D8.5 Dissemination and Communication Activities Final Report

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List of Acronyms

Abbreviation / acronym	Description
DoA	Description of Action
Dx.y	Deliverable number y, belonging to WP number x
EBSI	European Blockchain Services Infraestructure
EC	European Commission
KPI	Key Performance Indicator
MOR	Multilingual Ontology Repository
OOP	Once Only Principle
OOTS	Once Only Technical System
PC	Project Coordinator
QA	Quality Assurance
QM	Quality Manager
RP	Reporting Period
SDG	Single Digital Gateway
SEO	Search Engine Optimisation
TL	Task Leader
VC	Verifiable Credentials
WP	Work Package
WPL	Work Package Leader
Px	Project period (eg period 3 is the equivalent of M25-40, January 2022 -April 2023)

Executive Summary

DE4A is a Member State driven project that assist Member States to prepare for the Single Digital Gateway planned to become a reality in 2023. The purpose of DE4A is to develop an open and comprehensive environment and platform for EU Member States to consistently deliver secure cross-border, high quality, fully online procedures under the Once-Only Principle (OOP).

This document reports the dissemination and communication activities, undertaken during the third and final period (January 2022 – April 2023), following the strategy described in the deliverable "D8.1 Project Dissemination and Communication Strategy" [1] at project start, and following on from "D8.4, Dissemination and Communication Activities Report M24"[4].

The dissemination team created a graphical identity for the project at the start, as well as other communication and dissemination tools during the first two years and established a DE4A identity in the ecosystem. The graphical identy has been maintained and activities extended in the final period.

In the final period through April 2023, the overall project efforts were focussing on developing and building the functionality needed to drive the project and support for the 2nd phase of pilot use-cases. During this period, it was important to maintain pathways toward the continuing successful trials of the DE4A pilots, while maintaining a careful level between repetitive publicity, which can be detrimental to the project and actual newsworthy communications.

The planning was to show-case and demonstrate the three pilots the "Studying Abroad Pilot", the "Doing Business Abroad Pilot" and the "Moving Abroad Pilot" and in a number of different virtual media with the goal of gaining pilot participation and encouraging uptake by Member States. This activity accelerated at the beginning of the final period and kept pace with the DE4A Pilot deployments.

It has been evident that there is interest in the progress of the project, from the Single Digital Gateway and the Once Only Principle community. This has been further evidence by the interest generated by the DE4A wiki, which makes the outcomes of the project publically available, promoted from January 2023, as well as the strong turn out at the online DE4A Final Event (88 participants connected).

The actions in the third period do not display any significant deviations from the initial Key Performance Indicators as described in the Description of the Action (DoA), aside from timetabling issues due to pilot timetable revisions. Other minor deviations, if any, are noted per KPIs.

Overall, the period has seen an increase in repeat visitors to the DE4A website, which was updated throughout the period and expanded with a dedicated microsite for the Final Event on April 12th 2023 (also making all documentation available after the event conclusion). DE4A produced three newsletters in the final period. Last but not least, there has been strong increase in open access publications in the final period, conference participation and other dissemination activities.

1 Introduction

1.1 Purpose of the document

The current document is the deliverable "D8.5 Dissemination and Communication Activities Final Report" and reports the DE4A dissemination activities for the third period of the project (January 2022 – April 2023) along with the respective KPIs and impacts. This document has been produced in the context of "WP8 Stakeholder dialogue, dissemination and communication".

The deliverable includes all activities related to dissemination and communication of the project results and collected success stories in the form of written materials, social media engagement, on-site activities and the content production for and updating of the project website as well as other forms of dissemination, as described in the preliminary Dissemination Plan [1].

During the reporting period, the dissemination activity has the following objectives:

- Continued development of project identity and public image
- Assisting collaboration with other EU projects
- Improvements of the project website including further development of pilot micro-sites
- Ongoing social media and content development for website
- Distribution of newsletters with highlighted project activities
- Organisation of the DE4A Final Event

1.2 Structure of the document

This document is divided into the following chapters

- Chapter 2 - provides an overview of the communication activities
- Chapter 3 - reports the dissemination activities including events and conferences
- Chapter 4 – provides information on the publications
- Chapter 5 – concerns the liaison with other projects and initiativse
- Chapter 6 – describes the progress of the Key Performance indicators and impacts
- Chapter 7 - presents the conclusions.
- The Annexes include sections on the DE4A webpage and the three complete newsletters in the period

2 Communications Activities

This chapter describes the communications activities in the third period of the project with their related KPIs (see section 6). The work done in this and previous years are intended to support pilot and other project activities and form the basis of communications with stakeholders throughout the course of the project, driving exploitation and sustainability.

2.1 Website

One of the most important poles of attraction and channel of communication for the DE4A project is its website (related to KPI#1/2/3). The website can be found in the following link: European Single Market | Digital Europe For All (de4a.eu)

2.1.1 Website updates

The website has been available for the public since January 2020 but the content has been continuously enhanced as the project developed. The alterations aimed at adding value to the end users and are mentioned below. Improvements and additions made in the last period of the project had the aim of increasing impact of awareness and to draw visitors to special features like the pilots, the project wiki, and the Final Event microsite. These are listed below:

2.1.1.1 DE4A Pilots' microsites

(Related to DO2, KPI#16/19)

In the second period, the DE4A website expanded the 'Pilots' tab with three specialised areas (microsites) designed to provide information to enable stakeholders to participate in DE4A pilots. During the last period of the project, the microsites have been updated to support individual pilots with the launch of the cross-border services in the Member States (Studying Abroad ; Doing Business Abroad, Moving Abroad).

The structure of each microsite is broadly similar, consisting of a step-by-step approach through the process. These steps vary (as appropriate) between each microsite, but each contains:

- **About The Pilot**
    - Key Advantages
    - Scope of the pilot with the links to the live services
    - Timeline with information about the operational phase of the pilots
    - Audience that can participate in the pilots' operational phase
    - Secondary information
- **Participating Guidelines**
  This section describes the main steps for the application to the different pilot services and includes services guidelines with video recordings.
- **Feedback Forms**
  The pilot users can provide feedback on the use of the services through these forms. This feedback is used in the evaluation of the pilots.
- **FAQs**
  Pilots utilize videos to assist in the overall understanding of the concepts and processes to be expected.

In period 3 there were 99 visits (unique visitors) to the Doing Business Abroad microsite (182 total since inception), 93 visits to the Studying Abroad microsite (142 total), and 40 visits to the Moving Abroad microsite (43 total).

The number of visits may demonstrate the practicality of each pilot and also may reflect the nature of the citizens' interactions with each service.

2.1.1.2 Community section

Documentation about the project results is available at this section of the web site.

- **Academic Publications**

Open Source Publications related to DE4A are listed together with a short abstract and link to the full document: https://www.de4a.eu/academicpublications . This is kept regularly updated.

- **Deliverables**

All public deliverables have been listed and linked in this section: https://www.de4a.eu/project-deliverables .

- **Newsletters**

It includes all the newsletters produced by the project: https://www.de4a.eu/newsletters .

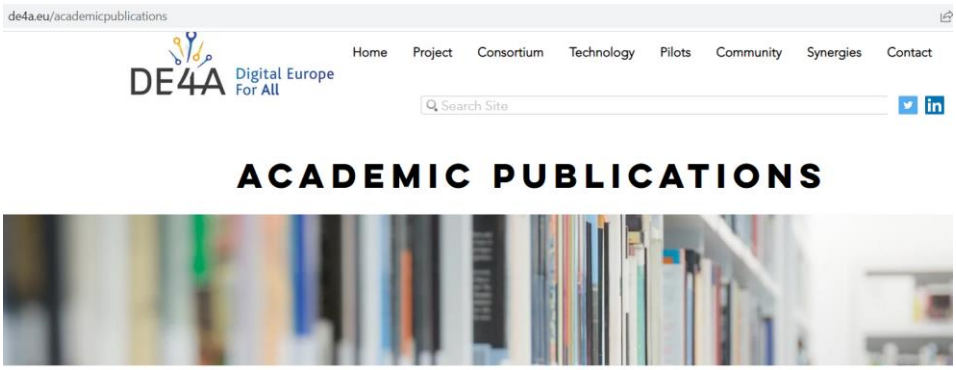


Figure 1: Academic Publications page

2.1.1.3 News

The news section is continually updated and given more visibility linked from the home page https://www.de4a.eu/news .

2.1.1.4 Technology

The technology section has been updated to include overview https://www.de4a.eu/technology and link to the DE4A wiki.
https://wiki.de4a.eu/index.php/DE4A_Service_Interoperability_Solutions_Toolbox .

2.1.1.5 DE4A Final Event microsite

For the DE4A Final Event scheduled on April 12, 2023, a microsite dedicated to the event was set up in the DE4A website, with a banner at the homepage linking to the event dedicated site, and registration process, as well as social media (twitter and LinkedIn): https://finalevent.de4a.eu/ .

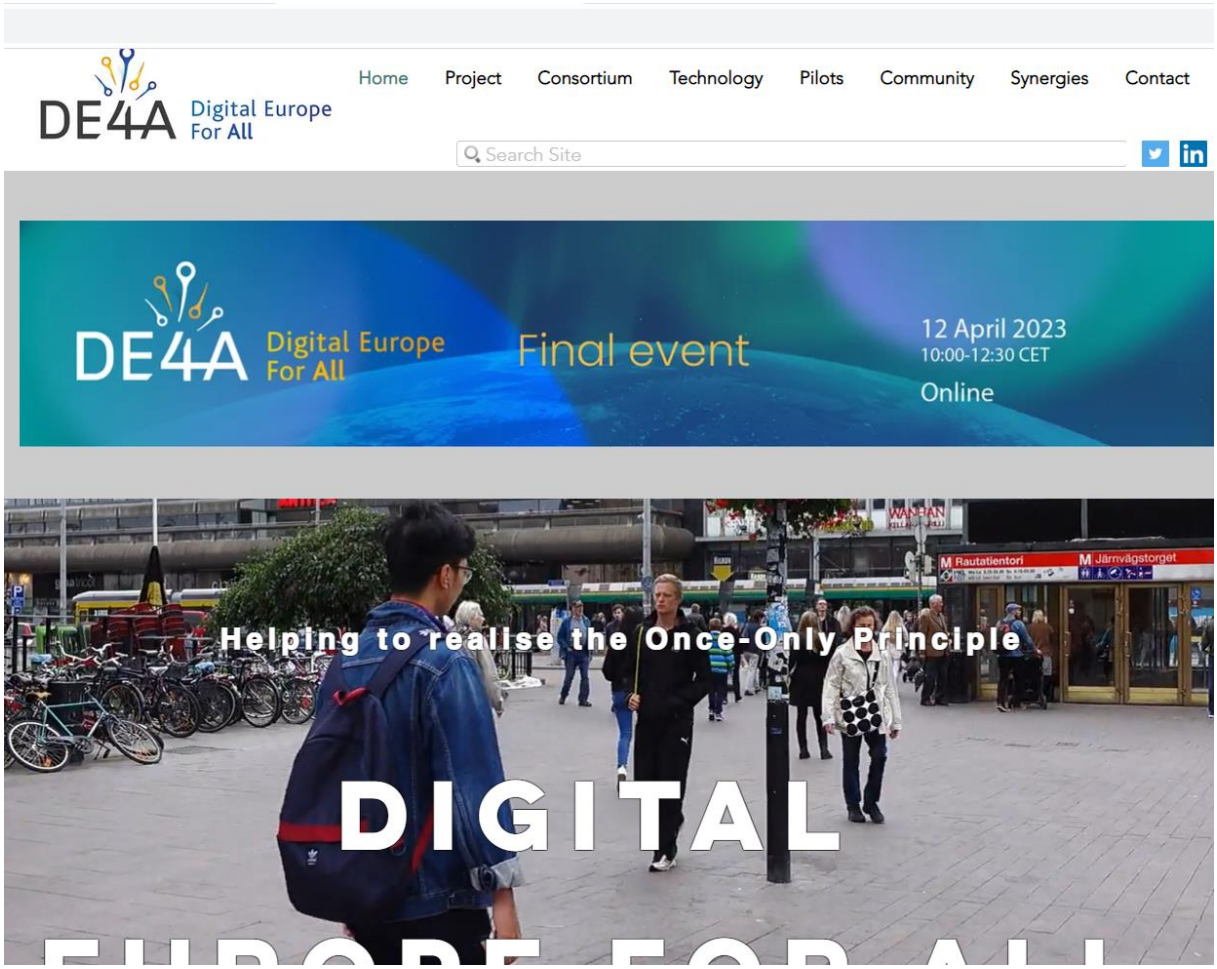


Figure 2: Banner on DE4A home to Final Event microsite

The microsite included an overview of the event, agenda (with links to each session and bios of the speakers), link to registration page, and social media links.

After the conclusion of the Final Event, the microsite was updated with a "thank you" image, and links to the presentations made by the speakers in the event, as well as a recording. Links to github, deliverables and wiki were also added.

The following figures show the microsite leading up to the event (information phase) and afterwards (post-event).

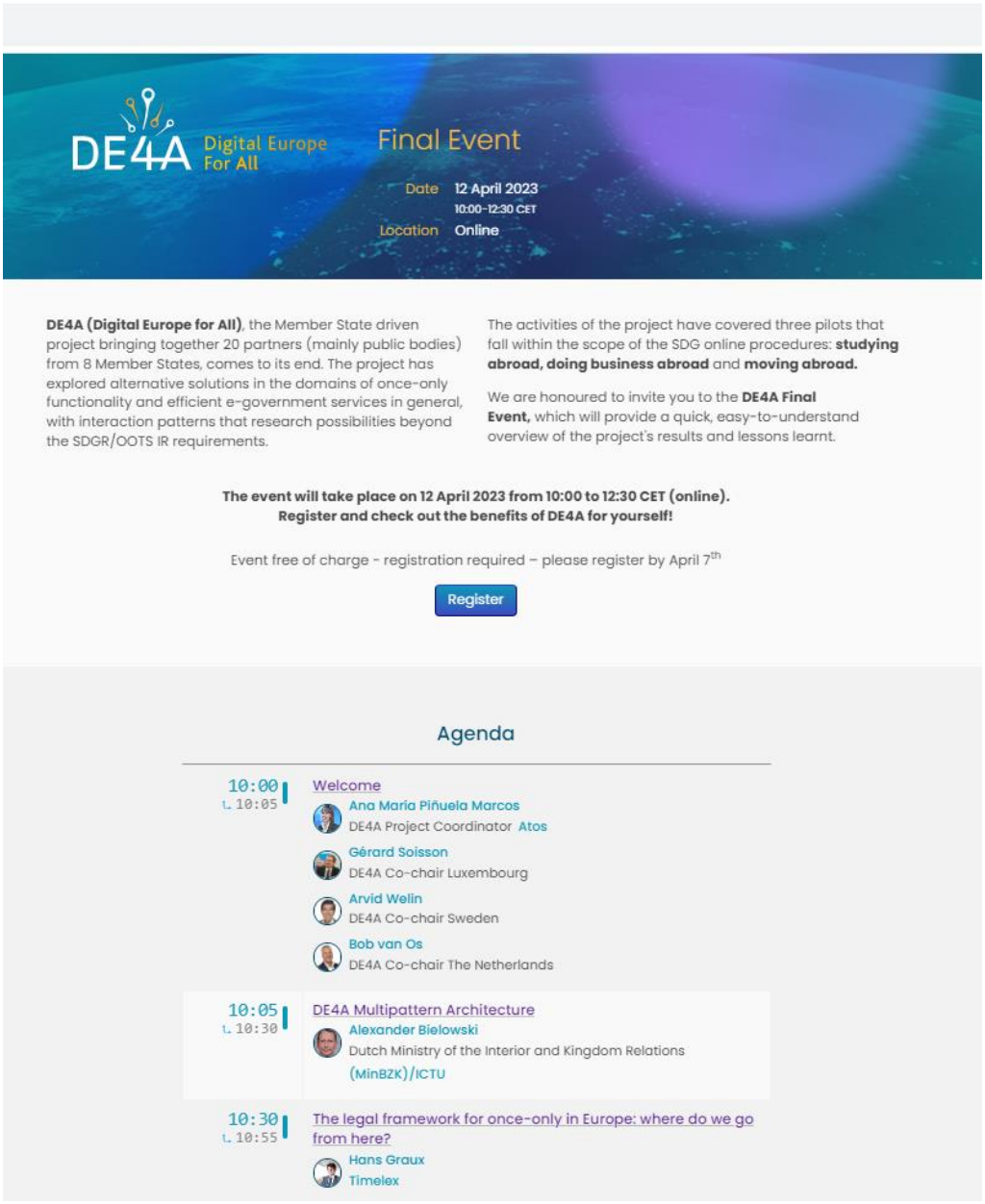


Figure 3: DE4A Final Event microsite – information phase

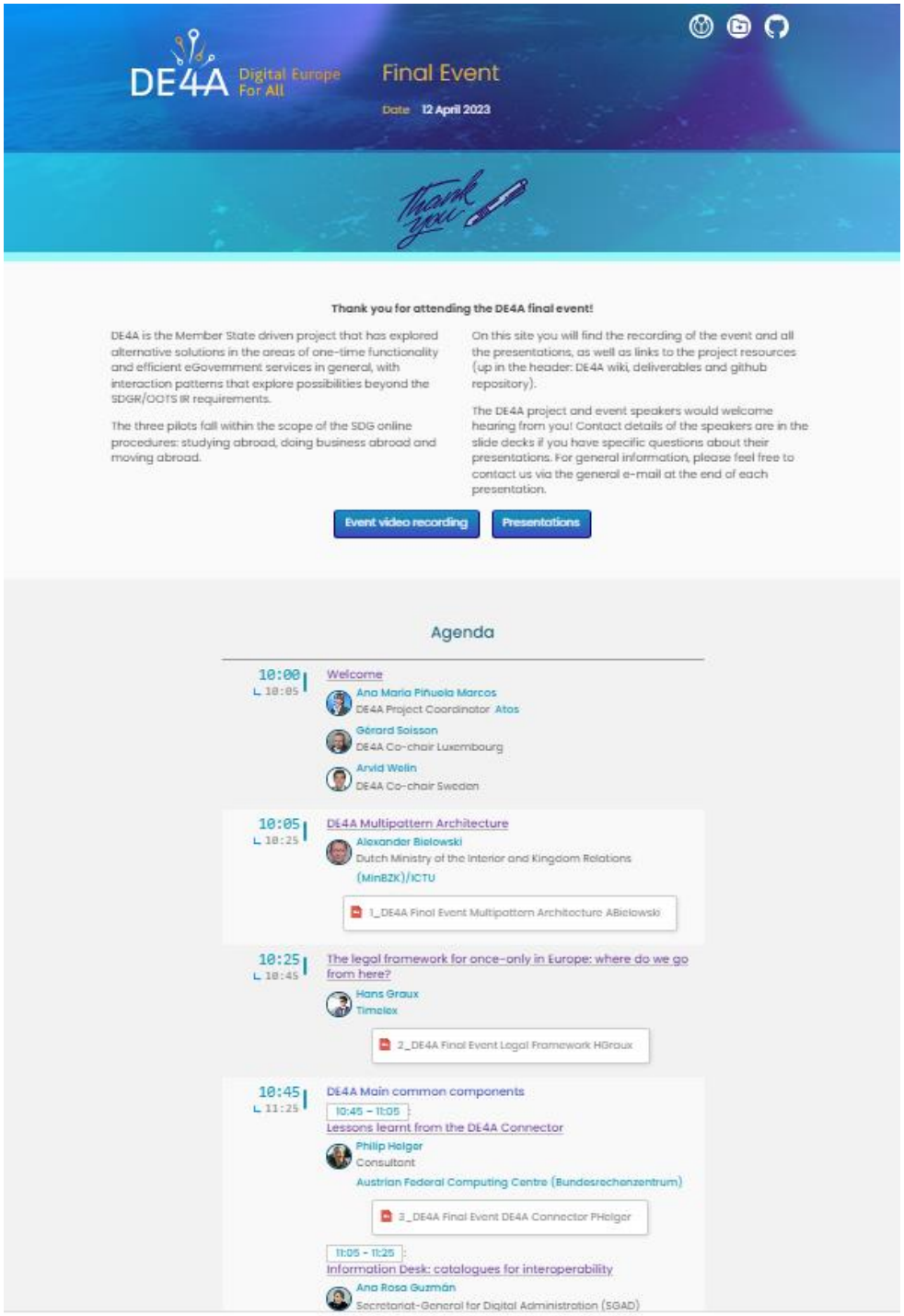


Figure 4: DE4A Final Event microsite – post-event phase

2.1.2 Web site metrics

(Related to DO1, KPI#1/2)

The website is continuing to utilize Search Engine Optimisation (SEO) monitoring to ensure that the most advantage is taken of Social-Media and Web Search Engine searches.

DE4A website has increased the total number of unique visitors. The number of unique visitors was 322 in year 2 and 90 in the 4 months of year 3. The monthly average of unique visitors in year 3 (22 unique visitors/month) is quite similar to year 2 (26 unique visitors/month), what means that we are

reaching a reasonable level of visitors' engagement. The total number of uniquevisitors during the whole life of the project amounts to around 626

Site sessions stats corroborate the user engagement:

- Site sessions 2021: 370 (30 site sessions/month)
- Site sessions 2022: 599 (50 site sessions/month)
- Site sessions 2023: 358 (90 site sessions/month)

DE4A users are reading the new contents that are being produced and are visiting the webiste with more frequency.

In 2022 there are some peaks of visits in January, March and October, which can be related to the communication about the second review, the release of the 5th newsletter in May, resumption of activity after the summer in September and the pilots' light review in October, with newsletter number 6 release in December.

In 2023, there is a significant increase in visits in April, coinciding with the Final Event on April 12th.

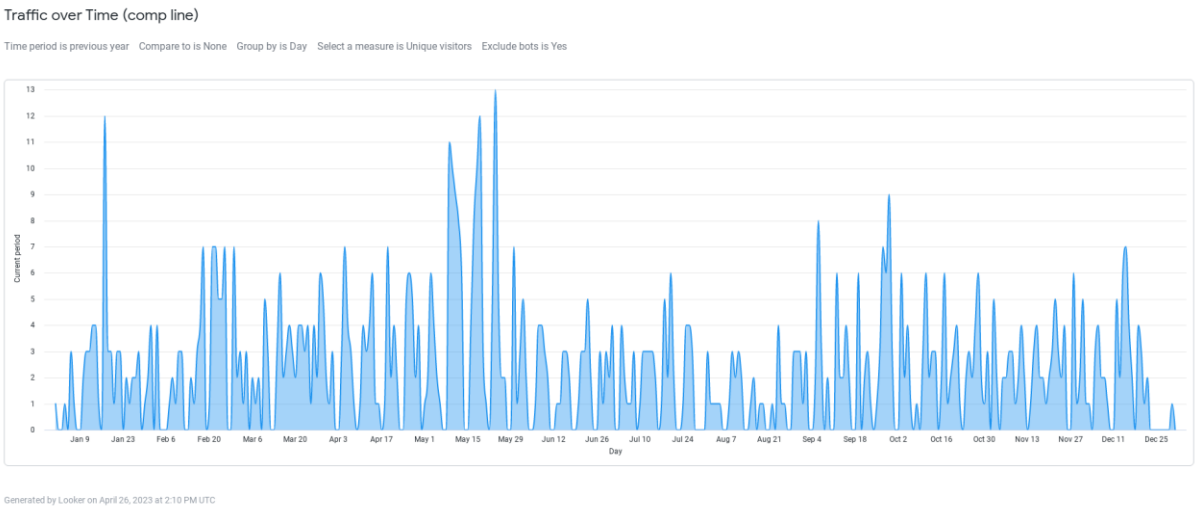


Figure 5 : Website – Traffic over time 2022

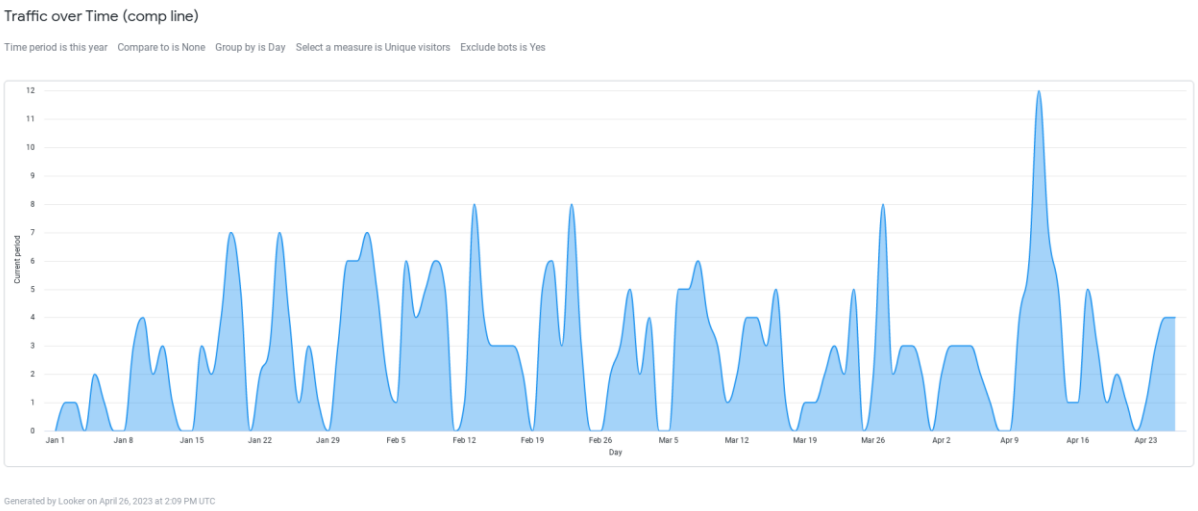


Figure 6 : Website -Traffic over time 2023

2.2 DE4A Social Media

(Related to DO1/2, KPI#4)

DE4A has set accounts in Twitter (DE4A (@DE4A_EU) / Twitter) and LinkedIn (DE4A: Resumen | LinkedIn) .

The Social Media strategy of DE4A was created at the beginning of the project's lifetime to build brand awareness, engage with followers, promote activities, and develop a brand voice related to the project. To further engage with the targeted audience relevant news and updates continue being regularly posted.

Social media has become the primary channel for delivering news and information to stakeholders and the public and for this reason a greater emphasis on this media has been made.

From December 2022, Dissemination activites were taken over by the Atos team, who implemented a strategy of targeted posts, specifically tagging relevant profiles, both of DE4A partners, as well as other interested parties. Tagging relevant people, projects or organisations increases engagement and is an effective way in social networks to gain more exposure as well as benefiting from extra exposure when they reciprocatelly tag you. Proper tagging increases the chances of post resharing, widening the reach of post significantly.

2.2.1 Twitter

(Related to DO1/2, KPI#5)

The Twitter handle @DE4A_EU has been running from the beginning of the project. All partners have been asked to contribute relevant content that could be shared and/or retweeted.

The frequency of the posts was five to seven posts per week on Twitter through 2022, with fewer but more focused posts in 2023.

The figure below shows the look of the project account as well as a tweet posted on March 8th 2023, in the communication campaign leading up to the DE4A Final Event on April 12th.

Figure 7: Tweet illustrating the announcement of the DE4A Final Event

As regards the correspondence between Tweets and impressions, from the below graphic one can see that there were fewer Tweets in February 2023, but a high number of impressions, as the Tweets were more focussed on the intended public.

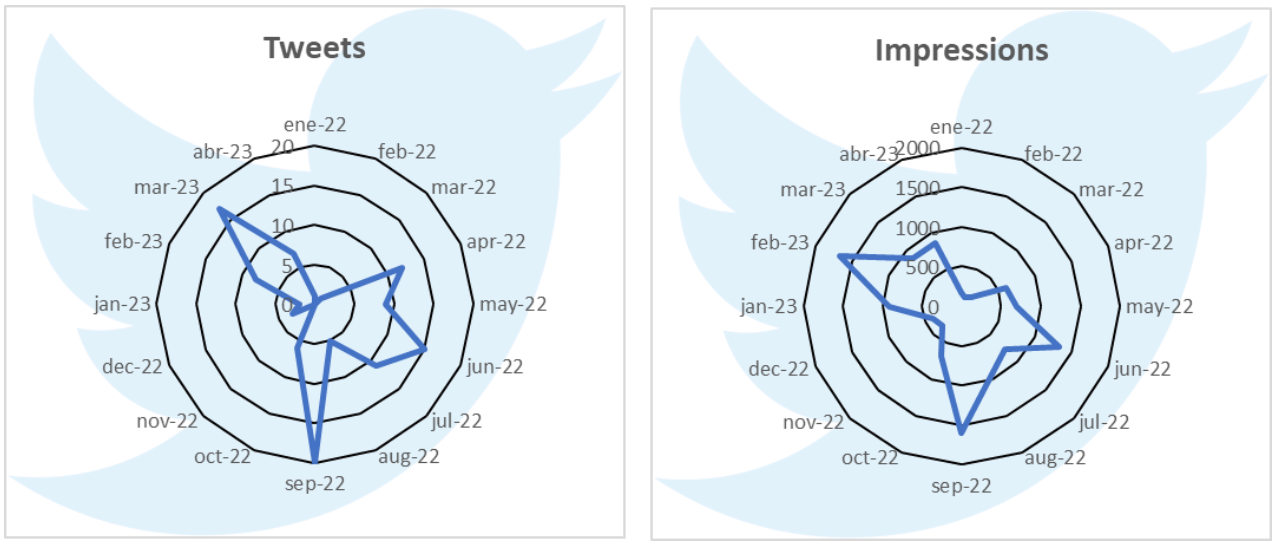


Figure 8: Tweets vs Impressions 2022/23 (YR3+) 15 months

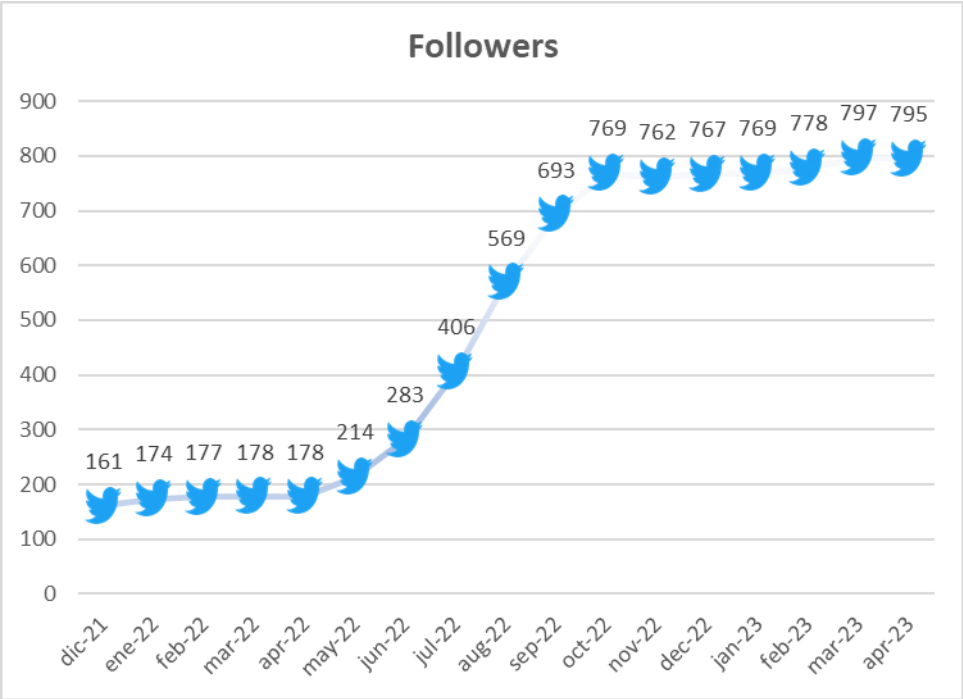


Figure 9: Twitter - Followers evolution

The number of Twitter followers maintained stable in the first half of 2022, with an increase over the middle months of the year coinciding with the EEMA annual event in June 2022. From October, the number of followers has been consolidated and increased to near 800, which can be considered a good and constant number of followers, especially in view of the overall difficulties of Twitter to maintain accounts with the change of ownership.

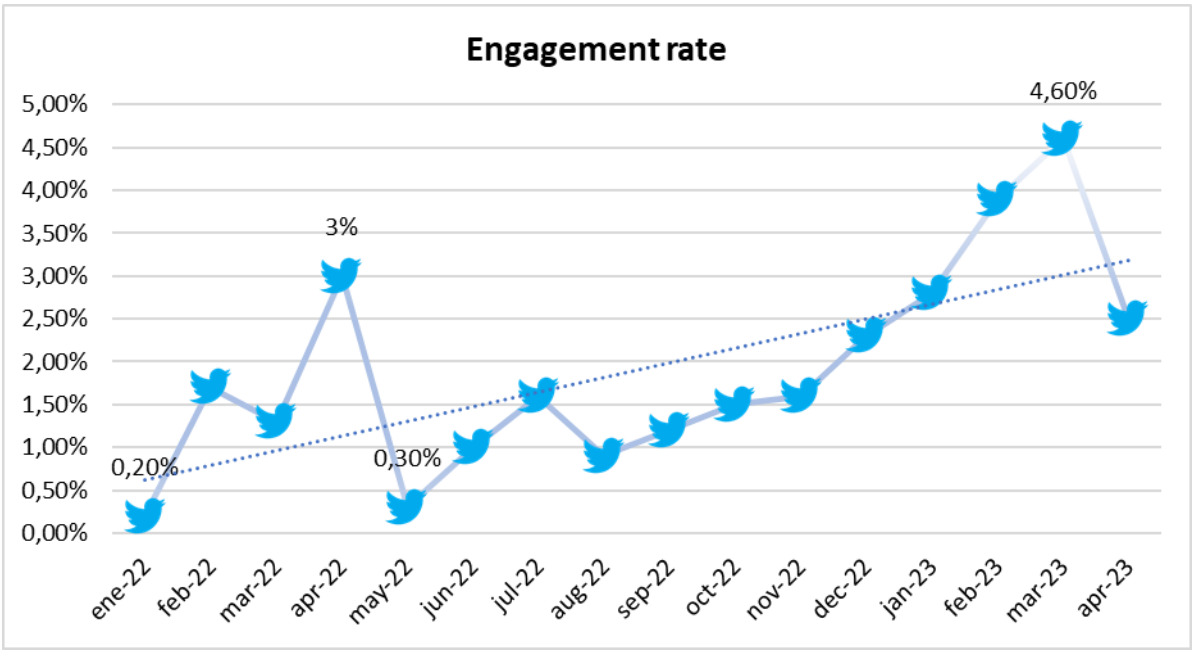
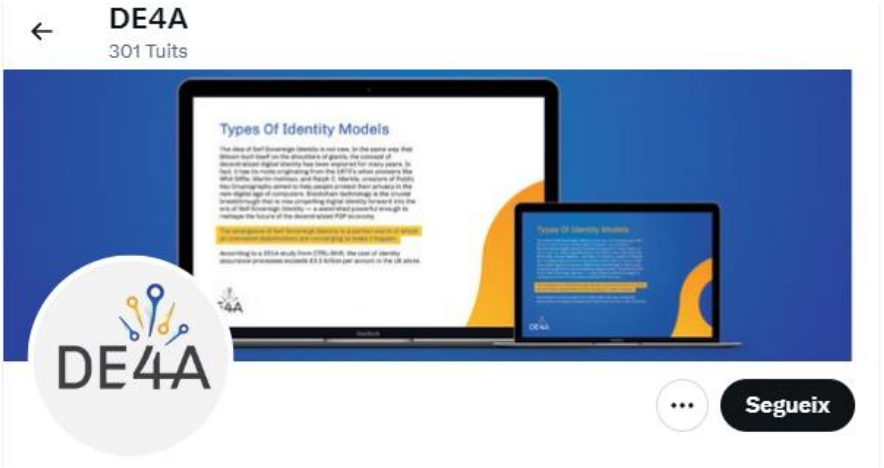


Figure 10: Twitter Engagement Rate

The Engagement rate also follows an ascendent line, with usual fluctuations depending on communicated items.

General statistics – 2022/23 (YR3+) 15 months analytics

- Followers (who follow DE4A) – 795
- Following (who DE4A follows) – 2,220
- All tweets – 301



Summary – 2022/23 (YR3+) 15 months analytics)

- Tweet impressions - 8418 (from April 22 to April 23)

2.2.2 LinkedIn

The proposed approach for project promotion via LinkedIn is designed to utilise each partner's organisation's existing LinkedIn accounts, if any, to achieve good engagements and results. A DE4A LinkedIn page was created for communication of the project achievements to stakeholders and general public.

The frequency of posts was five to seven posts per week on LinkedIn through 2022, with fewer but more focused posts in 2023. From 2023, the communication strategy in LinkedIn provided more focussed posts tagging specific profiles.

Statistics for the DE4A Linkedin profile are as follows.

General statistics (through April 2023)

- Followers – 395
- Posts – 80
- Unique visitors –17
- New Followers – 14
- Post Impressions – 744

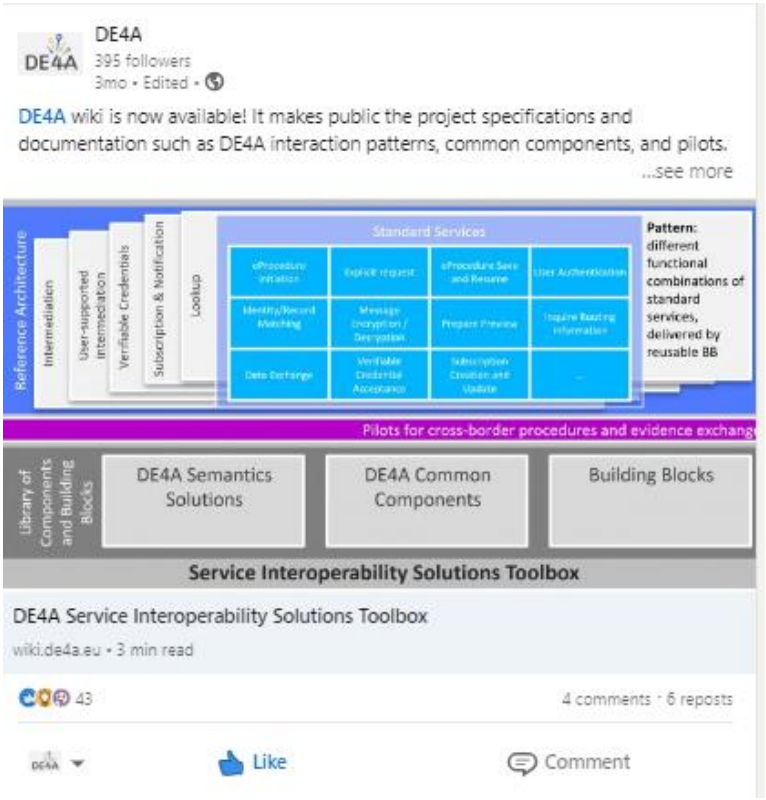


Figure 11: Linked-in account post – DE4A Wiki promotion

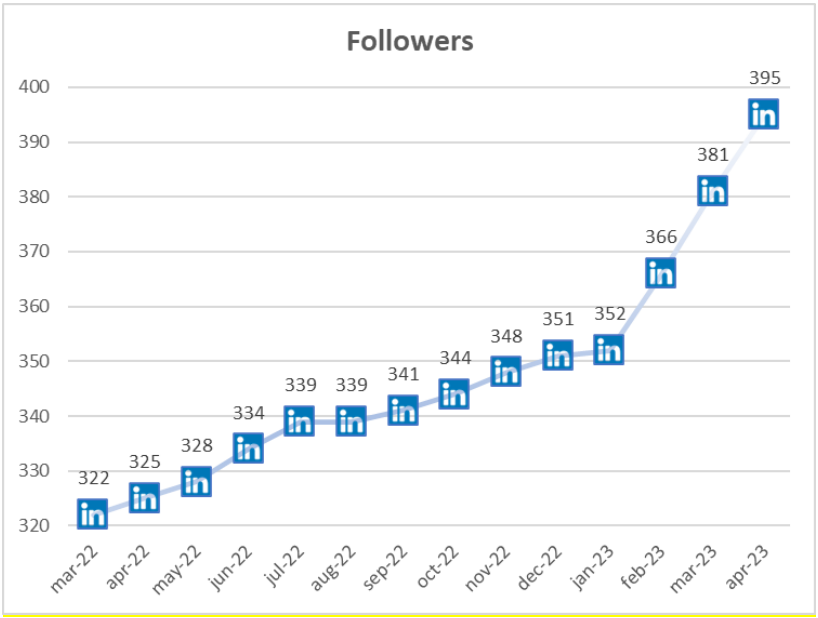


Figure 12: Followers statistics of DE4A`s LinkedIn profile

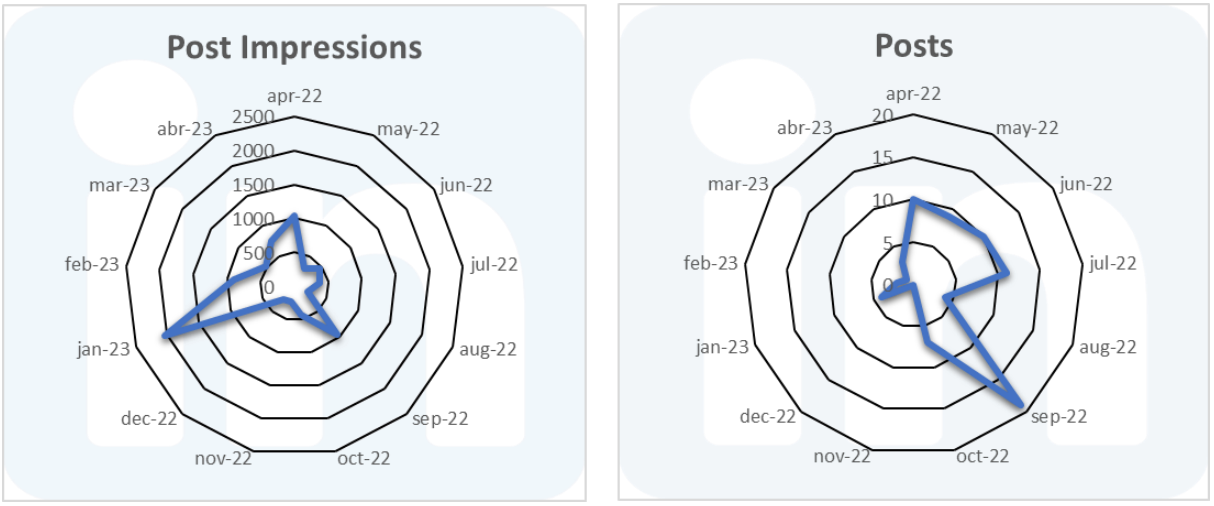


Figure 13: LinkedIn Post impressions vs Posts 2022/23

With regards to the number of followers, in January 2023, DE4A published four posts related to the publication of the DE4A wiki, and DE4A Linked-In account also has it´s highest number of impressions in this same month, so this is an example of targeted posts producing a high number of impressions.

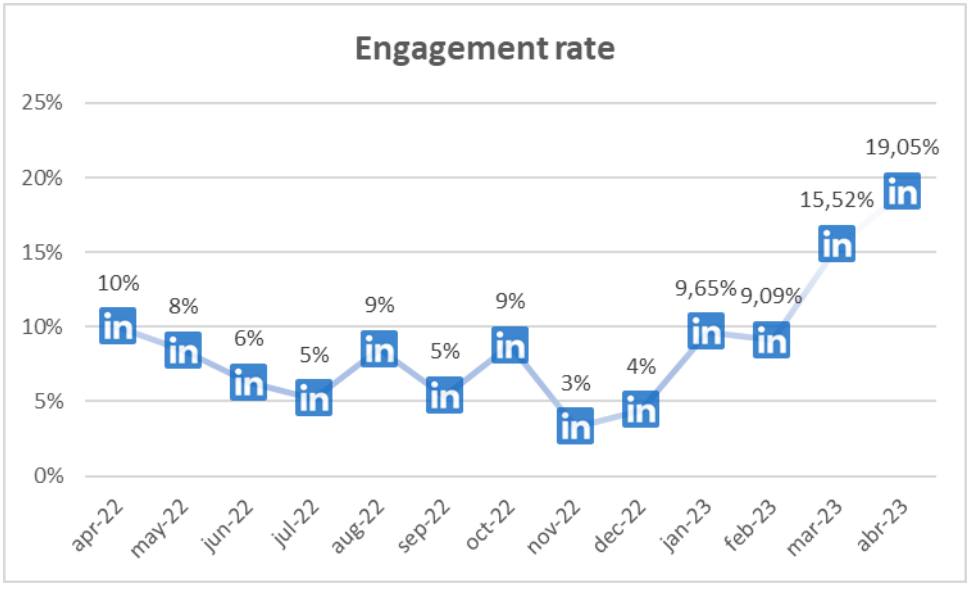


Figure 14: LinkedIn Engagement rate

From the presented graphs it can be stated that the DE4A LinkedIn channel shows a steady growth of its followers. The rapid increase of followers is based on crucial events like the publishing of a newsletter, promotion of DE4A wiki, announcement of submitted deliverables and other major update such as a pilot launch and the DE4A Final Event.

2.3 DE4A Newsletters

Newsletters are a means of communicating results to targeted stakeholder groups, such as the European Commission with focus on the SDG OOTS implementation team, public and private

organizations involved in the SDG implementation, and the general public. The DE4A newsletters are related to KPI reference #8 (DO1/2, KPI#8)

In the third period, the project produced three newsletters, in May 2022, December 2022, and April 2023, for a total of 7 newsletters in respect to the originally planned 6 newsletters.

The three newsletters are shown in full in the **Annexes.**

A summary and the cover page of each newsletter is provided below.

2.3.1 Newsletter 5: May 2022

This newsletter focused on the pilots and participation in events in the period.

The lead story focused on the Doing Business Abroad pilot: "DE4A Launches the Doing Business Abroad Pilot", with additional stories on Realising the EU Digital Single Market, and the presentation of DE4A pilot results at the EEMA 2022 international conference.

A cover is also shown below, with the full newsletter in the Annex.

DE4A Digital Europe For All

Issue 5 • May 2022

DE4A Launches the Doing Business Abroad Pilot

Digital Europe for All (DE4A) has announced the launch of its Doing Business Abroad pilot, which aims at demonstrating in practice the benefits for companies and competent authorities of realising across borders the principles of Once-Only and digital-by-default. It also supports the use of innovative approaches such as validating mandates of company representatives.

The service largely corresponds to a fully online procedure of the 'Starting, running and closing a business' in the Single Digital Gateway Regulation (SDGR), which allows companies from Romania to easily register their company with the Netherlands Enterprise Agency (RVO) in The Netherlands.

Earlier this year DE4A announced the first cross-border education service to be launched as part of its Studying Abroad pilot. It focuses on a fully online procedure for the 'Studying' Life Event in the Single Digital Gateway Regulation, which allows students from Slovenia to easily apply for recognition of higher education diplomas in Portugal. Using the service, students can request their diplomas, which are stored in a DE4A digital wallet in the form of verifiable credentials, to be recognised in Portugal. The digital wallet on a mobile phone allows students to securely manage their diploma evidences received from a trusted source in their home country.

Details of the services and the guidelines for participation in the Doing Business Abroad pilot can be found at https://www.de4a.eu/doingbusinessabroadpilot

For more information about the Studying Abroad pilot, visit: www.de4a.eu/studyingabroadpilot

Figure 15: DE4A 5th Newsletter Cover (May 2022)

2.3.2 Newsletter 6: December 2022

This newsletter headlined the successful collaboration between Dutch and German organisations for the Doing Business Abroad Pilot: "DE4A Cross-Border Pilot: Netherlands - Germany. Additional articles focused on the Semantic Interoperabilty Challenge, Spotlight on: Inventory of current eGovernment landscape, and a series of "news shorts" with DE4A participation in events and conferences.

A cover is also shown below, with the full newsletter in the Annex.

DE4A Digital Europe For All

Issue 6 • December 2022

DE4A Cross-Border Pilot: Netherlands - Germany

Bilateral cross-border pilot between Netherlands and Germany in the context of Doing Business Abroad Pilot

From April 2022, different entities in Germany have been participating as observers of the DE4A project. This involves close work with the Doing Business Abroad pilot lead in the Netherlands, RVO, and cross-technical support from the project technical team.

The groundwork for this fruitful collaboration was prepared in 2021, when initial exploration started regarding possible DE4A involvement with the German organizations Federal Ministry of Interior, Federal Office of Administration, Ministry of Economic Affairs, Industry, Climate Action and Energy of the State of North-Rhine Westphalia, and the Coordination Office for IT standards (KoSIT). Towards the end of 2021, the decision was made to proceed with a feasibility study to extend the Doing Business Abroad pilot, focussing on registration at the economy portal, 'Wirtschafts-Service-Portal.NRW' (WSP.NRW), of the state North Rhine Westphalia. From April 2022, Dutch and German partners initiated the preparation phase (April – September) and are currently in the running and evaluation phase through the end of December.

The scope of piloting contemplates the scenario of Dutch representatives acting on behalf of a Dutch company (sole proprietorship) proceeding with the registration of a business activity in the Wirtschafts-Service-Portal of NorthRhine Westfalia. This scenario involves the use of eIDAS and eHerkenning ('eRecognition') for authentication and authorization (full powers); explicit request and preview according to SDGR Article 14; DE4A OOTS to retrieve company data from the Dutch Business Register, using real data, real companies and real representatives, in production environments.

The registrations will be invalidated after piloting concludes.

This piloting activity allows the participants to learn about technical, legal and organizational impact of implementing OOTS.

Ms. Birthe Rosenberg, representing the Ministry of Economic Affairs, Innovation, Digitalization and Energy of the State of North-Rhine Westphalia participated in the pilots' interim review with the European Commission on October 7th in Brussels. Beforehand she explained to DE4A partners the implementation has been quick due to several factors such as:

- Matured DE4A components based on DE4A experiences during 2020-2022
- Gathered implementation experience in DE4A during 2020-2022
- Stable focus, prioritization, management-support
- Proper availability and dedication of resources
- Light weight and pragmatic approach

These are important lessons the partners learned looking forward to the mandatory SDG OOTS implementation before the end of 2023. As indicated by Ard Van der Heijden, Doing Business Abroad pilot leader,

"The bilateral pilot proves that the DE4A components and knowledge about SDG-implementation have matured throughout the DE4A project. When combined with a strong dedication and professional implementation-team, an excellent foundation is created to complete OOTS integration in a short period of time".

1

Figure 16: DE4A 6th Newsletter Cover (December 2022)

2.3.3 Newsletter 7: April 2023

The final DE4A newsletter focussed on the stories highlighted at the DE4A final event on April 12, 2023, the final run-through of the Studying Abroad, Doing Business Abroad and Moving Abroad pilots, summary of the last legal and technical deliverables and upcoming event participations.

A cover is shown below, with the full newsletter in the Annex.

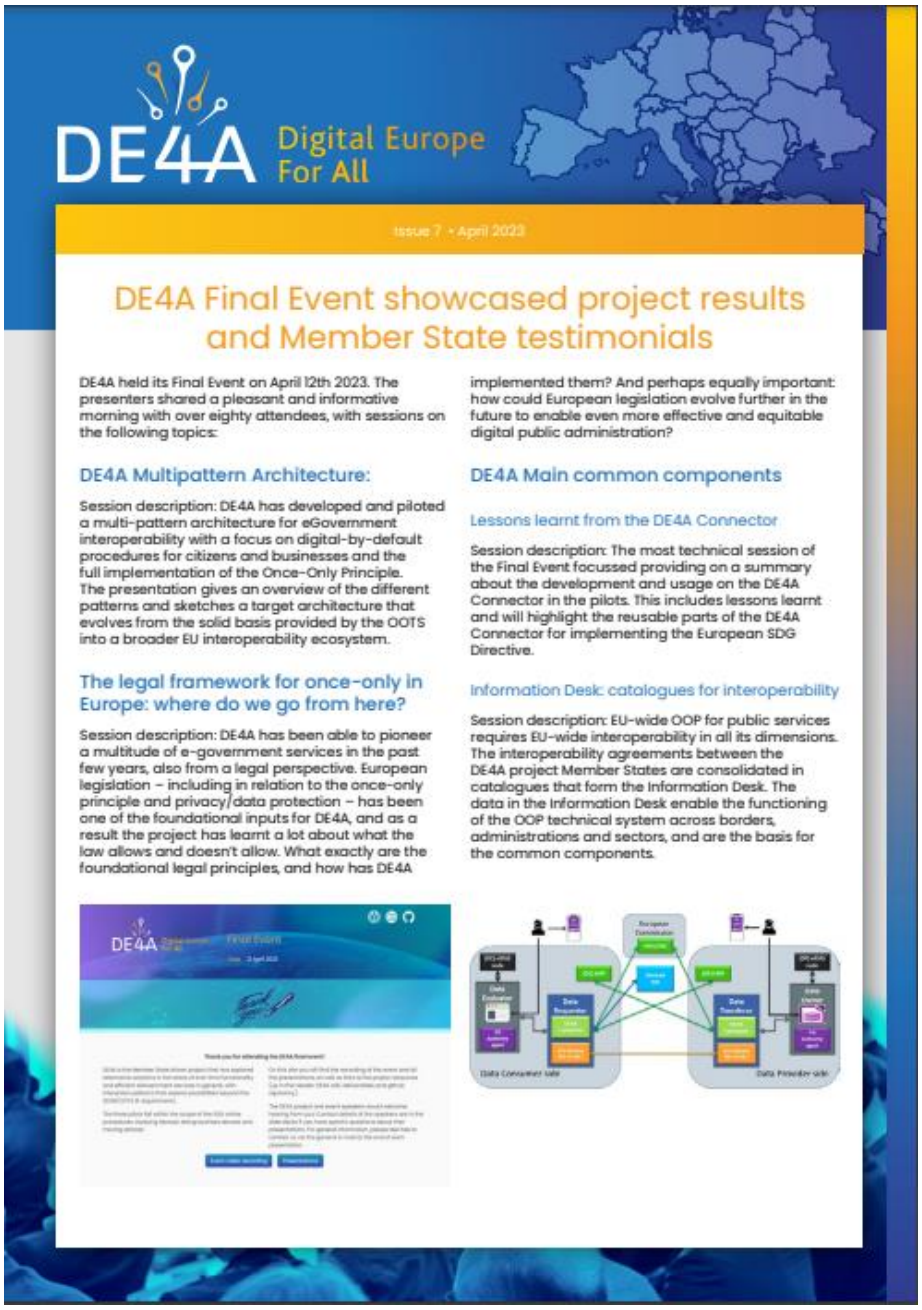


Figure 17: DE4A 7th Newsletter Cover (April 2023)

2.4 DE4A Press Releases and communications

2.4.1 Press releases in English

The English press releases in the last period of the project as listed on the website are found below:

Digital Europe for All (DE4A) Launches Studying Abroad Pilot

10/02/2022

Digital Europe for All (DE4A), a three-year Member State-driven project that is supporting the Single Digital Gateway Regulation across Europe and helping to make the digital single market a reality, today announced the launch of its Studying Abroad pilot.

The Studying Abroad pilot aims at demonstrating in practice the benefits for students and competent authorities of realising across borders the principles of Once-Only and digital-by-default. It also supports the use of innovative approaches such as self-sovereign identities, digital wallets, and distributed ledgers in higher education domain, while also incorporating the European Blockchain Service Infrastructure (EBSI). The pilot is proud to announce that the first cross-border education service has been launched for piloting.

The service largely corresponds to a fully online procedure of the 'Studying' Life Event in the Single Digital Gateway Regulation (SDGR), which allows students from Slovenia to easily apply for recognition of higher education diplomas in Portugal. Students use their national eIDs to access the service at INESC-ID, a partner of the project affiliated with Instituto Superior Técnico, the largest engineering school in Portugal. Using that service, students can request their diplomas, which are stored in a DE4A digital wallet in the form of verifiable credentials, to be recognised in Portugal. The digital wallet on a mobile phone allows students to securely manage their diploma evidences received from a trusted source in their home country.

Further cross-border services and combinations of Member States are expected to be launched in the coming weeks.

Details of the services and the guidelines for participation can be found on the microsite of the Studying Abroad pilot at https://www.de4a.eu/studyingabroadpilot

Figure 18: Press release Studying Abroad Pilot launch

Digital Europe for All (DE4A) - Launch of new services in the Studying Abroad pilot

26/04/2022

The Studying Abroad pilot of the DE4A project aims at demonstrating in practice the benefits for students and competent authorities of realizing across borders the principles of Once-Only and digital-by-default. The pilot is proud to announce that new cross-border educational services have been launched for piloting.

The services largely correspond to the fully online procedure of the 'Studying' Life Event in the Single Digital Gateway Regulation (SDGR), which allow students from Slovenia to easily pre-enrol for a master degree study at University Jaume I in Spain, and Spanish students to apply for study grants at the Jozef Stefan Institute in Slovenia. Students will use their national eIDs to access the services and will explicitly request the use of the DE4A technical system to have their diploma evidence required by the service transferred electronically from a trusted source in their home country satisfying applicable provisions of the SDGR and the GDPR. This way, students will no longer have to search for the evidence and fill in the necessary application forms by themselves.

Details of the services and the guidelines for participation can be found on the microsite of the Studying Abroad pilot at https://www.de4a.eu/studyingabroadpilot

Further cross-border services and combinations of Member States are expected to be launched in the coming weeks

Figure 19: Studying Abroad New Pilot Services

Digital Europe for All (DE4A) Launches Doing Business Abroad Pilot

13/05/2022

Digital Europe for All (DE4A), a three-year Member State-driven project that is supporting the Single Digital Gateway Regulation across Europe and helping to make the digital single market a reality, today announced the launch of its Doing Business Abroad pilot.

The Doing Business Abroad pilot aims at demonstrating in practice the benefits for companies and competent authorities of realising across borders the principles of Once-Only and digital-by-default. It also supports the use of innovative approaches such as validating mandates of company representatives. The pilot is proud to announce that the first cross-border service has been launched for piloting.

The service largely corresponds to a fully online procedure of the 'Starting, running and closing a business' in the Single Digital Gateway Regulation (SDGR), which allows companies from Romania to easily register their company with the Netherlands Enterprise Agency (RVO) in The Netherlands.

Further cross-border services and combinations of Member States are expected to be launched in the coming days.

Details of the services and the guidelines for participation can be found on the microsite of the Doing Business Abroad pilot at https://www.de4a.eu/doingbusinessabroadpilot

Figure 20: Doing Business Abroad Pilot Launch

DE4A and GLASS Collaborate to Deliver Greater Efficiencies for the European Commission and Improved Services for EU Citizens

27/09/2022

DE4A and GLASS Collaborate to Deliver Greater Efficiencies for the European Commission and Improved Services for EU Citizens
EEMA Fosters Cross-Project Collaboration for EU Funded Initiatives

Through its work on many European Commission funded projects, EEMA has a privileged position from which it can identify commonalities across ongoing initiatives. In doing so it delivers meaningful change that enables stakeholders to align on how they address specific challenges and opportunities for the greater overall ambitions of the European Union.

On 22nd September, EEMA is unique vantage point to a workshop entitled 'Semantics – Alternative Project Methodologies: Citizen-Centric Evidence Transfers'. The two-hour online session was hosted by the Chair of EEMA, Jon Shamah, and brought together consortium partners from the Digital Europe for All (DE4A) and GLASS projects. "These two important projects highlight the importance of semantics, as the number of EU projects that will require interoperability grows," observes Shamah.

DE4A supports the Single Digital Gateway Regulation across Europe, helping to make the digital single market a reality. It aims to facilitate the migration towards European Digital Public Services co-delivered across borders, across sectors and with different participants, reinforcing trust in public institutions, and realising positive impacts of citizen centricity on efficiency and a reduction in administrative burden and costs. Meanwhile, GLASS aims to create a new paradigm for the sharing and transfer of personal information, placing the citizen in control, by using e-wallets. It is developing a distributed framework for sharing common services of public administrations across the EU for citizens, businesses and governments.

Jon Shamah was joined by Ana Rosa Guzman, from DE4A who opened the interactive discussion by highlighting the semantic interoperability challenges involved in sharing information across national borders. These include different types of evidence, language barriers, many competent authorities and demarcations, as well as different rules and components, and distributed documents.

Sharing their approach to the same challenge of sharing and transferring documents, were George Domalis and Aris Gioutlaki from GLASS. The project assumes that every country will share the same type of data, however, it will be presented differently. Therefore, the challenge is to find a way to standardise the format of these evidences (such as a password or ID card), so that they can be understood by everyone. To this end participants were introduced to a piece of middleware developed by the GLASS project the 'AI Data Schema Transformer' which aims to resolve the issue.

The workshop provided an opportunity for both GLASS and DE4A participants to learn about respective objectives and developments and in doing so, forge closers ties and alignments that it is hoped with realising greater efficiencies and better outcomes for each project, the European Commission and ultimately for EU citizens that chose to live, study and work in different Member States.

It proposed that a strategic group comprising a number of representatives from each project are formed, to develop the progress made during the workshop further and propose recommendations to the European Commission.

A recording of the 'Semantics – Alternative Project Methodologies: Citizen-Centric Evidence Transfers' workshop will be available shortly.

Figure 21: DE4A and GLASS Collaboration Workshop

2.4.2 Partner communications

Partners also made announcements in local languages about the project.

SGAD, The Spanish Ministry of Economic Affairs and Digital Transformation (Ministerio de Asuntos Económicos y Transformación Digital) published a news item (21/09/2022) on the Spanish eGovernment portal, regarding the paper presented at the ICEGOV 2022 conference.
Link:
https://administracionelectronica.gob.es/pae_Home/pae_Actualidad/pae_Noticias/Anio2022/Septiembre/Noticia-2022-09-21-DE4A-comparte-en-ICEGOV-2022-enfoque-y-aprendizajes-sobre-el-principio-solo-una-vez.html

Figure 22: Spanish eGovernment news site

UJI published a blog post on the Studing Abroad pilot (February 23, 2023): "En pruebas los primeros pilotos que construirán la pasarela única digital europea". Link:

https://uadti.medium.com/en-pruebas-los-primeros-pilotos-que-construir%C3%A1n-la-pasarela-%C3%BAnica-digital-europea-b653a491b41e

Figure 23: UJI blog announcing pilots testing

BRZ made a media announcement and editorial on 01-sep.-22 on the BRZ website regarding a DE4A Publication for IRIS 2022: DE4A - Überblick über Inhalte und die österreichische Pilot-Beteiligung

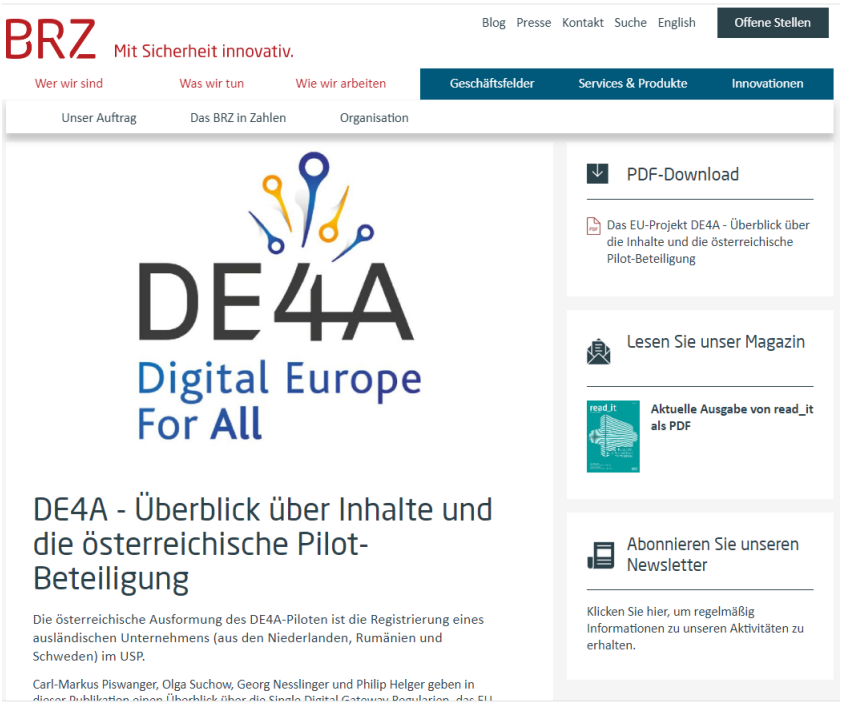


Figure 24: BRZ announcement of IRIS 2022

2.5 DE4A Wiki

(Related to DO3)

The DE4A wiki (https://wiki.de4a.eu/) or DE4A Service Interoperability Solutions Toolbox [5], is the central, long-term deliverable of the DE4A Architecture work package and takes the form of a structured, online architecture repository that extends from the content of the Architecture Framework.

While it is an output of the technical workpackages, it has the function of communicating and disseminating DE4A outputs, also including legal findings and results.

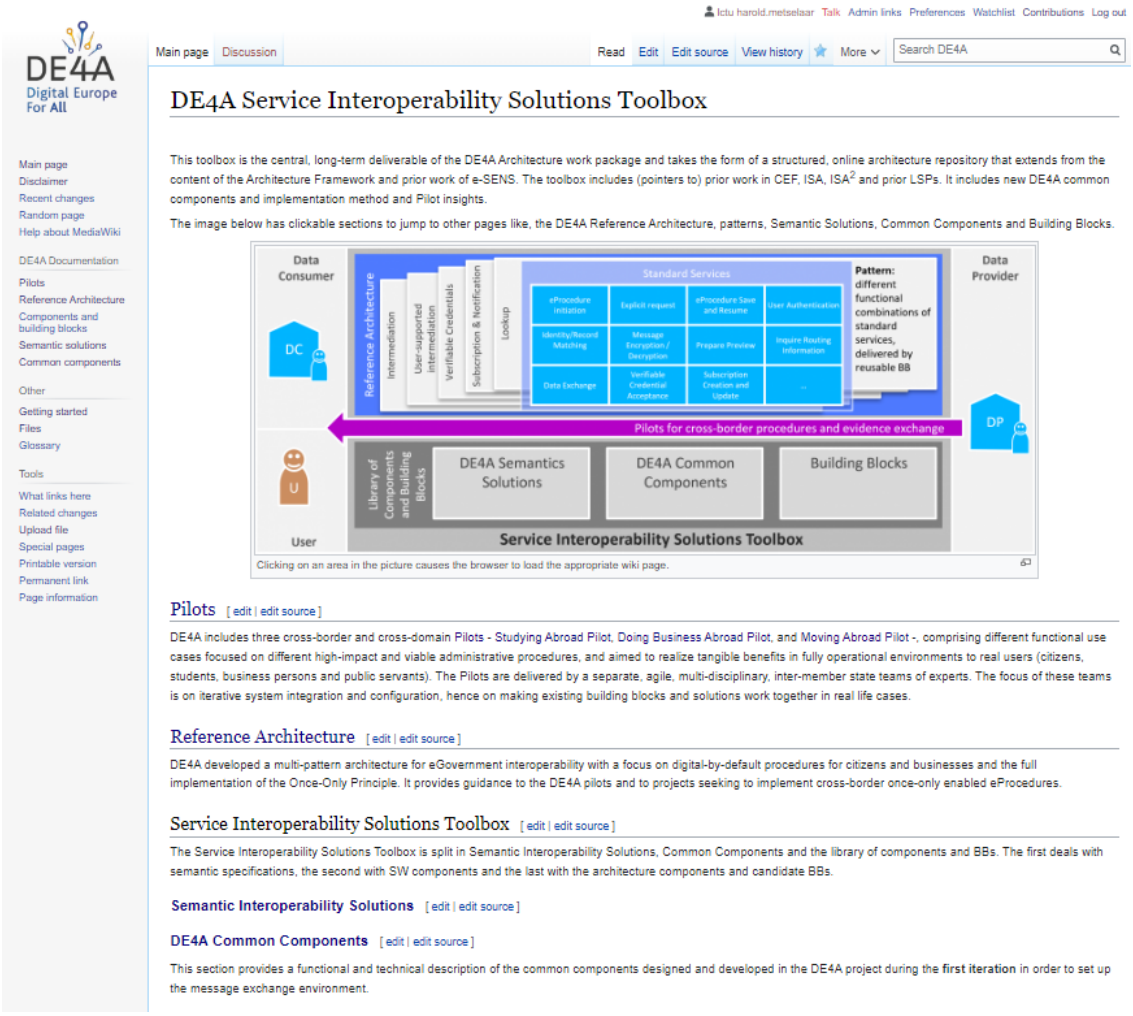


Figure 25: DE4A wiki homepage

The launch of the wiki was subject of a communication campaign on the DE4A website (home and news) as well as via social media channels twitter and linkedIn.

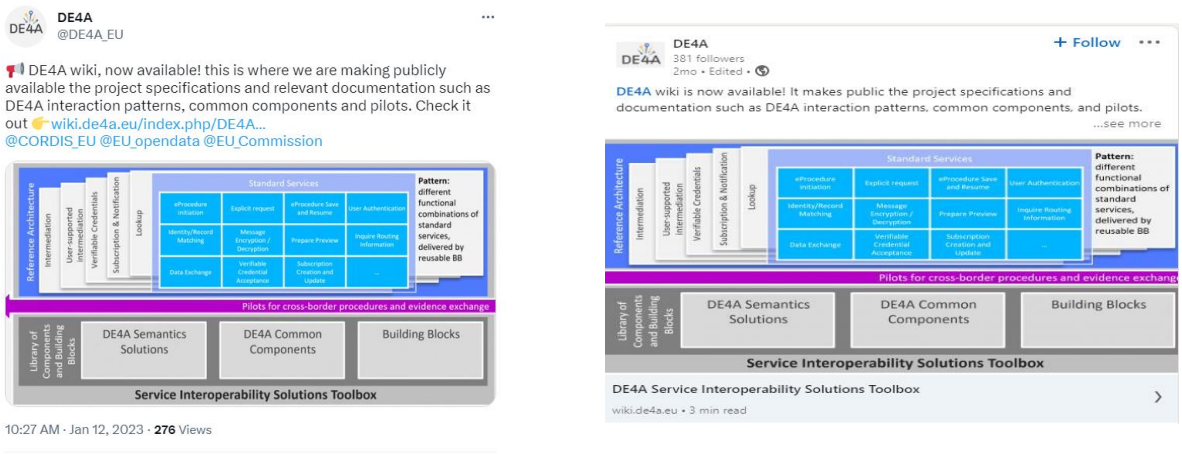
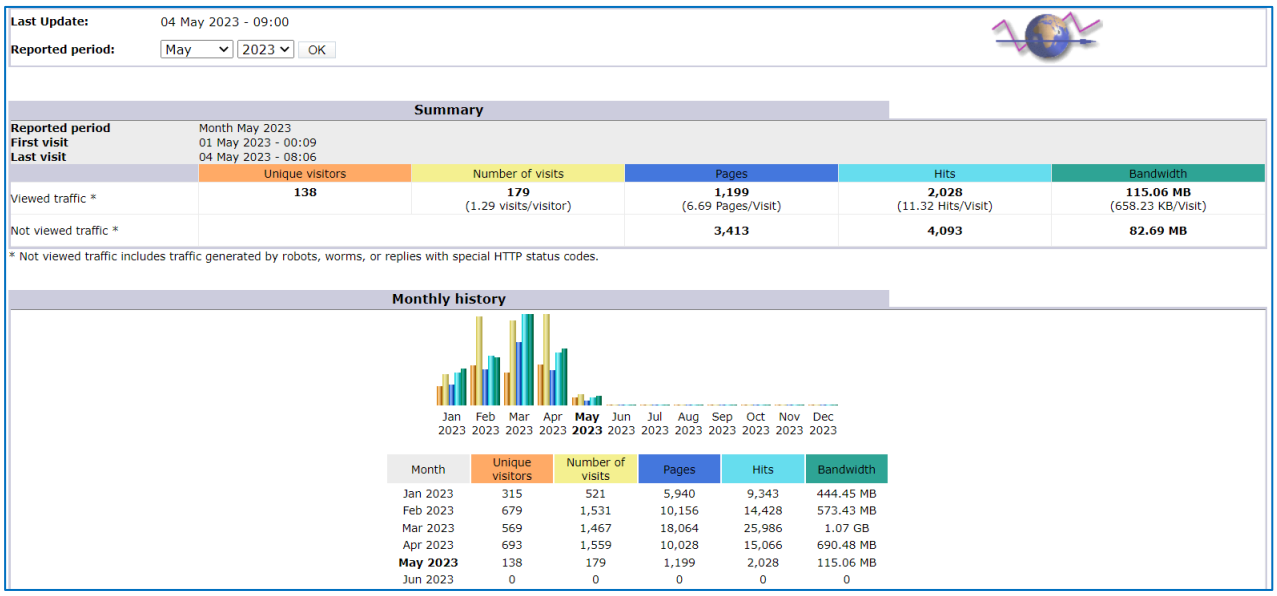


Figure 26: DE4A wiki on social media

In the past four months, especially in March 2023, in the period leading to the Final Event, there has been a large increase in wiki traffic, with a peak of 1GB of traffic. The maximum traffic in previous months had been 500-600 MB. This may be due to both activity by partners as well as external visitors. In 2023, in only one month, the wiki registered a third of all downloads of previous years.



Last Update: 04 May 2023 - 09:00
Reported period: May 2023 OK

Summary

Reported period	Month May 2023
First visit	01 May 2023 - 00:09
Last visit	04 May 2023 - 08:06

	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Viewed traffic *	**138**	**179** (1.29 visits/visitor)	**1,199** (6.69 Pages/Visit)	**2,028** (11.32 Hits/Visit)	**115.06 MB** (658.23 KB/Visit)
Not viewed traffic *			**3,413**	**4,093**	**82.69 MB**

* Not viewed traffic includes traffic generated by robots, worms, or replies with special HTTP status codes.

Monthly history

Jan 2023 Feb 2023 Mar 2023 Apr 2023 **May 2023** Jun 2023 Jul 2023 Aug 2023 Sep 2023 Oct 2023 Nov 2023 Dec 2023

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2023	315	521	5,940	9,343	444.45 MB
Feb 2023	679	1,531	10,156	14,428	573.43 MB
Mar 2023	569	1,467	18,064	25,986	1.07 GB
Apr 2023	693	1,559	10,028	15,066	690.48 MB
May 2023	138	179	1,199	2,028	115.06 MB
Jun 2023	0	0	0	0	0

Figure 27: DE4A wiki traffic 2023

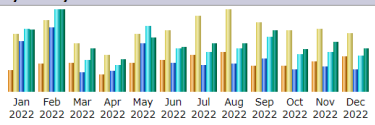
Summary

Reported period	Month Jan 2022
First visit	01 Jan 2022 - 14:36
Last visit	31 Jan 2022 - 17:58

	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Viewed traffic *	**163**	**440** (2.69 visits/visitor)	**9,002** (20.45 Pages/Visit)	**11,322** (25.73 Hits/Visit)	**435.39 MB** (1013.27 KB/Visit)
Not viewed traffic *			**2,134**	**2,710**	**25.73 MB**

* Not viewed traffic includes traffic generated by robots, worms, or replies with special HTTP status codes.

Monthly history



Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2022	163	440	9,002	11,322	435.39 MB
Feb 2022	208	546	11,490	14,675	570.97 MB
Mar 2022	220	367	3,577	5,606	298.82 MB
Apr 2022	128	280	3,620	4,812	228.22 MB
May 2022	215	439	8,756	11,851	377.61 MB
Jun 2022	239	468	5,199	7,754	316.42 MB
Jul 2022	277	575	4,781	7,100	336.81 MB
Aug 2022	300	623	5,047	7,798	340.69 MB
Sep 2022	200	527	5,914	9,844	425.44 MB
Oct 2022	199	470	3,915	6,771	297.45 MB
Nov 2022	235	482	4,430	7,076	343.54 MB
Dec 2022	267	447	4,013	6,418	299.11 MB
Total	2,651	5,664	69,744	101,027	4.17 GB

Figure 28: DE4A wiki traffic 2022

The wiki will be kept live after the official end of the project in April 2023.

3 Events/Conferences

In this section, the workshops that the partners organised or participated in are presented, along with the events/conferences they attended in order to communicate the results of DE4A.

This section first provides an overview table, and then provides further details of some of the events because of their relevance.

3.1 Partners dissemination events/conferences

The following table reports the events where DE4A was presented by the DE4A partners, most recent first, in reverse chronographical order.

Table 1: Events and conferences

Participating Partner	Event / organisers	Place, Date	Attendee main profile	Event Description
Atos, SU, CTIE, RVO, MinBZK/ICTU, JSI, UM	DE4A, online event	12/04/23	Public bodies, academic, industry	DE4A Final Event covering technical, legal, pilots and testimonals from the Member States. Public was 70% public body, with lesser representation from academic, industry and other. 88 participants. https://finalevent.de4a.eu/
BRZ	IRIS2023	23/02/23, Salzburg AT	Legal, e-government	IRIS symposium is an Austrian conference for legal informatics, in which eGovernment is also included in the conference programme. BRZ presented DE4A findings. https://iris-conferences.eu/iri%c2%a723programm
SI-MPA	SEMIC 2022	6/12/22	Public bodies, IT	The central focus of #SEMIC2022 (Brussels, 06.12.2022) was revolving around the implementation of data spaces. DE4A partners participated in the conference and presented “Reusable semantic component prototype for interoperable e-Government: A case from Digital Europe for All (DE4A)”
EEMA	Trust tech 2022	29/11/2022-01/12/2022	Technical professionals and academics	Presentation on Comparative Personal Data Exchanges of DE4A and GLASS https://trustech.event.com
BRZ	Informationsveranstaltung über Once Only	18.11.2022, Viena, online		Information event on Once Only Principle (Austria/Europe). Presentation on DE4A was included in the session on European projects with OOP relation. 125 attendees.
SU	ICEGOV 22	05.10.2022, Guimaraes, Portugal	Digital and e government	Paper presentation: A canonical evidence-based approach for semantic interoperability in cross-border and cross-domain e-Government services

Participating Partner	Event / organisers	Place, Date	Attendee main profile	Event Description
			practitioners, scholars and researchers	https://www.icegov.org/track/2022-paper-session-7/
SU	ECEL	28.10.2022, Brighton UK	Digitalisation of education domain experts and scholars, students	Paper presentation: Supporting Learning Mobility with Student Data Harmonisation: A European Perspective https://www.academic-conferences.org/conferences/ecel/
EEMA, RVO, Slovenia, DSV, SGAD	GLASS H2020; workshop	22/09/2022		Semantics Workshop on Comparative Personal Data Exchanges of DE4A and GLASS - Closed workshop
BMDW	eGovernment conference	06-09-2022 to 08-09-2022		The IFIP EGOV 2022 conference represents the merge of the IFIP WG 8.5 Electronic Government (EGOV), the IFIP WG 8.5 IFIP Electronic Participation (ePart) and the Conference for E-Democracy and Open Government Conference (CeDEM).The conference focuses on e-Government, Open Government, eParticipation and e-Democracy, but on several other related topics too, such as the role of social media, digital transformation in society. https://dgsociety.org/egov-2022/
UM	ZEIDES 2022. Conference on e-Identification and Trust Services	19/10/22	100 Businesses (Banks primarily), Public Administration	Presentation and demonstration. Raised awareness on EUIDW, SSI and VC and the research and pilots in DE4A, with a focus on the VC pattern in Study Abroad Pilot Program konferenc Zeides 2022 | Zeides
EEMA	OID 2022 Open Identity Summit	Lyngby, Denmark - 7th and 8th July 2022.		GLASS and DE4A were jointly presented to explain their parallel approaches to the essential goal of understanding the credentials (evidences) being utilised and consumed in cross border actions which include multi-lingual and multi-context

Participating Partner	Event / organisers	Place, Date	Attendee main profile	Event Description
				attributes. Vocabularies, syntax, ontologies were compared between the projects
EEMA, JSI, RVO, SU, ATOS	EEMA annual conference	London, 08/06/22	ICT Industry	DE4A held a session at the conference, entitled "Cross-border Once-Only in Practice: Piloting the Single Digital Gateway for Students, Companies and Citizens" https://www.eema.org/eema-annual-conference-2022/
INESC-ID	C-Days 2022	7-9 June 2022, Cascais, Portugal	Industry	C-Days is a national conference organized by the Portuguese National Cybersecurity Center (CNCS). INESC-ID partipated in a panel discussion and conducted networking with conference attendees, to raise awareness in industry. The attendees approximately 200, were mostly industry profiles. Website: https://www.c-days.cncs.gov.pt/ https://www.youtube.com/watch?v=F3QT23UfpNA&t=6350s
INESC-ID	IFIP SEC 2022	13–15 June 2022 in Copenhagen, Denmark	Academic	The IFIP SEC conferences aim to bring together primarily researchers, but also practitioners from academia, industry and governmental institutions to elaborate and discuss IT Security and Privacy Challenges. https://ifipsec2022.compute.dtu.dk/
UJI	EUNIS22	31/05/22 - 03/06/22, Göttingen (DE)	IT personnel and policy officers of universities	University IT and Education congress. Presented paper on DE4A and the overall scene of the SDGR, and then focusing on the interim results of the Studying Abroad Pilot. Presentation of paper and networking. https://www.eunis.org/eunis2022/
EEMA, RVO, Slovenia	European Industry European Digital SME Alliance, webinar	28/02/2022	SMEs	Topics covered: - "Challenges and opportunities for doing business across borders" (EEMA) - "DE4A and how it helps doing cross border business operations (Slovenia) -"DE4A ''Doing Business Abroad'' Pilot Walkthrough (RVO) - "Standards to support eIDAS, Trust services and identification; The ongoing work to support the eIDAS revision and the new EU ID Wallet." (DSMEA)
BRZ	IRIS2022	23/02/2022-	Legal, govenment	BRZ participated in the 2022 edition of IRIS2022, with information on the Austrian participation.

Participating Partner	Event / organisers	Place, Date	Attendee main profile	Event Description
		26/02/2022		

3.2 Selection of dissemination events

Further details on some of the events are provided below. The events are presented in order of most recent first (reverse chronological order).

3.2.1 DE4A Final Event

A final event highlighting DE4A outcomes was organised on April 12, 2023. The event was online to facilitate participation. A dedicated microsite was set up - https://finalevent.de4a.eu/

The agenda included presentations on the following topics:

Session: DE4A Multipattern Architecture

Description: DE4A has developed and piloted a multi-pattern architecture for eGovernment interoperability with a focus on digital-by-default procedures for citizens and businesses and the full implementation of the Once-Only Principle. The presentation gives an overview of the different patterns and sketches a target architecture that evolves from the solid basis provided by the OOTS into a broader EU interoperability ecosystem.

Presenter: Alexander Bielowski, Dutch Ministry of the Interior and Kingdom Relations (MinBZK)/ICTU

Session: The legal framework for once-only in Europe: where do we go from here?

Description: DE4A has been able to pioneer a multitude of e-government services in the past few years, also from a legal perspective. European legislation – including in relation to the once-only principle and privacy/data protection – has been one of the foundational inputs for DE4A, and as a result the project has learnted a lot about what the law allows and doesn't allow. What exactly are the foundational legal principles, and how has DE4A implemented them? And perhaps equally important: how could European legislation evolve further in the future to enable even more effective and equitable digital public administration?

Presenter: Hans Graux, Timelex

Session: DE4A Main common components

Presentation : Lessons learnt from the DE4A Connector

Description: Philip Helger gave a summary about the development and usage on the DE4A Connector in the pilots. This includes lessons learnt and highlights the reusable parts of the DE4A Connector for implementing the European SDG Directive.

Presenter: Philip Helger, Consultant, Austrian Federal Computing Centre (Bundesrechenzentrum)

Presentation : Information Desk: catalogues for interoperability

Description: EU-wide OOP for public services requires EU-wide interoperability in all its dimensions. The interoperability agreements between the DE4A project Member States are consolidated in catalogues that form the Information Desk. The data in the Information Desk enable the functioning

of the OOP technical system across borders, administrations and sectors, and are the basis for the common components.

Presenter: Ana Rosa Guzmán, Secretariat-General for Digital Administration (SGAD), Spanish Ministry of Economic Affairs and Digital Transformation

Session: D4EA Pilot demonstrations and lessons learnt

Presentation: Studying Abroad pilot – demonstration and lessons learnt

Description: The Studying Abroad pilot has implemented and validated three cross-border SDG procedures that facilitate student mobility within the EU: applying to public higher education, applying for study grants, and diploma recognition. The procedures are based on the once-only principle, the use of electronic identities, the use of trusted sources of electronic evidence, and the system for the exchange of evidence between competent authorities. Other approaches, such as the use of digital wallets, have also been piloted. The pilotpresents lessons learnt from the piloting and highlight the benefits for various stakeholders, e.g. students, universities and public authorities.

Presenter: Tomaž Klobučar, Jožef Stefan Institute

Presentation: Lessons learnt in the Doing Business Abroad pilot

Description: After shortly explaining the 2 use cases and the quantitative results of the Doing Business Abroad pilot, the main lessons learnt are discussed per actor in the SDG-processes. We see that many advantages the SDG is aiming for, were confirmed for users (companies) and public authorities acting as Data Evaluators. Also, we find that certain prerequisites must be met in order to maximise their advantages.

Presenter: Ard van der Heijden, Netherlands Enterprise Agency

Presentation: Moving Abroad Pilot demonstration

Description: This presentation outlines how to more easily move to another member state and obtain key canonical evidence such as address data and civil status certificates.

Presenter: Fredrik Lindén, Digital Government Transformation and eGov Consultant

Stockholm University

Session: Member States testimonials/success stories

The closing session featured testimonials from Member State representatives involved in the project.

Promotion:

An email invitation was prepared with the “look and feel” of the final event, and personalisable to be sent by the project partners to their contact lists. Atos sent invitations to the Invitations to SDG OOTS team, national SDG coordinators, EC contact and other potentially interested parties.

The invitations were supported by a communication campaign in the DE4A web, Twitter and LinkedIn accounts. Posts were published in relevant LinkedIn groups like “IEEE eGovernment Initiative”, “e-Governments, Smart Cities & Digital Transformation Community”or “Big Data, Data Science, AI, IoT, Cyber Security & Blockchain”. The event was also promoted in EU Agenda website.

The DE4A final event has been promoted to all the representatives from the Member States involved in the implementation of the Once Only Technical System through the Once-Only Technical System Newsletter Issue #5 2023.

Attendance:

There were 97 registrants, of whom 88 connected to the Final Event.

Registered attendee profile was prodominantly Public Body (70%) with lesser representation from the scientific community (10%), Industry (9%) and other (12%).

There were attendees from the following countries, including: Austria, Belgium, Denmark, France, Finland, Germany, Greece, Hungary, Italy, Luxembourg, Netherlands, Portugal, Romania, Slovenia, Spain, and Sweden.

3.2.2 IRIS 2023

DE4A at the Austrian IRIS symposium, an Austrian conference for legal informatics, in which eGovernment is also included in the conference programme. The conference takes place yearly in Salzburg/Austria. In the 2023 Austrian consortium consisting of BRZ/BMF, which is also involved in DE4A, explained Austrian findings and experience regarding Once Only Principle in the Single Digital Gateway Regulation (project, processes, architecture, environment and influence factors).

DE4A was part of the presentation at IRIS symposium, as an influence factor for the SDG Once Only realisation in Austria. The presentation took place on 23 February 2023 in the session "eGovernment I"; around 20 persons were in the audience (offline and online).

https://iris-conferences.eu/iri%c2%a723programm

3.2.3 SEMIC 2022

SEMIC is an annual semantic interoperability conference. The central focus of #SEMIC2022 (Brussels, 06.12.2022) was revolving around the implementation of data spaces.

DE4A partner SI-MPA participated in the conference and presented “Reusable semantic component prototype for interoperable e-Government: A case from Digital Europe for All (DE4A)” in the project pitches track.

The participants raised awareness mostly in regard to SDG, regarding the Multilingual Ontology Repository (MOR) component.

The estimated conferene participants were 350, with a profile of policy makers, IT practitioners and researchers.

https://semic2022.eu/agenda/

3.2.4 Collaboration- DE4A/ GLASS workshop

On 22nd September 2022, EEMA hosted a virtual workshop entitled ‘Semantics – Alternative Project Methodologies: Citizen-Centric Evidence Transfers’. The two-hour online session was opened by the Chair of EEMA, Jon Shamah, and brought together consortium partners from the Digital Europe for All (DE4A) and GLASS projects. Jon Shamah emphasized that “These two important projects highlight the importance of semantics, as the number of EU projects that will require interoperability grows.”

DE4A supports the Single Digital Gateway Regulation across Europe, helping to make the digital single market a reality. Meanwhile, GLASS aims to create a new paradigm for the sharing and transfer of personal information, placing the citizen in control, by using e-wallets. It is developing a distributed framework for sharing common services of public administrations across the EU for citizens, businesses and governments.

Jon Shamah was joined by Ana Rosa Guzman, from DE4A who opened the interactive discussion by highlighting the semantic interoperability challenges involved in sharing information across national

borders. These include different types of evidence, language barriers, many competent authorities and demarcations, as well as different rules and components, and distributed documents.

Sharing their approach to the same challenge of sharing and transferring documents, were George Domalis and Aris Gioutlaki from GLASS. The project assumes that every country will share the same type of data, however, it will be presented differently. Therefore, the challenge is to find a way to standardise the format of these evidences (such as a password or ID card), so that they can be understood by everyone. To this end participants were introduced to a piece of middleware developed by the GLASS project the 'AI Data Schema Transformer' which aims to resolve the issue.

The workshop provided an opportunity for both GLASS and DE4A participants to learn about respective objectives and developments and in doing so, forge closers ties and alignments between projects.

3.2.5 eGov 2022

BMDW/BRZ participated in the EGOV-CeDEM-ePart 2022 | DGS (dgsociety.org) conference in Linköping, Sweden (6.-8.9.2022), where they raised awareness on SDGR and the research and pilots in DE4A, with a focus on the Austrian pilot (presentation and publication). There were 150 conference attendees with profile of Academics and Public Administration

https://dgsociety.org/egov-2022/

3.2.6 Collaboration – OID 2022 Open Identity Summit

The DE4A and GLASS (Home | GLASS-H2020) projects collaborated to present at the Open Identity Summit 2022 held at the Danish Technical University, in Lyngby, Denmark - 7th and 8th July 2022.

The aim of the Open Identity Summit 2022 (https://oid2022.compute.dtu.dk/prog.html) was to link practical experiences and requirements with academic innovations. Focus areas were Research and Applications in the areas of Identity Management, Trust Services, Open Source, Internet of Things, Distributed Ledgers, Privacy and Cloud Computing.

Open standards and interfaces as well as open-source technologies play a central role in the current identity management landscape as well as in emerging future scenarios in the areas of electronic identification and trust services for electronic transactions. Reliable identity management is an essential building block for many applications and services such as innovative payment services, digital manufacturing, and other innovative applications in the areas of e-health, e-government, distributed ledgers, cloud computing, data management for artificial intelligence, and the internet of things.

GLASS and DE4A were jointly presented to explain their parallel approaches to the essential goal of understanding the credentials (evidences) being utilised and consumed in cross border actions which include multi-lingual and multi-context attributes. Vocabularies, syntax, ontologies were compared between the projects.

Figure 29: Announcement Open Identity Summit

3.2.7 EEMA Annual Conference

In June 2022, more than 120 EEMA members, project partners, government bodies, consultancies and technology vendors, representing 20 countries, converged at Microsoft's head office in London for EEMA's 35th Annual Conference. The two-day event took place at a pivotal time in the formation of the digital single market. DE4A held a session at the conference, entitled "Cross-border Once-Only in Practice: Piloting the Single Digital Gateway for Students, Companies and Citizens"

The chair was Alberto Crespo, DE4A Pilots Coordinator from Atos Spain, who presented the project overall. There were 3 other presentations made by the three pilot leaders, describing the progress and details of each pilot:

- Studying Abroad pilot – Tomaž Klobučar, Head of Laboratory for Open Systems and Networks, Jozef Stefan Institute
- Doing Business Abroad pilot – Ard van der Heijden, Senior Business Analyst from Netherlands Enterprise Agency, Netherlands
- Moving Abroad pilot– Fredrik Lindén, Digital Government Transformation and eGov Consultant, Stockholm University, Sweden

The presentations were followed by a Q & A session.

Figure 30: The DE4A team at the EEMA Annual 2022

3.2.8 C-Days 2022 (Portugal)

C-Days is a national conference organized by the Portuguese National Cybersecurity Center (CNCS) to raise awareness and promote best practices. The annual conference took place between 7-9 June 2022 in Cascais, Portugal.

INESC-ID partipated in a panel discussion and conducted networking with conference attendees, to raise awareness in industry. The attendees approximately 200, were mostly industry profiles.

Website of the conference: https://www.c-days.cncs.gov.pt/

Recording of the 2022 conference: https://www.youtube.com/watch?v=F3QT23UfpNA&t=6350s https://www.youtube.com/watch?v=F3QT23UfpNA&t=6350s

Figure 31: C-days 2022

3.2.9 IFIP SEC 2022

The SEC conferences are a series of well-established international conferences on Security and Privacy. The IFIP SEC conferences aim to bring together primarily researchers, but also practitioners from academia, industry and governmental institutions to elaborate and discuss IT Security and Privacy Challenges.

IFIP SEC 2022 took place between 13–15 June 2022 in Copenhagen, Denmark.

INESC-ID presented and discussed a paper, ***Anonymous Trusted Data Relocation for TEEs*** (full information in publications section) and carried out networking activities to raise awareness in the technical/scientific community. The attendees were approximately 60, mostly academic profile.

https://ifipsec2022.compute.dtu.dk/

Link to presentation: https://www.dpss.inesc-id.pt/~mpc/pubs/trx-ifipsec2022.pdf

3.2.10 ”Single Digital Market Webinar” - DE4A/ Digital SME Alliance Web

DE4A collaborated with the European DIGITAL SME Alliance to present the ‘Single Digital Market’ webinar on 28th February 2022. The webinar discussed the Digital Single Market and the importance of cross-border operations.

Items discussed were:

- Challenges and opportunities for doing business across borders
- DE4A and how it helps doing cross-border business operations

A ”Doing Business Abroad” Pilot Walk-through was also shown.

The speakers were:

- Ard van der Heijden – Project Manager, DE4A Partner
- Jon Shamah – EEMA Chairman, DE4A Partner
- Alenka ZUZEK – DE4A Relationship Lead Government of Slovenia
- Andrea Caccia – European DIGITAL SME Alliance, Senior Consultant & Project Manager, Standard and regulation compliance, Coordinator on Trust Services, eSeal, eDelivery & Blockchain

Figure 32: Messaging for DE4A with European Digital SME Alliance

3.2.11 IRIS 2022

BRZ participated in the 2022 edition of the yearly Austrian IRIS symposium in Salzburg, an Austrian conference for legal informatics and eGovernment. The conference took place 23/02/2022-26/02/2022 in Salzburg, with BRZ participating remotely.

BRZ Raised awareness on SDGR and the research and pilots in DE4A, with a focus on the Austrian pilot.

The attendee profile is Public Administration Experts, Legal Experts, eGovernment Experts, Academics, with attendance of 150-200 (whole conference), within the session 15-20. BRZ presented DE4A at the conference and did further communication with experts.

https://iris-conferences.eu/iris22_23-26feb22

Publication in Proceeding of the Conference (Colloquium Recht Digital - 25 Jahre IRIS), Page 253-260).

https://iris-conferences.eu/wp-content/uploads/2022/01/Progr_IRIS22_22jan22.pdf

https://www.schulthess.com/buchshop/detail/ISBN-9783985951147/Recht-Digital---25-Jahre-IRIS

4 Academic publications

In the period January 2022 through April 2023, partners have published eleven academic publications. They are summarized in the table below, followed by a more extensive description of each one.

Table 2: Scientific publications

Partners involved	Article name	Publication date	Location	Link
UM	Towards a catalogue of Self-Sovereign Identity Design Patterns	26/04/23	Applied Sciences	https://doi.org/10.3390/app13095395 https://www.mdpi.com/2076-3417/13/9/5395
INESC-ID, AMA	DTGov: Digital Transformation of Government Business Processes	24-26/04/23	International Conference on Enterprise Information Systems (ICEIS) Prague, Czech Republic	Link to conference: https://iceis.scitevents.org/ Link to Document: https://www.inesc-id.pt/publications/18884/pdf /
INESC-ID	Anonymous Trusted Data Relocation for TEEs	13-15/06/22	37th International Conference on ICT Systems Security and Privacy Protection (SEC 2022), Copenhagen, Denmark	Link to Document: https://www.gsd.inesc-id.pt/~mpc/pubs/trx-ifipsec2022.pdf
INESC-ID	SRX - Secure Data Backup and Recovery for SGX Applications	28/03/23	IEEE Access (Volume 10)	Link to Document: https://www.gsd.inesc-id.pt/~mpc/pubs/SRX-paper.pdf https://ieeexplore.ieee.org/document/9743462
UM	Towards the Classification of Self-Sovereign Identity Properties	17/08/22	IEEE Access	https://doi.org/10.1109/ACCESS.2022.3199414 https://zenodo.org/record/7034818
UJI	DE4A Project: Towards a Single Digital Gateway for European Public Services	31/05/22-03/06/22	European Journal of Higher Education IT 2022-1, proceedings of Eunis22 Congress, Göttingen, Germany	https://www.eunis.org/erai/2022-1/ Link to paper: https://www.eunis.org/download/2022/EUNIS_2022_paper_6.pdf

Partners involved	Article name	Publication date	Location	Link
SU	Supporting Learning Mobility with Student Data Harmonisation—A European Perspective	27-28/10/22	21st European Conference on e-Learning - ECEL 2022, Brighton UK	https://papers.academic-conferences.org/index.php/ecel/article/view/908
SI-MPA	Semantic Reusable Web Components: A Use Case in E-Government Interoperability	10/22	Applied Informatics. 30, 4 (Oct. 2022) / Uporabna informatika. 30, 4 (okt. 2022)	Link to Document: https://doi.org/10.31449/upinf.189
IHU	Knowledge-Driven Unsupervised Skills Extraction for Graph-Based Talent Matching	09/09/22	ACM Digital Library	Link to Document: https://zenodo.org/record/7110383#.YzKtoXbMK3-
BRZ	The European Research Project DE4A and the Austrian Pilot	09/2022	Proceedings of Ongoing Research, Practitioners, Workshops, Posters, and Projects of the International Conference EGOV-CeDEM-ePart 2022, p236	https://dgsociety.org/wp-content/uploads/2022/09/CEUR-proceedings-2022.pdf
SU, IHU, SGAD	A Canonical Evidence-based Approach for Semantic Interoperability in Cross-border and Cross-domain e-Government Services	04/10/22	15th International Conference on Theory and Practice of Electronic Governance (ICEGOV 2022). Association for Computing Machinery (ACM). Guimarães, Portugal	Link to Document: https://doi.org/10.1145/3560107.3560299

Following are short summaries of the articles indicted in the above table:

Title: Towards a catalogue of Self-Sovereign Identity Design Patterns

Authors: Špela Čučko, Vid Keršič, Muhamed Turkanović

Organisation: University of Maribor

Abstract: Self-Sovereign Identity (SSI) is a user-centric, decentralised identity approach that provides a means for identification, authentication, and authorisation without the involvement of external entities, responsible for identity provisioning and management in current centralised and federated approaches. In general, the basic building blocks of an SSI system include Decentralised Identifiers, Verifiable Credentials, Identity Wallets, a Verifiable Data Registry, and three main actors, Issuer, Identity Holder, and Verifier. Even though the SSI field is dominated by proposals, SSI systems can be implemented in different ways, which is reflected in the absence of a well-defined architecture. Thus, the best implementation is still a matter of research, the requirements of the individual system and its field of application. However, well-designed and implemented systems are crucial to avoiding failures, speeding up the development process, ensuring high quality and the broader adoption of SSI solutions. Hence, the main objective of this study was to identify design patterns and good practices of the SSI ecosystems by reviewing and analysing the literature, technical documentation and existing SSI implementations. Therefore, the study is built on existing knowledge, and presents a comprehensive catalogue of thirty-five SSI Design Patterns that can serve as a starting point for a possible SSI system design.

Year of Publication: 2023

Title of Publication: Applied Sciences

Link to Document: https://doi.org/10.3390/app13095395

Title: DTGov: Digital Transformation of Government Business Processes

Authors: Nuno Marques, Andre´ Vasconcelos

Organisation: INESC-ID, AMA

Abstract: Today, companies cannot rely on outdated systems, governments being no exception. There are multiple bene- fits when performing the digital transformation (DT) of its processes, but also several downsides such as costs. This paper presents first the main use cases: resolve a procedure, send a notification to the citizen by hand, reclassify a procedure and create a request, and then the reference solution divided into 3 components. First, the Domain Model related to the main entities and their lifecycles. Second, the Reference Architecture adds the remaining projects' modules such as web services, and also the dependencies between them. Third, the Implementation presents how to implement that information in a real-world case using "low-code" technology, especially useful to mitigate several issues. Lastly, an evaluation of the proposed solution is also presented.

This paper presents the main use cases when performing digital transformation: resolve a procedure, send a notification by hand, reclassify a procedure, and create a request, and then the reference solution. It is fully aligned with DE4A since DE4A establishes a culture of co-creation, transparency, accountability and trustworthiness in order to facilitate digital public services co-delivered across borders, across sectors and with different participants. The project focuses on high-quality fully online procedures, involving secure access to key administrative procedures of real life and business events.

Thus, this paper contributes by proposing a Domain Model and Lifecycles related to the main entities. Second, it proposes a Reference Architecture adds the remaining projects' modules (Roles,...), and also the dependencies between them. Third, the implementation of the proposal presents how to implement digital transformation in government (DE4A like) case study.

Year of Publication: 2023

Title of Publication: Proceedings of the 2023 International Conference on Enterprise Information Systems (ICEIS)

Link to conference: https://iceis.scitevents.org/

Link to Document: https://www.inesc-id.pt/publications/18884/pdf/

Title: Anonymous Trusted Data Relocation for TEEs

Authors: Vasco Guita, Daniel Andrade, João Nuno Silva, Miguel Correia

Organisation: INESC-ID, Instituto Superior Técnico, Universidade de Lisboa, Portugal

Abstract: Trusted Execution Environment (TEE) technology like ARM TrustZone allows protecting confidential data using cryptographic keys that are bound to a specific TEE and device. However, there are good reasons to allow relocating such data from a TEE to another TEE in another device, often in a non-interactive (offline) and anonymous manner.

We propose the Trusted Relocation Extension (TRX), a TrustZone-based trusted storage service enabling backup /recovery and sharing of data between TEEs in different devices. TRX works offline, without previous key exchange, and ensures the anonymity of the sender and the receiver. We present an implementation of TRX compatible with OP-TEE and its evaluation with Raspberry Pi 3 B+ devices.

The Studying Abroad pilot provides two technological solutions to support the process of a student moving to another European country to study, typically in a university. One of these two solutions is based on the EBSI to allow verifying student diplomas provided in the form of Verifiable Credentials (VCs). VCs must be stored in a digital device, designated a wallet. This wallet also contains cryptographic keys used to authenticate the user (e.g., the student) before the EBSI or another blockchain, therefore they security is critical. A solution to protect such data is using a security extension of ARM processors called ARM TrustZone. This paper presents a novel scheme to allow securely backing up data stored in a wallet that is protected with ARM TrustZone.

Year of Publication: 2022

Title of Publication: 37th International Conference on ICT Systems Security and Privacy Protection (SEC 2022)

Link to Document: https://www.gsd.inesc-id.pt/~mpc/pubs/trx-ifipsec2022.pdf

Title: SRX - Secure Data Backup and Recovery for SGX Applications

Authors: Daniel Andrade, João Silva, Miguel Correia

Organisation: INESC-ID, Instituto Superior Técnico, Universidade de Lisboa, Portugal

Abstract: Intel SGX improves the security of applications by shielding code and data from untrusted software in enclaves. Since enclaves lose their state when closed, that state has to be sealed, i.e., cryptographically protected with a secret key, and stored outside the enclave boundary. In SGX, the used key is bound to both the enclave and the processor that sealed the data, so it is unfeasible for any enclave in another computer to derive the same secret key to unseal such data. This oers security to the data, but also makes it impossible to recover that data if the original computer is damaged or stolen. In order to support backup and recovery of data sealed by enclaves, we propose SRX, a solution for sharing sealed data amongst a restricted set of SGX-enabled computers executing the same enclave code. Enclaves using SRX have access to common keys to seal and unseal enclave data, allowing the sharing of sealed data among the trusted domain. SRX guarantees that these secret keys are never

exposed outside the trusted domain. SRX was implemented and evaluated with two applications: a bitcoin wallet and a password manager.

The context and general problem addressed in this paper are the same as for the previous paper. However, this paper considers that the wallet is protected using a very different security extension available in Intel CPUs: Intel Software Guard Extensions (SGX).

Year of Publication: 2022

Title of Publication: IEEE Access

Link to Document: https://www.gsd.inesc-id.pt/~mpc/pubs/SRX-paper.pdf

https://ieeexplore.ieee.org/document/9743462

Title: Towards the Classification of Self-Sovereign Identity Properties

Authors: Špela Čučko, Šeila Bečirović, Aida Kamišalić, Saša Mrdović, Muhamed Turkanović

Organisations: University of Maribor, Faculty of Electrical Engineering and Computer Science: Maribor, Maribor, SI

Abstract: Self-Sovereign Identity (SSI) is a novel and emerging, decentralized digital identity approach that enables entities to control and manage their digital identifiers and associated identity data while enhancing trust, privacy, security, and the many other properties identified and analyzed in this paper. The paper provides an overview and classification of the SSI properties, focusing on an in-depth analysis, furthermore, presenting a comprehensive collection of SSI properties that are important for the implementation of the SSI system. In addition, it explores the general SSI process flow, and highlights the steps in which individual properties are important. After the initial purification and classification phase, we then validated properties among experts in the field of Decentralized and Self-Sovereign Identity Management using an online questionnaire, which resulted in a final set of classified and verified SSI properties. The results can be used for further work on definition and standardization of the SSI field.

Year of Publication: 2022

Title of Publication: IEEE Access

Link to Document:https://zenodo.org/record/7034818#.YyHyb3bMImE

Title: DE4A Project: Towards a Single Digital Gateway for European Public Services

Authors: José Pascual Gumbau-Mezquita, Francisco José Aragó-Monzonís, José Traver-Andura

Organisation: UJI

Abstract: Single Digital Gateway regulation is settling the grounds for the effective crossborder interoperability of European public administrations at the data and business procedure levels. As the natural step beyond the basic cross-border authentication interoperability eIDAS regulation is currently bringing forward, a core set of common administrative procedures including higher-education related administrative procedures has been identified, and efforts in all member states are underway to analyse them and agree on a common set of specifications to allow a citizen from any European state to complete the procedure in another state without having to produce any physical documentation, and what's more important, nor digitalised copies of said documentation which increases fraud risk and would require additional validation efforts. This regulation will enable a safer, more trusted, quicker, less costly, and easier procedure both for the citizen and for the administrations. DE4A project is an initiative by a strong consortium of multiple state agencies and other stakeholders in different sectors, both public and private, including universities. The project goal is to experiment the feasibility of deploying and running those procedures in a real environment, to

identify the pitfalls and gain practical knowledge on the legal, technical, operational and governance challenges that will be faced by the SDGR implementors. This article will provide an overview of the developed infrastructure and its capabilities, as well as specific insight on the provisional outcomes of the academic pilot, still under execution until the end of 2022.

Year of Publication: 2022

Title of Publication: European Journal of Higher Education IT 2022-1, https://www.eunis.org/erai/2022-1/

Link to paper: https://www.eunis.org/download/2022/EUNIS_2022_paper_6.pdf

Title: Supporting Learning Mobility with Student Data Harmonisation—A European Perspective

Authors:Karunaratne, T., & Kontopoulos, E.

Organisation: Stockholm University

Abstract: Digitalisation promotes online education, internationalisation and student mobility. Based on the Bologna process and the European higher education area, learning mobility has been successful under Erasmus and other similar initiatives. However, a key issue for students and universities is that a significant amount of time is spent on the manual labour involved in the process of applying to degree programs overseas. It is therefore essential for higher education institutions to better exploit the potential of technology and Web 2.0 to enable a secure exchange of evidence during application for degree programs and academic courses in foreign Higher Education Institutions, as well as applying for study grants and obtaining recognition for academic and other types of studies. Harmonisation of the student data is a key initial step for enabling such exchange. In this study, an approach to a secured exchange of education evidence is instrumented under the H2020 project Digital Europe for All (DE4A). Existing semantic standards for Web 2.0 applications, core vocabularies for public service data and semantic assets from existing best practices such as W3C, ISA2 core vocabularies, and Europass data model are used to curate data models that allow the exchange of a higher education diploma, secondary education diploma and information of special needs (disability, large family), which is required by students when requesting study grants (waive of tuition fees). The semantic interoperability agreements are established cross-border through these data models called canonical evidences. The canonical evidences are tested with the national data services of three countries, Portugal, Slovenia, and Spain. The final data models are implemented in XML Schema format that could be used by any educational organisation intending to use trusted public service databases within Europe to automatically retrieve information on students' degrees. The validity of the canonical evidences is tested on two pilot occasions within the DE4A project. The outcome of this study summarises the procedural requirements for evidences when applying for a higher degree program and seeking grants. Furthermore, it resulted in verified canonical evidence data models that fulfil the procedural requirements for applying for studying abroad.

Year of Publication: 2022

Title of Publication: Academic Conferences International Limited, UK

Link to Document:https://doi.org/10.34190/ecel.21.1.908

Title: Semantic Reusable Web Components: A Use Case in E-Government Interoperability

Authors: Žitnik, S., Kern Pipan, K., Jesenko, M. and Lavbič, D

Organisation: Ministry of the Republic of Slovenia for Public Administration

Abstract: Advances in technology and software engineering strive to build efficient and robust techniques that would be delivered as quickly as possible. It has been shown that this can be achieved by reusing existing implementations, libraries, components or even frameworks. In the field of public

administration, which must follow and implement national and European regulations, in addition to compatibility at the data level and processes, it is important to ensure cross-sector and cross-border integration. In this paper, we present the project "Digital Europe for All", more precisely an example of the use of a reusable web component based on the semantic representation of data. We show that it is possible to easily embed the component in any website and to support any types of evidence that are presented using the project ontology.

Year of Publication: 2022

Title of Publication: Applied Informatics

Link to Document:https://doi.org/10.31449/upinf.189

https://www.researchgate.net/publication/364405654_Semantic_Reusable_Web_Components_A_Use_Case_in_E-Government_Interoperability

Title: Knowledge-Driven Unsupervised Skills Extraction for Graph-Based Talent Matching

Authors: Konstantinidis Ioannis, Maragoudakis, Magnisalis, Berberidis, & Peristeras.

Organisation: IHU

Summary: In human resource management of large organisations, finding the best candidate for a job description requires an extensive examination of a large number of resume profiles. Even with the advent of Deep Information Retrieval and the supported semantic similarity search, identification of relevant skills within profiles requires thorough investigation over several aspects, including educational background, professional experience, achievements, etc. However, these techniques are based on the existence of domain-specific, human-annotated datasets, a laborious task that portrays high cost and a slow labeling progress. In this paper, we propose Resume2Skill-SE, an end-to-end architecture for interpretable skill-based talent matching.

Year of Publication: 2022

Title of Publication: ACM Digital Library

Link to Document: https://zenodo.org/record/7110383#.YzKtoXbMK3-

Title: The European Research Project DE4A and the Austrian Pilot

Authors: Carl-Markus Piswanger and Olga Suchow

Organisation: BRZ

Summary: The European project Digital Europe for All (DE4A, www.de4a.eu) represents a research project in a close relationship to the European Single Digital Gateway Regulation (SDGR). It focusses on the research on “Trust” and “Semantics”, combined with three pilots. Austria (BMDW, BRZ) is involved in the project, mainly as piloting partner. The project pursues existing European results deriving from European initiatives and regulations, like CEF and eIDAS, as well as preceding European projects, like TOOP. The use of international open standards represents a prerequisite to the project. The broad approach of the project is highly demanding, but promises a significant progression to the realisation of the SDGR, overall the Once-Only principle (OOP) and the technical equivalent therefore, the Once-Only-Technical-System (OOTS).

Year of publication: 2022

Title of publication: Proceedings of Ongoing Research, Practitioners, Workshops, Posters, and Projects of the International Conference EGOV-CeDEM-ePart 2022, p236

Link to document: https://dgsociety.org/wp-content/uploads/2022/09/CEUR-proceedings-2022.pdf

Title: A Canonical Evidence-based Approach for Semantic Interoperability in Cross-border and Cross-domain e-Government Services

Authors: Thashmee Karunarathne, Efstratios Kontopoulos, Ioannis Konstantinidis, and Ana Rosa Guzmán Carbonell

Organisation: Stockholm University, SGAD

Abstract: This paper demonstrates a proof of concept for cross-border information exchange guided by the single digital gateway regulation (SDGR) and once-only principle (OOP). The research systematically investigates the challenges and limitations of existing solutions for semantic interoperability. Furthermore, the concept of canonical evidence is introduced as a tool for the cross-border exchange of structured data automatically with less ambiguity and in compliance with the legal requirements of the selected public services. A design science research approach in an agile set-up is applied in the artefact (canonical evidences) development process. The requirements are elicited based on eight case studies set up in the context of the EU initiative, Digital Europe for all (De4a). The data models developed in this study are in compliance with the requirements and provisions of a selected set of EU member states. The outcome of the study includes eleven evidence types that could be reusable in executing procedures of respective e-Government services.

Year of Publication: 2022

Title of Publication: 15th International Conference on Theory and Practice of Electronic Governance (ICEGOV 2022). Association for Computing Machinery (ACM)

Link to Document: https://doi.org/10.1145/3560107.3560299

5 Liaison with related projects / initiatives

The project has established liaisons with the following projects and initiatives.

5.1 Once Only Technical System

The fora/groups established by the European Commission and the Member States for the design and the implementation of the Once Only Technical System are obviously the most relevant initiatives for the project.

5.1.1 SDG coordination groups and SDG Committee

The participation of 8 Member States in DE4A has provide essential and valuable input also in the context of the SDG OOTS discussions and meetings that took place at EU Level (SDG coordination group, SDG Committee and more technical and specialised meetings) for the setting out of the technical and operational specifications of the technical system for the cross-border automated exchange of evidence and application of the "once-only" principle in accordance with Regulation (EU) 2018/1724 of the European Parliament and of the Council. The results of this discussion was the Commission Implementing Regulation (EUR-Lex - C(2022)5628 - EN - EUR-Lex (europa.eu))

5.1.2 OOTS technical team

The project has provided periodically all the documentation and resources produced by the project to the team from the European Commission in charge of the coordination of the implementation of the OOTS.

5.1.3 OOTS Implementers Café

The European Commission has organized webinars (implementers café) and other events exploring the benefits of the Once-Only Technical System and its development (Events calendar - OOTSHUB - (europa.eu)). These implementers café provide oopportunities for participants to prepare their participation in the 2023 OOTS Projectathon series as they allow participants to better understand what OOTS Projectathons are and why they are useful for any team working on or interested in building part of the Once-Only Technical System. The European Commission is organising a series of Projectathons to help the national implementation teams from the EU Member States conceptualise, test and implement the Once-Only Technical System. The OOTS Projectathons are events where different systems connect under one roof and perform a marathon of peer-to-peer interoperability and compliance tests in a structured environment for several days. The tests are supervised and verified by a neutral expert, who volunteers to act as Monitor. Currently, the projectathons are expected to take place in April, June and October 2023.

The project has been invited to participate in the #5 Implementers Café of May 5th (OOTS Preview Space and Projectathon Debrief). Ana Rosa Guzmán, Head of the unit for Interoperability and Single Digital Gateway of the Sub-directorate General for Planning and Governance, in the Spanish Secretariat-General for Digital Administration will make a presentation of the DE4A Multilingual Ontology Repository that offers a complete set of resources for understanding canonical evidence types and for providing a dialogue with users for the explicit request and preview of evidences and therefore, may be considered for the implementation of the OOTS.

5.2 European Blockchain Services Infrastructure (EBSI) initiative

In the exercise of cooperation with relevant European initiatives related to blockchain, DE4A participates in the context of the Early Adopters programme of the European Blockchain Services Infrastructure (EBSI) initiative. The main goal of this programme that was launched at the beginning of

2021 is to support Member States that want to implement EBSI-related use cases as early adopters. The participation of DE4A in this programme is reflected in the different components to be integrated in the EBSI ecosystem, for which technical alignment has been addressed in multiple meetings with EBSI architects, also assessing related legal challenges [6][7].

5.3 GLASS

During this period, liaisons have been established with GLASS project in the context of semantics with a joint participation in two events as reported in section 3.2.4.

The August 2022 issue of the EEMA monthly newsletter featured an article on DE4A / GLASS workshop. EEMA to its base of approx. 2,000 consented recipients.

5.4 German Academic Exchange Service (DAAD)

In September 2022, Studying Abroad pilot experience on digital credentials in education was shared with the German Academic Exchange Service through a questionnaire at https://www.daad.de/surveys/261944?lang=en

Involved partners are UM, Atos and JSI.

6 KPI and impacts

The following table gives an overview of the dissemination key performance indicators as specified in the project proposal and provide concrete results achieved by the project.

Table 3: Communications and Dissemination Objectives

#	Dissemination Objective (DO)	Description
DO1	Raise awareness	Ensure that all key concepts and messages are disseminated through tailored methods and channels to increase awareness and eventual feedback
DO2	Engagement of key stakeholders	Sustain the engagement of stakeholders who are already involved, at the same time as reaching out to all those who should be participating, but who are not due to lack of awareness, resources or incentives
DO3	Boost sustainability	Ensure sustainability of the DE4A over-arching goals and architectures for a cost-efficient provision of Digital Public European Services.

Table 4: Communications KPIs

The KPIs reflect totals for the full project duration

KPI#	DO	Metric	KPI	Total Actual to end Period 3
1	1	Website visits/ Unique visitors	480	2100/1824
2	1	Average website visit duration	2 min	5m 20s
3	1	Number of material downloads	0	Not available
4	1,2	Social media activities (tweets, blogs, posts etc)	240	2000+ impressions
5	1,2	Followers on social media channels	750 (over 3 years)	1,190
6	1	Video uploads (YouTube, Vimeo)	2	5
7	1	Views across video channels	50	148 views
8	1,2	Number of eNewsletters	6 (over 3 years)	7 (40 months)
9	1	Number of subscribers to the eNewsletter mailing list	50	The list is distributed through each partner who maintains own list for confidentiality
10	1	Number of demonstration leaflets	2	7 Presentations available on website
11	1,2	Number of project ebrochures (first and final)	1	1
12	1,2	Research publications	8	15

KPI#	DO	Metric	KPI	Total Actual to end Period 3
13	1,2	Other written dissemination actions (press releases, articles)	2	11
14	2	Partner participation in academic/industry events/conferences, and public sector	0	27
15	2	Partner participation in trade, industry or student events	2	4
16	2	Number of stakeholder workshops	1	5
17	2	Number of streamed events	1	1
18	2	Number of participants in workshops	20	Not Available for all workshops. For DE4A Final Event 88 attendees connected
19	2	Number of stakeholders engaged	40	70

(c) = Cumulative P1 + P2 +P3

7 Conclusions

The third year of the DE4A project have seen all the main communications building blocks re-enforced and exploited for a successful project outcome. The website has had over 400 unique visitors in 2022-23 and over 1000 site sessions in the period. 35% of visits were generated via google which demonstrates that the concentration on social media and other collaterals such as presentations, focussed tweets and posts, have been successful with market awareness increased.

In period 3, the dissemination team expanded the website and continued to address the KPIs as outlined in the dissemination strategy and planning. It continued to align with the different phases of the pilot activities, and produced a dedicated micro-site for the Final Event.

The third period has seen a strong increase in publications and conference presentations, as results have matured. DE4A partners have continued to write-up and prepare publications for participation in conferneces beyond the official end date of DE4A on April 30, 2023. DE4A representatives will participate in the OOTS Implementers' Café on May 5th, and submissions are ongoing for conferences through 2023.

References

[1] DE4A D8.1 Project Dissemination and Communication Strategy. Available on the DE4A website https://www.de4a.eu/_files/ugd/f739c2_df59db2e32ee4d47b820d7c7eae0bde6.pdf Accessed 14/03/2023

[2] DE4A D8.2 Project website. Available on the DE4A website https://www.de4a.eu/_files/ugd/2844e6_cc3889007b3045978a30a5dc69fec765.pdf Accessed

[3] DE4A D8.3 Dissemination and Communication Activities Report M12. Available on the DE4A website https://www.de4a.eu/_files/ugd/2844e6_3db9cf5eadec41399c3c88789de5ada5.pdf Accessed 14/03/2023

[4] DE4A D8.4 Dissemination and Communication Activities Report M24. Available on the DE4A website https://www.de4a.eu/_files/ugd/2844e6_72b015b0d3be457f86903fd775b95a29.pdf Accessed 14/03/2023

[5] DE4A D2.6 Architecture framework. Available on the DE4A website https://www.de4a.eu/_files/ugd/b332f5_2b24a264e8134d01ab2ac183fb11a26a.pdf . Accessed 14/03/2023

[6] DE4A D5.7 Initial Release of DE4A Self-Sovereign Identity Supporting Framework. Confidential document.

[7] DE4A D5.8 Final Release of DE4A Self-Sovereign Identity Supporting Framework. Available on the DE4A website https://www.de4a.eu/_files/ugd/2844e6_9bca028dda934be5ad5ea90a13233d8e.pdf Accessed 05/05/2023

Annexes

The following annexes include a selection of screen shots from the DE4A website and the full newsletters in the period, with the most recent one in Annex II.

Annex I: DE4A website

This annex includes several screen shots of the sections of the DE4A website. Please visit https://de4a.eu for the latest version.

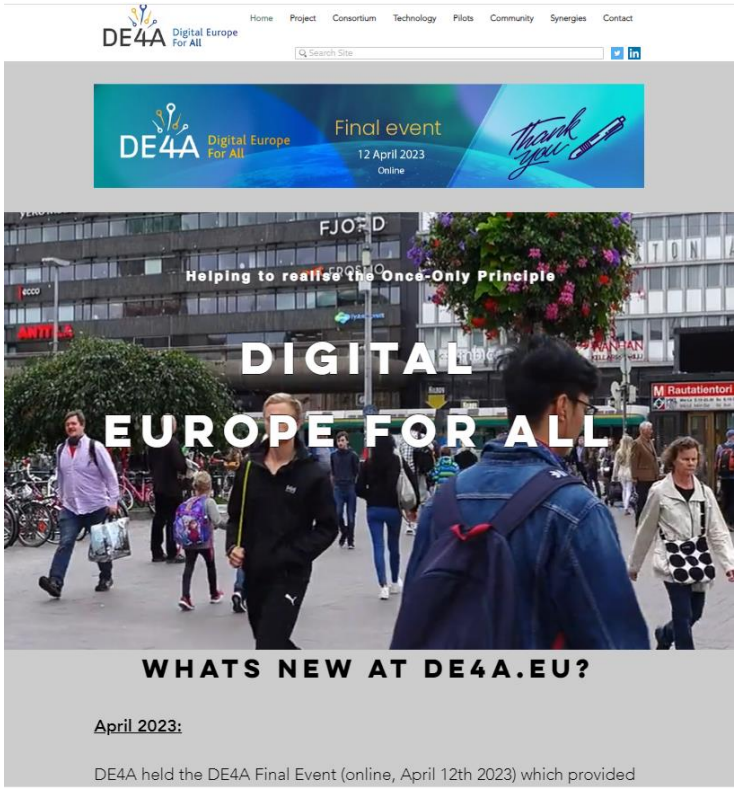


Figure 33: Website: DE4A Home – with most recent news

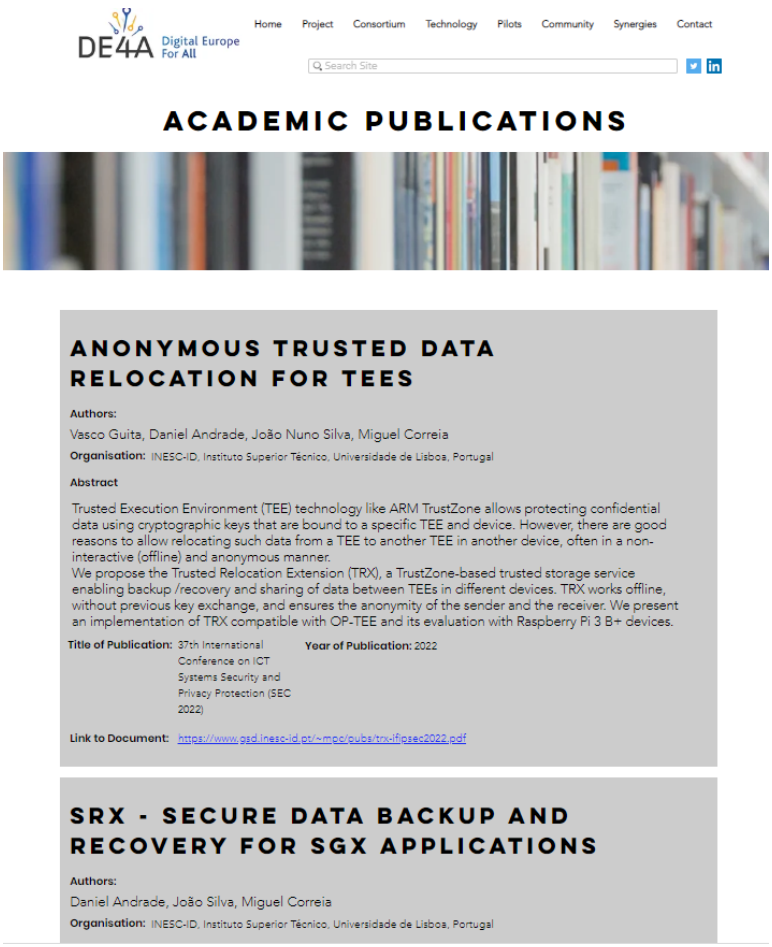


Figure 34: Website: Publications

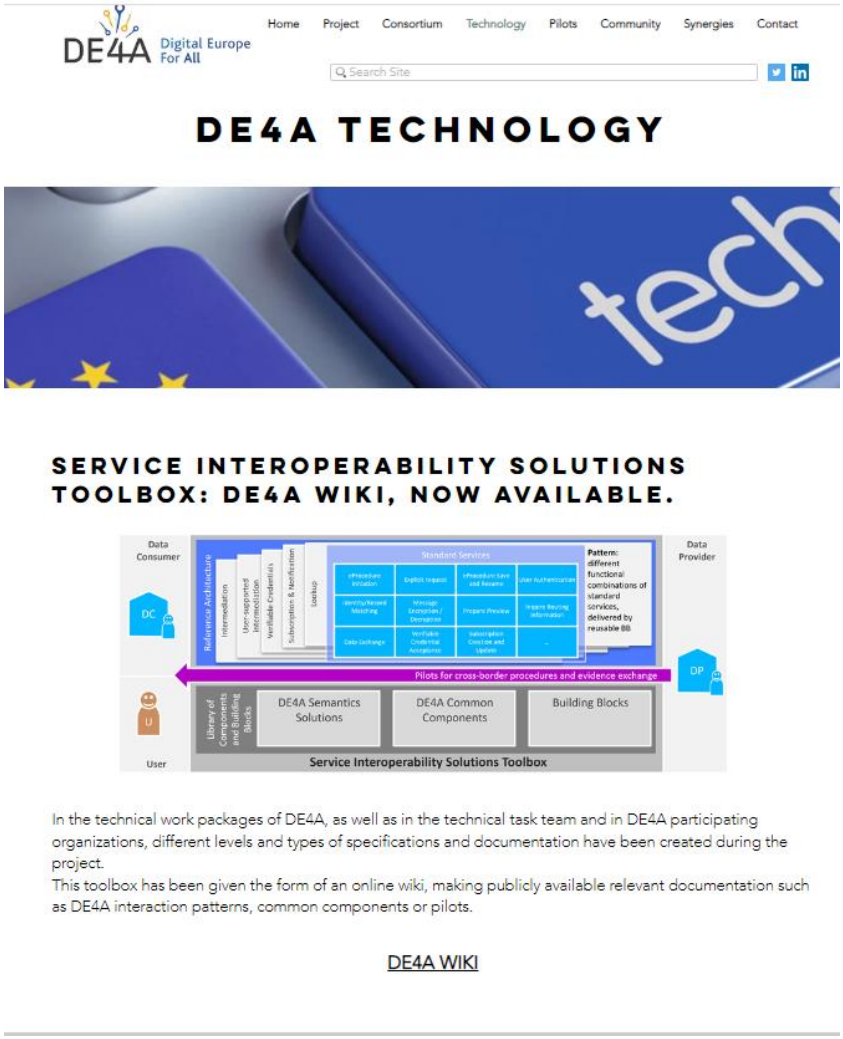
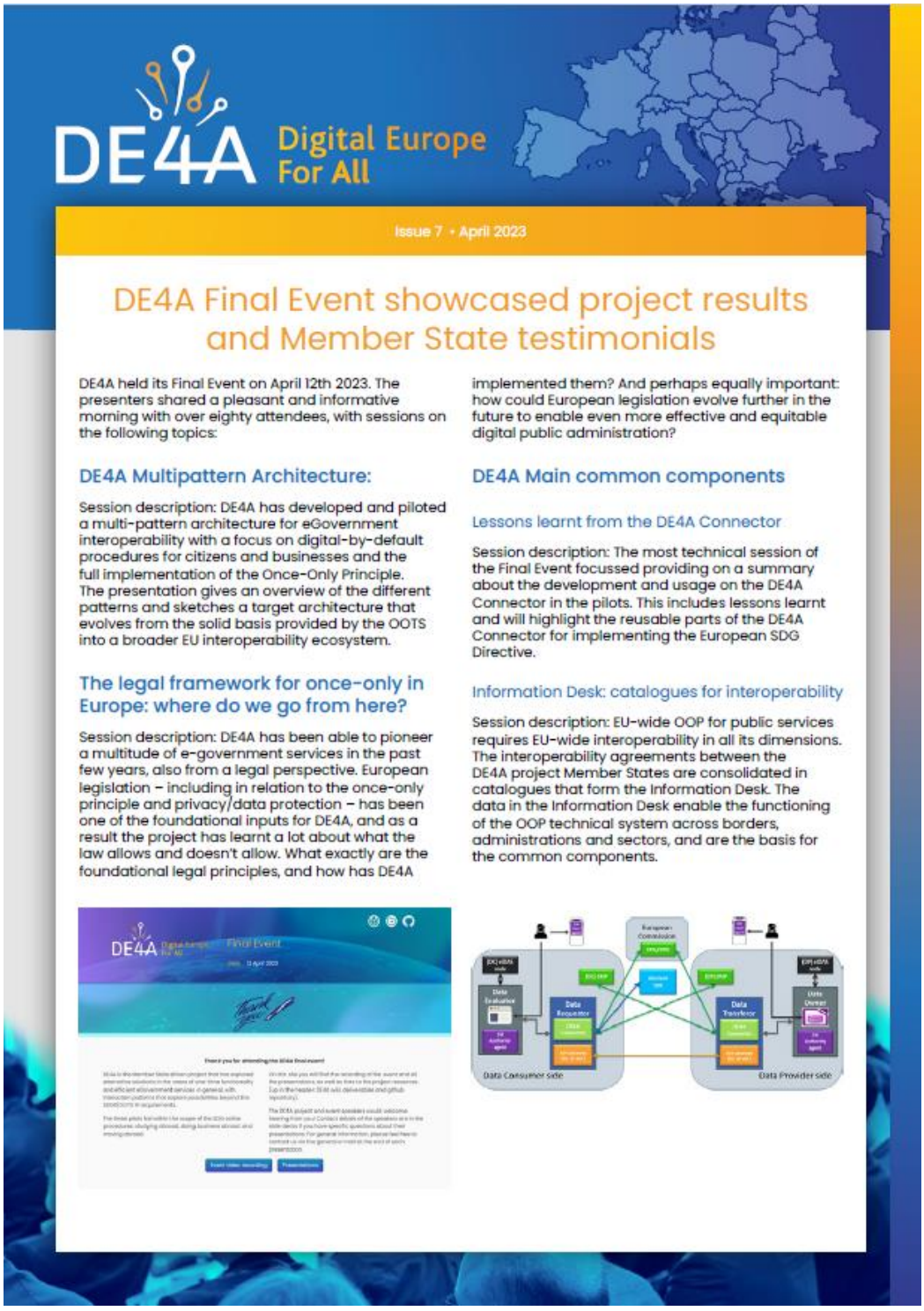


Figure 35: Website: Technology

Annex II: Newsletter 7 - April 2023

The full Abril 2023 newsletter is included below (6 pages).



DE4A Digital Europe For All

Issue 7 • April 2023

DE4A Final Event showcased project results and Member State testimonials

DE4A held its Final Event on April 12th 2023. The presenters shared a pleasant and informative morning with over eighty attendees, with sessions on the following topics:

DE4A Multipattern Architecture:

Session description: DE4A has developed and piloted a multi-pattern architecture for eGovernment interoperability with a focus on digital-by-default procedures for citizens and businesses and the full implementation of the Once-Only Principle. The presentation gives an overview of the different patterns and sketches a target architecture that evolves from the solid basis provided by the OOTS into a broader EU interoperability ecosystem.

The legal framework for once-only in Europe: where do we go from here?

Session description: DE4A has been able to pioneer a multitude of e-government services in the past few years, also from a legal perspective. European legislation – including in relation to the once-only principle and privacy/data protection – has been one of the foundational inputs for DE4A, and as a result the project has learnt a lot about what the law allows and doesn't allow. What exactly are the foundational legal principles, and how has DE4A implemented them? And perhaps equally important: how could European legislation evolve further in the future to enable even more effective and equitable digital public administration?

DE4A Main common components

Lessons learnt from the DE4A Connector

Session description: The most technical session of the Final Event focussed providing on a summary about the development and usage on the DE4A Connector in the pilots. This includes lessons learnt and will highlight the reusable parts of the DE4A Connector for implementing the European SDG Directive.

Information Desk: catalogues for interoperability

Session description: EU-wide OOP for public services requires EU-wide interoperability in all its dimensions. The interoperability agreements between the DE4A project Member States are consolidated in catalogues that form the Information Desk. The data in the Information Desk enable the functioning of the OOP technical system across borders, administrations and sectors, and are the basis for the common components.

Gérard Soisson
Ministère de la Digitalisation, Luxembourg

What makes for us here in Luxembourg, Digital Europe for All, a true success story is mainly the fact that Digital Europe for All was and is an essential preparation and pilot implementation of many core elements and solutions that we have to put in place anyway until December, in fact 12th of December this year, for the Single Digital Gateway Once Only technical system that is defined in Article 14 of the Single Digital Gateway regulation.

The many discussions and preparatory work done in this context allowed us and the other participants to gain hugely in maturity and in understanding of the issues involved. This allowed Luxembourg and other Member States participating in Digital Europe for All to provide essential and valuable input also in the context of the SDG OOTS discussions and meetings that took place at the EU level. The main input of DE4A to the SDG OOTS is probably in this context: that the SDG OOTS finally also uses, after many and sometimes controversial discussions on the topic, essentially the USI pattern. We are convinced that the User Supported Intermediation pattern is the most appropriate pattern to fit the requirements needs defined in Article 14 of the Implementing Regulation and are therefore also happy that finally, DE4A contributed to make it possible to use also this pattern in the context of the Single Digital Gateway Once Only Technical System.

Digital Europe for All also made it possible on a more national level to put in place many national solutions and building blocks that we will be able to reuse to a large extent in the context of the Single Digital Gateway Once Only technical system.

So to sum up, Digital Europe for All for all was for us an essentially important preparation step in direction of what we have to do in the Single Digital Gateway Once Only technical system and for the obligation to comply to the obligations of the thing digital gateway regulations in general.

Registered attendee profile was predominantly Public Body (70%) with lesser representation from the scientific community (10%), Industry (9%) and other (12%).

There were attendees from the following countries, including: Austria, Belgium, Denmark, France, Finland, Germany, Greece, Hungary, Italy, Luxembourg, Netherlands, Portugal, Romania, Slovenia, Spain, and Sweden.

All of the presentations as well as a video of the event can be found on the Final Event microsite.

Last take-aways from the legal and technical workpackages

Legal

DE4A has continued working on legal issues associated with the Single Digital Gateway and the Once Only System. To conclude, Time.lex, as the partner leading the legal analysis activities, organised an internal workshop to gather feedback from the Member States and with the received inputs has produced the document DE4A D7.4 Report on Legal Sustainability

This deliverable is the final output of the Legal and ethical compliance and consensus building workpackage of the DE4A project. Its objective is to capture the possibilities, requirements and opportunities for the sustainability of the project from a legal perspective. The report focuses on some of the realisations of the DE4A project that are more challenging to sustain from a legal perspective, principally because the project's general ambition is to explore and pilot optimal approaches to create effective once-only information exchanges, and to generally improve the efficiency and user friendliness of eGovernment in Europe, without necessarily focusing exclusively on the direct implementation of the EU legal framework (namely the SDGR). This has led to a number of useful innovations in the project, such as the multi-pattern evidence exchanges, the use of mobile wallets and verifiable credentials, and fine-grained powers validation - none of which have comprehensive and mature legal frameworks at the EU level at the present time.

Architecture

In the last months, the Architecture team has released two deliverables D2.7 Interoperability Architecture for Cross-border Procedures and Evidence Exchange in light of the Single Digital Gateway Regulation and D2.8 Beyond interoperability: One Network for Europe (ONE)

D2.7 Interoperability Architecture for Cross-border Procedures and Evidence Exchange in light of the Single Digital Gateway Regulation: Taking the first version of the Once-Only Technical System (OOTS) (due 12.12.2023), as a starting point, a mid-term future, multi-pattern, target architecture is sketched in terms of high-level business processes and application flows.

D2.8 Beyond interoperability: One Network for Europe (ONE): One objective of DE4A is to envision different target architecture states at different time horizons that provide guidance to the further development of European governmental interoperability solutions and platforms. This deliverable presents a

consolidated architecture vision for the long-term time horizon, specifically the time beyond this Digital Decade. The starting hypothesis is that the digital transformation of European administrations, national governments and public authorities has a profound impact on the development of the data-driven economy and the social and economic reality of the single market and its global competitive position.

Technical view

The technical team has also released several deliverables in the final months of the project.

D5.4 Final technical design of interfaces and common specifications: This deliverable provides the technical design of the interfaces between the DE4A components that facilitate the integration among different technologies used by Member States. These interfaces include the ones required to communicate with the Data Consumers, with the Data Providers and with the common intermediation components, such as the DE4A Connector and the components of the Information Desk (IDK). D5.4 also defines the common specifications that must be known and complied with by all DE4A network participants to exchange messages, including DE4A-specific protocols and third-party protocols and components.

D5.6 Final release of DE4A common components: This document describes the common components developed by the project: the common libraries, the DE4A Connector, the DE4A Directory and the Central IAL. It also describes the DE4A Playground, a set of predefined and pre-deployed components designed to help pilot partners to onboard the DE4A network.

Pilots

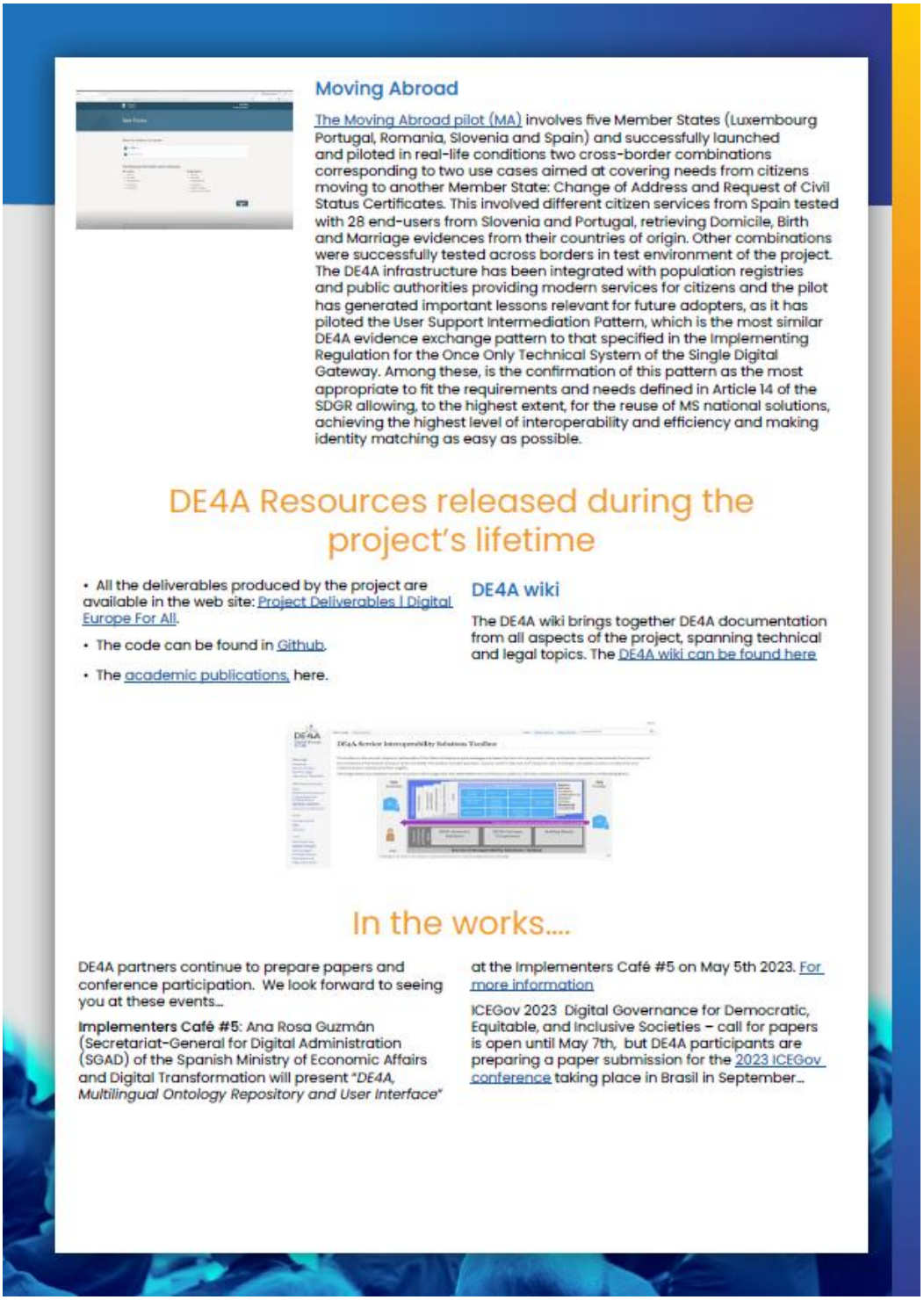
The project has successfully run the second iteration of the pilots from October 2022 until the end of the project:

Studying Abroad

The Studying Abroad (SA) pilot that focuses on Higher Education students with virtual or physical mobility needs in the European Higher Education Area has successfully piloted three use cases (Application to public higher education UC#1, Applying for a study grant UC#2, and Diploma recognition UC#3) that validate processes/procedures (c.f. Annex II of SDGR[5]) for students from the three participating Member States (Portugal, Slovenia, and Spain) for registration to higher education abroad and eventually applying for a student grant as well as for studies recognition. 12 planned cross-border combinations between Data Evaluatorss and Data owners or Issuers and Verifiers were successfully piloted with real students: 6 combinations in UC#1, 2 in UC#2, and 4 in UC#3.

Doing Business Abroad

Doing Business Abroad (DBA) successfully piloted in real-life conditions two use cases. Use Case 1 concerns registering a new business activity in another Member State (using the intermediation pattern), while UC2 focuses on the possibility for Data Evaluators (DE) to stay informed about changes in the foreign companies that registered a business activity with them (using the Subscription & Notification pattern). Both use cases make use of the DE4A Once Only Principle Technical System (OOTS) and eIDAS pilot infrastructure1. In this second iteration Use case 1 has been piloted in 6 cross-border combinations within DBA, using a 50-50% mix of full powers validation and fine-grained powers validation. Six real company representatives piloted with real data while a total of 13 real representatives were involved in interviews for UC1. Additionally, 4 real representatives piloted in a side-project where Germany and The Netherlands piloted UC1. With this, in iteration 2 the involvement of companies more than doubled over the first iteration. Use Case 2 was piloted with 6 cross-border combinations as well and 3 Data Evaluators were interviewed.



Moving Abroad

The Moving Abroad pilot (MA) involves five Member States (Luxembourg Portugal, Romania, Slovenia and Spain) and successfully launched and piloted in real-life conditions two cross-border combinations corresponding to two use cases aimed at covering needs from citizens moving to another Member State: Change of Address and Request of Civil Status Certificates. This involved different citizen services from Spain tested with 28 end-users from Slovenia and Portugal, retrieving Domicile, Birth and Marriage evidences from their countries of origin. Other combinations were successfully tested across borders in test environment of the project. The DE4A infrastructure has been integrated with population registries and public authorities providing modern services for citizens and the pilot has generated important lessons relevant for future adopters, as it has piloted the User Support Intermediation Pattern, which is the most similar DE4A evidence exchange pattern to that specified in the Implementing Regulation for the Once Only Technical System of the Single Digital Gateway. Among these, is the confirmation of this pattern as the most appropriate to fit the requirements and needs defined in Article 14 of the SDGR allowing, to the highest extent, for the reuse of MS national solutions, achieving the highest level of interoperability and efficiency and making identity matching as easy as possible.

DE4A Resources released during the project's lifetime

- All the deliverables produced by the project are available in the web site: Project Deliverables | Digital Europe For All.
- The code can be found in Github.
- The academic publications, here.

DE4A wiki

The DE4A wiki brings together DE4A documentation from all aspects of the project, spanning technical and legal topics. The DE4A wiki can be found here

In the works....

DE4A partners continue to prepare papers and conference participation. We look forward to seeing you at these events...

Implementers Café #5: Ana Rosa Guzmán (Secretariat-General for Digital Administration (SGAD) of the Spanish Ministry of Economic Affairs and Digital Transformation will present "*DE4A, Multilingual Ontology Repository and User Interface*" at the Implementers Café #5 on May 5th 2023. For more information

ICEGov 2023 Digital Governance for Democratic, Equitable, and Inclusive Societies – call for papers is open until May 7th, but DE4A participants are preparing a paper submission for the 2023 ICEGov conference taking place in Brasil in September...


DE4A
Member States
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Bolagsverket
BRZ
egovlab
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lisboa
INTERNATIONAL HELLENIC UNIVERSITY
ICTU
Jožef Stefan Institute
Ljubljana, Slovenia
Federal Ministry
Republic of Austria
Digital and
Economic Affairs
Univerza v Mariboru
REPUBLIC OF SLOVENIA
GOV.SI
TIMELEX
UJI UNIVERSITAT JAUME I
DE4A has received funding from the European Union's Horizon 2020 research and innovation program, under G.A. No. 870635
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Annex III: Newsletter 6 - December 2022

The full December 2022 newsletter is included below (6 pages).

DE4A Digital Europe For All

Issue 6 • December 2022

DE4A Cross-Border Pilot: Netherlands - Germany

Bilateral cross-border pilot between Netherlands and Germany in the context of Doing Business Abroad Pilot

From April 2022, different entities in Germany have been participating as observers of the DE4A project. This involves close work with the Doing Business Abroad pilot lead in the Netherlands, RVO, and cross-technical support from the project technical team.

The groundwork for this fruitful collaboration was prepared in 2021, when initial exploration started regarding possible DE4A involvement with the German organizations Federal Ministry of Interior, Federal Office of Administration, Ministry of Economic Affairs, Industry, Climate Action and Energy of the State of North-Rhine Westphalia, and the Coordination Office for IT standards (KoSIT). Towards the end of 2021, the decision was made to proceed with a feasibility study to extend the Doing Business Abroad pilot, focussing on registration at the economy portal, 'Wirtschafts-Service-Portal.NRW' (WSP.NRW), of the state North Rhine Westphalia. From April 2022, Dutch and German partners initiated the preparation phase (April – September) and are currently in the running and evaluation phase through the end of December.

The scope of piloting contemplates the scenario of Dutch representatives acting on behalf of a Dutch company (sole proprietorship) proceeding with the registration of a business activity in the Wirtschafts-Service-Portal of NorthRhine Westfalia. This scenario involves the use of eIDAS and eHerkenning ('eRecognition') for authentication and authorization (full powers); explicit request and preview according to SDGR Article 14; DE4A OOTS to retrieve company data from the Dutch Business Register, using real data, real companies and real representatives, in production environments.

The registrations will be invalidated after piloting concludes.

This piloting activity allows the participants to learn about technical, legal and organizational impact of implementing OOTS.

Ms. Birthe Rosenberg, representing the Ministry of Economic Affairs, Innovation, Digitalization and Energy of the State of North-Rhine Westphalia participated in the pilots' interim review with the European Commission on October 7th in Brussels. Beforehand she explained to DE4A partners the implementation has been quick due to several factors such as:

- Matured DE4A components based on DE4A experiences during 2020-2022
- Gathered implementation experience in DE4A during 2020-2022
- Stable focus, prioritization, management-support
- Proper availability and dedication of resources
- Light weight and pragmatic approach

These are important lessons the partners learned looking forward to the mandatory SDG OOTS implementation before the end of 2023. As indicated by Ard Van der Heijden, Doing Business Abroad pilot leader,

"The bilateral pilot proves that the DE4A components and knowledge about SDG-implementation have matured throughout the DE4A project. When combined with a strong dedication and professional implementation-team, an excellent foundation is created to complete OOTS integration in a short period of time".

1

What is more, the work done so far and the positive experience with the piloting points to further collaborations with Netherlands, Germany, Luxembourg, Austria, and potentially other DE4A and non-DE4A Member State organisations in 2023.

For more information about the Doing Business Abroad pilot, visit:

https://www.de4a.eu/doingbusinessabroadpilot

Federal Ministry of the Interior and Community

Federal Office of Administration

Ministerium für Wirtschaft, Industrie, Klimaschutz und Energie des Landes Nordrhein-Westfalen

Rijksdienst voor Identiteitsgegevens Ministerie van Binnenlandse Zaken en Koninkrijksrelaties

Rijksdienst voor Ondernemend Nederland

The Semantic Interoperability Challenge

Implementing the Once-Only Principle (OOP) for public services at European level faces a great challenge: semantic interoperability. In DE4A, cross-border semantic interoperability has been addressed primarily by developing common data models and formats for the information to exchange.

In this sense, semantic interoperability agreements have been set up and managed as part of the interoperability governance. The main outcome of this effort is the DE4A semantic framework – a general framework for the semantically interoperable, cross-border, once-only principle implementation that capitalizes on available semantic standards. At the centre of this framework lies the "Information Desk", which constitute concepts and information that is required for a common understanding for facilitating the exchange of information between cross-border public authorities.

The main concepts and the components that implement them are as follows:

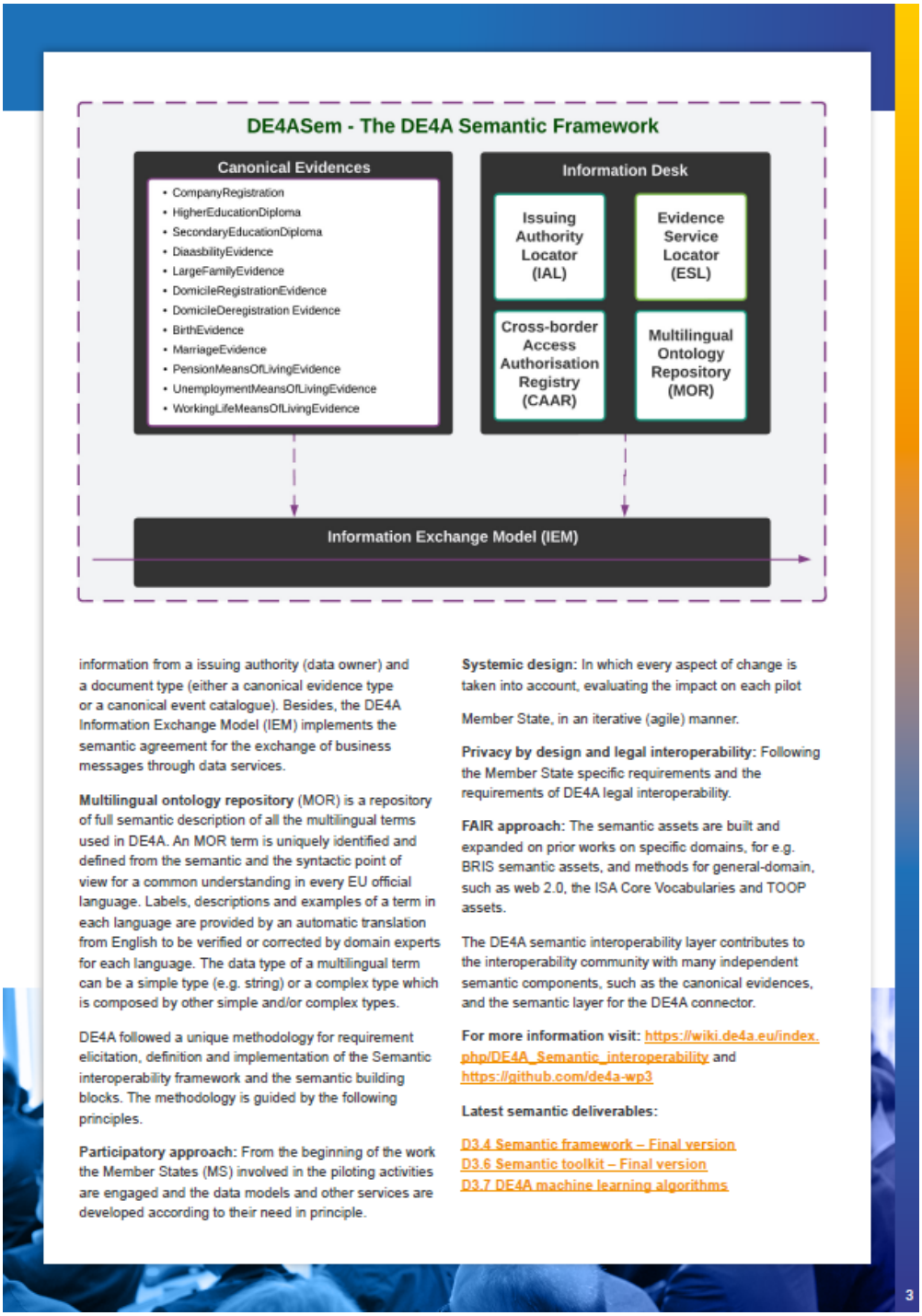
Canonical evidence type is a canonical form for each evidence type (an agreement on the fact proved and the information provided with a structured data model that include a common set of attributes) that has been identified by the DE4A pilots as relevant for their online procedures. Each canonical evidence type has been designed in a collaborative way between the consuming and issuing authorities and the semantic experts in DE4A. Each canonical evidence type is identified by an Uniform Resource Identifier (URI) according to the DE4A policy of identifiers.

Canonical event catalogue is an agreement for a group of events regarding a specific topic. Each canonical event catalogue is identified by an URI according to the DE4A policy of identifiers.

Provision is the availability of a data service provided by an issuing authority (data owner) for issuing a canonical evidence type (evidence provision) or subscribing to a canonical event catalogue (subscription provision). The available provisions are located through the DE4A Issuing Authority Locator (IAL) by specifying at least a canonical evidence type or event catalogue and, optionally, an administrative territorial level or unit where the issuing authority has competences (national, regional, local or educational level or unit).

Data Service Endpoint consists of information for actual use of the data service that corresponds to a provision. This information is available through the DE4A Evidence Service Locator (ESL), obtaining the data service endpoint

2



information from a issuing authority (data owner) and a document type (either a canonical evidence type or a canonical event catalogue). Besides, the DE4A Information Exchange Model (IEM) implements the semantic agreement for the exchange of business messages through data services.

Multilingual ontology repository (MOR) is a repository of full semantic description of all the multilingual terms used in DE4A. An MOR term is uniquely identified and defined from the semantic and the syntactic point of view for a common understanding in every EU official language. Labels, descriptions and examples of a term in each language are provided by an automatic translation from English to be verified or corrected by domain experts for each language. The data type of a multilingual term can be a simple type (e.g. string) or a complex type which is composed by other simple and/or complex types.

DE4A followed a unique methodology for requirement elicitation, definition and implementation of the Semantic interoperability framework and the semantic building blocks. The methodology is guided by the following principles.

Participatory approach: From the beginning of the work the Member States (MS) involved in the piloting activities are engaged and the data models and other services are developed according to their need in principle.

Systemic design: In which every aspect of change is taken into account, evaluating the impact on each pilot

Member State, in an iterative (agile) manner.

Privacy by design and legal interoperability: Following the Member State specific requirements and the requirements of DE4A legal interoperability.

FAIR approach: The semantic assets are built and expanded on prior works on specific domains, for e.g. BRIS semantic assets, and methods for general-domain, such as web 2.0, the ISA Core Vocabularies and TOOP assets.

The DE4A semantic interoperability layer contributes to the interoperability community with many independent semantic components, such as the canonical evidences, and the semantic layer for the DE4A connector.

For more information visit: https://wiki.de4a.eu/index.php/DE4A_Semantic_interoperability and https://github.com/de4a-wp3

Latest semantic deliverables:

D3.4 Semantic framework – Final version
D3.6 Semantic toolkit – Final version
D3.7 DE4A machine learning algorithms

3

Spotlight on: Inventory of current eGovernment landscape

Jožef Stefan Institute
Ljubljana, Slovenia

As part of DE4A's cross-cutting activities Jozef Stefan Institut (JSI) in Slovenia has led the activity providing a view of the current EU eGovernment landscape. In particular, this activity has focussed on:

- Identifying and analysing the state of deployment of cross-border integrated Digital Public Services in the Member states;
- Inquiring on the status of existing solutions supporting online service for the Single Digital Gateway Regulation (SDGR) procedures;
- Taking stock of the implementation status and data strategies supporting the Once Only Principle (OOP) at national and regional level, digital-by-default principles and user centricity;
- Overviewing and catalogue of relevant EU building blocks and Digital Service Infrastructures supporting Once-Only, provided by EU programs and projects; and
- Inquiring on the risks and barriers for, as well as the enablers to the implementation of those services.

The methodology for performing these activities and validating the results includes a well-defined two-phased process of focused interviews and questionnaires with each Member State (MS) Chief Information Officer, internal (to the project) experts and external (DG CNECT, DG GROW, DG DIGIT, EBSI/ESSIF, mGov4EU and TOOP) experts. The results provide insights into both the encountered state of eGovernance across the Member States at the beginning of the project (January 2020), and into its progress with respect to a chosen set of indicators throughout the project lifetime.

The set of indicators includes: level of adoption of e-services across MSs at both national and cross-border level; legal, business, technical, organisational, political and human-oriented barriers to cross-border interoperability; implementation and adoption progress of the OOP technical system; and harmonization of national laws with EU legislation. The analysis are done for several areas: eIDAS and trust services, EU Digital Identity Wallets, Single Digital Gateway Regulation, Digital Service Infrastructures and OOP and data strategy.

In 2022, DE4A has concluded the second round of this activity, and comes back with the following results:

Generic results

As part of the more general outcomes of the activities on eGovernment cross-border services that can also be reused by other projects and initiatives, are the following:

- Methodology for analysing eGovernance landscapes with respect to eID, OOP Technical System and Digital Service Infrastructures (DSI);
- Architecture-based catalogue of Building Blocks (re) used across large scale EU pilots and Digital Service Infrastructures;
- Catalogue for Building Blocks assessment for (re)use by DE4A;
- Set of risks, barriers and recommendations on eGovernment relevant for both the Member states and EU in general.

As a result of the implementation of the above methodologies and frameworks, a list of more specific and project-related results can be extracted:

Specific results

eIDAS and trust services: Almost all MSs have an eID scheme with high level of assurance. The majority also has an eID scheme suitable for cross-border use, with high integration of monitoring mechanisms over the eIDAS progress. This address one of the major drawbacks pointed out by the revision of the eIDAS, namely – the poor monitoring mechanisms. Considering the new requirements for developing a Toolbox for the support of the technical system for the revised Regulation, the knowledge base from these monitoring systems can be used in a coordinated manner for various purposes: sharing insights on risks and barriers, as well as good practices that can catalyze the implementation progress.

Most of the responding countries have not established a Digital Identity Wallet solution yet. However, it has been considered for inclusion as part of the electronic services to be offered to the citizens. All reported DIW solutions have been issued by public entities.

SDGR and Life events: While there is a relatively high digitalization levels for all procedures, none of the procedures appears to be fully digitally enabled. The overall cross-border availability of SDG procedures is relatively high, ranging from 50% to 83%. There is also high level of online availability, with a few procedures still being eID-disabled.

Mobile accessibility varies from 40% to over 80%, with a few procedures that can only be carried out through a dedicated eGovernment app or a desktop-enabled website.

The introduction of fees for carrying out the SDG procedures is of greater concern for private companies and citizens, for both national and cross-border transactions.

Although OOP implementation in the 21 life-events has in general been advancing, it is still insufficient for effective SDG implementation. Clearly, this varies across MSs, depending on the overall readiness for digitalization.

Once Only Principle and data strategy: There is an increasingly positive trend on setting up a strategy for reusing data in the public sector, going from 50% at the beginning of the project to 81% towards the end. Access to personal data is widely available for the citizens. However, most areas still lack the capability to provide means for verification of access by others. This is an important aspect to address, considering the fact that access to medical records is often needed by care-givers in critical cases when patients are not able to access data themselves.

There are high expectations for the benefits of implementing OOP, both for the national and for the cross-border context, most notable of which are: Administrative simplification, Increased digitalization, Increased efficiency, and Improved interoperability. The main concerns from technical aspect are the adaptation of data sources and the adaptation of SDGR procedures to the national context.

Digital Service Infrastructures: There is high access (from 90 to 100%) to reusable public sector information, realized via eInvoicing and eDelivery, along with sector-specific DSIs such as BRIS, eProcurement, and e-exchange of social security. EU student card, Online Dispute Resolution (ODR) and Automated translation show considerably lower level of advancement. However, within their relevant contexts, the employment of the latter DSIs have also been on the rise.

Finally, identified and elaborated were 104 risks and barriers of different nature: legal, technical, organizations, business, political and human factor. For each risk and barrier, a list of policy recommendations was complied, amounting to 44 enablers. The prevalent types of barriers MSs face are of Legal and Organizational nature, whereas the most critical to address is the Human factor. Lack of resources and lack of expertise are the most painful points from organizational point of view, while non-harmonized law – from a legal point of view. Lack of awareness on availability of services and reluctance to change and adoption are the most critical problems that require immediate action.

Considering the fact that most of the efforts on OOP implementation are recent or ongoing, it is reasonable to expect that the overall state of the OOP implementation across Europe will significantly improve in the upcoming period.

For more information, check:

D1.2 Updated Member State eGovernment Baseline

D1.4 Updated Member State Once Only and data strategy baseline

D1.6 Updated EU Building Blocks supporting Once Only and standard data sharing patterns

D1.8 Updated legal, technical, cultural and managerial risks and barriers

News shorts

DE4A carried out a half-day review of the progress of the pilots in Brussels on October 7th. DE4A presented the progress of the project pilots (Studying Abroad, Moving Abroad and Doing Business Abroad), as well as the NL-DE external collaboration.

DE4A has been presenting at the following conferences:

- 2022 ICEGOV conference, 5th October, Guimaraes, Portugal: A canonical evidence-based approach for semantic interoperability in cross-border and cross-domain e-Government services.
- 21st European Conference of eLearning (ECEL), 28th October, Brighton, UK: Supporting Learning Mobility With Student Data Harmonisation: A European Perspective.
- SEMIC conference, 6th December 2022: Reusable semantic component prototype for interoperable e-Government: A case from Digital Europe for All (DE4A)

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Annex IV: Newsletter 5 - May 2022

The full May 2022 newsletter is included below (4 pages).

DE4A Digital Europe For All

Issue 5 • May 2022

DE4A Launches the Doing Business Abroad Pilot

Digital Europe for All (DE4A) has announced the launch of its Doing Business Abroad pilot, which aims at demonstrating in practice the benefits for companies and competent authorities of realising across borders the principles of Once-Only and digital-by-default. It also supports the use of innovative approaches such as validating mandates of company representatives.

The service largely corresponds to a fully online procedure of the 'Starting, running and closing a business' in the Single Digital Gateway Regulation (SDGR), which allows companies from Romania to easily register their company with the Netherlands Enterprise Agency (RVO) in The Netherlands.

Earlier this year DE4A announced the first cross-border education service to be launched as part of its Studying Abroad pilot. It focuses on a fully online procedure for the 'Studying' Life Event in the Single Digital Gateway Regulation, which allows students from Slovenia to easily apply for recognition of higher education diplomas in Portugal. Using the service, students can request their diplomas, which are stored in a DE4A digital wallet in the form of verifiable credentials, to be recognised in Portugal. The digital wallet on a mobile phone allows students to securely manage their diploma evidences received from a trusted source in their home country.

Details of the services and the guidelines for participation in the Doing Business Abroad pilot can be found at https://www.de4a.eu/doingbusinessabroadpilot

For more information about the Studying Abroad pilot, visit: www.de4a.eu/studyingabroadpilot

Realising the EU Digital Single Market

Author: Jon Shamah, Chair of EEMA

The Digital Single Market is a priority for the European Commission, to improve access to digital goods and services, create an environment where digital networks and services can prosper, and digital can be a driver for growth throughout the EU. Supporting this strategy is Digital Europe for All (DE4A), a three-year EU funded Horizon 2020 project that commenced in 2019, with the aim to make it easier for citizens and businesses to work, study and live in other EU Member States.

The DE4A project is facilitating this aim by embracing innovative technologies, such as blockchain, to reduce the effort needed to transfer official documents. It does this by providing direct and permissioned digital communications, with consideration for EU regulations (SDGR, eIDAS and GDPR), declarations (Tallin, Berlin and Lisbon) and principles (Once-Only Principle).

The premise of the Once-Only Principle (OOP) is that citizens and businesses need to provide data and documents to a public administration within the EU once. In doing so, it reduces administrative burdens for all parties, improves data reliability and fraud prevention. Member States committed to the OOP in 2013, and the SDGR (2018) has the ambitious deadline to deliver this complex initiative by the end of next year, at which time EU ID Wallets are also scheduled to be issued.

To achieve this target there are four main challenges that must be overcome - trust, interoperability, user centricity and technological development. Currently, not all EU citizens have access to eID and identity matching between Member States is an issue. Furthermore, there is the question of how many Member States support identity for legal persons, as well as are e-services ready and able to accommodate cross-border users. Then there are language barriers and the structure of data across the range of data sources.

The eIDAS Trust service framework, along with the pending amendment to the regulation (eIDAS2) and new game changing EU ID Wallet are fundamental in overcoming these challenges. These services currently include electronic signature and seal creation, validation and preservation, certificates for signatures, seals, and

web authentication, as well as electronic timestamps and registered delivery services. However, there are also a number of new services that are particularly useful in the context of SDGR, such as the electronic attestation of attributes, the management of remote electronics signature and seal creation devices, and electronic ledgers.

To demonstrate the many practical benefits of overcoming these challenges (for citizens, businsess and administrations), DE4A joined the European Digital SME Alliance for a webinar **'The Single Digital Market'**.

A recording of the webinar is available: www.eema.org/events/de4a-project-collaborates-with-digital-sme-alliance

DE4A to Present Project User Pilot Studies at International Conference

On 9th June 2022, DE4A will present its three pilots (Doing Business Abroad, Moving Abroad and Studying Abroad) at EEMA's 35th Annual Conference, taking place at Microsoft in London. The session will be led by Alberto Crespo, Head of Blockchain, Identity & Privacy Unit, DE4A Pilots Coordinator, Atos, Spain with pilot presentations including:

- **Doing Business Abroad:** Ard van der Heijden, WP4 Senior Business Analyst/Pilot Lead, Netherlands Enterprise Agency, Netherlands
- **Moving Abroad:** Fredrik Lindén, Digital Government Transformation and eGov Consultant, Stockholm University, eGovlabs DE4A project Sweden
- **Studying Abroad:** Tomaž Klobučar, Head of Laboratory for Open Systems and Networks, Jozef Stefan Institute, Slovenia

To register for the conference visit: https://www.eema.org/eema-annual-conference-2022/


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