Milestone 6.1: ACTRIS User experience map

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1 About this document

This document contains the ACTRIS User experience map, which is the representation (also visual) of the main interactions between ACTRIS and its users regarding physical and remote access to services. It describes in detail all activities involved in preparing both the map of current interactions and that of future interactions, the latter depicting plans for improvements to be introduced to facilitate and make the interactions more fluid by removing current pain points.

The document was prepared in the context of the activities of the ACTRIS IMP (Aerosols, Clouds and Trace Gases Research Infrastructure Implementation Project). The ACTRIS IMP is meant to take ACTRIS into a new level of maturity supporting the implementation of the organizational, operational and strategic frameworks of the RI. In particular, Work Package 6, which is coordinated by the CNR, deals with the implementation of the system of access to the ACTRIS Central and National Facilities and to the available services, following a user-centric approach coherent with the ACTRIS technical capability and mission.

The document is structured in 10 different sections. After this introductory Section 1, Section 2 includes the glossary of main terms related to the user experience (UX) to facilitate reading and jargon understanding by non-experts in product/service development and UX. Section 3 provides a definition the user experience, what it is and what it is for, along with an overview of the main evolutions of its use. Section 4 clarifies the purposes for the user experience map, and Section 5 describes how it was developed for ACTRIS. Section 6 provides the results of the analysis carried out to cast light on the current experience of access from a user/provider point of view. Section 7 presents the current user experience of physical and remote access to ACTRIS resulting from the user research carried out. Section 8 illustrates the future, planned ACTRIS-Users interactions for the physical and remote access to services, with related recommendations and proposals for future action in Section 9. Finally, Section 10 provides the list of references consulted.

2 Glossary

Channel
Any medium of interaction/communication with users (print, the web, mobile, voice calls, meetings, etc.).

Design Thinking
Design Thinking is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology and the requirements for business success.

Experience design

Experience design is the practice of designing products, processes, services, events and environments with a focus on the quality of the user's experience, particularly the level of engagement and satisfaction that the user derives from a product or service while it addresses their needs and context.

Journey map

A journey map is a visualization of the process that a person goes through in order to accomplish a goal and find a desirable solution (product, service, process) to a need. It helps think through and strategize about key moments of different stakeholders as they experience a solution.

Pain Point

A persistent or recurring source of trouble, annoyance or distress (as with a service or product) that frequently inconveniences or annoys users/customers.

Service design

Service design involves the activity of planning and organizing people, infrastructure, communications and material components of a service in order to improve its quality and the interaction between providers and customers.

Takeaways

Key findings from the experience mapping process, which are the basis for developing recommendations.

Touchpoint

A touchpoint is any point of contact/interaction between a user and the provider of a solution (e.g. product / service / program / system).

User-Centered Design

UCD is a product/service development approach that focuses on end users. The philosophy is that the service/product should suit the user, rather than making the user suit the service/product. This is accomplished by employing a variety of research and design techniques, to create highly usable and accessible services/products for them.

User experience

All aspects of the user's interaction with an organization/company, its services and its products.

User requirements

Needs, demands and expectations of the users, with details of the features/attributes a product/service should have or how it should perform from the users' perspective.

3 User experience defined

User experience, commonly referred to as UX, is the complex of a person's perceptions and responses that result from using a service, product or system. In other words, it is the consequence of everything a person encounters and experiences during an event (access, for example), which produces a reaction and leaves an impression on that person.

The User Experience Professionals Association (UXPA) defines user experience as "Every aspect of the user's interaction with a product, service, or company that make up the user's perceptions of the whole". The quality of the interaction (good, smooth, etc.), the perceptions of utility, ease of use and efficiency, and mostly the overall satisfaction that a person experiences with a service/product/organization are the UX main factors. Also, it is a consequence of functionality, performance and assistive capabilities of a system, service or product.

The user experience regards all types of products and services, though in the past it has been commonly used in relation to interactive systems, like web applications, other software applications and websites. The ISO 9241-210:2019 standard on the Ergonomics of human-system interaction — Part 210: Human-centred design for interactive systems considers the user experience as a crucial element of the human-centred design, an approach to plan and develop systems meant to make them usable and useful by focusing on the users.

However, the user experience has evolved a lot since its first formulation and is growingly transcending this original domain to involve every kind and type of interaction. It goes from the single product to the overall relation of a user with a company, institution and organization. The user experience has become a central concept of Design Thinking, a more general method used for designing practical and creative solutions to problems in a highly user-centric way, building on and promoting user engagement.

As the name suggests, Design Thinking draws from methods and processes used by designers, but it is applied to a vast range of different fields — starting with architecture and engineering, of course, but now definitely business, culture[1], society and science too. Design Thinking is used in all these sectors to stimulate innovations deriving from creative and original solutions that are looked for and designed engaging and collaborating with users, building on their perspective.

Design Thinking and UX are used by an increasing number of R&D organizations, especially in the life science sector and in the production of scientific software[2]. There is even a call to brushing up scientific papers and conferences with the UX [Ref. 18]. But even without going that far, there is a well-documented and studied propensity to apply Design Thinking and UX to education and training to improve research and performances in these fields through user engagement [Ref. 11]. Higher education institutions are

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[1] For example for museum exhibitions and museum technologies, see Ref. 15, Ref. 16, and Ref. 17.

[2] See the UXLS (User Experience in Life Science) community supported by the Pistoia alliance, a global, not-for-profit members' organization established in 2009 by representatives of AstraZeneca, GSK, Novartis and Pfizer to promote projects that generate value for the worldwide life sciences community. https://uxls.org/

progressively assigning Design Thinking a role in identifying new approaches to teaching/learning and delivering educational services[3].

Design Thinking fosters the innovation of services, products and processes through user experience and user engagement. Innovation results from a deep understanding of the users, their needs and problems, with solutions found together in an iterative process that makes both organizations and users evolve. As such it can be strategically applied also to the design of access services and research services.

Here, considering the RI's mission and the user-oriented approach affirmed in the ACTRIS user strategy, it is applied to the design of the ACTRIS process for physical and remote access.

4 Purpose of the User experience map

The user experience map is a Design Thinking tool to understand the users and enable innovation of services, processes and interactions by taking the user perspective. The map is useful to plan the interaction/experience with the user starting from the current situation and modelling new different steps for an improved and more satisfying experience.

Here it is used to serve the following purposes:

- to support the organization and management of the physical and remote access to ACTRIS services, helping to evolve the current processes by:
  - o enabling a better, also visual, understanding of what currently happens so to highlight what works and what doesn't;
  - o using user inputs and feedback to create a future state experience map to generate ideas and plan an improved process;
  - o producing recommendations and a clear roadmap for implementing the needed changes;
- to follow up and substantiate ACTRIS user-centric approach;
- to promote and concretely pursue user engagement.

The map is particularly useful for ACTRIS during this implementation phase, to support the current transition from project-based access to ACTRIS facilities and services to the coordinated legal-entity-based RI access provision, promoting user trust and increasing user awareness.

Providing sound RI's governed access services can be challenging. A user experience map can be a useful starting point to tackle this challenge in the best possible way. The map shows the sequence of various steps starting from the user's necessity to satisfy a need with a service, up to its use. It enables

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[3] See the Erasmus+ research project D-Think - Design Thinking applied in Education and Training, aimed to promote the application of Design Thinking as a framework to innovate HEI (Higher Education Institutions) and VET (vocational education training , Ref. 9.

understanding user needs, comprehensively examine user interactions, iterate to find solutions and design satisfying processes.

Also, it is used as a key tool and step in the user engagement, understood and figured out a cyclic process to promote and maintain user interest, satisfaction and commitment.
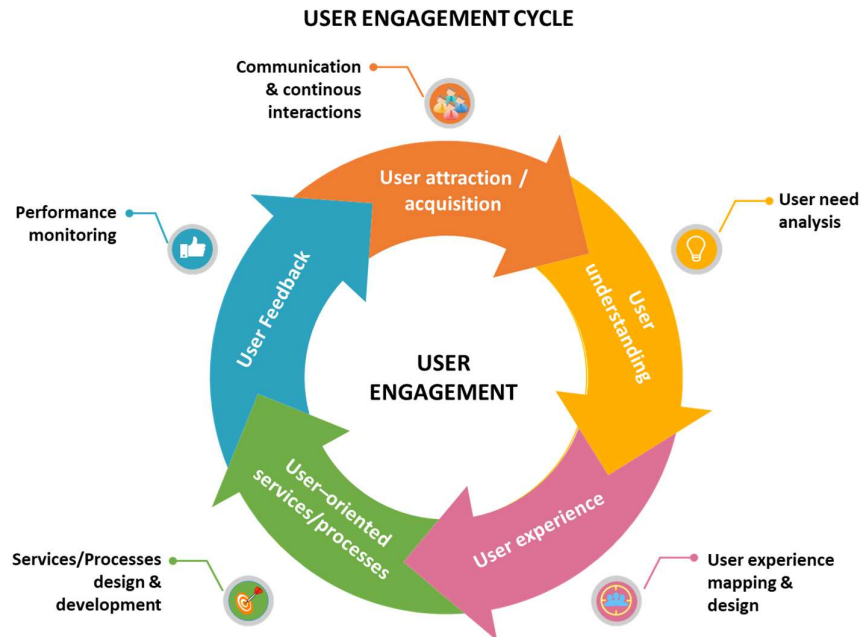
Figure 1. User engagement cycle

5 ACTRIS UX Mapping process and timeline

Building the ACTRIS user experience map implies a good understanding of ACTRIS users, what they need and what they value, as a way to prepare the design of the ideal experience of receiving physical and remote access to ACTRIS services.

The process for mapping the ACTRIS user experience followed the main steps of a standard development process, placing users at the core of analysis and developments. It is illustrated in **Figure 2**, which also provides the timeline for the map preparation.

ACTRIS User experience process

Analysis	Design	Internal Validation	User testing	Adjustments	Iteration
Collection of basic information on past experience, from different sources. Identification of main problems	Digest & organize the information collected to build the maps of current and future experience.	Sharing with the ACTRIS Community	Testing processes with users in IMP TNA pilots. Observe and learn from user behaviour and reactions	Adjustments following user inputs and feedback after testing	Continuously monitor user feedback to improve processes when needed.
January 2021	February 2021	Feb. - Mar. 2021	Fall 2021 - 2022	Spring 2022 - 2023	2023 → ......

Figure 2. ACTRIS User experience timeline
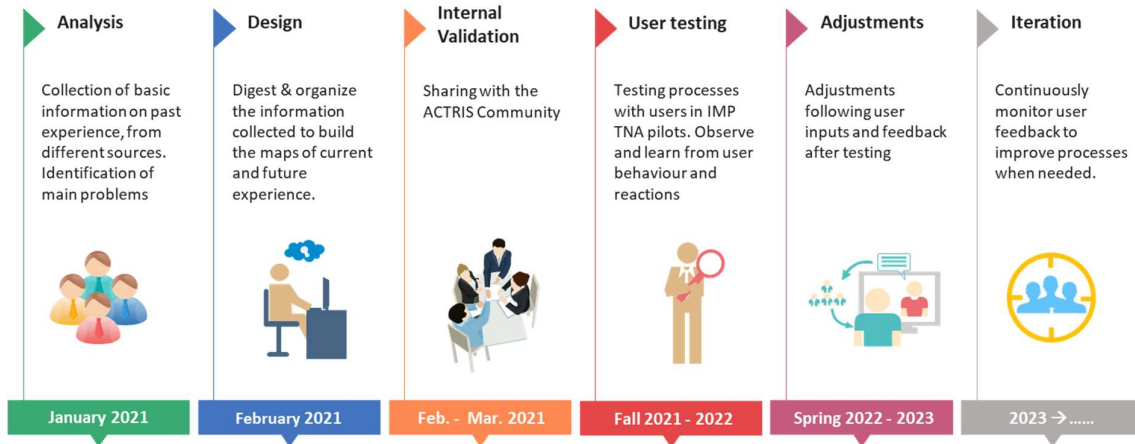
The first step of the process focused on the collection of information on users' experiences. That was done taking advantage of the survey launched in November 2020 to investigate the user needs and get inputs and feedbacks for future service and processes development.

The map design stage was based on the collected information, combining existing knowledge and new research on the users. All pieces of information were arranged and organized to figure out the user journey and to process the map.

The mapping exercise was then circulated internally for information, acknowledgment and feedback, to be presented to the wider ACTRIS community during the Spring Community meeting.

The following steps include testing the designed access process with users. That will happen hopefully with the 2nd and 3rd TNA call planned during the IMP project.

Tests will enable us to learn from user feedback during TNA pilots and validate the suitable access process. The process is iterative and always open to further improvements during operations.

6   ACTRIS User Experience Survey results

The ACTRIS User need survey closed at the end of January 2021 and included specific questions related to the access experience. Such questions, reported in **Table 1**, targeted service providers too to get their perspective.

Key questions answered on the access experience	
Only to users	**To users and providers**
• How was the access organized?	
• What's the most problematic and hard part about your experience of access to Facilities? (open text)	
• 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)	
• 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)	
• Why? (Open text)	
• Did you receive proper assistance before, during and after your access experience (application, selection, service fruition, …)? Y/N Please comment.	Did you receive proper assistance before, during and after your provider experience (application, selection, service fruition, …)?
How would you describe your overall access experience (extremely satisfactory, somewhat satisfactory, neutral, somewhat poor, extremely poor)?	
What would you suggest as possible improvements?	

Table 1. Specific questions related to the access experience as user/provider of ACTRIS services in the ACTRIS user needs survey.

A total of 103 users took the survey, which was structured with branching logic to automatically send different respondents to different branches, where they only answered relevant questions according to previous responses to specific questions. Based on the respondents' characteristics (user or provider, new or experienced), a total of **40 users** and **23 providers** reached the access experience section of the survey.

6.1 User perspective of the physical and remote access experience

The following graphs result from analysis of the users' answers to questions in the access experience section of the survey. Not all users answered to all questions in the section (with answers to single questions ranging from 21 to 40), so the reported rates just reflect the percentage of answers to the specific question they refer to. Furthermore, it is important to highlight that the percentage of respondents is only a very small fraction of the nearly 1000 users in past access experiences[4].

Although not statistically representative, the received replies are helpful and provide some user views on the process to get access to the ACTRIS facilities as well as on how respondents evaluate the experience.
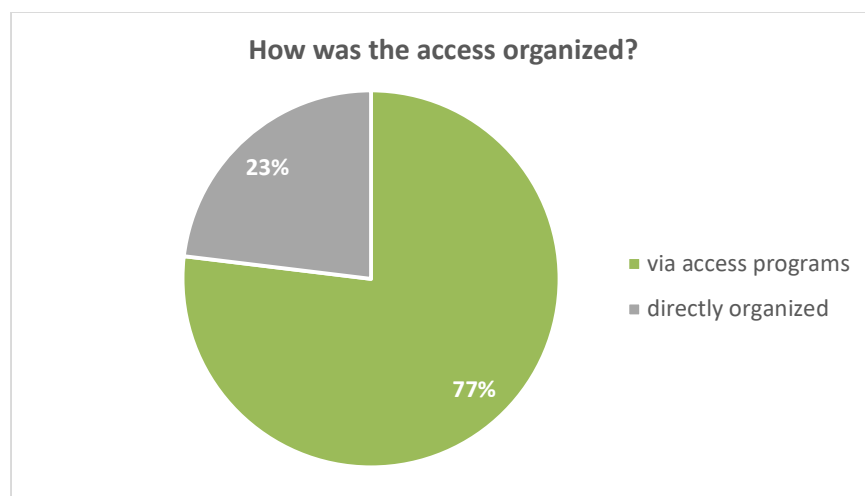

Figure 3. Main modalities of access organization

As the graph in **Figure 3** above shows, access to ACTRIS facilities was mainly organized and provided in the frame of national or EU-funded access programs. It is worth keeping this in mind as, chances are, most pain points highlighted in the answers to the survey may refer to Trans National Access (TNA) rules, requirements and procedures.

It is also interesting to note the prevalence of "informal" channels and contacts (word of mouth, phone calls, direct exchanges at meetings and conferences) in arranging access, as reported in **Figure 4Error! Reference source not found.**. This is natural and characteristic of all past accesses, long before the

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[4] Within the ACTRIS-2 (Aerosols, Clouds, and Trace gases Research InfraStructure) project, 371 users accessed 18 observational platforms and 734 calibrations were performed via TransNational Access (TNA) in the 2015-2019 period. In the frame of the EUROCHAMP2020 (Integration of European Simulation Chambers for Investigating Atmospheric Processes – Towards 2020 and beyond) project 183 users had access to 17 exploratory platforms via TNAs in the period 2017-2019.

introduction of access programs, and has continued to be relevant with many accesses taking place in the context of existing collaborations between research groups. At the same time, it confirms the opportunity to continue to strengthen the official channels too, to attract new users and increase the ACTRIS user base.
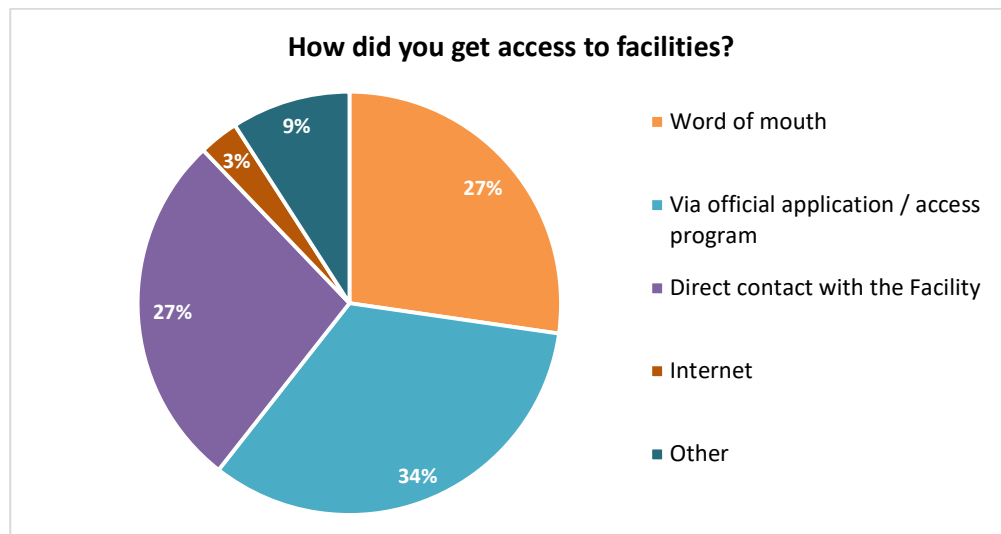

Figure 4. How users actually got access to ACTRIS facilities

No major problems in the access experience were reported by the majority of respondents, with some indicating paperwork and reporting duties, along with information and funding as issues when accessing the ACTRIS facilities, as shown in **Figure 5** and **Figure 9**.
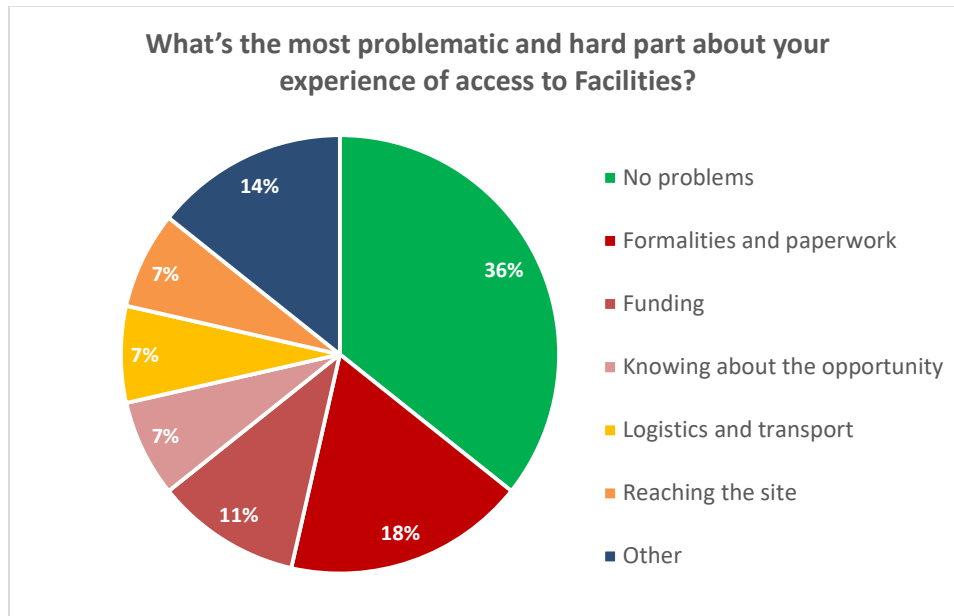
Figure 5. Problems experienced with access to ACTRIS Facilities

It is worth noting here that some users reported as annoying the need to undergo official applications and official contracting for recurrent activities such as calibrations and technical services. As previously mentioned, this seems connected to the fact that provision of access to technical services mostly happened in the frame of TNA schemes in EU-funded projects. It will be taken into account as input for the design of the process for access supported outside TNAs schemes. Furthermore, this comment underlines the need to better communicate to the users the value of the opportunities they are given, also in monetary terms, and the additional burden of fulfilling the paperwork that is necessary to cover the costs of their access.

Another interesting comment reported uneasy coordination with local users of the facilities. This, too, appears to be worth consideration in the map design stage, to guarantee a better information about the availability of resources and a better coordination during the access.

Finally, in some cases, users found it difficult getting to know about the opportunities of access. This highlights some communication issues that seem confirmed by a 28% of answers to the question "are there services you need but don't know how to access" (**Figure 6**) and the suggestion to improve communication also outside Europe, among others in **Figure 12Error! Reference source not found.** which reports all the improvements suggested by respondents, grouped by category.

Are there services you need but don't know how to access?

72%

28%

No   Yes
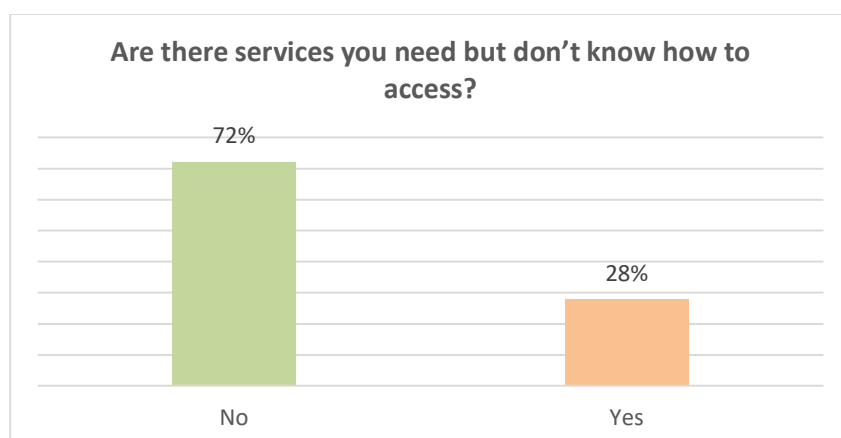
Figure 6. Awareness of access to services

Users mostly found the procedure to gain access easy (55%), with only 7% considering it somewhat difficult, as shown in **Figure 7**.

How easy or difficult did you find the procedure to get access to facilities and services

50%

40%

30%

20%

10%

0%

Extremely difficult | Somewhat difficult | Neither difficult nor easy | Somewhat easy | Extremely easy
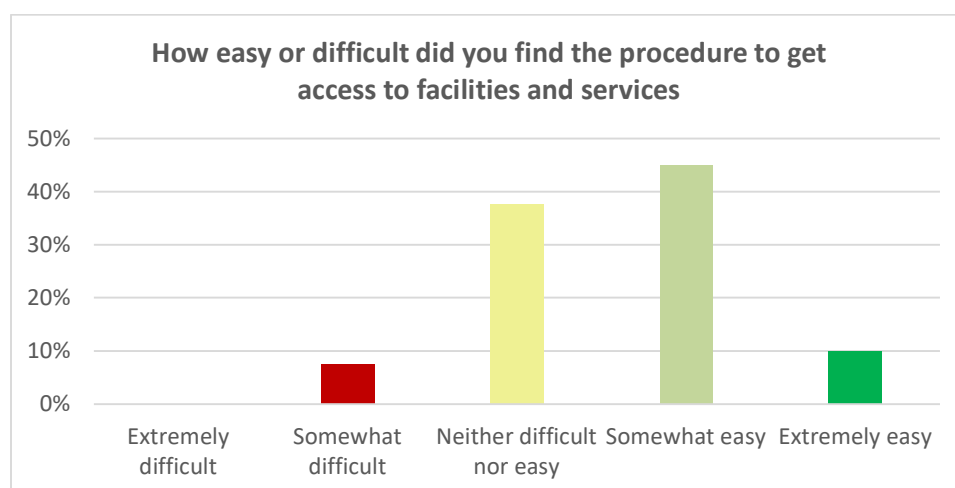
Figure 7. User opinions on the ease of access procedure

The access procedure was easy, painless mainly thanks to the valuable support received from organizers (coordinators of the access program) and service providers as reported in **Figure 8**. The 87,5% of respondents experienced such support, with proper assistance before, during and after access (**Figure 10**). **Figure 9** illustrates the main reasons reported by those who found difficult the procedure to gain access.

Getting access was (extremely/somewhat) easy thanks to

No detail — 31.8%
Good organization — 9.1%
Short, efficient process — 27.3%
Support from the organizers/providers — 31.8%
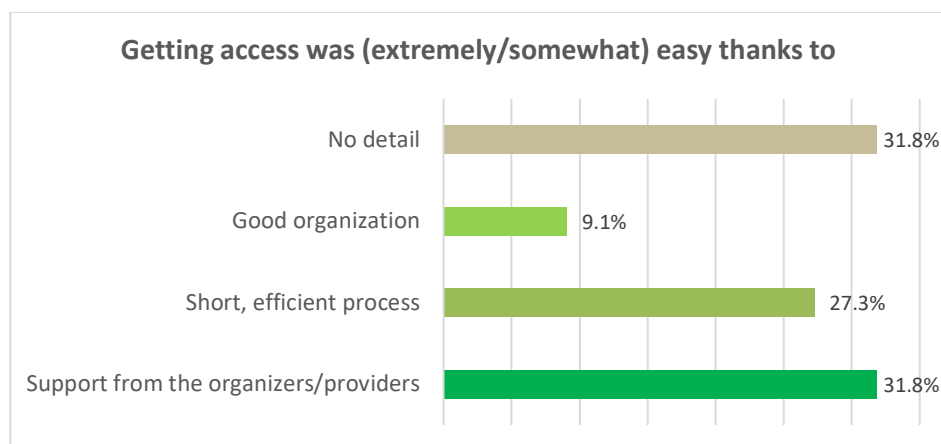
Figure 8. Main reasons for pain-free access

Getting access was (extremely/somewhat) difficult due to

Heavy procedures — 33%
Lot of paperwork — 67%
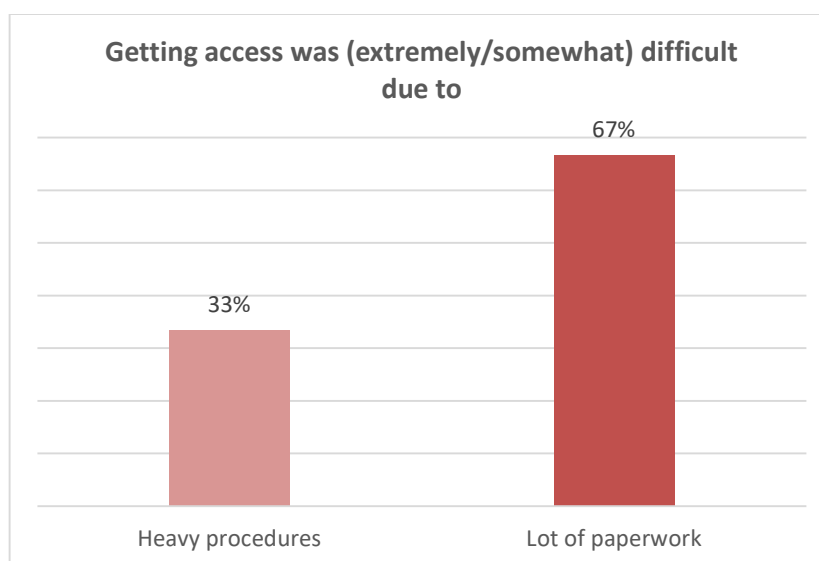
Figure 9. Main reasons for difficult access

Did you receive proper assistance before, during and after access?
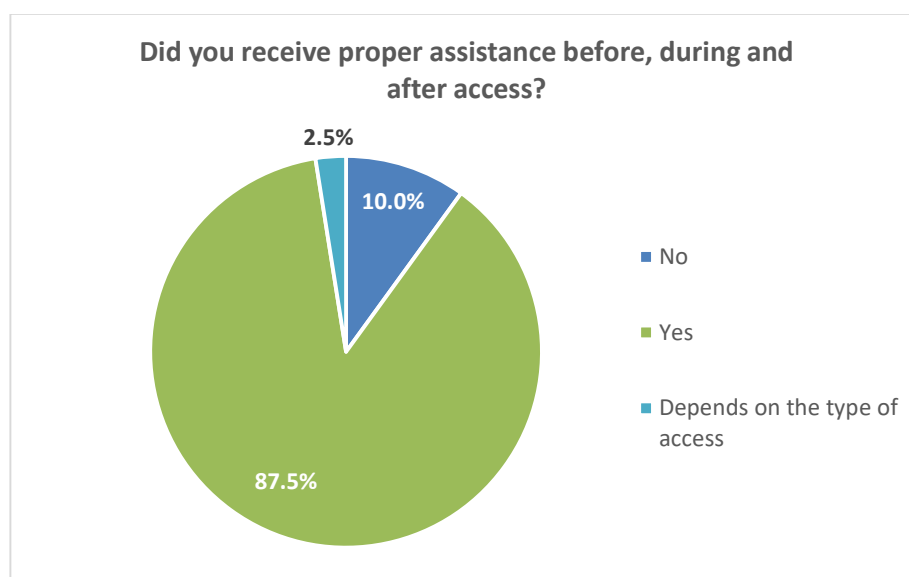
Figure 10. Assistance received

Overall, the current experience of accessing ACTRIS facilities received very positive evaluations (**Figure 11**). It is important to note that no one marked as poor the access experience and it is certainly a very good result.

How would you describe your overall access experience?

Figure 11. User evaluations of the access experience

Some areas for improvements were identified, though. Among these, recapped in **Figure 12**, simplification, removal of some TNA constraints (restriction on the Country combination, flexibility to use Airbnb[5], etc.) and communication.

What would you suggest as possible improvements?

Other (not related to the process)	19%
Better communication (also outside EU)	19%
Simplify and remove TNA constraints	33%
Nothing	29%
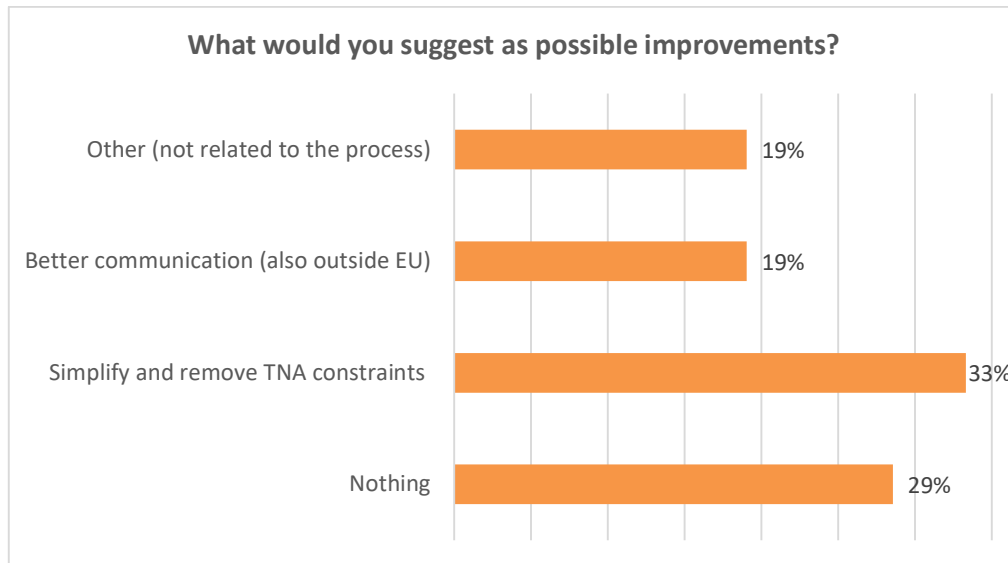
Figure 12. User suggestions of possible improvements

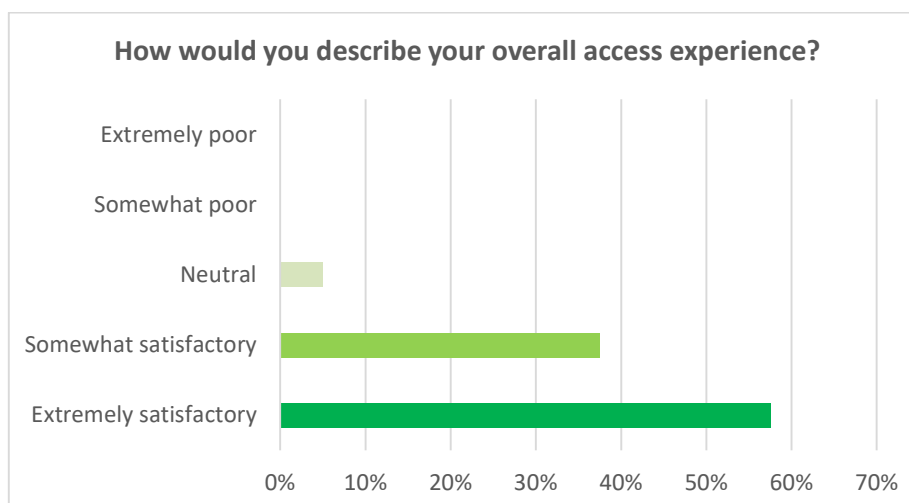It has to be noted that, for the entire section 6.1, some answers seem to refer more to the service experience in general rather than the experience of obtaining physical and remote access to services. It is the case, for instance, of some reported problems (receiving raw data from the experiments, time to workout data/observations, etc.) or some suggested improvements (upgrading of measuring instrumentation, involvement of more experienced researchers and technicians, motivation for collaborations, more measurements).

These are noted as valuable inputs and insights, to be considered and tackled by the single providers and the wider ACTRIS community as well. They'll be reported for discussion and consideration in the Updated analysis of user needs (MS 35).

6.2   Provider perspective of the access experience

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[5] Under the TNA scheme, some users get support for their travel and subsistence (T&S) expenses, provided that these are in line with the TNA provider's usual practices on travel. The reimbursement is based on the accounting rules of the organisation concerned.

The following graphs summarize outcomes of the analysis of the access providers' experience, based on answers to questions in the access experience section of the survey.

It's important to underline that, same as for users, the 23 providers responding to questions in the access experience section represent a very small portion of all the facilities' staff involved in access provision in past years. Also, not all providers answered all questions, with answers to single questions in the section ranging from 10 to 20. Therefore, the graphs and rates reflect the percentage of answers to the specific questions, are not statistically representative and in no way are intended to represent the experience of the generality of providers.

Nevertheless, answers offer a helpful and useful view of the access process and valuable inputs from the perspective of, at least some, providers.

In most cases the access was directly organized by service providers, as shown in **Figure 13**.
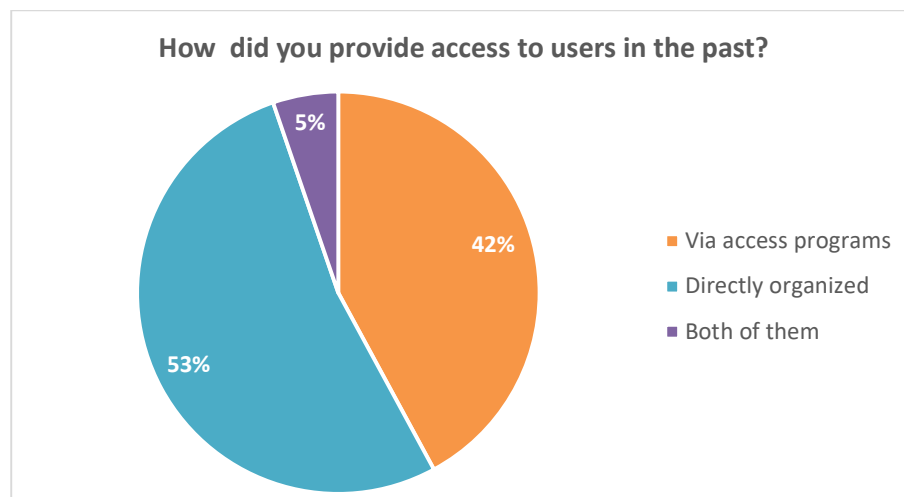
Figure 13. Main modalities of access organization (provider perspective)

Main issues and pain points experienced by access providers are the need of adequate resources (human resources as well as funds, but also time) to dedicate to taking care of the users and the administrative burdens related to access formalities (**Figure 14**).

What's the most problematic and hard part about your experience as access provider?

Category	Percentage
Need of more centralized guidance	17%
Resources (human, financial, time)	33%
Other (related to service, not process)	33%
Administrative constraints	17%
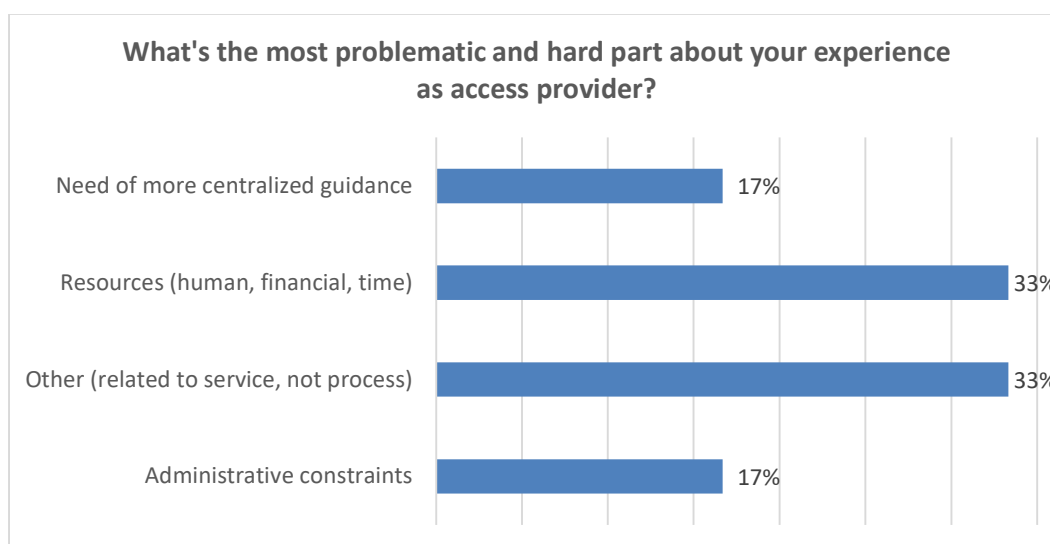
Figure 14. Issues experienced by access providers

It's interesting to remark that the user expectations, especially of private sector users, are reported as troublesome for some providers, and the same also for making physical access attractive for industries and researchers. This surely uncovers a huge need for improvement both in communication, in industrial relations and, not ultimately, in service (for innovation) development.

More centralized guidance on procedures, service development, responsibilities and coordination of access, user attraction is also reported as needed. In connection to that, one of the questions to providers was about the assistance received before, during and after the provider experience, with answers reported in **Figure 15**.
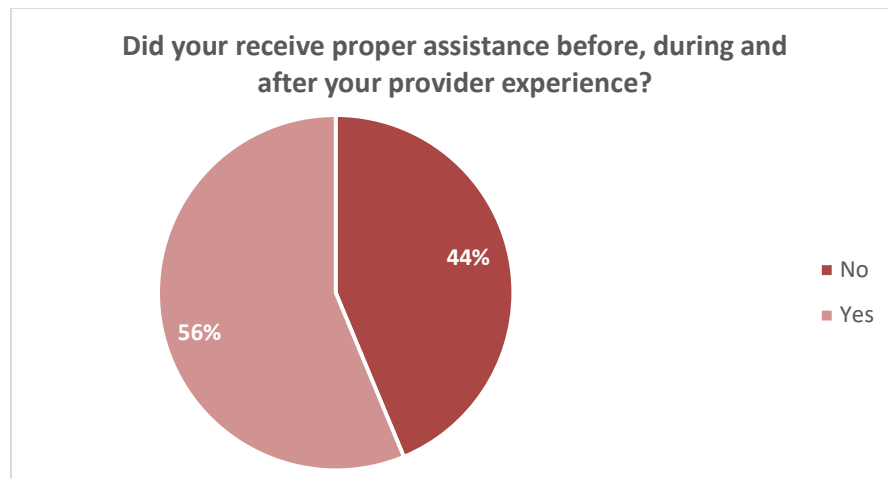
Figure 15. Assistance received as access provider

Being this a yes/no question, one could wonder whether the NO means that the providers needed support but did not receive it or that support may not have been necessary at all. Unfortunately, there is no way to ascertain that apart from coming back to respondents and ask for further clarifications and details. SAMU plans to do that soon with small, tailored surveys in the Science and User Forum and feedback forms in the access management platform.

According to providers, the procedure to provide access to facilities and services was neither difficult nor easy, although some of them found it difficult, as **Figure 16** shows.

ACTRIS IMP (www.actris.eu) is supported by the European Commission under the Horizon 2020 – Research and Innovation Framework Programme, H2020-INFRADEV-2019-2, Grant Agreement number: 871115

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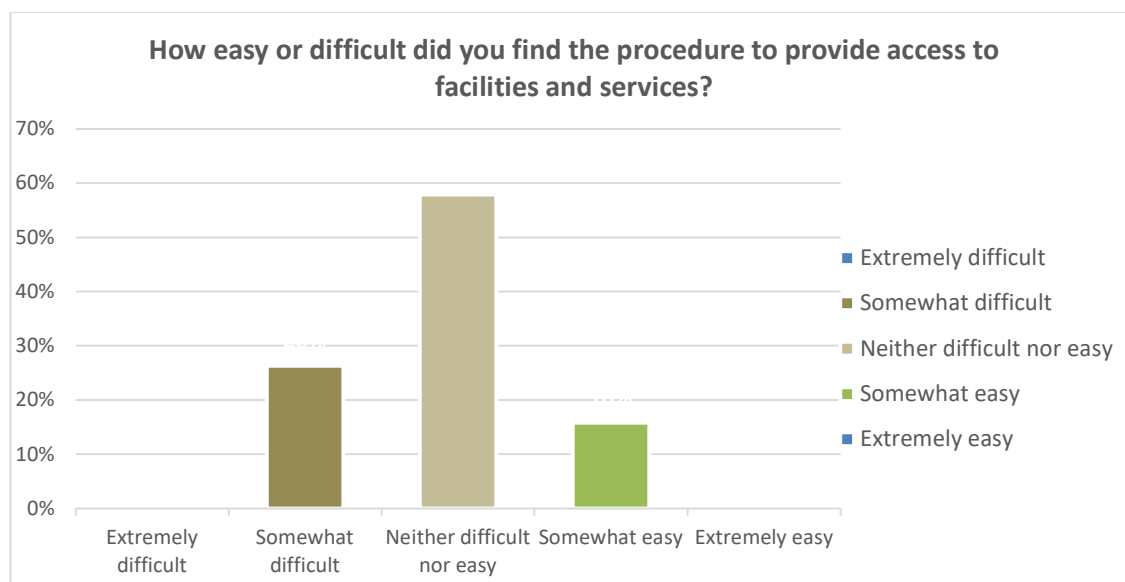
Figure 16. Provider opinions on the ease of access procedure

Access provision appeared rather easy thanks to the perceived adequacy of the TNA process and the absence of many formalities (**Figure 17**), although some respondents had different views and found providing access difficult because of too much paperwork (**Figure 18**). Notably, the absence of an online management system was also perceived as an issue.
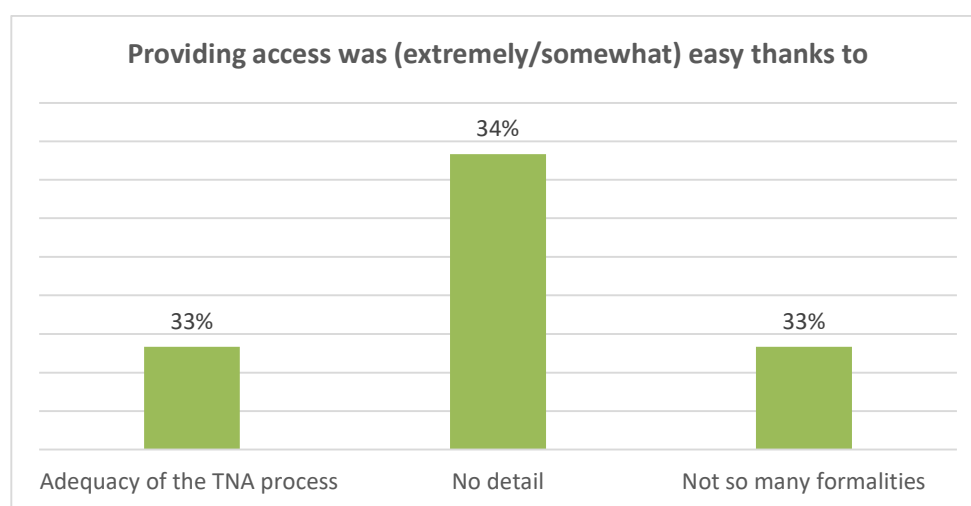
Figure 17. Main reasons for pain-free access (provider perspective)
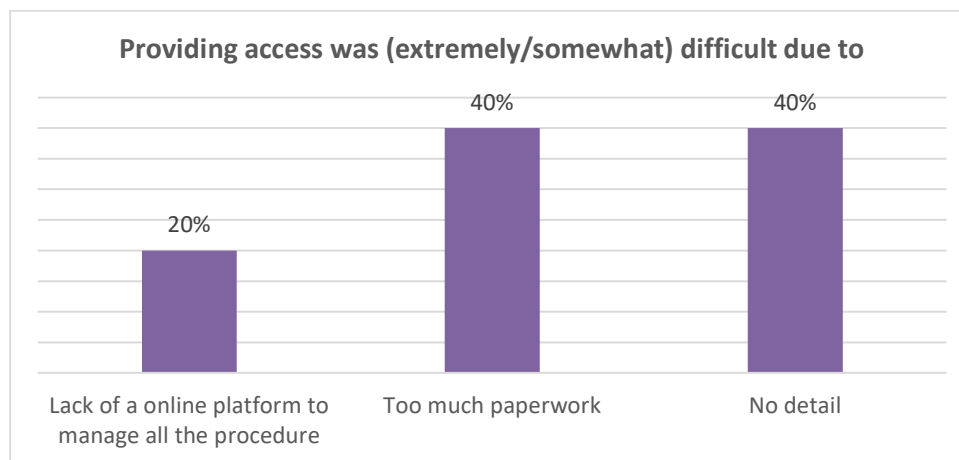
Figure 18. Main reasons for difficult access (provider perspective)

Overall, the current experience of providing access was evaluated very positively (**Figure 19**).
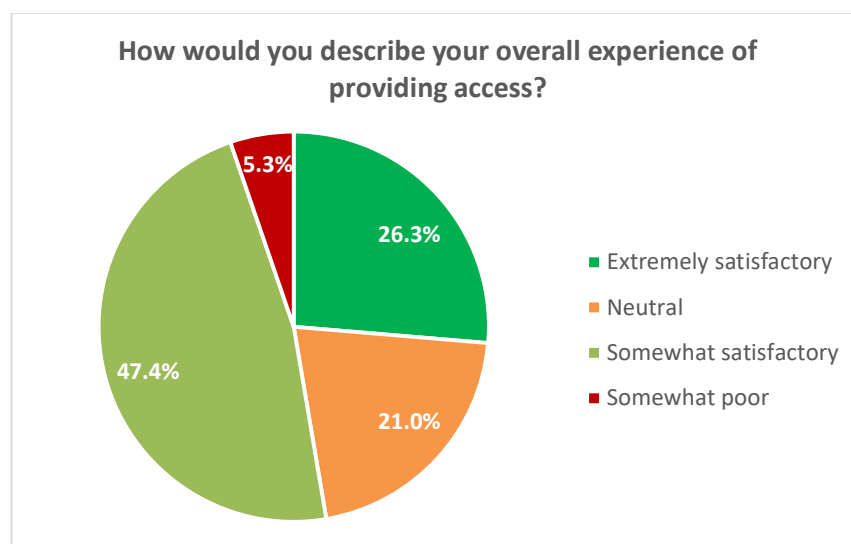
Figure 19. Provider evaluations of the access experience

Some areas for improvements were identified, including communication, reduction of bureaucracy, more guidelines also for providers, sharing of providers' experiences to learn from each other and, most notably, the opportunity to develop an ACTRIS access program with simpler rules and funding, to be managed online (**Figure 20Error! Reference source not found.**).
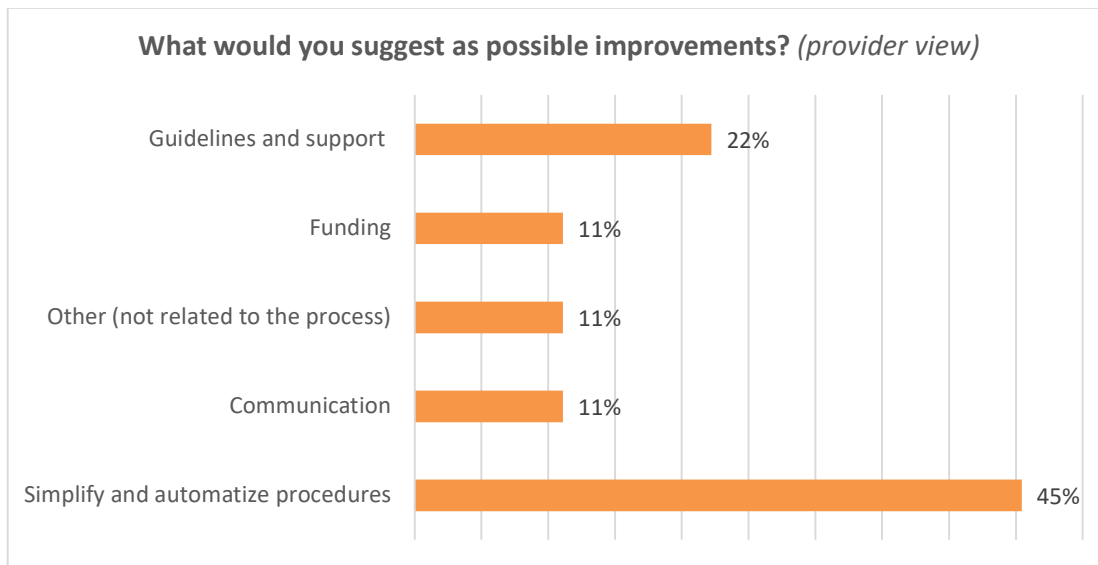
Figure 20. Provider suggestions of possible improvements

Similar to the users' responses, it is to be noted that some providers' answers in the survey refer to aspects and issues that go also beyond the strict experience of the access process. More general scientific, technical and organizational matters are involved and need to be considered and tackled at the wider ACTRIS community level.

7   Current user experience of access

Answers from the survey were completed, integrated and balanced with information and testimonies collected with in-house teams' help. Insights and intelligence also resulted from notes taken after exchanges and discussions on access themes during working meetings, workshops and sessions in the ACTRIS community meetings. Combining different sources, leveraging existing knowledge and new research and finally assembling the pieces of information that consider all possible angles, especially the painful, less frequent ones, is recommended in all UX manuals[6] to get the complete picture of the experience studied and to actually identify areas of improvement to work on. This is why the mapping exercise typically focuses on critical points rather than positive, but just to turn the former into opportunities for improvement. This approach is followed also here.

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[6] See, for instance, Ref. 6 and Ref. 7

The map of the current experience of physical and remote access to ACTRIS, which resulted from this first attempt at considering access also as an experience, is reported in **Figure 21**.

The map presents the current experience in the 4 main phases of access:

    I.   pre-access / awareness;

   II. the access process, meaning the sequence of actions and interactions that happen when the user approaches ACTRIS to request physical or remote access to a service and the request undergoes all steps planned for selection till the final decision;

  III. the service provision, which happens when the user is admitted to a facility and receives the service he/she needs;

  IV. the post-access, with interactions for reporting and collecting user feedback for future improvements.

    I.   <u>Pre-Access/Awareness Phase</u>

At present, the user experience starts in many cases with facilities identifying (summoning, selecting) users to propose access to. This seems to happen sometimes also before the formal, official application under an access programs, as observed and reported by testimonials.

Users are notified of the access opportunity directly by the provider, or thanks to word of mouth of acquaintances and/or colleagues.

This highlights two main quick takeaways in this phase:

- the opportunity to reinforce a uniform, coordinated communication to reach out users and raise their awareness
- the informal channels are especially good to support the official communication channels.

   II. <u>Access process Phase</u>

The user with a need that can be satisfied by an ACTRIS service comes across multiple different touchpoints represented by different facilities, each with its peculiar access style and sometimes with additional local formalities.

Prior dissemination of access evaluation criteria and grids needs to be reinforced.

Support from providers and access coordinators is relevant to ensure a positive user access experience. Support from the RI as well as exchange of experiences between providers (from those more experienced to the new ones) can be important to ensure a positive access provider experience.

Takeaways in this phase:
- the urge to substitute the multiple initial touchpoints with the ACTRIS single "entry point";
- the chance to design a uniform style for access (the ACTRIS style), as far as possible;

- the opportunity to move to a centralized, more automated access management system;
- the need to increase dissemination and establish common, uniform rules and criteria for different types of selection (scientific merit-based, technical merit-based, market opportunity-based), and to provide a single source of knowledge and truth about access to ACTRIS;
- the need for a sort of training support of the providers in the organization of access.

III. Service provision Phase

Once admitted (physically or remotely) at the facility, the user obtains the service he/she requested to satisfy his/her need. Adjusting and coordinating with local users of the facility is sometimes uneasy. Conversely, for the providers, a pain point can be finding the time and human resources to take care adequately of the user during the service provision.

Takeaways of the phase:
- the need to support a better management of the availability of services and resources.
- the opportunity to consider to allow some more time after access to work out data and complete the research. This is a point to be further investigated with the users and with the providers.

IV. Post-Access Phase

After the service provision, the user performs reporting duties (if any) and gives feedback on the service, the support received, the suitability of the service to meet his needs. Reporting duties are perceived as time-consuming loads.

Takeaways:
- the opportunity to lighten reporting duties, whenever possible considering all requirements coming from applied/applicable funding
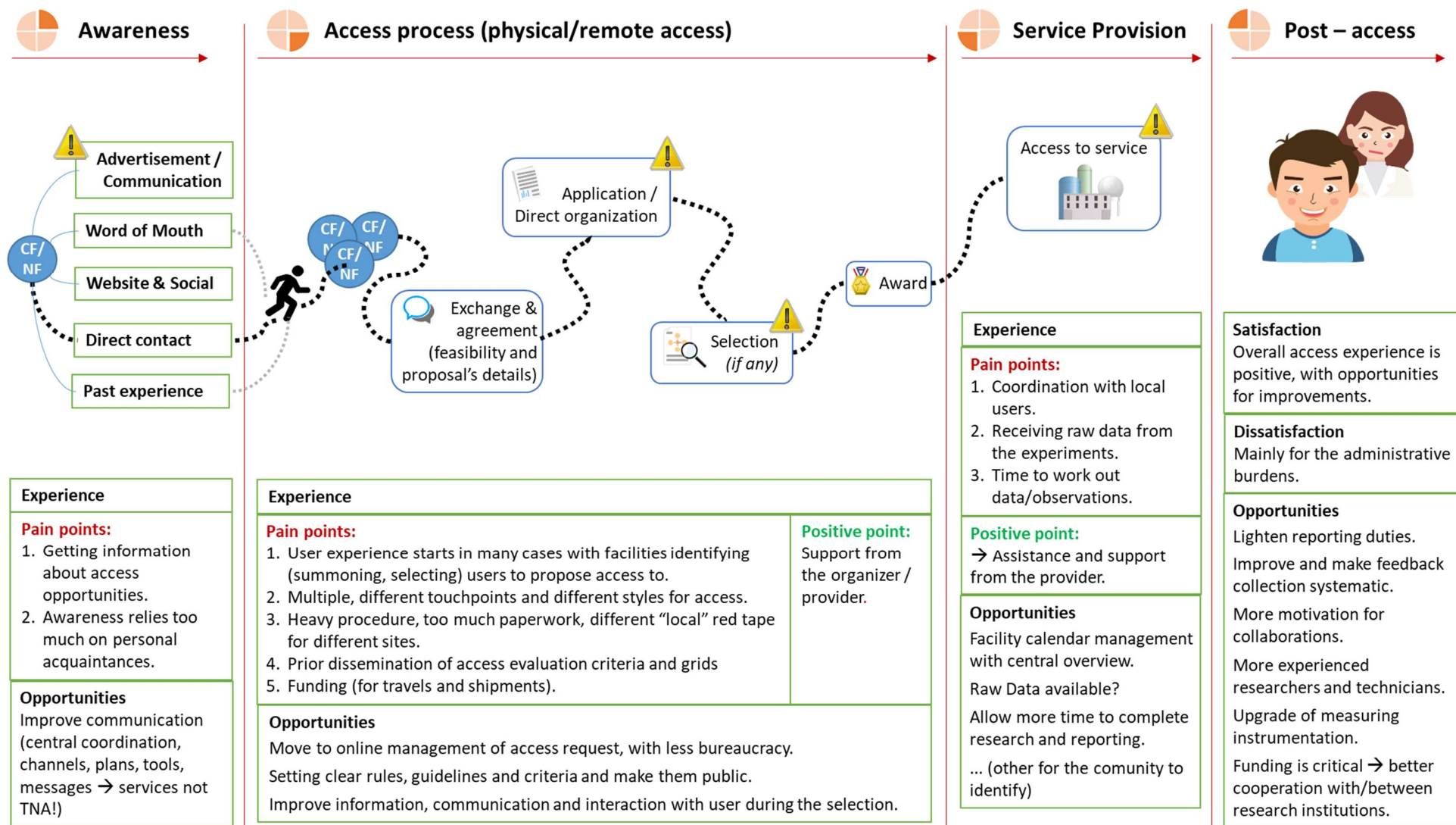- room for improving and making feedback collection systematic.

Awareness

Advertisement / Communication

Word of Mouth

Website & Social

Direct contact

Past experience

CF/NF

Access process (physical/remote access)

CF/NF CF/NF CF/NF

Application / Direct organization

Exchange & agreement (feasibility and proposal's details)

Selection *(if any)*

Award

Service Provision

Access to service

Post – access

Experience

Pain points:
1. Getting information about access opportunities.
2. Awareness relies too much on personal acquaintances.

Opportunities
Improve communication (central coordination, channels, plans, tools, messages → services not TNA!)

Experience

Pain points:
1. User experience starts in many cases with facilities identifying (summoning, selecting) users to propose access to.
2. Multiple, different touchpoints and different styles for access.
3. Heavy procedure, too much paperwork, different "local" red tape for different sites.
4. Prior dissemination of access evaluation criteria and grids
5. Funding (for travels and shipments).

Positive point:
Support from the organizer / provider.

Opportunities
Move to online management of access request, with less bureaucracy.
Setting clear rules, guidelines and criteria and make them public.
Improve information, communication and interaction with user during the selection.

Experience

Pain points:
1. Coordination with local users.
2. Receiving raw data from the experiments.
3. Time to work out data/observations.

Positive point:
→ Assistance and support from the provider.

Opportunities
Facility calendar management with central overview.
Raw Data available?
Allow more time to complete research and reporting.
... (other for the comunity to identify)

Satisfaction
Overall access experience is positive, with opportunities for improvements.

Dissatisfaction
Mainly for the administrative burdens.

Opportunities
Lighten reporting duties.
Improve and make feedback collection systematic.
More motivation for collaborations.
More experienced researchers and technicians.
Upgrade of measuring instrumentation.
Funding is critical → better cooperation with/between research institutions.

Figure 21. Map of the current experience of access to ACTRIS services

8   ACTRIS User experience map (future state)

The picture of the current state of the ACTRIS user experience of physical and remote access paved the way to envisioning a possible future, improved state where the experience is enhanced, the number of satisfied users is increased and improvements lead to a convinced engagement of users. In the end, this is what the entire user experience exercise is about: identifying areas of improvements (pain points turned into opportunities), designing an "ideal" experience of accessing ACTRIS services and interacting with the entire RI smoothly and in a highly satisfactory way for all parties involved.

Indeed, considering the access experience from the provider's point of view supports designing helpful and more suitable processes for providers too. The result is that the overall satisfaction and commitment to the RI could be greater and concern many different aspects, embracing almost all of them.

The **Figure 22** below presents an improved, future user experience of physical and remote access, which results from a design effort meant to find and propose possible solutions to the pain points highlighted in the analysis phase, among which:

i.   Continuing to reinforce communication, with the central coordination by the HO that proved to be effective in conveying news about the TNA opportunities in the 1st call (and about the survey) thanks to the organized database of networks and contacts in EU but also at the international level.

ii. orchestrating touchpoints and channels for interaction, integrating all tools supporting user access to make them work as one whole system,

iii. designing an ACTRIS access program with uniform style, flexible rules and procedures based on the type of financial coverage available (including TNA funding, user fees, other sources and/or a combination of them).

iv. shifting to a more automated and simple access procedure whose management is supported by a suitable online platform to consent easy control of it.

As for the current experience, the map here illustrates the possible future experience considering the 4 main phases of access.

I.   Pre-Access/Awareness Phase

With further improvement and orchestration of the communication channels and the messages (with focus on the services more than the modalities of provision, for instance TNA, regular access, etc.), the user experience starts with an attracted, engaged user who decides to get in contact with ACTRIS to find a solution for a need of his.

II. <u>Access process Phase</u>

At the beginning of the journey to access physically or remotely the service that satisfied its need, the user comes across just one touchpoint, the ACTRIS/SAMU (Service and Access Management Unit), as the single point for physical and remote access. SAMU manages the different channels established for easy interaction with users on different themes (Catalogue of Services, Forum, Service Helpdesk for physical and remote access).

Among these tools, a Knowledge Base integrated with the Forum is an especially relevant solution to ensure transparency and information of users about access. The knowledge base is a searchable record of knowledge that helps users find their way with rules, criteria and procedures. Besides, it acts as a learning tool for new providers offering part of the support they ask for and, coupled with the Forum, the possibility to exchange experiences and doubts with more experienced providers.

Characteristics of the phase:

- single "entry point" to refer to for physical and remote access;
- integrated, coherent user information and support system (Catalogue of Services - CoS, Forum and Access Knowledge base, Service helpdesk)
- centralized, more automated access management system (PASS - Platform for managing user access to ACTRIS ServiceS);
- lighter procedures for access other than TNAs or access funded on project-base.

III. <u>Service provision Phase</u>

Physical or remote access to services is provided to users that successfully pass the selection. A better management of the facilities' availabilities and coordination with local users is possibly supported by shared calendar applications and central overview of these by SAMU.

IV. <u>Post-Access Phase</u>

Lighter reporting duties whenever possible (except when TNAs are involved), systematic collection of user feedback on the access and the services are the key elements of the phase in the map of the future user experience of access.
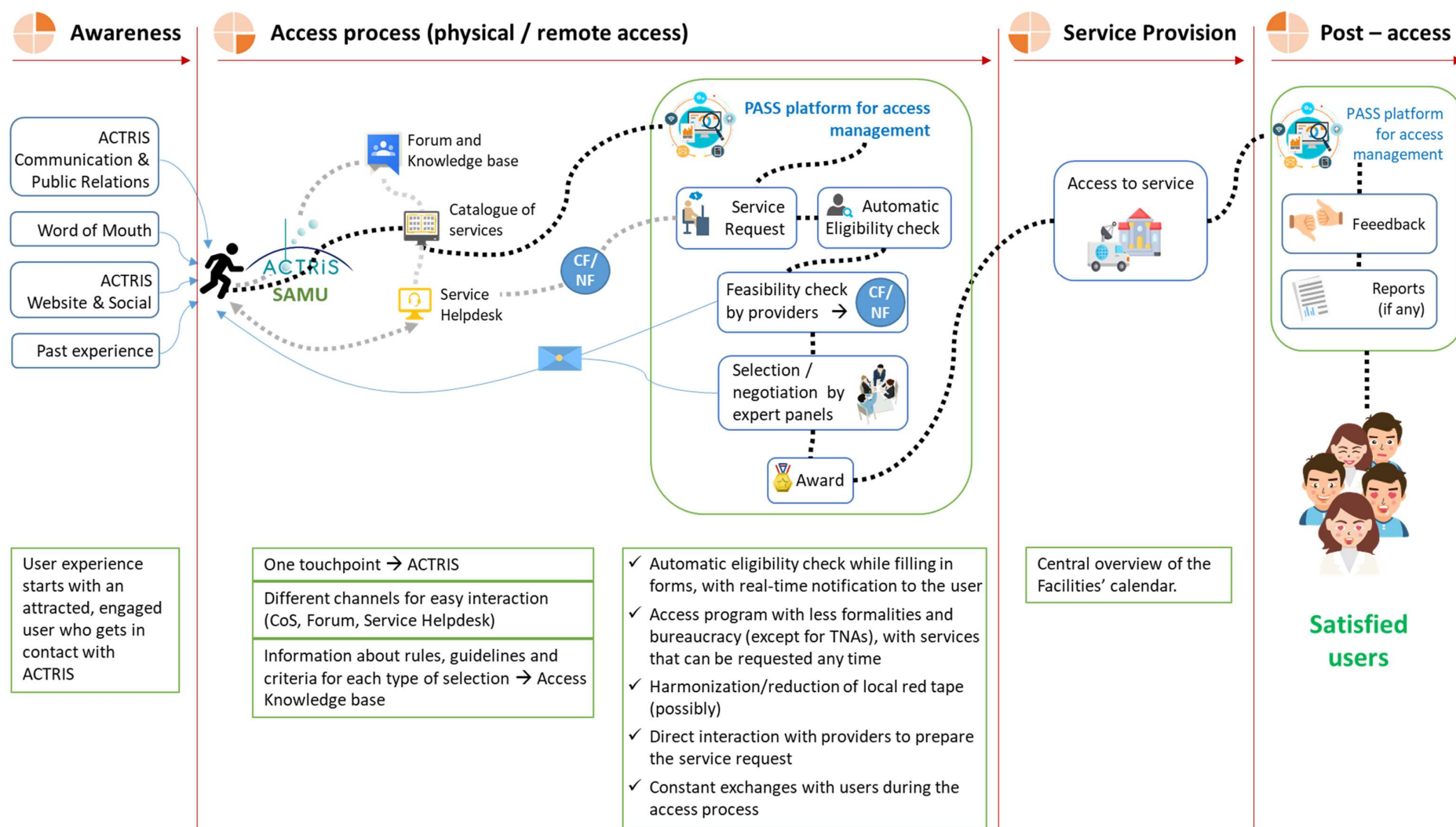
Figure 22. Map of the future experience of access to ACTRIS services

9   Recommendations and next steps

At the end of the user experience exercise for ACTRIS, some recommendations can be made and addressed to the HO and the whole ACTRIS Community to work in synergy to improve the physical and remote access process and increase the satisfaction of both users and providers. Most recommendations derive from designing the maps, other more general came from the answers in the survey that highlighted aspects and issues that go beyond the strict experience of access, understood as admission to a facility, its resources and services[7].

In general, almost all of the comments received support and confirm the direction taken for moving from a project-based organization of access to ACTRIS facilities and services to the coordinated ERIC-based RI access provision.

In addition to the enforcement of the single entry point, the introduction of the platform for the central and automated management of the access process and the other tools supporting users, which are ongoing, it can be suggested to:

a. Continue to reinforce and coordinate central communication, also building on informal channels to support the official communication channels.

b. Design, as far as possible, a uniform style for access, the ACTRIS style, which balances formal and informal aspects and is based on common rules of conduct as well as common, uniform rules and criteria for different types of selection (scientific merit-based, technical merit-based, market opportunity-based).

c. Increase dissemination and provide a single source of knowledge and truth (Access Knowledge Base) about access to ACTRIS with all information a user needs to know.

d. Simplify procedures and requirements for access that is not provided in the frame of EU funded projects (TNA), especially for companies for which, by the way, the market-driven access mode exists.

e. Simplify and differentiate the access process for recurring technical services (for example customary instrument calibrations provided by the Topical Centres).

f. Work to harmonize and cut, to the extent possible, the red tape for access at local level. For example harmonizing, whenever possible, the local administrative requirements for hosting access at the different places.

g. Introduce some training and guidelines to support new providers in the organization of access, also encouraging exchanges of expertise/knowledge with more experienced providers.

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[7] As in the European Charter for Access to Research Infrastructures, which defines access as the "legitimate and authorised physical, remote and virtual admission to, interactions with and use of Research Infrastructures and to services offered by Research Infrastructures to Users".

h. Look for suitable, convenient ways to increase the motivation for collaborations between researchers and with companies.

i. Continue to ensure that the needed resources, including experienced researchers and technicians, are dedicated to access at the providing facilities.

j. Since funding is key, work towards stronger and better cooperation with national funding agencies and research institutions. The former could be encouraged to provide funds to researchers who use ACTRIS for their research; the latter could be encouraged to finance their researchers' access to ACTRIS facilities, rather than investing in the creation of their own expensive laboratories and instruments.

k. Last but not least, use the experience map as a tool and a reference to think about possible improvements and innovations in all the different focus areas. Also, as its nature is not defined and not final but open and dynamic, update and adjust it to fit new visions and plans.

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