22-05-2017

Deliverable <DNA1.3>:
Summary of main dissemination activities, main achievements of AARC and Exploitation Report

Deliverable <DNA1.3 >

Contractual Date:	30-03-2017
Actual Date:	22-05-
Grant Agreement No.:	653965
Work Package:	NA1
Task Item:	1
Lead Partner:	GÉANT
Document Code:	DNA1.3
Authors:	

Abstract

The document reports on the dissemination and exploitation activities carried out during the AARC project.

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Executive Summary

This document reports on the results of AARC communication, dissemination and exploitation activities and how they mapped the AARC strategy [Strategy].

To achieve the highest possible impact and to contribute to the further adoption of federated access, AARC mainly focused its dissemination and exploitation activities to address the relevant communities, such as ESFRI projects [ESFRI], libraries, research infrastructures and e-infrastructures not directly involved in the project. AARC communicated and promote its goals and its results internally among the project partners as well as towards other projects that were funded in the same AARC call, relevant policy makers, and the communities linked to the project partners.

The document starts by presenting the challenges faced by the AARC project, and continues by identifying the relevant target audience and the goals of the dissemination and exploitation activities. The impact of the activities is measured using the KPIs defined at the start of the project.

The document also provides a registry for the main dissemination and exploitation activities carried out and the communities they addressed.

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1   Introduction

The AARC project started in May 2015. For two years, the 20 project partners championed federated access among research collaborations [RIs], libraries and e-infrastructures [EIs], and worked together to jointly design, test and promote a blueprint architecture, along with accompanying policies and implementation guidelines to support the deployment of interoperable authentication and authorisation infrastructures (AAIs).

The interest in joining eduGAIN [eduGAIN] keeps increasing among EIs and RIs, also thanks to the wider penetration of identity federations, upon which eduGAIN builds. AARC took the view to consider eduGAIN as its solid foundation and to build additional elements on top of it.

AARC's approach was to verify whether eScience requirements - already known prior to AARC and revisited at the start of AARC - could be addressed by composing existing solutions in a novel way, by integrating maturing technologies, and by developing only the necessary 'glue' layer. Part of this work also looked at the integration of the resulting components within production services and infrastructures, to determine whether this was possible and cost effective.

2   Challenges faced by AARC

Some factors are crucial to enabling broad access to services relevant for the research and education (R&E) community; these factors have driven the AARC strategy and determined the main activities AARC had to focus on, how to disseminate them and how to ensure their adoption beyond AARC, namely:

1. **Coverage of federated access** - Although the global coverage of national academic identity federations is high, the number of institutions connected to academic federations varies from country to country. Even in countries that have very high penetration rates for federated identities (i.e in the US and Europe), there are still users in the research and education space who do not have access to a federated identity. This makes their participation in international research projects more challenging and requires solutions to enable their participation. Many libraries are still using IP-based authentication, even if the national federations would support them to migrate to federated access.

2. **Global policies for eScience collaboration** – Enabling access to resources on a global scale requires an environment of trust among different parties and the exchange of user identity information across organisational and jurisdictional boundaries. The complexity of national and international data privacy laws, along with the distance between resources/services and identity providers, the diversity of security requirements among resources/services, and the need to deal with security incidents on a global scale, create a very challenging environment that requires globally accepted policy frameworks.

3. **Support for eScience requirements** - The prevailing technology in most of the national academic identity federations is Security Assertion Markup Language. SAML is a battle-tested security protocol, in use for a

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long time, which is complex to implement properly and focuses mostly on HTTP-based services accessed via web browsers. Within eScience research collaborations, there are strong requirements for accessing non-web based services (i.e. via terminals or APIs), for having agents running unattended for long periods of time without any interaction from the user, and for requiring stronger identity vetting for accessing some data. The fact that global collaboration is not aligned with national identity federations' boundaries increases the complexity.

4. **Training modules** – Different training material has been produced by national identity federations, eduGAIN and REFEDS. However, it is not always obvious for research and e-infrastructures and for their service providers where to find them. AARC started by collecting existing materials; later AARC started work to develop new training modules focused on AARC results.

5. **Sustainability aspects** - Even with identity vetting and user management being 'outsourced' to users' home organisations, there is the need for research collaborations and infrastructures to manage controlled access to their services. This comes with related costs. Operating services at an international scale requires resources and long-term planning. Historically, large, organised research communities have been able to set up their own authentication and authorisation solutions, which have served them for many years. But, as research increasingly crosses disciplinary boundaries and grows globally, maintaining such AA solutions becomes challenging. Solutions with sustainable cost models that can meet today's and tomorrow's research requirements are needed.

3   AARC target audience for dissemination outreach, training and exploitation activity

Based on the project participants' close ties with different research communities and libraries, AARC has used those connections to engage with those communities to understand their needs, get their inputs on project activities at key stages, and deliver appropriate solutions.

The target audience for AARC dissemination, outreach, training and exploitation activities can be divided in the following groups:

- **Project partners** – AARC's size is big enough to make it harder for all partners to follow everything. It is therefore important to ensure that everybody in the project remains informed about progress and achievements.

- **Service providers, research and e-infrastructures and federation operators not directly involved in AARC** – Many of the AARC results are very useful to research infrastructures and international research collaborations beyond those directly involved in the project. To ensure wide visibility of the AARC results, AARC organised presentations at major events (such as TNC, DI4R, Internet2, EGI Conferences, and others), arranged dedicated meetings with relevant parties (such as with the representatives of the eleven biomedical research collaborations that cluster in CORBEL, with PRACE representatives, EUDAT representatives, HEP projects representatives, with representatives of various astrophysics projects, etc.). AARC results were promoted via Twitter and periodic infoshares [infoshare] (webinars open to anybody, where AARC participants reported on specific topics). Equally, as feedback from research collaborations not involved in AARC was very important to achieve the end results, AARC created also an open mailing list to collect feedback at large.

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- **Libraries** – The libraries were a strategic target community in AARC. As only one library was directly involved in the project, the dissemination work was carried out by LIBER (the association of many libraries in the EU) and by national research and education network (NREN) partners, mostly GARR, SURFnet and GRNET. Significant work was done to support the libraries, in terms of providing the value proposition for federated access and to develop pilots that could bridge IP-based authentication and SAML with very little effort on the libraries' side.
- **Other EC-funded projects** – AARC used EC platforms and events to share results to reach out to other EC-funded projects. Among all the projects, AARC engaged most closely with EUDAT (via common partners to discuss pilot opportunities), GN4 (mostly in relation to how AARC results could be deployed within eduGAIN) and PRACE (via common partners, to discuss pilot opportunities).
- **Policy makers** – This groups includes, eIRG, eIDAS, European Commission and other international relevant entities.

4   Goals of the dissemination, outreach, training and exploitation activity

The main objective of the dissemination, outreach, training and exploitation activity was to create a network that goes beyond the AARC project partners and involves as many research communities and libraries as possible, to inform them about the project results and to ensure that results are deployed. During the first months, the project defined the dissemination strategy, which was revisited and updated during the project lifetime. AARC by design does not run any service; this was a strategic choice, based on the consideration that existing e-infrastructures and research infrastructures are better positioned to operate services and to adopt up-to-date best practices.

All the planned dissemination and exploitation activities were designed to better achieve AARC's goals, namely:

1. **Increase the uptake of federated access** – AARC took a two-fold approach to address this aspect:
   a. AARC used the close relationship of project partners to eScience communities, libraries and scientific service and resource providers as a route to promote the value proposition of federated access to them. AARC also defined training modules (a basic one and more tailored one aimed at service providers) and pilots to propose solutions to address specific problems.
   b. AARC worked to support the so-called 'long tail of science', by investigating the use of social identities and eGOV IDs to access scientific resources. The long tail of science refers to researchers not affiliated with any specific organisation; because of this they do not have institutional credentials with which to login.

2. **Develop an integrated cross-discipline AAI framework** - AARC's approach was to offer guidelines on both the technical and policy side to:
   a. deliver a blueprint architecture to address eScience requirements. In collaboration with research and e-infrastructure providers and implementers of identity management, AARC designed a technical blueprint architecture. This builds on top of the eduGAIN interfederation service and adds additional capabilities that are required to implement secure and

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interoperable AAI solutions that meet the requirements of international research collaborations;

 b. support global policies for federated access for eScience. AARC sponsored work on the development and promotion of key policy frameworks that aim to support eScience service providers to join eduGAIN, and also aim to influence some of eduGAIN's approaches. Work in this area focused on delivering assurance profiles, a framework to handle security incidents in federated research infrastructures, data protection aspects for research collaborations to handle cross-infrastructure data for accounting purposes, and policy aspects related to the use of proxies in research- and e-infrastructures. To make results effective, work in this area was carried out in collaboration with relevant international groups, such as REFEDS [refeds], WISE [wise] and IGT [igtf].

3. **Pilot results in a production environment and validate them by engaging with research communities** - AARC worked with research communities, libraries and e-infrastructures on the implementation of pilots, with the aim of showcasing how the proposed approaches and the blueprint architecture address identified use-cases, and to test their integration in production-ready environments.

4. **Make AARC results sustainable** - AARC offers blueprints, guidelines and policy frameworks as well as operational models to help research communities and e-infrastructure operators decide on the best way to deploy AARC results. Examples are the operational models for the pilots on credentials translation and for the operation/use of guest identity providers.

5. **Provide targeted training and outreach** – Based on the project participants' close ties with target communities, AARC is engaging with those communities to understand their needs, get their inputs on project activities at key stages, and to deliver appropriate solutions. AARC started building a differentiated set of information and training modules with the aim of promoting the adoption of federated access among research communities, e-infrastructures and libraries, promoting the use of best practices and standard AAI technologies, and providing how-to modules to promote AARC results.

5 Dissemination activities and impacts

The goal of the dissemination activity is to ensure that the project's objectives, community building activities and results are widely disseminated in a timely way to the appropriate target communities, via appropriate methods. Using project partner channels, AARC tried to reach out to individuals and communities that could contribute to the development, evaluation, uptake and exploitation of the results.

During the first months the project focused mostly on the communication aspects, to highlight the goal of the project, the workplan and the expected impacts; the launch of the [AARC website](#) being the first main milestone.

5.1 Expectation about AARC dissemination

The ambition of AARC was to avoid a fragmented future, where different e-infrastructures and new research collaborations develop and operate separate and independent AAIs, hindering cross-discipline interoperability

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and introducing extra costs. AARC was expected to have a big impact to improve the access resources for researchers active in scientific collaborations in Europe and beyond by improving the adoption of federated access. Starting with the collection of requirements among libraries, RIs, and EIs done at the very start of the project, AARC built communication channels with the AARC communities beyond the project partners. The design of the blueprint architecture, the consultation process with key RIs and EIs and its acceptance and endorsement have been a critical part of the AARC dissemination work.

The policy work was carried out by leveraging well-established policy frameworks and their processes; AARC in many cases either sponsored work in existing activities (as for Sirtfi, for which a working group already existed in REFEDS) or created working groups outside the AARC project (as in the assurance work, which led to creation of a new REFEDS working group) to maximse the impact and buy-in from potential adopters. This approach, in combination with AARC presence at relevant events has amplified the impact of the dissemination.

AARC also monitored the impact of its dissemination in light of the KPIs set out in the technical annex and by contacting relevant research groups directly. The table below provides an overview of how the dissemination and communication activities have been mapped to the AARC goals and the expected impact.

AARC Objective	Dissemination and Communication Activities	Impact

Expand the coverage of federated access to support in RIs and EIs.
 	
The results have been packaged in a web page specifically for infrastructures: https://aarc-project.eu/infrastructures
	• Promoted the AARC blueprint architecture (via webinar and presentations);
	• Promoted the pilots that address some of the requirements of RIs and EIs, namely:
	  • a pilot on ORCID - SAML account linking;
	  • a pilot on attribute management & aggregation;
	• Organised a plug fest to share work on the interoperability test between e-infrastructures. AARC has delivered 3 cross-infrastructures pilots (EUDAT-PRACE, EGI-EUDAT to access no-web resources and EGI-EUDAT to access web resources).
	• Delivered training modules to enable service providers to join national federations.
	• Leaflet tailored to service providers to highlight the benefits of federated access.
	• Provided support to the HNSciCloud, a
		KPI: Add at least 3 new SPs and at least 3 new IdPs to national federations and to eduGAIN. *Target achieved and exceeded.*
		
		1. AARC Blueprint architecture (BPA) delivered - ELIXIR, EGI and EUDAT are now connected to eduGAIN, via a proxy in line with the AARC blueprint architecture. The proxy effectively means that about **40/50 scientific services** are available via eduGAIN.
		
		2. IGTF-to-SAML pilot [igtf-2-saml] to enable **all the IGTF-accredited CAs to work also as IdPs.** Users with a certificate issued by one of these CAs (more than 50 CAs worldwide), can use this certificate login to an eduGAIN service. The certificate is converted into a SAML token on the fly. See more at: https://wiki.geant.org/x/JoEKB

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	pre-commercial procurement project led by CERN to establish a hybrid cloud platform for European research data. • Presentations at relevant events to promote AARC results, such as EGI Conferences, TNC16, Internet2, DI4R. • Tweets and blog posts.	3. RCAuth Pilot [RCAuth] to issue eScience certificates on the fly upon users logging in via their federations.
Expand the coverage of federated access in libraries. The results have been packaged at: https://aarc-project.eu/libraries/	• To make the case for federated access, two leaflets were produced: one more focused to libraries and a second one more tailored to service providers in general. • A leaflet was prepared to promote the three library pilots to ease libraries to adopt federated access. • Produced a FAQ for libraries and for library service providers. • Presentations at relevant events to promote AARC results, TNC2016, Internet2 an AARC workshop at the 2016 LIBER annual conference. • Tweets and blog posts.	**KPI: Add at least 3 new SPs** 1. three library pilots. One of the pilot delivered a SAML IdP/SP proxy for library consortium [saml-proxy-libraries]. This proxy has been deployed by the HEAL-link, the Greek library consortium. The HEAL-Link IdP/SP proxy has joined the GRNET federation. Wiley Online Library is the first publisher to be made available to all HEAL-Link users in Greece via this new platform. A survey is ongoing to gather more understanding on the adoption of the other pilots. The initial feedback has been very positive among libraries in Italy, the Netherlands and the LIBER partners.

Interoperability of e-infrastructures is improved/ Reduced duplication of efforts for developing services common to various e-infrastructures	• Promoted the AARC blueprint architecture and the set of recommendations and guidelines, and refined them based on consultation with relevant parties.
	• Delivered a webinar on the blueprint architecture.
	• Presentations at relevant events.
	• AARC delivered the following additional short guidelines:
	  a. Recommendations on expressing group membership and role information
	  b. Guidelines on attribute aggregation
		KPIs
		• At least 1 generic attribute provider pilot;
		• adoption of the incident response procedure at 5 IdPs (Sirtfi).
		• 2 cross-infrastructure use cases delivered
		Target achieved and exceeded.
		
		3 pilots on the attribute management topic:
		• a pilot on attribute management &

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	c. Guidelines on token translation services d. Best practices for managing authorisation e. Guidelines on non-web access	aggregation - One to test components for attribute management in the context of the EGI community. - Another one to test components for attribute management in the context of the BBMRI ERIC. **5 cross-infrastructure pilots**: • EGI-EUDAT pilot • EUDAT-PRACE • a pilot on ORCID - SAML account linking; **Sirtfi** is now being adopted by **160** entities in April 2017. Furthermore, EGI CheckIn services, eduTEAMS (GÉANT), B2Access, ELIXIR AAI and Indigo DataCloud AAI are compliant with the AARC blueprint architecture.
Harmonise procedures and policies to ease cross-discipline collaboration.	The policy work was carried out by engaging with existing and well-established policy groups such as REFEDS, IGTF and WISE. Because of this it was possible to disseminate results beyond the AARC partners. The dissemination work included: - presentations at targeted events; - webinars: https://www.youtube.com/watch?v=EuXrzCjuXDw https://internet2.adobeconnect.com/_a82309699699/p53b4wv42wl/	**KPI: Pilot the adoption of incident response procedures in 5 IdPs (Sirtfi).** *Target achieved and exceeded.* Further: - Baseline assurance profile delivered [bas-assurance]; - Differentiated assurance profile (still under consultation)[diff-assurance]; - Snctfi, the trust framework for r/e-infras to implement the BPA proxy model.
Facilitate the integration of (commercial) resources and services.	AARC directly provided support to enable ORCID to join the SURF federation; AARC has also provided consultancy to the Helix Nebula cloud procurement.	**KPI: 3 new SPs available in eduGAIN.** *Target achieved and exceeded.* AARC contributed to add ORCID SP (via SURF federation), RCAuth

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		service, the EGI CheckIn service, plus a number of services that can be access via the IGTF to SAML "IdP" (which has been added by eduGAIN via GRNET identity federation).
Support research- / e-infrastructures in integrating AARC results by deploying components of the integrated AAI and adopting AARC policy and best practices.	- Promotional material on AARC final results. - Engaged with REFEDS, GÉANT, EGI.eu, EUDAT and PRACE to get feedback on relevant AARC output and promote adoption. In particular, dedicated WGs have been created in REFEDS to ensure wider inputs and to follow REFEDS consolidated consultation process. - Engaged with the R&E community at large for consensus-building on policy matters.	To this end, three main results are particularly relevant: - Sirtfi, the framework to handle security incidents in federated environments. The adoption of Sirtfi is well under way with **160 entities** in April 2017. - Snctfi, the policy and trust framework developed for applying policies and best practices to an e-infrastructure or research infrastructure using IdPs in the R&E federations via an SP-IdP proxy. - the baseline assurance and the creation of the assurance WG within REFEDS to define a differentiated assurance profile.
Ensure that AARC results are open and available.	- All AARC results are publicly available via the AARC site. - All property rights are managed, in line with the call, by using an industry-friendly open source license for software and "CC-BY" type of license for documents. - AARC content will remain available beyond the AARC lifetime.	AARC has also ensured that some documents have a more permanent home, by creating dedicated working groups in REFEDS, WISE and IGTF groups. An online training platform has been built. The platform will be maintained by GEANT in the longer term; this will ensure sustainability for the training results.

Table 1: Disseminations activities carried out

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5.2   Dissemination tools and channels

To successfully convey messages in line with the goals identified in section 4, the project consortium used three main approaches: online and interactive tools and channels, paper tools in the form of leaflets and posters, and face-to-face tools.

The table below reports on the tools and channels used and whether they were used to disseminate project results internally and externally.

Dissemination tools and channels	Internal	External
Project website	√	√
Project wiki	√	
Webinars	√	√
Other websites (partners, EC, etc.)		√
Blogs	√	√
Social media	√	√
Project events	√	
Other events (see in Annex I the list of external events AARC was presented)		√
Leaflet and targeted publications		√
Project mailing lists	√	
Other mailing lists		√
Newsletters		√
Training events		√

Table 2: Dissemination tools and channels

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6 Exploitation

6.1 Expectations about AARC exploitation of results

Due to the nature of AARC, it is expected that AARC results will be exploited by the existing e-infrastructures and research infrastructures already operating AAIs, which will be able to integrate the relevant AARC results with their own workflows. To facilitate this process AARC has delivered a sustainability plan (see DNA3.3) to offer recommendations to potential e-infrastructures on how best to integrate AARC's results. Bilateral conversations with representatives of EUDAT, PRACE, EGI and GÉANT have taken place to plan how AARC can support their adoption of AARC results. Whenever possible, collaborations with commercial parties that could offer relevant services have also been identified.

6.2 Risks and limitations

It is always challenging to assess how effectively the results of a promotion are disseminated and exploited beyond the project. As AARC results were always meant to be used by EIs and RIs in production, an effort was made to ensure that the project management team would engage as much as possible with key EI and RI representatives. This has been particularly important to assess how mature the pilot results were.

The use of blogs, webinars and training (whenever possible) has certainly contributed to ensure that key results were known to EIs, RIs and libraries.

Whilst it is evident that AARC results are being deployed by RIs and EIs, it is less obvious how many libraries will be adopting the results of the AARC pilots. This is mostly due to the fact that AARC has been able to engage directly (via the project partners) with only a limited number of libraries.

In many cases the dissemination work has been taken up by those partners that were also developing the solutions. Whilst this ensures that all the technical aspects are covered, it does not always mean that the best dissemination and exploitation approach is followed. A mitigation for this was to involve the NA2 team as much as possible; however, in the NA2 team skilled resources were not always available.

6.3 Contributions to the global R&E best practices

AARC has engaged with different groups to ensure that AARC work could be known and was useful and usable by those in charge to support authentication and authorisation within a project, a research collaboration, a service and libraries.

AARC has taken the approach of building on existing groups (i.e. REFEDS, IGTF, FIM4R, etc.) that were already defining policies and best practices to leverage their experience, the community they support and to amplify their work. This happened particularly usefully in the policy work package (NA3), where AARC either sponsored work in existing working groups or where dedicated working groups where created to ensure that feedback was received beyond the project boundaries. This approach ensured that a well-established process

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to build consensus could also be used by AARC and that AARC results could be aligned with existing efforts and contribute to support global collaboration.

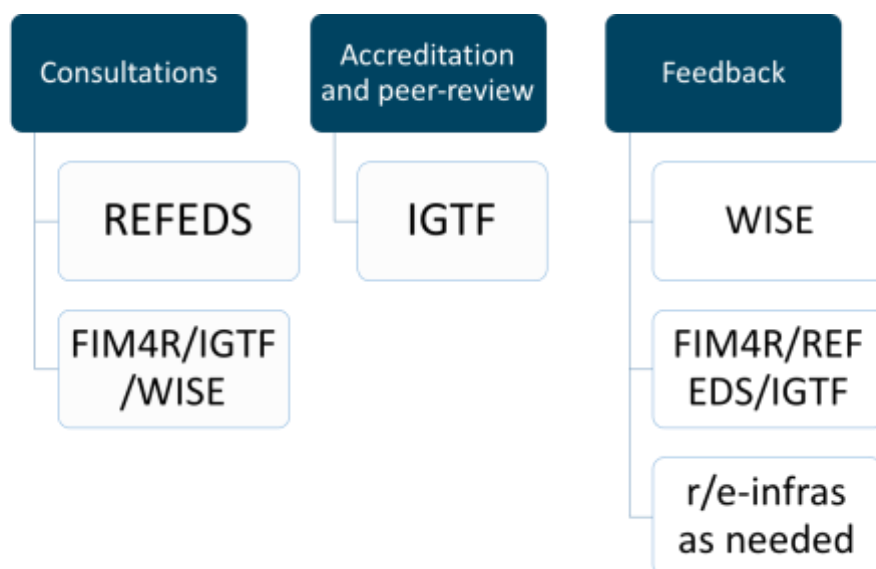The picture below shows the approach followed.

Figure 1: AARC interaction with existing groups

AARC also engaged with other projects that were funded in the same group, mostly with OpenAIRE and THOR.

6.4   Register of dissemination and exploitation outputs

The table below provides an overview of the work done to disseminate and exploit the AARC results and the relevant target group.

Project output	Dissemination activity	Exploitation activity	Target group
Technical work			
AARC blueprint architecture (BPA)	Presentation of the BPA at FIM4R, REFEDS, Internet2 events, TNC, as well as at DI4R. Furthermore ad-hoc discussions were held with different research and e-infrastructures.	Engaged with EGI, ELIXIR, EUDAT, PRACE and GÉANT, and other research infrastructures to ensure that the relevant aspects of the BPA are followed.	e-infrastructures, research infrastructures, research communities
Recommendations	Disseminated via the FIM4R,	Engaged with EGI, ELIXIR	e-infrastructures,

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expressing group membership and role information	REFEDS, and AARC Connect mailing lists, AARC infoshare, presentations at FIM4R workshop, Internet2 Global Summit.	and EUDAT to discuss the integration of group membership.	research infrastructures, research communities, federation operators
Guidelines on attribute aggregation	Disseminated via the FIM4R and AARC mailing lists, AARC infoshare, presentations at FIM4R workshop, Internet2 Global Summit	Support of the AAI platform alignment activity between EGI, ELIXIR, EUDAT and GÉANT	e-infrastructures, research infrastructures, research communities
Guidelines on token translation services	Disseminated via the FIM4R and AARC Connect mailing lists, AARC infoshare, presentations at FIM4R workshop, Internet2 Global Summit	Support of the AAI platform alignment activity between EGI, ELIXIR, EUDAT and GÉANT	e-infrastructures, research infrastructures, research communities
Recommendations for credential delegation	Disseminated via the FIM4R and AARC Connect mailing lists, AARC infoshare, presentations at FIM4R workshop, Internet2 Global Summit	Support of the AAI platform alignment activity between EGI, ELIXIR, EUDAT and GÉANT	e-infrastructures, research infrastructures, research communities
Best practices for managing authorisation	Disseminated via the FIM4R and AARC Connect mailing lists, AARC infoshare, presentations at FIM4R workshop, Internet2 Global Summit. This activity has just started, and it will be explored further in AARC2.	Interaction with EIs and RIs is being used to understand requirements and to ensure that the results can be used in production environments.	e-infrastructures, research infrastructures, research communities
Guidelines on non - web browser access	Disseminated via the FIM4R and AARC Connect mailing lists, AARC infoshare, presentations at FIM4R workshop, Internet2 Global Summit	Provided recommendations on a few different approaches to manage authentication for non - web resources.	e-infrastructures, research infrastructures, research communities
Recommendations for using social IDs	Disseminated via the FIM4R and AARC Connect mailing lists, AARC infoshare, presentations at FIM4R workshop, Internet2 Global Summit	Support of the AAI platform alignment activity between EGI, ELIXIR, EUDAT and GÉANT	e-infrastructures, research infrastructures, research communities
Promotional and training material			

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Library toolkit https://aarc-project.eu/libraries/	Web page that pulls together links to all materials relevant to libraries and library service providers, and provides context.	The work is being used by the libraries to encourage the adoption of FIM and to deploy AARC results.	Libraries and library service providers
Roleplay game: federate to win!	Part of library 'toolkit', and promoted at conferences (ILIDE, LIBER conference, EAHIL) and online (social media, LIBER channels)	The same as above	Libraries and library service providers
How to join eduGAIN as a service provider	Part of library 'toolkit', and promoted by project partners. LIBER planned to promote this aspect at the following events: ILIDE, LIBER conference, EAHIL. The leaflet has been shared among partners and via social media.	This offers support to all AARC partners that talk to service providers and plan to persuade them to provide federated access.	Service providers in general, including library service providers
AARC video http://bit.ly/2pxfGNM	Disseminated primarily via web on project website and YouTube playlist, but also can be included in presentations as introductory part, or in face-to-face meetings. Used by the AARC partners to explain what the AARC project is about.	Used also a way to engage knew RIs and further discuss how they can use the AARC BPA.	All / general audiences
AARC infoshares https://aarc-project.eu/aarc-infoshare/	Short webinars with Q&A meant to highlight key aspects of AARC results.	Useful reference to better understand what the specific results address and how they can be implemented.	Audience with a pre-knowledge on each specific subject.
AARC presentations	Different talks delivered to disseminate AARC key results. A good way to transfer knowledge outside the project remit.	To engage with relevant RIs and EIs on how to deploy AARC results.	Different targeted audience: SPs, IdPs, libraries.
Federation 101	Basic information package on federated access. For all interested parties to learn the basic aspects of federated access.	Content open for further distribution and customisation.	Anybody interested in learning more about federated access, including libraries and library service providers.
Plug fest	https://aarc-project.eu/aarc-plugfest-bundling-expertise-	Ensure that representatives of RIs and	AARC partners

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	bridging-e-infrastructures-having-fun/ To look at cross-infrastructure integration pilots	EIs can work together and use AARC results.	
Training for SPs	Training event for the biomedical communities. https://docs.google.com/document/d/1-ql5li_vpcrxn6nkwWZn3eMqIlf2qPSwD9k9rfJnXls/edit Training events for ELIXIR and DARIAH http://anenadic.github.io/2016-03-15-elixir-aai-workshop-manchester/	To enable services to offer federated access and to ensure that AARC results are deployed.	Service provides in the biomedical and arts and humanities fields.
IdP training: Attribute releasing Training - Scalable attribute release for IdP in federation and Interfederation	@IDEM DAY 2016 in Rome IdP Training: Train the trainers - proposal @tnc2016 E-learning training (ongoing)	Different aspects are covered that include: general information on attributes, REFEDS entity category as a scalable approach to release attribute, tools that federation operators can deploy to better support their IdPs. Various groups can focus on the relevant parts.	Federation operators, IdP operators
Support for IAM Online webinar	https://www.youtube.com/channel/UCussxbcR_OxG1e_kRp0pjpA To disseminate Sirtfi	And stimulate its adopotion.	Federation operators, service providers and identity providers.
Moodle online training platform	https://aarc-project.eu/wp-content/uploads/2017/03/Moodle-Presentation_final200317.pdf	To bring AARC training online to make them accessible to all.	AARC partners, libraries, RIs and EIs.
Infrastructures toolkit https://aarc-project.eu/infrastructures/	Web page that pulls together links to all materials relevant to e-infrastructure service providers, research infrastructures and research collaborations, and provides context.	The work is being used by the infrastructures.	e-infrastructure service providers, research infrastructures, research collaborations
Blogs	24 blogs have been posted on the project website during the course	Blogs were disseminated across twitter, facebook,	All / general audiences

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	of the project.	AARC and partner channels to support, twitter.	
Policy			
Engagement with other policy groups	Close engagement with IGTF and REFEDS to contribute resources towards completion of global policy frameworks (such as Sirtfi) and assurance. Promoted global policy coordination among infrastructures	Engaged with different RIs and EIs to support results deployment.	e-infrastructures, research infrastructures, research communities
Sirtfi	IAM Online Webinar, Sirtfi website, Sirtfi Moodle, Posters IGTF & TNC16	Coordination with GN4 for Sirtfi adoption and creation of supporting tools (e.g. technical.edugain.org enhancement for Sirtfi query)	Service providers, identity providers, federation operators (for support)
Assurance work	Baseline assurance profile presented to the various EIs and RIs. Differentiated assurance profile is undergoing REFEDS consultation	The baseline assurance is already being used by RIs that need to address assurance.	Research infrastructures, e-infrastructures
Snctfi	Basic dissemination done via presentation at relevant events and by bilateral conversations with RIs and EIs.	EGI, Elixir and EUDAT are already discussion how to comply with Snctifi.	Research infrastructures, e-infrastructures
Pilots			
IGTF to SAML Bridge	Presented at the 39th EUGridPMA Firenze meeting	This is already in production and available to all the users that do not have federated credentials but want to access services whose access is federated.	IGTF users, eduGAIN service providers, research infrastructures, e-infrastructures

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Library walk-in pilot	Work presented to different libraries in NL and IT and to LIBER members. https://wiki.geant.org/display/AARC/LibrariesCockpitPanelWalkInUsersPortal	Work taken up national federations.	Libraries that are members of national federations.
Social ID Pilot	Work shared among FIM4R participants, presented at I2 global summit meeting 2017 and among AARC partners. wiki.geant.org/x/ZIqSAw	Work taken up by RIs and EIs.	Mostly aimed at RIs and EIs to support more users.
EZproxy as "Access Mode switch"	Webinar for Italian libraries making use of EZproxy https://wiki.geant.org/display/AARC/LibrariesCockpitPanelEZproxy	Work taken up national federations.	Libraries that are members of national federations.
SAML-ORCID account linking	Work promoted at various events, such as AARC meetings, EGI conference, I2 Global Summit 2017. wiki.geant.org/x/WAH5Aw	Work expected to be taken up by RIs and EIs.	Mostly aimed at RIs and EIs to address the need of a persistent identifier.
Attribute management and attribute aggregation pilot.	EGI: wiki.geant.org/x/LAH5Aw BBMRI: wiki.geant.org/x/HgD5Aw	Work already being tested by different RIs and EIs.	Mostly aimed at RIs and EIs.

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Bridging IGTF and SAML: 1. IGTF to SAML	Work demonstrated at various events, such as AARC meetings, IGTF events, I2 Global summit and promoted via mailing lists and social media. wiki.geant.org/x/JoEKB	Already in production and available via eduGAIN.	To enable users with a valid IGTF personal certificate to access federated services.
2. RCAuth	Demonstrated at AARC events, IGTF events, I2 Global summit and promoted via mailing lists and social media. wiki.geant.org/x/yADaAw	Already in productions; longer term plans are to deploy it further via the EOSC and operated via EGI, EUDAT and GÉANT jointly.	Aimed to users in RIs.
1. EUDAT-EGI pilot 2. EUDAT-PRACE pilot 3. ELIXIR-EGI pilot (To test cross infrastructure scenarios)	Presentation at several events, like I2 global summit 2017 and EGI conference 2017.	Work to continue in AARC2.	Aimed at EIs and RIs.

Table 3: Register of dissemination and exploitation outputs

7 Conclusions

This document summarised the work done to support dissemination and exploitation within AARC, as well as the challenges faced. The project partners met all the KPIs and, in some cases, also exceeded them, and there has been a joint effort to not only communicate but also promote and disseminate results. Particularly on the pilot side, there has been a great effort to summarise in one page the aim of the pilots, the components implemented (and how they mapped the blueprint architecture) and the use-cases they addressed.

AARC is being looked at and approached by emerging RIs that need to implement authentication and authorisation frameworks for their users and do not want to reinvent the wheel.

The work of AARC is already being deployed by RIs and EIs, which is clearly a good indication of success.

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Appendix A List of Other Events

The table below lists some of the events where AARC presented its outputs. The complete list is online at: https://aarc-project.eu/documents/presentations/

Event Name	Activity	Coverage and target audience
Internet2 Global Summit April 2015, Washington DC (US) http://meetings.internet2.edu/2015-global-summit/detail/10003655/	Presentation	Mostly campus CIOs, CEOs at US universities and researchers. Session attended by about 60 people.
TNC 2015, Porto (PT) https://tnc15.terena.org/core/schedule/list	Presentation	Mostly EU NRENs and universities, about 80 people attending the session.
IDEM Conference May 2015, Lecce (IT) https://www.idem.garr.it/convegno2015/2015/programma-esteso	Presentation	Italian universities and libraries. About 70 people attending.
RDA Conference September 2015, Amsterdam (NL)	Presentation	The presentation was hosted by the FIM-IG active in RDA. About 30 people attended; most of the people were from Europe.
Internet2 Technology Exchange 2015 October 2015 Cleveland (US) http://meetings.internet2.edu/2015-technology-exchange/speakers/5663/	Presentation	Mostly IT managers and CTOs at US universities and researchers. Session attended by about 60 people.
Internet2 Global Summit April 2016, Chicago (US) http://meetings.internet2.edu/2016-global-summit/detail/10004129/	Presentation	Mostly campus CIOs, CTOs at US universities and researchers. Session attended by about 60 people.
DI4R September 2016, Krakow (PL)	Session and a role play on Sirtfi	Mostly European researchers and e-infrastructures. Session attended by about 50 people.
TF-CSIRT September 2016, Riga (LV) https://hshort.web.cern.ch/presentations/20160921%20TF-CSIRT%20Incident%20Role%20Play.pdf	Role play on Sirtfi	Security CISRT in the R&E and beyond. About 50 people attended the meeting.

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HEPiX (High Energy Physics Information Exchange) October 2016, Berkeley (US) https://hshort.web.cern.ch/presentations/20161018%20HEPiX%20Can%20we%20trust%20eduGAIN.pdf	Presentation on Sirtfi	Security officers in the HEP community. Meeting attended by about 30 people.
CHEP (Computing in High Energy and Nuclear Physics) October 2016, San Francisco (US) https://hshort.web.cern.ch/presentations/20160928%20DI4R%20Enabling%20Federated%20Login%20to%20WLCG.pdf	Presentation on Sirtfi	Security officers in the HEP community. Meeting attended by about 30 people.
Training event for the HNSciCloud procurement, October 2016, Lion (FR) https://hshort.web.cern.ch/presentations/20161103%20HNSciCloud%20Provider%20Training.pdf	Training event to guide services to understand federated access and how to implement it.	About 10 different commercial services.
AARC presence at FIM4R, co-located with the TIIME Workshop, February 2017, Vienna (AU) https://tiimeworkshop.eu/	Several presentations on different AARC results	About 50 people, mostly in the R&E sector.
Attendance at ISGC2017, March 2017, Taipei http://indico4.twgrid.org/indico/event/2/session/14/contribution/41	Talk on Snctfi	
Two AARC sessions at I2 Global Summit 2017, April 2017, Washington DC (US) https://meetings.internet2.edu/2017-global-summit/detail/10004570/ https://meetings.internet2.edu/2017-global-summit/detail/10004582/	Lesson learned on the AARC pilots and more in general on the added value of AARC.	About 50 people attended the sessions. Mostly US campuses and researchers.

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