

## D4.1: Science Demonstrator Engagement Model

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Status	<b>Final</b>
Version	V1.0
Date	18/03/2017

### Abstract:

The Science Demonstrators play an essential role as early adopters of EOSC from a range of science areas. Their input will be used to drive and prioritise the integration of the EOSC services in a common homogeneous platform.

To achieve this goal, an engagement model for the science demonstrator has been developed and is proposed in this document which provides guidelines to structure the interaction between selected science demonstrators and the EOSCpilot project.

The interaction between the Science Demonstrators and the EOSCpilot is categorized in five phases: funding model, initialisation, execution, reporting and feedback, and Review and improvement of the engagement model.

During the initialisation phase, a work plan and roadmap will be developed which provides the guideline for the execution phase. A template for the work plan is provided. For reporting and provisioning of written feedback by science demonstrators, a general template has been developed. Three reports are proposed: an initial, an middle, and a final report. Other WPs are invited to provide specific questionnaires to be added as attachments to the report template in due time.

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- PU: Public  
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The European Open Science Cloud for Research pilot project (EOSCpilot) is funded by the European Commission, DG Research & Innovation under contract no. 739563

<b>Document identifier: EOSCpilot –WP4-D4.1</b>	
Deliverable lead	<b>MPG</b>
Related work package	<b>WP4</b>
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Due date	<b>01/04/2017</b>
Actual submission date	<b>DD/MM/YYYY</b>
Reviewed by	Dario Vianello (EMBL-EGI), Montserrat Gonzalez (EMBL-EGI), Matthew Viljoen (EGI), Brian Matthews (STFC)
Approved by	
Start date of Project	<b>01/01/2017</b>
Duration	<b>24 months</b>

## Versioning and contribution history

Version	Date	Authors	Notes
0.1	24/02/2017	Hermann Lederer (MPG)	First draft.
0.2	28/02/2017	Hermann Lederer John Kennedy (MPG) Thomas Zastrow (MPG)	Annex C Refinements on main part, extension of 3.3
0.3	01/03/2017	Hermann Lederer	Modifications of Annex B to address data handling for WP1. Modification of 3.2 (monitoring of data handling risks).
0.4	03/03/2017	Hermann Lederer (MPG) Steven Newhouse (EMBL-EBI)	General content, extension of Annex C
0.5	07/03/2017	Dario Vianello (EMBL-EBI) Montserrat González (EMBL-EBI)	General content
0.6	08/03/2017	Matthew Viljoen (EGI)	General content
0.7	17/03/2017	Brian Mathew (STFC)	General content, adding further requirements
1.0	19/03/2017	Hermann Lederer (MPG)	Final revision
1.0	23/03/2017	Montserrat González	Formatting

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## TABLE OF CONTENT

<b>1. INTRODUCTION .....</b>	<b>5</b>
<b>2. ROLE OF SCIENCE DEMONSTRATORS .....</b>	<b>6</b>
<b>3. ENGAGEMENT MODEL.....</b>	<b>7</b>
<b>4. CONCLUSIONS .....</b>	<b>9</b>
<b>ANNEX A. GLOSSARY .....</b>	<b>10</b>
<b>ANNEX B. WORK PLAN AND ROADMAP TEMPLATE.....</b>	<b>12</b>
<b>ANNEX C. REPORT TEMPLATE .....</b>	<b>15</b>

## EXECUTIVE SUMMARY

The Science Demonstrators play an essential role as early adopters of EOOSC from a range of science areas to stimulate the engagement of the science communities and stakeholders in Open Science by building on the expertise of the research infrastructures and their service providers. Their input will be used to drive and prioritise the integration of the EOOSC services in a common homogenous platform to meet the functional and non-functional needs of researchers, and to ensure that the proposed technical governance structures provide the guidelines needed by researchers. To achieve this goal, an engagement model for the Science Demonstrators has been developed and it is proposed in this document.

The Science Demonstrator interaction with EOOSC is categorized in five phases: funding model, initialisation, execution, reporting and feedback, and review and improvement of the engagement model.

During the initialisation phase, a work plan and roadmap will have to be developed and will provide the guidelines for the execution phase. A template for the work plan is provided in Annex B. For reporting and provisioning of written feedback by Science Demonstrators, a general template has been developed and can be found in Annex C. Three reports are proposed: an initial, a middle, and a final report. Other Work Packages are invited to provide specific questionnaires to be added as attachments to the report template in due time.

## 1. INTRODUCTION

The Science Demonstrators play an essential role as early adopters of the EOSC from a range of science areas, they will stimulate the engagement of their respective science communities and stakeholders in Open Science by building on the expertise of the research infrastructures and their service providers. Their requirements will be used to drive and prioritise the integration of the EOSC services to meet the functional and non-functional needs of researchers and to ensure that the proposed technical governance structures will put in place sufficient control mechanisms to satisfy the researcher's needs.

The purpose of this document is to establish an engagement model and provide guidelines for structuring the interactions between selected Science Demonstrators and the EOSCpilot project, fostering the implementation of a European Open Science Cloud capable to cater for the needs of Open Science in Europe.

The deliverable is organised in three main sections and three annexes. Section 2 describes the roles of Science Demonstrators, Section 3 proposes an engagement model, and Section 4 presents conclusions. Annex A contains a glossary, while Annex B contains a template for work plans and roadmaps of Science Demonstrators, and Annex C proposes a template for reports of Science Demonstrators.

## 2. ROLE OF SCIENCE DEMONSTRATORS

Science Demonstrators will be early adopters of EOsc, selected from across a range of science areas. These early adopters will help to stimulate the engagement of the science communities and stakeholders in Open Science by building on the expertise of the Research Infrastructures and their service providers. Science Demonstrators dealing with societal challenges (i.e. from Life Sciences, Energy, Climate and Material Science) requiring to access and re-use data and knowledge already developed by European Institutions are, of course, of particular interest in this context.

The functional and non-functional requirements gathered from the Science Demonstrators will be used to drive and prioritise the integration of the EOsc services to meet the needs of researchers across Europe.

Science Demonstrators will need to satisfy a number of the following criteria (see EOscpilot deliverable 4.1 for more details):

- have a strong and well defined scientific challenge addressed by the use of e-infrastructure (e.g. an explicit data analysis challenge or supporting the operation of a Virtual Research Environment, or the dissemination and sharing of data and other research outputs) that will show the scientific excellence and societal impact that could be achieved by EOsc;
- provide data integration, management, interoperability and analysis challenges that will drive the specification and development of services within the EOsc ecosystem that also support open science;
- be representative of a broader scenario that, when established in EOsc, will have impact across Europe and beyond;
- be supported by mature research infrastructures and/or research organisations at a European/National level that will be the long-term consumers of the EOsc;
- commit to publishing or consuming third-party research artefacts (e.g. publications, datasets, tools, workflows) as part of the Open Science model, with the application of FAIR principles, and also as part of the EC Open Research Data Pilot.;
- be mature and has demonstrated to be working at scale on existing computational/data/connectivity and other infrastructures (e.g. private, national, European or public clouds/grids/HTC/HPC/network resources) that would become part of the EOsc.

### 3. ENGAGEMENT MODEL

The selected Science Demonstrator will be engaged to understand their needs in terms of services they will require from the European Open Science Cloud. The result of this requirements gathering phase will be used to shape and prioritise the panel of services that will be part of EOSC, ultimately building a platform able to significantly contribute to the advancement of Open Science in Europe.

Service usage shall be explored within the EOSCpilot project, and the experiences made with the different aspects (e.g. provisioning and usefulness of services, detection of missing elements, policies, interoperability etc.) shall be collected from across the science demonstrators and reported back to other work packages.

Each Science Demonstrator will:

- Work with their assigned shepherds to engage with the EOSCpilot in establishing the technical use cases, software tools, data models, and scientific workflows that they use.
- Commit to adopting and using the EOSCpilot services (in WP5 and WP6) as they become available to meet the Demonstrator's technical requirements and providing feedback on the use and suitability of these services.
- Engage with the other WPs within the project through domain specific experts.

The engagement will start immediately after the selection of each Science Demonstrator; the selection process is detailed in Deliverable D 4.2.

During the engagement phase of a Science Demonstrator with a duration of 12 months, the activities are to be organized and structured in an efficient way to maximise the output of the engagement both for the Science Demonstrator and for the EOSCpilot as preparatory step towards the European Open Science Cloud.

To standardize the interaction processes between the Science Demonstrators and the EOSCpilot project, we hereby propose an engagement strategy subdivided in 5 main phases: funding model, initialisation, execution, reporting and feedback, and Review and improvement of the engagement model.

#### **Phase 1: Funding model**

A Science demonstrator is usually backed by a multi-national science organisation or a consortium of several science organisations with engagements from potentially multiple parties. All the activities required from a Science Demonstrator to engage with EOSCpilot are co-funded through with 1 FTE for 1 year (i.e. a total of 12 PMs throughout the project) from WP4 Task T4.2. In addition, WP4 is providing shepherd effort through Task T4.3.

#### **Phase 2: Initialisation**

After the selection of a Science Demonstrator, the initialisation phase will start. This is expected to take up to one 1 month and consists of the following steps:

- a) After selection, a new Science Demonstrators is asked to provide a general presentation on its objectives, the required services to fulfill its scientific objective and the goals to be achieved by the end of the activities. This presentation will also be used in a shortened version to be published on the EOSCpilot website.
- b) Each Science Demonstrator selects within itself a Representative to act as a contact point during



the engagement process with Work Package 4. This person will ideally have a deep understanding of the scientific and IT requirements of the Science Demonstrator he or she is representing.

- c) For each Science Demonstrator, WP4 will name a suitable Shepherd to act as the sole contact point for the Science Demonstrator during the engagement process. Additionally, a deputy Shepherd will be named to support the Shepherd in its activities. Shepherd and deputy Shepherd will be selected among the staff belonging to the Partners taking part in Task 4.3 of WP4.
- d) A separate kick-off video/phone conference will be held for each Science Demonstrator, involving both the Science Demonstrator Representative and the assigned Shepherd to help both parties to familiarise with each other. The Representative of the Science Demonstrator will be informed on his leading role to monitor the data handling risks. After this initial call, both parties will be required to continuously communicate (at least weekly) to ensure a steady progress of the Science Demonstrator.
- e) Following the kick-off meeting, Representatives will collaborate with their Shepherds to define a Work Plan for the 12 months the Science Demonstrator will be active. A template for a work plan and roadmap of a Science Demonstrator is provided in Annex B.
- f) Work Plans will be revised and discussed in a plenary WP4 call (with a WP5 and a WP6 representative as guests – and potentially also other WP representatives) to verify their compliance with the requirements of the EOSCpilot project.
- g) After their finalization, Work Plans will be internally published to allow WP5 and WP6 to start their activities around the Science Demonstrators.

### **Phase 3: Execution**

The execution phase of a Science Demonstrator starts roughly one month after the initialisation phase and focuses on carrying out the work plan according to the roadmap relying on the support from WP4, WP5 and WP6. Regular meetings will continue to take place with Science Demonstrators: In monthly WP4 video conferences, activities will be monitored by WP4 leaders (through Task T4.1). WP4 shepherds (from Task T4.3) will both guide and moderate the interactions between Science Demonstrators and WP5 and WP6 and take part in meetings organized by WP5 and WP6 with the Science Demonstrators. The Science Demonstrators will also provide feedback as appropriate to WP2, WP3 and WP7, either through the respective shepherds, or through the reports (see Phase 4).

Science Demonstrators are also a valuable vehicle for disseminating and promoting the value of the emerging EOSC. Demonstrators should work with WP8 in outreach activities as appropriate, including presentations and descriptions suitable for dissemination on websites etc.

### **Phase 4: Reporting and Feedback**

Experiences made by each Science Demonstrator during the execution phase will be detailed three reports at month 4, 8 and 12. Moreover, additional reports may be required in the context of the engagement process with WP5 and WP6, which are expected to devise questionnaires to be submitted to the Science Demonstrator to better understand their needs in terms of Infrastructure and Interoperability challenges. Other WPs may also provide questionnaires. A general template for the reports required by WP4 is provided in Annex C. Science Demonstrators should also assist in preparing a summary suitable for dissemination on the EOSCpilot website, and be prepared to present the results at outreach events.

### **Phase 5: Review and improvement of the engagement model**

The feedback collected in the previous phase will be analysed to review and improve the engagement model.



## 4. CONCLUSIONS

The Engagement Strategy described in this Deliverable represents the pillar around which the communication between Science Demonstrators and Work Package 4 will take place in the 12 months each Demonstrator is expected to run. Particular attention has been made in ensuring to maintain a bi-directional continuous flow of information between involved parties throughout the whole duration of the activities. Thanks to the considerable number of Science Demonstrator draw from all Science fields that will be involved in the EOSCpilot, the project will be able to provide invaluable insights and feedbacks on what the final layout of the European Open Science Cloud should be to help foster Open Science in Europe.

## ANNEX A. GLOSSARY

The definitions below shall be considered for the purpose of this deliverable.

Term	Explanation
<b>Cloud computing</b>	The practice of using a network of remote servers hosted on the Internet to store, manage, and process data, rather than a local server or a personal computer.
<b>Consortium</b>	The EOScpilot project consortium
<b>Data analysis</b>	Process of inspecting, cleansing, transforming, and modelling data with the goal of discovering useful information, suggesting conclusions, and supporting decision-making.
<b>Data integration</b>	To combine data from disparate sources into meaningful and valuable information.
<b>Data interoperability</b>	To work with other data systems and exchange information while preserving the meaning and relationships of the data exchanged.
<b>Data management</b>	Development and execution of architectures, policies, practices and procedures in order to manage the information lifecycle needs in an effective manner.
<b>EOSC</b>	European Open Science Cloud.
<b>Grid computing</b>	A distributed computing architecture that combines computer resources from various domains to reach a main objective. In grid computing, the computers on the network can be orchestrated to work on individual tasks concurrently together, thus functioning as a much larger computer.
<b>HPC</b>	High-Performance Computing. Implies the use of parallel processing for running advanced application programs efficiently, reliably and quickly.
<b>HTC</b>	High-Throughput Computing. Implies the use of many computing resources over long periods of time to accomplish a computational task.
<b>Network resources</b>	Forms of data, information and hardware devices that can be accessed by a group of computers through the use of a shared connection.

<b>Open Science</b>	The movement to make scientific research, data and dissemination accessible to all levels of an inquiring society, amateur or professional.
<b>Science Demonstrators</b>	High-profile pilots that integrate services and infrastructures to show the usefulness of the EOSC Services and will drive the further development of EOSC.
<b>Science Demonstrator Representative</b>	Contact person from a specific Science Demonstrator. He/She will work together with the Shepherd assigned to the Science Demonstrator in order to develop the proposed project.
<b>Shepherd</b>	Staff who supports the main contact of an approved Science Demonstrator in order to facilitate the engagement with the EOSCpilot project in establishing their technical use case, software tools, data models and scientific workflow going to be used.

## ANNEX B. WORK PLAN AND ROADMAP TEMPLATE

The work plan to be filled by a Science Demonstrator Representatives in collaboration with their assigned Shepherds, providing a roadmap of the planned activities during the 12 months of activities is as follows.

### Work plan and roadmap template for selected science demonstrators

<b>EOScpilot - Science Demonstrator Work Plan and Roadmap</b>	
<b>Date / Version</b>	2017-mm-dd / V <n>
<b>Science Demonstrator Title</b>	
Representative name, affiliation and email from proposing organisation(s)	
Main Shepherd name, affiliation and email	
Secondary Shepherd, affiliation and email	
<b>Overview</b>	
Science Area and Description of the supported work.	
Detailed description of the EOsc service requirements (> ¼ page)	
List of current cloud resources and services being used by the Science Demonstrator	
Goal(s) to be achieved after 1 year in the pilot	
<b>Roadmap &amp; work plan</b>	
Work planned for Q1	

Work planned for Q2	
Work planned for Q3	
Work planned for Q4	
<b>Technical services needed (e.g. infrastructure, software)</b>	
<b>Interoperability needs</b> (e.g. data models, link between e-infrastructures)	
<b>Other requirements</b> (e.g. restrictions in the access to data, restrictions in the data transit)	
<b>Main topics and issues addressed</b> (we will look for similarities between Science Demonstrators)	
<b>Specific statements on data handling</b>	
Data management approach for new data, in conformance to the Open Research Data Pilot.	
Identification of data sources, specifying which contain data with higher sensitivity	
Identification of specific risk associated with the data	
Specification of technical and cultural processes established to control the release of sensitive data	

Processes in place in event of data breach	
Remarks	
<b>Key technical use cases of the work</b>	
List of software tools	
Data models and sizes	
Scientific workflows	
Other (please specify)	



## ANNEX C. REPORT TEMPLATE

This Annex provides a template for the report to be filled by a Science Demonstrator at months 4, 8 and 12, as detailed Section 3 of this Deliverable. Additional attachments to this template will be based on the questionnaires defined by other WPs that will be provided in due course.

### Report template for science demonstrators

<b>EOScpilot: Science Demonstrator Report</b>	
<b>Date / Type</b>	yyyy-mm-dd / <first, second, final > Report
<b>Science Demonstrator Title</b>	
Representative name, affiliation and email from proposing organisation(s)	
Main Shepherd name, affiliation and email	
Secondary Shepherd name, affiliation and email	
<b>General part</b>	
Current status	
Progress made	
Problems encountered	

Data management and handling of sensitive data, with reference to plan.	
Outreach activities	
<b>Specific Feedback on:</b>	
Communication/ information flow between the science community behind a science demonstrator on the processes	
Adequacy of technical solutions	
Missing functionality or services	
Other (please specify)	