Workshop at EGI2022

Disruptive technologies accelerating data-driven policymaking in the public sector

20-22 September 2022, Prague (CZ)

Data Driven Policy Cluster

Co-creating digital tools for better governance

Policy Cloud

Cloud for Data-Driven Policy Management

Project[1] Number: 101004480

Project Acronym: AI4PublicPolicy

Project title: Automated, Transparent Citizen-Centric Public Policy Making based on Trusted Artificial Intelligence

#EGI2022 20th September 2022

The Consortium

AI4PublicPolicy

Large Industries

GFT

EGI

netcompany

intrasoft

SME

iLabs
Versatile Innovations

novoville

ARTHUR'S LEGAL
Challenge the Status Quo

UNPARALLEL

reportbrain

TECNÈ
conoscenze e strategie

Ekso

Public Authorities

CITY OF ATHENS

ΔΑΕΜ
CITY OF ATHENS - IT COMPANY

Δήμος Λευκωσίας
Nicosia Municipality

Burgas Municipality

LISBOA e·nova
AGÊNCIA DE ENERGIA E AMBIENTE DE LISBOA

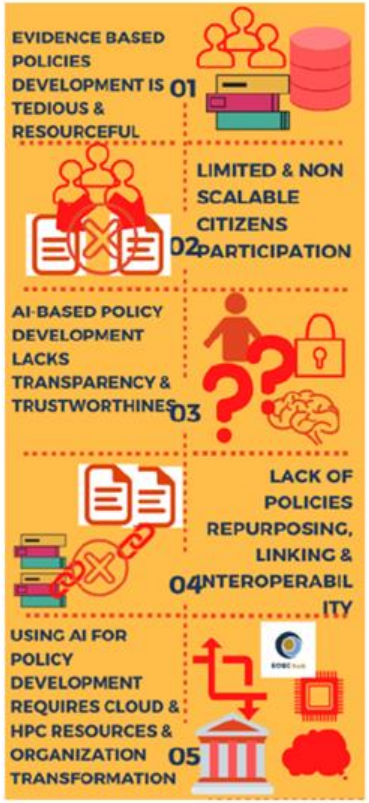
RTOs

POLITÉCNICA

The Scope

Improve the evidence-based approach in policy making

MOTIVATIONS



SOLUTION

Cloud Platform for AI-Based, Citizens centric and Transparent Policy Making

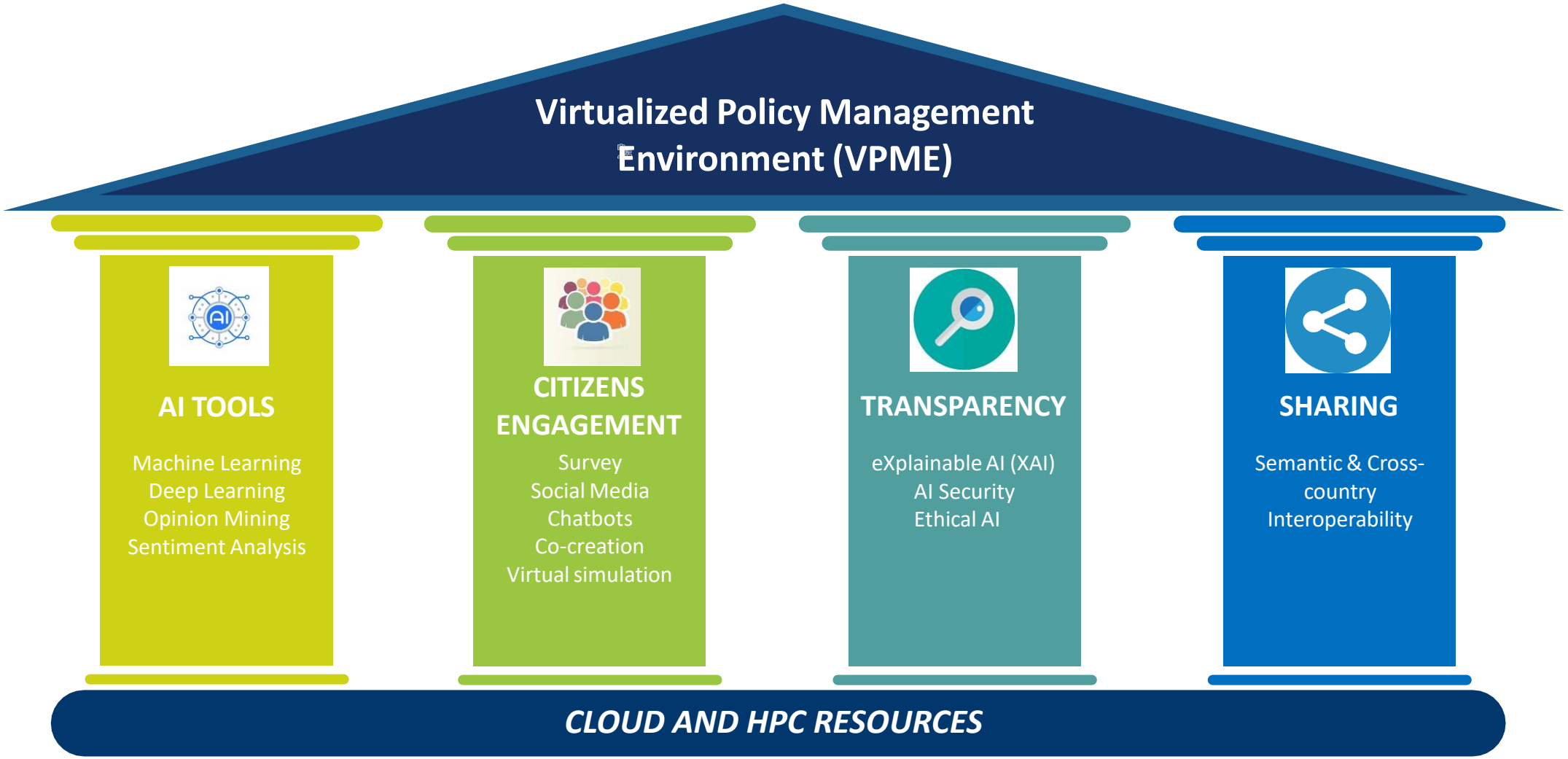
EUROPEAN OPEN SCIENCE CLOUD

AI-based Virtual Policy Management Environment (VPME) over EOSC/EGI Infrastructure

EXPECTED IMPACTS

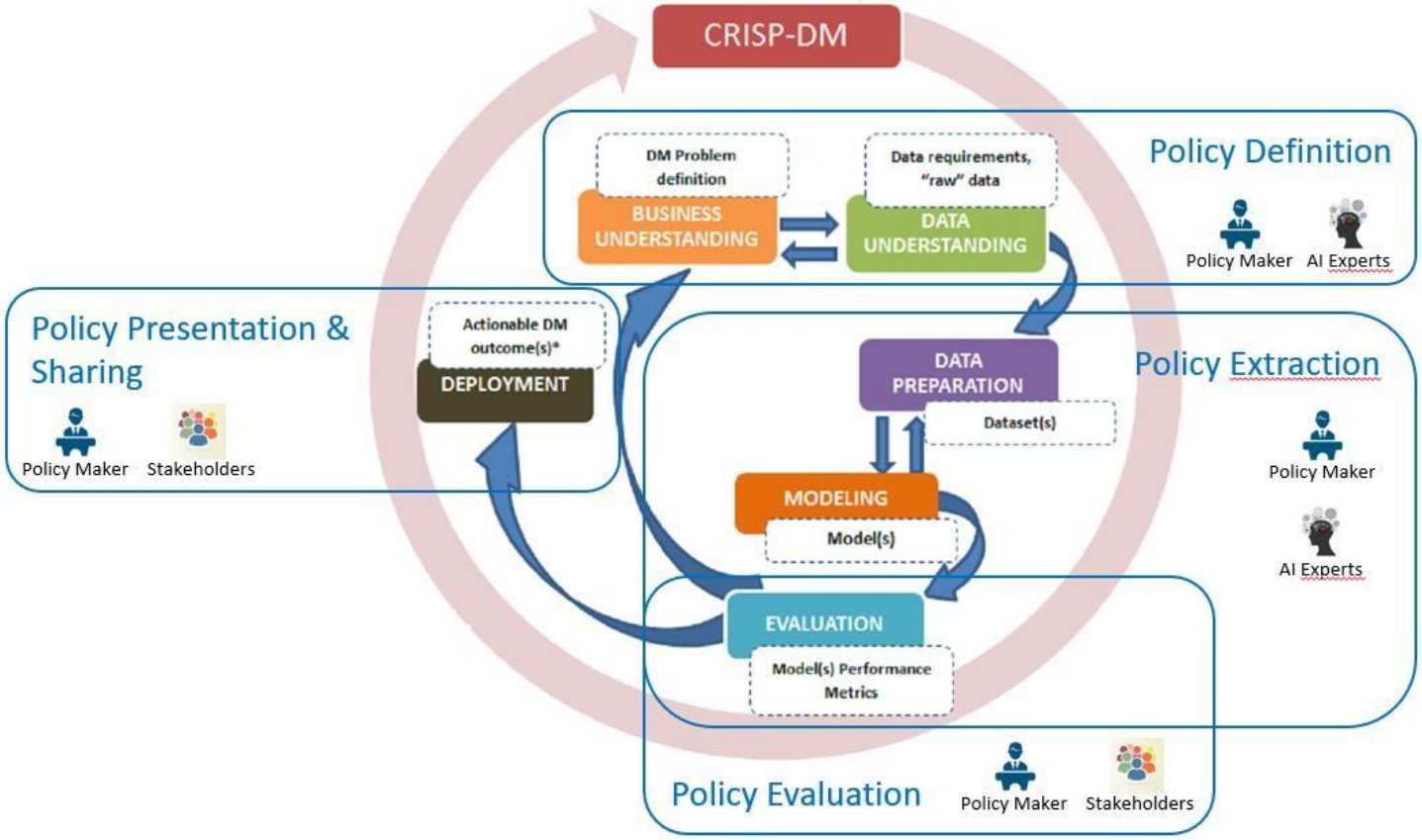
1. Better targeted and more effective evidence-based policies
2. boost civic engagement and policy acceptance
3. Accelerating Evidence Based Policies Development
4. Improving Digital Transformation towards AI
5. Improving the Quality, Effectiveness and Transparency of the Policies

The Pillars


Virtualized Policy Management Environment (VPME)
AI TOOLS
Machine Learning
Deep Learning
Opinion Mining
Sentiment Analysis
CITIZENS ENGAGEMENT
Survey
Social Media
Chatbots
Co-creation
Virtual simulation
TRANSPARENCY
eXplainable AI (XAI)
AI Security
Ethical AI
SHARING
Semantic & Cross-country Interoperability
CLOUD AND HPC RESOURCES

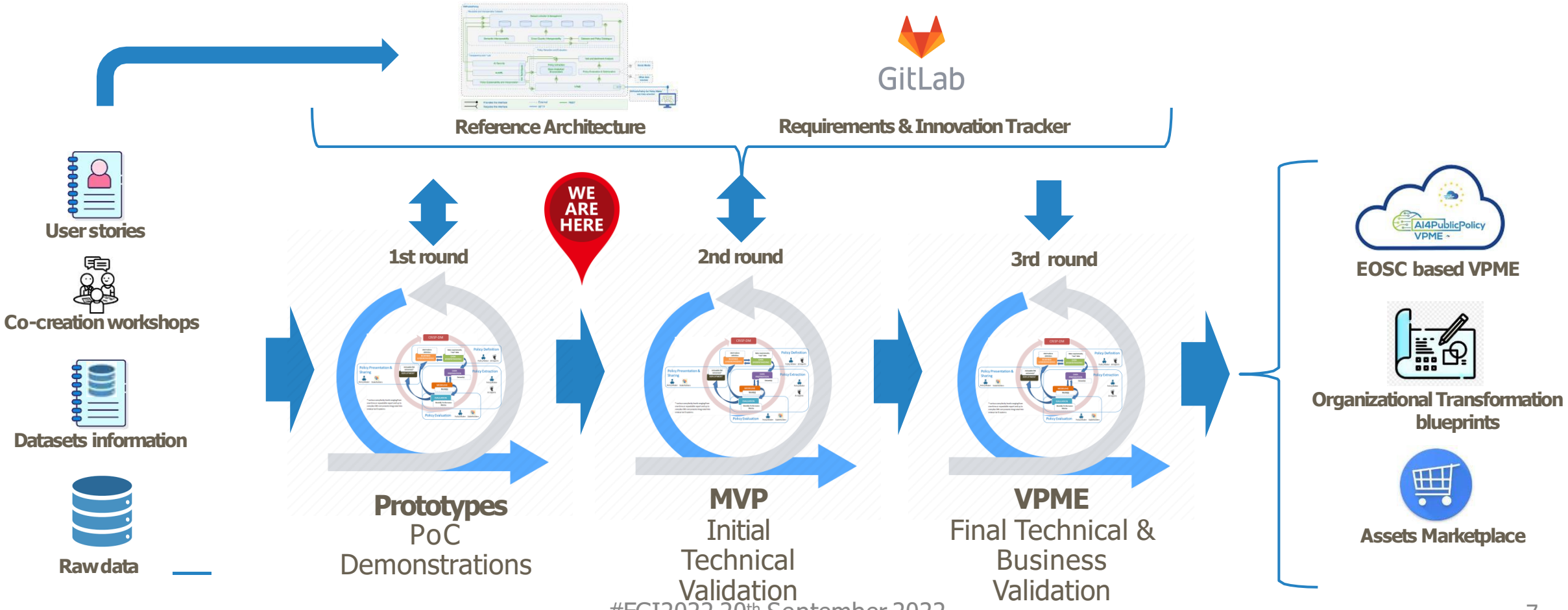
The Concept

The project **considered the AI-based Policy Making as a Data Mining problem** and adopted the **CRISP-DM** (Cross Industry Standard process for Data Mining) process as a reference for the **Conceptual Model.**

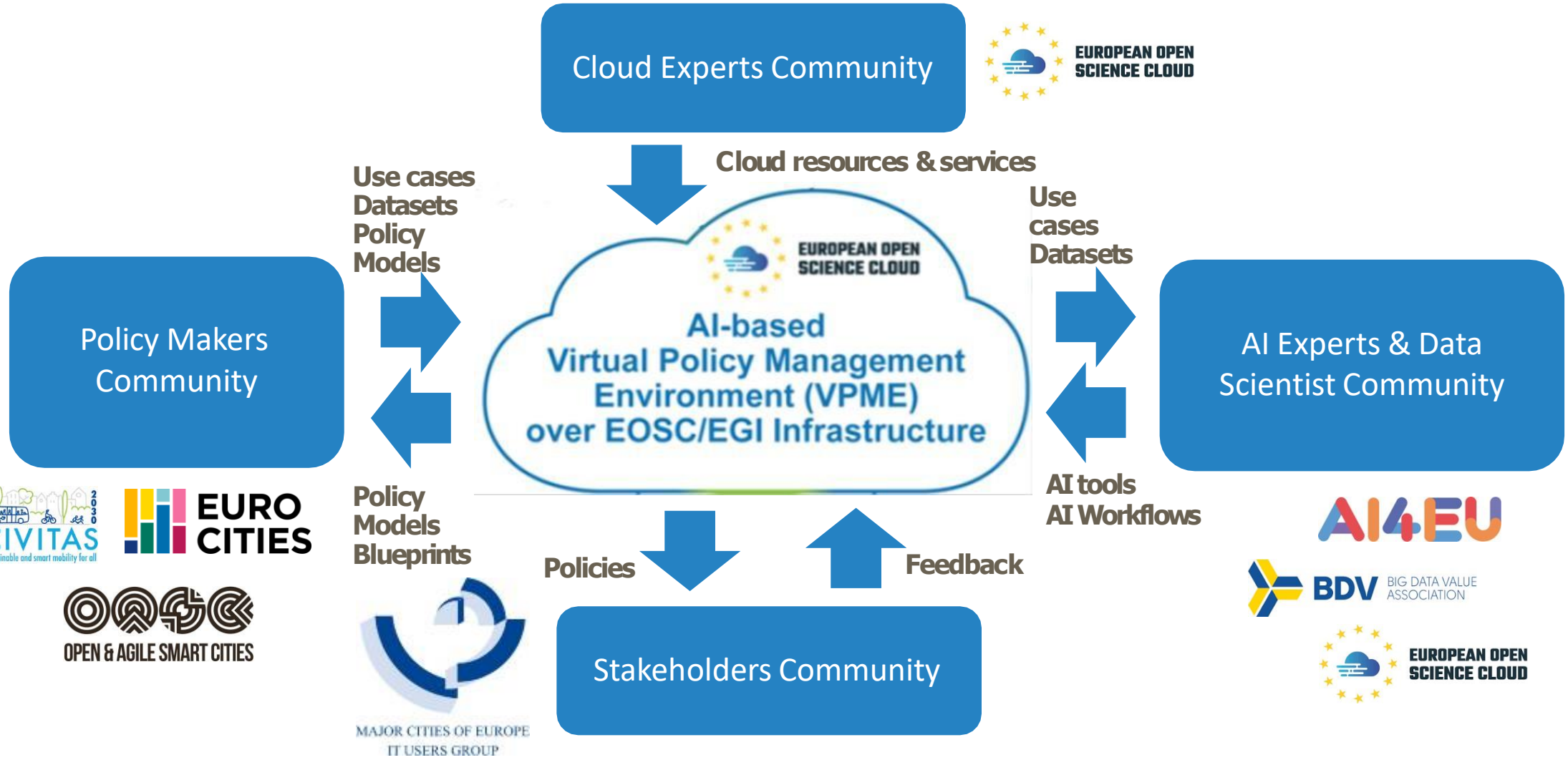


The Methodology

The **CRISP-DM** process was adopted not only as a reference for the Conceptual Model, but also **as a methodology** for development and validation.



The Impact creation



Thanks for your attention

Contact us

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Online presence

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http://linkedin.com/company/ai4publicpolicy

https://twitter.com/ai4publicpolicy

This project has received funding from European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 101004480.

DECIDO PROJECT OVERVIEW

Author(s): Antonio Filograna

Affiliation: Engineering Ingegneria Informatica S.p.A.

Event: EGI 2022 Conference

Date: 20 September 2022

Decido

eviDEnce and Cloud for more InformeD and effective pOlicies

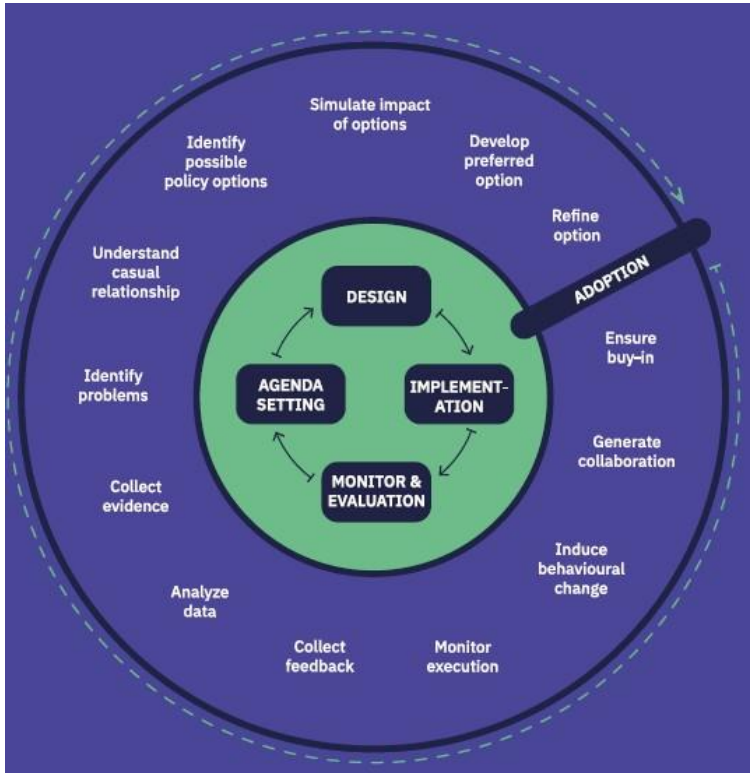
This project has received funding from the European Union's Horizon 2020 research and innovation under grant agreement N° 101004605

PROJECT PARTNERS:

101004605 — DECIDO — H2020 - SC6 - GOVERNANCE - 2018 - 2019 - 2020 / H2020 - SC6 - GOVERNANCE-2020

Background

Policy making is the process of creating and monitoring policies to solve societal challenges. In this respect, it is often conceptualized as a **policy cycle**, consisting of several different phases, such as agenda setting, policy formulation, policy implementation & monitor and policy evaluation.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004605

Scope of the project

The mission of DECIDO is to demonstrate the groundbreaking impact of the adoption of innovative methodologies, tools and data enabling the effective development of better **evidence-based policies** by public authorities.

DECIDO will serve as an intermediary between the **public sector, the citizen science world** and the European Cloud Infrastructure (ECI) through the direct collaboration with **EOSC** and will provide storage capacity and processing power through **EGI infrastructure**.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004605

Outputs of DECIDO

SCOPE

DECIDO will serve as an intermediary between the **public sector, the citizen science world** and the European Cloud Infrastructure (ECI) through the direct collaboration with **EOSC** and will provide storage capacity and processing power through **EGI infrastructure**.

Out 1: WEB PORTAL

An easy to use portal will be released to **define**, **manage** and **evaluate PA policies** in a collaborative manner leveraging services offered by EOSC (Catalogue and Marketplace), external services/tools to EOSC, data made available by EOSC (mainly through services B2Find and EGI DataHUB) and by other data providers (e.g. European Data Portal), including Public Administrations themselves.

Out 3: Co-Creation Methodology

A **methodology** on how to improve the collaboration among all stakeholders involved in the Policy Life Cycle, using the idea of **Hackathons**. This enables **bottom-up** and externally collaborative ideation of innovative policies.

Out 2: CITIZEN ENGAGEMENT

The focus for the **involvement of local actors** will be on: (1) the **methodological** side (e.g. co-creation of indicators), (2) the identification of **needs** and priorities, and (3) the **data generation** (e.g. through citizen science experiments where applicable).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004605

Policy-making expected impact

Policy makers will be able to reduce the time needed to generate good quality services as well as improve policy making services

Citizens will actively participate and contribute to public policy making, have higher data access for better and informed decisions

Businesses will accelerate innovation and business development and reduce costs related to innovation generation

Research centres and scientists will access a large volume of data for scientific purposes

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004605

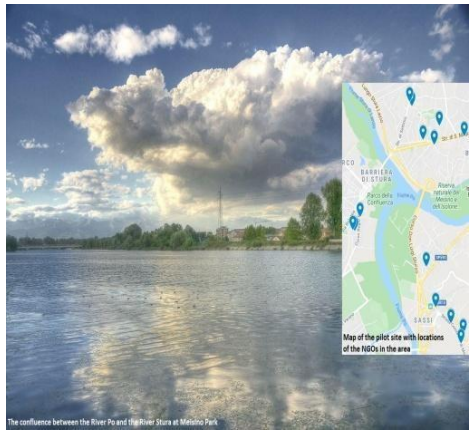
Pilots in a nutshell

Kajaani
Finland

Forest fire

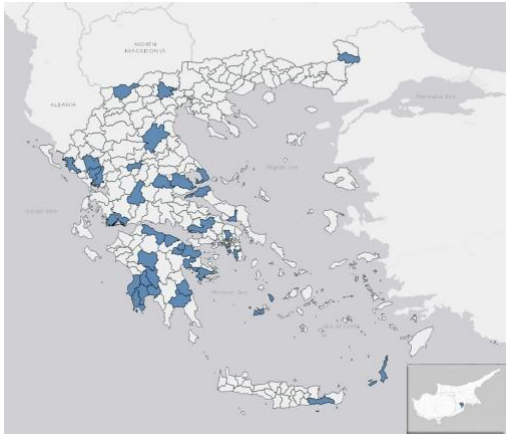
Meisino Park
Italy

Flood



Greek Municipalities

Power Outage



Aragon Region
Spain

Wildfires

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004605

From Data to Decision-making: DECIDO methodology

Write the **storytelling** with pilot needs and challenges

EUROPEAN OPEN SCIENCE CLOUD

Understand what **services, EOSC** can provide

DATA CATALOG

Definition of the DECIDO **Data Catalogue**

Data from **Co-creation** activities

Policy **Evaluation** & **Feedback**

Improve policy based on **evidence-facts**

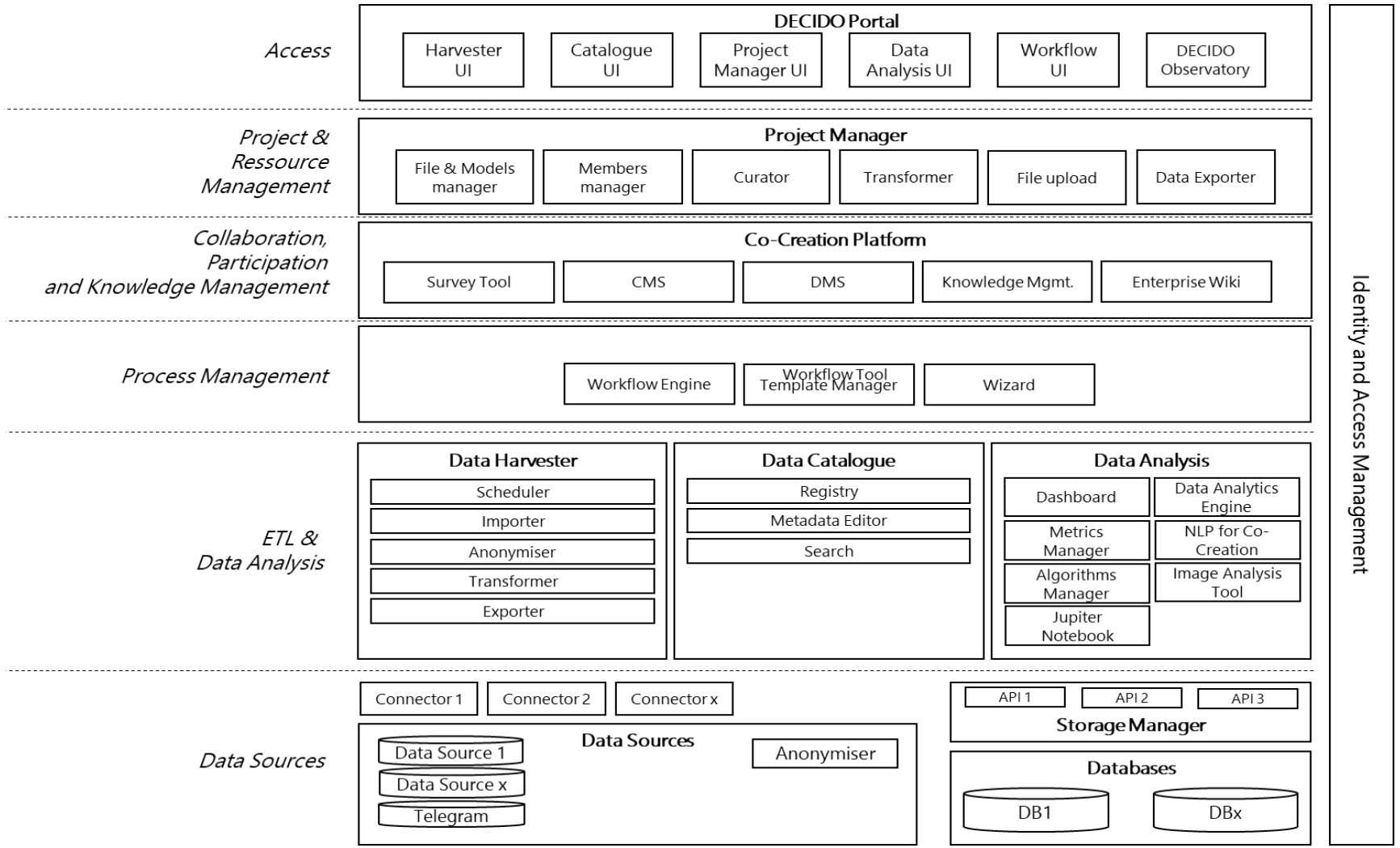
Visualisation of **Dashbord** to take decision

Implementation of **algoriths** to analyse those data

Definition of how to **use** the selected **data**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004605

DECIDO Architecture



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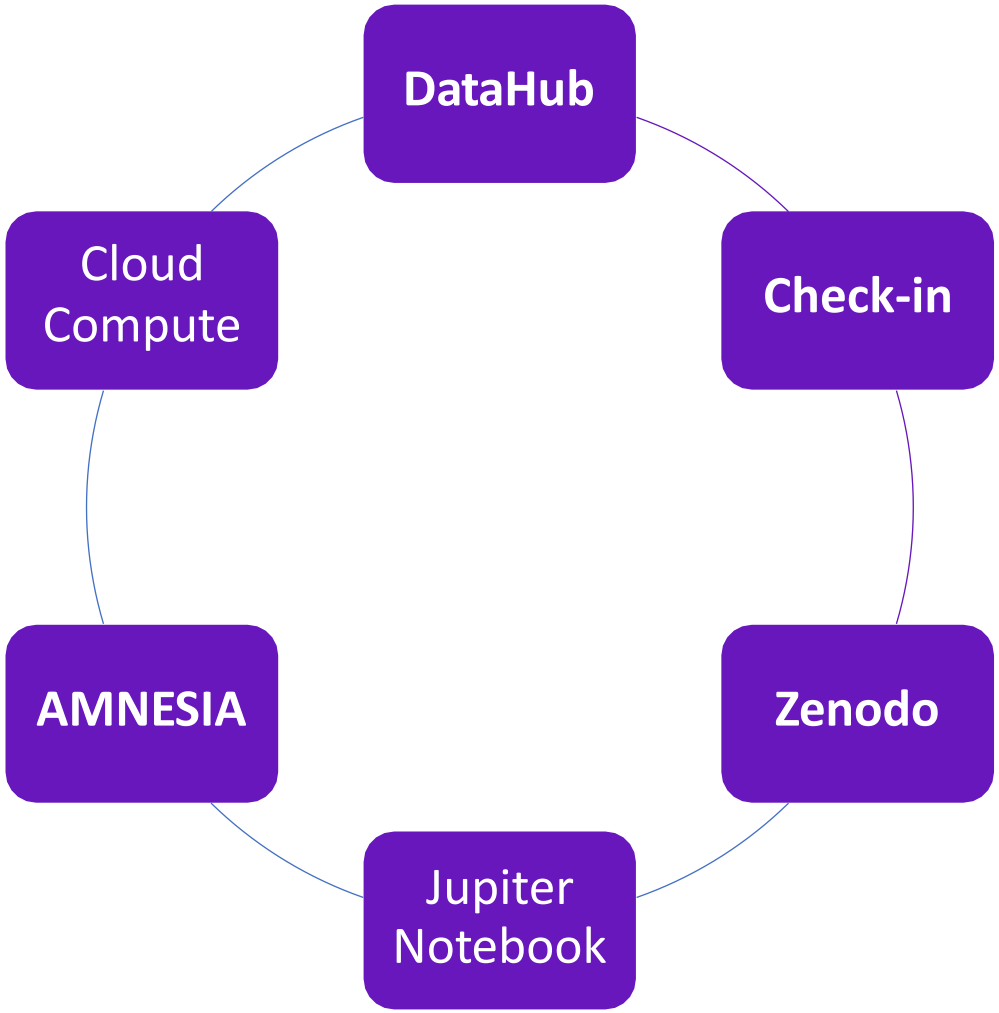
EOSC services to be used in DECIDO



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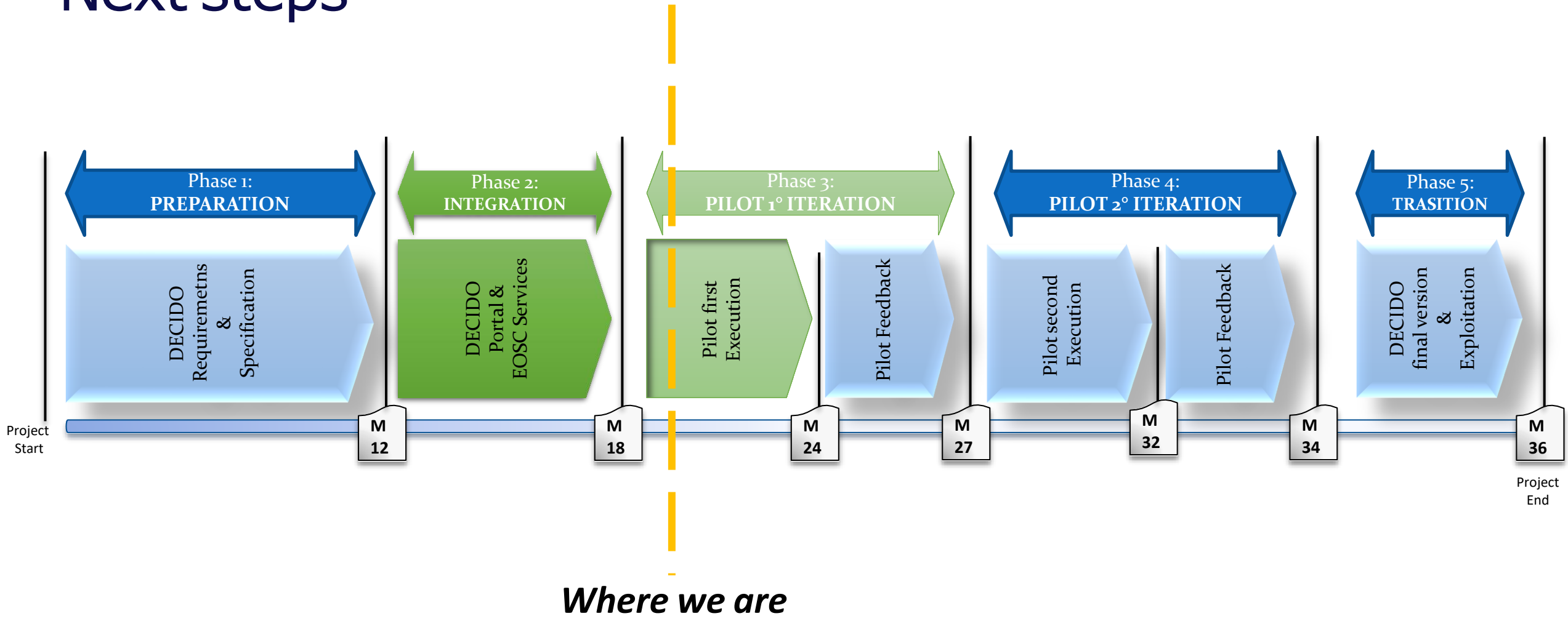
Next steps



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THANKS FOR YOUR ATTENTION

Decido

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PROJECT PARTNERS:

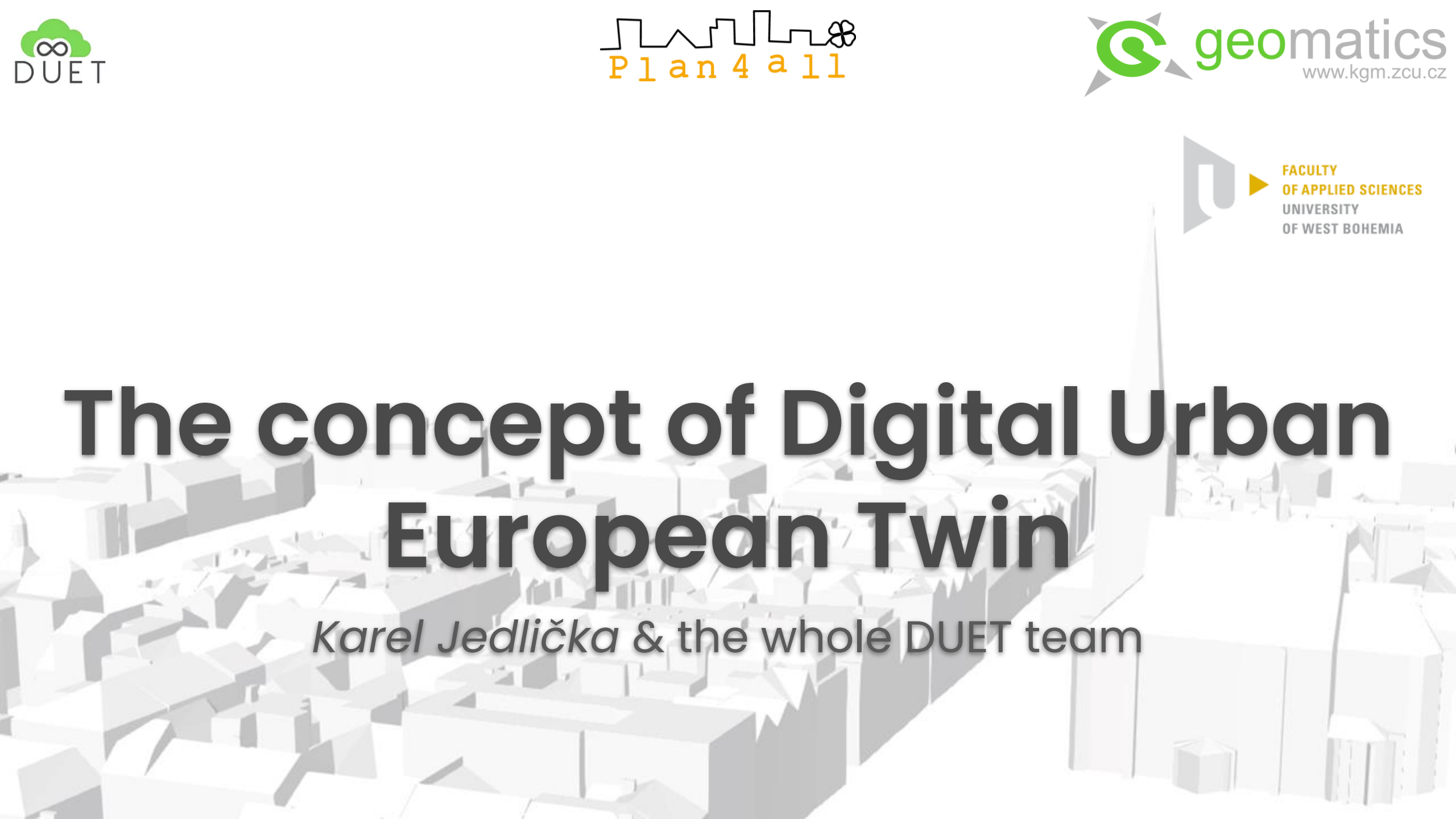
101004605 — DECIDO — H2020 - SC6 - GOVERNANCE - 2018 - 2019 - 2020 / H2020 - SC6 - GOVERNANCE-2020

DUET

Plan4all

geomatics
www.kgm.zcu.cz

FACULTY
OF APPLIED SCIENCES
UNIVERSITY
OF WEST BOHEMIA

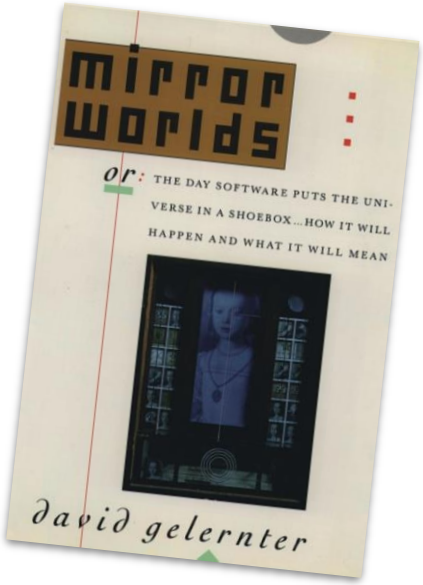


The concept of Digital Urban European Twin

Karel Jedlička & the whole DUET team

Digital Twin

- David Gelernter: Mirror Worlds (1991)



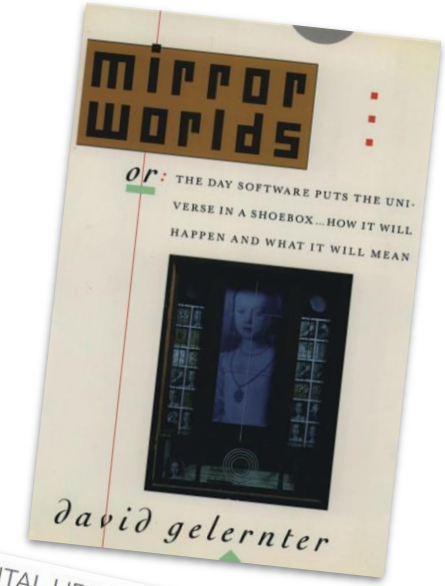
Digital Twin

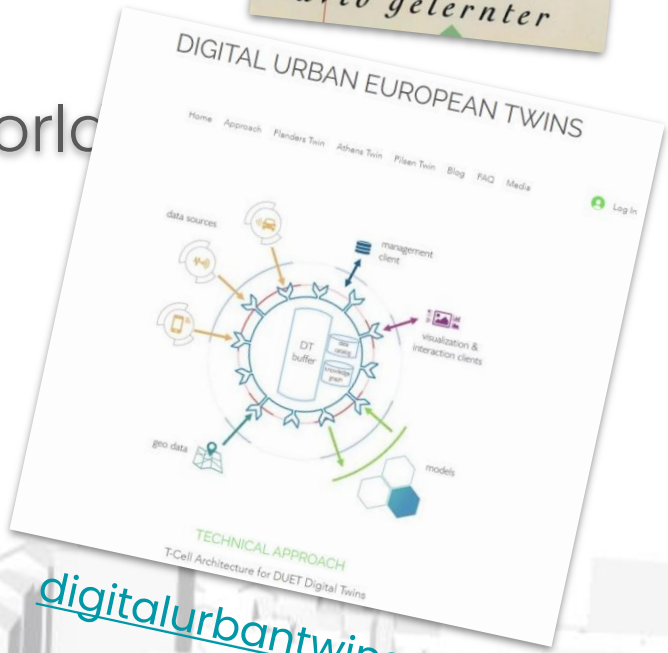
- David Gelernter: Mirror Worlds (1991)

- Michael Grieves ~ manufacturing (2002)
- IBM: Digital Earth ~ Earth sciences (2005-6?)

Connections between the physical and the digital world by flows of:

- data from the physical product to the digital product
- information available from the digital product to the physical environment





digitalurbantwins.com

Digital Urban Twin

- A dynamic real-time model of what's happening in the physical world

Digital Urban Twin

- A digital representation of an urban area
  - analyze history
  - react to presence
  - predict the future

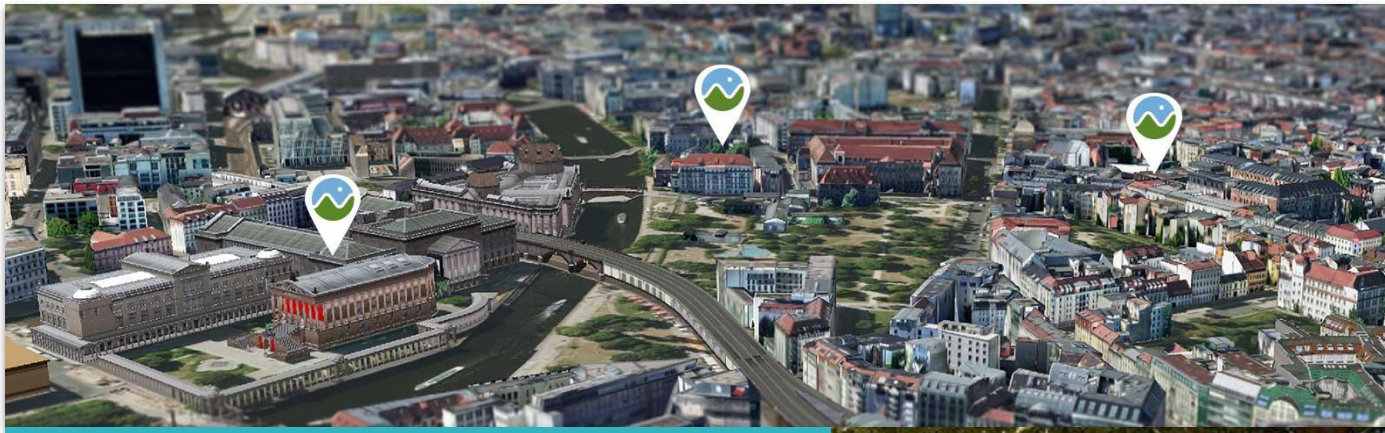
Digital Urban Twin

- A digital representation of an urban area
  - analyze history
  - react to presence
  - predict the future

- interactive platform
  - hosting a time aware 3D spatial model
  - capturing, processing & portraying real-time data
  - allowing to model future / what-if scenarios

Digital Urban Twin

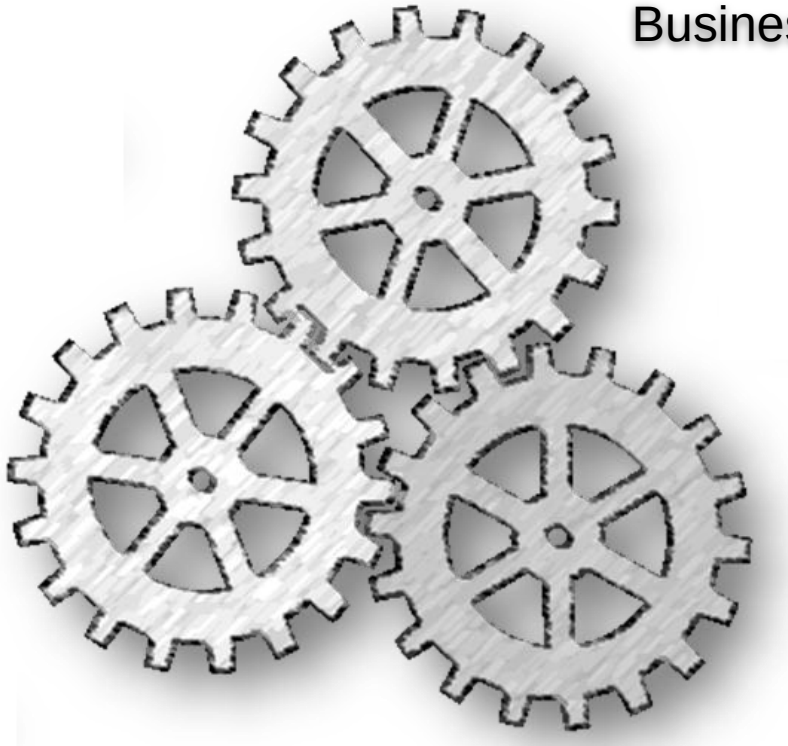
- Provides integrated view of the city infrastructure
- Allows
  - easy interpretation
  - evidence based policy making
  - collaborative policy making

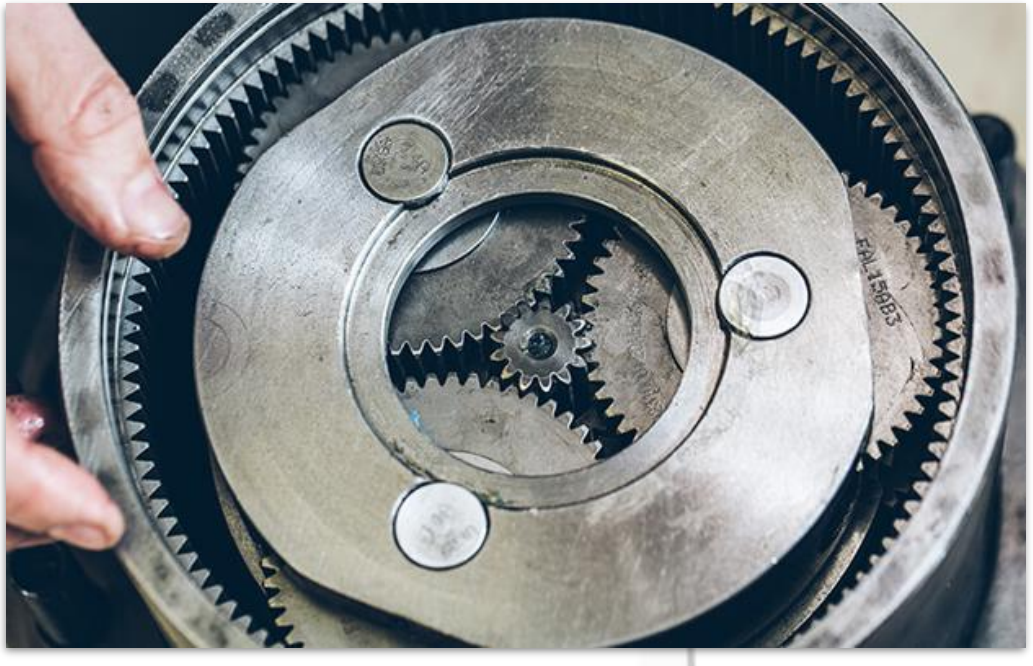


Digital Urban Twin

Business

City



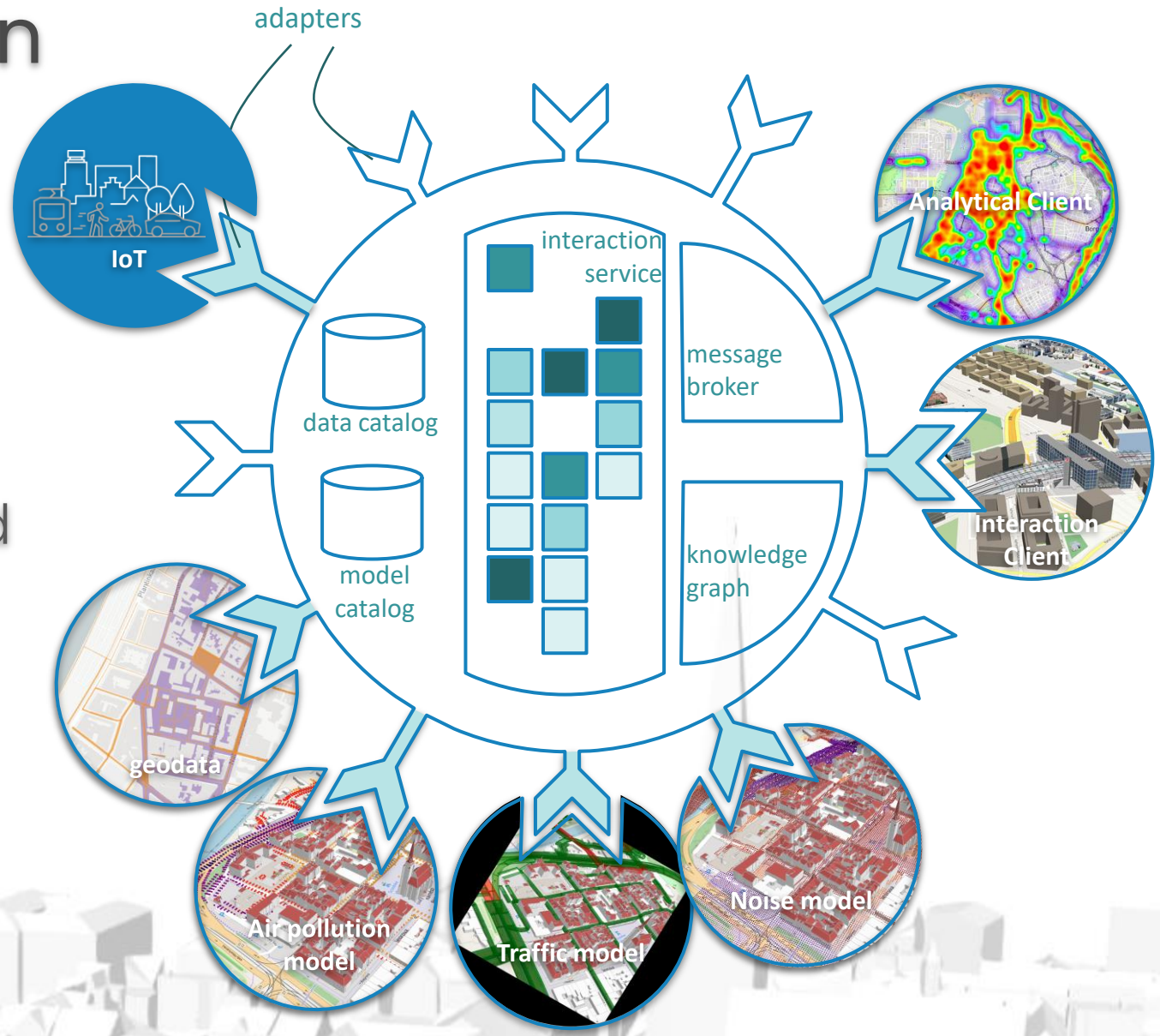


Citizens

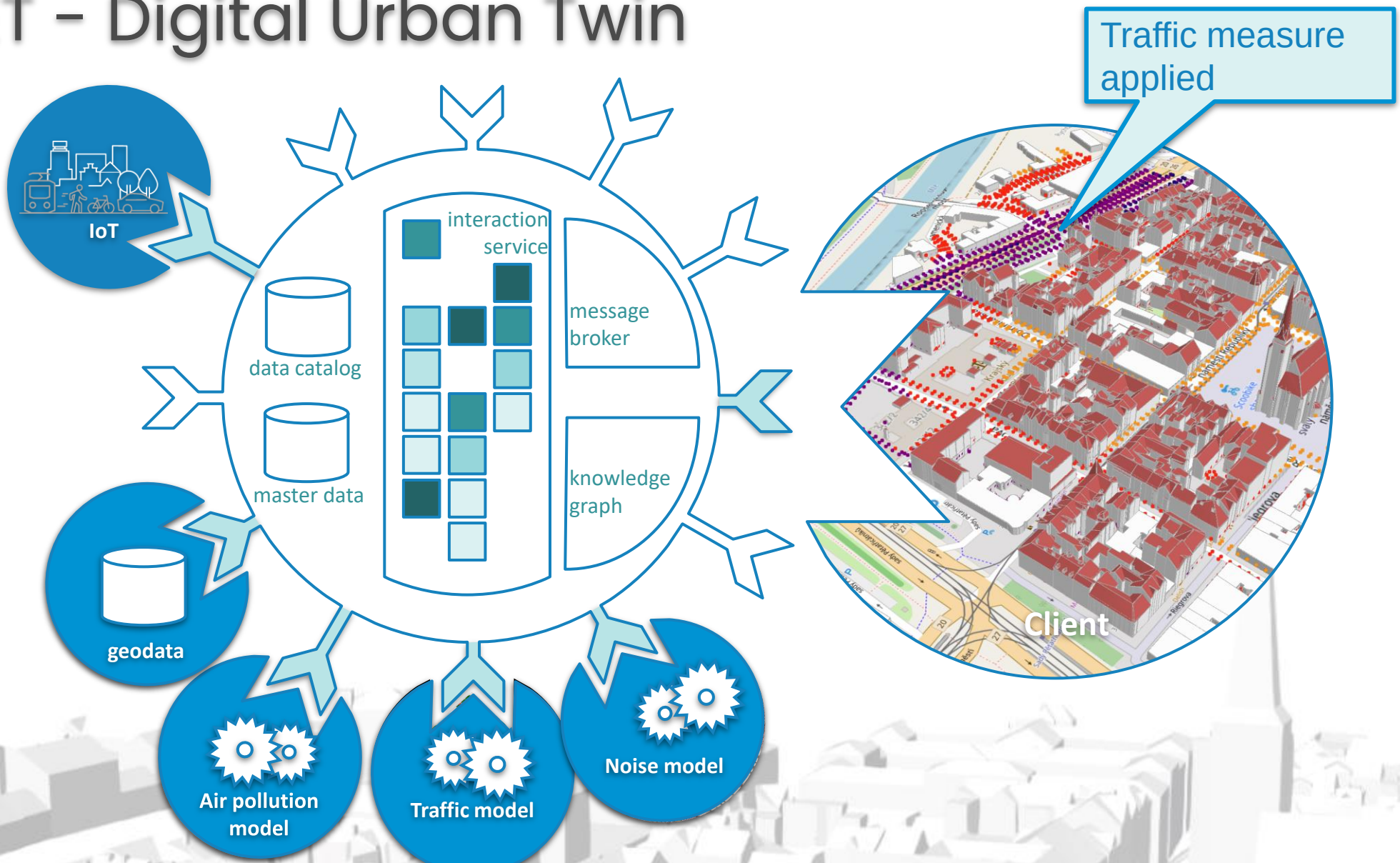
DUET - Digital Urban Twin

- Allows connecting
  - data sources
  - simulation models
  - interactive clients

- Acts as a message broker and interaction service



DUET – Digital Urban Twin



DUET - model interaction

Focus on traffic related analysis

- Virtual City System Client (VCS, Germany)
- Traffic modelling (UWB, Plan4all, Czechia)
- Noise modelling (CNRS & Université Gustave Eiffel, France)
- Air pollution modelling (VITO, Belgium / TNO, Netherlands)

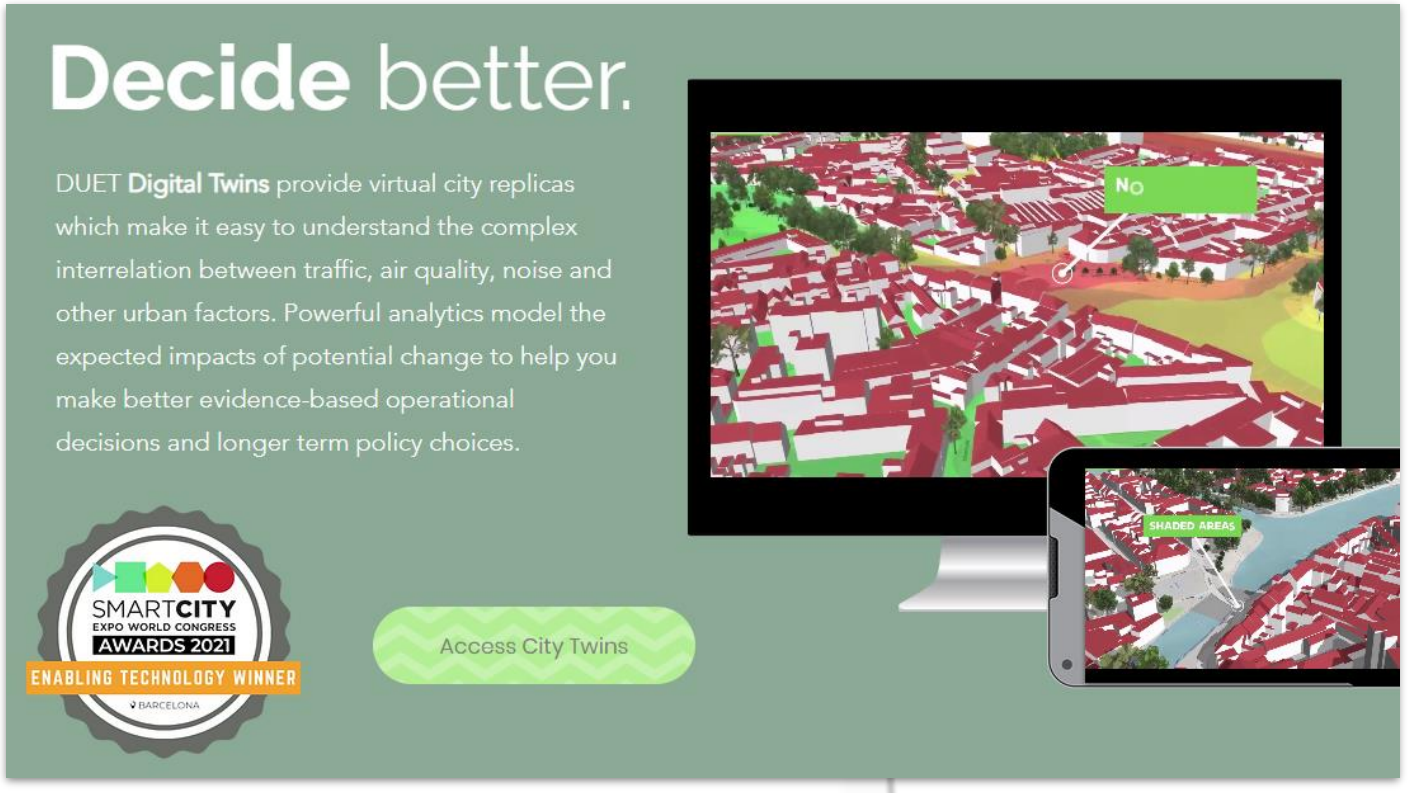
Conclusion

- Components from various providers
- Component interaction challenges
  - Technical
  - Communication
- Further reading

digitalurbantwins.com

citytwin.eu

platform.citytwin.eu/app/map



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A Competitive Intelligence Cloud/PHC Platform for AI -based STI Policy Making.

Jerónimo Arenas -García (Universidad Carlos III de Madrid)
Lorena Calvo -Bartolomé (Universidad Carlos III de Madrid)

Sep 20, 2022

EGI Conference 2022

IntelComp's Main Objectives

- Platform for Public Administration
- Tools for evidence-based AI-driven STI policy (all phases)
- Open data
- Innovative analytics services, NLP pipelines and AI workflows
- Deployment in HPC and cloud infrastructure
- Co-creation activities: Artificial Intelligence, Health and Climate Change

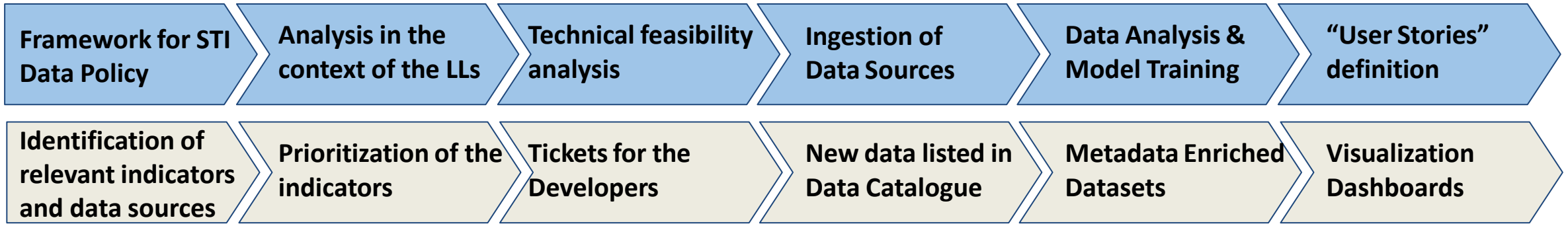
Statistical classification approach limitations

Our target datasets usually include metadata from well-known taxonomies, but

- Taxonomy updates is (normally) a slow process, so emerging technologies may not be well covered by them
- Different datasets use heterogeneous taxonomies, making it difficult a joint analysis
- Documents are usually labelled in a binary manner. Soft assignments would be preferable to measure semantic similarities across documents.

IntelComp provides complementary information based on the AI-based analysis of documents (e.g., abstracts of papers, descriptions of companies, etc)

IntelComp's Workflow



NLP and AI services

- Scalable multilingual NLP pipelines
- Last-generation neural-based language models for:
  - Domain classification
  - Topic modelling (static, dynamic, hierarchical)
  - Automatic classification
- Information retrieval based on topic similarity and keyword search
- Scalable document graph generation and analysis (GPU implementations)
- Lead-lag detection (thematic lead/lag between corpora)
- Short- and Long-term Impact analysis

Implementation and Deployment

- Java 1.9 & Python 3 code
- NLP Pipeline: SparkNLP, Spacy
- Topic library: Mallet, Gensim, Pytorch NN implementation (beta)
- Frontend: Bootstrap JS + D3.js + Banana Lucidworks (AngularJS)
- Search Engine SolR 7.X + Banana Lucidworks
- Apache + Tomcat, Postgres
- Prometheus + Graphana
- CD/CI environment GOCD
- Deployment: Ansible + Kubernetes (K8s) + Dockers containers

https://intelcomp.eu

Jerónimo Arenas García (jeronimo.arenas@uc3m.es)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101004870. H2020-SC6-GOVERNANCE-2018-2019-2020 / H2020-SC6-GOVERNANCE-2020

PolicyCLOUD: Using the European cloud infrastructure for public administrations

Ricard Munné, ATOS - PolicyCLOUD Coordinator

Presented by Nikitas M. Sgouros, UPRC

EGI Conference 2022

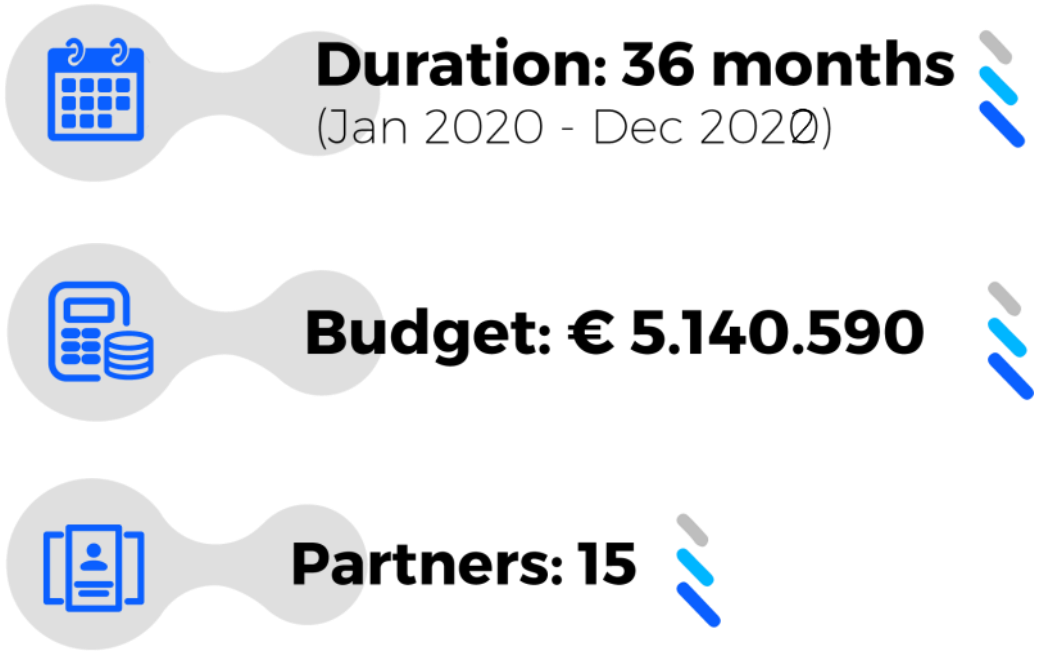
PolicyCloud has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 870675.

Agenda

- Project goal
- Stakeholders and their benefits
- Added value
- Pilot Cases
- Policymakers involvement and Co-creation
- Key exploitable results
- PolicyCLOUD in EOSC

Project Goal

- PolicyCLOUD, the cloud-based platform for data-driven policy management, will provide integrated reusable models and analytical tools, turning raw data into valuable and actionable knowledge towards efficient policy making.



Policy Cloud
Cloud for Data-Driven Policy Management

Stakeholders and their benefits

- Policy Makers at European, national and regional level (Public Administrations), Non Governmental Organisations and Standardisation Bodies will be provided with the ability to make efficient and effective policy decisions

- Citizens resident in range of the pilot use cases or impacted by future PolicyCLOUD adoption will enjoy improved quality of services provided by public administrations

- Academic Institutions, Research Centers, individual Researchers and Big Data Experts will be able to achieve better quality research outcomes

- In industry, Big Data, Cloud and AI solutions providers will experience improved efficiencies and attract new business opportunities

Policy Cloud
Cloud for Data-Driven Policy Management

Added value

- Societal: All society aspects in which public sector has impact though specific policies, at local, regional and national levels. In the case of PolicyCLOUD, pilots tackle the Security, Agri-food, Urban environments and Social issues.
- Economic: Platform can be deployed as a PaaS, thus making it more affordable for PAs, even smaller ones.
- Technological: PolicyCLOUD provides tools to facilitate the data ingestion from different sources and types of data, with data pre-processing.
- Political:Support policymakers during the policy lifecycle stages

Pilot Cases covering different societal challenges

URBAN POLICY MAKING

Facilitating urban policy making and monitoring through ther analysis of crowdsourced data.

BULGARIA

INTELLIGENT POLICIES FOR THE DEVELOPMENT OF THE AGRI-FOOD INDUSTRY

Implementing environmental policies to boost the growth and development of the agri-food industry.

SPAIN

OPEN DATA POLICIES FOR CITIZENS

Predicting unemployment and associated risks to guide social services policy planning.

UK

POLICIES AGAINST RADICALISATION

Collecting and analysing social media data to enable policy makers to address radicalisation effectively.

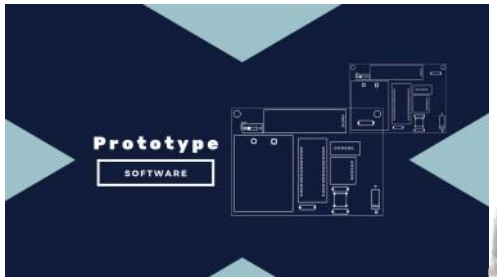
ITALY

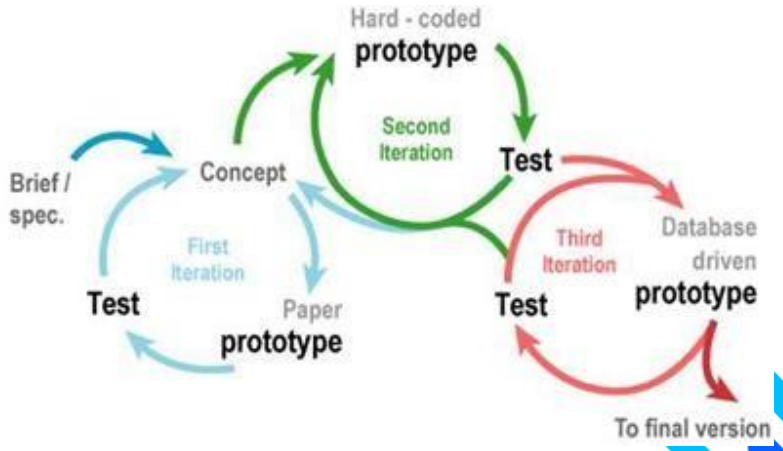
Policymakers involvement

- Via the four pilots, policymakers participate in the co-design of the different application scenarios and in fitting the PolicyCLOUD tools to their specific needs:
  - Data required
  - KPIs to be calculated
  - Data visualisation tools to be used

  …in order to get insights of the policy-related indicators during the policy development phase, as well as to analyze the pre- and post-policy implementation status.

Policymakers involvement – Co-creation process

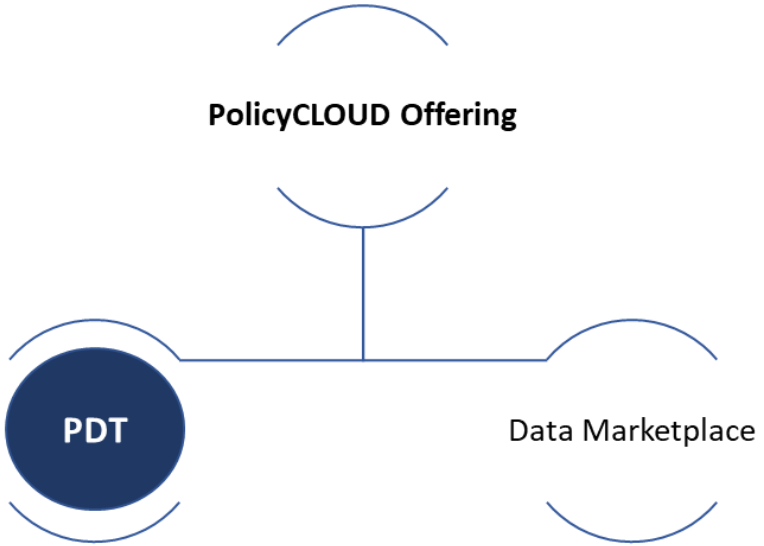




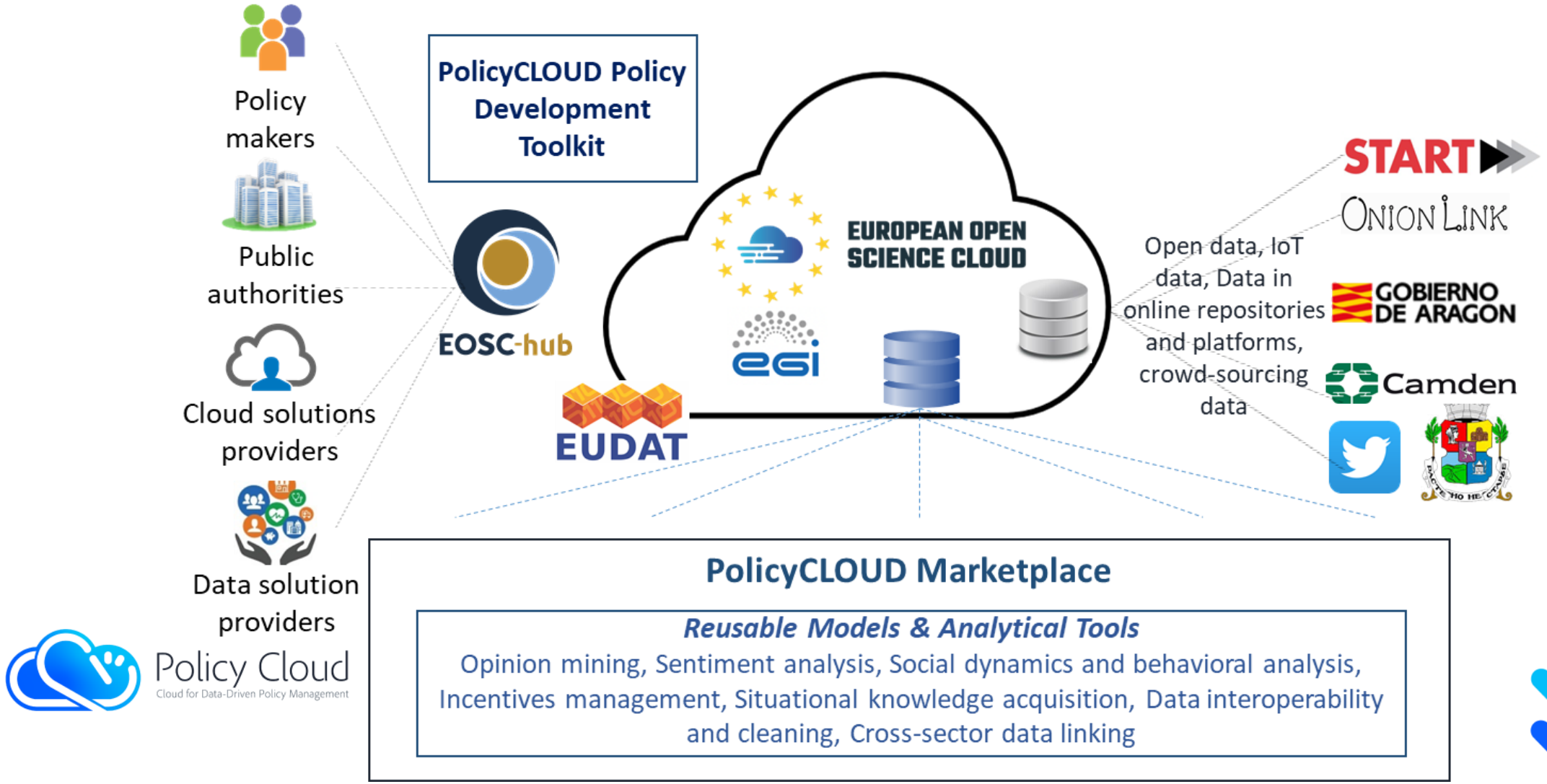
Policy Cloud
Cloud for Data-Driven Policy Management

Key exploitable results

Type of exploitable result	Description
PolicyCLOUD as a service	Solution as a service, including the PDT and the Data Marketplace
PolicyCLOUD standalone or PDT	Includes functionalities: •Policy Modelling Editor •Policy Development Toolkit •Visualisation Tools •Backend, including analytical functions
Plug & Play components and Broad Extensibility	Interchangeable main components (mostly available in the Data Marketplace)
Other components	That may require adaptation and integration



PolicyCLOUD in EOSC



Policy Cloud
Cloud for Data-Driven Policy Management

GET IN TOUCH

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