**SEVENTH FRAMEWORK PROGRAMME**

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# "2nd-Generation Open Access Infrastructure for Research in Europe

# OpenAIREplus"

Open Access Infrastructure for Research in Europe

## D3.5 Stakeholder Report

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# Introduction

In this document (D3.5 Stakeholder Report) we report on the identification of potential stakeholders, benefits, provisions and cost associations related to the Sustainability Model and Business Plan for the Infrastructure and Organisation of OpenAIRE. The following sections will present a summary of the objectives, methodologies, work progress status and first results.

# 1. Concepts and objectives

The overall objective of the project is to provide OpenAIRE with an accurate estimation of the benefits and costs of its infrastructure and to build a sustainable business model for the continuation of OpenAIRE beyond the lifetime of the project funding. In order to achieve this goal the following objectives must be met:

1. **Stakeholder definition, and given benefits**: It is important to identify and prioritise the stakeholder groups and their needs. This study seeks ways to assign a monetary value to the benefits these stakeholders gain from OpenAIRE.

2. **Accounting**: how much does the current system setup, operation and maintenance cost? It is important that this study distinguishes between the operation of existing services, upgrades of the system, and the development of new services.

3. **Cost benefit analysis**: how do the system costs respond to the benefits of the identified stakeholders?

4. **Revenue channels**: identify the best and most viable model for OpenAIRE to spread the costs among beneficiaries (including service charges where appropriate) for its services. Who contributes, how much and when.

# 2. Methodology

In this section the methodology required to achieve the objectives discussed in the previous section is presented.

**Task 1. Identification of the main stakeholders of a European-wide adoption of the Open Access infrastructure and network as provided by OpenAIRE. Estimate the total economic benefits for those stakeholders.**

**Task 1.1 Identification of the main stakeholders**

In order to identify current and potential stakeholders of the Open Access infrastructure and network provided by OpenAIRE in this task information of the current and potential stakeholders and how they interact with the OpenAIRE infrastructure either as beneficiaries or/and contributors will be collected and compiled in order to create a stakeholder map. Stakeholder mapping is a collaborative process of research, debate, and discussion that draws from multiple perspectives to determine a key list of stakeholders across the entire stakeholder spectrum. The mapping will be broken down into four phases:

**1. Identifying:** listing relevant groups, organizations, and people. This first step includes the creation of a database containing the following targeted user typologies:

a) *Authors* interested in depositing their publications into the infrastructure associating it with the FP7 project information;

b) *Researchers and general public* interested in accessing the Information Space of all OA FP7 publications through friendly web interfaces and a variety of functionalities;

c) *Commission and organizational funders* studying and assessing the effectiveness of their policies on research directives as well as publication models;

d) *Repository community* interested in interoperability and other joint projects or interested in becoming an integral part of the OpenAIRE infrastructure integrating deposition and publication referral processes;

e) *E-Science applications operated by third-party organiz*ations, interested in accessing/retrieving content from the Information Space.

It is important to stress that the previous list is not exhaustive and other stakeholders may be included during this phase.

**2. Analysing:** understanding stakeholder perspectives and interests.

Once the list of stakeholders has been identified, further analysis will be conducted to better understand their relevance and the perspective they offer, to understand their relationship to the issue(s) and each other, and to prioritize based on their relative usefulness for this engagement. The following criteria will be used in order to analyse each identified stakeholder:

• Contribution (value): Does the stakeholder have information, counsel, or expertise on the issue that could be helpful to OpenAIRE?
• Legitimacy: How legitimate is the stakeholder's claim for engagement?
• Willingness to engage: How willing is the stakeholder to engage?
• Influence: How much influence does the stakeholder have? (It is important to identify "who" they influence, e.g., other authors, the repository community etc.)
• Necessity of involvement: Is this someone who could derail or delegitimize the process if they were not included in the engagement?

These five criteria will be used to create and populate a chart with short descriptions of how stakeholders fulfil them. Values will be assigned (low, medium, or high) to these stakeholders. This first data set will allow deciding which stakeholders to engage (see figure 1).

**Figure 1 Sample stakeholder description chart**

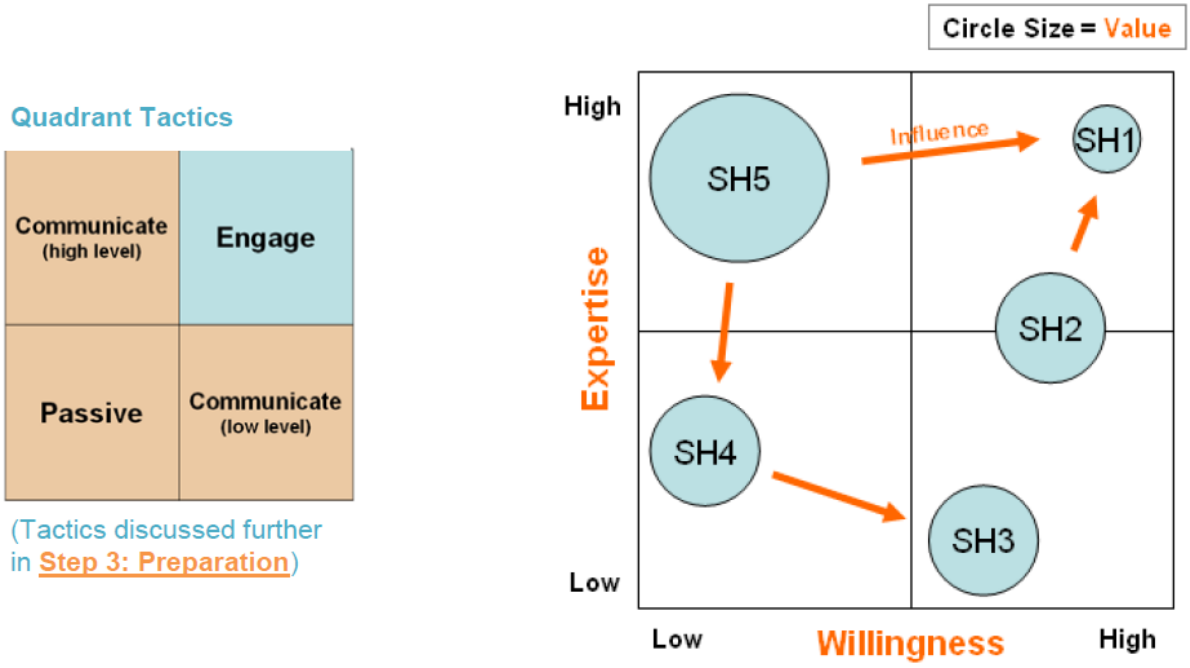
| | | Expertise | | Willingness | Value | |
|---|---|---|---|---|---|---|
| **Stakeholder** | **Contribution** | **Legitimacy** | **Willingness to Engage** | **Influence** | **Necessity of Involvement** |
| **SH1** | **High:** Knowledge in X issue is of value to the **OpenAIRE project** | **High:** Directly affected by **OpenAIRE**'s activity | **High:** Proactive group that is already engaging | **Low:** Relatively unknown group | **Low:** Not an outspoken stakeholder |
| **SH2** | **Medium** | **Medium** | **High** | **Medium** | **Medium** |
| **SH3** | **Low** | **Low** | **Medium** | **Low** | **Medium** |
| **SH4** | **Low** | **Medium** | **Low** | **Medium** | **Medium** |
| **SH5** | **High** | **Medium** | **Low** | **High** | **High** |

*Source: Adapted from BSR (2012)*

**3. Mapping:** visualizing relationships to objectives and other stakeholders. Mapping stakeholders is a visual exercise and analysis tool that will be used to determine which stakeholders are most useful to engage with. The mapping will allow seeing where stakeholders stand when evaluated by the same key criteria and compared to each other and helps to visualize the complex interplay of issues and relationships created in the criteria chart above.

Figure 2 presents a sample stakeholder mapping. In the figure there is a quadrant using two axes labelled “Low” to “High.” It also adds “Expertise,” “Willingness,” and “Value” to the criteria chart, as in figure 1. “Expertise” is assigned to the Y-axis and “Willingness” to the X-axis. Discussion and debate where each stakeholder falls should be included. Then, stakeholders are plotted on the grid. Small, medium, and large circle sizes are used to denote their “Value.” To illustrate relationships, arrows are used to depict “Influence.”

**Figure 2 Sample Stakeholders Mapping**



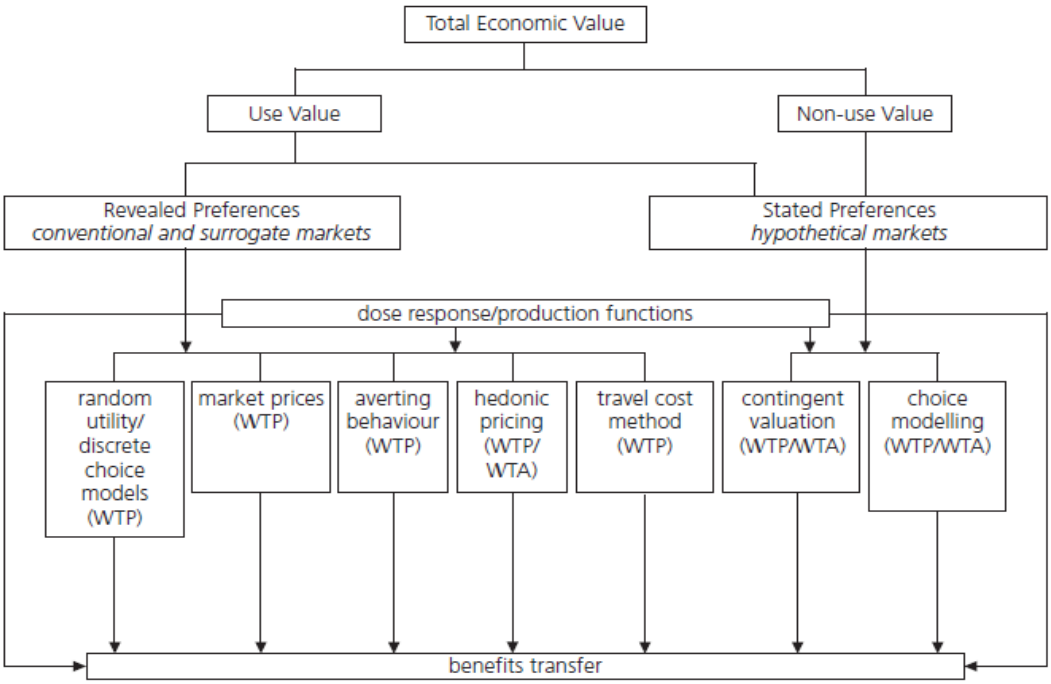

*Source: BSR (2012)*

**4. Prioritizing:** ranking stakeholder relevance and identifying issues. It is not practical and usually not necessary to engage with all stakeholder groups with the same level of intensity all of the time. Being strategic and clear about whom OpenAIRE is engaging with and why, can help save both time and money. Combined with the criteria chart and mapping, issue materiality will be used to rank the stakeholders into a prioritized engagement list. The most relevant issues and the most relevant stakeholders will be captured at the end of this stage. The process of stakeholder mapping is as important as the result, and the quality of the process depends heavily on the knowledge of the people participating.

**Task 1.2 Estimate the total economic benefits for those stakeholders.**

This task will also analyse the identified stakeholders of the OpenAIRE infrastructure including beneficiaries and contributors and estimate their total economic benefits (marketed and non-marketed benefits from an Open Access infrastructure as provided by OpenAIRE and its services). It is important to take into account and include dependencies with third party providers and services relevant to the infrastructure operation. One theoretical approach of capturing and describing the benefits derived from the different services provided by the OpenAIRE platform is the Total Economic Value (TEV) framework. It provides a systematic tool for considering the full range of impacts a service has on human welfare. The way to derive TEV is from preferences of individuals. Preferences can be studied by stated preference methods and revealed preference methods (see figure 3).

**Figure 3: Techniques for monetary valuation of non-market services**




*Source: Eftec, 1999.*

The following methods could be used to assign a monetary value to the benefits these stakeholders gain from OpenAIRE. Revealed preference methods rely on data regarding individuals' preferences for a marketable good and could be divided in market-based and surrogate markets related. Surrogate market related includes travel cost method and hedonic pricing. Stated preference methods use structured questionnaires to elicit individuals' preferences for a given change in a natural resource or environmental attribute. In this category, the contingent valuation method (CVM) and choice experiment (CE) are included. The CVM is based on the development of a hypothetical market or scenario in which the respondents to a survey are given the opportunity to state their Willingness-to-Pay (WTP) or Willingness-to-Accept (WTA). Different elicitation methods are used to derive the WTP/WTA amounts and because these values are contingent on the hypothetical market the method is called CVM. CE is another stated preference method. In a CE framework, the good in question is broken down into its component attributes, which are presented to respondents normally as a set of combinations of the attributes. Respondents are then presented with a sequence of choice sets differentiated by its attributes and levels. The fact that gathering primary site-specific data is costly has made BT a popular alternative for the valuation of ecosystem goods and services. BT is about applying existing economic value estimates from one location where data are collected to another similar site in another location with little or no data. The three main approaches to BT: (i) the transfer of the mean household WTP (ii) the transfer of an adjusted mean household WTP and, (iii) the transfer of the demand function.

# 3. Report on Task 1.1 Identification of the main stakeholders

Our overarching goal is to provide OpenAIRE and the European Commission with a *Sustainability Model and Business Plan* for the infrastructure and organization of OpenAIRE beyond the project funding. The stakeholder analysis aims to identify and assess the categories of institutions and individuals, who may support, contribute, influence, fund, or derail the development of an infrastructure for sustaining and flourishing the OpenAIRE initiative beyond the current project funding. Through a stakeholder identification and analysis process, the goal is to identify the significance of quantifiable and intangible benefits and value-added services (VAS) for the key players. What is the value distinct from OpenAIRE as a public good itself that will lead individuals and organizations share the financial responsibility?

Current and potential stakeholders of the Open Access infrastructure and network provided by OpenAIRE were **identified and mapped**. The mapping was broken down into four phases:

**1. Identifying:** listing relevant groups, organizations, and people. A database containing the following targeted user typologies (i.e. Authors, researchers and general public, commission and organizational funders, repository community, E-Science applications operated by third-party organizations, etc.) See Stakeholders description and Stakeholder database attached.

### 1.1 Identify Main Stakeholders

A stakeholder within the context of this study is any entity with a declared or conceivable interest or stake in the services, policies, and philosophies of the OpenAIRE initiative. We identified and prioritized the stakeholder groups and their needs in order to assign a monetary and non-monetary value to the benefits these stakeholders gain from OpenAIRE. We also assessed their OA- and OpenAIRE awareness as their opinions and attitudes will be informed by the level of their knowledge and engagement.

### 1.2 Data Collection and Analysis

This stage involved gathering data through a literature review and conducting interviews to understand stakeholder perspectives and interests. After conducting some interviews and a pilot survey with representatives from different stakeholder groups, we developed a questionnaire to gather more specific information from a broader range of stakeholders (See Appendix I)

**Sample Interview Questions**

1- Are you familiar with OpenAIRE?
   a. YES: How do you know about the initiative?

b. NO: Do you suggest any strategies to broaden awareness about the initiative?

2- How does/will OpenAIRE support your or your organization's work? What are its potential unique contributions (current/future) to your work/organization? What is the service/policy gap that OpenAIRE can fill?
3- How do you see yourself/your organization contributing to OpenAIRE? This could be providing content, engaging in governance, providing financial support, advice, etc.
4- Present scenarios as options with brief descriptions and ask opinion, preferences, etc.
5- If OpenAIRE had a membership model, what is a reasonable annual contribution level?
6- If your institution were to participate in a membership model, what would make the membership model attractive to your institution? Why would you contribute or pay? What will be an attractive value proposition for you?
7- Your cautionary words - what are the risks we should be taking into consideration as we are develop a sustainability model? Why would you or your organization be hesitant to contribute?
8- Who else shall we talk with?

**2. Analysing:** understanding stakeholder perspectives and interests. Once the list of stakeholders was identified, further analysis was conducted to better understand their relevance and the perspective they offer, to understand their relationship to the issue(s) and each other, and to prioritize based on their relative usefulness for this engagement. The following criteria was used in order to analyse each identified stakeholder:

### 2.1 Criteria for Analysis

- Contribution
  - Does the stakeholder have information, counsel, or expertise on the issue that could be helpful to OpenAIRE?
  - Do they have funding sources that will enable them to contribute?
- Legitimacy
  - How legitimate is the stakeholder's claim for engagement?
- Willingness to Engage
  - How willing is the stakeholder to engage? Are there any impediments?
  - What are their incentives?
    - Altruism or reciprocity
    - Self-interest (gains a benefit)
    - Contribute to a collective action for common good
    - Exclusive benefits including VAR in the form of enhanced content, functionality, user experience (such as having access to differentiated levels of service from OpenAIRE)
    - Interest in participation in governance
    - Reputation building or credibility through association
    - Fulfilling organizational mission
  - Will there be any 'sociopolitical pressure' on them from other groups to support OpenAIRE?

- Influence
  - How much influence does the stakeholder have?
  - Which groups may be affected by their influence? (e.g., funding agency influence over scientists)
- Necessity of Involvement
  - Is this someone who could derail or delegitimize the process if they were not included in the engagement?
  - What are the consequences of 'disengagement' for OpenAIRE?
- Pressure
  - According to Olson, one of the reasons individuals pay for public good is the perception that if they don't pay, others will not either and then the service they are relying on will fail (lose the benefit for themselves or for their customers)
- Social Motivations
  - Olson says, "Patriotism is probably the strongest non-economic motive for organizational allegiance in modern times." OA is an important social cause for some stakeholders. Does the stakeholder see OpenAIRE as an important OA enabler?
- Trust
  - Do they trust that OpenAIRE initiative is on the right track and has a competent and reliable team?

These criteria were used to create and populate a chart with short descriptions of how stakeholders fulfil them. Values were assigned (low, medium, or high) to these stakeholders. Fifteen stakeholders were identified and mapped (see tables 1 and 2 and Excel file attached).

**Table 1. Summary of Stakeholder Categories**

| | |
|---|---|
| 1 | Scientists and Researchers |
| 2 | Research Funders |
| 3 | Research Centers and Laboratories |
| 4 | Publishers |
| 5 | Scholarly & Learned Societies |
| 6 | Research communities |
| 7 | Libraries and Library Organizations |
| 8 | Repository Service Providers & Standards Groups |
| 9 | National Open Access Desks |
| 10 | University Administration & University Organizations |
| 11 | Open Access Organizations |
| 12 | Preservation Services |
| 13 | Other Repositories |
| 14 | Primary and Secondary Education Instructors and Students |
| 15 | Patent, Trademark, and Technology Transfer, Commercialization Offices |

## Table 2. Stakeholder categories and descriptions

| Stakeholder Category | Examples of Sub-Categories | Main Role | Potential Influence/Interest/Contribution/ Concerns |
|---|---|---|---|
| Scientists and Researchers | Disciplinary and tenure variations (including graduate students)<br><br>**A scientific taxonomy was used in order to cover different disciplines*<br>The scientific taxonomy used is the "Revised Field of Science and Technology (FOS) classification in the Frascati Manual"<br>http://www.oecd.org/science/inno/38235147.pdf | · Publish and network<br><br>· Impact and metrics | · Easy access to literature in support of their research<br>· Want to know the impact of their research<br>· Need to fulfill publisher/society copyright policies re: OA<br>· Need to satisfy funding agency requirements for sharing<br>· Having easy/convenient deposit options for their scientists to fulfill mandates<br>· Branding the research and impact of their institutions<br>· Maintain an individual profile to manage his/her own academic reputation (academia is a competitive market place)<br>· Attract students & faculty<br>· Do not want scientists to be distracted with compliance issues<br>· Concerned about knowledge/data that is confidential, private, or proprietary<br>· Support open knowledge but also function in a competitive education market space and need to brand their offerings |
| Research Funders | Europe, National, Regional | · Develop grants programs<br><br>· Fund research<br><br>· Set policies for funded research<br><br>Impact and metrics | · Enabling funders to monitoring output of research grants, and compliance with Open Access policies<br>· Analysis and metrics beyond and between funding agencies and countries<br>· Enhance research through faster, improved, and wider access<br>· Potential of emergence of new businesses based upon open access content (commercialization) |

| | | | |
|---|---|---|---|
| | | · Measure compliance | · Improvements in quality of service (e.g., teachers having broader access)<br>· Interested in seeing the emergence of a sustainable OA infrastructure<br>· May be reluctant to spend their R&D funds for OA infrastructure<br>· Do not want to burden researchers with complicated requirements |
| Research Centers and Laboratories | | · Provide infrastructure for research and scholarly communication<br>· Run repository (e.g., CERN)<br>· Impact and metrics | · Similar to Scientists & Researchers |
| Publishers | OA friendly/neutral/resistant | · Publish<br>· Facilitate peer review<br>· Value Added Services (text mining)<br>· Impact and metrics | · Visibility – especially for smaller publishers<br>· Offering VAS overlaying open access content (e.g., offer a peer review service)<br>· Need to sustain their commercial practices that rely on subscription income<br>· Do not want OA to undercut their revenue streams |
| Scholarly & Learned Societies | | · Publish<br>· Facilitate peer review<br>· Impact and metrics<br>· Scholarly forums for their members<br>· Promote an academic discipline (or a group of related disciplines)<br>· Sponsor research and educational conferences<br>· Value Added Services such as indexing, directories, etc. | · Visibility – especially for smaller societies<br>· Offering VAS overlaying open access content (e.g., offer a peer review service)<br>· Need to sustain their services such as organizing conferences for their members that rely on subscription income<br>· May not want OA to undercut their revenue streams |
| Research Communities | | · | · |

| | | | |
|---|---|---|---|
| e.g., Euromarine, European Grid Initiative (EGI) | | | |
| Libraries and Library Organizations | international, national, regional, continental | · Promote open access<br>· Establish repositories<br>· Archive content<br>· Support OA mandates<br>· Enable global and broad access to information<br>· Impact and metrics | · Some interested in using their collection budgets in support of OA & willing to pay membership fees<br>· Interested in linking their IRs with other repositories<br>· Interested in linked data (papers, data, images, etc.)<br>· Interested in discovery and access and text-mining like services to enhance services for their users (enhanced content, functionality, user experience through other service providers)<br>· Interested in seeing the emergence of a sustainable OA infrastructure<br>· Some have financial problems and are not able to invest in OA<br>· Burgeoning number of local, national, and international OA initiatives rely on library funds |
| Repository Service Providers & Standards Groups | Metadata, software, interoperability, preservation, academic profiles, standards such as ORCID, registries, services such as indexing, linking data, text mining, etc. | · Repository software development<br>· Hosting services | · OpenAIRE can be seen as endorser or testbed for their standards or services<br>· Due to its distributed vision, OpenAIRE can be seen as a promotional venue for introducing/marketing their services to IR providers<br>· Interested in seeing the emergence of a sustainable OA infrastructure |
| National Open Access Desks | | · Assist scientists in complying with OA mandates<br>· Increase awareness about OA | · Having a range of repository options to assist their users (disciplinary, geographic, etc.)<br>· Easy/convenient repository services<br>· Training and awareness-building opportunities to keep up with repository options, models, tools, etc.<br>· Interested in seeing the emergence of a sustainable OA infrastructure |
| University Administration & University Organizations | Presidents, Deans, Provosts, Department Chairs, VP for Research | · Manage research and research infrastructure and policies | · Possible interested in bibliometrics and webometrics for research evaluation (some may not have interest in these tools as |

| | | | |
|---|---|---|---|
| | | · Impact and metrics | the value/methodology of these metrics is controversial) |
| Open Access Organizations | Groups such as SPARC | · Promote OA<br>· Provide support for OA initiatives<br>· Facilitate communication among those with interest in OA | · Promote open access to all kinds of stakeholders<br>· Enable/facilitate development of an interoperable infrastructure<br>· Interested in seeing the emergence of a sustainable OA infrastructure<br>· Promote long-term preservation strategies |
| Preservation Services | Registries such as Keepers Registry and services including LOCKSS and Portico; also national/regional initiatives such as OpenDepot | · Maintain version of record<br>· Implement preservation strategies | · Offer services for long-term preservation<br>· Develop business models in support of their services<br>· Network and create inventories to unify information about preservation status<br>· Influence publishers/societies to encourage them to seek preservation strategies |
| Other Repositories | PMC, arXiv, RepEC, etc. | · Facilitate submission of OA materials<br>· Provide discovery and access services | · Branding and promoting their portals (and home institutions' academic profiles)<br>· Having access to repository tools and APIs<br>· Integration services to bring together content from different repositories |
| Primary and Secondary Education Instructors and Students | Teachers, students, administrators, government agencies supporting education | | · Interest in integrating open access content to primary and secondary education<br>· Interest in using such materials for teacher training |
| Patent, Trademark, and Technology Transfer, Commercialization Offices | These offices may exist at national or disciplinary level and many large research institutions and universities may have such organizations. | · Market, patent, and license innovations<br>· Promote beneficial interactions between researchers and industry<br>· Facilitate partnership with industry to develop technologies (and species such as plant varieties) into products and services for public good or a market product | · Potential concerns about undercutting commercial interests through open access to new innovations, etc. |

| | | | |
|---|---|---|---|
| | | · Protect institutional innovations by increasing awareness of the value of commercializing | |

## 2.2 Stakeholder Sampling Approach

The selection of the stakeholders was be based on a stratified sampling strategy. Hereafter, we will often refer to data collected in the Stakeholder database spreadsheet (in **OpenAIRE** wiki). Two main stakeholder clusters are identified:

i) **Individuals:** The sample is separated into groups with respect to the academic/research orientation of each individual. Specifically, we have:

a. **Individuals from the academia:** This group includes scientists/researchers that work in universities or research centres. However, it is possible that a university lecturer is not research active.

It should be noted that a sample must be collected across all general academic disciplines (see Table 3). For each discipline, 50% of participants must be senior, and 50% not senior. Specifically, we must have equal number of participants from:

1. Natural Sciences
2. Engineering and Technology
3. Medical and Health Sciences
4. Agricultural Sciences
5. Social Sciences
6. Humanities

Note that the minimum number of participants is 8 for each discipline (hence 48 participants in this subgroup). Proposed within group weight: 0.5.

b. **Primary and Secondary Education Instructors:** This group concerns individuals that may primarily want to have access to recent research in order to improve their scientific skills. However, it is possible that they also conduct

scientific research. The minimum number of participants is 12 (6 for primary and 6 for secondary education). Half of them "senior" and half of them "junior". Proposed within group weight: 0.15.

c. **Professionals:** This group includes professions that apply scientific knowledge and that are sensitive to current research results. These individuals are also possible to conduct scientific research. The following professions must be considered:

1. Engineers
2. Software Developers
3. Doctors and other healthcare professionals
4. Economists in big organizations
5. Scientists in pharmaceuticals
6. Lawyers
7. Business administration professionals

Minimum number of participants for each category is 3 (21 in total). Proposed within group weight: 0.35

It is important to ask the participants of Group (i) whether access to scientific information concerns skill improvement only or it also helps for conducting scientific research.

ii) **Organizations:** We propose that organizations be separated into two categories. Specifically, the first category concerns organizations which are directly financially affected by an OA initiative. This category concerns the Publishers. The second category concerns all the rest organizations, which are also affected by an OA initiative, but this concerns mainly operational issues. Specifically we have:

a. **Publishers:** Although there are over 2,000 publishers, three for-profit companies (Reed Elsevier, Springer Science+Business Media, and John Wiley & Sons) account for 42% of articles published. Available data indicate that these companies have high profit margins, especially compared to the smaller publishers which likely operate with low margins (McGuigan and Russell 2008). Therefore, we can separate the sample into two subgroups:

**i.** **Group (ii).a.i**: Reed Elsevier, Springer Science+Business Media, and John Wiley & Sons. Proposed weight within Group (ii).a: 0.42

**ii.** **Group (ii).a.ii**: The rest of the publishers. Proposed weight within Group (ii).a: 0.58 This subgroup can be also separated in two categories (the categories can be separated by a simple question like "do you publish at least one journal which is listed in Thomson Reuters ISI? If yes, then state the highest IF of your journal"):

1. Publishers who publish at least one journal ISI listed (this is usually the case where prestigious academic associations publish a journal). Proposed weight within Group (ii).a.ii: 0.6 (if we have at least one member)

2. Publishers who publish not ISI listed journals. Proposed weight within Group (ii).a.ii: 0.4 (if we have at least one member)

The minimum number of participants in Group (ii).a.ii is 10.

b. Non Publishers: We have the following categories:

**i. Research Funders**: This category must be separated in two groups:

1. Public Research Funders: We have 59 main research funders in Europe. Ideally, all must be asked. One of them is the European Union. Since EU funds this project, its view will be excluded from the analysis (so we have a sample of 58). However, particular importance has the opinion of the main research funders from Germany, France, UK, Italy, Spain, Sweden and The Netherlands. (Hence, by picking one from each country we have 7 participants).

2. Private Research Funders: We have two categories:

a. Non-profit organizations. Minimum number of participants: 4

b. For-profit organizations: Mainly companies that fund research. They usually obtain patents based on the results of their research. Minimum number of participants: 4

**ii. Research centers and Laboratories**: Here we have the issue that the biggest public research centers are research funders too. Also, the main private research centers belong to for-profit organizations that can be classified as research funders too. We propose that this group be treated together with Research Funders.

**iii. Scholarly and Learned Societies**: We have the following grouping:

1. Global Societies: e.g. European Economic Association. One society for each of the main disciplines presented in Group(i).a must participate (8 in total).

2. Local Societies: e.g. Royal Astronomical Society. One society for each of the main disciplines presented in Group(i).a must participate (8 in total).

**iv. Research Communities**: So far 4 have been identified.

**v. Libraries and Library Organizations**: We have 80 main libraries or library organizations in Europe. We can include all of them. Otherwise we could stratify into size/type of libraries.

**vi. Preservation Services, and Repository Service Providers & Standards Groups**: The main interest of this group should be "operational benefits," such as simplification of their procedures due to open access. 14 have been indentified.

**vii. National Open Access Desks**: We have 28 OA desks in Europe. We can include all of them. Alternatively, we can include the 4 most active.

**viii. University Administration & University Organizations**: The full sample is large. We can have an initial sample of 200 universities and then draw 80 of them to create our sample.

**ix. OA organizations**: There are few OA publishers and we can include all of them. It will be sufficient to include the following 6: PLoS, Rockefeller University Press, Co-Action Publishing, OASPA, Bloomsbury Academic, Amsterdam University Press.

**x. Patent, Trademark, and Technology Transfer, Commercialization Offices**: CAS databases cover patents from 63 patent authorities around the world. However we can include only the main patent authorities, which are the following nine:

1. Canadian Intellectual Property Office (CIPO)
2. European Patent Office (EPO)
3. French Patent Office (INPI - Institut National de la Propriete Industrielle)
4. German Patent Office (DPMA)
5. Japanese Patent Office (JPO)
6. Russian Patent Office (ROSPATENT - Russian Agency for Patents and Trademarks)
7. United Kingdom Intellectual Property Office (UK-IPO)
8. United States Patent & Trademark Office (USPTO)
9. World Intellectual Property Organization (WIPO)

The main groups within which results must be merged are: Group(i), Group(ii).a and Group(ii).b. The use of a weights is proposed in order to aggregate responses within the main groups.

**Table 3. Revised Field Of Science And Technology (Fos) Classification In The Frascati Manual**

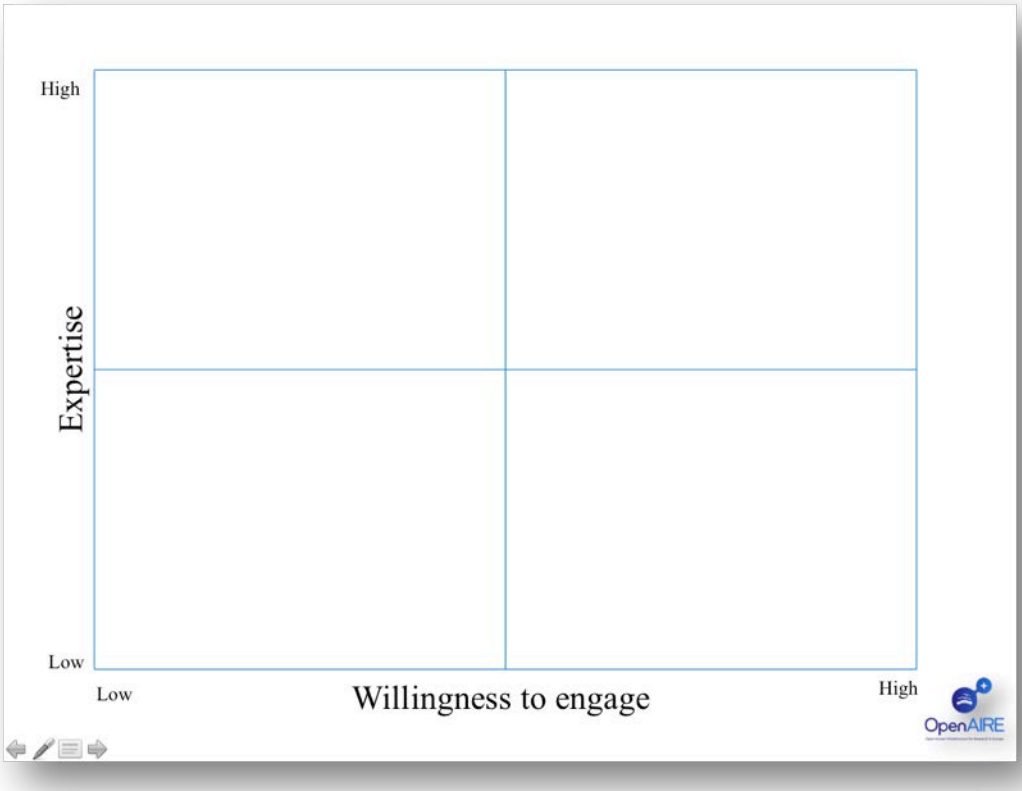
| | |
|---|---|
| 1. Natural Sciences | 1.1 Mathematics<br>1.2 Computer and information sciences<br>1.3 Physical sciences<br>1.4 Chemical sciences<br>1.5 Earth and related environmental sciences<br>1.6 Biological sciences<br>1.7 Other natural sciences |
| 2. Engineering and Technology | 2.1 Civil engineering<br>2.2 Electrical engineering, electronic engineering, information engineering<br>2.3 Mechanical engineering<br>2.4 Chemical engineering<br>2.5 Materials engineering<br>2.6 Medical engineering<br>2.7 Environmental engineering<br>2.8 Environmental biotechnology<br>2.9 Industrial Biotechnology<br>2.10 Nano-technology<br>2.11 Other engineering and technologies |

| | |
|---|---|
| 3. Medical and Health Sciences | 3.1 Basic medicine<br>3.2 Clinical medicine<br>3.3 Health sciences<br>3.4 Health biotechnology<br>3.5 Other medical sciences |
| 4. Agricultural Sciences | 4.1 Agriculture, forestry, and fisheries<br>4.2 Animal and dairy science<br>4.3 Veterinary science<br>4.4 Agricultural biotechnology<br>4.5 Other agricultural sciences |
| 5. Social Sciences | 5.1 Psychology<br>5.2 Economics and business<br>5.3 Educational sciences<br>5.3 Sociology<br>5.5 Law<br>5.6 Political Science<br>5.7 Social and economic geography<br>5.8 Media and communications<br>5.7 Other social sciences |
| 6. Humanities | 6.1 History and archaeology<br>6.2 Languages and literature<br>6.3 Philosophy, ethics and religion<br>6.4 Art (arts, history of arts, performing arts, music)<br>6.5 Other humanities |

*Source: http://unstats.un.org/unsd/EconStatKB/Attachment332.aspx*

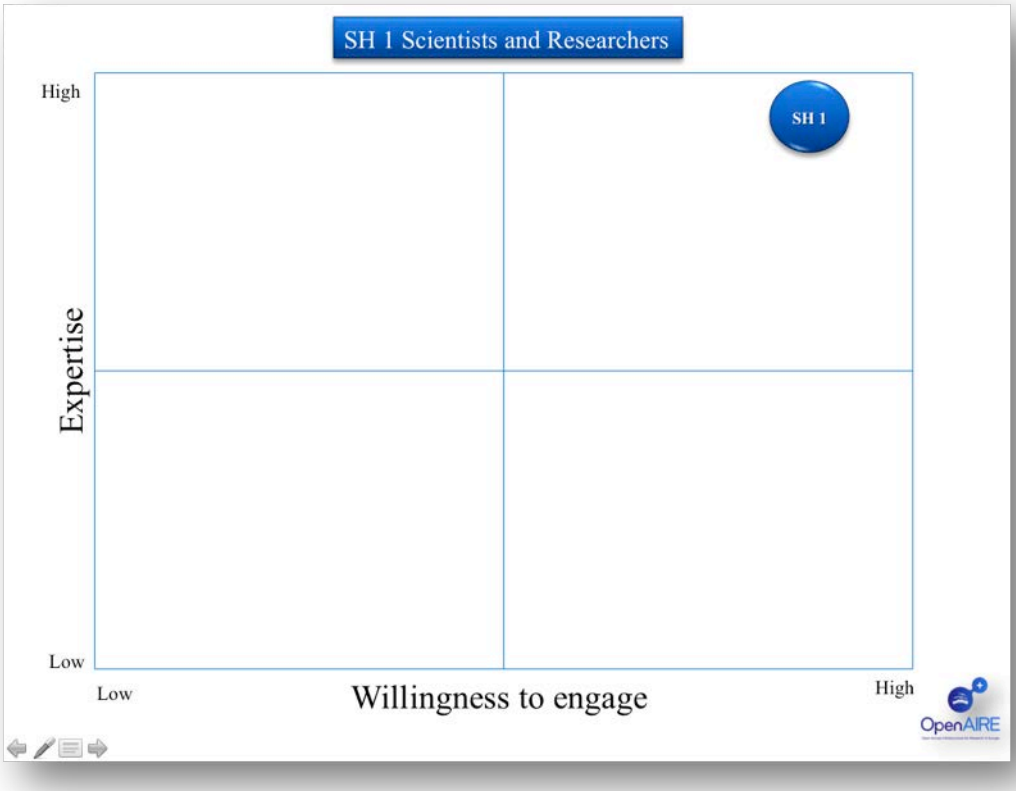
3. **Mapping:** visualizing relationships to objectives and other stakeholders. Mapping stakeholders is a visual exercise and analysis tool that was used to determine which stakeholders are most useful to engage with. The mapping allows seeing where stakeholders stand when evaluated by the same key criteria and compared to each other and helps to visualize the complex interplay of issues and relationships created in the criteria chart attached. The figures in the following sections present the stakeholder mapping. In figure 1 there is a quadrant using two axes labelled "Low" to "High." It also adds "Expertise," "Willingness to engage" and "Value" to the criteria chart. "Expertise" is assigned to the Y-axis and "Willingness to engage" to the X-axis. Then, stakeholders are plotted on the grid. Discussion on where each stakeholder falls is included.

**Figure 4. Stakeholder mapping quadrant**



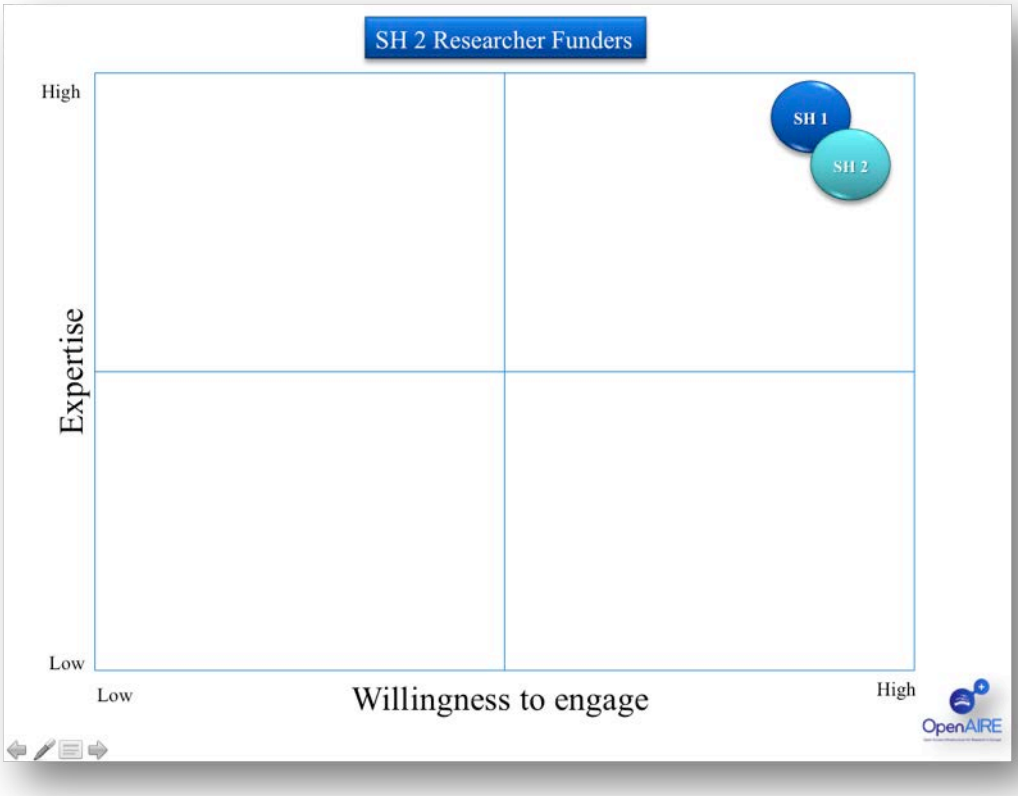
### SH1 Scientists and Researchers

| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|
| **High:** They produce and consult the scientific outputs stored by OpenAIRE | **High:** Directly affected by OpenAIRE's activity | **High:** There is evidence that this community is willing to engage | **High:** This community produce and consult the scientific outputs stored by OpenAIRE | **High:** This community produce and consult the scientific outputs stored by OpenAIRE |



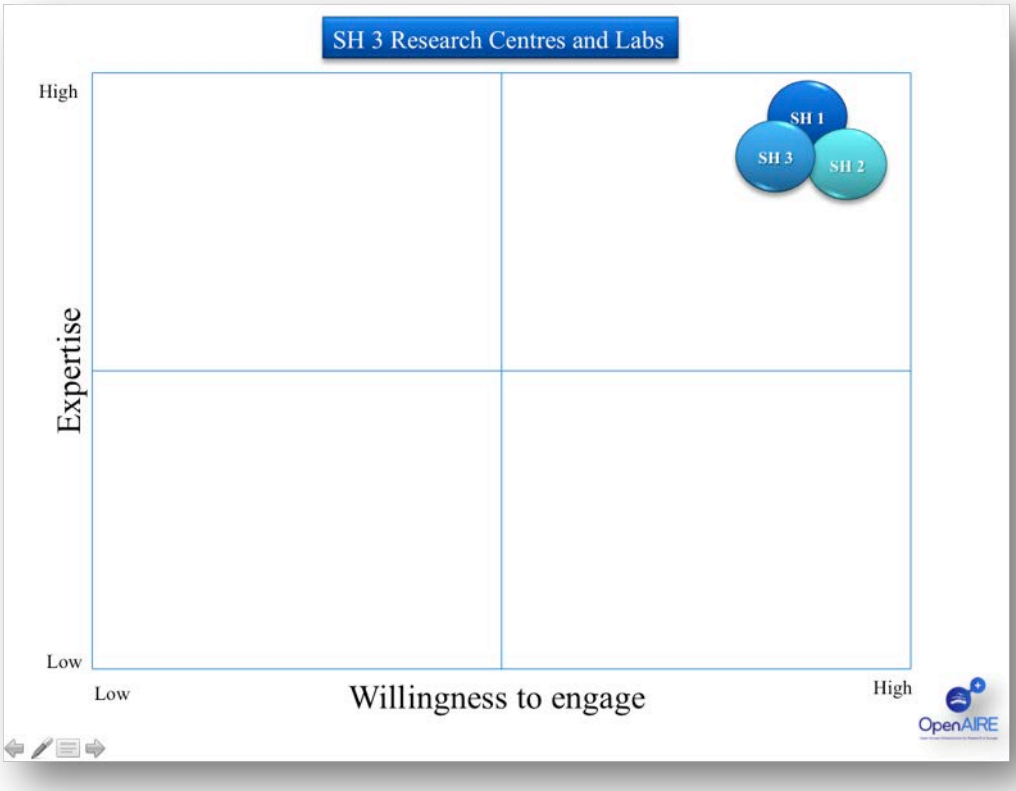
### SH2 Research Funders

| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|
| **High:** They fund the scientific outputs stored by OpenAIRE | **High:** Directly affected by OpenAIRE's activity | **High:** Proactive groups that are already engaging | **High:** They fund the scientific outputs stored by OpenAIRE | **High:** They provide the funding for producing scientific outputs and may fund OpenAIRE's activity |



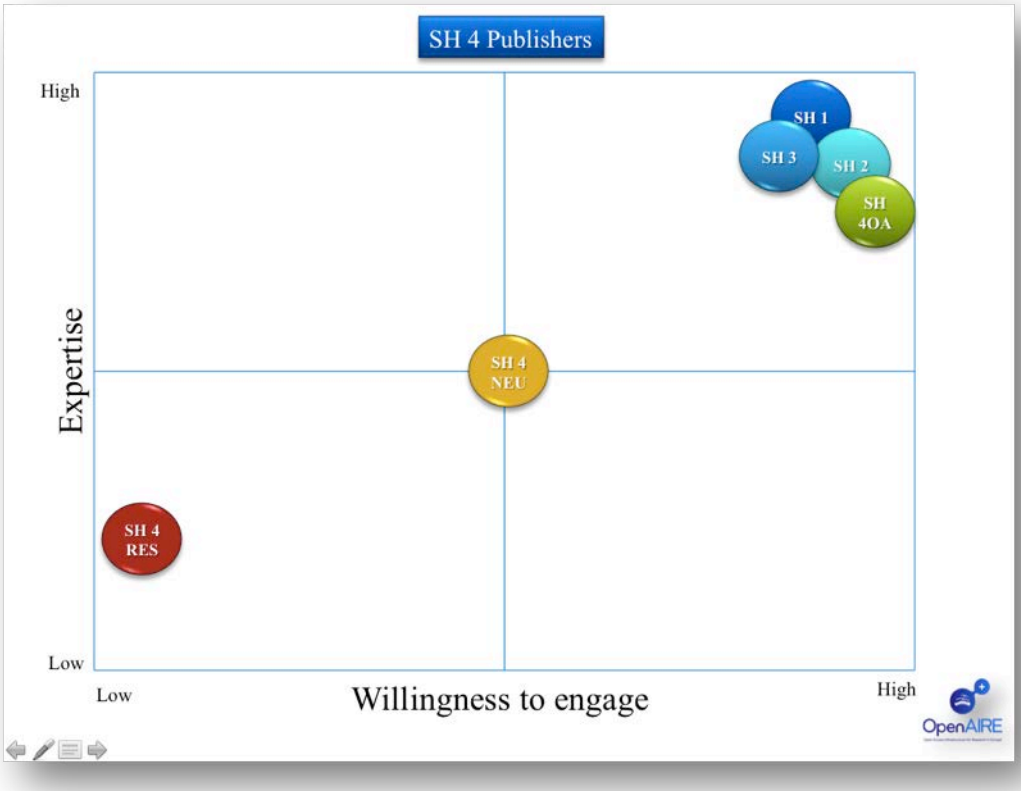
## SH3 Research Centers and Laboratories

| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|
| **High:** They provide the facilities to produce and consult the scientific outputs stored by OpenAIRE | **High:** Directly affected by OpenAIRE's activity | **High:** Research has found that this community is willing to engage | **High:** They provide the facilities to produce and consult the scientific outputs stored by OpenAIRE | **High:** They facilitate the production and consultation of the scientific outputs stored by OpenAIRE |



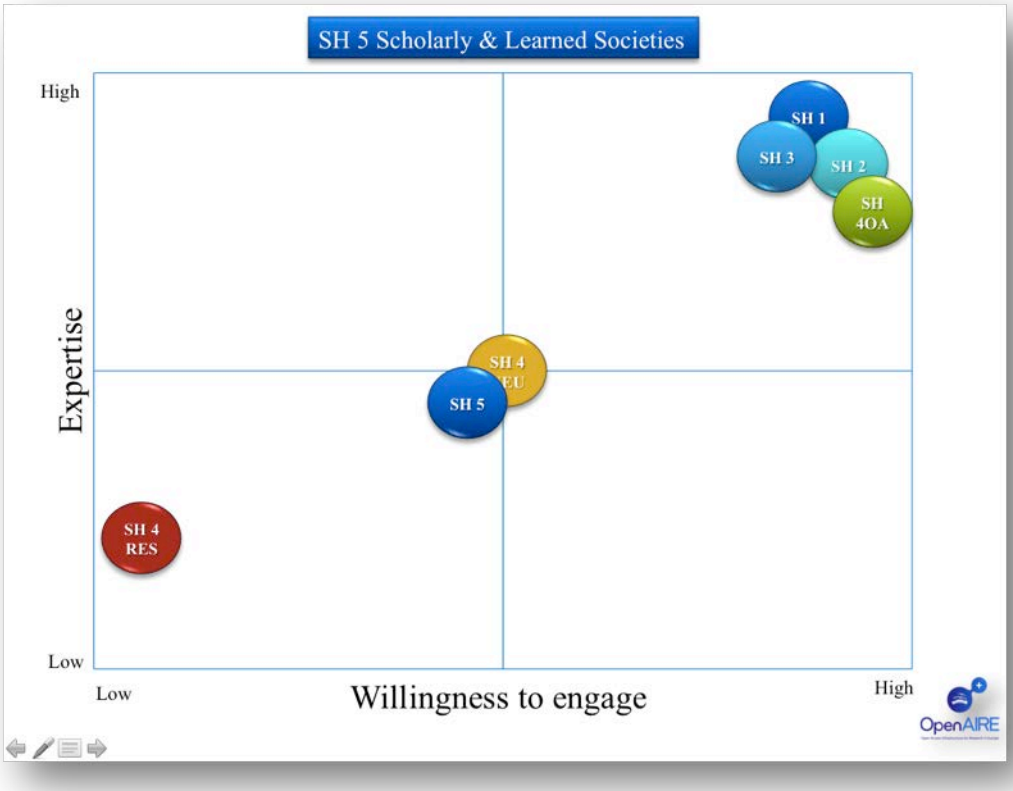
## SH4 Publishers

| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|
| **High:** They (may) publish the scientific outputs stored by OpenAIRE | **High:** Directly affected by OpenAIRE's activity | **High:** OA publishers<br>**Medium:** Neutral Publishers<br>**Low:** Resistant publishers | **High:** OA publishers<br>**Medium:** Neutral Publishers<br>**Low:** Resistant publishers | **High:** OA publishers<br>**Medium:** Neutral Publishers<br>**Low:** Resistant publishers |



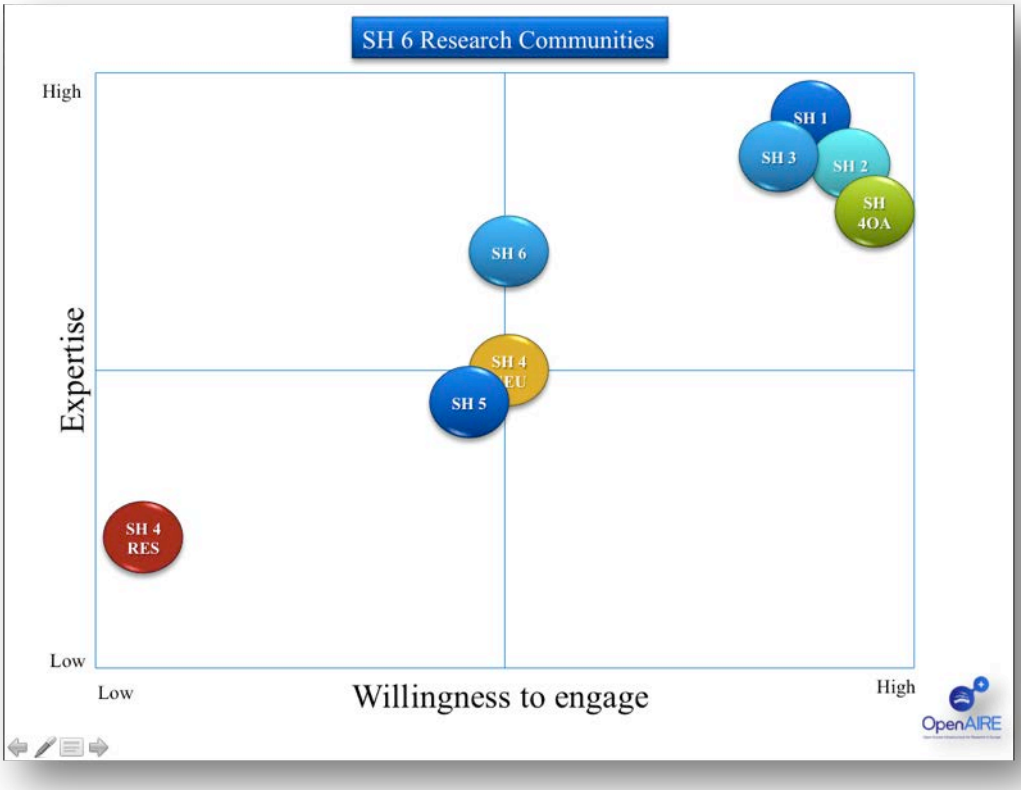
## SH5 Scholarly & Learned Societies

| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|
| **Medium:** They promote academic disciplines | **Medium:** Not Directly affected by OpenAIRE's activity | **Medium:** Some societies may fund OA outputs from its members | **Medium:** Some societies may fund OA outputs from its members | **Medium:** Some societies may fund OA outputs from its members |



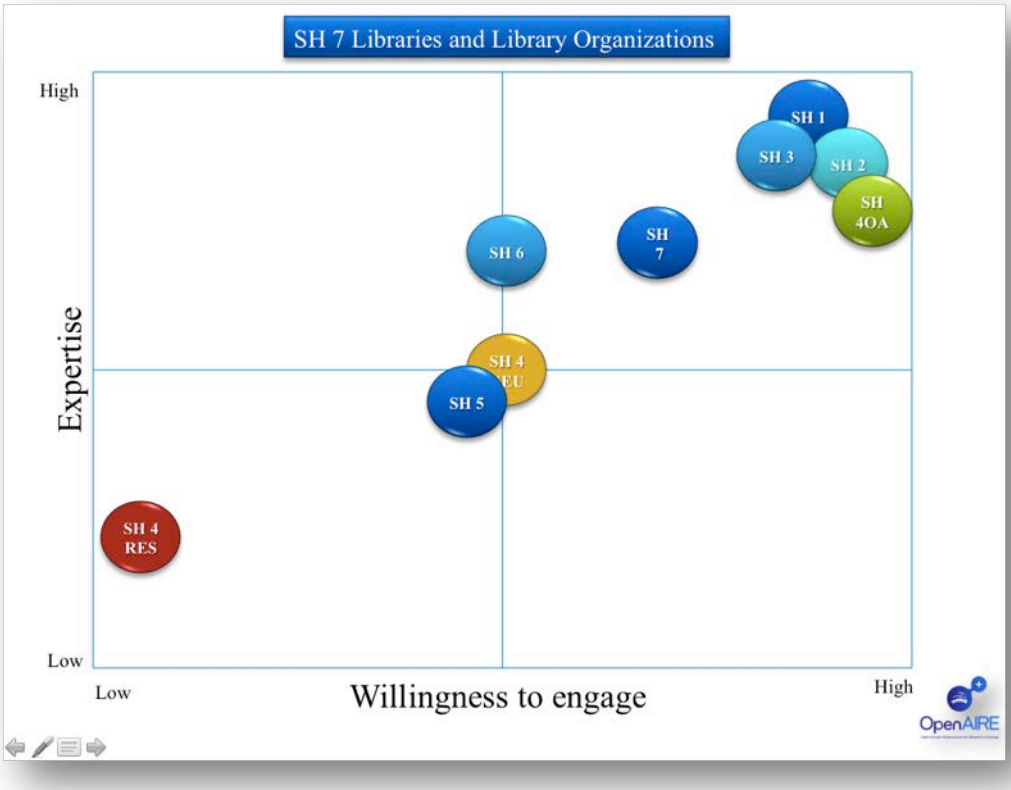
## SH6 Research communities

| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|
| **Medium:** They promote academic disciplines and collaboration | **High:** Directly affected by OpenAIRE's activity | **Medium:** Some communities may fund OA outputs from its members | **Medium:** Some communities may fund OA outputs from its members | **Medium:** Some communities may fund OA outputs from its members |



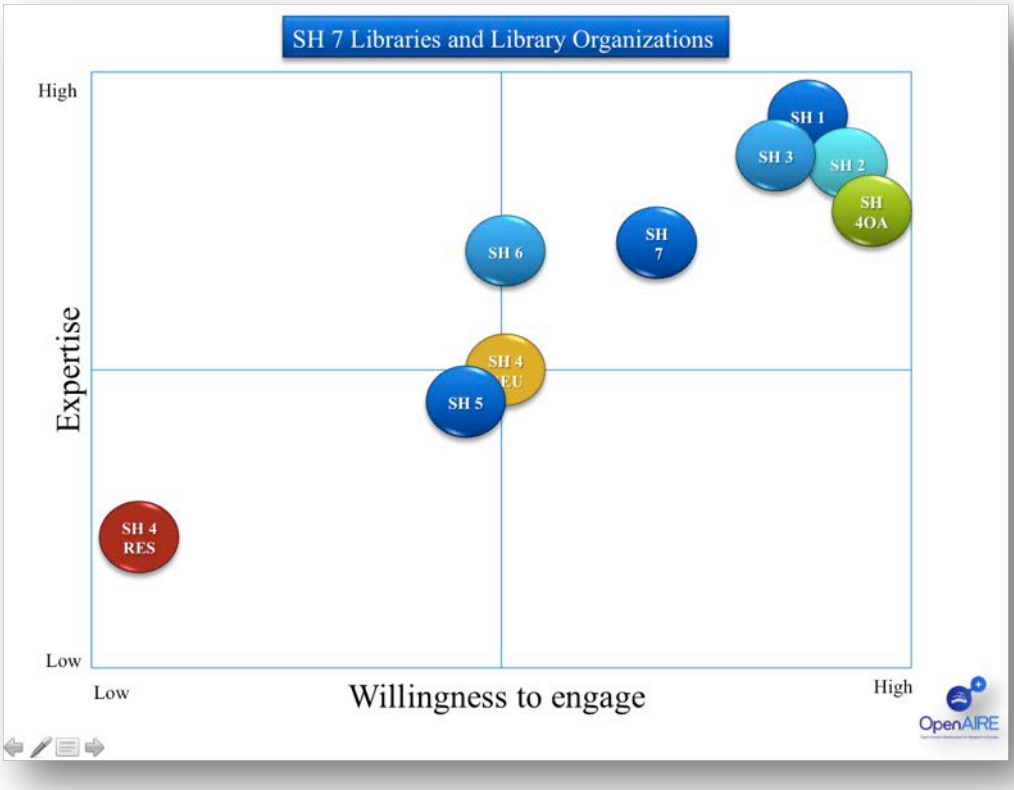
## SH7 Libraries and Library Organizations

| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|
| **High:** They facilitate the distribution of the scientific outputs stored by OpenAIRE | **High:** Directly affected by OpenAIRE's activity | **High:** There is evidence that this community is willing to engage | **High:** This community facilitates the distribution of OA products | **High:** This community facilitates the distribution of OA products |



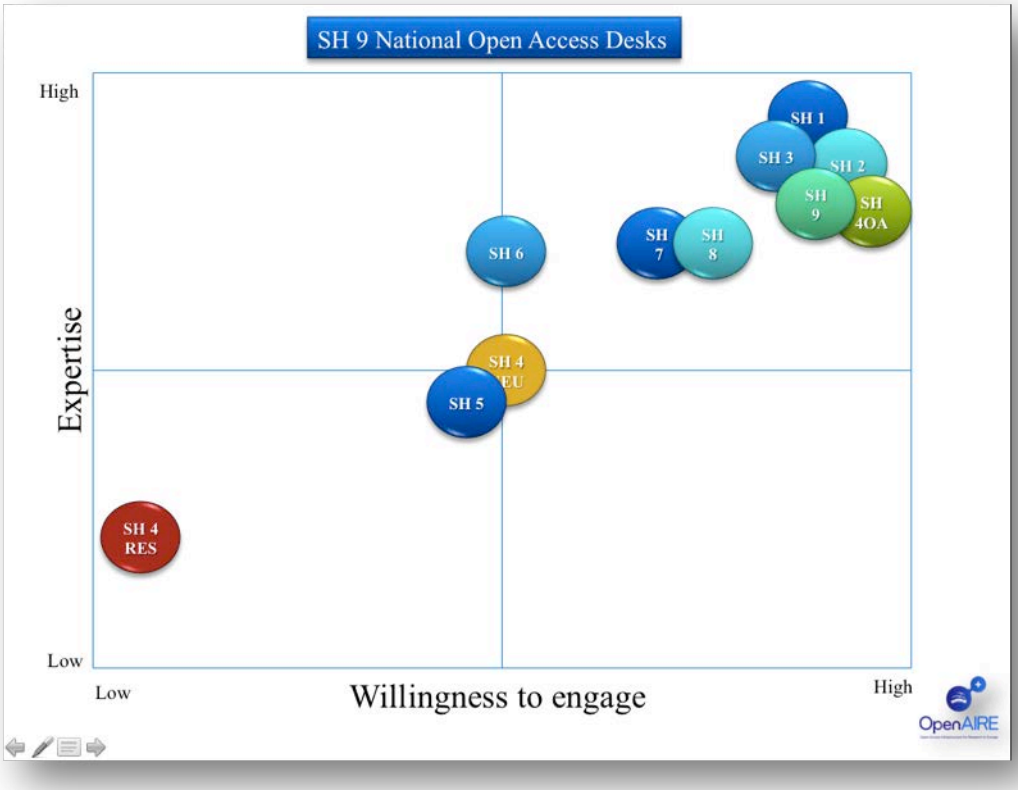
## SH8 Repository Service Providers & Standards Groups

| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|
| **High:** They facilitate the distribution of the scientific outputs stored by OpenAIRE | **High:** Directly affected by OpenAIRE's activity | **High:** There is evidence that this community is willing to engage | **High:** This community facilitates the distribution of OA products | **High:** This community facilitates the distribution of OA products |



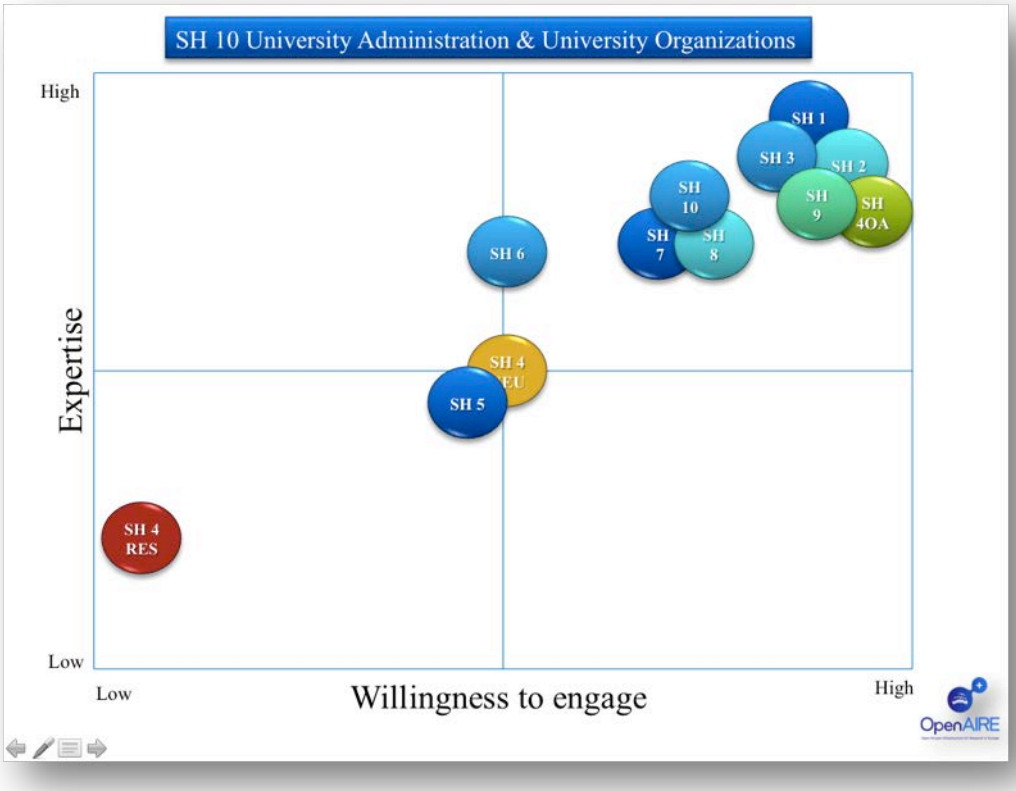
## SH9 National Open Access Desks

| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|
| **High:** They facilitate Open Access at Nation Level | **High:** Directly affected by OpenAIRE's activity | **High:** Proactive groups that are already engaging | **High:** This community facilitates the distribution of OA products | **High:** This community facilitates the distribution of OA products |



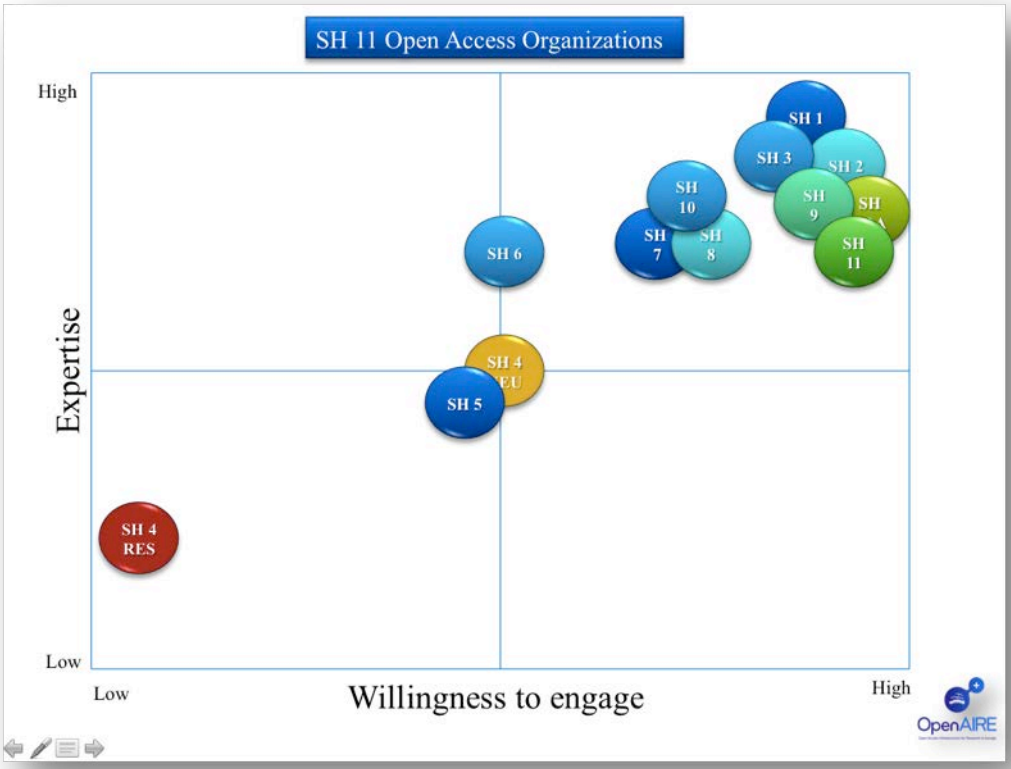
**SH10 University Administration & University Organizations**

| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|
| **High:** They facilitate the distribution of the scientific outputs stored by OpenAIRE | **High:** Directly affected by OpenAIRE's activity | **High:** Proactive groups that are already engaging | **High:** They provide the facilities to produce and consult the scientific outputs stored by OpenAIRE | **High:** They facilitate the production and consultation of the scientific outputs stored by OpenAIRE |




**SH11 Open Access Organizations**

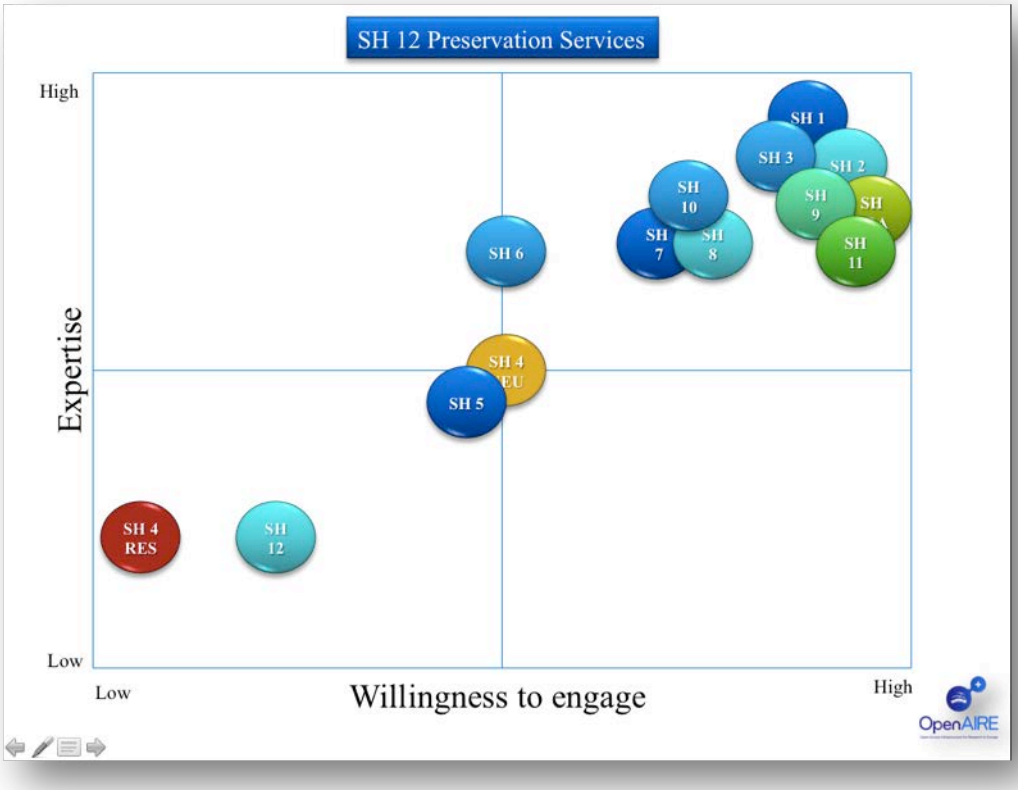
| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|
| **High:** They promote Open Access | **High:** Directly affected by OpenAIRE's activity | **High:** Proactive groups that are already engaging | **High:** This community facilitates the distribution of OA products | **High:** This community facilitates the distribution of OA products |




**SH12 Preservation Services**

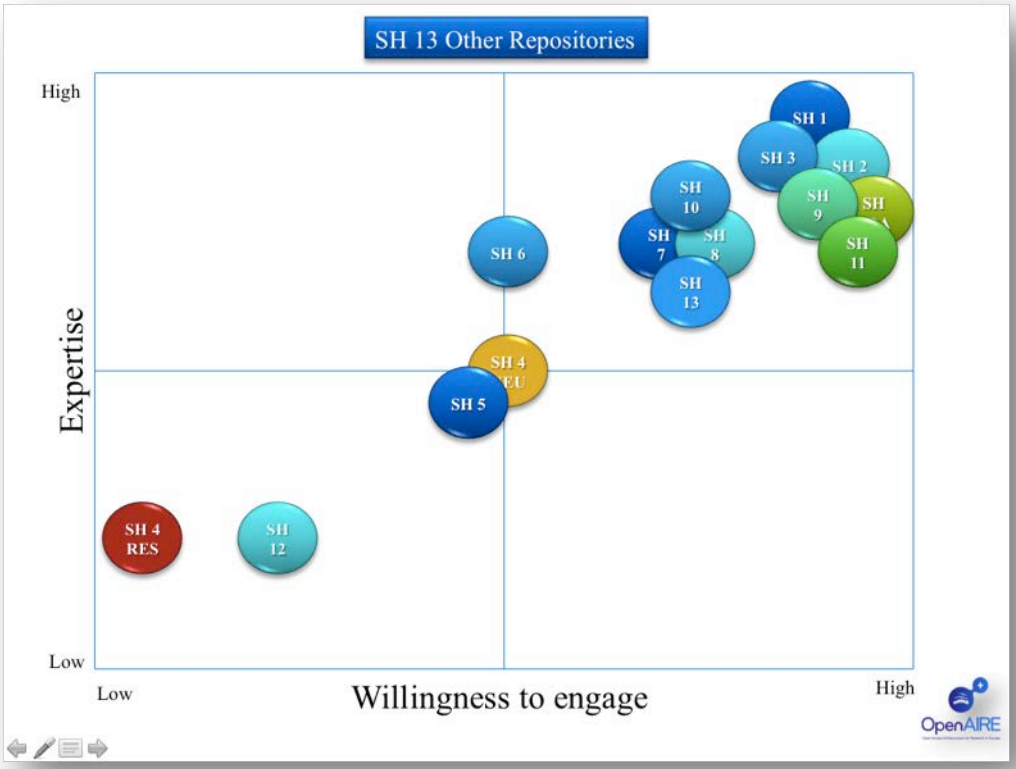
| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **Low**: Not directly involved in the production/distribution of scientific outputs stored by OpenAIRE | **Medium:** Somehow affected by OpenAIRE's activity | **Medium:** Some communities may be interested in preserving OA outputs | **Low**: Not directly involved in the production/distribution of scientific outputs stored by OpenAIRE | **Medium:** Some communities may be interested in preserving OA outputs |



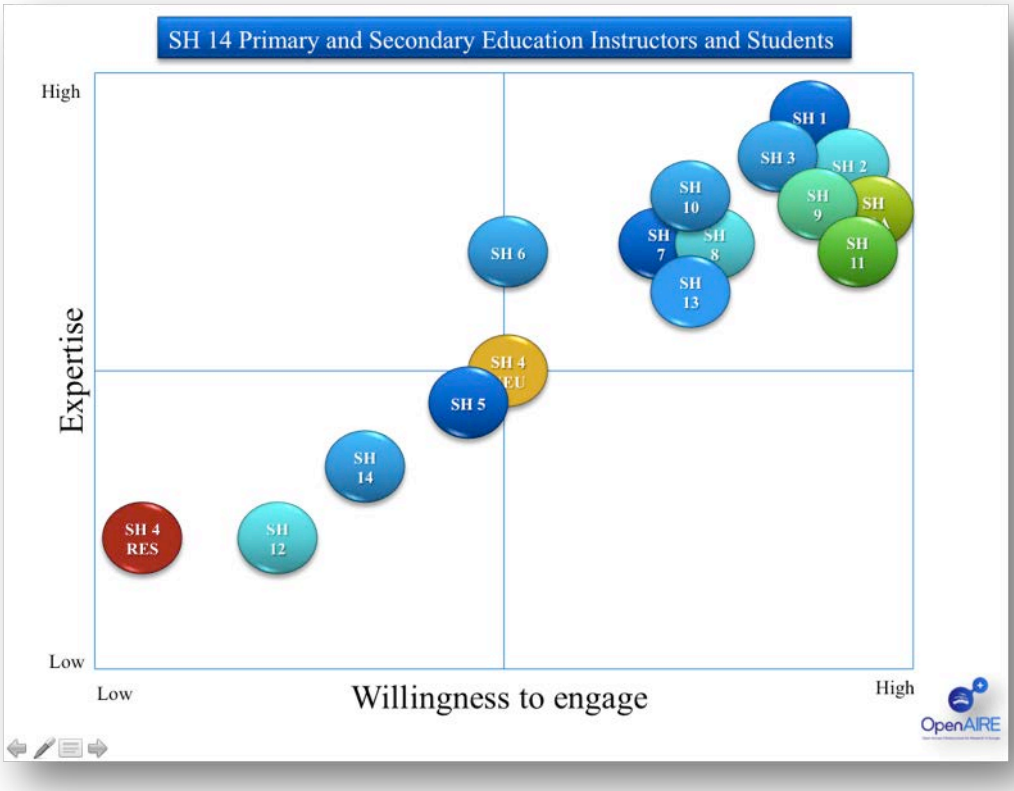

**SH13 Other Repositories**

| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|
| **High:** They facilitate the distribution of OA outputs | **High:** Directly affected by OpenAIRE's activity | **High:** Proactive groups that are already engaging | **High:** This community facilitates the distribution of OA products | **High:** This community facilitates the distribution of OA products |



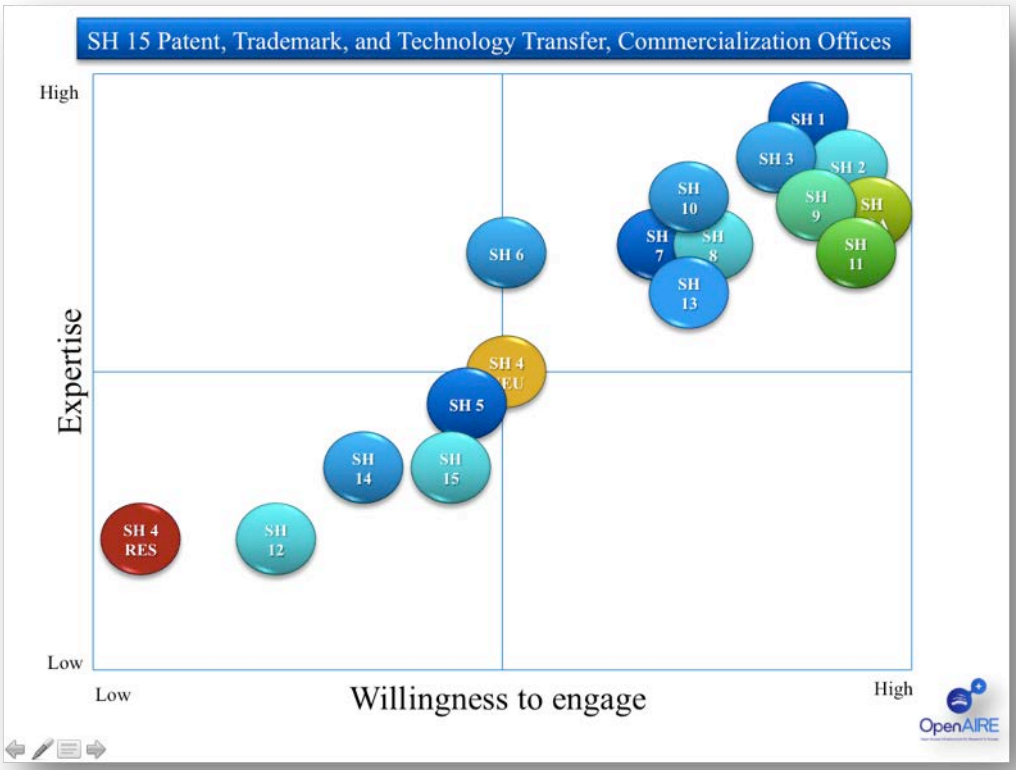

**SH14 Primary and Secondary Education Instructors and Students**

| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|
| **Low**: Not directly involved in the production of scientific outputs stored by OpenAIRE | **Low:** Not directly affected by OpenAIRE's activity | **Medium:** Some communities may be interested in consulting OA outputs stored by OpenAIRE | **Low**: Not directly involved in the production/distribution of scientific outputs stored by OpenAIRE | **Low**: Not directly involved in the production/distribution of scientific outputs stored by OpenAIRE |



## SH15 Patent, Trademark, and Technology Transfer, Commercialization Offices

| Contribution | Legitimacy | Willingness to Engage | Influence | Necessity of Involvement |
|---|---|---|---|---|
| **Medium:** May use OA research. Not directly involved in the production/distribution of scientific outputs stored by OpenAIRE | **Medium:** Somehow affected by OpenAIRE's activity | **Medium:** Some communities may be interested in consulting OA outputs stored by OpenAIRE | **Medium:** Some communities may be interested in consulting OA outputs stored by OpenAIRE | **Medium:** Some communities may be interested in consulting OA outputs stored by OpenAIRE |



# Appendix I OpenAIRE Stakeholder Questionnaire

**PAGE 1**

**OpenAIRE: Supporting Open Science in Europe**

Dear Colleague,

As one of the important stakeholders for the OpenAIRE initiative, we are contacting you to seek your feedback to assist us in developing a sustainability strategy for OpenAIRE (URL). The study aims to explore the costs and benefits of the service and associated financial data in order to plan a future beyond the lifetime of the initiative's funding. We would appreciate your completing the questionnaire even if you are not familiar with the OpenAIRE initiative. The next page provides some basic information about the initiative.

We would really appreciate if you would take 10 minutes of your time in order to provide us with some crucial information about your perspectives about the potential value of the OpenAIRE as it supports your organization's work and mission. Your responses will be confidential and we do not collect identifying information such as your name, email address or IP address. We will do our best to keep your information confidential and appreciate your honest remarks.

Please feel free to contact the research team if you have any questions.

Sincerely yours,

The OpenAIRE Research Team

**PAGE 2**

1. How would you describe your knowledge level of open access and related initiatives?

- Very knowledgeable
- Somewhat knowledgeable
- Have only a general sense
- Not knowledgeable

Comments

2. Are you familiar with the OpenAIRE initiative?

- Yes, I know the initiative quite well
- Somewhat familiar with the initiative
- Not familiar at all

**PAGE 3**

OpenAIRE (www.openaire.eu) is a pan-European infrastructure that interconnects Open Access repositories, archives and journals that support Open Access policies. It goes beyond the traditional publications aggregator by interconnecting entities related to scholarly communication (publications, research data, funding, people, organizations, data sources) allowing users to navigate alongside a rich information space graph and provides a wide range of services, from deposition, to access, to various types of statistics for monitoring OA scientific outcome.

OpenAIRE has started out as a policy support mechanism for the EC for FP7 pilot and H2020 OA policies, but is now ready to serve all European funders and act as a scholarly communication hub. OpenAIRE has established a network of experts in OA policies in all EU member states (+5) who provide hands on support on how to go about the best way to share and re-use publications and data.

OpenAIRE currently holds over 8Mn scientific publications from 460 data sources, linked to ~1000 datasets and 80K projects from two funders. All services described below can be reached at our beta site: http://beta.openaire.eu

Who is it for?

• Researchers: Get all information about OA policies in FP7, H2020 and see what happens in your country. Read our guides on how to comply with EC's and other funders' mandates and learn the basics on copyright issues. Use our helpdesk to post your questions and talk to an expert close to you. Make your scientific outcome count: find which institutional/thematic repository to deposit or link your data and publications to the appropriate funding, or use ZENODO, a general purpose data repository maintained by CERN and OpenAIRE to do so.
• Data Providers: Learn how to be interoperable through the OpenAIRE Guidelines so that your content gets more visibility and is being viewed at the right context by funders and research administrators. Validate your content and use our tools to enrich the metadata with new values. Get statistics and
• Institutions/Libraries: OpenAIRE is well connected to major European and global initiatives so that it brings information to you regarding the various aspects of Open Access, and will soon be in a position to inform you on how to support researchers at your institution with Research Data Management plans (RDM).
• Project Coordinators: We catalogue all your project's scientific output (publications and data) into ONE place so you can monitor it easily, including the OA compliance. Use our apps to get up to date reports and deliver to your administrators or funders.
• Research managers/Funders: Through our technical infrastructure, we are able to gather scientific output from various sources and link it to funding information (on the project level), as well as to the people/organizations affiliated. Based on this, and intensive mining for link inference among the main scholarly communication objects, we are able to produce statistics for the OA monitoring and indicators on the research output and its long-term impact.
• Research Communities: We provide customized "views" of the scientific output attributed to any specific community (research, national, etc.), and members of these communities may claim or view such output within their own environment.
• Service Providers: We provide a comprehensive API suite that may be used by 3rd party providers to build innovative applications on the aggregated, cleaned, transformed and enriched content.

**PAGE 4**

3. Which one of the following categories represent your profession or organizational category? Please check all that apply:

- ☐ Research organization/laboratory
- ☐ University administration (dean, provost, chair, etc.)
- ☐ Library or archive
- ☐ National Open Access Desk (NOAD)
- ☐ Repository service provider
- ☐ Publisher
- ☐ Scholarly society
- ☐ Researcher or scientist
- ☐ Research funder
- ☐ Standards organization
- ☐ Teacher (elementary/middle/highschool)
- ☐ Open access organization (e.g., SPARC)
- ☐ Subjecty repository provider (e.g., arXiv, PubMedCentral, etc.)
- ☐ Trademark, patent, or commercialization organization
- ☐ Corporation

Other (please specify)

**PAGE 5**

4. How does/will OpenAIRE support your (or your organization's) work? Please check all that apply:

| | **Not at all** | **Not much** | **Very much** | **Not sure/do not know** |
|---|---|---|---|---|
| **Create a federated/unified discovery and access environment for research outputs in order to increase accessibility, use, and re-use of research papers** | | | | |

| | Not at all | Not much | Very much | Not sure/do not know |
|---|---|---|---|---|
| **Link articles/papers to source materials such as research data that underlies a publication** | | | | |
| **Support implementation of open access mandates and provide repository services to fulfill deposit requirements** | | | | |
| **Provide policies and best practices in support of implementing open access policies** | | | | |
| **Enhance research through faster, improved, and wider access** | | | | |
| **Inform scientists about the funding agencies requirements and how they can conform** | | | | |
| **Enable funders to monitor the impact of their policies** | | | | |
| **Provide statistics for funders to measure research impact and resources to help researchers publish in open access** | | | | |
| **Provide an extensive helpdesk system to ensure localized help to researchers within their own context** | | | | |
| **Provide a repository facility for researchers who do not have access to an institutional or** | | | | |

| | Not at all | Not much | Very much | Not sure/do not know |
|---|---|---|---|---|
| **discipline-specific repository** | | | | |
| **Leverages international connections and networks to contribute to common standards, data issues and interoperability on a global level** | | | | |
| **Raise awareness about infrastructure needs in support of open access** | | | | |
| **Increase awareness among researchers and funding institutions about open access publishing models** | | | | |

Other (please specify)

**PAGE 6**

5. What is the service/policy gap that OpenAIRE can fill in support of your organizational mission and goals? Please describe:

6. How do you see yourself/your organization contributing to OpenAIRE? Please check all that apply:

- ☐ Provide content
- ☐ Engage in its governance through participation (e.g., advisory groups)
- ☐ Provide financial support in support of its sustainability
- ☐ Provide advice and consultancy in support of the further development of the service
- ☐ Increase awareness about its existence and services through promoting it
- ☐ Not sure/do not know

Other (please specify)

**PAGE 7**

7. How should OpenAIRE finance its operation? Please check all that apply:

- [ ] Institute a membership model and charge an annual fee based on organizational size/budget
- [ ] Secure funds from research funders
- [ ] Raise funds through grant writing
- [ ] Financing through national contributions
- [ ] Charge scientists/researchers for depositing articles
- [ ] Offer a suite of value-added services for fee (see the next question for an explanation)

Other ideas (please specify)

8. What are the added value services of interest to you (or to your organization) that you'll be willing to pay if they were to be offered by OpenAIRE?

- [ ] Provide compliance data to funding agencies with open access mandates
- [ ] Offer metadata services
- [ ] Provide text mining tools to enable computational research
- [ ] Offer bibliometric/altmetrics for tracking usage data for open access articles
- [ ] Provide publishing services (e.g., offer peer review services by overlaying open acces content)
- [ ] Offer embargo services to balance publisher/society requirements with open access mandates (e.g., dark archive for a year before a publication is made openly available)
- [ ] Provide help desks to answer questions concerning OA, EC OA Policies
- [ ] Provide information policies such as copyright, security, privacy, confidentiality, etc.
- [ ] Offer assistance for repository managers and publishers to make their repositories and journals compliant with the OpenAIRE Guidelines
- [ ] Increase the visibility of research outputs funded by research organizations
- [ ] Act as a clearinghouse to disseminate information about OpenAIRE
- [ ] Collaborate with digital preservation services to facilitate long-term archiving of open access content
- [ ] Increase the visibility of institutional research

Other services (please specify)

**PAGE 8**

9. If OpenAIRE had a membership model, what is a reasonable annual contribution level? Please give us a range in euros:

10. If your institution were to participate in a membership model, what would make the membership model attractive to your institution? Why would you contribute or pay?

11. What are the risks OpenAIRE should be taking into consideration as we develop a sustainability model?

12. Why would you or your organization be hesitant to contribute to an initiative such as OpenAIRE? We very much appreciate