DE4A Digital Europe For All

DE4A Connector

Philip Helger, Bundesrechenzentrum, Austria

Final Event, April 12, 2023 (online)

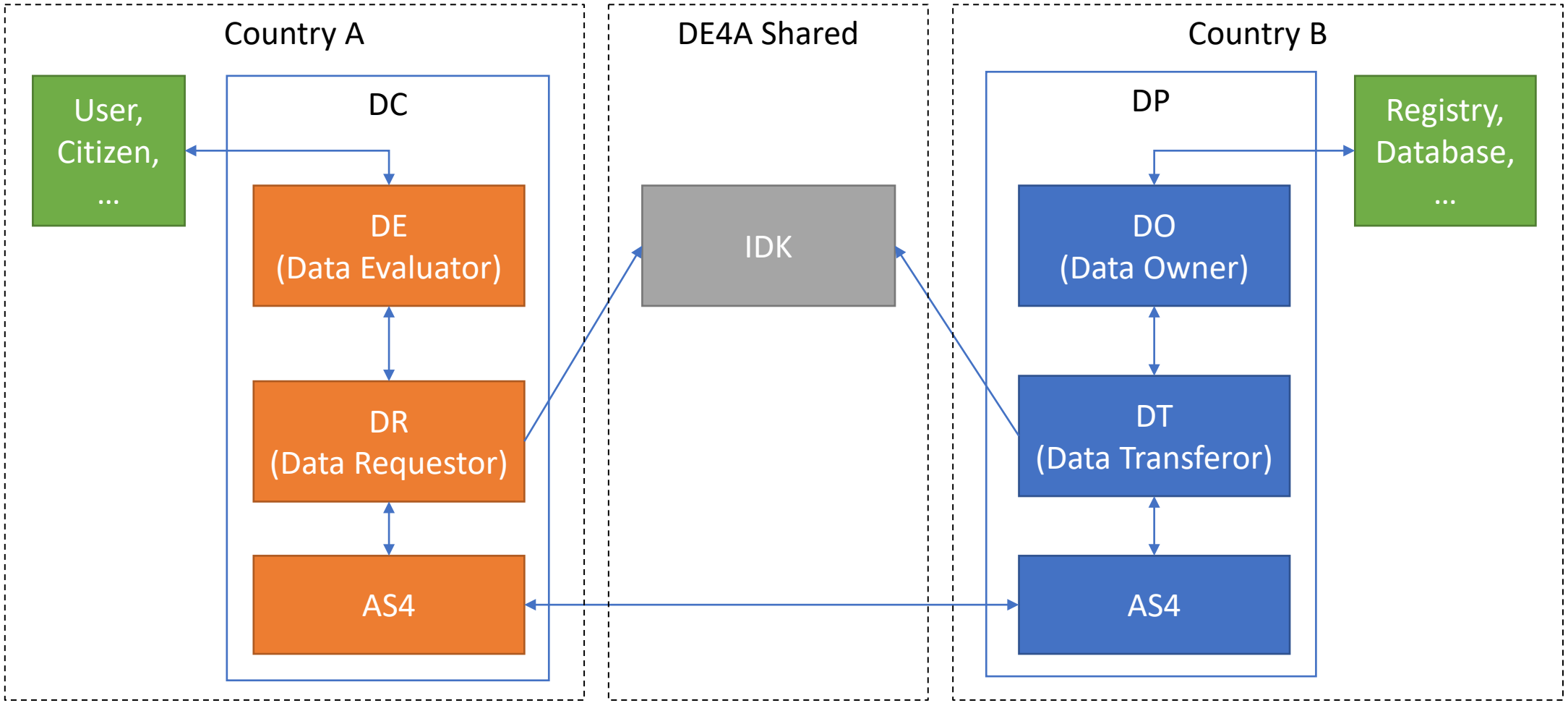
DE4A has received funding from the European Union's Horizon 2020 research and innovation programme under GA. No. 870635

Agenda

1. Big Picture
2. Design Principles of the DE4A Connector
3. Modular implementation approach
4. eDelivery usage
5. Security and trust
6. Test and onboarding
7. SDG relevance
8. Links and references
9. Glossary / Terms

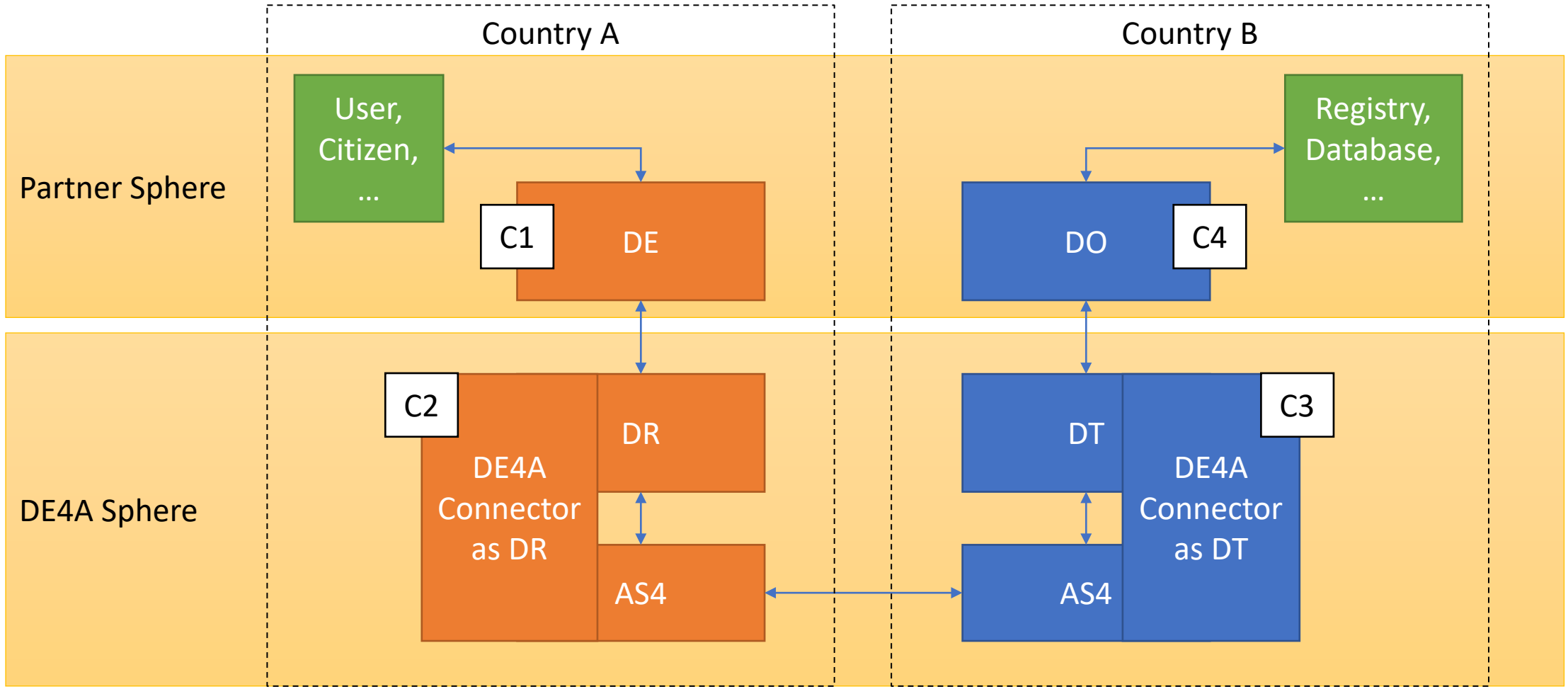
DE4A has received funding from the European Union's Horizon 2020 research and innovation programme under G.A. No. 870635

Big Picture



DE4A has received funding from the European Union's Horizon 2020 research and innovation program, under G.A. No. 870635

Big Picture



DE4A has received funding from the European Union's Horizon 2020 research and innovation program, under G.A. No. 870635

Design Principles of the DE4A Connector

- Provide Member States (MS) with a simple solution for secure data exchange
  - Support multiple ways of technical deployment
- Commonly implemented by DE4A for all Partners
  - Save costs and effort; improves interoperability
- Implement all Interaction Patterns in one application
- Based on open standards and European best practices
- Publish as Open Source

DE4A has received funding from the European Union's Horizon 2020 research and innovation program, under G.A. No. 870635

Design Principles of the DE4A Connector

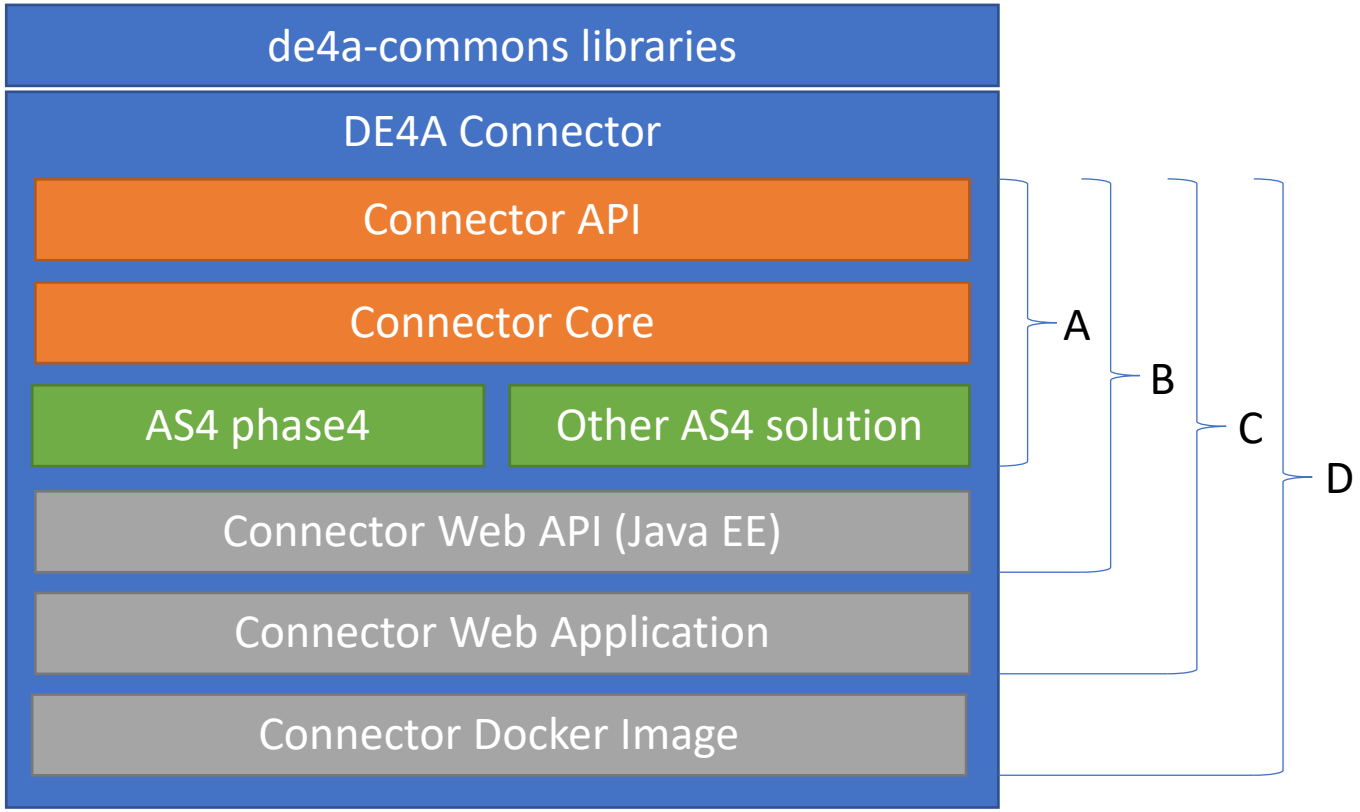
- Debate around the usage of AS4 gateway
  - a) Separate AS4 gateway from DE4A Connector
  - b) Integrate AS4 gateway into DE4A Connector

  ➔ chosen unanimously by all Partners

- DE4A Connector uses *phase4* as the built-in AS4 gateway
  - No issues with AS4 during the project lifetime
  - Able to focus on DE4A matters
  - Additional benefits like simpler deployment, no compatibility issues etc.

DE4A has received funding from the European Union's Horizon 2020 research and innovation program, under G.A. No. 870635

Modular implementation approach



A: core components
B: shared web application
C: WAR file – for Application Server
D: Docker Image

- All layers implemented by DE4A Project
- Layers C and D most commonly used
- AT and LU were able to base their solutions solely on layers A and B

DE4A has received funding from the European Union's Horizon 2020 research and innovation program, under G.A. No. 870635

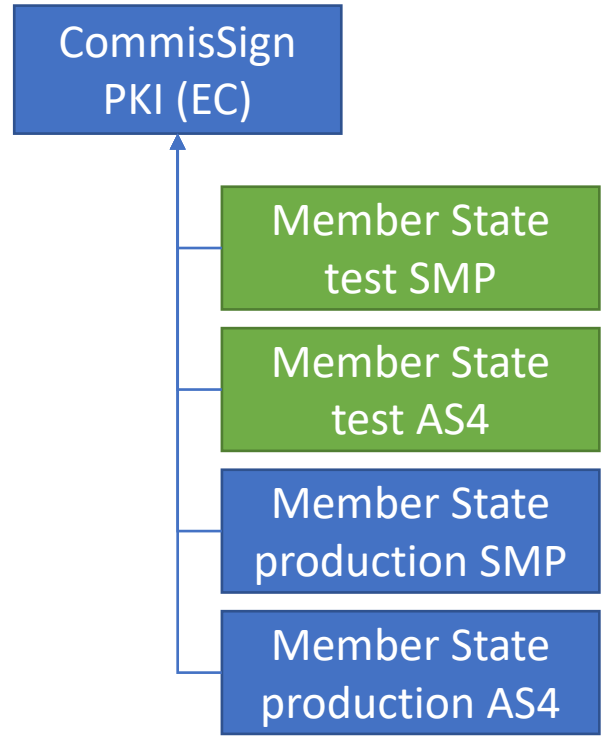
eDelivery usage

- AS4 profile based on CEF eDelivery
  - No additional profiling was done
- SMP and SML used for addressing (“Dynamic Discovery”)
  - Based on the OASIS BDXR SMP and BDXL specs
  - Purpose is to exchange URLs and technical certificates
- Additionally
  - Peppol Directory extension to SMP used → Business Cards → technical foundation of IAL

DE4A has received funding from the European Union’s Horizon 2020 research and innovation program, under G.A. No. 870635

Security and Trust

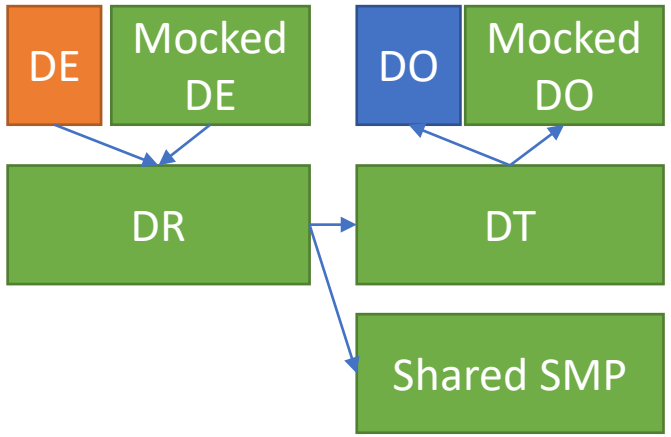
- Base level security through use of eDelivery
  - TLS level requirements from CEF (1.2+) and further specified
- Finally using the EC CommisSign 2 PKI for AS4 and SMP
  - Offered free of charge by EC
  - DE4A uses it only in both stages
  - Several PKI changes during the project lifetime
- Using the “Shared Domain PKI” trust model
  - Originally using the “Dedicated Domain PKI” – preferred way

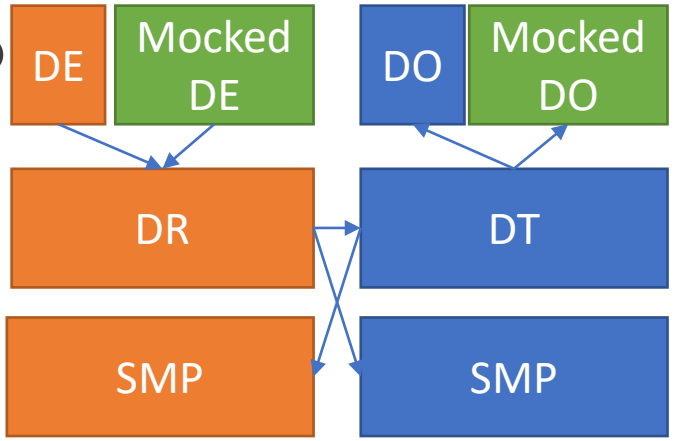


DE4A has received funding from the European Union’s Horizon 2020 research and innovation program, under G.A. No. 870635

Testing and onboarding

- Different levels of Partners
  - Skills, speed, pilot requirements
- Started providing central Connector and SMP
  - Allow partners to focus on their solutions (Data Evaluator, Data Owner)
  - Provided Mocked DE and Mocked DO
- Step by step insourcing Connector and SMP
- Mocked DE and Mocked DO remain





Data Consumer
Data Provider
DE4A shared

DE4A has received funding from the European Union's Horizon 2020 research and innovation program, under G.A. No. 870635

SDG relevance

- DE4A needed to make decisions before SDG Implementing Act was ready
- The architectural design principles can be reused
  - A shared SDG Connector can be done
- The Interaction Patterns have proven to work
- The DE4A components need to be adapted for reuse
  - Different design choices taken
- SDG specific requirements
  - More focus on RegRep
  - No Dynamic Discovery
  - Different Trust Model (“Mutual Exchange”)

DE4A has received funding from the European Union’s Horizon 2020 research and innovation program, under G.A. No. 870635

Links and references

- DE4A Connector
  - Sources: https://github.com/de4a-eu/de4a
  - Binaries: https://github.com/de4a-eu/de4a/releases
  - Docker: https://hub.docker.com/r/de4a/connector/tags
- Mocked DE / DemoUI
  - Sources: https://github.com/de4a-eu/wp5-demo-ui
- Mocked DO
  - Sources: https://github.com/de4a-eu/de4a-connector-mock
- IAL Service
  - Sources: https://github.com/de4a-eu/ial-service

DE4A has received funding from the European Union's Horizon 2020 research and innovation program, under G.A. No. 870635

Common Glossary

- DC = Data Consumer
- DE = Data Evaluator
- DR = Data Requestor
- DP = Data Provider
- DT = Data Transferor
- DO = Data Owner
- DSD = Data Service Directory (concept)
- IAL = Issuing Authority Locator
- IDK = Information Desk (concept)
- AS4 = Applicability Statement 4
- C1 = Corner 1, … C*x* = Corner *x*
- SMP = Service Metadata Publisher
- SML = Service Metadata Locator
- DNS = Domain Name System
- IM = Intermediation Pattern
- USI = User Supported Intermediation Pattern

DE4A has received funding from the European Union's Horizon 2020 research and innovation program, under G.A. No. 870635

DE4A Digital Europe For All

Thank you for your attention

Any questions?

Philip Helger, Bundesrechenzentrum
philip@helger.com

DE4A has received funding from the European Union's Horizon 2020 research and innovation programme under GA. No. 870635

Partners

DE4A Digital Europe For All

Atos

ama ADMINISTRATIVE MODERNIZATION AGENCY

DIGG MYNDIGHETEN FÖR DIGITAL FÖRVALTNING Agency for Digital Government

Federal Ministry
Republic of Austria
Labour and Economy

BRZ

EEMA

ICTU

inesc id lisboa

INTERNATIONAL HELLENIC UNIVERSITY

Jožef Stefan Institute
Ljubljana, Slovenia

LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Centre des technologies de l'information de l'État

LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de la Digitalisation

GOBIERNO DE ESPAÑA MINISTERIO DE POLITICA TERRITORIAL

Government of the Netherlands
Ministry of the Interior and Kingdom Relations

Government of the Netherlands
Netherlands enterprise agency

REPUBLIC OF SLOVENIA
MINISTRY OF PUBLIC ADMINISTRATION

REPUBLIC OF SLOVENIA
MINISTRY OF EDUCATION, SCIENCE AND SPORT

Skatteverket

egovlab

TIMELEX

Bolagsverket

UJI UNIVERSITAT JAUME I

Project Contact: Ana Piñuela Marcos, Atos, ana.pinuela AT atos.net

de4a_info@lists.atosresearch.eu

@DE4A_eu

de4a

de4a.eu

DE4A has received funding from the European Union's Horizon 2020 research and innovation programme under GA. No. 870635