

# CS3MESH4EOSC

WP4 „Users and applications”

# WP4 - USERS & APPLICATIONS

## **DoW objectives (I):**

To integrate core applications into the federated service for inclusion into the production workflows and daily practice of all considered research groups.

# WP4 - USERS & APPLICATIONS

## **DoW objectives (2):**

The results of the work of each application task will be tested with benchmark use-cases and respective user community.

This will be performed as a part of each task.

Early adopter validation will be performed before applications are made available to the entire community.

# WP4 - USERS & APPLICATIONS

## **DoW objectives (3):**

Application tasks will provide feedback to WP3 to extend OCM API and CS3APIs via Task 5.5 in order to enable exploiting benefits from the federation layer.

# WP4 - USERS & APPLICATIONS

## Technical tasks:

4.1: Data Science Environments (AIL, CERN, JRC, PSNC)

4.2: Open Data Systems (DTU, PSNC, AARNET)

4.3: Collaborative Applications (WWU, PSNC, CERN)

4.4: On-demand data transfers (SurfSARA, PSNC, CESNET, AARNet)

## Input/output tasks:

4.5. Common application requirements and deployment mechanisms  
(PSNC, DTU, AIL)

4.6. Evaluation of the dynamics of collaborative users communities and governance of the CS3 mesh consortium (ESADE, CERN, PSNC)

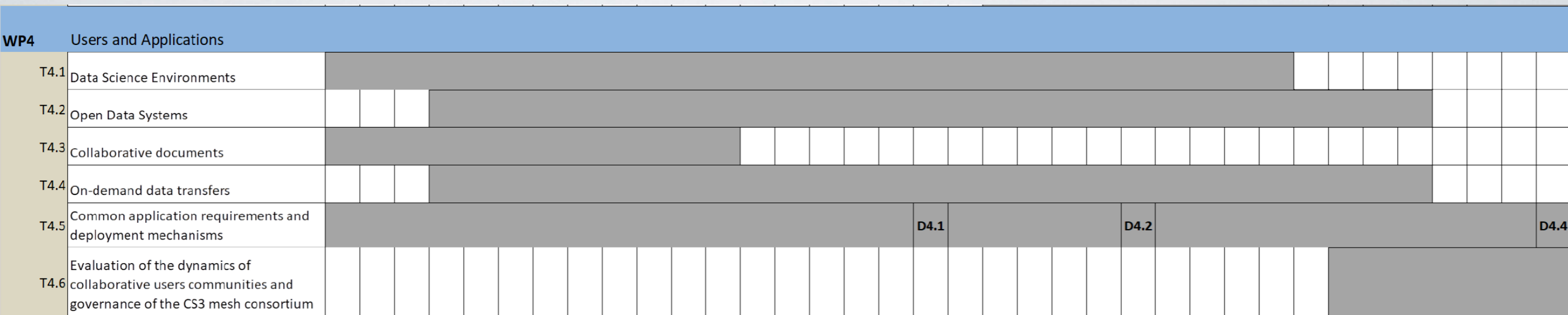
# WP4 - USERS & APPLICATIONS

Task vs partners distribution table

		<b>WP4 TASKS</b>					
		<b>4.1</b>	<b>4.2</b>	<b>4.3</b>	<b>4.4</b>	<b>4.5</b>	<b>4.6</b>
<b>PARTNER</b>	<b>PMs</b>	<b>Data Science</b>	<b>Open Data</b>	<b>Collaborative</b>	<b>Transfers</b>	<b>Common req.</b>	<b>Dynamics...</b>
CERN	12						
DTU	40						
SURF	29						
PSNC	56						
CESNET	4						
AARNET	7						
SWITCH	0						
WWU	10						
AILL	39						
CUBBIT	0						
JRC	9						
ESADE	6						

# WP4 - HIGH-LEVEL WORKPLAN

## Gantt Chart from DoW:



# WP4 - WORKPLAN

## Deliverables:

#	Name	Month
D4.1	Demonstration of application functionality (all workflows) across federated share	M18
D4.2	Demonstration of application functionality (all workflows) in a user group	M24
D4.3	Report on challenges and guidelines for collaborative user communities	M30
D4.4	Full validation of application and use-cases for all workflows	M36

## Milestones:

#	Name	Month	Means of verification
M4.1	Collaborative Documents workflow integrated	9	Progress report
M4.2	Data Science Environments workflow integrated	15	Progress report
M4.3	On-demand data transfers workflow integrated	21	Progress report
M4.4	Open Data Systems workflow integrated	27	Progress report



# DELIVERABLE IN 2020?

## Deliverables:

- D4.1. Demonstration of application functionality (all workflows) across federated share (**M18**)
- D4.2. Demonstration of application functionality (all workflows) in a user group (**M24**)

## Milestones:

- M4.1. Collaborative Documents workflow integrated (**M9**)  
- it's September 2020
- M4.2. Data Science Environments workflow integrated (**M15**)

# WHAT WILL WE START WITH...

## Technical tasks (starting at **MI**):

### 4.1: Data Science Environments (AIL, CERN, JRC, PSNC):

*„...integrate data science environments into the federated Science Mesh...”*

*„...collaborative research and enabling cross-federation sharing of computational tools, algorithms & resources”*

1. JupyterLab with collaborative notebook editing, interactive widgets, e.g. QuantStack Voila, etc.
  2. Jupyter native-interfaces for OCM sharing;
  3. Connection to code repositories such as Git-based or CVMFS based and lightweight runtime environments similar to mybinder.org;
  4. Interface to computational resources such as BigData Spark, HPC, batch and Grid clusters
- Start with mutual training, demos, current features / limits evaluation;
  - Create detailed development plan: Define the scope of integration: what we can do, what not;
  - Defining use-cases: JRC+AIL (EO) and CERN (HEP)

# WHAT WILL WE START WITH...

## Technical tasks (starting at **MI**):

### 4.3: Collaborative Applications (WWU, PSNC, CERN)

„...integrate collaborative content editing applications in the Science Mesh, cross-federation collaboration”

- Office Applications:
  - start with Collabora and Only Office:
    - comparison / analysis of features and limitations (lead by WWU)
      - start with training / knowledge exchange / testing / pilots / PoC
      - decision / selection of the project to be made - or we push both products?
      - Collabora / OnlyOffice vs ownCloud, NextCloud, Seafile (all partners)
      - *WP3 => sync with overall CS3 API design*
      - *feed requirements => WP3*
  - Later: Latex and Markdown (*Who's going to make it?*)

# WHAT WILL WE START WITH...

## Technical tasks (starting at **M4**):

### 4.2: Open Data Systems (DTU, PSNC, AARNET)

*„...integrate open data repositories (focusing on OpenAIRE’s OAI-PMH) in the Science Mesh.”*

- work-data organisation support (tagging and meta-data assignment)
- preparing data for publication and sending to repositories
- ... at the level of EFSS
- starting from investigating the open data packaging archive formats (Dublin Core, the Library of Congress BagIt, etc)
- Use-cases:
  - AARnet+DTU provides components based on the previous activities w/ own/nextCloud
  - Open Data prototypes at AARNet
  - PSNC

# WHAT WILL WE START WITH...

## Technical tasks (starting at **M4**):

### 4.4: On-demand Data transfers (SurfSARA, PSNC, CESNET, AARNet)

*„...integrate data transfers of large datasets (in TB range) in the Science Mesh, to allow efficient data-based collaboration on on-demand basis...”*

*„...opposite to a priori planned data processing workflows”*

#### Scope

- 1) transfers initiated and handled directly between EFSS services;
- 2) transfers initiated by EFSS service but offloaded to a secondary service

#### Start:

- decide who makes what
- what components we take: WebDAV, S3, HTTP, rclone
- what services we integrate: B2STAGE, FTS, DTN

# WHAT WILL WE START WITH...

## Technical tasks (starting at **M4**):

### 4.5: Common application requirements and deployment mechanisms (SurfSARA, PSNC, CERN, AARNet)

- Communication of requirements and design principles among WP4/3
- Works in cycles:
  - *T4.1-4.4 => T4.5*
  - *WP3 => (T4.5) sync with overall CS3 API design*
  - *feed requirements (T4.5) => WP3*
  - *T4.5 => T4.1-4.4*
- 4.5 involves WP leaders: WP2 (SurfSARA), WP3 (CERN) and WP4 (PSNC)

# WHAT WILL WE START WITH...

## Technical tasks (starting at **M4**):

4.6: Evaluation of the dynamics of collaborative users communities and governance of the CS3 mesh consortium (ESADE, PSNC, CERN)

„analyze the evolution of user communities and architecture of the CS3 consortium to identify key challenges and opportunities related to the end-user adoption of the deliverables of this work package”

„studied the interaction of the social dynamics and technical architectures of Open Source communities as well as commercially successful technology ecosystems and platforms”.

„As a heterogeneous and federated scientific computing consortium, we can expect CS3MESH4EOSC to face a unique set of challenges and tensions in both the design of its technology / architecture as well as its governance.”

„This WP will identify and diagnose these challenges as well as offer normative guidelines towards their effective management”.

# MAIN CHALLENGES AND RISKS

## **Per technical task?**

4.1: Data Science:

4.2: Open Data:

4.3: Collaborative:

4.4: Data transfers:

## **Overall / non-technical**

Task 4.5 - find a balance among feature-richness and clarity of API

Task 4.6 - synchronize technical workplan with sustainability plan



# MAIN INTERACTIONS WITH OTHER WPS?

4.1: Data Science:

4.2: Open Data:

4.3: Collaborative:

4.4: Data transfers:

**=> 4.5. Common application requirements  
and deployment mechanisms**

=> WP3 (especially 3.1:

„Definition and standardization of protocols and APIs”)

=> WP5 (communication task)