European Commission

ITAPA 2017 International Congress

Driving digital transformation through analytics

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European Commission

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Agenda

Unlock the power of information

"Data, information and knowledge are strategic assets, but until now we have not fully exploited their potential. We need to move to more collaborative ways of working, and look for opportunities to share information and knowledge.

I know I can count on your support to unlock the power of information."

Former Vice-President Kristalina Georgieva

Introduction
Digital Transformation & Analytics

WHAT

The ability to manage data is critical to the success of organisations such as the European Commission

WHY

To become a data mature organisation to take informed decisions

WHAT FOR

- Policy-making
- Functioning
- Transparency
- Providing services

HOW

Through the Digital Transformation
- Data4Policy
- Data, Information and Knowledge management
- Data Strategy
- Data Services

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Agenda

Driving digital transformation through analytics

Introduction

Objectives

Experimenting with technology

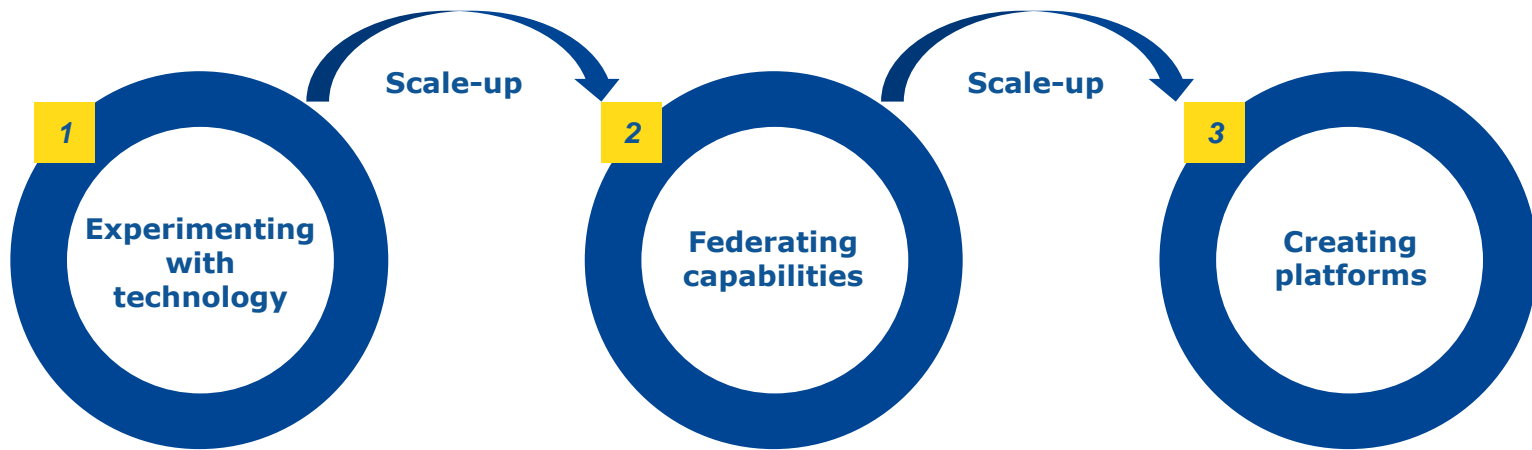Federating capabilities

Creating platforms

Next Steps

Maximise use of data for better policy-making and functioning

Objectives

Maximise the use of data to the fullest to support the policy making lifecycle and the internal functioning

Scale-up **Scale-up**

1

Experimenting with technology

2

Federating capabilities

3

Creating platforms

By carrying out different pilots, we understood how the **policy-making lifecycle and the internal functioning could benefit from technology**…

… and create a **collaborative environment (ecosystem)**

… with the ultimate objective of **fostering innovation and providing ready-to-use environments**

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Agenda

Experimenting with technology
Background

The role of Data analytics

All types of data can provide valuable insights for public authorities provided they are analysed in the correct way, making use of solid analytical processes for the type of data, hypothesis and questions at hand. Due to the nature of (big) data, relevant technology is an important element to process the data and discover insights.
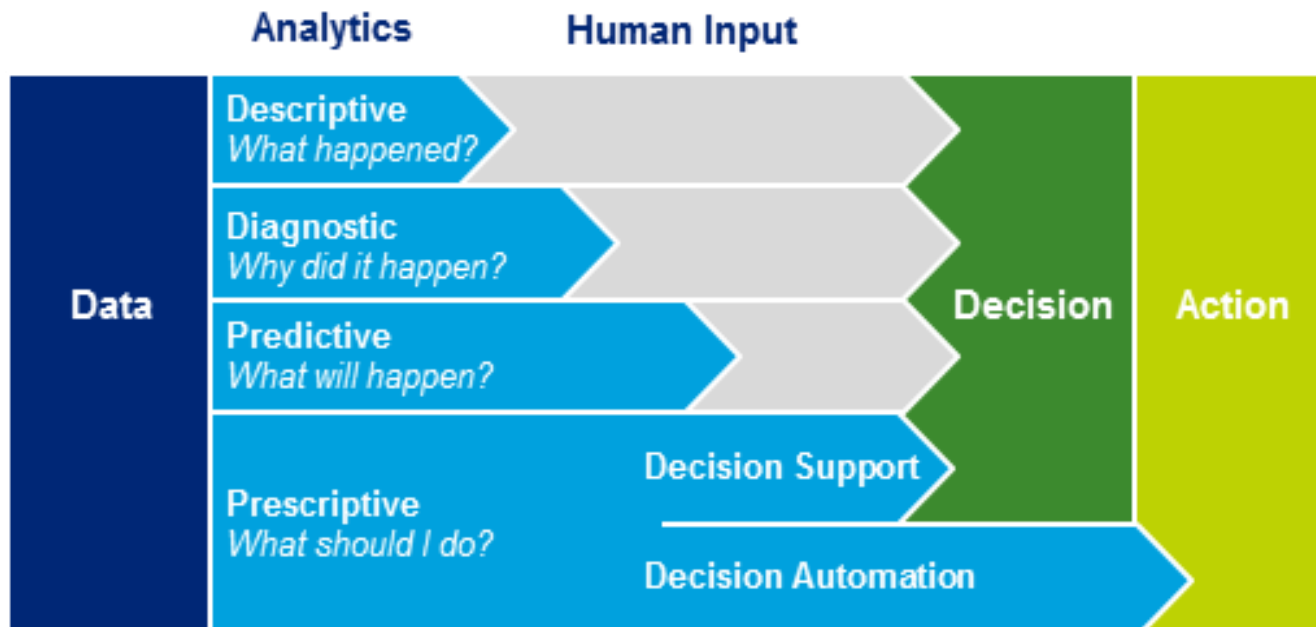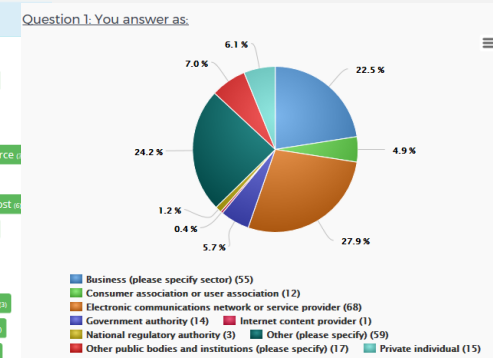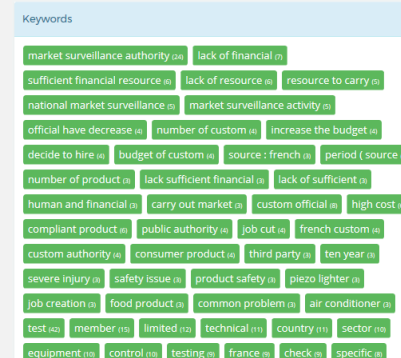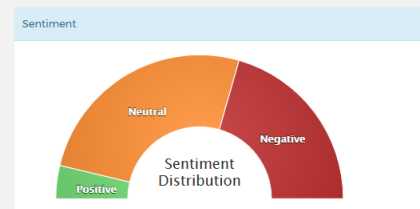
Experimenting with technology
Pilots (1): analysing feedback from citizens - DORIS

Why a solution was needed?

- To analyse data from open and closed questions
- Dashboard to visualise and further analyse the results of the consultation
- Text analysis, sentiment analysis, data mining and reporting techniques to facilitate the analysis of structured and unstructured information
- Optimisation of the time required for the analysis

The solution

- Different analytics techniques (clustering, keyword extraction, name entity recognition, sentiment analysis and campaign detection)
- Web interface to access the results of the analysis with basic functionalities such as filters, maps, translation and automatic charts

Experimenting with technology
Pilots (2): job market analysis - Victory

Why a solution was needed?

- To analyse all job vacancies that are published in employment portals in order to be able to launch vacancy-unification policies
- To analyse the employability in Europe.
- To discover the market trends when it comes to IT needs.

The solution

- Job vacancies data was purchased to the job employment service providers with a total of 50 millions of records analysed per year
- Different algorithms were applied to prepare the information and machine learning techniques to classify and analyse the data
- A **web tool** has been developed to visualise the results.
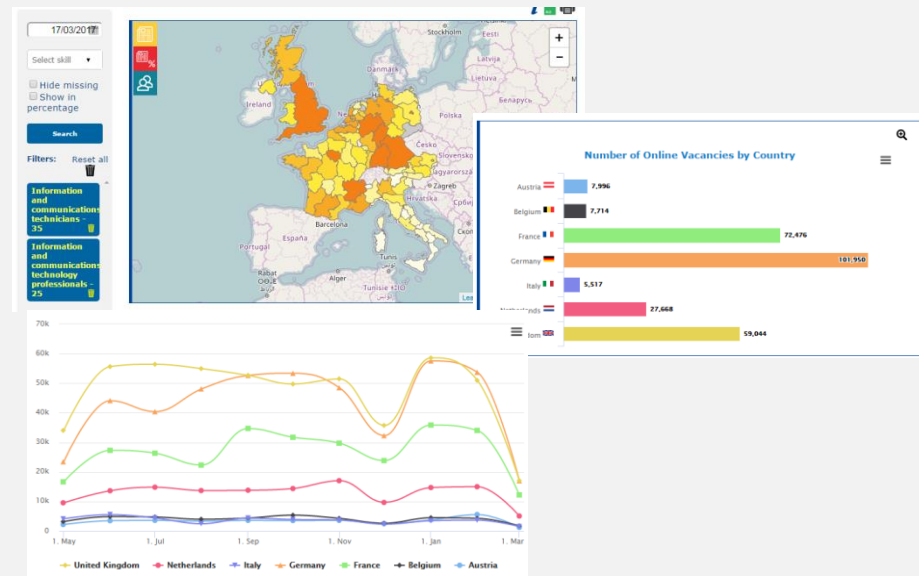
Some results...

- England is the region that publishes the largest number of IT job vacancies (related to analyst or software programmers and applications)
- The country with the lowest IT vacancies is Italy and the most public is Germany.
- The most required degree is Master.
- Generates quality employment, the vast majority of contracts are permanent.
- Large companies generate 1.5 more vacancies than SMEs.
- The most demanded experience is 2 years, 3 to 5 years, and.
- The most frequent salary range is between 16-30K

Experimenting with technology
Pilots (3): connecting information - Social Insertion

Why a solution was needed?

- To help identify the strengths and weaknesses in social policies when it comes to social insertion
- To identify the different groups of individuals and family units with homogenous issues that lead to exclusion
- To detect the chronological evolution and discovering its causes
- To establish an insertion index to measure the potential inclusion of an individual or family

The solution

- We used data from RMIN application (internal data from Comunidad de Madrid) with a total of 60.000 records analysed
- We applied different algorithms to identify the main citizen characteristics
- Clustering methods
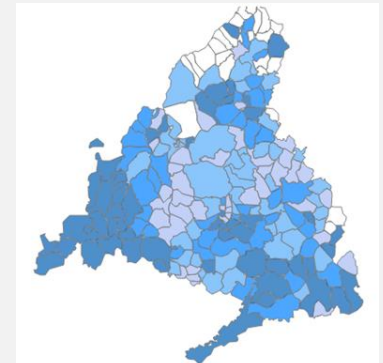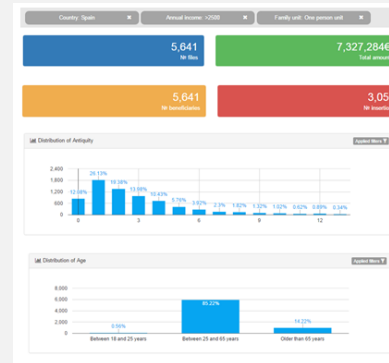- A **web tool** has been developed to visualise the results

Figure 46 – Distribution of records by municipality / district

Some results...

- Segmentation obtained from the different groups at risk of social exclusion in the Community of Madrid
- Greater efficiency in the detection of groups that request more minimal help.
- The people from Africa with children are the group who stay the most at risk of poverty
- People whose country of origin is Spain are more likely to escape social exclusion
- Single-parent families are those with a higher percentage of insertion.

Experimenting with technology
## Pilots (4): EC Workplace of the future – internal functioning

Why a solution was needed?

- To help identify interactions and networking between organisational entities (units) in Directorate Generals and cross-Directorates
- To get hints in defining internal policies on spaces (open spaces), working methods (working across siloes), tools (digital workplace)
- To monitor the impact of internal working methods and collaboration tools

The solution

- Collection of data from collaborative tools and emails
- Application of networking analytics visual tools
- Use the results of the networking analysis to monitor impact and shape internal decisions

Interaction between units (Connected top 10)
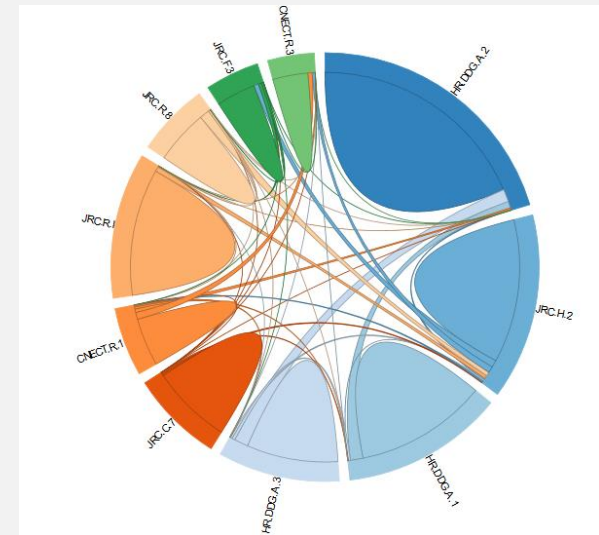
Some results…

- Interactions between different entities but also buildings
- Most of the networking is inside specific departments
- Cross-department projects starts to spread across the organisation
- Useful insights on how we are implementing the new working methods proposed by President Juncker
- Useful evidence for taking informed decisions on how to shape the work place of the future (working methods, tools, space)

Agenda

Driving digital transformation through analytics

Introduction

Objectives

Experimenting with technology

Federating capabilities

Creating platforms

Next Steps

Federating capabilities
Context

Scattered Projects and Expertise

Silo mentality

Low awareness of potential of data & analytics across the community

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Federating capabilities
Objectives

1. Promote teamwork and overcome silo mentalities

2. Harnessing synergies between portfolios

3. Give more visibility to the work done by different services and foster re-use as a service

The strategic use of data, information and knowledge is an essential part of this new way of working. Hence, data, information and knowledge need to be shared and exploited in order to remove the barriers that still hamper working together.

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Federating capabilities
Federated Catalogue of Services

Users

Data4Policy Group

Federated catalogue of Services

Experts Tools Data

Service Provider A

Service Provider B

Service Provider C

Departments providing services
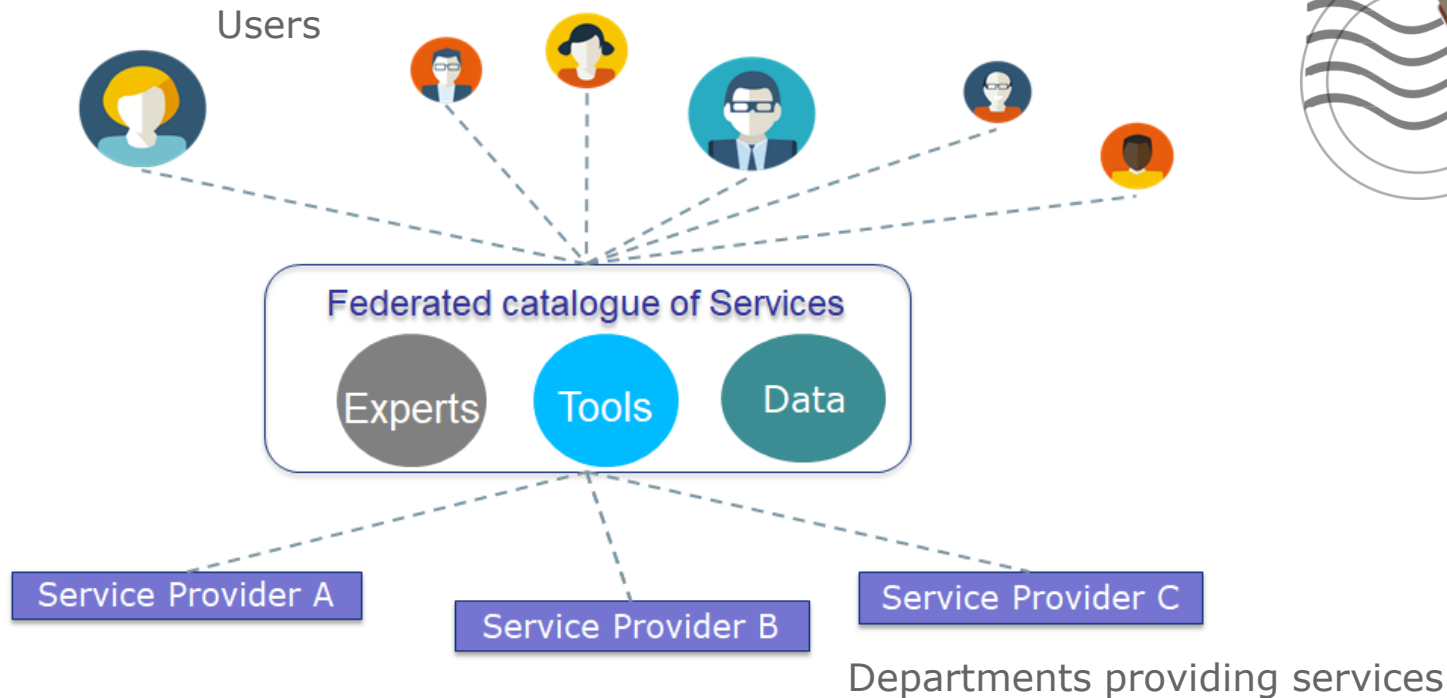
The Federated Catalogue of Services will provide a full range of Data & Analytics service offering to the end-users and to the practitioners of big data and data analytics within the European Commission.
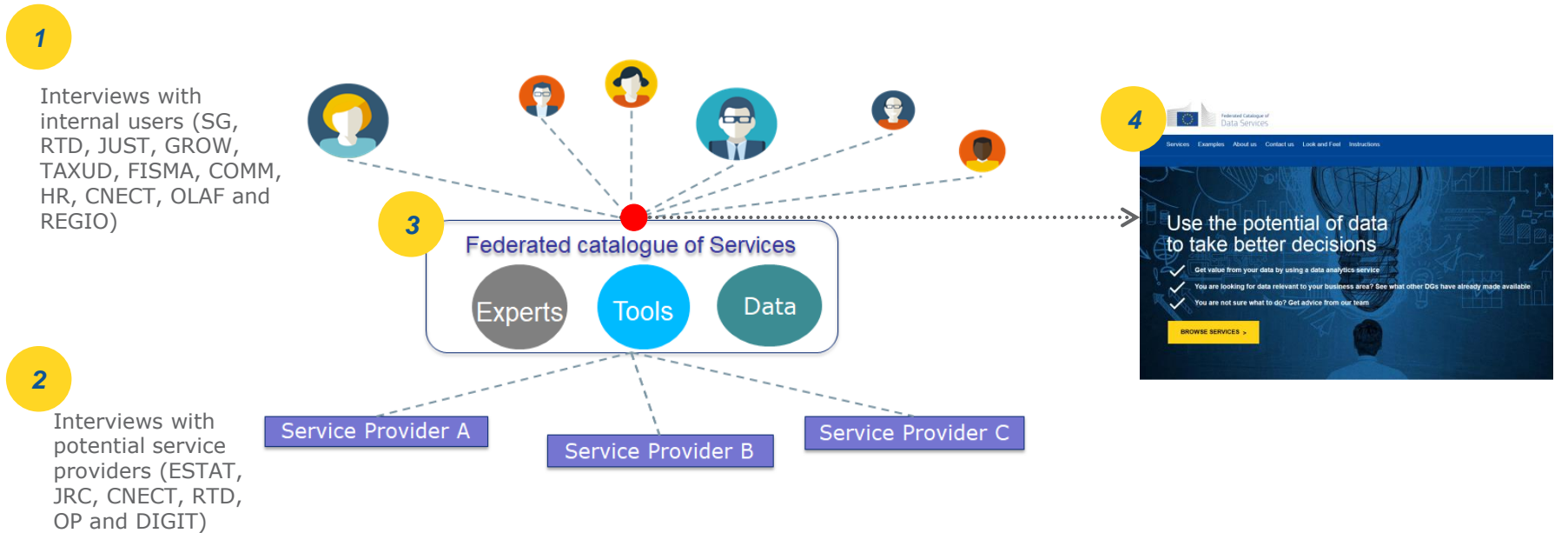
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Federating capabilities
Benefits

Federated catalogue of Services
Experts Tools Data
Service Provider A
Service Provider B
Service Provider C

1. **Homogeneity** and quality;

2. **Economies of scale**;

3. **Reuse** of resources;

4. **Scale up the service**;

5. **Post-service support**; and

6. **Monitoring of the service quality.**
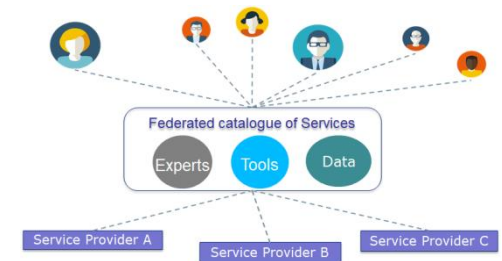
Federating capabilities
Methodology

1 User needs research

2 Identification of service offering

3 Match of user needs and services provided

4 Mock-up of the catalogue

1 Interviews with internal users (SG, RTD, JUST, GROW, TAXUD, FISMA, COMM, HR, CNECT, OLAF and REGIO)

3 Federated catalogue of Services

Experts Tools Data

4

Use the potential of data to take better decisions

Get value from your data by using a data analytics service

You are looking for data relevant to your business area? See what other DGs have already made available

You are not sure what to do? Get advice from our team

BROWSE SERVICES >

Service Provider A
Service Provider B
Service Provider C

2 Interviews with potential service providers (ESTAT, JRC, CNECT, RTD, OP and DIGIT)

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Federating capabilities

Federated Catalogue of Services: User Interface

Tools

Data

Experts

Federating capabilities
Federated Catalogue of Services: User Interface

Browsing services

Federating capabilities
Federated Catalogue of Services: User Interface

Federating capabilities
Federated Catalogue of Services: Service Model Framework
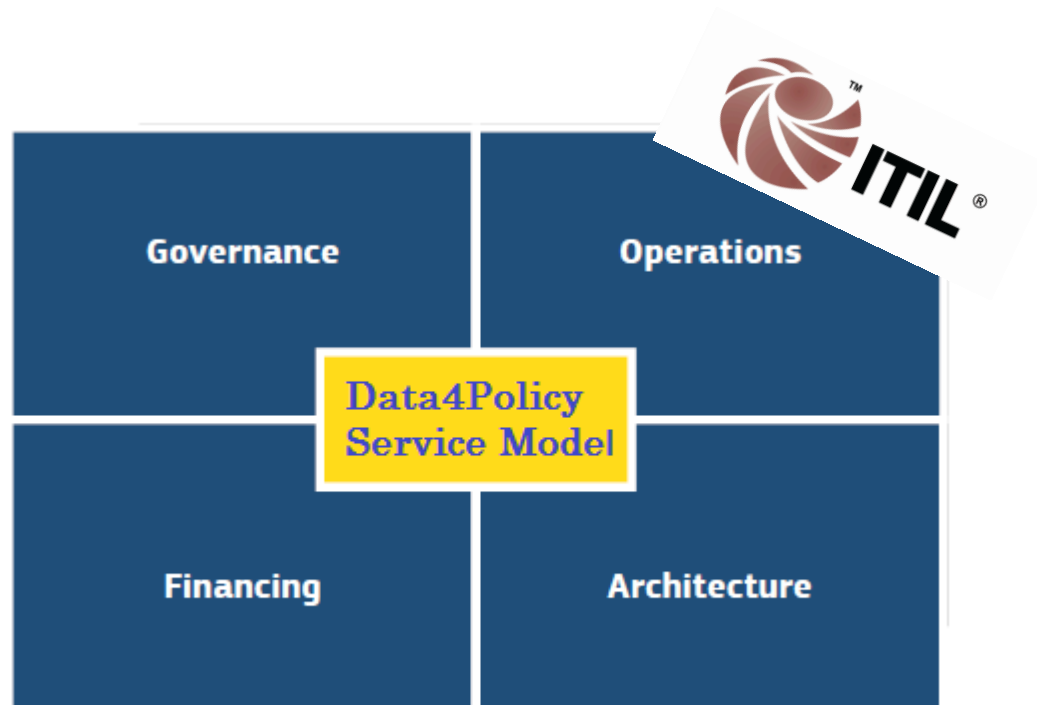
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Creating Platforms
Big Data Test Infrastructure: Background

This Big Data Test Infrastructure is one of the activities under **ISA² Action 2016.03 – Big Data for Public Administrations**, funded by the ISA² Programme

The **ISA² programme** supports the development of digital solutions that enable public administrations, businesses and citizens in Europe to benefit from interoperable cross-border and cross-sector public services.

Problem statement:

- **Adoption of analytics technologies is lagging** behind in public administrations

- **Lack of a turn-key cloud environment** that offers a full stack of technologies to test the value of new ways of processing big data

Objective:

Support the execution of Big Data pilots under different policy domains by any interested Public Administration and Institution in Europe enabling the implementation of both Big Data pilots at National/Local level and at cross-border level

The infrastructure is to be used by the Commission and by interested Public Administration in the EU
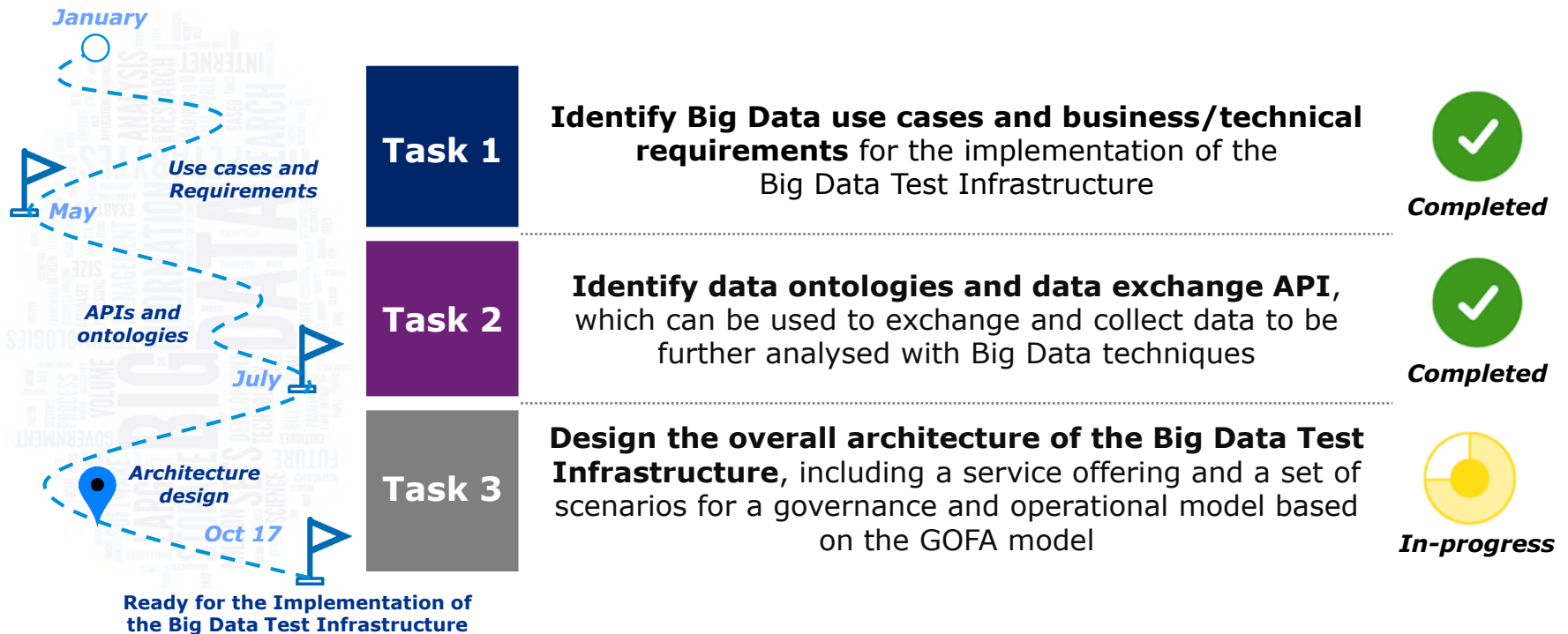
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Creating Platforms

Big Data Test Infrastructure: Objectives

Adoption of Big Data Technologies

Sharing of Big Data sources and test datasets

Sharing of Big Data artefacts

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Creating Platforms
Big Data Test Infrastructure: Approach and status of the study

January

Use cases and Requirements

May

APIs and ontologies

July

Architecture design

Oct 17

Ready for the Implementation of the Big Data Test Infrastructure

Task 1	**Identify Big Data use cases and business/technical requirements** for the implementation of the Big Data Test Infrastructure	✅ **Completed**
Task 2	**Identify data ontologies and data exchange API**, which can be used to exchange and collect data to be further analysed with Big Data techniques	✅ **Completed**
Task 3	**Design the overall architecture of the Big Data Test Infrastructure**, including a service offering and a set of scenarios for a governance and operational model based on the GOFA model	**In-progress**

Strong participation of Member States through the intermediary of the ISA Coordination Group. MSs on-board so far are: Slovenia, Spain, Portugal, Norway, Estonia, Malta, Czech Republic, Hungary and Netherlands

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Federating capabilities

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Next Steps

Next steps

New wawe of pilot projects

Launch the catalogue of services

Big Data test infrastructure

Implementation of data lakes

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Thank you for your attention

Driving digital transformation through analytics

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DG INFORMATICS (DIGIT)

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