

KU LEUVEN



**Inspiring the
outstanding**





Presentation of KU Leuven Public Administration Architecture to the Finnish Government EA Community

- What is EA? PAA?
- Why could it be interesting for a public administration?
- The model
- Some cases / examples
- Practical



Enterprise architecture definition (Snoeck 2014)

It is an “encompassing approach to the architecture of complex and large enterprise systems”

The goal is “to achieve a better operational realisation of the organisation’s **strategic goals**”

Enterprise architecture definition (FEAPOO, 2018)

Enterprise Architecture is a well-defined **practice for** conducting **enterprise analysis, design, planning, and implementation**, using a holistic approach at all times, for the successful development and execution of strategy.

Enterprise Architecture applies architecture principles and practices to guide organizations through the **business, information, process, and technology changes** necessary to execute their strategies.

<http://feapo.org/wp-content/uploads/2018/10/Common-Perspectives-on-Enterprise-Architecture-Final-1-copy.pdf>

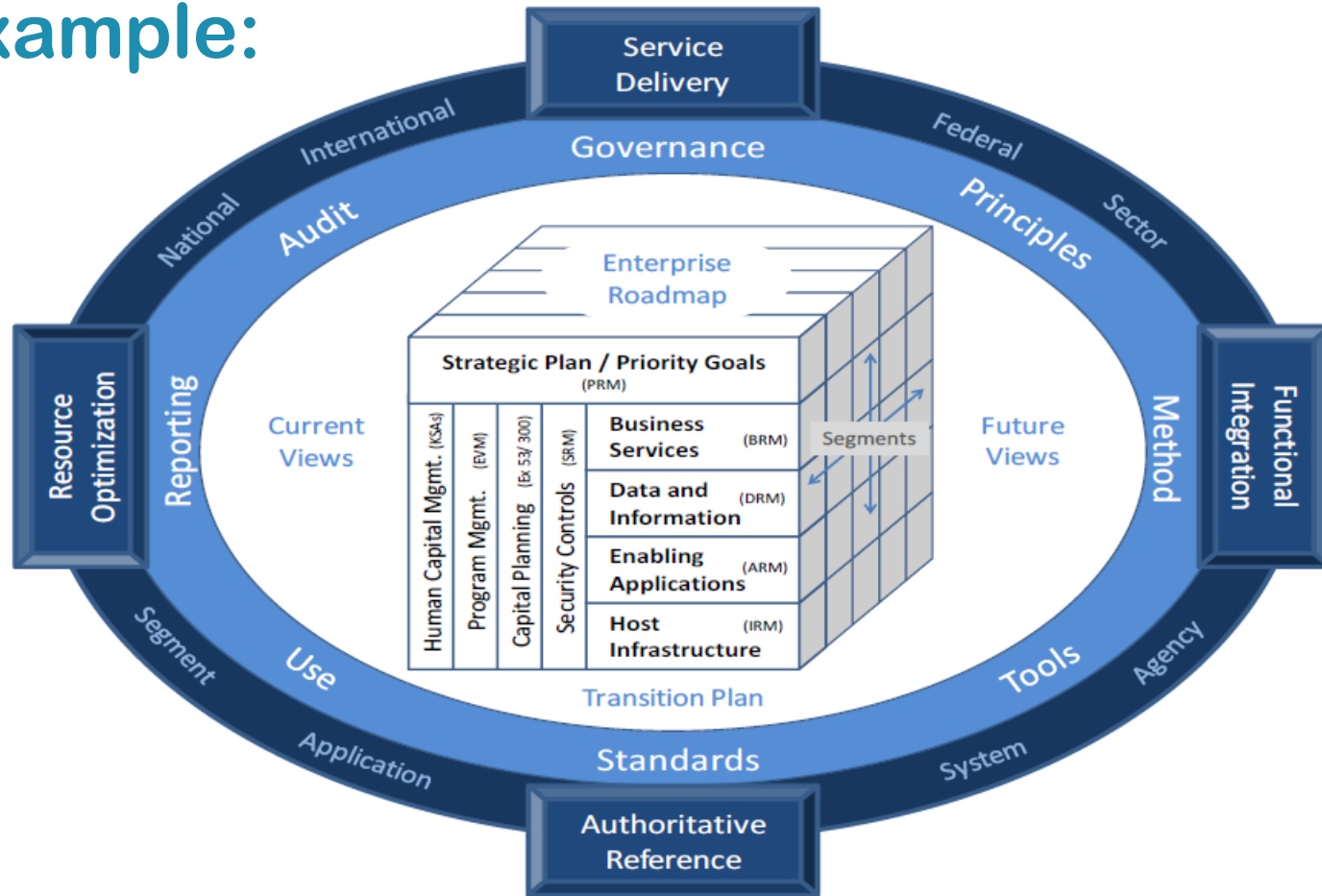


Some Enterprise Architecture examples

And difficulties



EA example: FEAF



<https://obamawhitehouse.archives.gov/omb/e-gov/fea>

More EA examples

- Canada (Bryson 2009)
- Australia: “Developing a whole-of-Government architecture (Wilson 2020)
- Singapore
https://en.wikipedia.org/wiki/Singapore_Government_Enterprise_Architecture
- New Zealand <https://www.digital.govt.nz/standards-and-guidance/technology-and-architecture/government-enterprise-architecture>
- Many more... 67% of countries in the world embarked upon an EA program (Hamood 2019)

Enterprise architecture role / importance in Government (Saha 2009)

“Countries across the world are **pushing their frontiers in governance** in the move to information economy, and governments play a pivotal role in this transformation.

These governments employ modern information and communication technologies to **serve the citizens and businesses better**.

Raising the effectiveness and quality of government services is not only a matter of leading edge technologies;

it also involves **visionary leadership, clear objectives and sound execution mechanism”**

→ To support this is what Enterprise Architecture is good for.

Enterprise architecture in digital transformation (Hosiainluoma et al. 2018)

“To lead the digital transformation to desired direction, organisations need [a] **holistic view on their information assets**.

This kind of information can be achieved by the **appropriate use of EA.**”

OECD promotes EA as good governance

- <https://www.oecd.org/governance/digital-government/toolkit/goodpractices/finland-p7-implementing-enterprise-architecture-in-the-public-sector.pdf>

Description of the practice:

- Organisation: Ministry of Finance, Finland
- Name of the practice: Implementing **Enterprise Architecture** in the Public Sector in Finland
- Principles implemented: Principle 7- Establish effective organisational and governance frameworks to **co-ordinate the implementation of the digital strategy** within and across levels of government
- Description: Act on Information Management Governance in Public Administration (634/2011) **obliges all public administration organizations to develop their architecture**. In doing so they must follow and make use of the Public Administration's common Architecture and its elements.

What are Public Organisations trying to achieve ?

- Align strategic plans with business services;
- Model current and future views (including the transition);
- Support governance, principles, audit and reporting;
- All this at federal, national and international level.

→ <https://obamawhitehouse.archives.gov/omb/e-gov/fea>

→ <https://internationaleainstitute.org/ea-approaches/ea-cube-framework/>

The difficulty

- “Despite the large number of Enterprise Architecture frameworks, **little concrete advice** is to be found on how exactly to create enterprise models”. (Snoeck, 2014)
- “The Federal Enterprise Architecture Program **has not delivered** the expected results (Gaver 2010)
- “In practice, the implementation and use of the [EA] method have been **challenging** as the method is considered **rigid, hard to understand**, and its implementation and use requires a lot of **resources**”. (Hosiaislouma et al. 2018)
- “Around **67% of countries** (in the world) have embarked upon an EA program. [...] Limited literature is available on the details of the **approach followed** by these governments to develop their EA.” (Hamood 2019)

So... how can we proceed ?

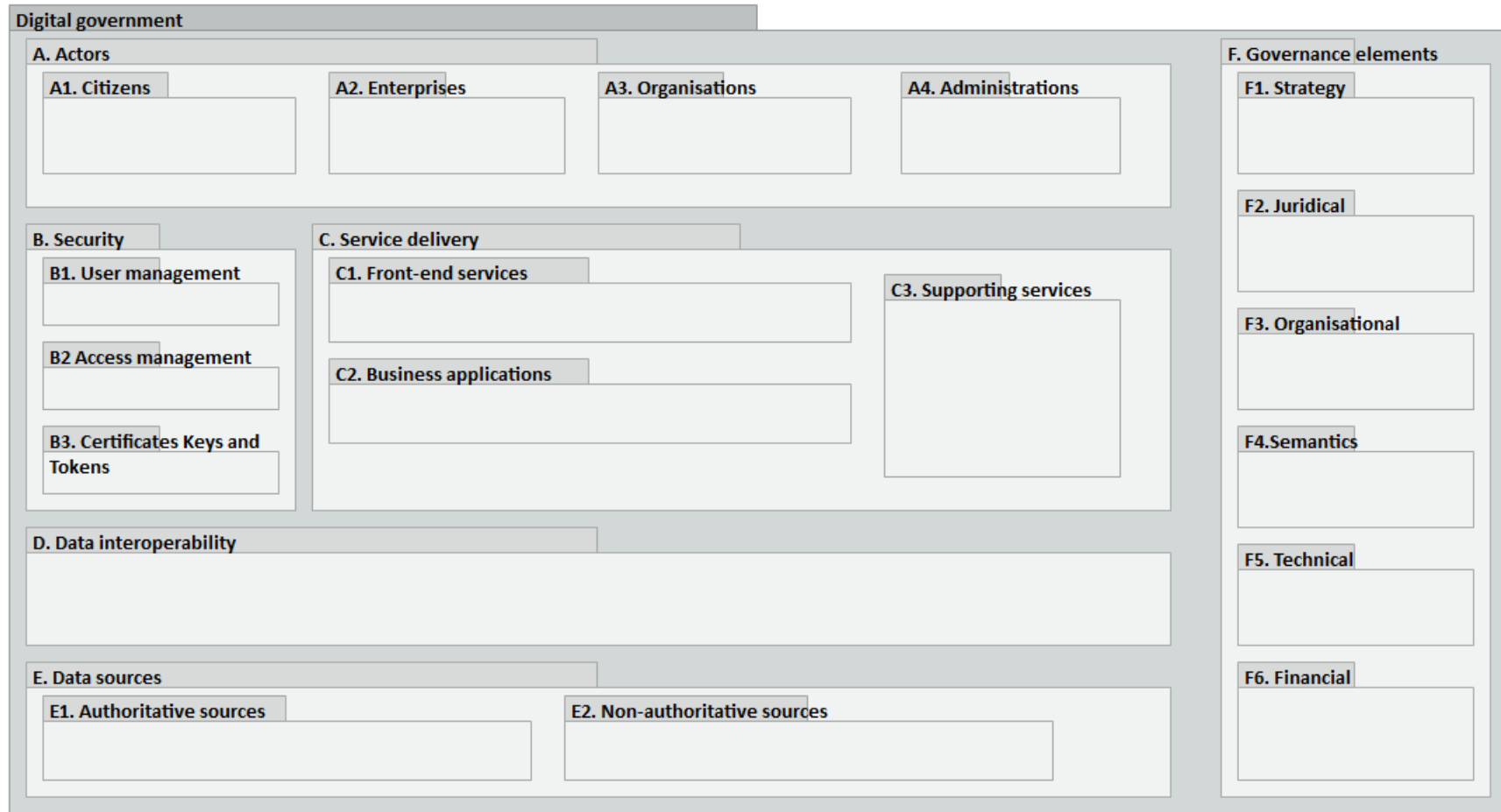
- Enterprise Architecture seems to be a **very useful tool** to bring together all elements needed in **Digital Public Governance**
- Existing methodologies are **heavy**
- Much of the work is concentrating on the **private sector**

→ We need a **specific approach** for the public sector

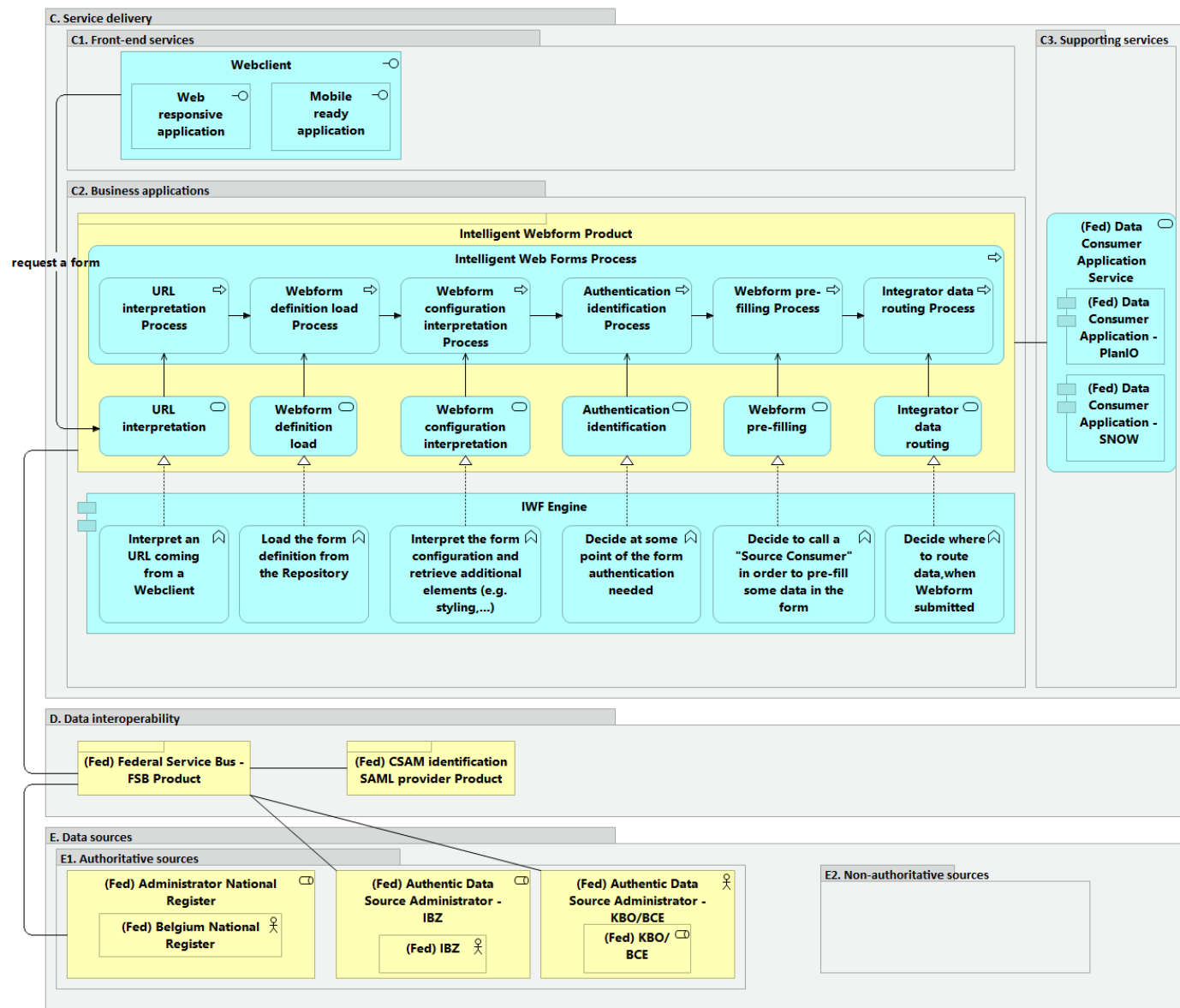
Proposed solution



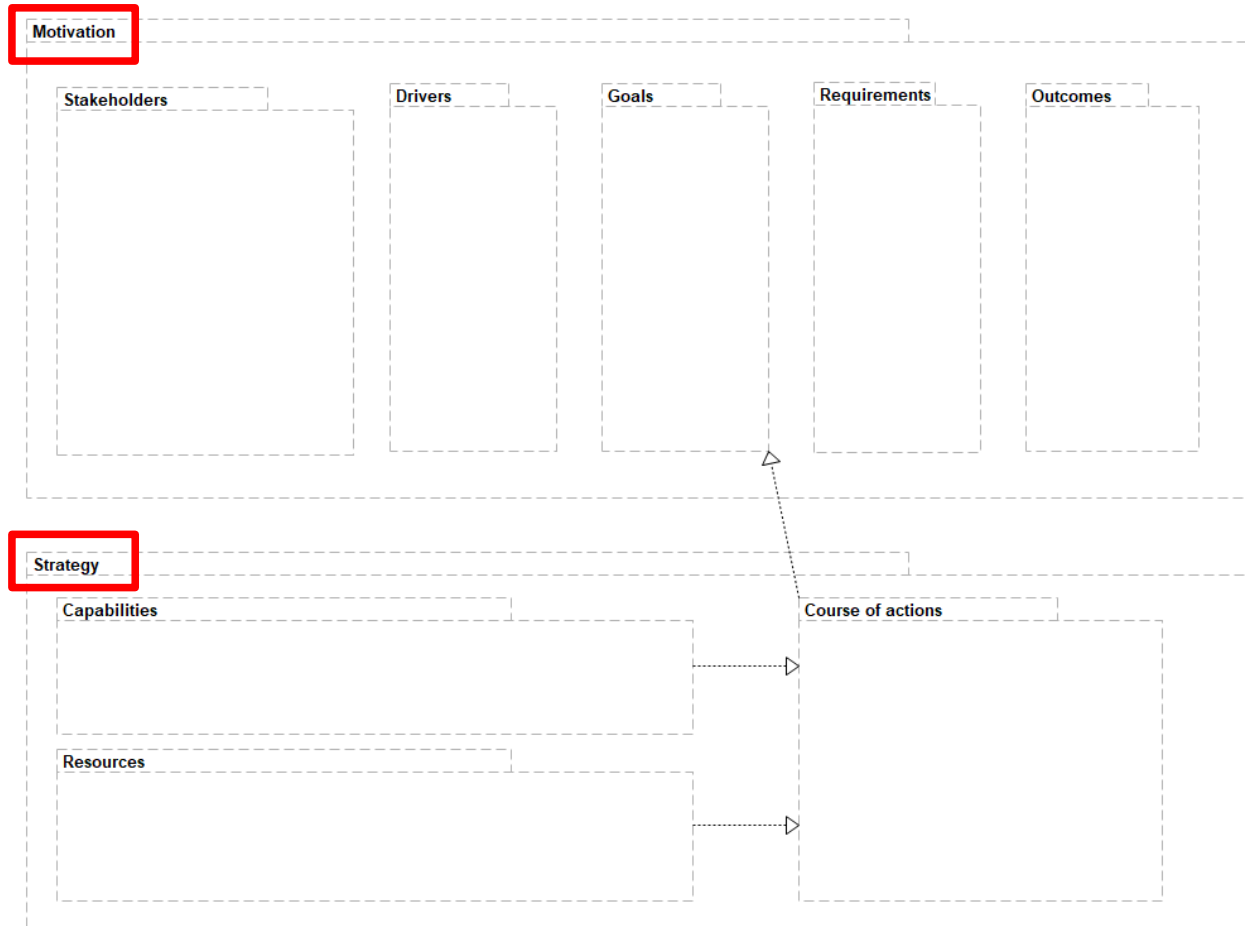
In previous work in Belgium, a mapping framework was developed (Wouters & Cromptoets, 2017)




















This was used successfully in Flanders and at BE Federal level

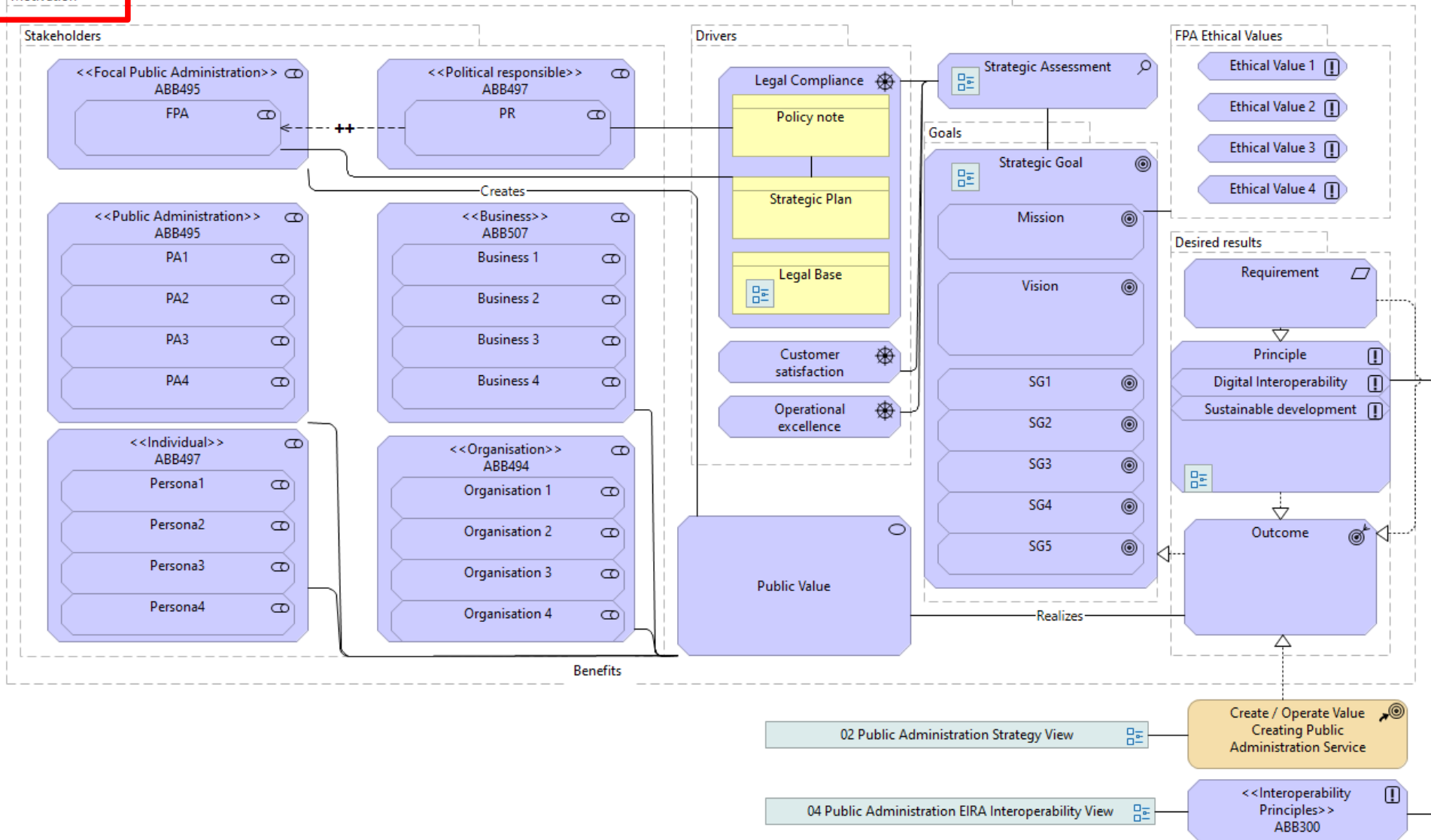


The current work extends this with a “Motivation” and a “Strategy” layer

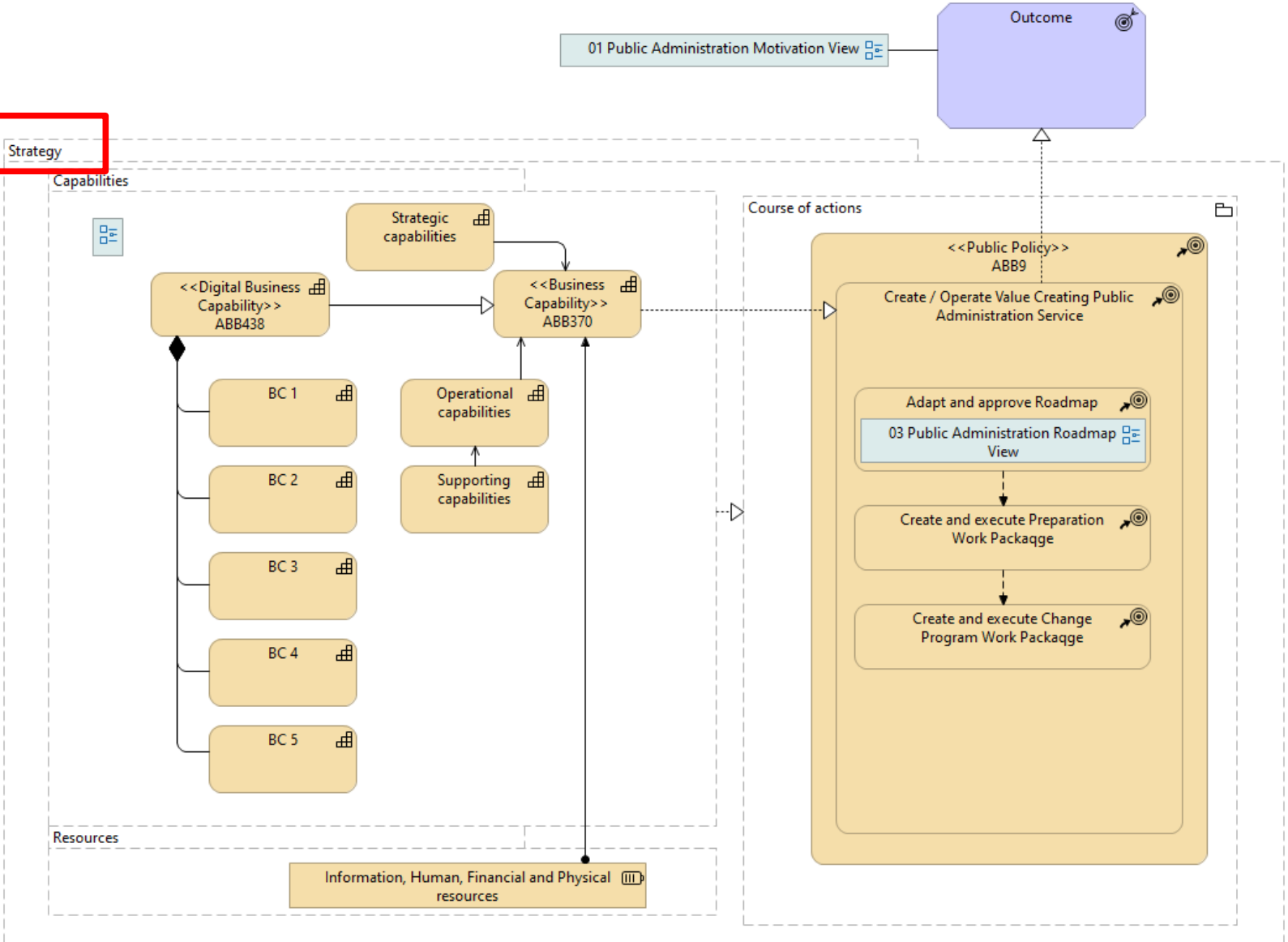


Proposed solution : Public Administration Architecture (organisation level)

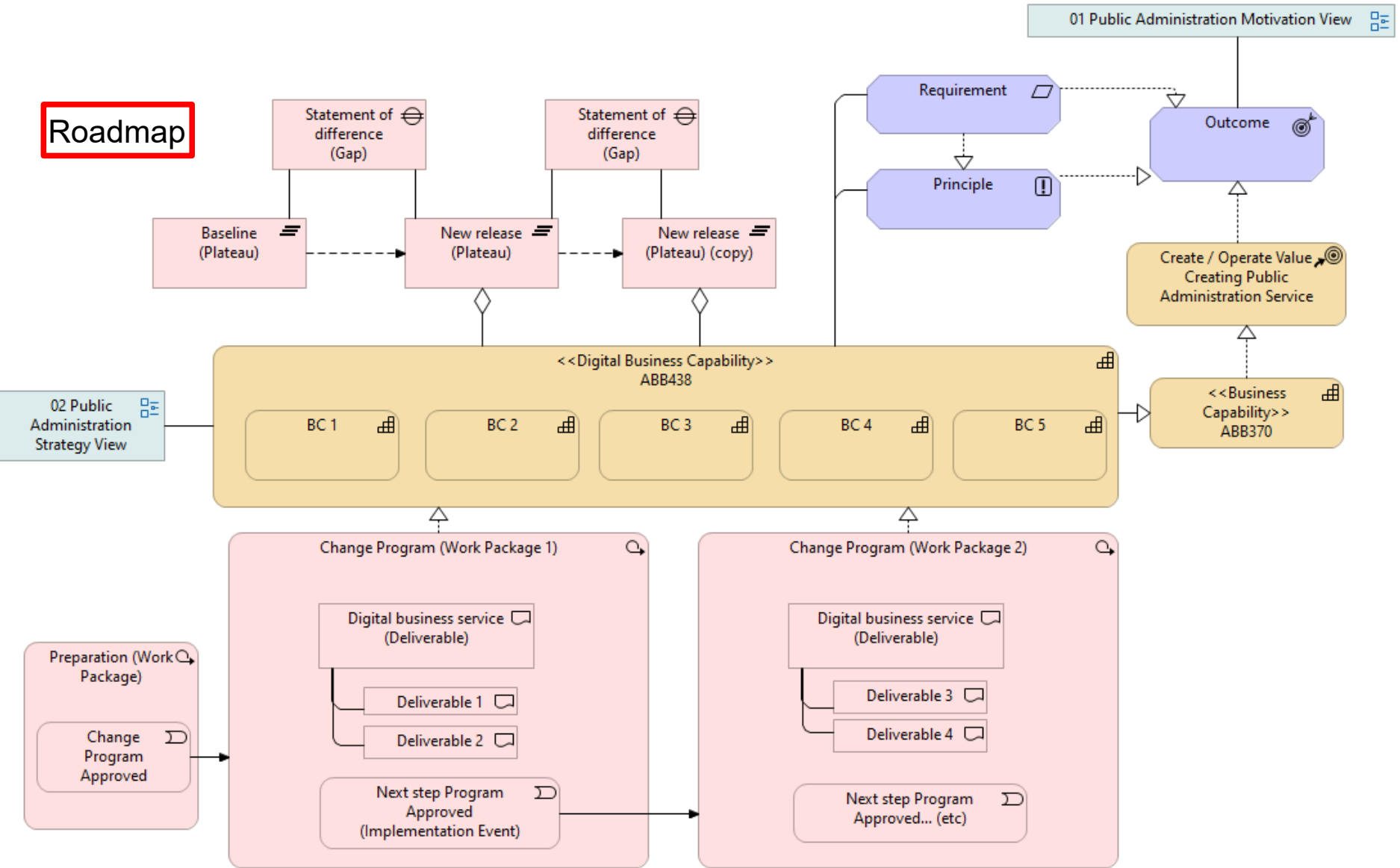
- ▼  KU Leuven PAA 2406
 - >  Strategy
 - >  Business
 - >  Application
 - >  Technology & Physical
 - >  Motivation
 - >  Implementation & Migration
 - >  Other
 - >  Relations
 - ▼  Views
 - ▼  PAA
 - >  Architecture Detail Views
 - >  Public Services
 -  01 Public Administration Motivation View
 -  02 Public Administration Strategy View
 -  03 Public Administration Roadmap View
 -  04 Public Administration EIRA Interoperability View



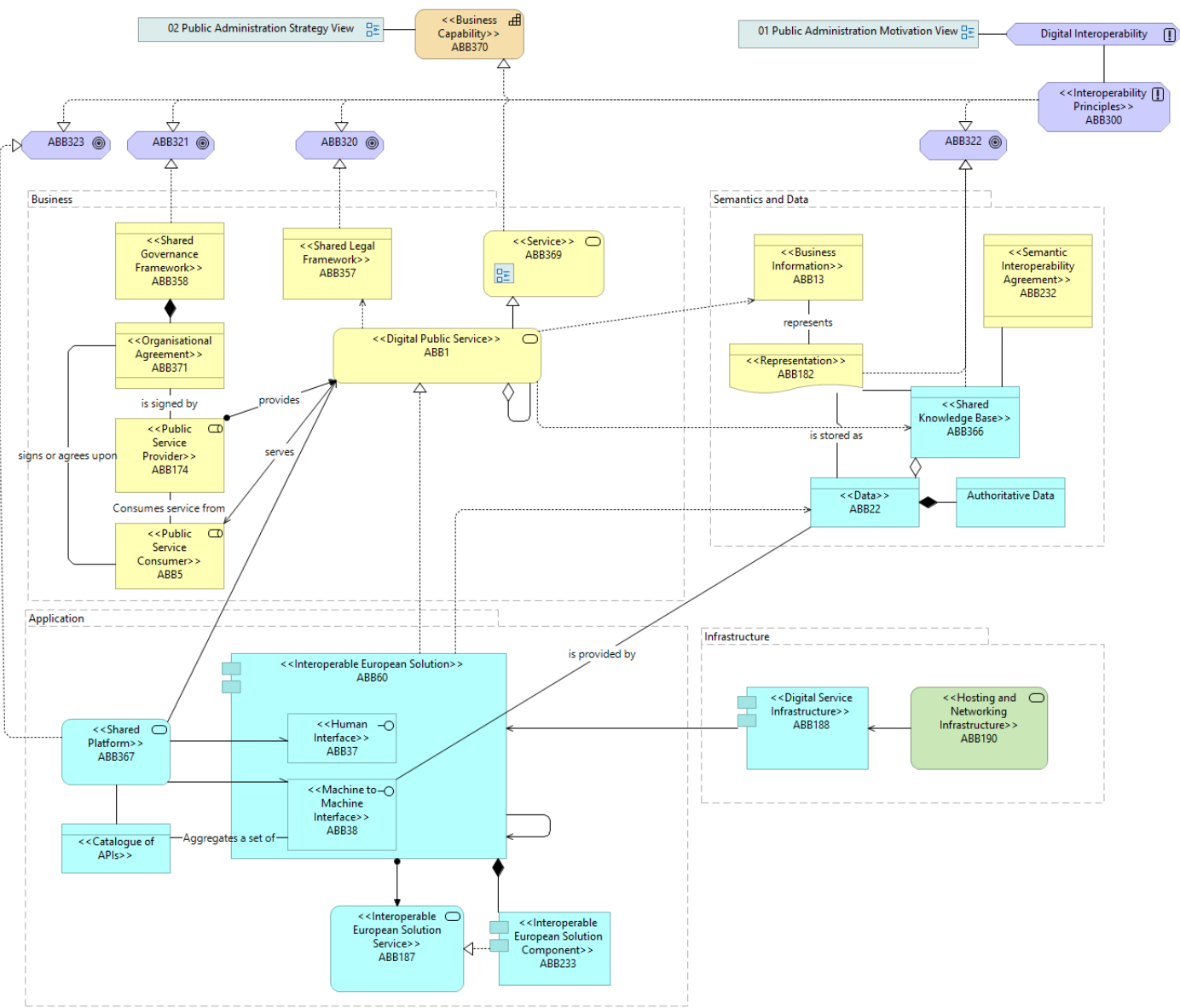
Strategy



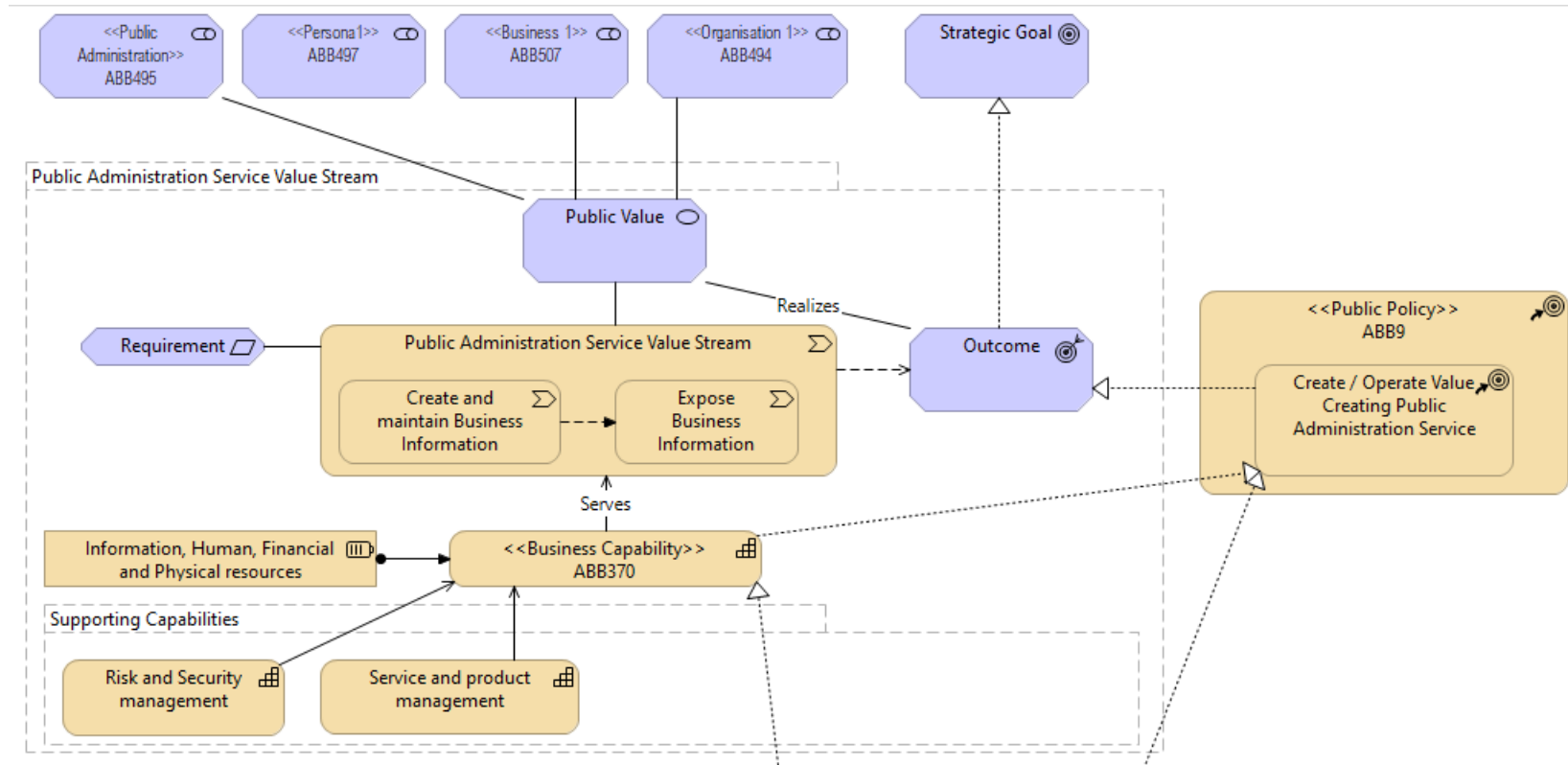
Roadmap



Eira Interoperability



Proposed solution : Public Administration Architecture (service level)



Why a Public Administration Architecture (PAA)?

- Specifically developed with **Public Administrations** in mind
- A way of safeguarding the **strategy** in comparison with the evolution of the organisation
- A means to describe **as is** and **to be** of the organisation, including the path
- A management method to **bridge the gap** between management decisions and the operational teams
- A way to evolve to a dynamic and **agile** organisation

PAA is based upon TOGAF and EIRA

The
TOGAF[®]
Standard — *Version 9.2*



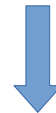
Architecture Framework



Reference Architecture



(Solution Architecture Templates)
Public Administration Architecture Template



Public Administration Architecture

Based upon the work of the Belgian Digital Transformation office



- The work was started at FPS Policy and Support, **Digital Transformation Office** (2019-2020)

KU LEUVEN

- Cooperation with KU Leuven and experienced architects from **Flanders region and private sector**
- KU Leuven created a **generalised version** to be applied by other Organisations → PAA
- Discussed and commented upon by **European Commission** -> **EA alignment in EIRA 6**



- This was applied successfully in another organisation : **National Geographic Institute**



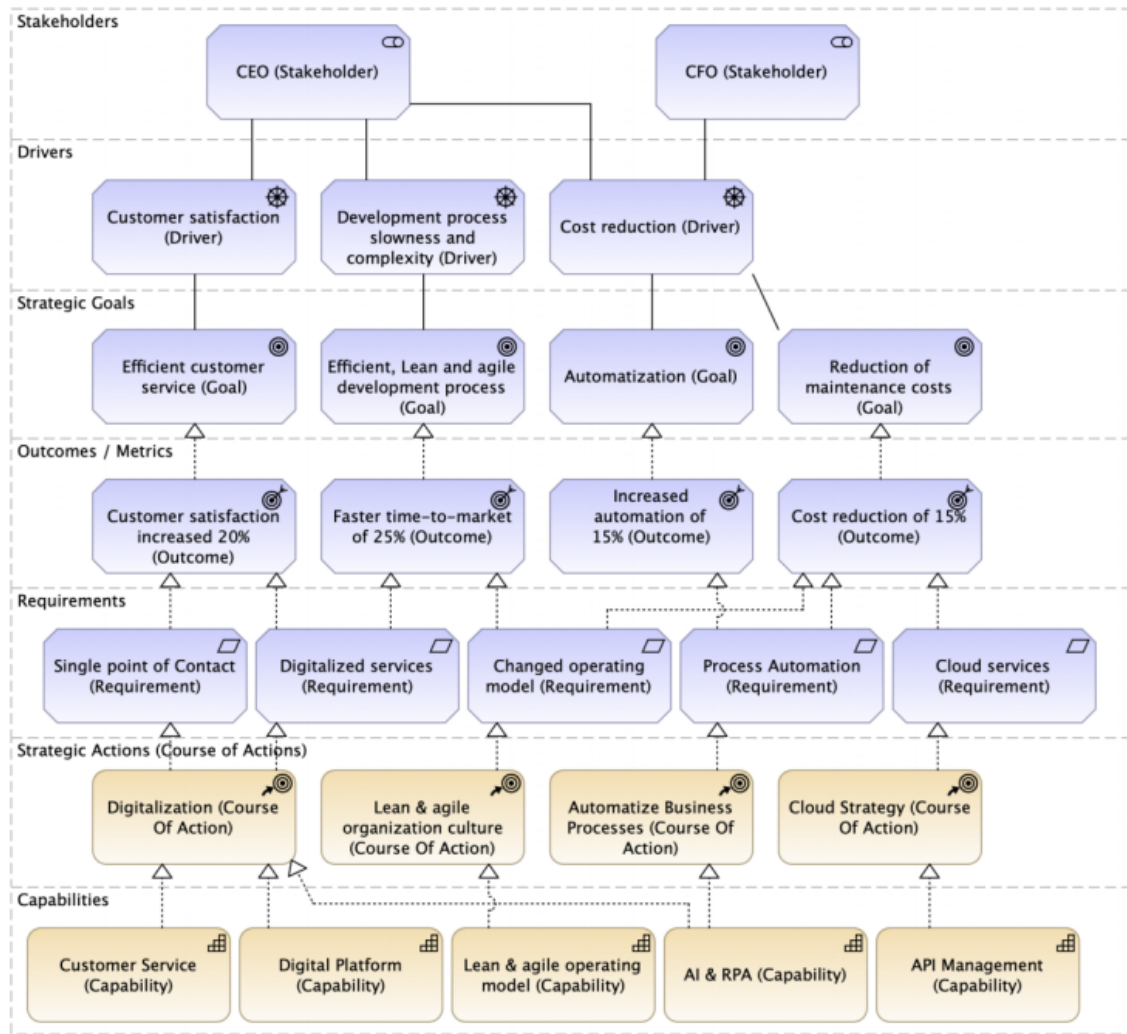
In PAA the relationships between the ArchiMate concepts are based upon the TOGAF metamodel and EA design patterns

Source:

<https://pubs.opengroup.org/architecture/archimate31-doc/chap06.html>

Source:

<http://www.hosiaislouma.fi/ArchiMate-Cookbook.pdf>



Some use cases where PAA was applied

- DG Simplification and Digitalisation (FPS BOSa) was the base
- National Geographic Institute as “early adopter”
- Public Governance Institute (an “organization”, not an “administration”)
- OECD TA 3.0 working group

By students and postgraduate students (Motivation view)

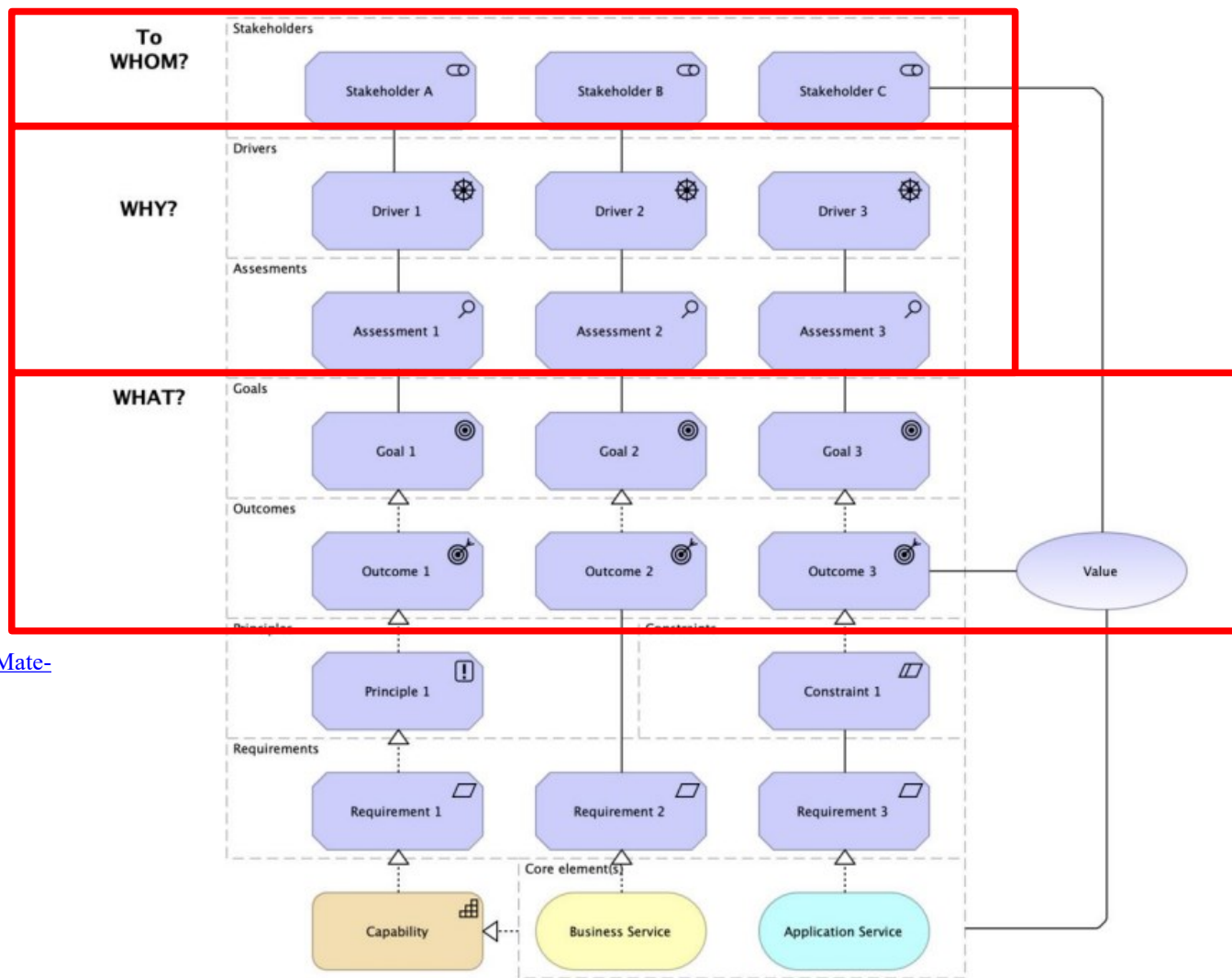
- Newcomers’ services (Leuven)
- Bike tracking system (Leuven)
- Social Housing (Flanders)
- Administrative support service for Flemish parliament
- FPS Finance
- Federal Buildings Agency
- deLink VZW (Non-profit organisation for poverty field experts)

Public Administration Architecture: HOW ?

Choices...

- **Archi** and **archimate** (language) were chosen as a simple and useful first step
- This was the choice of **Flanders** and **KU Leuven**
- This was supported by the **European Commission** who published the **European Interoperability Framework (EIF)** and the **European Interoperability Reference Architecture (EIRA)**
- Alternatives were much more difficult to start with

Motivation view



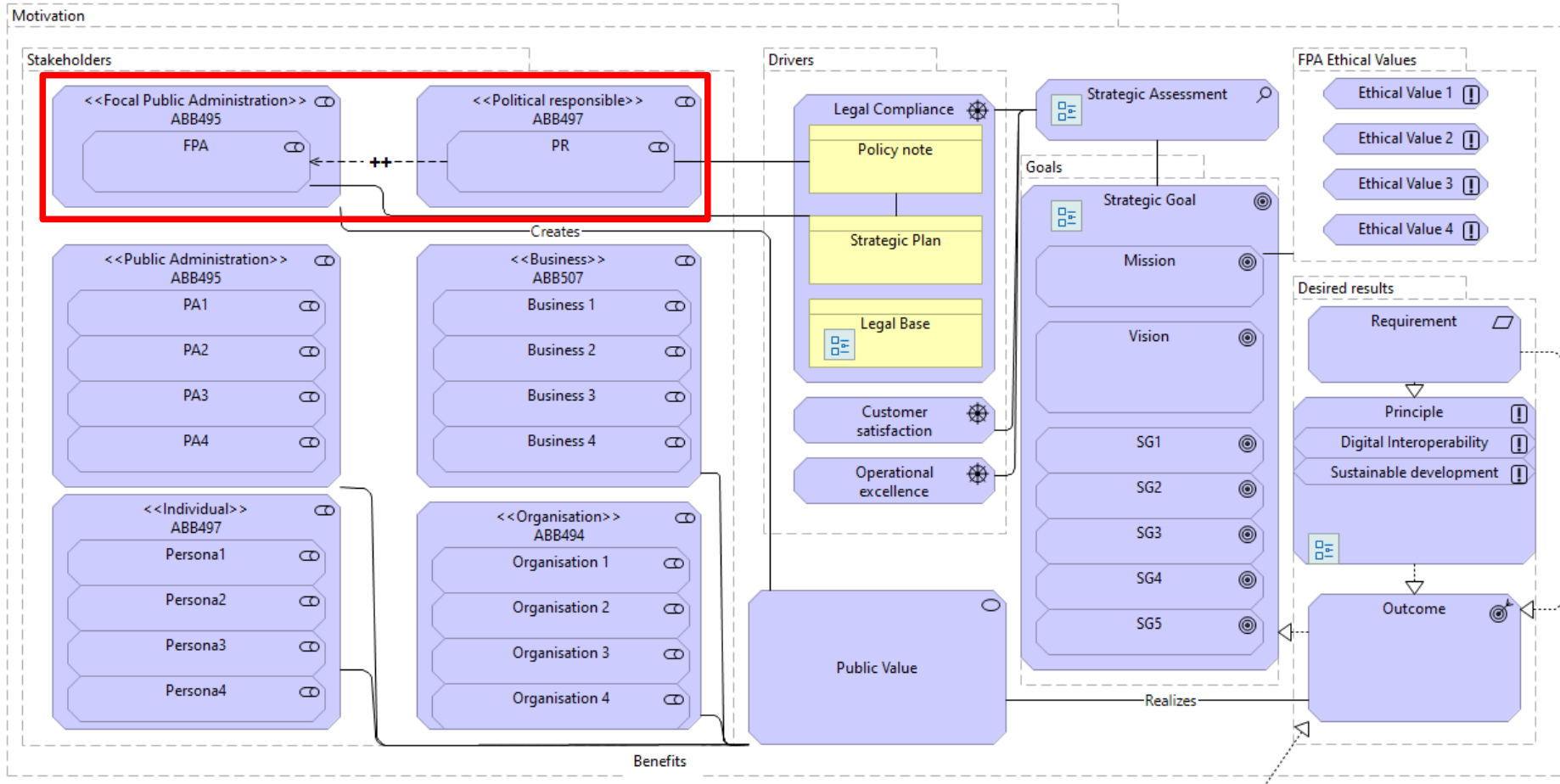
Source:
<http://www.hosiainluoma.fi/ArchiMate-Cookbook.pdf>

PAA

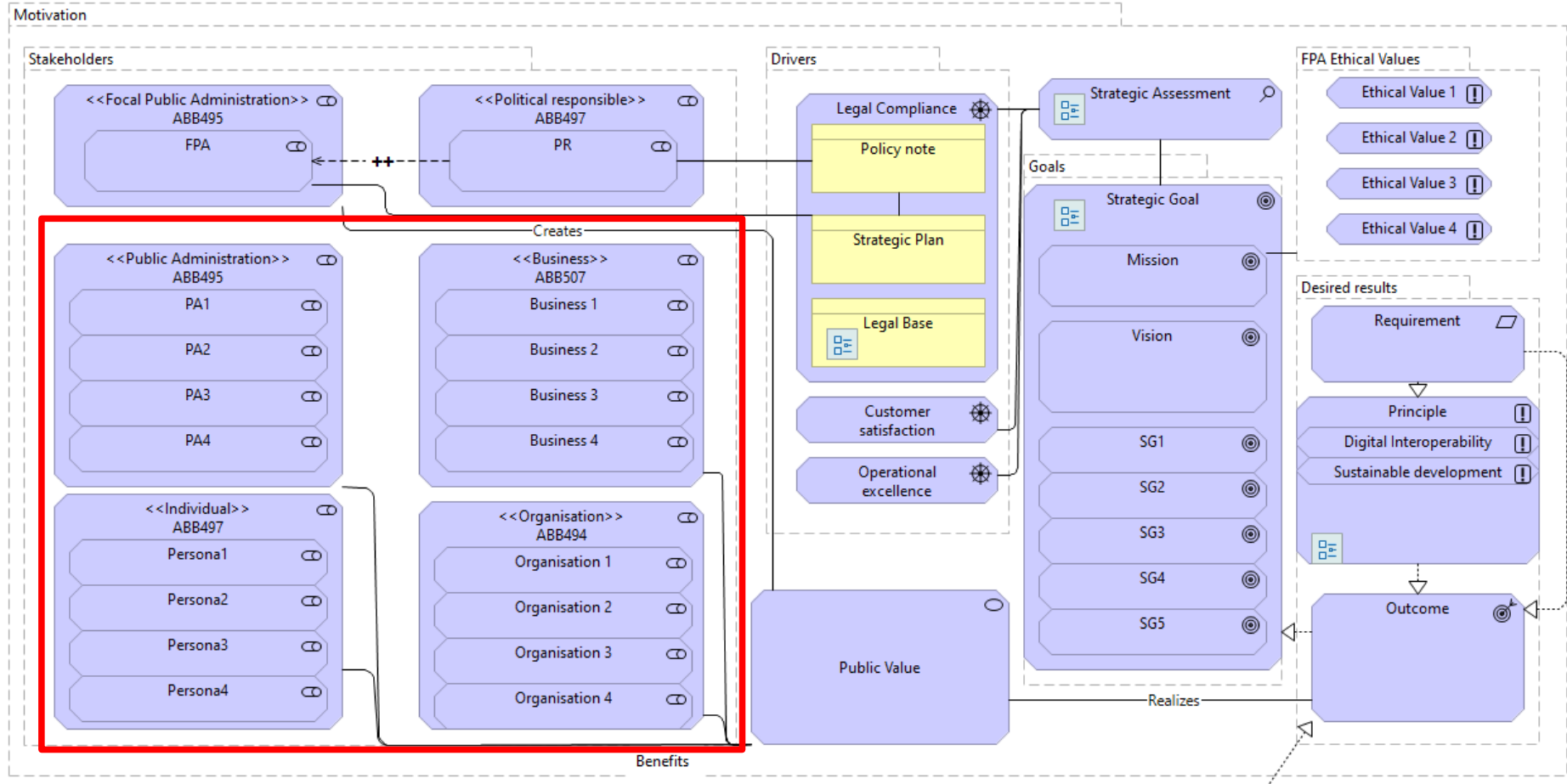
Public Administration Architecture

The model

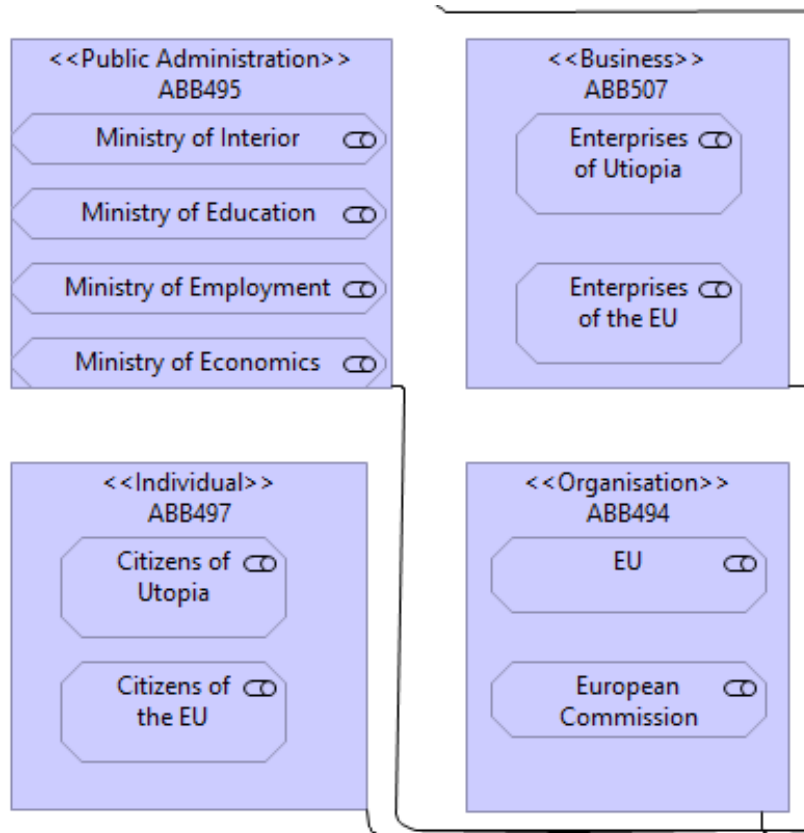
The Focal Public Administration and the Political Responsible



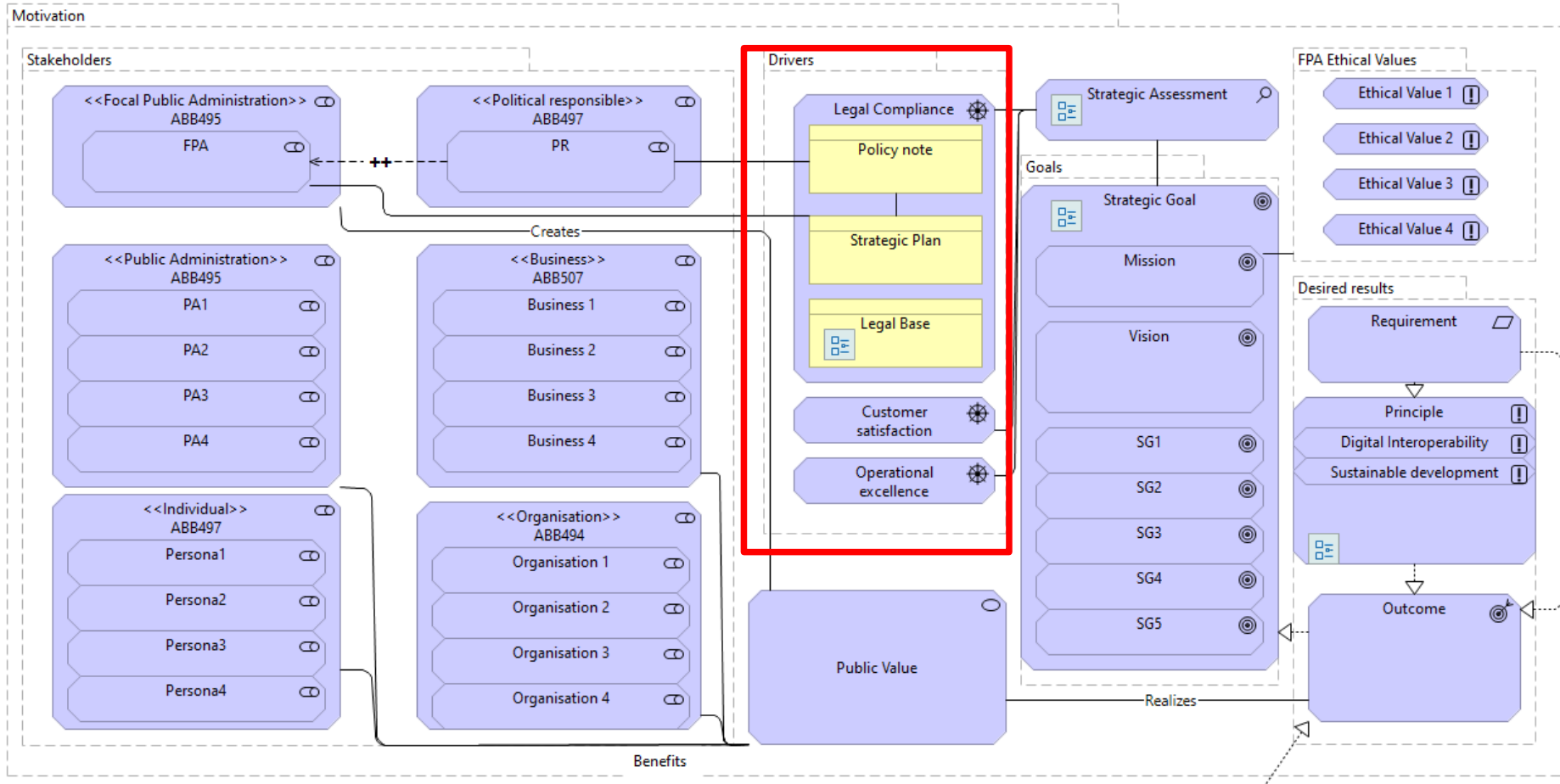
The Stakeholders: contributors and beneficiaries



The Stakeholders



Drivers (why do we exist)



Drivers: Why do we exist ? Why do we change ?

- Policy

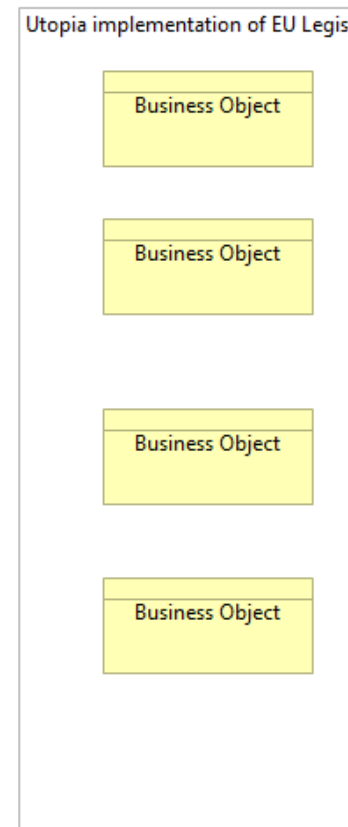
- https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en

- Strategic plan of DTA:

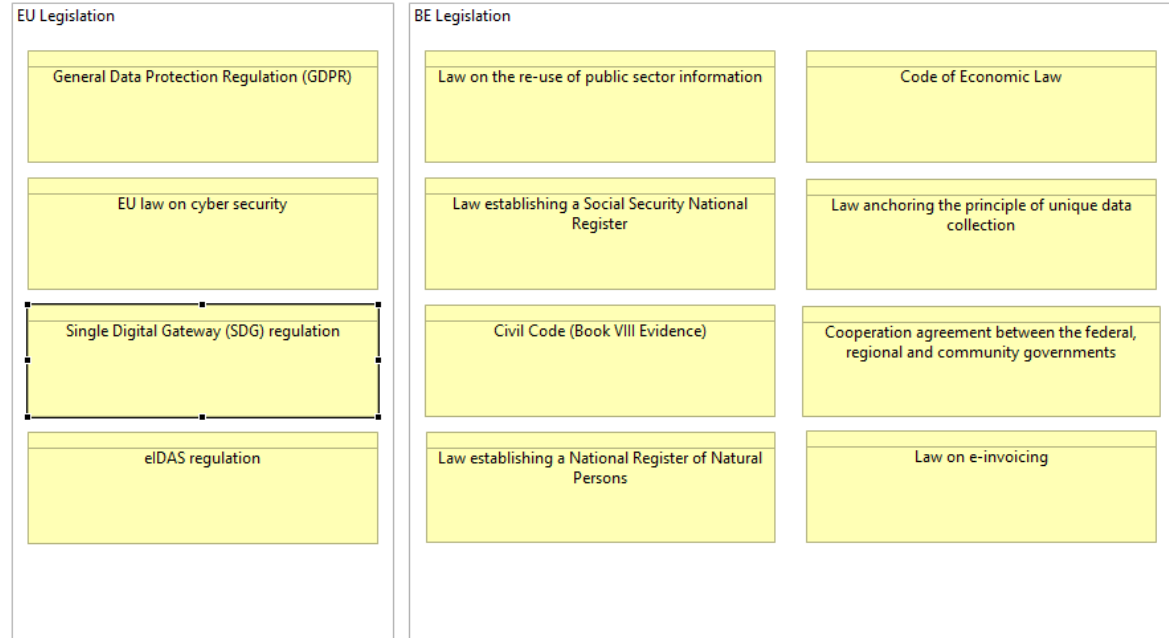
- <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0574>

Drivers: Separate Legal Base View

- GDPR, SDGR, Privacy, are already in the template
- With the appropriate links inside the documentation



Legal base view

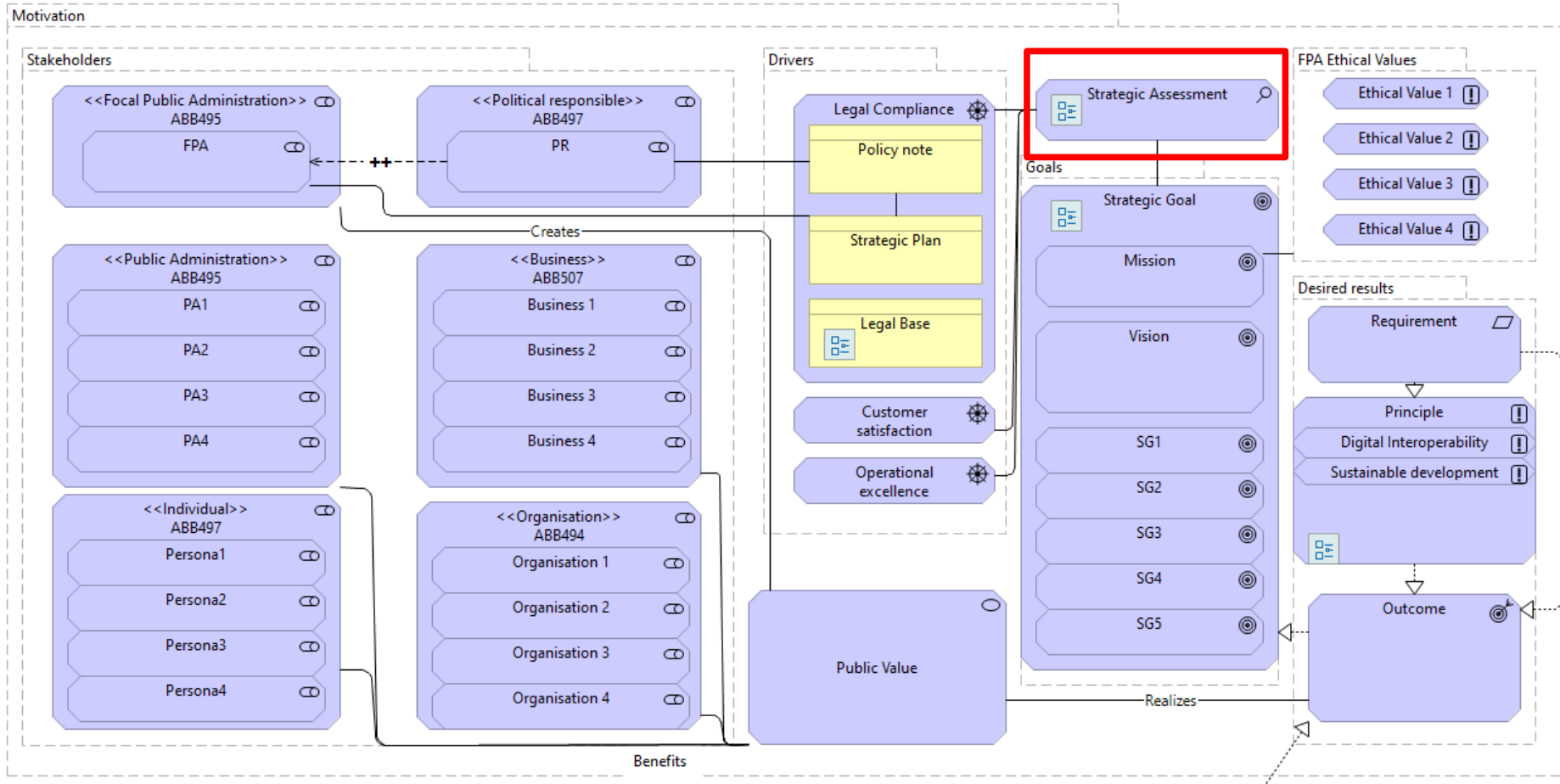


Properties × Visualiser Validator

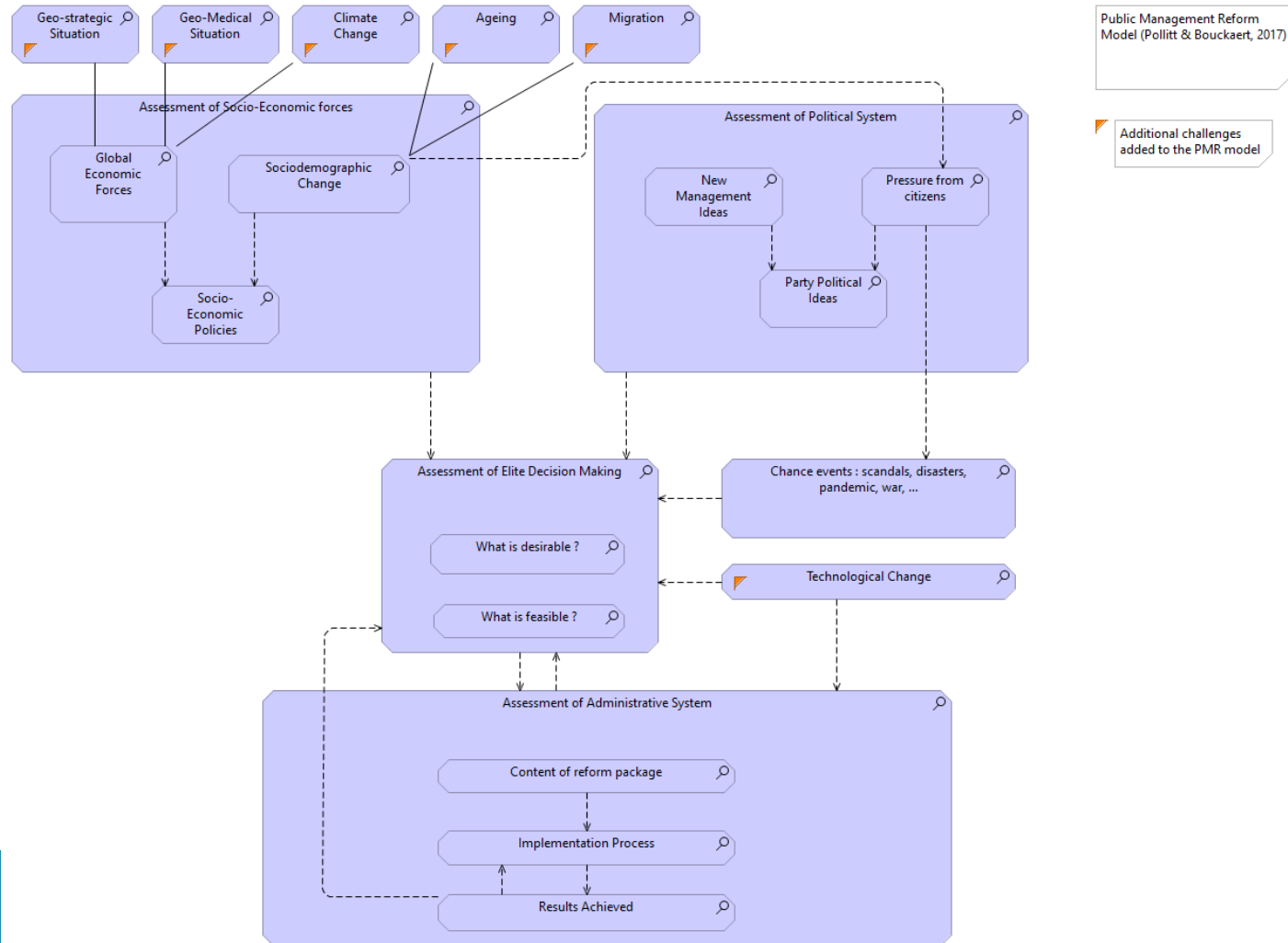
Single Digital Gateway (SDG) regulation (Business Object)

| | | |
|-------------|-----------------|--|
| Main | Specialization: | (none) |
| Properties | Name: | Single Digital Gateway (SDG) regulation |
| Analysis | Documentation: | Regulation (EU) 2018/1724 of the European Parliament and of the Council of 2 October 2018 establishing a Single Digital Gateway and to assistance and problem-solving services and amending Regulation (EU) No 1024/2012 (Text with EEA relevance) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.295.01.0001.01.ENG |
| Appearance | | |

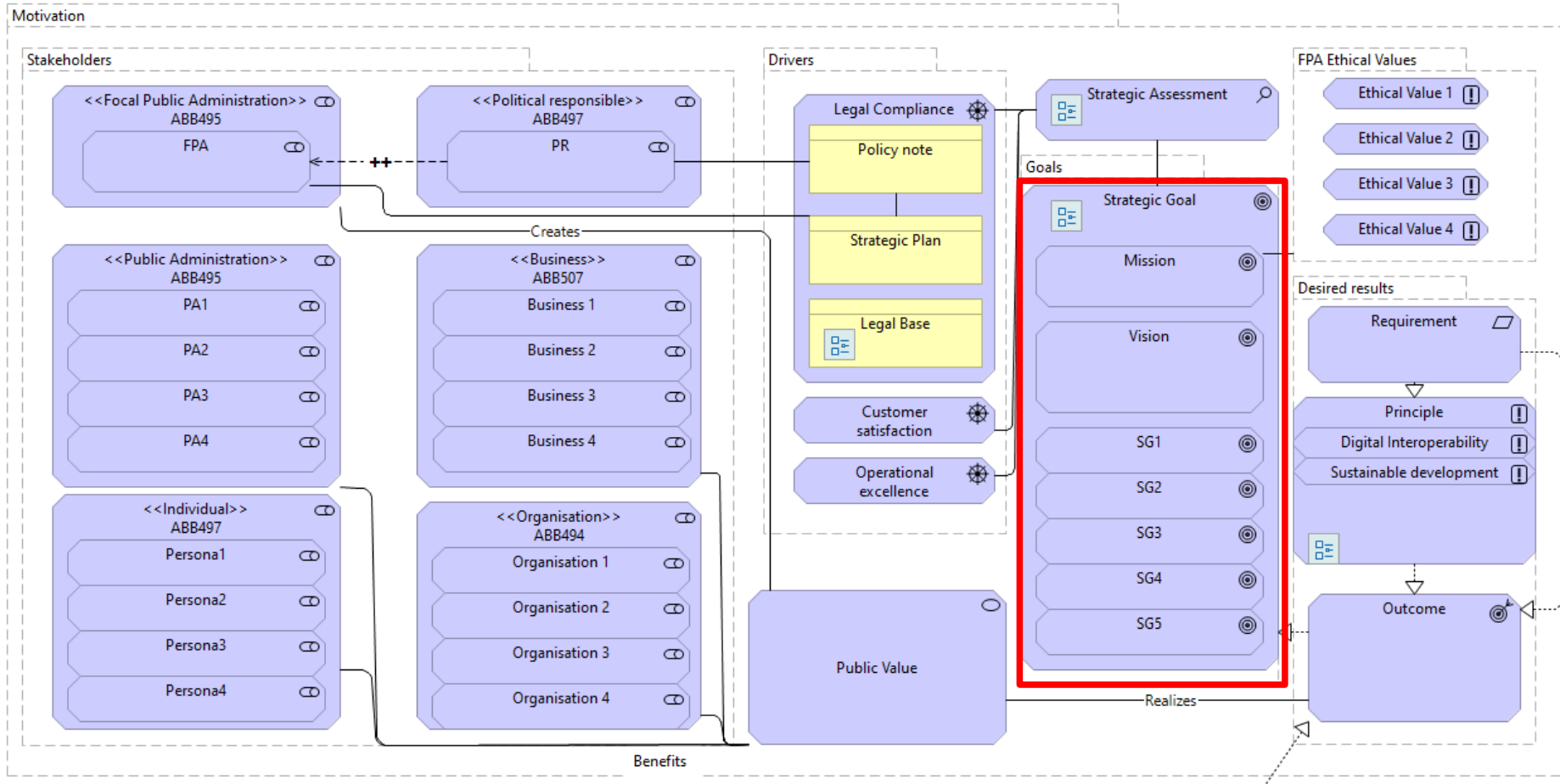
Strategic Assessments: SWOT, PESTEL, ...



The Public Management Reform model helps in making Strategic Assessments



Mission, Vision and Strategic Goals



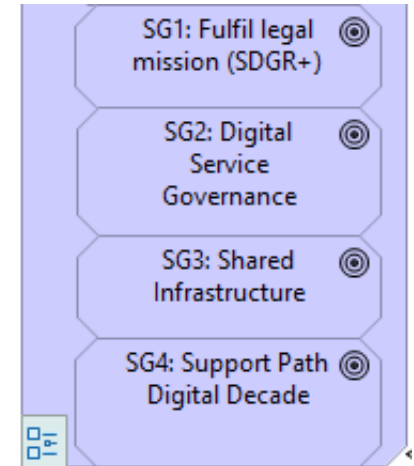
Mission, Vision

- **Mission: catchy oneliner** to define who you are
 - To digitize and innovate Utopia
- **Vision: a forward-looking statement** of what the organisation wants to be, to achieve, to become
 - By realising the requirements of the Single Digital Gateway Regulation before the end of 2024, DTA will substantially help the nation of Utopia, their citizens and their enterprises to become a Digital and Innovative nation.
Because Utopia can not exist on its own, the close integration with the other member states will further help to achieve these important strategic goals.
Realising the GDPR, Cybersecurity and EIDAS regulations will help to reach these important strategic goals with respect for the individual rights of Utopian and European Citizens and Enterprises.



Strategic Goals – the “WHAT”

- Fullfill the legal mission of DTA (Implement GDPR, SDGR, Cybersecurity and EIDAS)
- Create integrated digital service governance for Utopia (IEF Recommendation 20)
 - Ensure holistic governance of interoperability activities across administrative levels and sectors.
- Develop a shared infrastructure of reusable services and information sources (IEF Recommendation 36, 37, 40) (included some text in the documentation)

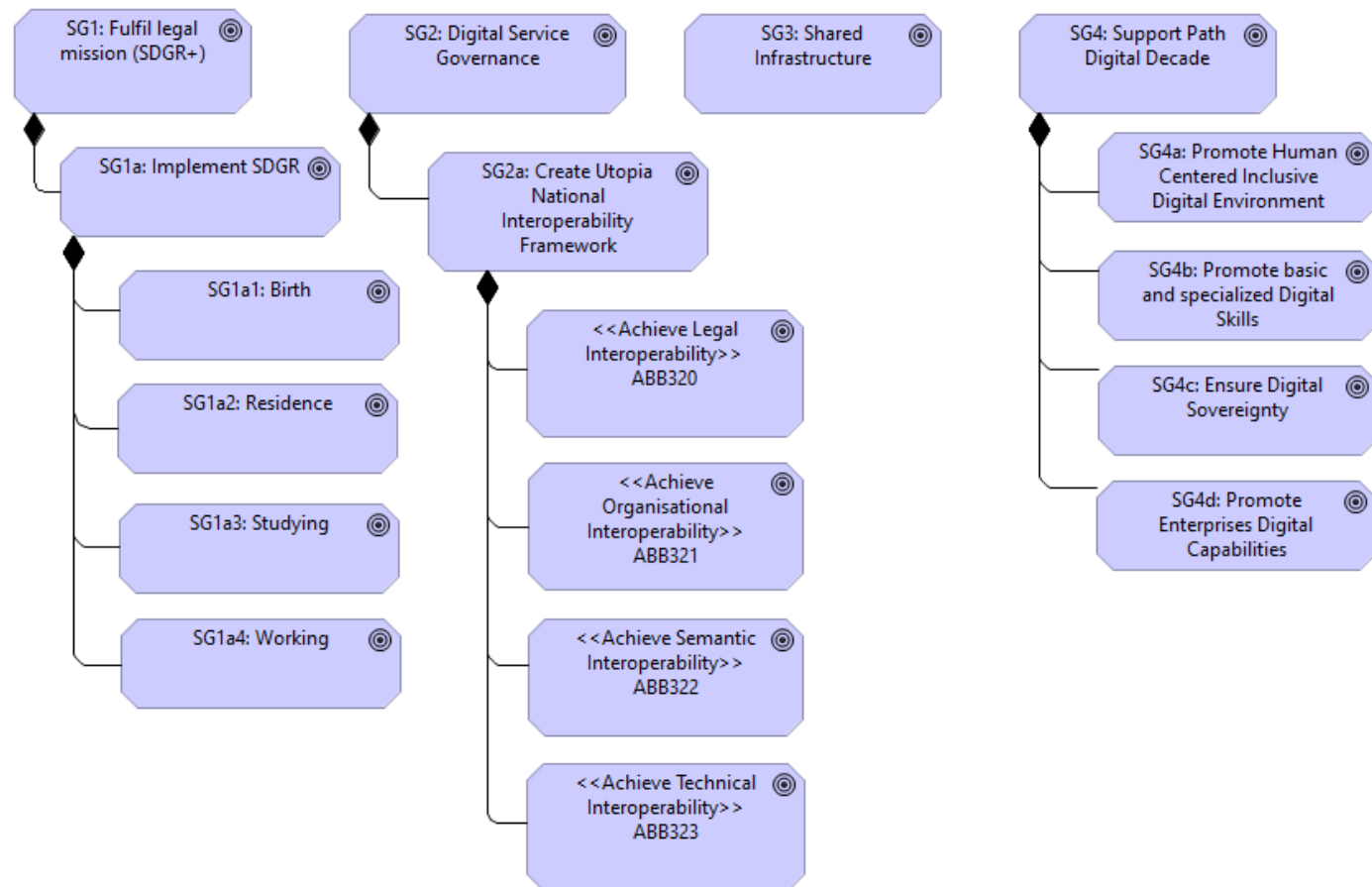


Strategic Goals – SG4 Support path Digital Decade

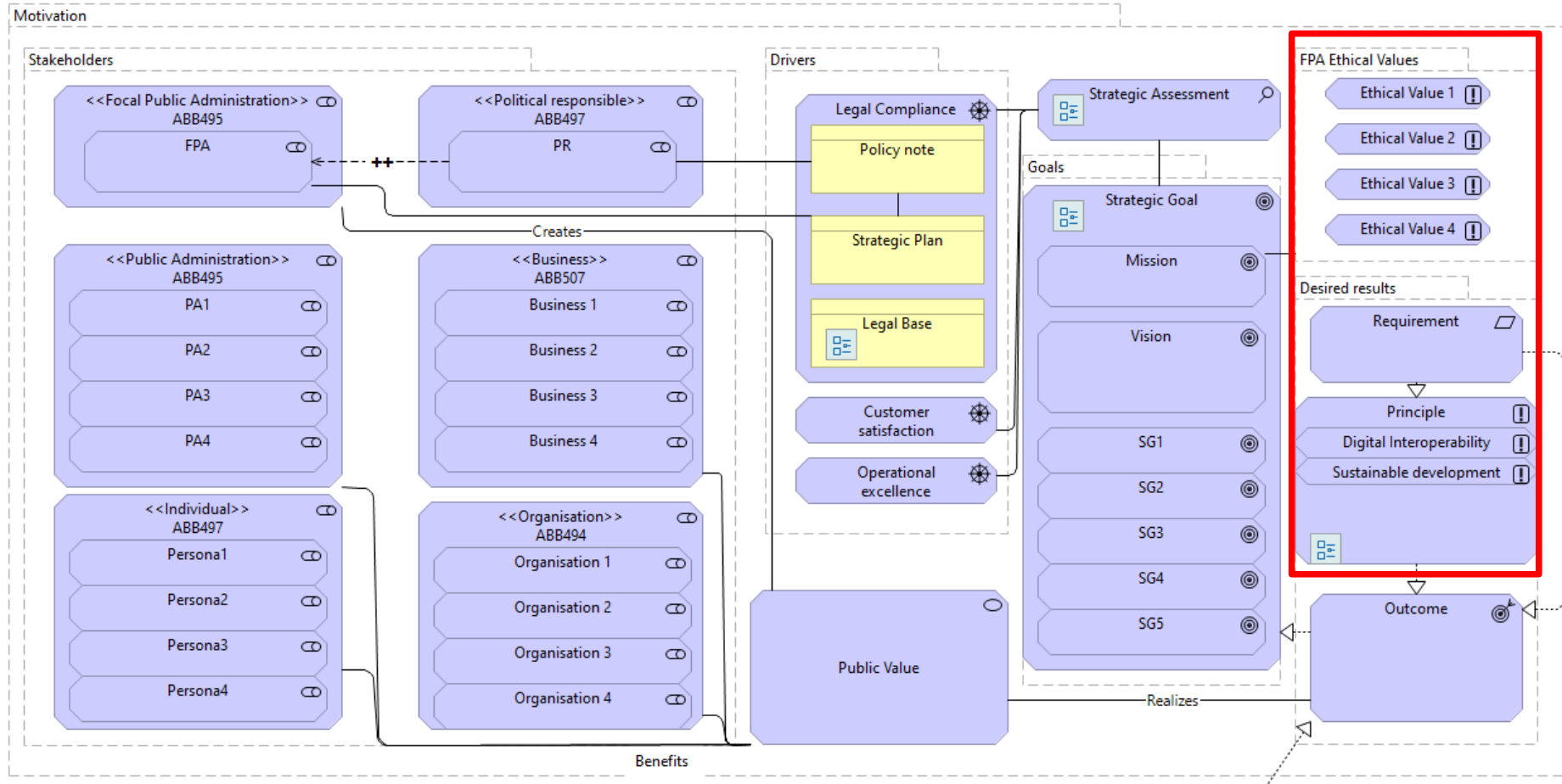
2030 Policy Programme “Path to the Digital Decade” Article 2 : The Union institutions and the Member States shall cooperate to support and achieve the following general objectives:

- a) promote a human-centered, inclusive, secure and open digital environment where digital technologies and services respect and enhance Union principles and values;
- b) reinforce Member States’ collective resilience and bridge the digital divide notably by promoting basic and specialised digital skills for all and fostering the development of high-performing digital education and training systems;
- c) ensure digital sovereignty notably by a secure and accessible digital infrastructure capable to process vast volumes of data that enables other technological developments, supporting the competitiveness of the Union's industry;
- d) promote the deployment and the use of digital capabilities giving access to digital technologies and data on easy and fair terms in order to achieve a high level of digital intensity and innovation in Union’s enterprises, in particular small and medium ones;

Strategic Goals view (click-through):



Ethical values, Requirements and Principles



Ethical Values, Requirements and Principles

The Ethical Values ("Public Values") of the Digital Transformation Agency are defined in a Policy Note, e.g.

https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en

People at the centre

- Digital technologies should protect people's rights, support democracy, and ensure that all digital players act responsibly and safely. The EU promotes these values across the world.

Freedom of choice

- People should benefit from a fair online environment, be safe from illegal and harmful content, and be empowered when they interact with new and evolving technologies like artificial intelligence.

Safety and security

- The digital environment should be safe and secure. All users, from childhood to old age, should be empowered and protected.

Solidarity and inclusion

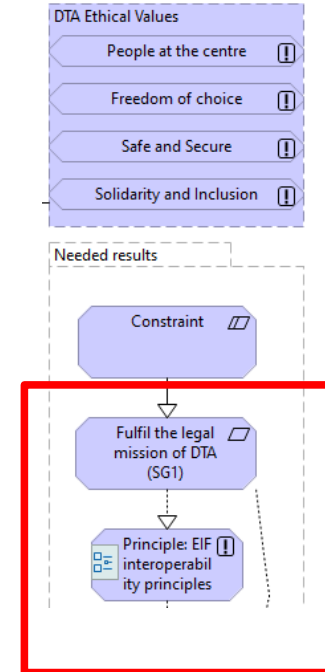
- Technology should unite, not divide, people. Everyone should have access to the internet, to digital skills, to digital public services and to fair working conditions.

Ethical Values, Requirements and Principles

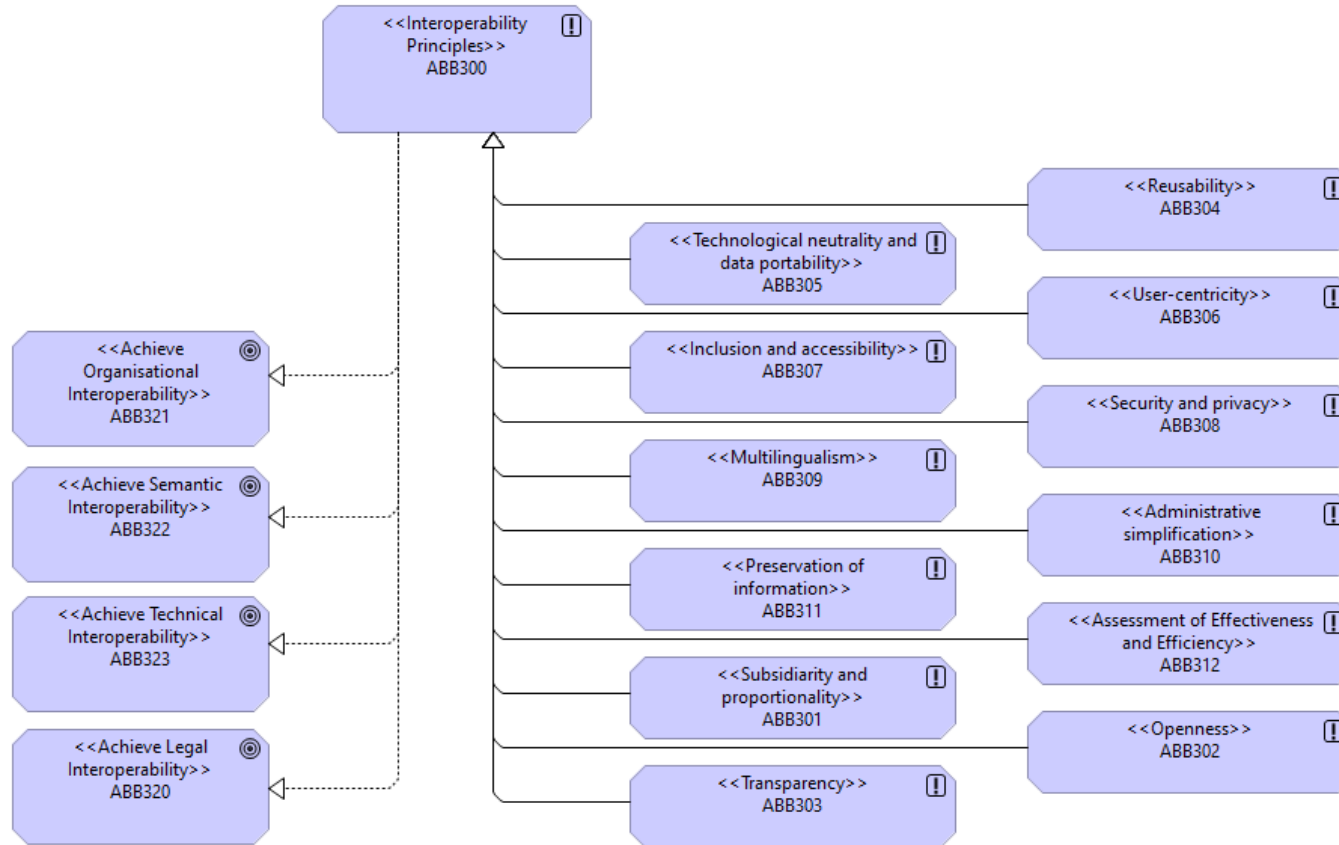
Requirement “Fulfill the legal mission of DTA” follows directly from the Strategic Goal SG1

Principle “Follow the EIF interoperability principles” comes from SG2

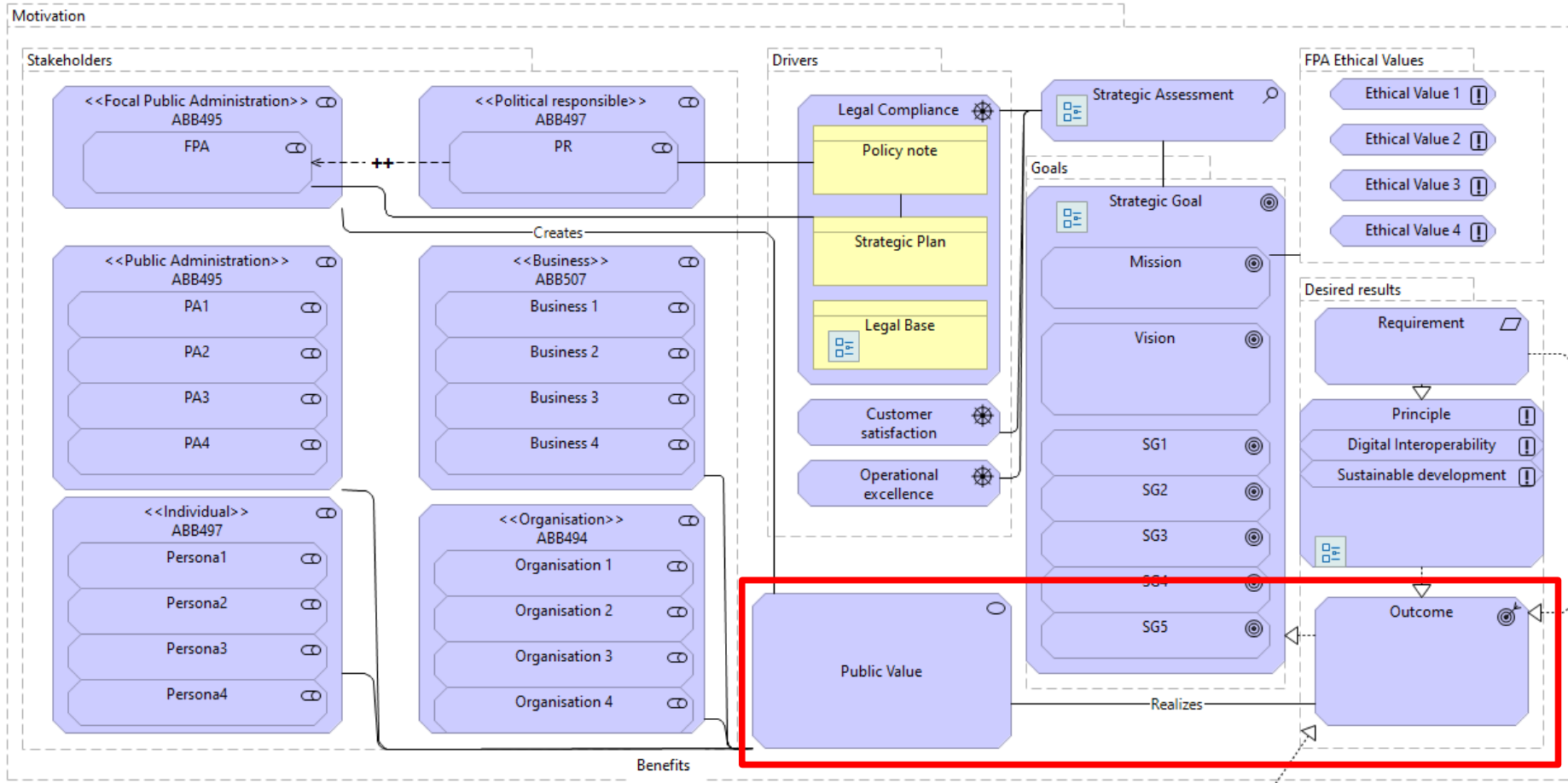
The 12 IoP principles are in a separate view



IoP Principles (each with some explanation)



Outcomes and Public Value



Outcomes and Public Value

Outcome: 100% of SDGR services in 2024

For DTA specifically, by the end of 2024:

Deliver 100% of SDGR services + web based assistance and problem solving

For Utopia as a whole, by 2030: (Art. 4 of the Strategic Plan)

Digitally skilled population and digital professionals

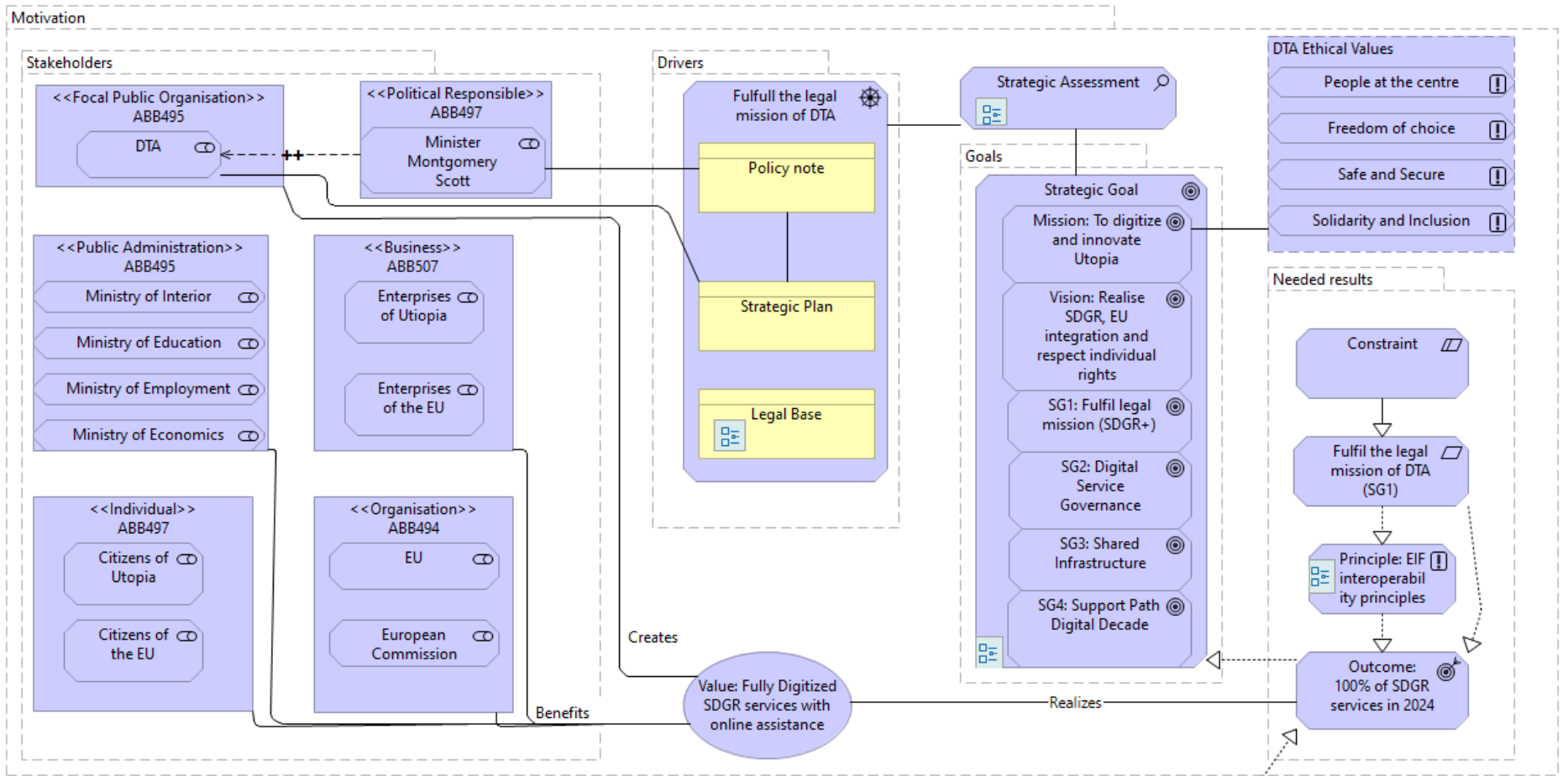
Secure digital infrastructure

Digital transformation of businesses

Digitalisation of Public Services

Value: Fully Digitized SDGR services with online assistance

“Utopia” motivation view

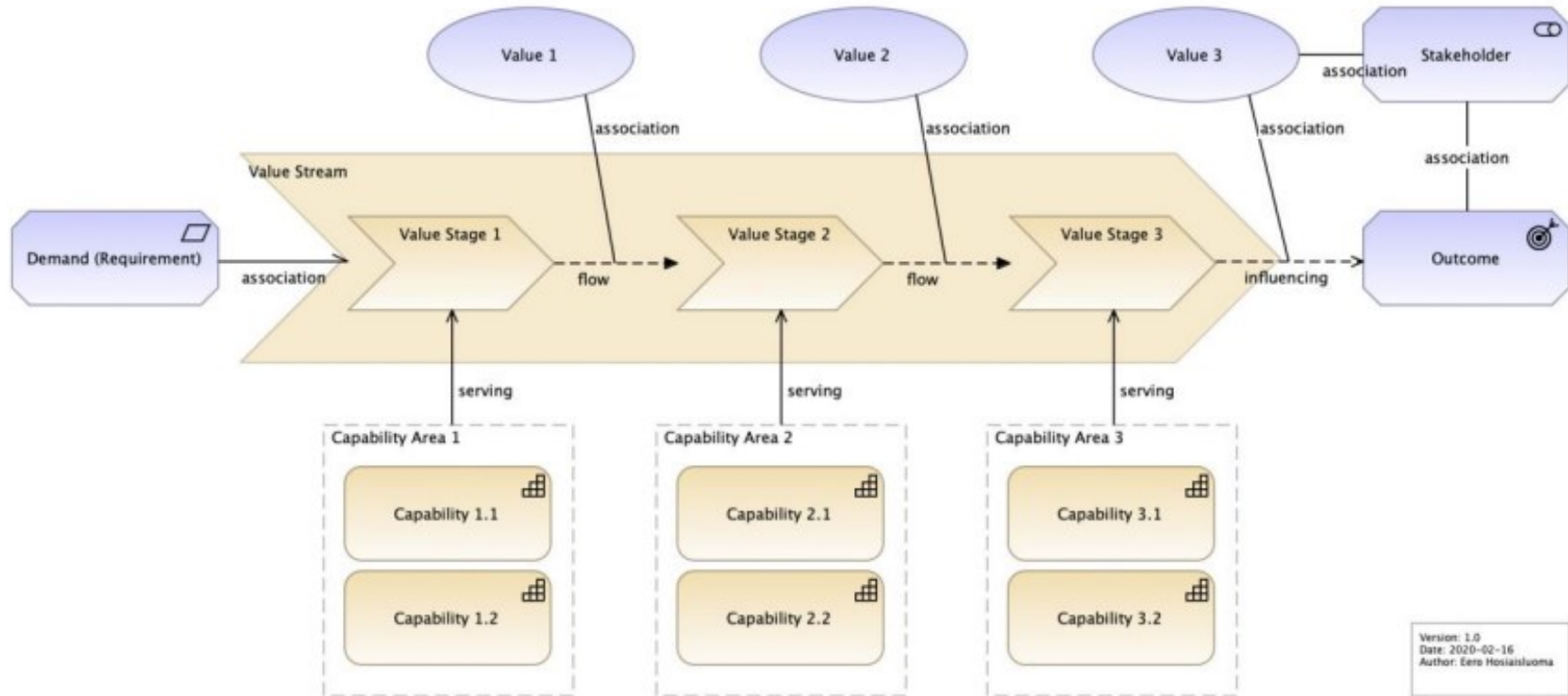


Further steps: the Strategy Layer

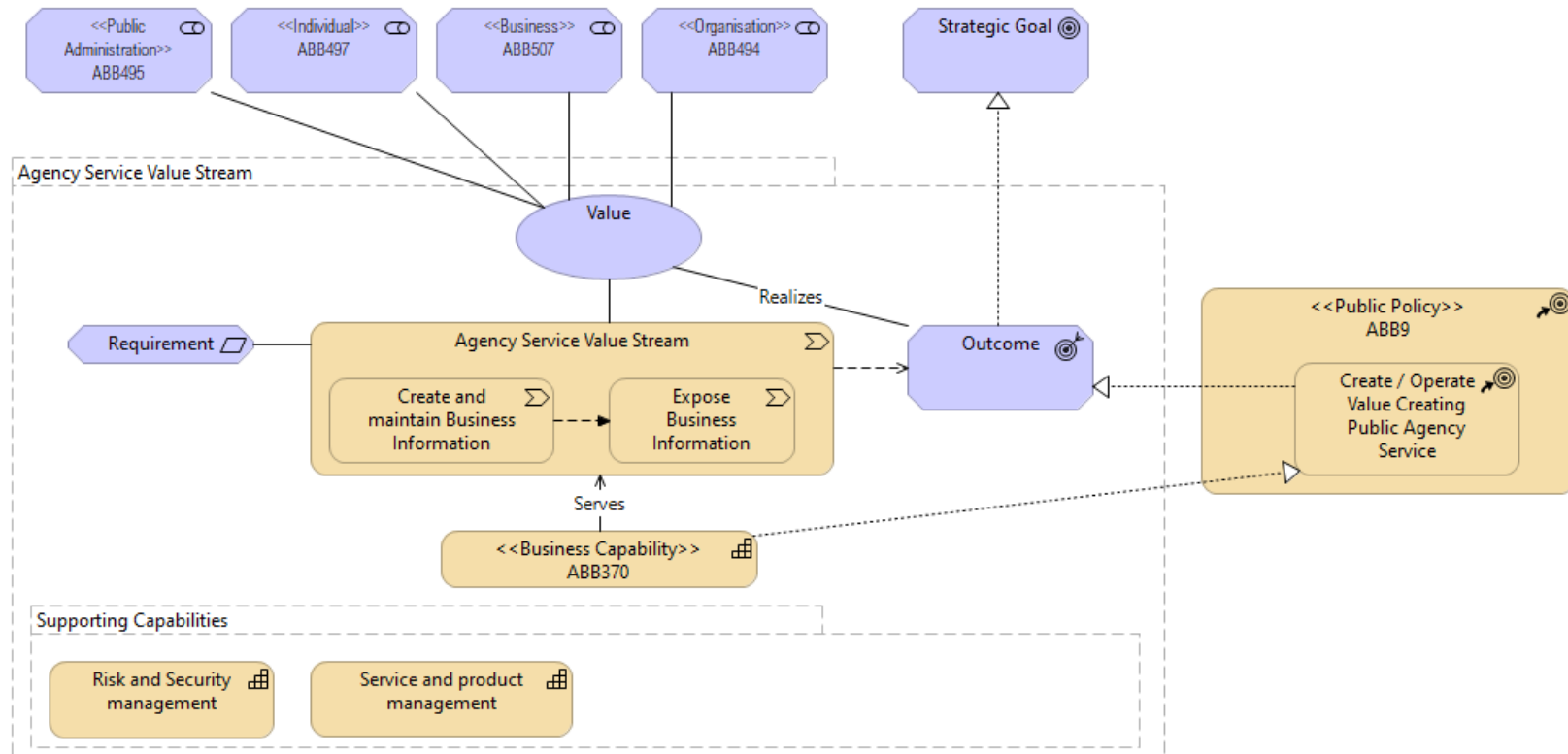
How is the strategy realised ?

- All the “Motivation layer” elements culminate in the Outcomes creating Public Value.
- How are Outcomes realised ? By the services that are delivered by the Focal Public Organisation.
- How can services be modeled in Archi / Archimate on a strategic level ? → Archimate cookbook

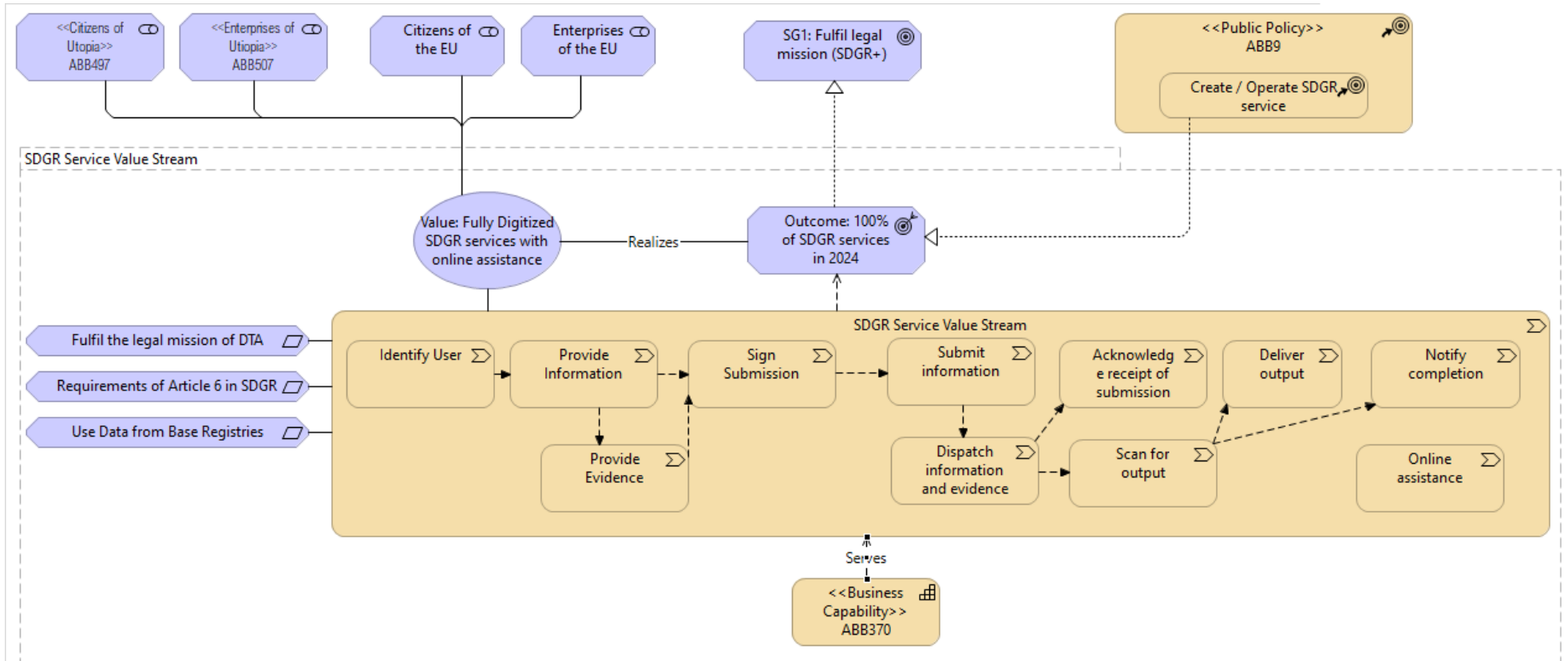
Archimate cookbook → value stream view



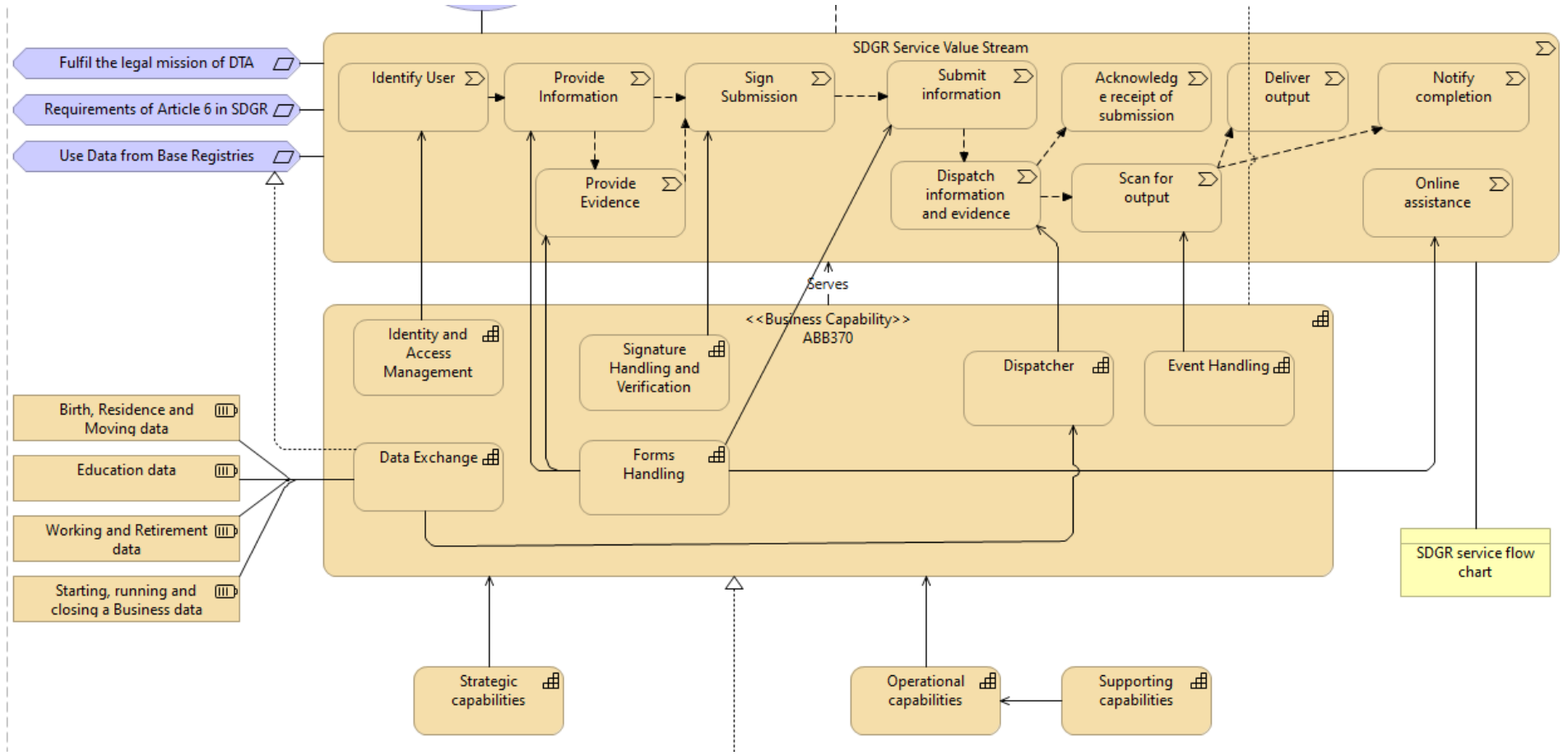
Public Administration Architecture (service level)



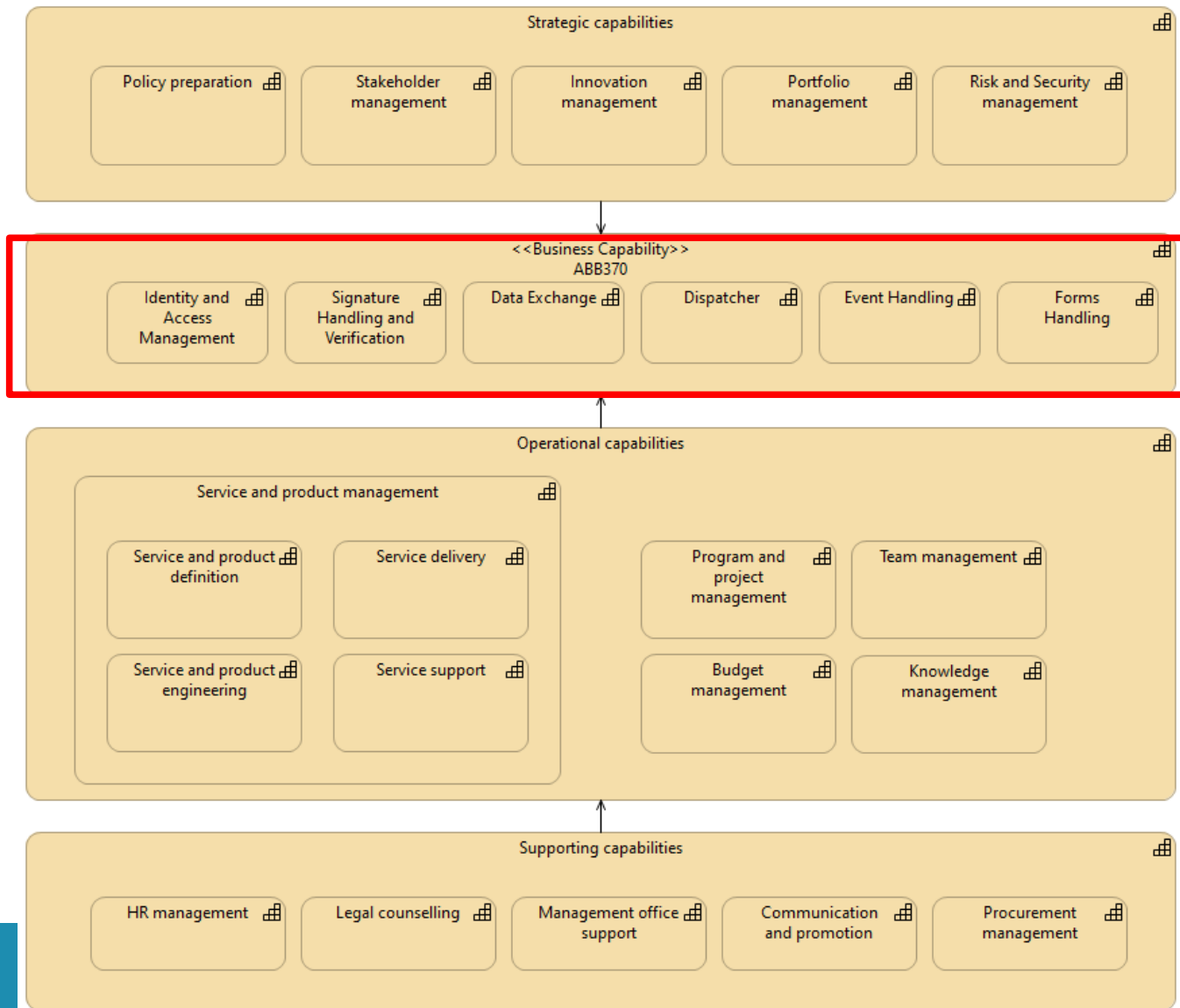
SDGR service value stream



SDGR service value stream (ctd.)



Resulting Capabilities View



Recent work in progress

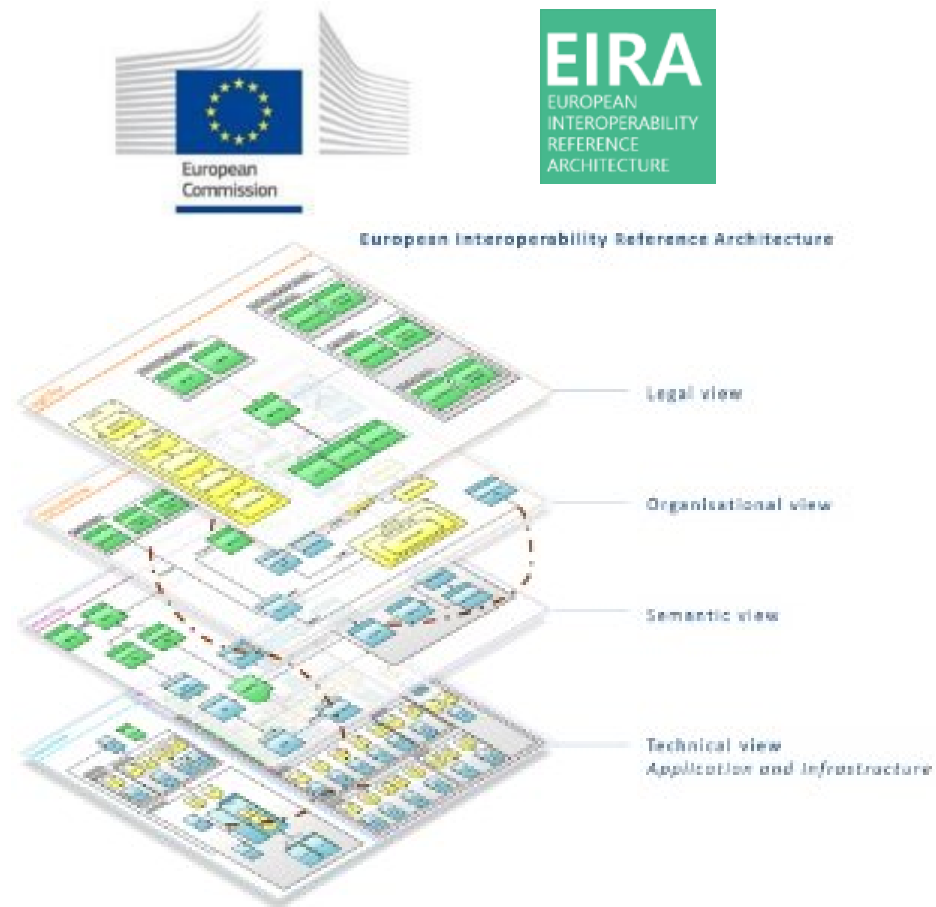
- Alignment with EIRA and vice-versa
- Public Governance Institute (an Organisation, not and Administration)
- OECD TA 3.0 EA and roadmap

Public Administration Architecture and EIRA

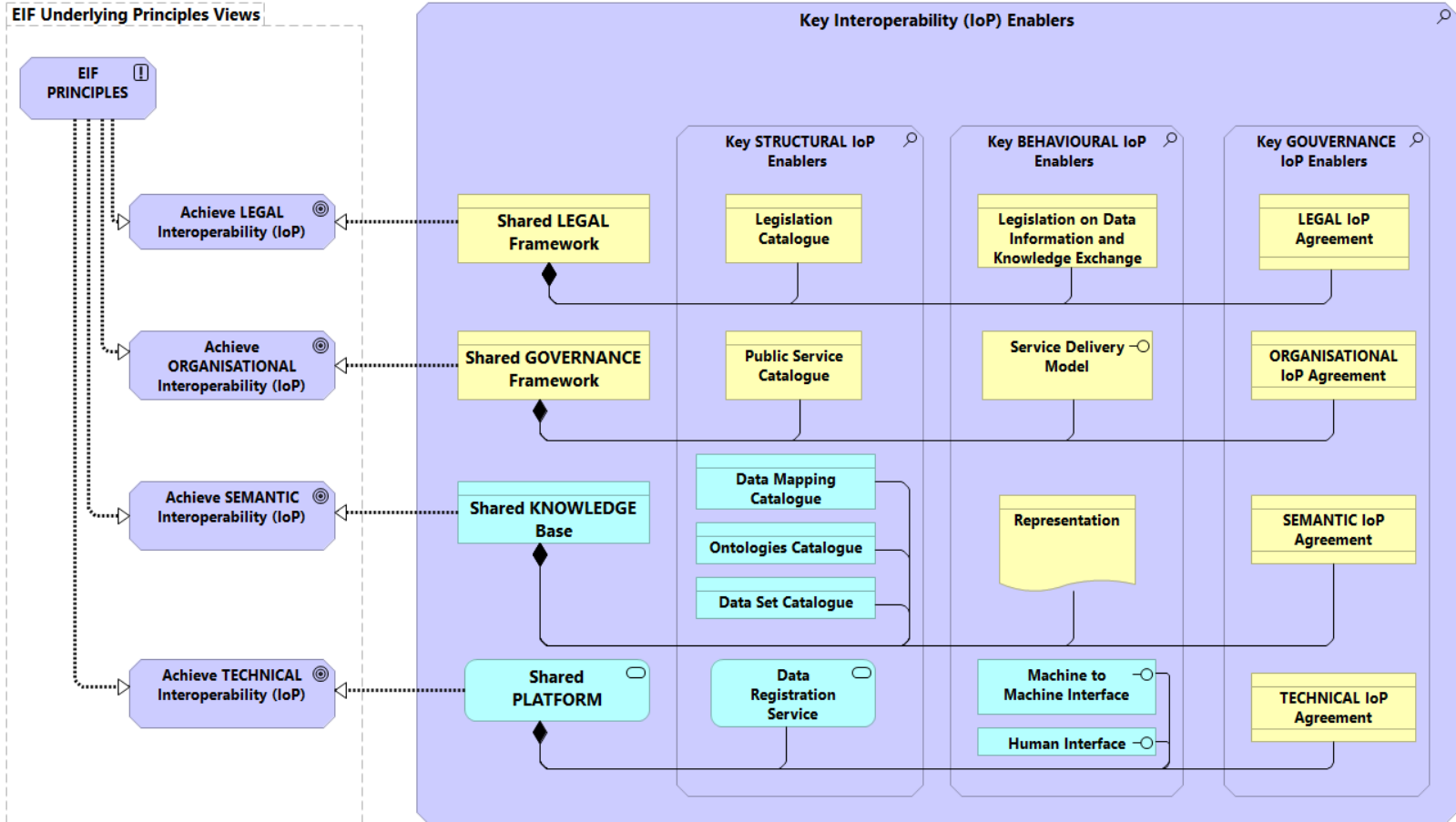
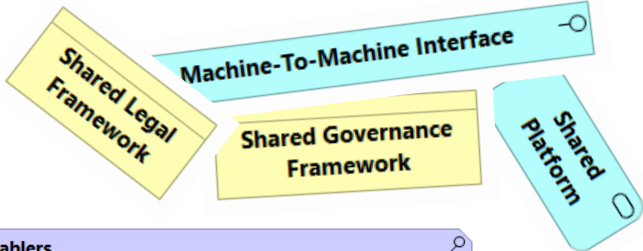


European Interoperability Reference Architecture – EIRA

- ✓ An architecture reference model
- ✓ Defines Architecture Building Blocks needed to build interoperable solutions supporting public services
- ✓ Based on the 4 levels of interoperability described by the European Interoperability Framework
 - ✓ Legal view
 - ✓ Organisational view
 - ✓ Semantic view
 - ✓ Technical view

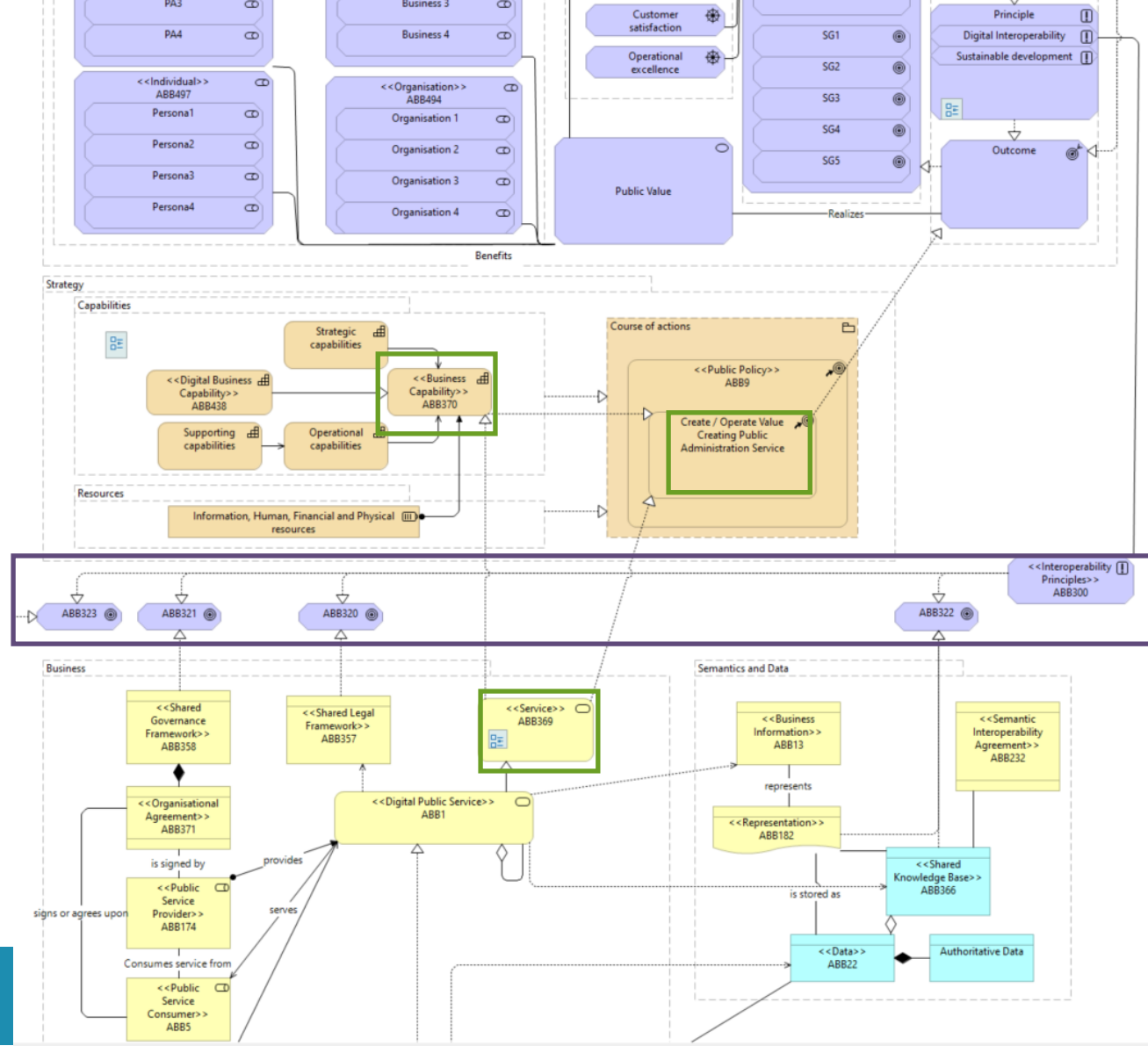


The key IoP concepts in EIRA link Strategy to Business



EIRA connection in PAAF

- 1) Services “realise” the business capabilities and the public policies.
- 2) The digital interoperability principle is associated with the EIF principles. Those are realising the EIRA goals of legal, organisational, technical and semantic interoperability.

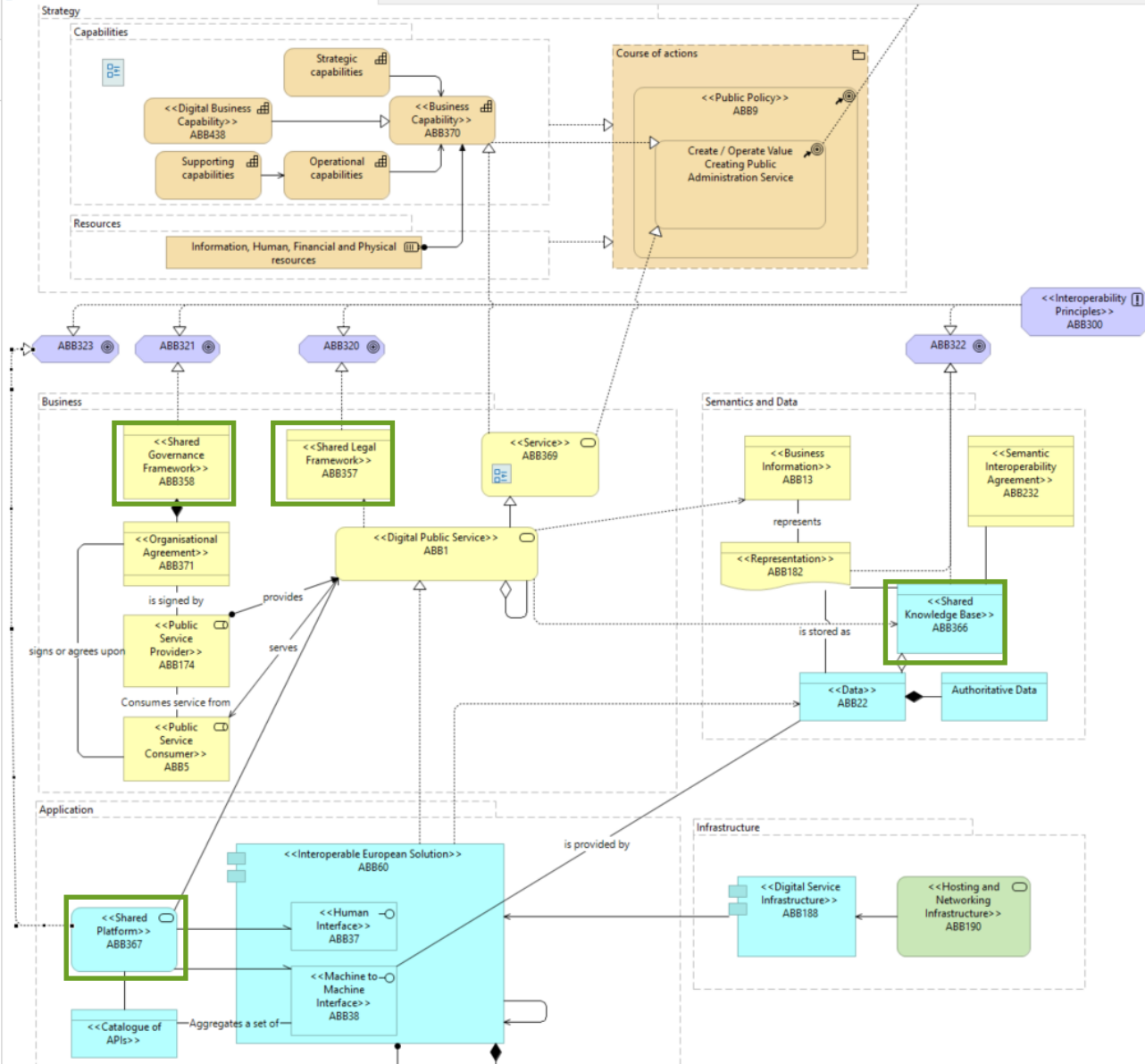


EIRA connection in PAAF

Digital public services and the EIRA interoperability goals are connected to the key interoperability enablers: shared **legal** framework, shared **governance** framework, shared **knowledge** base and shared **platform**.

In this way, the entire EIRA architecture is connected to PAAF.

EIRA published the EIRA with PAAF alignment guide:





Bookmark

Like (0)

Translate

Quality Review of the Public Administration Architecture Framework (PAAF): EIRA with PAAF / PAAF with EIRA Alignment Guidelines

Owner

European Commission - DIGIT
Supra-national authority

Contact information

EIRA team

Quick links

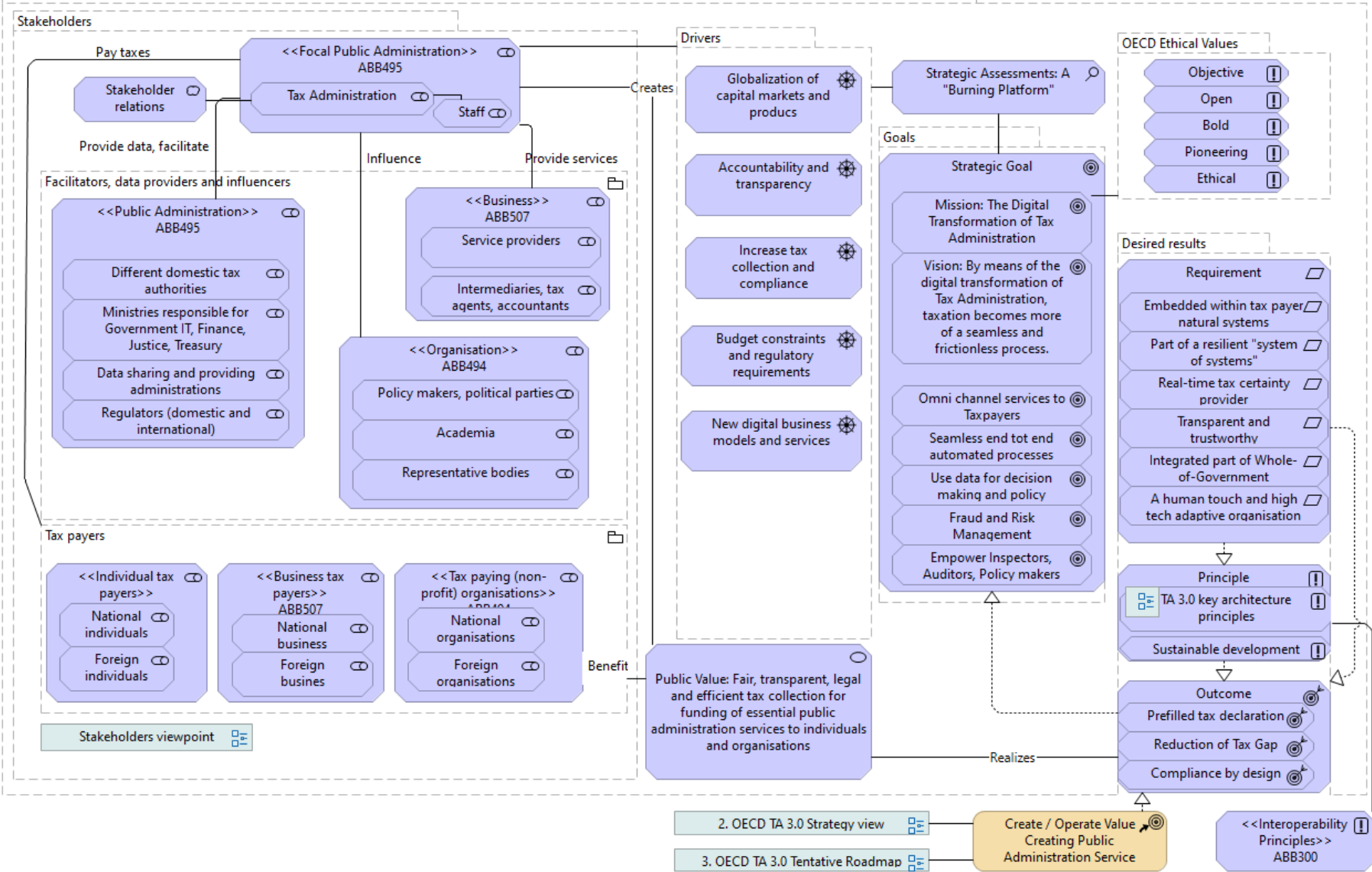
Release history

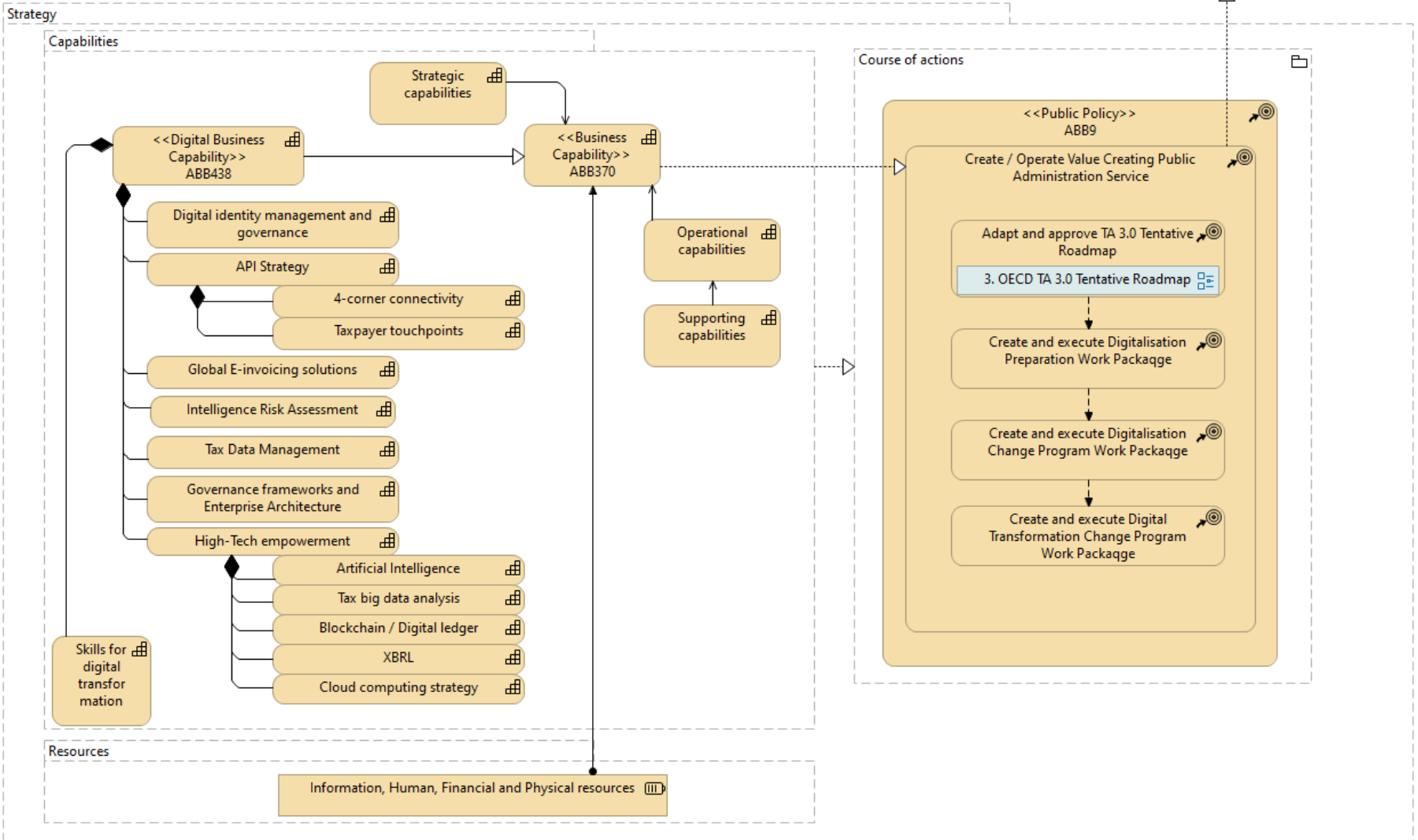
- <https://joinup.ec.europa.eu/collection/european-interopability-reference-architecture-eira/solution/eira-paaf-paaf-eira-alignment-guidelines>

Public Administration Architecture in the OECD TA 3.0 project

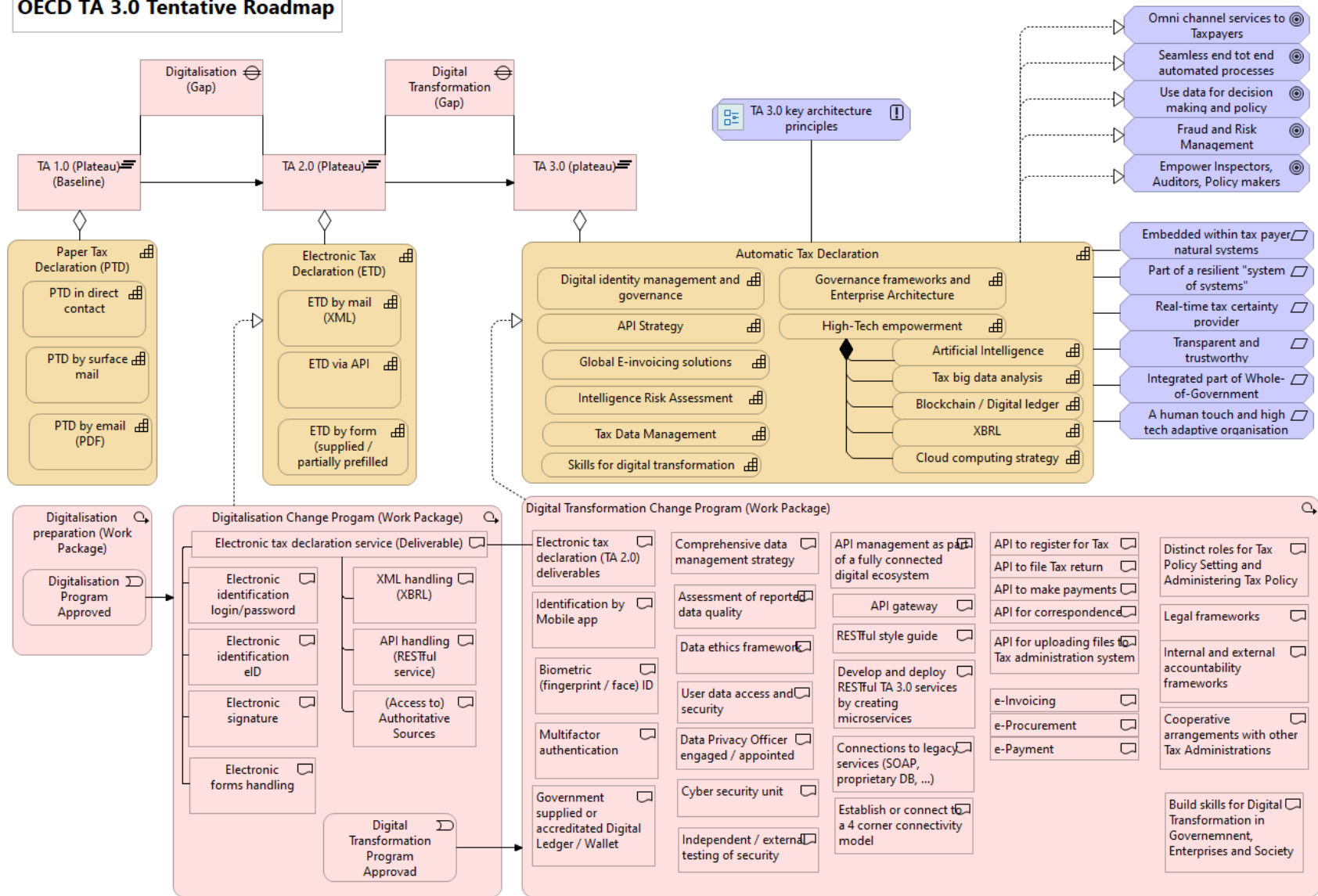


OECD (2020), Tax Administration 3.0: The Digital Transformation of Tax Administration, OECD, Paris.
<http://www.oecd.org/tax/forum-on-tax-administration/publications-and-products/tax-administration-3-0-the-digital-transformation-of-tax-administration.htm>





OECD TA 3.0 Tentative Roadmap



What does it take?



Input

- The focal PA provides (links to) existing documents where available
 - The policy note of the political responsible
 - The management plan of the PA
 - Any strategy documents
- A **MS Word template** is provided by KU Leuven to guide the process of documenting the right amount of information
- The **PAA archimate** model itself gets populated during a limited number of workshops (1-2 H each, 4/month, 2 months)
- The actual detailed modelling takes place off line

In practice

- Two cycles of 4 modeling sessions, 1,5 à 2 H per session, one per week, by video-conf
- Feedback and (continuous) model improvement after each cycle
- Different profiles needed to contribute: **strategic, organisational, business**
- Technical part will not be included
- One fixed meeting per week, preferably before noon (such that modeling can be completed on the same day)

Copyright and confidentiality



- All materials shared by the Public Administration are supposed to be “public” or “for internal use” (FISP levels 0 or 1) but NOT confidential unless indicated otherwise by the Public Organisation
- The actual (strategic and technical) content of the specific model of the Public Organisation will be considered as confidential (FISP level 2) and will not be published or distributed without their consent
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Thank you !

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