientists	quantitative	Measure of training capacity
	Increase in number of new users from new regions/countries	quantitative	Measure of training capacity
	Increase in number of users from the private sector	quantitative	Measure of attractiveness towards the private sector

User Strategy Cycle – User feedback & Interaction



- Continuous interaction with users throughout the access process
- Feedback questionnaire is efficient tool to gather information from user after service provision
- Essential assessment of quality of the service provision and to improve the overall access process and feedback on user satisfaction

Questionnaire

- ✓ General information: user, services received, platform(s) accessed, ...
- ✓ How access opportunities were obtained (e.g., websites, mailing lists, social media, colleagues, events, ...)
- ✓ Required resources for access



User Strategy Cycle – User feedback questionnaire 2/3

Evaluation of different aspects of the access process (e.g., scale from 0 to 5)

6. Please assess the service provided by ACTRIS IMP
(0 = not evaluable, 1 = very poor, 2 = sufficient, 3 = good, 4 = excellent)

• Advertisement and call for access

6.1 Publicity and information about the access opportunities:	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
6.2 Comments related to the TNA advertisement and calls:
• Application	
6.3 Practical information on how to apply, on available support and documentation:	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
6.4 Application form and easiness of the procedure to apply/submit:	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
6.5 Length of time for preparing the application:	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
6.6 Comments related to application:

• Access to facility

6.7 Information and support for organizing the access:	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
6.8 On-site scientific, technical, administrative and logistic support by the access provider	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
6.9 Comments related to access:
• Post-access	
6.10 Quantity of post-access documentation required	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
Quality of services accessed	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
6.11 Comments related to post-access:
• Overall aspects	
6.12 Interaction with and support by SAMU	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
6.13 Please evaluate the overall service provided by the ACTRIS IMP TNA:	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
If your evaluation is ≤2, please briefly explain why:	



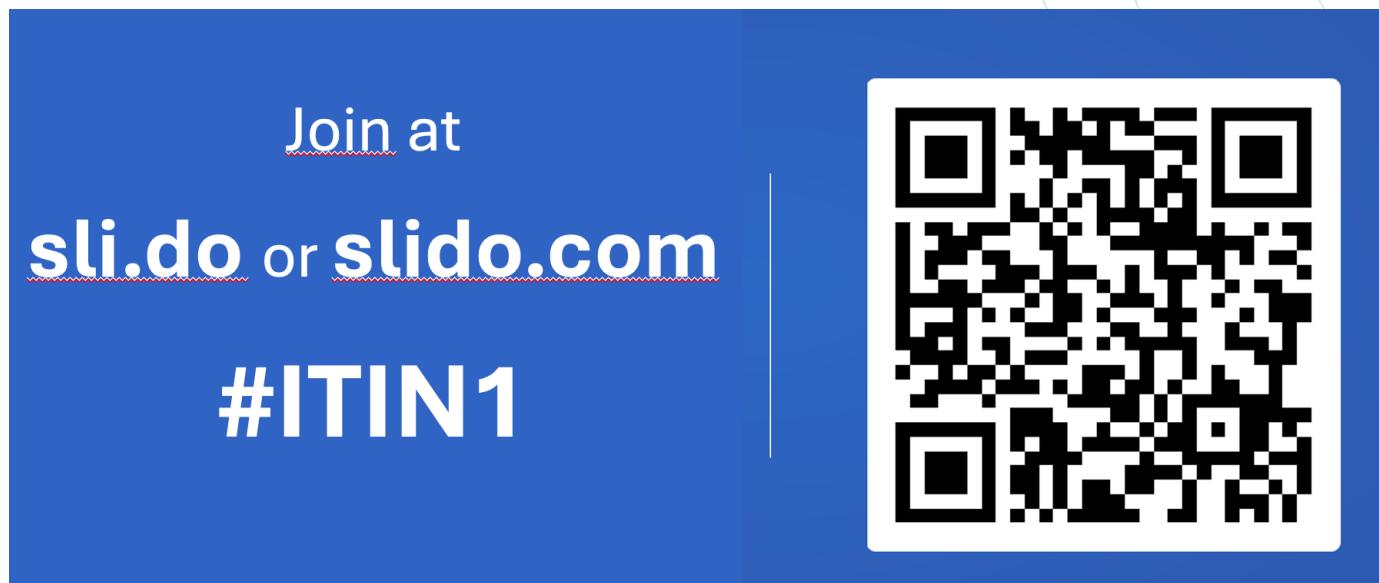
User Strategy Cycle – User feedback questionnaire 3/3

General user satisfaction and/or additional comments:

- Potential benefits of access
- Lessons learnt
- New discoveries/ breakthroughs/ novelties
- Contribution to filling a patent or prototype design
- Suggestions for improvement
- Any other comment



What is your key takeaway from this session on user needs and experiences?





THANKS!

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3.1: "Fund for the realisation of an integrated system of research and innovation infrastructures"



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