



## RESEARCH DATA ALLIANCE EUROPE

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### ABSTRACT

This report outlines the activities, impact and next steps of stakeholder engagement in the fields of policy, funders, domain researchers, industry, data technologists and existing infrastructures on national and international level. In addition, transatlantic dialogue and other outreach activities are reported. There are three annexes to this report:

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## GLOSSARY

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ABBREVIATION	DEFINITION
<b>RDA Europe</b>	Research Data Alliance Europe
<b>ATHENA RC</b>	Athena Research Center
<b>CSC</b>	IT-Center for Science Ltd.
<b>ACU</b>	Association of Commonwealth Universities
<b>CNR-ISTI</b>	Italian national research council
<b>CNRS</b>	Le Centre National de la Recherche Scientifique
<b>MPG</b>	Max Planck Gesellschaft
<b>STFC</b>	Science and Technology Facilities Council
<b>TRUST-IT</b>	Trust-IT Services Ltd.
<b>ESFRI</b>	European Strategy Forum on Research Infrastructures
<b>EUDAT</b>	European Data infrastructure
<b>OSTP</b>	Office of Science and Technology Policy
<b>IODE</b>	International Oceanographic Data and Information Exchange
<b>FAIR</b>	Findable, Accessible, Interoperable, Re-usable
<b>FORCE11</b>	A community promoting improved knowledge creation and sharing
<b>SyA</b>	RDA Synchronization Assembly
<b>HBP</b>	Human Brain Project
<b>EDF2015</b>	European Data Forum 2015
<b>COP21</b>	UN Climate Change Conference 2015

<b>IODE</b>	International Oceanographic Data and Information Exchange
<b>MEP</b>	Member of European Parliament
<b>ERA</b>	European Research Area
<b>JISC</b>	Registered charity promoting use of digital technologies in education and research in UK
<b>CODATA</b>	Committee on Data for Science and Technology
<b>PRACE</b>	Partnership for Advanced Computing in Europe
<b>EGI</b>	European Grid Infrastructure
<b>EDISON</b>	Education for Data Intensive Science to Open New science frontiers project

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## 1. Executive Summary

This is the first European Stakeholder engagement report from Work Package 2, including description of activities, evaluation of meeting the key performance indicators and impact analysis of the tasks *2.1 Policy engagement*, *2.2 Domain researcher engagement*, *2.3 Industrial engagement* and *2.4 Computer Scientist, Data Technologist and existing e-Infrastructure Engagement*.

The targets of the WP2 are to increase the impact of RDA in the science domain through policy and visibility measures, to leverage on outreach activities and gain synergies with new actors, building on the achievements of the RDA Europe 1.0 project. The aim is to ensure sustainable conditions for RDA impact on all levels and sectors, eventually feeding into the RDA Europe 3.0 project. As most of the activities in this Work Package are expected to have impact primarily in the long run, measuring impact is somewhat premature at this stage. We have however outlined all indications of impact so far. In general there is clear potential for creating impact, and many activities have been carried out successfully, or are at least proceeding in a promising way. In all of the tasks, one obvious action is to create trusted, sustainable networks of actors with whom to interact on a regular basis. Even though the stakeholder engagement is administratively divided into separate tasks, it must be noted, that the division into different stakeholder groups, and even within them, is in many cases more or less artificial, as these actors do not operate in vacuums. In the end, the results and impact of RDA activities derive from addressing various stakeholders that also have an effect on each other. Therefore it is important to avoid silos and too narrow approaches when addressing different actors, still of course keeping in mind the specific knowledge, expertise and mandate of each actor. Furthermore, what the RDA wants to promote, is a community of all actors, where we all work together, from project directors to individual scientists operating in the WGs and IGs. We want to involve everyone, who will eventually be affected by the RDA outputs, into creating and improving these outputs.

*Engagement of policy actors* is crucial to ensure for example the best possible basis for such European and national legislation and policies that enable free movement and efficient re-usage of research data across nations, disciplines and infrastructures. Policy networks have been built systematically by each partner, resulting in a number of various awareness raising events, documents and meetings with relevant policy actors. Measuring the long-term impact of this activity cannot be fully carried out at this stage due to e.g. ongoing policy processes, but clear indication of interest and raised awareness can already be seen. The work will have to continue and intensify as the policy network is fully established and in operation.

*Domain researchers, domain infrastructures* (ESFRI projects, large infrastructure projects such as Human Brain Project, etc.) and *cross-domain e-infrastructures* (e.g. EUDAT, PRACE, EGI) need to be addressed, and collaboration between all of these actors needs to be enhanced, in order to engage all relevant players in this field and ensure coherence and interoperability. The active involvement of these stakeholder groups in RDA Interest and Working groups is essential, since they include scientists, data scientists, data managers, software developers and other types of professionals all focusing on tackling relevant research questions. A large number of activities have been performed under this task, including e.g. many bilateral interactions, engaging in domain-specific events, organizing science workshops, engagement of early-career scientists and leveraging on the work of RDA Europe Forum. This stakeholder group is seen as the most relevant group for RDA in this phase of development.

By *engaging computer scientists and data technologists*<sup>1</sup> we ensure the involvement of computer scientists, engineers and other technologists involved in advancing hardware and software technology. To enable the full strength of adoption of the RDA output and to take profit from latest technological insights a close collaboration with these stakeholders is crucial,

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<sup>1</sup> It is important to note that this stakeholder group is not completely disjunctive from the previous one, since many computer scientists for example are engaged in research and e-Infrastructures. This distinction is made here to indicate the difference in motivation.

promoting also their mutual interaction and synergy. A directory of contacts is to be established to ensure continuous interaction with them.

*The industry engagement* is a new activity which has included analysis of potential interests of industrial actors, aiming at gradually increasing the industrial participation in RDA. By industry we mean all types of industrial entities, namely large enterprises, Small and Medium Enterprises (the so-called SMEs), as well as start-ups and especially young entrepreneurs. This has proven to be challenging, and currently the involvement of EU industry is quite low. Some targeted effort from the SME side can however be seen, which might be an indication of what could be one focus area in the next phase. Creating a database of European industry players and eventually interacting with them has begun and some meetings have been held with individual industry representatives. An industrial workshop is planned in Autumn 2015, and it is also a focus theme in the sixth RDA Plenary meeting which will be held on 23-25 September 2015 in Paris.<sup>2</sup>

*National engagement* has been a cross-cutting element in the stakeholder engagement, including activities in all of the tasks. The need to get national actors involved and committed, and to implement the RDA outputs on a national level, is obvious. The types of activities have varied depending on country, and there are also some initiatives for regional engagement e.g. in the Nordic countries and in South Eastern Europe.

*Trans-Atlantic dialogue* is crucial for the success of RDA global, and it is being carried out on a regular basis. Outreach to and collaboration with relevant other European/global initiatives and projects has been another element that is visible in the WP2 tasks. RDA Secretary General Mark Parson's European tour has provided a possibility to enhance awareness raising in different countries. A close interaction between key data professionals of both sides was necessary to create the discussion document ("Paris Document", see annex) that intends to drive discussions towards agreements where possible.

An extensive list of stakeholder events and meetings is attached to this report as an annex.

## 2. Introduction and background for European stakeholder engagement

### 2.1 Policy engagement

The task 2.1 Policy engagement has the objective to engage with policy actors on all levels: national, regional and supranational. Making the message of RDA stronger on the policy agenda requires involving decision makers and ensuring they are committed and willing to promote the RDA, integrating data issues into their policy activities. It is important to establish a solid network of policy level contacts and channels to ensure an increasing policy visibility of the RDA, leveraging also on outreach activities with relevant actors such as national and pan-European scientific and research organisations.

The current European policy discussion on the Digital Single Market strategy was published in May 2015 by the European Commission<sup>3</sup>. The strategy builds on three pillars: better access for consumers and businesses to online goods and services across Europe, creating the right conditions for digital networks and services to flourish and maximising the growth potential of our European Digital Economy. And research and innovation are identified as key factors boosting industrial competitiveness as well as better public services, inclusiveness and skills. The strategy clearly contains elements that are relevant to the RDA, e.g. the plans concerning open science, cloud services for research, as well as copyright legislation. This provides various opportunities for dialogue, and in fact requires active engagement and input from RDA actors in e.g. discussions with the European Parliament.

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<sup>2</sup> <https://rd-alliance.org/plenary-meetings/rda-sixth-plenary-meeting.html>

<sup>3</sup> [http://europa.eu/rapid/press-release\\_IP-15-4919\\_en.htm](http://europa.eu/rapid/press-release_IP-15-4919_en.htm)



Exploring possibilities for national RDA initiatives, as well as continuing the transatlantic dialogue, are also part of the policy engagement.

## **2.2 Domain researcher engagement**

The aim of task 2.2 is to engage with the domain scientists, research infrastructures and e-Infrastructures as well as several related initiatives. The domain scientists, together with their affiliated data practitioners and the e-Infrastructures they are collaborating with, are the main producers and consumers of scientific data. Even small steps towards better data practices in the research domain would make a large difference in sharing and re-using efficiency.

Domain specific research infrastructures, such as the ESFRI projects, the Human Brain Project etc., provide domain specific services to the researchers. As such it is important to engage all data professionals of these infrastructures in adopting and sharing RDA principles. Furthermore, the ESFRI projects are well aware of the data issues in their specific domain and can provide the RDA with valuable input on the direction of work by actively contributing to working and interest groups.

Cross-domain infrastructures such as EUDAT, OpenAire, EGI etc. provide common services based on which the ESFRI projects can build their domain specific solutions. However, certain services provided by these e-Infrastructures such as B2SHARE, B2FIND, ZENODO, etc. can directly be used by the domain scientists. It makes sense to enable domain adoption of cross-domain solutions. In most cases, the domain specific and cross-domain data professionals are in close interaction with each other to tackle scientific challenges. Therefore it is important that they are addressed in a way that promotes their mutual trust and collaboration.

## **2.3 Industrial engagement**

The aim of Task 2.3 is to get industrial entities to be engaged with RDA. In order to make this happen, the industry players have to see real value in the RDA outputs that can be translated in business profit or at least exploitable “networking” opportunities with the research communities. There are already projects that have managed to successfully bring together the various RDA outputs, and building a network of interconnected outputs will continue, e.g. the RDA WG on Data Fabric has been involved in this.

The RDA-Europe efforts concentrate in doing preparatory steps for the potential engagement of industry, such as analyzing the current RDA membership, identifying potential interest in industrial sectors or types (such as SMEs or startups), and organising events close to industrial communities. Obviously the main scope is to gradually and carefully increase the industrial participation in RDA. This is also in-line with the Horizon 2020 new targets and instruments, given that innovation was one of the weak points in the ERA for the previous EU R&D programmes.

The RDA Europe has participated in the preparations of the Sixth RDA Plenary, and the theme of the Plenary “Enterprise Engagement with a focus on Research Data for Climate Change” was chosen to boost industrial engagement.

## **2.4 Data technologist and existing e-infrastructure engagement**

Task T2.4 has the objective of promoting the engagement and collaboration of computer scientists, data practitioners and engineers, jointly involved in building scientific data infrastructures and tackling scientific challenges, by organizing workshops on specific topics addressed by the RDA WGs and IGs. The intention of RDA is that all these stakeholders actively contribute to the progress in the working and interest groups and the Case Statements requested for example for Working Groups need to make clear specifications about scientific domains, data professionals and early adopters involved to ensure that a) a certain quality level is guaranteed, b) different backgrounds take care of general use and c) there is a clear motivation for overcoming concrete hurdles. However, it is impossible for several reasons to

include all interested computer scientists, domains and infrastructure builders in the group discussion processes. Therefore, RDA decided to organize in addition workshops with a number of specialists from different background and here in particular computer scientists to deeply discuss the outputs and activities of a selected working group with the intention to give feedback to the working group and to inform the whole RDA community. The expectations for these workshops are:

- giving additional information on the quality of the achieved outputs by bringing in the knowledge of additional computer scientists
- discussing in more detail with other participants about the potential of adoptions by scientific communities and e-infrastructure providers

To meet these expectations it is important of course that key people from the working groups are participating in these workshops.

## 2.5 National RDA activities

One cross-cutting dimension of the stakeholder engagement is awareness raising and dialogue on the national level. The aim is to strengthen activities in Europe and involve and commit national actors to adopt RDA outputs and policies. Convincing authorities, that it is for their own benefit to let their communities participate in RDA, is one important goal. Also the participants themselves have to be convinced, that it is in their own interest to participate. The focus has shifted from describing the organisation, to how to become involved and how RDA can be of concrete use to various communities. The intention is to show current RDA activities and outputs, identify interesting ones together with the audience, examine the outputs and discuss possible use cases and adoption. Identifying gaps and possible topics for new Interest and Working Groups has to be kept in mind as well. Activities are ongoing and planned in Finland, France, Germany, Greece, Italy, Spain and the UK.

So far the national activities can be briefly summarized as follows:

- Activities mainly towards the policy level in Spain
- National events for academia and targeted policy meetings in Finland
- National events in France and Germany targeted at all stakeholders with intentions to come to concrete national activities on uptake, participation, training etc. In France RDA was for instance involved in the annual national meeting of software developers working in research teams, all disciplines being represented.
- Meetings planned in Greece and Italy
- Main UK interface: JISC, UK Data Forum oversees involvement in CODATA & RDA
- In Germany young people and startups have been involved in trainings, a PhD programme is being worked on, and 60 participants from national projects have participated in planning for RDA outputs adoption.
- Building on RDA Secretary General Mark Parson's European tour include e.g.
  - A national and regional (Balkan, Cyprus, Turkey) event organised by Greece
  - Workshops organised in Italy in particular involving the ESFRIs with Italian participation
  - A Nordic event in Autumn 2015 in Finland

A table of national activities is presented in the annex "RDA Europe Actions on Coordination/Communication/Outreach".

### 3. Targets of stakeholder engagement and description of activities

#### 3.1 Policy engagement

As a result of this activity, the understanding of how crucial the free movement of research data is in addressing economical, societal, policy-related and scientific challenges, should eventually become visible in legislative decisions, norms and policies in all sectors, so that data will be recognized as the key element in enhancing growth and wellbeing more visibly than it currently is. Therefore we need to engage with all policy layers on European and national levels, increasing the visibility and impact of RDA through sustainable networks and established contacts within all relevant stakeholders such as the European Commission, European Parliament, national and regional policy decision makers and policy makers in research communities and administration. In addition, outreach to relevant actors within and beyond Europe through Transatlantic dialogue and the RDA Colloquium (RDAC) will broaden the RDA membership.

##### 3.1.1 European and national policy engagement

The activities include building a network of contacts, to be used for interaction, targeted discussions, awareness raising and influencing policies, strategies and legislation. Some of the contacts have already become channels for interaction on a regular basis, and there are indications of proactivity also from the other side. From October 2014 until early July 2015 the following amount of meetings and events for different stakeholders have been organized, or RDA partners participated in the event:

- 32 for Academia
- 27 for Political decision makers
- 12 for Outreach (other initiatives and projects)
- 6 for EC
- 5 for Industry
- 5 for Public Administration
- for National funders

In addition, there is an ongoing dialogue and awareness raising of RDA as a part of partner activities targeted at policy actors, academia and others. RDA Secretary General Mark Parson has been touring in Europe during Spring and Summer 2015, and during his tour has been involved with some of these and additional activities, events and meetings.

The RDA has been an element in the public affairs work of some of the partners, e.g. in Finland, where a parliamentary election was held Spring 2015. CSC's Objectives for the new government's programme list open data as a focus area, where RDA and the Data Harvest report are also referred to. In the discussions with political actors, ministries, industry and media, RDA is mentioned as an example of international work on open data standards and the Data Harvest report is disseminated. In addition, there has been dissemination and outreach through the Knowledge Exchange initiative<sup>4</sup>, including references to RDA work in dissemination of relevant KE work, synergetic orientation and concrete collaboration with relevant RDA IGs/WGs.

There is an extensive list of all events and meetings with stakeholders as an annex to this report.

##### 3.1.2 The EU-US Transatlantic Dialogue

The EU and US are the two major forces in the RDA, between them contributing 86% of the RDA individual membership (EU 49% and US 37%, July 2015). It is therefore critical that EU and US work together to shape the global RDA agenda. The 2013 Statement on Open

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<sup>4</sup> [www.knowledge-exchange.info](http://www.knowledge-exchange.info)

Research Data from the G8 science ministers<sup>5</sup> confirmed a common approach to data policy. However, policy mechanisms in the two regions differ, whilst EU policy is driven largely by the Member States and the EC, US policy comes from disciplinary agencies such as NSF<sup>6</sup>, DoE<sup>7</sup> and NIH<sup>8</sup>, with overarching policy from OSTP<sup>9</sup>. Independent Foundations such as Mellon and Sloan also play an important role in US research.

There are many US and global open data initiatives, such as Earthcube, IODE, Dataverse, that have a significant role in disciplines which RDA needs to engage with. In all these areas it is important that US and EU projects are coordinated to ensure maximum benefit to research as a global endeavour. Prior to Plenary 4, discussions between EU and US took place at meetings of the RDA-Colloquium and the G8+O5 Data Working Group. This was replaced at Plenary 4 with the first funders' forum. Since then communication have continued with NSF and NIH through John Wood who attended the Transatlantic Policy Network in July 2015 and will visit both NIH and NSF.

One concrete form of transatlantic collaboration has been creating the "Paris document", with a balanced authorship from both US and EU. Three pillars are the basis for this paper:

- The comparison of data principles that have been formulated by several initiatives (G8, FAIR, FORCE11, Nairobi, etc.) which showed that there is a wide agreement on the same core principles on how to make data searchable/findable, accessible etc.
- There also seems to be a worldwide agreement between funders on requesting data management plans when project proposals are submitted. However, we are not so far to have thought through all implications of the data principles and certainly not so far that services and infrastructure components have been put into practice, that would allow researchers to actually follow the principles and apply them to their own data.
- A number of common trends that could be observed in the many global discussions on data sharing and re-use within RDA, but in particular also in the many community exchange meetings. In this respect we can see RDA as an accelerator of the convergence process towards rough consensus where possible and towards clarity about the nature of disagreements.

A group of authors from various regions analysed the implications of the data principles and data management plans, discussed widely agreed common trends and derived from this basis suggestions for common components and services that obviously are needed to make data practices much more efficient and cost-effective. The paper also indicates the components that already have been tackled in RDA and thus indicates possible gaps. The "Paris document" is attached to this report as an annex.

### 3.1.3 The RDA Europe Synchronization Assembly (SyA)

The RDA Europe Synchronization Assembly (SyA) has been set up and had its first meeting before the summer 2015. The role of SyA is to enable stronger synchronization of RDA Europe activities on all levels in order to disseminate key messages, react on urgent issues and agree on strategic subjects, to liaise between RDA Europe and RDA Global, and to promote the objectives of RDA within Europe, ensuring also that European policy level discussions are being considered by RDA Europe. The SyA will be a contractual part of RDA Europe 3, starting 1 September 2015. The purpose is to synchronize knowledge between all major stakeholders in RDA Europe. The SyA will include persons from RDA Europe project Board of Directors,

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<sup>5</sup> G8 Science Ministers Statement - <https://www.gov.uk/government/news/g8-science-ministers-statement>

<sup>6</sup> NSF Dissemination and Sharing of Research Results - [http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/aag\\_6.jsp#VID4](http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/aag_6.jsp#VID4)

<sup>7</sup> DoE Public Access Plan - [http://www.energy.gov/sites/prod/files/2014/08/f18/DOE\\_Public\\_Access%20Plan\\_FINAL.pdf](http://www.energy.gov/sites/prod/files/2014/08/f18/DOE_Public_Access%20Plan_FINAL.pdf)

<sup>8</sup> NIH Data Sharing Policy - [http://grants.nih.gov/grants/policy/data\\_sharing/](http://grants.nih.gov/grants/policy/data_sharing/)

<sup>9</sup> OSTP Open Data Policy - Managing Information as an Asset - <https://www.whitehouse.gov/sites/default/files/omb/memoranda/2013/m-13-13.pdf>

European members of RDA Global boards (ex-RDAC, TAB, Council, OAB and Secretariat), selected WG chairs, leaders of WPs in RDA Europe and selected experts from other European initiatives, such as Knowledge Exchange and LIBER. Interest has been raised to collaborate with e.g. EUDAT and OpenAIRE. The invited members include also representatives from the European Commission. The intention is to create a common European voice on research data matters, through a direct channel for dialogue and information sharing. Furthermore, the SyA aims to create a collective RDA Europe view that the Council members can communicate to the RDA Global. This contributes as well to the transatlantic dialogue.

The SyA can also be seen as a step to broaden the involvement of more stakeholders in RDA Europe discussion and decision processes. "RDA Europe as a project" only includes a few partners who understand that they are not the "European RDA community". The European RDA community is made up by all people that are active in some form in the RDA processes. The "RDA Europe project" has the primary task to help the community at large to be engaged, to understand the activities in RDA, to carry out adoptions, to get help and advice on data issues, etc. SyA with its wider representation has a chance to act as a mediator between the active community and the project to ensure that the project carries out its main task in an effective way.

### 3.1.4 European Commission dissemination

Awareness raising within the EC Directorate Generals and especially DG Connect and DG Research has been carried out through regular meetings and discussions with key persons to ensure continuity of the RDA work and coherence with the EC objectives. Awareness raising on the policy level has also been taking place in the form of meetings and discussion with some of the EC member's cabinets, e.g. Vice-President Jyrki Katainen's. A comment paper on the Digital Single Market was drafted on request of VP Katainen's cabinet, including input to open science parts based on RDA materials (The Data Harvest report). This paper has been disseminated to relevant EC DGs, MEPs and various other stakeholders. In addition, the RDA has been represented in relevant events involving the EC, like the ERA meeting on innovation<sup>10</sup>, and the RDA and global Data and Computing e-Infrastructure challenges event<sup>11</sup> where the Data Harvest report was launched.

### 3.1.5 Engagement with the European Parliament

The members of the European Parliament are key actors in making the RDA more visible on the policy agenda on the European level, and the Digital Single Market will provide even more opportunities for a dialogue between the RDA and the parliament. A targeted event where relevant issues can be discussed with the MEPs has been planned and will be held latest in March 2016. In addition, a list of parliament contacts within the RDA Europe task members has been established, which will help identifying relevant contacts and channels. Some of these contacts have already been utilized for dissemination and awareness raising through meetings, materials and discussions, concerning e.g. the Digital Single Market. This work is ongoing with significant output expected for the next reporting stage.

### 3.1.6 The Paris document

The "Paris document" has been distributed to many initiatives such as large European research infrastructures. Everyone is requested to give comments via RDA's Data Fabric Wiki to come to an open discussion on all aspects which are addressed in this document. Contributions are expected from various initiatives, institutions and also individuals to understand what is widely agreed and where we can see disagreement. Where we see wide agreement we obviously need to speed up consensus forming and specify interfaces, processes, etc. that everyone could adhere to. Where we see disagreement we need to see how we can overcome the inherent

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<sup>10</sup> <http://ec.europa.eu/research/conferences/2015/era-of-innovation/index.cfm>

<sup>11</sup> <https://rd-alliance.org/IT2014EU>

problems of integration and interoperability. All is directed to accelerate the speed of the process towards agreed solutions.

The "Paris document" is attached as an annex to this report.

### 3.2 Domain researcher engagement

The target is to engage in domain-science oriented events/conferences and inform the scientists, data professionals, infrastructure and related e-Infrastructure actors about RDA, its activities and the value of open access to data and to get them involved either in group activities or in adoption of results. In doing this, it is crucial, as a cross-cutting theme, to promote and facilitate interaction, dialogue and collaborative work between scientists, data practitioners, infrastructure and e-infrastructure builders, ensuring coherence and trust between these actors. Of particular relevance are the annual Science Workshops, which include a selected group of leading domain scientists, as well as the annual RDA-Infrastructure meetings.

The expected impact is an increased awareness of RDA outputs, a lower barrier to entry in terms of data sharing within the research communities and infrastructures and an even broader involvement. Furthermore, the specific problems the domain scientists and infrastructure providers might have, can inform the RDA members of possible directions. Many of the RDA outputs are more infrastructural in nature than aimed at individual researchers. Therefore the domain infrastructure and e-infrastructure builders are crucial for achieving relevant results.

All in all, the challenges of scientists, data practitioners, infrastructure and e-infrastructure providers are to be addressed in a collaborative manner, in order to build trust and a common understanding among the players.

Activities are listed below:

- Getting domain researchers and infrastructure builders involved in the RDA work, as a part of the RDA community: as it might be challenging to ask leading researchers to participate directly, their data professionals (data scientists, data technologists, data archivists etc.) are key actors whom to get engaged and whom to listen to.
- Listening to their issues and tease out their data problems.
- Identifying champions in their community who can help advocate data sharing and RDA.
- Encouraging infrastructure providers to collaborate with and employ scientists/researchers if they haven't already and get them to send their representatives to RDA.
- Sharing with them the successes of RDA and why it's relevant to them. Compiling a portfolio of success stories (RDA Digest under T3.2).
- Encouraging them to adopt RDA outputs– which may often be delegated to disciplinary data scientists since most RDA output should be transparent for average users.

In order to address these focus areas, task 2.2 is focusing its effort in the following distinct lines:

- RDA Europe SyA: to help maintain focus of the RDA activities, to maintain balance with respect to participation, to maintain general policies and procedures in RDA. This forum will meet at least twice over the lifetime of the project;
- Science workshops: over the 18 month period two science workshops bringing together leading European scientists who are working with data to showcase RDA, highlight

current activities, gather their feedback and requirements and ultimately create new European driven RDA Working and Interest groups;

- Each year a meeting with large infrastructures (ESFRI, HBP etc.) is to be held to discuss relevant issues, joint projects for uptake of results, train their members etc.;
- Participating in domain specific events: RDA Europe will invest effort to obtain visibility at events organized by third parties through keynote presentations, panel participation, co-located workshops, exhibition stand, posters, etc. This activity will increase visibility and awareness of RDA activities in the domain targeted by the event and result in increased RDA membership as well as generation of European driven RDA Working and Interest groups;
- Engagement of Early Career Scientists & Researchers working on data: through the specific support programme (operated under task T2.3), Early Career domain researchers will be invited to apply for grants to attend the RDA plenary meetings and participate in Working or Interest group meetings of relevance to their area of study;
- Various national events and meetings have been held in different countries. All the national events are listed in a table (annex);
- Datathon events have been planned.

### 3.3 Industrial engagement

The main objectives of the industrial engagement task are the following:

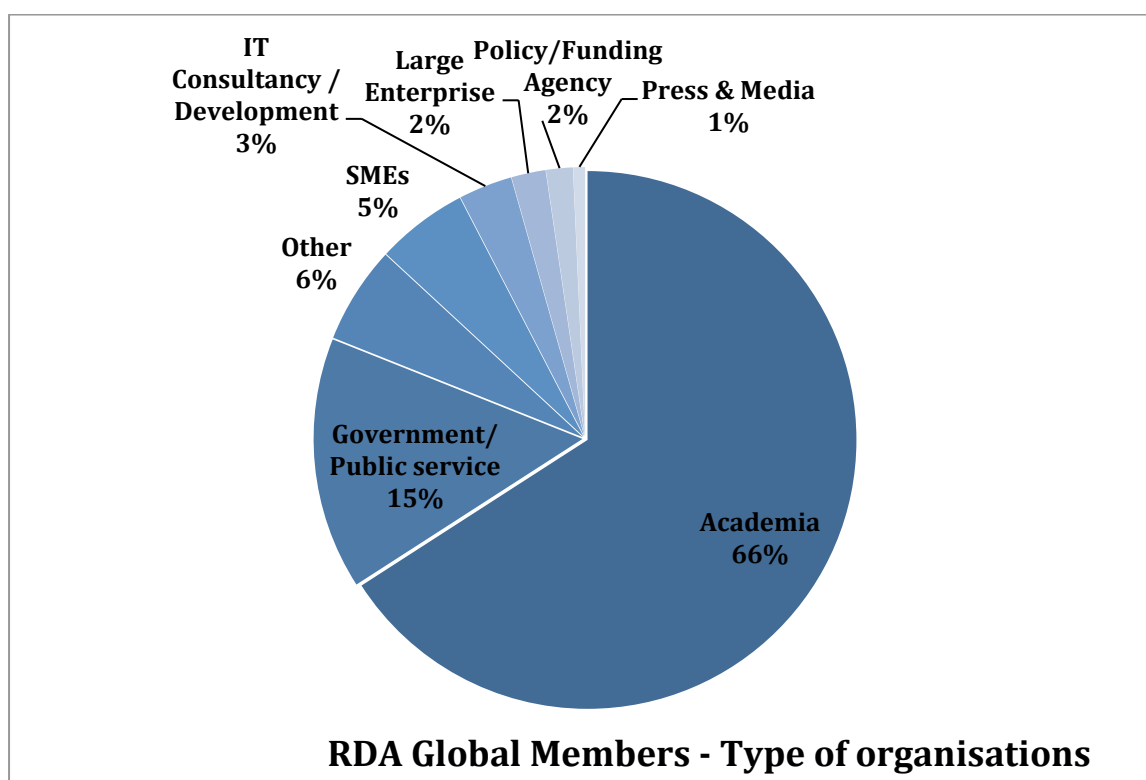
- Increase European industrial engagement in RDA, both as individuals and organisational members. For SMEs and start-ups the main effort is to lower the barriers of entry for their involvement in WG/IGs as their resources are limited and time valuable. For this to happen they need to see clear and concrete benefits from RDA.
- Investigate the possibility of uptake of RDA outputs by EU industry. The idea is to help identify & exploit emerging opportunities for products and services. Uptake of outputs from industry is possible only if they gain competitive business advantages for their work. A pragmatic approach is needed, not over-promising, but involving industrial members only if there is a clear benefit for them. The opposite may bring disillusionment and drive away potential industrial entities/adopters.
- Help industry to push governments for publicly-funded research data to be based on RDA principles and outputs. As RDA is closely linked with the national entities, there are efforts to push in this direction, i.e. that publicly-funded research data would be based on RDA principles and outputs. The challenging part however, is to motivate industry to do so, and industry needs a clear benefit to do this.
- The expected impact and ultimate goal of engaging industry would be two-fold; the multiplier effect of the industrial engagement in terms of capturing requirements and adopting outputs, and in the long run the better outlook on the sustainability of RDA. Regarding the first there will be a better collaboration of research entities with industrial ones, bringing in the requirements for data sharing and interoperability from the latter. In addition, getting industry as part of the adopters, assumes results that have business value and a real impact in the market. Finally, with strong industrial engagement the outlook for RDA sustainability is certainly much better.

#### 3.3.1 Analysis of European industry participation in RDA

The first activity in the industrial task T2.3 has been the better understanding of European industrial participation in RDA membership, both as individual members and also as

organizational members. This would already provide input to the question who (from industry) is already interested in RDA and also what types of industrial entities are already represented in RDA. The answer to the level and type of involvement would be also attempted, but this may not be as straightforward as the previous questions.

Such an analysis was performed just before the RDA Plenary 5 (at the end of February 2015), where RDA consisted of ~2700 individual members and 25 Organisational Members. On the analysis of the first, it was clear that only a total of ~125 European members was coming from industry. They belong to three relevant categories, namely Large Enterprises, SMEs and IT Consultancy/Development. Still the latter is thematic and it may have been better to include startups instead (based on size). In addition, there were some entries that may have been wrongly self-categorised (as their organisations were known).



Out of 125 members, there were only 70 members from SMEs, only 25 members from Large Enterprises and 30 members from IT consultancy/development. Nearly half of enterprises were from Publishing Houses, plus a few big IT software/integration companies, plus some other companies. Initial observations showed that major IT/software companies were missing including EU telecoms. Even the European branches from global IT companies (Oracle, IBM, HP, etc.) were missing, while about the same was the case from other regions (USA). Regarding their level of involvement, it was obvious that the majority was following activities keeping an eye on the developments, rather than steering WG/IG efforts. Finally, there was only one publisher also as an RDA organisational member.

Regarding SMEs, the situation was relatively better. Already 70 members were coming from SMEs, with UK, Greece, Germany, France and Switzerland in the top 5. SME areas included data analysis, IT, Communications/Journalists, Consultancy, Policy, Research, Other. And it was not so easy to understand how actively these people were involved in WG/IGs. There were no SME organisational members in March 2015. In addition what appeared was an interest in understanding of how RDA could contribute in Industry 4.0 and the Internet of Things.

Regarding IT consultancy/development there were 30 members, while there were some (self-miscategorised) such as TERENA, EGI.eu, Surfnet, SURF/SARA etc. who are mostly publicly-funded bodies. Top 5 countries were UK, Germany, Netherlands, Italy and France.



### 3.3.2 Industrial workshop

In addition, the intention has been to organize an RDA Europe industrial workshop, either as stand-alone or co-located with another RDA Europe or third party event, targeted to industry and SMEs. The idea would be to showcase RDA WG outputs, listen to industry & SMEs on their expectations from RDA and requirements on data issues. This activity is planned for November 2015 (MS9 Industrial workshop, M14).

### 3.4 Data technologist and existing e-Infrastructure engagement

#### *Special Stakeholder Workshop*

The expected impact from the engagement of additional and selected members of these stakeholders and members of potentially interested domains with large data problems is to give additional feedback to selected RDA working groups on their outputs that may go beyond the level of discussions in the group itself. This additional feedback is expected in a technological improvement of the quality of the output and may also lead to more efficient implementations of the outputs by infrastructure builders for example.

Task T2.4 has organized a Working Meeting on “**Dynamic Data Citation**” on 20-21 April 2015 in Riva del Garda (Italy). The objective of the Working Meeting was to conduct a critical analysis of the recommendations, so far, produced by the RDA Working Group on “Data Citation”. The Workshop was attended by 15 experts. The attendance was only by invitation. The composition of the audience was the following:

- 5 computer scientists;
- 5 representatives of data organizations;
- 2 representatives of data infrastructures; and
- 3 members of the RDA WG on Data Citation.

The core session of the Meeting was dedicated to the presentation of a list of recommendations, produced by the RDA WG on “Data Citation”, to be taken into account when implementing data citation mechanisms in dynamic data environments, followed by a live demo of a prototype, developed by the RDA WG, for creating citable subsets of dynamic data for data represented as CSV files. A lively discussion was conducted that has produced several suggestions for improving the recommendations. The members of the RDA WG have annotated all these suggestions and announced that a new version of the list of the recommendations will be produced that will take into consideration all the suggestions made by the attendees.

#### *The event “Research Data Alliance and Global Data and Computing e-Infrastructure Challenges”*

CNR participated in the organisation of the event “Research Data Alliance and Global Data and Computing e-Infrastructure Challenges” which was held in Rome 11-12 December 2014, gathering an international audience of nearly 120, organised under the Italian presidency. As a result of the discussions a series of recommendations and calls to action on the Future of research data and computing infrastructures were presented.

The Rome conclusions:

- The scientific and socio-economic challenges of the 21<sup>st</sup> century transcend borders, and science will be increasingly global.
- Universality of science requires more equitable access across an economically and socially uneven world harnessing legitimate business and civil society interests.
- The digital era has fundamentally changed the world of science and research.
- The digital revolution makes it possible to realize the wide sharing of scientific advancement and its benefits.
- Research and funding policies need to adapt to this new environment.

- The potential link to similar datasets and the re-use of initially unrelated datasets will reveal unexpected relationships and will trigger new dynamics of scientific discovery.
- The collective intelligence of scientific communities will be unleashed through new collaborations across institutional, disciplinary, sectorial and national boundaries.

In addition, new challenging problems have been identified that need to be addressed by a new WG as the current one is at the end of its activities and the addressing of more advanced data citation topics was out of its scope. The members of the WG have announced their willingness to propose a new WG embarking on "Advance Data Citation Challenges". In conclusion, the Workshop was very successful and all the attendees have expressed their willingness to be involved in future RDA activities.

Another activity carried out by Task T2.4 is the creation of an initial directory of computer scientists, representatives of data organizations and data infrastructures to be involved in future activities of Task T2.4.

### *Interactions with e-Infrastructures*

Of greatest importance is the close interaction with e-Infrastructures since they will most probably offer cross-domain services and thus have a natural interest in RDA not only participating in RDA groups, but also in influencing the discussions based on their needs and insights. Close interactions have been carried out with

- GEANT/eduGain about putting in place a global and cross-domain federated identity management.
- EUDAT about adopting the DFT data model which has been implemented in its B2SHARE and B2SAFE services, about implementing the PIT API for its EPIC-based PID services, about setting up a Data Type Registry as an offer to interested communities and about Practical Policies where EUDAT took a leading role with respect to designing and suggesting a Policy Registry.
- EGI about possible joint collaborations in adopting RDA results.

In addition, first discussions with EDISON, EUDAT and EGI took place to synchronize training and advice activities to bundle forces to the benefit of the communities. More formal agreements in form of MoUs still need to be put in place.

## **4. Evaluation: Meeting the Key Performance Indicators**

### **4.1 Policy engagement**

#### **Key performance indicators**

- *At least five new RDA organizational members as a direct result of T2.1 activity*
- *One EC official workshop to raise awareness of RDA and outputs*
- *Four policy maker events attended by RDA with presentation on RDA*

#### **Organisational members**

Showing that involving new organizational members has resulted of a direct result of this activity (at least 5 as direct result of T2.1 activity might not be easy due to activities in other tasks and areas.

#### **EC Official Workshop**

The RDA has not held an official EC workshop, but there are some events that can be mentioned in relation to the EC and serving very much the purpose of an official workshop:

*The Data Harvest report* (written during RDA Europe 1) was officially launched in the “RDA and global Data and Computing e-Infrastructure challenges” event, Rome 11 December 2014 and many of the topics covered in the report were part of the agenda. The event was well attended by policy makers, allowing in particular direct interactions, and the report contains recommendations to policy makers and is thus a relevant tool for awareness raising and dissemination in the policy engagement work.

Recently *the ERA meeting on Innovation*<sup>12</sup> was held in Brussels where commissioner Moedas introduced his main directions which are Open Science, Open Data and Open Infrastructure all with the intentions to create a sphere for improved innovation. An RDA representative was invited to participate in the panel on Infrastructures for Open Science. Some of the main points raised in this panel can be summarized as follows:

- Data is still fragmented and data practices do not allow efficient data intensive work.
- Interoperability solutions for efficient data sharing and re-use are urgently needed.
- An eco-system of services is needed to establish an enabling infrastructure.
- EC needs to continue in investing in global and bottom-up initiatives such as RDA to continue solution finding.
- A European Open Science Cloud (mentioned e.g. in the Digital Single Market strategy) is more of a metaphor indicating a rich domain of services and must be built on the positive achievements of the last years within the research infrastructures and e-Infrastructures.
- Appropriate cost models including all stakeholders and working across borders is still to come
- A close link to innovation needs to be kept in mind as a continuous challenge.

## Policy Maker Events

RDA has been presented and attended by in various policy maker events and has managed to raise interest among policy makers on different levels. Examples include presentation in Recode meeting in Athens, 15-16 January 2015, Seminar “What does RDA offer for Finland?” Espoo, 10 February 2015, Open Science meeting at Norwegian Embassy, Brussels, 24 February 2015 and Presentation to the Competitiveness Council 29 May 2015. Although the parliament event has not yet taken place, groundwork for this has already been made through individual contacts and meetings with MEPs. All events are listed on the annex.

## 4.2 Domain researcher engagement

### Key performance indicators

- *One RDA Europe report / strategic position note including statements and recommendations from a European perspective for European policymakers and RDA Council*
- *20% increase in European scientist and domain researcher membership of RDA*
- *domain specific events attended by RDA Europe with presentation on RDA*
- *At least one new RDA WG as a direct result of activity under task 2.2 (European stakeholder engagement)*
- *At least 50% of Early Career Scientists & Researchers working on data support programmes contribution awarded to Domain Researchers*

At this point in time fully assessing the KPI's is not possible. However we will briefly go over the 5 KPIs mentioned above to discuss the current expectations.

- **Strategic Position Note:** Later this year and early next year we will have three events coming up which will influence heavily the note that is to be produced. The note with

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<sup>12</sup> <http://ec.europa.eu/research/conferences/2015/era-of-innovation/index.cfm>

the tentative title “Weaving the Data Fabric” will be widely influenced by the discussions at P6 (September 2015), the data management summit (November 2015) where the state of discussions about the Paris document will be assessed and the third RDA Europe Science meeting at the CNRS (March 2016).

- **Increase in membership:** While we cannot yet say what the increase in participation over the lifetime of the project will be, European membership has increased by some 10% (so roughly 1400 members in June 2015) already. We can say we are on track for this KPI.
- **Domain Specific Events:** We have so far attended a large number of domain specific events including bilateral interactions with and events of the ESFRI projects, the EGU, the Human Brain Project, organized the second Science Workshop and the second RDA-Infrastructure workshop. We should also mention that a number of research infrastructure representatives presented their RDA result adoption work at the plenary P5.
- **At least one new WG:** There are several new WGs in the pipeline, e.g. on themes related to controlled vocabularies and repository registries. For example a new Working Group on Data Citation has been proposed as a result of the Dynamic Data Citation Workshop described in section 3.4. The direct impact of task 2.2 on the setup of these possible new groups is difficult to explicitly indicate but at least the science and infrastructure meetings motivated participants to suggest the two mentioned working groups and to accept the Paris-document as a useful platform to push discussions. We clearly sensed a changed attitude of stakeholders about RDA and an increased willingness to contribute all indicating an increased impact.
- **Domain scientists in the early career program.** With still two plenaries to go in the lifetime of this project it is too early to evaluate.

### 4.3 Industrial engagement

#### Key performance indicators

- *10% increase in European industrial membership of RDA*
- *At least 2 industry events attended by RDA Europe with presentation on RDA*

Currently the involvement from members of EU industry is rather low. Even the ones participating are more following activities rather being very active. However, some SMEs may have targeted interest, especially for some thematic areas, such as agriculture and ICT. It is not always easy to understand the real involvement of a member (if not a co-chair). Furthermore, there is only one organisational member from industry (STM Publishers in the Netherlands). It may be the case though that the annual membership fees may be a showstopper for startups or very small SMEs. All in all, there is little concrete industrial engagement, besides targeted efforts from SMEs, and the first sign hint towards such targeted engagement rather than broad efforts that may not have real results.

### 4.4 Data technologist and existing e-infrastructure engagement

#### Key Performance Indicators

- *20% increase in European computer scientist & e-Infrastructure representative membership of RDA*
- *At least two eInfrastructure events attended by RDA Europe with presentation on RDA*
- *At least one new RDA WG as a direct result of activity under task 2.4*
- *At least 35% of Early Career Scientists & Researchers working on data support programmes contribution awarded to Computer Scientists and Data Technologist*

## Membership increase

The split between computer scientists and technologists and data scientists and e-Infrastructure builders on the one hand and research infrastructures on the other hand cannot be maintained since experience shows that a) the US for example does not make this difference and all are represented in many RDA groups and boards, and b) many computer scientists are working as contributors for example in the ESFRI and other large research infrastructures and are engaged in RDA. e-Infrastructure providers such as from EUDAT, EGI, OpenAIRE, GEANT and PRACE were involved from the beginning although the degree of involvement between the initiatives is different. The fact that EDISON, EUDAT, EGI and RDA had successful discussions in joining forces about synchronizing their training and advice activities and that RDA and EUDAT<sup>13</sup> have declared their willingness to joint fund collaboration projects may serve as indicators that the involvement of e-Infrastructures has also moved to a new level. EUDAT contributed to the RDA result adoption day at P5 indicating how relevant RDA results are for offering common services.

Also the close collaboration between RDA and PID service providers such as DataCite and EPIC needs to be mentioned. This is not only expressed by the participation of experts in the RDA groups, but also by organizing side meetings at RDA plenaries.

It is hard to quantify the involvement of computer scientists in the RDA activities as a direct result of the Task T2.4 activities. On the other hand, as indicated the strict categorisation of actors might not be a fruitful approach, as many of the people that are active engaged in RDA have multiple roles within and beyond their communities, including computer scientist, which can also be infrastructure actors and domain scientist at the same time. This has to be taken into account in the evaluation. In order to somehow map the involvement of these stakeholders, we created a directory of computer scientists willing to be involved in RDA activities. The goal is to maintain a continuous contact with the people included in the directory for the purpose of keeping them updated about the RDA activities, inviting them to participate in RDA events and encouraging them to establish a more direct and active involvement in the RDA activities.

## New RDA WG

At least two proposals for new RDA WGs such on "Advance Data Citation Challenges" and "Repository Registry" are resulting from the close interactions with computer scientists and e-Infrastructures.

## E-Infrastructure event activity

In the past period presentations of RDA were given at the following events:

- 13 May 2015, Parma, Italy. Workshop on e-Infrastructures supporting Food Safety Risk Assessment.
- 14-17 June 2015. The RDA report "The Data Harvest" as well as the booklet "RDA outputs" were distributed to the participants in the Italian Conference of the Data Base Research Community (SEBD'15)

In the next period presentations of RDA have been planned at the following events:

- 2-3 July 2015, Florence, Italy. PARTHENOS Kick-off meeting<sup>14</sup>
- 23 September, Pisa, Italy. SoBigData Kick-off meeting

## Involvement of Early Career Scientists & Researchers

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<sup>13</sup> EGI has indicated an interest to join as well.

<sup>14</sup> [www.parthenos-project.eu](http://www.parthenos-project.eu)

A significant participation of early career scientists & researchers in the Task T2.4 activities requires a cooperation between Task T2.4 and Task T2.3 that has the task of promoting the involvement of young researchers in the RDA activities. So far, this cooperation has not been established. We plan to discuss this issue with the leader of Task T2.3 in order to find ways to incentivize the participation of young researchers in the events to be organized by Task T2.4.

## Computer Scientist and Technologist Involvement

In RDA Europe we have an ongoing discussion in how far it is important to involve computer scientists as a separate additional constituency beyond what we experience in RDA which is

- the interaction with leading domain scientists via the Leading Scientists workshops
- the interaction with representatives of science organisations via the FORUM
- the inclusion of various RDA actors via the Synchronization Assembly
- the interactions and collaborations with research infrastructure and e-Infrastructure experts
- the involvement of all kinds of data practitioners (computer scientists, data scientists, data managers, data archivists, etc.) in RDA groups
- the organization of special workshops with selected computer scientists to discuss specific RDA results and to give feedback

Part of the discussion originates from the confusion about the many terms describing the various actors involved in data (intensive) science. All types of actors are already involved in the RDA Group discussions, however, it is obvious that there are possibilities to react on different views. Two examples are given here:

- The Data Foundation & Terminology group developed a basic data organization model and associated basic terms based on quite a number of concrete examples and use cases (50) that have been suggested by experts from different scientific areas. Computer scientists argued that the resulting model is not formal and thus not specific enough. The group on purpose decided a) to keep it simple and use a simple language so that all data practitioners understand the messages, b) to stay simple since the time of 18 months is not sufficient to work out a formal model in UML, RDF or the like and c) that it would indeed be excellent to engage young computer science students for example to let them work out a more formal model.
- During the Data Fabric discussions it was suggested to use the terminology that has been defined by system engineering in many years. However, it was clear that there was a hesitance from various data practitioners to make use of terms such as "system" and "architecture" that emerged from System Engineering conceptualisation since they were afraid that a too rigid meaning would restrict the group. In contrast terms such as "landscape" and "framework" were seen as more appropriate to describe the basics of Data Fabric.

In contrast to these examples we can report that the audience of the Working Meeting on "Data Citation" was selected such that they were well balanced among the constituencies. The interaction among them on the concrete topic of "Data Citation" was very lively and constructive as in most RDA working and interest groups and it showed that indeed the representation of a broad constituency is of paramount importance for the success of RDA and that the activities carried out by Task T2.4 have met the KPIs.

## 5. Impact assessment

### 5.1 Policy engagement

Measuring the impact of policy engagement work in general is challenging, because there are various factors affecting the political processes. Furthermore, in the current phase of the project – RDA Europe 2.0 as a bridge between RDA Europe 1.0 and 3.0 projects – the engagement is still for many parts in a state of building and establishing the policy networks

and finding the right channels. It is however obvious, that there is a role for the RDA in the current policy discussions both on national and European levels. The amount of policy meetings and level of interest that RDA and e.g. the Data Harvest have faced among policy actors, give an encouraging message to the RDA. There are clear indications of impact such as that RDA has been mentioned several times by EC's Advisory Group on Research Infrastructures. Also the Paris document has been notified by EC DG Robert-Jan Smits and his team. Nationally there are examples of RDA output adoption pilots and discussions on how to implement RDA outputs within the national open data initiatives. Further work in leveraging the networks and lobbying the message into the policy processes is required and will be carried out throughout the project, feeding into RDA Europe 3.

## 5.2 Domain researcher engagement

Several of the recent activities can be said to have had a significant impact. Especially the events that were organized with the research infrastructure projects to discuss collaboration, and the science workshop, have once again produced domain specific input as well as adoption. We are currently seeing increased domain engagement in diverse topics including Digital Humanities, Marine, Life Sciences, Biodiversity, Environmental Sciences and Agriculture. We hope to be able to translate these into concrete adoption and possibly new groups tackling specific issues (however, the availability of volunteers to lead such efforts is always an issue). We can report that several domain specific groups, specifically in structural biology and toxicogenomics reported that their early RDA efforts where a great help for them in determining the way forward. The Structural Biology group managed to translate their experience into several successful H2020 research proposals.

## 5.3 Industrial engagement

As identified in the previous section, the engagement of European industrial entities in RDA is rather limited, besides targeted efforts from SMEs. So no real impact can be observed so far, apart from some opportunities from such SMEs. However the indications on potential topics for further discussions show that this work is worth to be continued.

## 5.4 Data technologist and existing e-infrastructure engagement

The impact of the Working Meeting on the outcome of the RDA WG on "Data Citation" turned out to be very useful. In fact, the first version of the recommendations released by this WG was amended. A new version has been released in order to take into consideration the comments and suggestions made by the participants in the meeting. A very productive exchange of ideas between the representatives of the RDA WG and the participants in the Meeting was achieved.

The question remains which lessons can be learned for RDA from this workshop?

1. The ultimate goal must be to engage as many actors with different background in the group work. Still more computer scientists should become engaged.
2. RDA is and remains a bottom-up initiative, i.e. it is based on individuals' decisions to invest time on removing barriers.
3. RDA Europe as a project needs to motivate in particular computer scientists to become engaged in the group work and it may make sense to have a special workshop to interact with ACM Europe (and similar) to find possibilities to exchange about RDA matters. There may also be discussions with the relevant communities at the national level.
4. Given the increasing amount of activities in RDA we cannot imagine to organize special workshops on all topics being taken up in RDA since on the one hand this would send the wrong signals to the bottom-up process and on the other it does not scale financially.
5. It would, however, be excellent to have a dedicated workshop with selected constituency on a topic that showed a clear dispute between practitioners on the

one hand and computer scientists on the other (such as indicated above). This could in more detail indicate how the two approaches could take profit from each other.

6. It would be good to allow participants of data science related European projects to use funds to participate in RDA activities.
7. It would also be good to look for other types of funding such as a Marie Curie program funded project to engage young computer scientists in RDA work and let them go into more depth and work out formal models or improved implementations for example. The example of the co-chair of the PIT group showed that a PhD student can do excellent work within RDA, but that he needs to be backed up by institutions in Europe that have sufficient funds to support the extra work needed.

## 6. Conclusions and next steps

Generally we can say that so far the activities have been building a good basis for work in engaging the stakeholders. There is a need to continue creating solid and sustainable stakeholder networks in all stakeholder groups, and to make sure that the already existing ones are sufficiently utilized. Industry engagement will need specific focusing. The detailed plans for next steps are outlined below.

### 6.1 Policy engagement

The policy engagement work will continue with establishing the policy networks and identifying new contacts, aiming at an ongoing dialogue and interaction with stable and permanent policy actors on European and national levels. Through these networks it is possible to have an impact on current policy processes. A parliament event will be held in Brussels at a suitable time before March 2016, as a means of raising awareness and contributing to the work of the MEPs. A Nordic event will be held in Sweden in early Autumn 2015. Close interaction with the European Commission will be maintained and the SyA will be utilized to ensure a coherent European view, which makes the message even stronger. The transatlantic dialogue will be continued in the context of the Paris document and beyond. National policy processes will be followed and contributed to for the relevant parts.

### 6.2 Domain researcher engagement

Going forward we expect to continue our interactions with the ESFRI projects, other research infrastructures, e-Infrastructures, data practitioners and domain scientists, encouraging them to get involved in RDA IGs and WGs. We hope to increase our outreach to certain domain specific communities such as the EGU, Digital Humanities, and cross-domain communities such as DEVLOG, which currently seem to be underrepresented in RDA activities. It is crucial also to enhance and maintain the interaction between the researchers, data practitioners from research infrastructures and e-Infrastructures in a way that promotes their mutual trust and joint input to RDA.

We are also providing support to domains that want to actively engage with RDA outputs. For instance ELIXIR (life sciences) has a direct bridge with the global RDA and they are getting direct help from us in terms of adoption. Furthermore they feel free to share their issues with us, which can result in activities within the RDA framework. A second example is the Marine community. Currently they are preparing several sessions around the RDA plenaries to engage a large part of their community with specific RDA outputs. The first targeted output is the citation of dynamic data, which is lead by Europe. Furthermore the specific domain outreach activities such as the data management summit and the science workshop will be continued.

### 6.3 Industrial engagement

The next step would be to create a database of European industry players, better understand their involvement, and, if found appropriate, to further interact with them. Personal contacts have been established with the following persons:



- Nicolas Zimmer, Technology Foundation Berlin (via partner MPG).
- Christian Hammel, WireCard AG (via partner MPG).
- Dave Clarke, Asystec, an Irish SME on Big Data Analytic (via partner ATHENA).
- Gert Franke, CLEVER°FRANKE, a Dutch SME on data visualization (via partner ATHENA).

More news will be probably available from the above and others after Plenary 6, as there are planned meetings with most of them during Plenary 6.

The RDA Europe industrial workshop is planned for November 2015 (MS9 Industrial workshop, M14). A proposal for an industrial session was submitted at the European Data Forum in Luxembourg in November 2015 (EDF2015), while at the end of November and beginning of December 2015 there is also the 2015 United Nations Climate Change Conference<sup>15</sup> in France, where RDA can organize a session/workshop. As the RDA Plenary 6 in Paris is also partially focused on Climate Change, organised by Cap Digital as the Competitiveness Pole for Paris, there are good outlooks not only for new involvement from industry, but also for good chances on organising a workshop at COP21.

What has also been planned is the participation to industry specific events of third parties, where RDA Europe will invest effort to obtain visibility at such events, such as keynote presentations, panel participation, co-located workshops, exhibition stand, posters, etc. Such efforts are being planned at EDF2015 and COP21.

The EU Innovation Clusters were also considered for the RDA database and some first contacts were made with first members. This effort will be pursued further in the last part of the project, if the initial contacts are found promising.

The RDA outputs strategy may have to be refined in the future, taking into account the success stories or failures of the adoption of the first set of outputs, both from research communities and industry.

Furthermore, RDA needs to better understand the immediate needs in industry and engage with topics such as industry 4.0 and Internet of Things to have dedicated messages for industry. Since the latter two are not as relevant for science RDA needs to adapt and engage additional experts with knowledge in these areas.

## 6.4 Data technologist and existing e-infrastructure engagement

The Working Meeting on "Data Citation", a focused small technical working meeting addressing/assessing concrete RDA outcomes, was successful. However, in increasing the density of RDA discussions and taking profit from each other's knowledge and expertise it is important to get even more experts from computer scientists, data technologists, and e-Infrastructure actors actively and collaboratively involved in RDA Working and Interest groups. The next activity to be carried out by Task T2.4 will be the organization of:

- Getting data technologists, computer scientists and e-infrastructure actors more involved in RDA Interest and Working groups
- A discussion on a possible second Working Meeting. Due to a limited budget, this Meeting has to be organized in conjunction with an RDA event and it should be carefully discussed which topic should be selected to intensify interaction and bridging in dispute areas.

## 6.5 National events

Several national events and meetings have been planned in different countries for the next months of the project. A table of past and planned events has been attached as an annex to

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<sup>15</sup> COP21: [https://en.wikipedia.org/wiki/2015\\_United\\_Nations\\_Climate\\_Change\\_Conference](https://en.wikipedia.org/wiki/2015_United_Nations_Climate_Change_Conference)



this report. In RDA EU 3 there will be a Junior/Senior team that will be available for help and support of concrete actions (training, adoption, clearing house, etc.) across Europe.



## **Annex 1**

### **RDA Europe 2, WP2, D 2.1**

#### **Stakeholder engagement meetings and events 2014-2015**

##### **2014**

###### **October**

3.10. COOPEUS yearly meeting, Helsinki (academia)

- Presentation of RDA, planning collaboration

5.-8.10. Astronomy Data Analysis Software and Systems (ADASS 2014), Calgary (Canada) (academia, international)

- Discussion with the major astronomy data providers at the international level, gathering of requirements

9.-10.10. International Virtual Observatory Alliance (IVOA) Interoperability meeting, Banff (Canada) (academia, international)

- Report of RDA status to the IVOA Executive Board, in the introductory Plenary meeting and in the meeting of the Data Curation and Preservation Interest Group

15.10. Meeting with EC Vice-President Katainen's cabinet, Brussels (politics)

- Presentation of CSC's major EC projects incl. RDA

15.10. Meeting with MEP Henna Virkkunen, Brussels (politics)

- Presentation of CSC's major EC projects incl. RDA

17.10. ESFRI and RDA meeting, Brussels (academia)

23.10. Meeting with Digitice Finland (Technology Cluster) and Rapid Action Group (stakeholders from academia and industry), Espoo

- Presentation of CSC's major EC projects incl. RDA

28.10. RDA presentation at Kajaani university of Applied Science, Kajaani (academia)

29.10. Data-refinery seminar (datajalostamo.fi), Helsinki (industry)

###### **November**

3.-4.11. SciDataCon 2014 (CODATA & WDS Conference), Delhi (India) (academia, international)

- Lots of discussion of RDA/WGs/IGs and support during the panel discussion

10.-12.11. e-IRG Workshop and Delegates meeting, Rome

11.-12.11. EUDAT Darup-wg workshop, Rome

- Preliminary promotion of Harvest report, discussions with individual members

15.11. Open Science Forum, Helsinki (academia, international)

- Dissemination and materials, discussions...

19.11. Universities of Applied Science, Committee for Ethical Matters, Vantaa (academia)

21.11. RDA Europe Forum, Brussels

25.11. RDA France meeting, Paris (academia, politics)

- Presentation of RDA status, debriefing of RD P4, and discussion of participant's interests and possible participation. Meeting organised at the French Ministry of Education, Higher Education and Research (MENESR).

## December

11.-12.12. RDA Event, Rome

- The event focused on strengthening synergies between e-Infrastructures and the development of the ambitious European Research Infrastructures roadmap (ESFRI) and other major initiatives with high potential impact on research and innovation

3.12. and 17.12. Meetings in the Parliament of Finland: introduction of and discussions about CSC's objectives for the new government programme (ahead of parliamentary election spring 2015), including open research data issues and presenting + disseminating the Data Harvest report. (politics)

- Minister of Economic Affairs Jan Vapaavuori
- Member of Parliament Anne-Mari Virolainen
- Member of Parliament Raija Vahasalo
- Ms. Laura Rissanen, Secretary General of parliamentary group of National Coalition Party
- Ms. Elina Sojonen, Political advisor of parliamentary group of Green Party
- Mr. Timo Portaankorva, Political advisor of parliamentary group of Center Party
- Mr. Tapio Hellstén, Political advisor of parliamentary group of Social Democratic Party

15.12. Meeting with Finnish Open Access experts: Service manager Arja Tuuliniemi, FinELib consortium and Publications Manager Johanna Lilja, Federation of Finnish Learned Societies (academia)

- Presenting the Data Harvest report, discussion

## 2015

### January

7.1. Meeting with director Markus Sovala, Finance Ministry (state administration)

- Discussion on CSC's objectives for the next government programme, promoting the Data Harvest report and discussion on data.

15-16.1 Recode Meeting, Athens. Open Data presentations to develop policy advice on research data

20.1. Meeting with Special Advisor for Minister of Finance, Matti Hirvola (politics)

- Discussion on CSC's objectives for the next government programme, promoting the Data Harvest report and discussion on data.

28.-30.1. Big Data and Extreme-scale Computing (BDEC) Workshop and « European Workshop », Barcelona (academia, international)

- Invited RDA presentation during the first day « European Workshop » on 28.1, same attendance as the BDEC workshop held on 29.-30.1.

## February

### 6.2. RDA France Workshop, Paris (academia)

- Presentation of RDA status, discussion of possible participation in RDA and of RDA P5. Meeting held at MENESR but that time mainly academic participation.

10.2. What does RDA offer for Finland? –seminar in Espoo, 70 participants (academia, administration, service providers, international)

11.2. RDA Europe and EUDAT meeting, Espoo

18.-19.2. RDA Europe BoD meeting, Garching – Commission representative

19.-20.2. RDA Europe Outputs training, Munich (academia)

24.2 Open Science meeting Brussels at Norwegian Embassy (organized by Science Business)

## March

3.3. Meeting with State Secretary Sami Paatero, Finance Ministry (politics)

- Discussion on CSC's objectives for the next government programme, promoting the Data Harvest report and discussion on data.

4.3. Neuroscience Workshop, Brussels (academia, policy actors)

6.3. Meeting with Special Advisor for EU and Foreign Trade Minister, Henrik Ruso (politics)

- Discussion on CSC's objectives for the next government programme, promoting the Data Harvest report and discussion on data.

7.3. RDA Strategy meeting, San Diego

8.-11.3. RDA Plenary, San Diego

23-12.3 Open Science Group of RISE (EC)

23.-24.3. Annual meeting of the French Virtual Observatory initiative (Action Spécifique Observatoire Virtuels France), Paris (academia)

- Presentations during the meeting (general presentation of RDA and how to participate, talk about the VAMDC use case of the Dynamic Data Citation Group)

27.3. Finnish Open Science project seminar presentations, Helsinki (academia)

## April

5.4. Meeting with Director Juhapekka Ristola and Advisor Emil Asp, Ministry for Communications and Transport (state administration)

- Discussion on CSC's objectives for the next government programme, promoting the Data Harvest report and discussion on data.

8.-9.4. RDA Science Workshop, CERN (academia)

10.4. CNRS COCIN (Comité d'Orientation pour le Calcul Intensif - "Steering Committee for HPC"), Paris (academia)

- Invited presentation of RDA and discussion of CNRS participation. The Committee gathers representatives of all the CNRS disciplinary fields and HPC projects

10.4. Meeting with Director of Technology Politics, Sanna Rauhansalo, Federation for Technology Industries, Helsinki (industry)

- Discussion on CSC's objectives for the next government programme, promoting the Data Harvest report and discussion on data.

13.4. Finnish Open Science event on international collaboration, Helsinki

- RDA presentation

15.4. CNRS Steering Committee for Interdisciplinarity, Paris (academia)

- Invited presentation of RDA and discussion of CNRS participation.

20.4. Finnish Open Science Strategic Steering Committee meeting, Helsinki (policy actors)

- RDA presentation

20-21.4 Future of Science Communication – international meeting at Royal Society (Part 1)

20-21.4 Working Meeting on "Dynamic Data Citation" in Riva del Garda (Italy).

- Critical analysis of the recommendations so far produced by the RDA Working Group on "Data Citation".

24.4. Meeting with Director Riikka Heikinheimo, Academy of Finland (funder)

- Discussion on e.g. CSC's objectives for the next government programme, brief update of CSC involvement in EC projects incl. RDA

24.4 Microsoft Research Cambridge, meeting with Andrew Blake

## **May**

1.5 Meeting at Royal Academy of Engineering London on Data Policy

5-6.5 Future of Scholarly Communications (Royal Society – part 2)

6.5. Meeting with Sitra (Finnish innovation fund)

- Discussion on CSC's objectives for the next government programme, promoting the Data Harvest report and discussion on data.

7.-8.5. Nordic e-Infrastructure Collaboration Conference, Helsinki (academia, policy)

11-15.5 International Conference Joint SARIMA-ACU Johannesburg, South Africa. One session over entire on Open Science including mainly open data. Speakers from RDA, CERN, ESRF, Technoscene etc

12.5. Meetings in Brussels with Vice-President Katainen's chief of cabinet Juho Romakkaniemi and member of cabinet Aura Salla (politics, EC), Councillor, research and innovation, Rami Nissilä, Finland's permanent representation to the EU (state administration), Head of Unit Vesa Terävä, Regulatory Coordination and Users, DG Connect (EC)

-Policy Advisor to MEP Heidi Hautala, Heikki Raappana (politics, EP)

- Promotion of Data Harvest and introduction of RDA

13.5 Parma, Italy. Workshop on e-infrastructures supporting Food Safety Risk Assessment.

- RDA presentation

## 28.5. RDA-DE-DINI Workshop 2015, Karlsruhe (academia)

- Invited presentation on the RDA Certification WG

## 29.5 Presentation by JW to Competitiveness Council – European Council on Open Science and Open Data

### June-July

## 1.6 Meeting of RDA Secretary General Mark Parsons with the e-IRG Chair Sverker Holmgren in Sweden.

## 2.-3.6. e-IRG Workshop and Delegates meeting, Riga

## 3.6 Presentation by RDA Secretary General at the e-IRG workshop in Riga with the theme of Open Science.

- In addition, the summary of the discussions of the 1.6 meeting in Sweden were also brought in the closed e-IRG delegates meeting in Latvia on 2.6. The main point was the collaboration of the two bodies, mainly involving RDA experts in the data management policy aspects that e-IRG is handling.
- The meeting in Sweden was arranged by Fotis Karayannis who is a member of both e-IRG and the RDA secretariats, as well as the presentation by Mark Parsons in Latvia.

## 5.6. RDA Meeting at the BRGM, the French Geological survey, Orleans (academia, public sector)

- Invitation to visit the BRGM with a meeting with key staff and a seminar on RDA.

## 8.6. Meeting at the French Ministry of National Education, Higher Education and Research (MENESR) (policy actors)

- Meeting organised between Mark Parsons and key representatives of the Ministry, in particular Philippe Lavocat, Head of the service of strategy of research and Innovation

## 10.-11.6. RDA TAB and WG/IG meeting, Karlsruhe (academia)

## 12.6. Big Data Workshop Futur en Seine, Paris – I was not involved but several RDA Europe members and Mark Parsons participated.

## 15.6. Finnish Minister of Economic Affairs Olli Rehn visit CSC Datacenter in Kajaani (politics)

- Dissemination of materials incl. Data Harvest

## 23.6. Meeting in the Finnish parliament with member of parliament Jukka Kopra (politics)

- Discussion on current developments in the new government programme, including the role of open research data
- Introduction of RDA and Harvest report

## 24.-25.6. Technical meeting of the « Thematic earth science data poles », Toulouse (academia, space)

- Meeting organised by the French space agency CNES. Presentation of RDA.

## 24.6 Meeting between the RDA Secretary General Mark Parsons and RDA Europe members with OpenAIRE project coordinators

- Engagement between OpenAIRE and RDA, following also the suggestion at the RDA-Europe 1 project final review. Collaboration opportunities to be discussed.

#### 25.6 Engagement in RDA from Southern-Eastern Europe, Mediterranean and Caucasus region Workshop

<http://europe.rd-alliance.org/events/rda-europe-events/engagement-rda-southern-eastern-europe-mediterranean-and-caucasus-region>

- Engagement with regional communities in South Eastern Europe: an open call for presentation was prepared to allow open and bottom up interaction with the regional communities. Around 10 presentations were selected from multiple sectors including computer science, health, marine, biology, social sciences and cultural innovation.
- Discussion about the development of national and regional RDA initiatives to act as nuclei who feed RDA WG/IGs and related activities, including adoption.

#### 30. 6-1.7. JDEV 2015 – National days of software development in higher education and research, Bordeaux (academia, private sector)

- Invited plenary talk on RDA, two workshop splinter sessions on Certification and How and why participate in the RDA

#### 30.6. Meetings with EC DG RTD Vice-director Philippe Froissard and Policy Officer Wainer Lusoli, Brussels (EC)

- Discussions on current issues e.g. digital single market and existing related projects e.g. RDA

#### 30.6. Meeting with MEP Henna Virkkunen, Brussels (politics)

- Follow-up discussion on current issues, e.g. digital single market,
- RDA and Data Harvest presented, upcoming RDA parliament event initially discussed and promoted

#### 1.7. Meeting with MEP Miapetra Kumpula-Natri, Brussels (politics)

- Introduction of CSC and its European activities, presenting RDA and Data Harvest, initial promotion of upcoming RDA parliament event

#### 1.7. Meeting with Liaison officer for Finnish Academy in Brussels, Saara Vihko (funder)

- Introduction of CSC's European activities incl RDA and promoting Data Harvest

#### 3.7. Meeting with political state secretary Jari Partanen, Ministry of Transport and Communications, Helsinki (politics)

- Introduction of RDA and Data Harvest, as a part of discussion on new government programme

#### 7.7. Meeting with political state secretary Olli-Pekka Heinonen, Ministry of Finance

- Discussion on government programme
- Dissemination of Data Harvest



## 7. RDA Europe Actions on Coordination/Communication/Outreach

At the strategy meeting in San Diego it was suggested to exchange information about actions in regions & countries to inform and take profit from each other. For the 3 project phases of RDA EU we describe the type of activities that have been carried out at European and national level. The project phases are roughly as follows:

RDA EU 1	September 2012 – September 2014
RDA EU 2	September 2014 – September 2015
RDA EU 3	September 2015 – March 2018

In RDA EU 3 there will be a Junior/Senior team that will be available for help and support of concrete actions (training, adoption, clearing house, etc.) across Europe.

### European Level Actions

activity/project phase	RDA EU 1	RDA EU 2	RDA EU 3
Cross disciplinary Workshop with leading scientists	1	1	planned
Forum with delegates from scientific and library organizations in EU	3	2	planned
interviews and interactions with various communities in f-2-f and focussed meetings	~120	to restart	planned
meeting with data experts from about 30 EU ESFRI projects active in different scientific fields	1	1 planned	planned
early career program to participate in plenaries	2	1	planned
internal RDA/EU training/information meeting		1	planned
RDA/EU training/information meetings offered to communities		planned	planned
intensive training junior/senior team to help and support adoption			planned
hackathons/datathons			planned
giving talks and presentations at community and e-Infrastructure meetings	many	some	planned
adoption collaboration programs		planned	planned
China outreach meetings	1		planned
Russian outreach meetings			planned
Workshop involving WGs, domain scientists and computer scientists		1 done, 1 planned	3 to be planned
Policy level meetings and discussions	many	many	planned

### Finland Level Actions

activity/project phase	RDA EU 1	RDA EU 2	RDA EU 3
Cross disciplinary Finnish Workshop with scientists & funders	3	1	plan. 2?
Cross disciplinary Nordic Workshop with scientists		plan. 1	plan. 1/2
Finnish adoption collaboration programs			plan. 1
Nordic hackathon/datathon			plan. 1
Nordic RDA/EU training/information meeting			plan. 1
RDA presentations and dissemination in Finnish higher education institutions	several	several	planned

### French Level Actions

activity/project phase	RDA EU 1	RDA EU 2	RDA EU 3
Sixth Plenary, Paris, 23-25 September 2015 (Cap Digital + Organising Committee)			x
Third RDA Europe Science Workshop, 2016, organised with CNRS			x

RDA France Mailing list		x	x
Meeting at MENESR with Mark Parsons and the Direction of Strategy (8 June 2015)		x	
RDA France National meetings, organised at the Ministry of National Education, Higher Education and Research (MENESR) – 28 April 2014, 20 June 2014, 25 November 2014, 6 February 2015, 8 June 2015 (to be continued)	x	x	x
Visits to Research Agencies (INRIA 4 September 2014; CNRS Comité d’Orientation pour le Calcul Intensif 10 April 2015; CNRS Comité de Pilotage pour l’Interdisciplinarité 10 April 2015; BRGM 6 June 2015)	x	x	x
Futur en Seine Events (organised by Cap Digital)	x	x	
Sodata Conference 2014 (14 March 2014), plus O. Hologne interview <a href="http://hackyourphd.org/2014/04/research-data-alliance-interview-avec-odile-hologne/">http://hackyourphd.org/2014/04/research-data-alliance-interview-avec-odile-hologne/</a>	x		
JDEV2015 – Journées Nationales du Développement logiciel de l’enseignement Supérieur et de la Recherche, Bordeaux, 30 June – 3 July 2015		x	
Presentation of RDA to entrepreneurs organized by Cap Digital (20 February 2014)			
Annual meetings of the French astronomical Virtual Observatory	x	x	x

## Germany Level Actions

activity/project phase	RDA EU 1	RDA EU 2	RDA EU 3
national meeting with data experts across communities	~150	planned	planned
PhD program			planned
Information and adoption workshop with scientific communities		planned	planned
adoption activities in discussion			planned
Information and adoption workshop with start-ups and SMEs		planned	planned

## Greek Level Actions

activity/project phase	RDA EU 1	RDA EU 2	RDA EU 3
Regional event for South Eastern Europe with computer scientists, data experts/developers, researchers, SME owners and policy makers <a href="http://europe.rd-alliance.org/events/rda-europe-events/engagement-rda-southern-eastern-europe-mediterranean-and-caucasus-region">http://europe.rd-alliance.org/events/rda-europe-events/engagement-rda-southern-eastern-europe-mediterranean-and-caucasus-region</a>		Done (25/6/2015)	planned
RDA Secretary general meeting with OpenAIRE coordinating team		Done (24/6/2015)	
National and Regional RDA initiative(s) in the South Eastern Europe region to promote RDA		Currently planned	First discussions in the regional workshop were very positive
Thesis programs being discussed		Under discussion	To be planned if fruitful discussions in RDA 2
Training events for adoption of outputs			planned

## Italy Level Actions

activity/project phase	RDA EU 1	RDA EU 2	RDA EU 3
Workshop with ESFRI and e-Infrastructure stakeholders (as part of the road-show)		Under-preparation	

WG outcomes dissemination workshop (involving ESFRI and e-Infrastructure developers)		Under discussion
<b>RDA Event "RDA and global Data and Computing e-Infrastructure challenges", 11-12 December 2014, Rome</b>	X	
<b>RDA presentation at the 11<sup>th</sup> Italian Research Conference on Digital Libraries, 29-30 January 2015, Bolzano</b>		
RDA Working Meeting on "Dynamic Data Citation" in Riva del Garda (Italy), 20-21 April 2015	X	
RDA presentation at the Workshop "e-infrastructures supporting Food Safety Risk Assessment" organised by EFSA – European Food Safety Authority, 13 May 2015, Parma	X	
<b>RDA presentation at the Parthenos Kick-off Meeting, to be held in Florence on 2-3 July 2015. Parthenos is a cluster project in Cultural Heritage.</b>		Under preparation
Workshop "RDA and the Italian scientific community", to be held in Pisa on 14 July 2015		Under preparation
<b>RDA presentation at the SoBigData Kick-off Meeting, to be held in Pisa on 23 September 2015. SoBigData is a research infrastructure project on Big Data Analytics and Social Mining.</b>		Under preparation