

**Deliverable 3.1.1**

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<b>Project Acronym</b>	PhenoMeNal
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<b>History of changes</b>	<ol style="list-style-type: none"> <li>1. Outputs of the workshop</li> <li>2. Action plan after the meeting</li> </ol>
<b>Abstract:</b> The deliverable is a report on the outcomes of the PhenoMeNal annual stakeholder meeting on 14th June 2016.	



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## 1. EXECUTIVE SUMMARY

PhenoMeNal will provide well tested and portable workflows for metabolomics in the cloud for its stakeholders. An effective outreach strategy to inform stakeholders about our progress and their opportunities is therefore considered crucial for the success and sustainability of PhenoMeNal. As part of the project's active stakeholder engagement plan, the consortium profiled stakeholders to understand their interests, knowledge, expectations and demands relevant to the project. The described stakeholders were from the wider scientific arena including a) metabolomics research laboratories b) SMEs c) instrument vendors d) other e-infrastructures e) industry f) data experts and g) clinical researchers and practitioners.

In the first annual stakeholder meeting, the consortium identified 4 key issues faced by its external stakeholders from 6 different communities: 1) storage and handling of extreme data volumes, 2) computational challenges in processing such data, 3) lack of data standards and reproducibility and, 4) data privacy. It was recommended that the project facilitate scaling up of tools to cope with large datasets, adopt appropriate measures for standardisation of data and data stewardship, and ensure that the Ethical, Legal and Social Implications (ELSI) are considered whilst dealing with sensitive human data.

The consortium also took the opportunity to capitalise on further engagement opportunities in the form of working groups and collaborations for sustainability. All of this has fed into the consortium's effort to assess its stakeholder community, to define a granular level of engagement with them and to allocate resources to support the project's communication strategies and follow up activities.

## 2. CONTRIBUTION TOWARDS PROJECT OBJECTIVES

The activities described in the present report contribute to the achievement of the following objectives:

**Objective 3.1:** Establish extra-consortium links with other e-infrastructures, standards communities, publishers and funders

**Objective 3.2:** Raise awareness for standards, services and tools provided by the PhenoMeNal GRID

**Objective 3.4:** Arrange PhenoMeNal stakeholder meeting

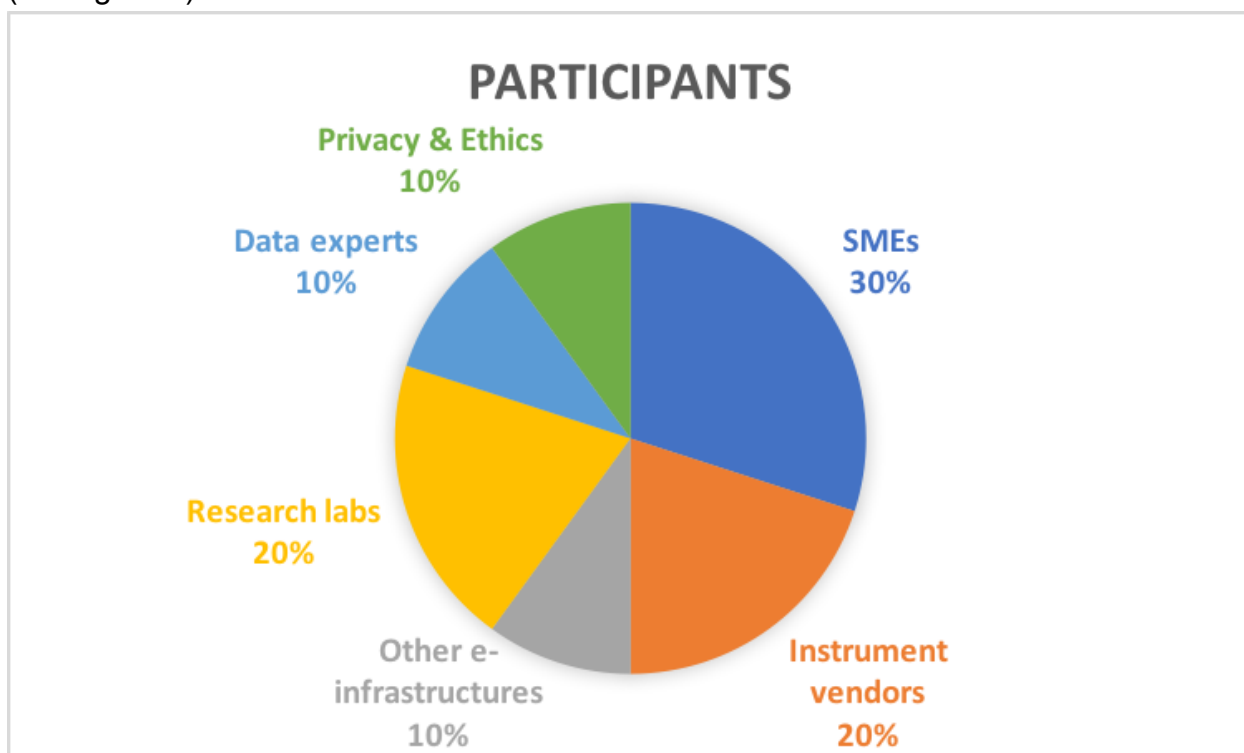


### 3. DETAILED REPORT ON DELIVERABLE

#### 3.1. Introduction

Stakeholder profiling and assessment is important to determine the consortium's method of engagement with the community, match the method of engagement to the issue and to the particular stakeholder, and align its dissemination and outreach strategies.

The PhenoMeNal consortium organised its first annual stakeholder meeting on 14th June 2016. The workshop was attended by 11 stakeholders from diverse communities (see figure 1).



**Figure 1.** Diversity of the stakeholders attending the workshop

The main objectives that were laid for the meeting were:

- to identify key challenges in the processing and analysis of metabolomics/other omics data
- data sharing, privacy and ethics issues in case of human data
- usability of an e-infrastructure like PhenoMeNal in addressing these challenges.



### 3.2. Identification of the stakeholder needs

Assessing the needs of the stakeholder community and benefits that PhenoMeNal can offer as a response to those needs is important in engaging stakeholders and supports planning and execution of the project activities. The consortium asked the workshop participants to prepare a 20 minute presentation that included: a) description of work in relation to clinical metabolomics; b) views on metabolomics data management and processing in the broader context of an infrastructure like PhenoMeNal; c) challenges met by their organisation/institution in this respect; and d) their vision on the possible solutions.

See Annex for a full description of the participants and their presentations.

A summary of the key issues identified and the recommendations derived from the stakeholders is outlined below.

Stakeholder	Key Issues	Recommendations
Ethics	<ol style="list-style-type: none"> <li>1. Patient privacy and confidentiality.</li> <li>2. Patient consent for testing and data reuse.</li> <li>3. Adequate data storage and use.</li> </ol>	<ol style="list-style-type: none"> <li>1. Obtaining appropriate patient consents.</li> <li>2. Understanding the challenge posed by the new system to the existing system.</li> </ol>
Other e-infrastructures	<ol style="list-style-type: none"> <li>1. Lack of data standards.</li> <li>2. Computational challenges in data analysis.</li> <li>3. Lack of effective data storage and curation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Implementation of community driven data standards and SOPs.</li> <li>2. Making data <b>F</b>indable <b>A</b>ccessible <b>I</b>nteroperable and <b>R</b>e-usable (FAIR).</li> </ol>
Research Labs	<ol style="list-style-type: none"> <li>1. Extreme data volumes.</li> <li>2. Computational challenges in data handling and analysis.</li> <li>3. Monitoring the data quality.</li> </ol>	<ol style="list-style-type: none"> <li>1. Establishing data standards.</li> <li>2. Scale-up tools to cope with very large datasets.</li> <li>3. User engagement.</li> </ol>
Data Experts	<ol style="list-style-type: none"> <li>1. Loss of experimental data</li> <li>2. Issues with data reuse and reproducibility.</li> </ol>	<ol style="list-style-type: none"> <li>1. Call for GO-FAIR.</li> <li>2. Data stewardship.</li> </ol>
SMEs	<ol style="list-style-type: none"> <li>1. Lack of reliable and comparable results during data analysis</li> <li>2. Extreme data volumes</li> </ol>	<ol style="list-style-type: none"> <li>1. Guidelines for data standards and quality.</li> <li>2. Engagement with the user community.</li> </ol>



	3. Data visualization	3. Need for sustainable business model.
Instrument vendors	1. Lack of sufficient metadata 2. Data reproducibility	1. Annotated metadata. 2. Reproducible SOPs

### 3.3. Outputs and actions following the stakeholder assessment

The meeting was a synergistic workspace with presentations and group discussions which helped in understanding the stakeholders' a) perspectives and interests, b) analysing their problems and identifying common issues, c) willingness to engage with the project and possible collaborations, and d) identifying issues that are apparent and relevant to the project objectives.

The above assessment helped the consortium in planning its dissemination and outreach including future engagement with its stakeholders (see figure 2). One of such outputs was the inception of a "Systems Biology working group". This working group would involve metabolomics experts from PhenoMeNal and systems biologists from ISBE<sup>1</sup> (Infrastructure from Systems Biology Europe) working together to explore the state-of-the-art and future perspectives of metabolomics in systems biology.

The consortium aligned its engagement strategy and, as a follow-up activity, drafted a survey to collect information on the specific aspects of computation and storage requirements in omics infrastructures<sup>2</sup>. The importance of FAIR data and coordination with the European Open Science Cloud (EOSC) initiative was integrated as part of the project's long-term sustainability planning.

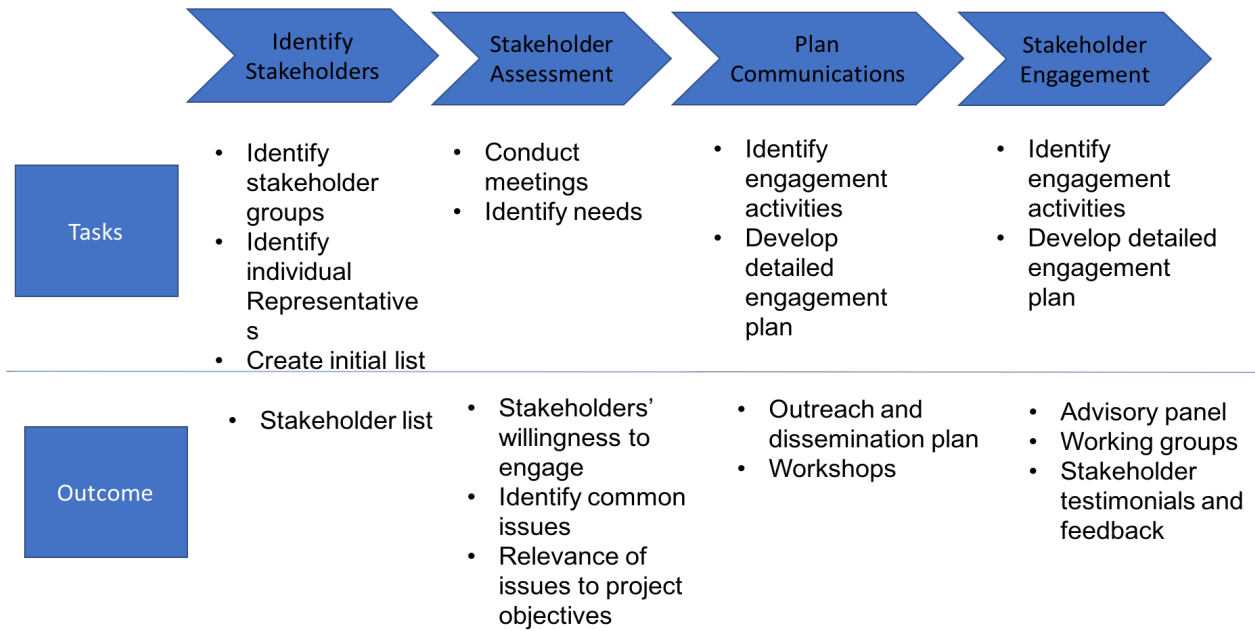
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<sup>1</sup> <http://project.isbe.eu>

<sup>2</sup> <http://phenomenal-h2020.eu/home/2016/10/13/survey-on-computational-storage-and-software-requirements-of-omics-infrastructures/>



### PhenoMeNal Stakeholder Engagement Plan



**Figure 2.** Overview of the PhenoMeNal stakeholder engagement activities



#### **4. ANNEX:**

Agenda for the stakeholder meeting<sup>3</sup>

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<sup>3</sup> [https://docs.google.com/document/d/1v\\_VDQYfKIFFJN4pYskCk6W\\_KsQ3pwS1J8R-LXammbpA/edit](https://docs.google.com/document/d/1v_VDQYfKIFFJN4pYskCk6W_KsQ3pwS1J8R-LXammbpA/edit)