The PITHIA-NRF e-Science Centre

Prof Tamas Kiss

University of Westminster

PITHIA High-profile Meeting, Brussels

14.03.2023

Objectives of the PITHIA e-Science Centre

➢ central **integration** tool for data, models and scientific services

➢ **integration** and **more efficient** utilisation of currently existing, heterogeneous and non-interoperable tools and services

➢ accessible via high-level adaptable **graphical user interfaces**

➢ supports the **learning process**

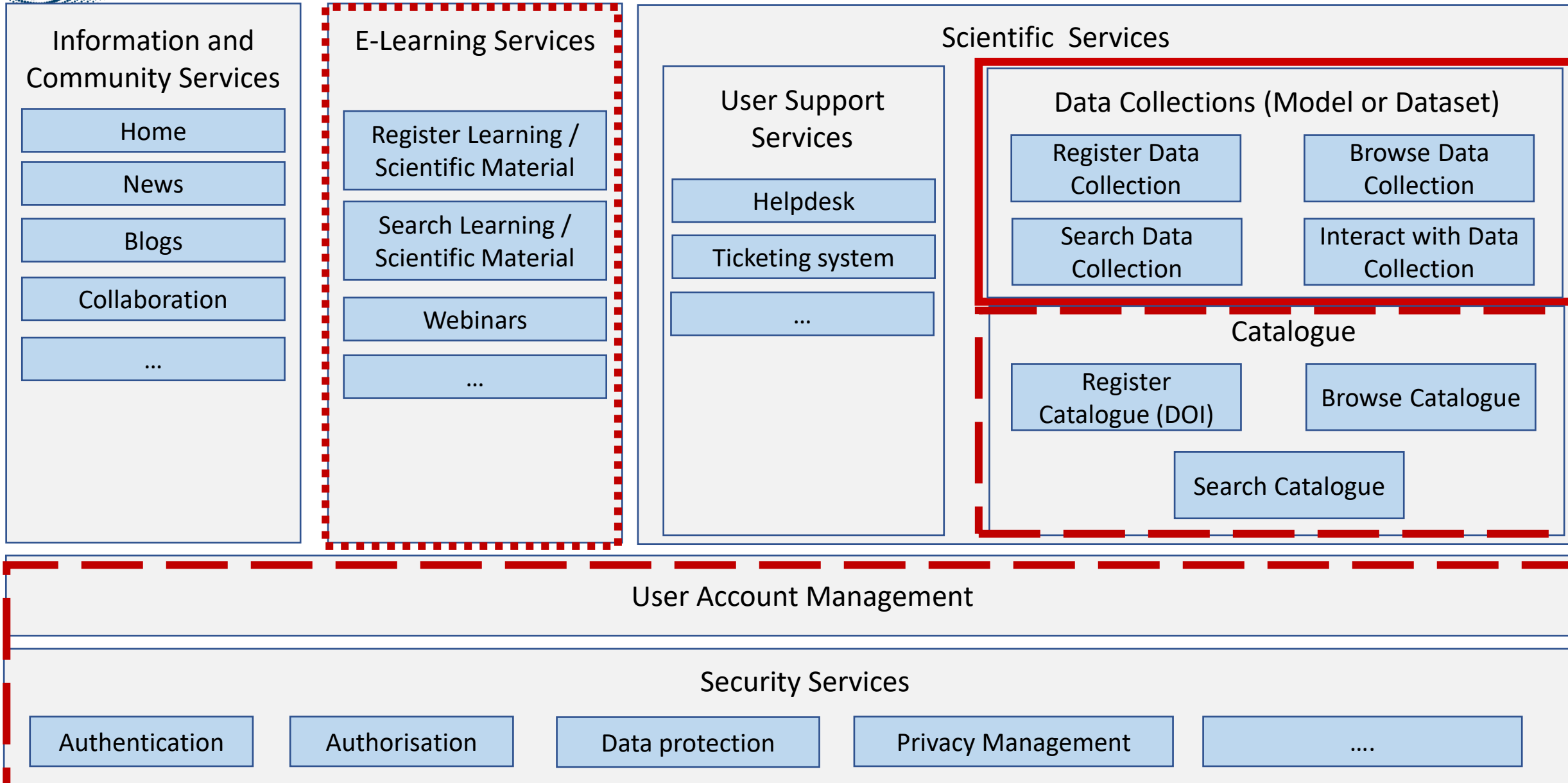➢ exploits the power of **cloud-based** computational and data resources

PITHIA e-Science Centre roadmap

➢ **Requirements collection** started in April 2021

  ➢ 56 questioners with up to 166 questions each completed and analysed by the PITHIA community

  ➢ Thorough technology investigation

  ➢ Metadata and ontology design

➢ **Proof of Concept** and technology trials throughout 2021

➢ **Implementation** started in January 2022

➢ **First working versions** by Summer 2022

➢ **First public release** at the end of March 2023

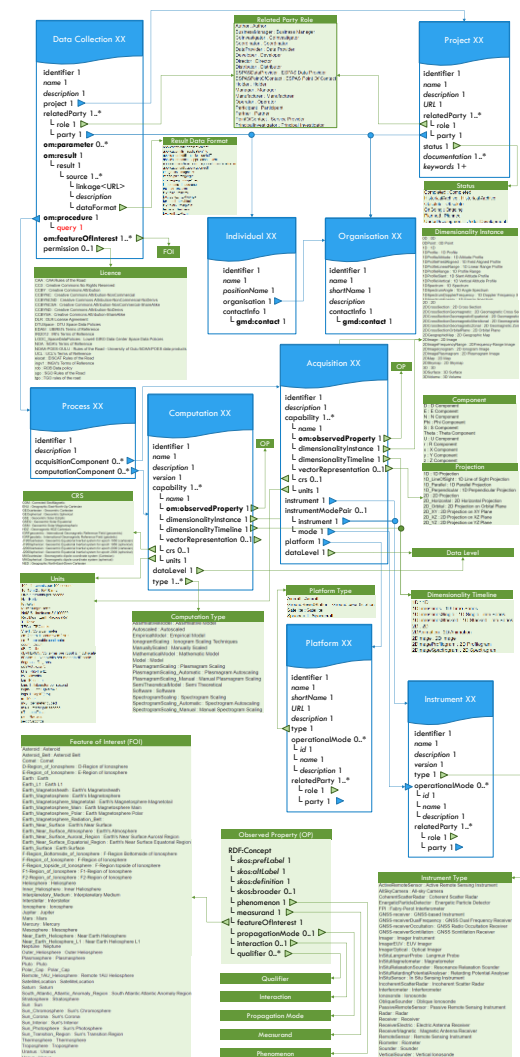➢ **Continuous** function development throughout the project's lifetime

e-Science Centre Services

Information and Community Services

- Home
- News
- Blogs
- Collaboration
- ...

E-Learning Services

- Register Learning / Scientific Material
- Search Learning / Scientific Material
- Webinars
- ...

Scientific Services

User Support Services

- Helpdesk
- Ticketing system
- ...

Data Collections (Model or Dataset)

- Register Data Collection
- Browse Data Collection
- Search Data Collection
- Interact with Data Collection

Catalogue

- Register Catalogue (DOI)
- Browse Catalogue
- Search Catalogue

User Account Management

Security Services

- Authentication
- Authorisation
- Data protection
- Privacy Management
- ....

PITHIA Ontology and Metadata Structure

Yes, it looks complicated, BUT

➢ **Complication is for the provider**

  ➢ Needs to describe its assets in XML format – only once

  ➢ Templates, manuals help and (later) tools are provided for support

➢ **Gain is for the scientist (user)**

  ➢ Gets very detailed and precise information about the assets

  ➢ Can utilise very sophisticated ontology based search

How to interact with a Data Collection (Model or Dataset)

1. **Get a link once the Data Collection is found**
   ➢ Search/Browse returns detailed information about the Data Collection, including external link
   ➢ Click on the link and get redirected to the external site of the Data Collection
   ➢ **Advantage:** centralised search, detailed information captured in the metadata

2. **Execute Model within the e-Science Centre**
   ➢ Search/Browse returns detailed information about the Data Collection, including link to API
   ➢ Click on the link and interact with Data Collection within the e-Science Centre
   ➢ **Advantage**: never leave e-Science Centre, all Data Collection interactions look similar

3. **Dynamically deploy Data Collection (Model) in the Cloud**
   ➢ Search/Browse returns detailed information about the Model, including a link
   ➢ Click on the link and get the Model deployed in the cloud, just for you
   ➢ **Advantage:** model is only yours, scalable, cost effective (destroyed after interaction)

4. **Download and install Data Collection on local computer**
   ➢ Search/Browse returns detailed information about the Data Collection, including a link
   ➢ Click on the link and download Data Collection to your local machine
   ➢ **Advantage:** good for simple Models or smaller Datasets

Who can access the e-Science Centre

➢ Currently anyone who has the link (not publicised yet)

➢ After official release (from April 2023)

  ➢ Anyone can browse, search and interact with Data Collections (unless Data Collection requires specific account or registration)

  ➢ Data Collection provides need to register

PITHIA e-Science Centre live demo…

Thank you for your attention!

WEB: **https://www.pithia-nrf.eu**