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Milestone M6.1:

Draft Exploitation Plan

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Abstract

This document builds on DoA and presents the draft version of the exploitation plan.
The content of this document will be finalised as D7.2 Exploitation Plan, due in August 2024.

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The AARC-TREE project is co-funded by the European Union under the HORIZON-INFRA-2023-DEV-01 call

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1. AARC TREE Objectives

For several years, the authentication and authorisation infrastructures (AAIs) for research worldwide have based their architectures on the "AARC Blueprint Architecture" [AARC BPA] and the suite of accompanying guidelines. The first version of the AARC BPA was developed under the first AARC project (2015-2017), further enhanced under the second AARC project (2017-2019) and subsequently maintained by the AARC Community.

The AARC BPA model, with the accompanying guidelines, has been the reference model for the European Open Science Cloud AAI and the ESFRI clusters AAIs (such as EOSC Life AAI, DARIAH AAI, etc), for the Erasmus+ AAI, for many national research AAIs, and research and e-infrastructures in Europe, the Americas, and the Asia-Pacific region. Since 2019, the AARC community has further enhanced and maintained (i) the BPA, which has become the de-facto community best practice to deploy interoperable AAI for 'e-Science'; and (ii) the Policy Development Kit, alongside the policy and technical guidelines.

The communities that are deploying an AARC-BPA compliant AAI and that are interested in adopting and extending these outcomes gather in the AARC Engagement Group for Infrastructures, AEGIS [AEGIS]. Established in 2019 at the end of the AARC projects, AEGIS brings together representatives from research and e-infrastructures, operators of AAI services to bridge communication gaps and to make the most of common synergies. AEGIS ultimately enhances the wider and more effective uptake of AAI recommendations by infrastructures in their federated access solutions, so that they can focus on providing other support for research activities.

AARC TREE takes this inclusive model to capture and analyse the AAI interoperability requirements and service gaps for more research infrastructures, to enhance the AARC BPA to support more effectively RIs by further expanding authorisation aspects and enabling new use-cases. With federated access already in place as the unifying aspect that spans users, organisations, research infrastructures, and services, the AARC technical revision is the key to enable better integration across all thematic areas, to streamline access to federated data and to bring the RIs together to align strategies and liaise with the broad stakeholder community and relevant initiatives, such as GAIA-X, EU DataSpaces, the European Digital Identity Wallet, and eIDAS.

The main objectives of the AARC TREE project are to:

(i) **Capture and analyse** new Authentication and Authorisation interoperability requirements (that support emerging integration use-cases across the thematic area) and provide a landscape analysis of AAIs services (including gaps) in the RIs represented in AARC TREE

(ii) **Define and validate** new technical and policy guidelines for the AARC BPA that address RIs use-cases. This will improve the integration of RIs across thematic areas and increase the ability of RIs to support emerging needs

(iii) **Expand** the number of research communities that can implement the AARC BPA and/or the AARC guidelines, by providing a validation environment and toolkits. At the same time support existing AARC communities in adopting new guidelines

(iv) **Bring RIs, e-Infrastructures and relevant stakeholders together** to align strategies to integrate new technologies, better interoperate and share resources across thematic areas and produce a compendium and recommendations for different stakeholders.

2. Exploitation Strategy

The exploitation strategy for the AARC TREE project follows the AARC TREE strategy, defined in deliverable D8.1, and expands the initial approach defined in the AARC TREE Description of Action (DoA).

The DoA defines the AARC TREE Key Exploitable Results (KERs), which, in the case of the AARC TRE project, are already known and were already defined at the very start.

The AARC TREE main KERs are summarised below:

KERs	Description
KER1 Updated AARC Blueprint architecture for emerging technologies and services in pan-European research infrastructures	Up-to-date guidance on implementing the architecture of their Authentication and Authorisation Infrastructure service components, incorporating new requirements, use cases and new technologies.
KER2 Recommendations for a common long-term strategy for AAI services and best practices	The AARC TREE best practices and recommendations align technical approaches and foster collaboration in implementation across scientific domains
KER3 Updated interoperability framework	Framework to harmonise AAI policies to empower identity providers, service providers and user communities to identify interoperable policies for the open science vision.

Table 1: AARC TREE KERs

It is worth noting that AARC TREE is funded under the Coordination and Support Actions, which means that there is no dependency on a specific research output. The work of the AARC TREE project revolves around the AARC BPA, its guidelines, and their evolution to meet new research communities' needs and the compendium.

The compendium is a new aspect to ensure that AAIs operated in the R&E sectors can be properly sustained. AARC TREE team will produce the first version of the compendium that will include

common long-term strategies for development of technologies and services in pan-European research infrastructures.

In addition, it is important to stress that the AARC BPA is an architecture released under CC-BY; implementations of the AARC BPA are already possible and in fact welcome.

The consortium members will exploit and benefit from the results of the project in different ways. Most of the partners are either research infrastructures, e-infrastructures, or organisations that work to support research infrastructures' goals. They will ensure that the AARC TREE interoperability framework is adopted and promoted.

AEGIS will continue to ensure that the interoperability framework is maintained and enhanced as needed.

By design the architecture and policy work takes place in open working groups that existed prior to the AARC TREE project and will continue to exist beyond the project's lifetime.

2.1. Target audience

The following target groups have been identified for AARC TREE KERs:

Audience	Description	Approach
Research Infrastructures(RIs) in AARC TREE and other international RIs.	Research infrastructures[1] (in the context of AARC TREE also called research collaborations) are facilities, resources and services that are used by the research communities to conduct research and foster innovation in their fields. In some cases, a research infrastructure is a legal entity, in others they are not. .	Many of the ESFRI [ESFRI] clusters participate in AARC TREE. Other International RIs are engaged via AEGIS and FIM4R. They are involved in the feedback-gathering process concerning AARC TREE architecture (WP1) and policy (WP2) work as well as in providing use-cases (WP3) and assessing proposed solutions (WP4) and in the compendium (WP5). All other international RIs can engage and exploit AARC TREE results. The deployment of the AARC-BPA is an interoperable AAI that can be offered as a service to communities that require such a thing.

[1] Article 2 (6) of the Regulation (EU) No 1291/2013 of 11 December 2013: 'Establishing Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020).

e-Infrastructures	e-infrastructures provide horizontal services for the research and education communities. Examples in Europe are EGI, EUDAT, GÉANT and OpenAIRE.	EGI, EUDAT and GÉANT participate in AARC TREE. They have been successfully operating AARC-compliant AAIs for several years. Outside Europe there are other e-Infrastructures that are a potential target. It is important to note that there are already research and e-infrastructures outside Europe that use the AARC BPA as the reference architecture; they are represented in AEGIS.
Resource Providers	These are providers within a research infrastructure, an e-infrastructure and one of the initiatives mentioned below that would rely on an AARC compliant AAI for authentication and authorisation.	Resource providers benefit from the AARC-TREE KERs as via the AARC Interoperability Framework they have a consistent integration point in terms of policies as well as technical guidelines to enable federated access.
Relevant EU initiatives such as EOSC, HPC, Erasmus+ etc	These are pan-European initiatives supported by the European Commission, member states and higher education institutions in the EU.	These initiatives are already using AAIs that are built on the AARC AAIs.

3. IP Management

As explained in the DoA, the AARC TREE knowledge management and protection strategy aims to maximise the success of the main goal of the project, that is “to develop common strategies for future development of RI technologies and services within broad RI communities”. Hence, the IP Management strategy is driven by the need to encourage uptake and minimise barriers to adoption by the key stakeholders.

Open science practices will be followed to keep project outputs “as open as possible, as closed as necessary”. As such, the project’s results will be licensed under an open licence:

- Most results will be textual outputs (reports, papers, publications, etc), they will be considered the result of the collective work of the contributing experts, jointly owned by the consortium partners

- The main protection mechanism expected will be copyright (in any of the appropriate open permissive licences such as CC BY for texts or CC0 for the metadata).

- GÉANT Association is the owner of the logos. The visual identity has been co-developed by NORDUnet and GÉANT. This material is licensed under a Creative Commons BY-NC-ND 4.0 licence.

The strategy for Knowledge and Intellectual Property Management in AARC TREE is driven by the objective to maximise uptake and minimise barriers to the adoption, adaptation and reuse of its project results. The mechanisms for managing generated knowledge and its IP status will be coordinated by WP7. A permissive open-source licence will be used for all code. The JLA compatibility checker or the License Clearance tool will be used to check licence compatibility in situations where third-party software components were used. All other exploitable project results (data, framework, publications, guidelines, resources) will be made available under a Creative Commons licence and follow our previously-stated Open Science and research data management approach.

For outputs, including code, that improve existing implementations, the improvement will be freely assigned to the owners of the background IP for incorporation therein.

For other results, ownership will be assigned to the partner that generates them. It is possible that some result is generated jointly by multiple partners. In these cases, each of the joint owners shall be entitled to use their jointly owned results for non-commercial research activities on a royalty-free basis, and without requiring the prior consent of the other joint owner(s), and each shall be entitled to otherwise exploit the jointly owned Results and to grant nonexclusive licence to third parties (without any right to sub-license) if the other joint owners are given at least 45 calendar days advance notice.

For collaboration within the WGs, if there is any legitimate interest to keep confidentiality, agreements will be put in place. However, this is expected to be an exception, as AARC TREE by design is an open and collaborative project.

4. Monitoring Impact

The AARC TREE project can already benefit from a solid foundation, established at the end of AARC2 project, to monitor the impact.

Over the years, all relevant documents have been uploaded on Zenodo, which, in addition to the AARC website, provides a consistent place to store documents.

4.1. How to assess impact

Key Exploitable Result	Achievements Indicators	Means of Verification	Target Value (DoA)
KER1 Updated AARC Blueprint architecture for emerging technologies and services in pan-European research infrastructures	Number of guidelines download	News item published to announce the release of the AARC BPA Guidelines are available on the website and on Zenodo Number of downloads from the website and Zenodo (combined)	#100
KER1	RIs adopting the guidelines	RIs announcing the adoption of the most relevant guidelines	#(min)5

Key Exploitable Result	Achievements Indicators	Means of Verification	Target Value (DoA)
KER1	number of RIs cross-disciplinary use-cases in AARC TREE supported by new AARC BPA/guidelines	Documented cross-disciplinary use cases on the AARC website	#2
KER2 Recommendations for a common long-term strategy for AAI services and best practices	Number of new RIs/communities in AEGIS adopting the guidelines	News item on the website indicating which communities adopted the guidelines	#(min)5
KER2	RIs endorsing the privacy notice model	News item on the website indicating which communities endorsed the privacy notice model	#(min)5
KER3 Updated interoperability framework	Architecture document downloads	Number of downloads from the website and Zenodo (combined)	#50

Key Exploitable Result	Achievements Indicators	Means of Verification	Target Value (DoA)
KER3	RIs implementing AAI services based on the AARC framework	RIs announcing the implementation of AAI services based on the AARC framework	(min)5

5. Conclusions

This document presents the key aspects of the AARC TREE Exploitation Strategy. The document will be further enhanced and will be presented as D7.2 - Exploitation Plan. A final version of the exploitation plan will be delivered at the end of the AARC TREE project.

References

[AARC-BPA] https://zenodo.org/records/3672785

[AEGIS] https://aarc-community.org/about/aegis/

[ESFRI]