

# REFEDS Year End Report 2016

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## Abstract:

This report provides an overview of the work carried out by REFEDS during 2016 as well as the costs incurred in the same period. The workplan for 2016, as approved by the REFEDS SC and supported by the sponsors can be found online at:

<https://refeds.org/work/>

This report is mainly aimed at the REFEDS Sponsors, to highlight the achievements in relation to the expenditures and the yearly sponsorships.

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## 1. Executive Summary

This document provides an update on the progress made by REFEDS in the various workpackages that were part of the 2016 workplan: <https://wiki.refeds.org/display/WOR/2016+REFEDS+Workplan>.

During 2016 REFEDS has strengthened its position as the reference and harmonisation body for best practices for federation operators.

The number of sponsors grew from 11 to 13 in 2016, with a total budget of 75.500 EUR. The budget is sufficient to support working groups, run the website, wiki, mailing lists and the REFEDS consultations. Exploring opportunities to increase the sponsor base remains a key priority.

2016 was a year of consolidation of results, as indicated in the [REFEDS resolutions](#). There were two main consultations that were successfully carried out and demonstrated the importance of having a well-defined process: the research and scholarship entity category and Sirtfi.

Besides the two yearly meetings (one held during TNC2016 and the I2 Technology Exchange), REFEDS held two training events, one organized during APAN and the other one during the [WACREN conference](#). REFEDS also sought to increase its online presence via more regular blogging in 2016, with 19 posts delivered over the year.

The REFEDS annual survey, began in 2015 and continued in 2016 to gain a better overview of the current state and maturity of federations. The evaluation of the data reveals interesting information in federations budget, resources and plans. The information gathered by this survey are fed into the GÉANT compendium. A blogpost on the results for 2016 can be found at: <https://refeds.org/a/1561>. 33 out of the 66 known identity federations participated in 2016.

REFEDS continue to host a number of working groups, which are typically self managed, with a basic coordination provided mostly by Nicole Harris and Heather Flanagan. This model has proven to be very successful to ensure wider community participation and that the goals of the working groups are met. Periodically the Steering Committee evaluates the working groups results and at the end of the year based on the outputs and interest it is decided on whether to continue to working group.

REFEDS in 2016 kept supporting the development of three tools:

- **MET** (<https://met.refeds.org>) – The Metadata Explorer Tool is designed to give federations a quick overview of the metadata in existing federations. Additional features to increase the value of MET were implemented by RETI (Andrea Biancini).
- **REEP-PEER** (<https://reep.refeds.org/>) - a tool that allows for easy and simple registration of entity metadata in a central source. The software (particularly concerning the workflow and the interface) was enhanced and moved into production in November. REEP/PEER can be used as a supporting tool for other projects where an exchange of metadata is needed, but using eduGAIN may not be necessary. Due to the challenges in running this tool and the benefits for federation operators, the REFEDS steering committee recommend to run the tool as best effort. The REFEDS coordinators will investigate if a better host can be found.
- **FED-LAB** (<https://fed-lab.org/>). Working with the GN4 project and the Vietsch Foundation, REFEDS provided some funding to support FED-LAB in 2015 / 2016. Due to personal issues within the project, progress has not been as significant as hoped in terms of service provision but there has been good progress on test suite enhancements.

## 1. Sponsorship

The sponsorship for 2016 were handled according to the sponsorship model, introduced at the beginning of 2015. The new sponsorship model includes sponsorship levels (platinum, gold, silver and bronze) with an associated amount for each of the levels.

The list of current sponsors is shown in the table below:

Sponsorship levels	Organisations
PLATINUM	ISOC, NORDUNET, GARR*, InCommon Jisc
GOLD	Renater, SURFnet, SWITCH
SILVER	RedIRIS, LEGO, Canarie
BRONZE	Australian Access Federation, CESNET

\* Part of GARR sponsorship was used to operate Metadata Explorer Tool. This work was carried by GARR staff.

In total these organisations contributed **75500 EUR** in sponsorship; see chap 3 for a detailed overview of the expenditures. This is slightly less than in 2015 due to a specific grant for a particular work item being received in 2015, but the overall number of sponsors has increased.

## 2. Activities

REFEDS work is organised in sets of work items via an annual workplan. Each year REFEDS participants are solicited to provide inputs for possible work areas. A short list is created with the expected budget associated with each work area. The REFEDS Steering Committee is then asked to approve the list and to define the initial priorities (accordingly with specific wishes from the sponsors if any). Once the plan is ready, the REFEDS sponsors will be asked to provide feedback via the making list or via a educated meeting.

Each work package covers area of work that are in line with REFEDS goals of:

- Representing the needs for the research and education community in the wider space of access and identity management;
- Addressing inter-federation issues and trying to offer some solutions for these;
- Engaging more actively with other communities interested in identity federations;
- Enhancing international collaborations among participants by sharing best practices and possibly contributing to the creation and/or adoption of new standards.

REFEDS workplans, once approved, are published on the REFEDS website: <https://refeds.org/our-work>.

Further information on the preparatory work as well as the day-to-day progresses are on the REFEDS wiki: <https://wiki.refeds.org/display/WOR/2016+Work+Plan+Preparation> .

### 3.1 REF16-1: REFEDS Coordination and Management

*Core Aim: To progress REFEDS position as an important player within the access and identity*

*management space internationally.*

The REFEDS Coordinators support the REFEDS website ([refeds.org](http://refeds.org)), wiki ([wiki.refeds.org](http://wiki.refeds.org)), blog ([blog.refeds.org](http://blog.refeds.org)) and various mailing lists. Part of the coordination work involves also support for working groups and for REFEDS consultation process (more about this below).

a) REFEDS Meetings and Presentations

In 2016, REFEDS coordinated the following meetings:

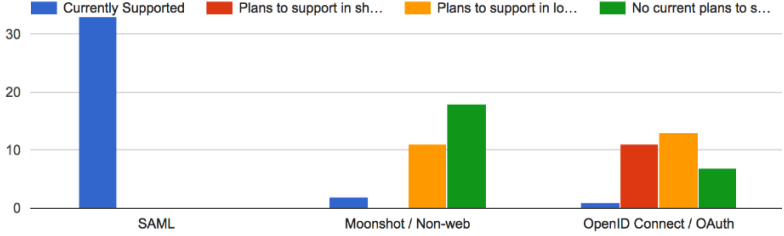
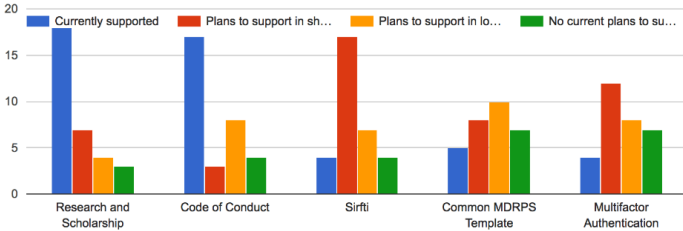
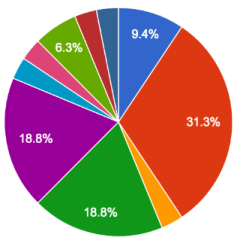
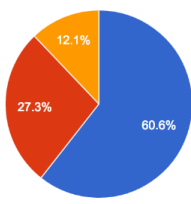
- REFEDS Full Meeting in conjunction with TNC2016: (<https://refeds.org/32nd-meeting-june-2016>).
- REFEDS Full Meeting in Miami, USA in conjunction with Internet2 Technology Exchange (<https://refeds.org/meetings/33rd-meeting-september-2016>) .
- REFEDS BOF at APAN in Hong Kong:
- (<https://refeds.org/a/1367>).
- REFEDS BOF in December 2016 in Switzerland in conjunction with the AARC Meeting (<https://refeds.org/34th-meeting-november-2016>).

b) REFEDS Survey

The REFEDS survey launched in 2015 was repropose in 2016 with some adjustments. In 2016 33 federations answered from the 66 known. The results of this survey are now fed back to the GÉANT compendium to support wider information dissemination within the community.

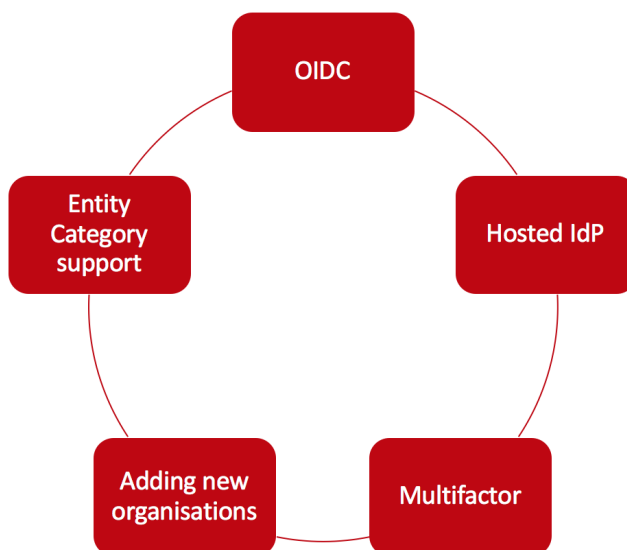
The survey covered the following areas:

<b>Operational Data</b>	<ul style="list-style-type: none"> <li>● We are seeing an increase in hybrid approaches being adopted by federations, with operators offering both mesh and hub-and-spoke style service offerings under the same framework.</li> <li>● Budget and personnel are very inconsistent across federations – with the most worrying statistics being 16 federations having no dedicated budget, and federations with manpower of only 0.1 FTE per annum. This level of funding will no allow operators to respond to the requirements being requests from federation users.</li> <li>● Federation operators are struggling to dedicate time to communication activities and this tends to be something that falls down the agenda. This may mean that projects such as REFEDS, AARC and GN4 need to do more to support this space.</li> </ul>
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<p><b>Technology and Standards Support:</b></p> <p>New Technologies</p>	<p>Results confirm general consensus that OIDC is likely to be the next most important technology for consideration in federations and for eduGAIN technology profiles.</p>  <table border="1"> <caption>Support for New Technologies</caption> <thead> <tr> <th>Technology</th> <th>Currently Supported</th> <th>Plans to support in short-term</th> <th>Plans to support in long-term</th> <th>No current plans to support</th> </tr> </thead> <tbody> <tr> <td>SAML</td> <td>32</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Moonshot / Non-web</td> <td>2</td> <td>0</td> <td>11</td> <td>18</td> </tr> <tr> <td>OpenID Connect / OAuth</td> <td>1</td> <td>11</td> <td>13</td> <td>7</td> </tr> </tbody> </table>	Technology	Currently Supported	Plans to support in short-term	Plans to support in long-term	No current plans to support	SAML	32	0	0	0	Moonshot / Non-web	2	0	11	18	OpenID Connect / OAuth	1	11	13	7										
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<p>Standards Support</p>	<p>Among the best practices promoted by REFEDS, Research and Scholarship Entity Categories and Sirtfi are high up on the federations' radar.</p> <p><b>R&amp;S is well on the way to good adoption coverage and Sirtfi is well supported, with the majority of federations planning to support in the short-term. Code of Conduct reflects availability only in Europe at the present time.</b></p> <p>Which of the following REFEDS initiatives do you support?</p>  <table border="1"> <caption>Support for REFEDS Initiatives</caption> <thead> <tr> <th>Initiative</th> <th>Currently supported</th> <th>Plans to support in short-term</th> <th>Plans to support in long-term</th> <th>No current plans to support</th> </tr> </thead> <tbody> <tr> <td>Research and Scholarship</td> <td>18</td> <td>7</td> <td>4</td> <td>3</td> </tr> <tr> <td>Code of Conduct</td> <td>17</td> <td>3</td> <td>8</td> <td>4</td> </tr> <tr> <td>Sirtfi</td> <td>4</td> <td>17</td> <td>7</td> <td>4</td> </tr> <tr> <td>Common MDRPS Template</td> <td>5</td> <td>8</td> <td>10</td> <td>7</td> </tr> <tr> <td>Multifactor Authentication</td> <td>4</td> <td>12</td> <td>8</td> <td>7</td> </tr> </tbody> </table> <p><b>REFEDS will follow up on all "green" columns to see if more support can be given.</b></p>	Initiative	Currently supported	Plans to support in short-term	Plans to support in long-term	No current plans to support	Research and Scholarship	18	7	4	3	Code of Conduct	17	3	8	4	Sirtfi	4	17	7	4	Common MDRPS Template	5	8	10	7	Multifactor Authentication	4	12	8	7
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<p>Metadata Aggregation</p>	<p>There are still a variety of aggregation tools being used and support for standardisation is not being achieved in this area as shown in the graph below.</p> <p><b>What metadata aggregation tools do you use?</b></p>  <table border="1"> <caption>Metadata Aggregation Tools Used</caption> <thead> <tr> <th>Tool</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>None</td> <td>9.4%</td> </tr> <tr> <td>PyFF</td> <td>31.3%</td> </tr> <tr> <td>SimpleSAMLphp</td> <td>18.8%</td> </tr> <tr> <td>Custom</td> <td>18.8%</td> </tr> <tr> <td>Shibboleth MDA</td> <td>6.3%</td> </tr> <tr> <td>AmesAAI MDS</td> <td>6.3%</td> </tr> <tr> <td>Federation Registry (AAF Application Suite)</td> <td>6.3%</td> </tr> <tr> <td>Jagger</td> <td>6.3%</td> </tr> <tr> <td>Moka</td> <td>6.3%</td> </tr> <tr> <td>OpenConext</td> <td>6.3%</td> </tr> </tbody> </table> <p><b>Do you support the Metadata Query Protocol (MDQ)?</b></p>  <table border="1"> <caption>Support for Metadata Query Protocol (MDQ)</caption> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>No</td> <td>60.6%</td> </tr> <tr> <td>Plan to support</td> <td>27.3%</td> </tr> <tr> <td>Yes</td> <td>12.1%</td> </tr> </tbody> </table>	Tool	Percentage	None	9.4%	PyFF	31.3%	SimpleSAMLphp	18.8%	Custom	18.8%	Shibboleth MDA	6.3%	AmesAAI MDS	6.3%	Federation Registry (AAF Application Suite)	6.3%	Jagger	6.3%	Moka	6.3%	OpenConext	6.3%	Response	Percentage	No	60.6%	Plan to support	27.3%	Yes	12.1%
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Federation Registry (AAF Application Suite)	6.3%																														
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<p>Metadata Management</p>	<p>The variety of approaches taken by federations to managing eduGAIN metadata is simply not helpful and more needs to be done to standardise this process.</p>																														

**Federation Priorities**

The following top priorities for 2017 were identified by federations within the survey:



c) External Contracts

REFEDS put in place four contracts with external parties to support its work in 2016:

- A support contract with RETI (Andrea Biancini) to enable bug fixing and development of the REFEDS MET tool.
- A contract with Ian Young to support the further development of the Metadata Query Protocol RFC and pilot work and The Entity Category SAML Entity Metadata Attribute Types RFC.
- A contract with Heather Flanagan to support the REFEDS Working Group, development of CIC Cookbook, support for communications and support for SCHAC.
- An (ongoing) contract with Identinetic (Rainer Horbe) for FedLab development.

These work items are described in more detail in the relevant sections below.

The rest of the document reports in more details the work carried out in each of the activities in the 2016 workplan.

d) Sponsorships

At the start of each calendar year, invoices are automatically sent out to the current sponsors. New sponsors can join and any time and an active effort is made to expand the current sponsors base.

## 3.2 REF16-2: Specialised working groups

*Core Aim: To provide infrastructure and support for evolving ideas and areas in the REFEDS community. T*

his workpackage contains different items, namely:

- [FOG](#), the federation operators working groups. The group uses mainly a mailing list to discuss all kind of operational challenges federations may have. The group is led by Peter Schober (ACOnet).
- [OIDC](#), to discuss the adoption of OpenID Connect and the attribute mapping between OIDC and SAML. The group has not been particularly active, however after the last REFEDS meeting in December there have been a number of additional subscriptions from research communities and the group seems to have gained momentum. A new chair will be proposed in 2016, to give more structure the work.
- [Sirtfi](#), the security incident in federated environment, has been very active. Part of the work in this area is funded via the AARC project to ensure that dedicated effort is available. The group is led by Hannah Short (CERN).
- [ORCID](#), this group has several good discussions; the group is more a dedicated discussion forum, but still very useful. The group is led by Laura Paglione (ORCID).
- [IdP of last resort](#), the group is led by Keith Hazelton (I2). The group is very active and so far they:
  - Have drafted a self-assessment form for IdPs to fill out if they wish to be considered as Un-Affiliated IdPs.
  - are building a list of possible sustainability models for IdP of last resort and will produce recommendations for REFEDS to discuss.
- [Assurance](#), this group was created to ensure that the assurance work done in the AARC project gets wide feedback. The AARC project has delivered the [recommendations on minimum assurance level for low-risk use cases](#), which constitutes the starting point of the working group discussion. The goal is to create a profile that is specific enough that can be self-assessed by home organisations. The group is led by Mikael Linden (CSC).
- [Entity Category](#), with the aim to explore the potential development of additional entity categories beyond Research & Scholarship v1 and other additional categories that may arise. The group is led by Nicole Harris.

All the working groups will continue in 2017.

### 3.3 REF16-3: Promotion and Communication

*Core Aim: To provide supporting material for organisations carrying out a needs assessment for VO / group management usage.*

This workpackage was outsourced to Heather Flanagan. Heather has finished the work on the **VO assessment**; there is now a template online for those interested in starting a

VO:<https://wiki.refeds.org/display/GROUP/VO+Assessment+Template>.

Heather also produced a **value proposition for federations**:

<https://wiki.refeds.org/display/OUT/The+Value+Proposition+for+Identity+Federations>. This document aims to highlight the benefits of federations as well as the reasons as to why should federated access be prioritised and what needs to be done to create a federation.

Centrally, a page summarising Training and Outreach materials was created:

<https://wiki.refeds.org/display/OUT/Training+Materials>. This catalogues and classifies a range of training materials that are openly available from organisations across the globe. Nicole worked with Heather (representing the NSRC) and Brook Schofield to develop a core set of training material that was used at the WACREN and APAN training events in 2016 and developed to be as neutral as possible for re-use. This culminated in the creation of an online video suite developed by REFEDS and the NSRC: <https://learn.nsrc.org/FedIdM>.

REFEDS has also been working on providing more promotional material. The year began with the “2016 Resolutions” promotion. During the year, we have focused on developing blogposts to report on meetings and support various initiatives, such as Sirtfi and Shibboleth upgrades.

### 3.4 REF16-4 Standards and Specification

*Core aim: To provide materials and support mechanisms to help federations promote effective approaches to IdPs and SPs.*

#### a) Overview

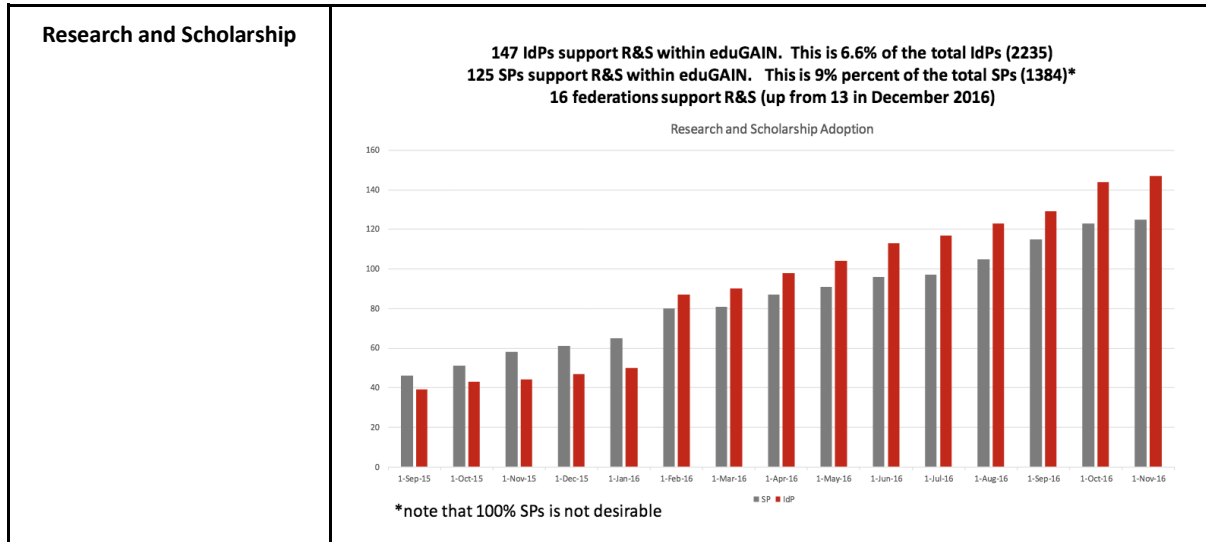
There were different items as part of this package, which have produced results:

- Several consultations were undertaken within the community and are detailed below.
- The adoption of entity categories within the community was monitored closely. More information can be found at: <https://wiki.refeds.org/display/ENT/Entity+Category+Usage> and some usage information is shown below.
- Material was produced to explain the key concepts of entity categories. Although the uptake of research and scholarship is increasing, adoption from IdPs is still slow. For 2017 REFEDS is planning a new campaign to stress the importance of this approach and how federations can support it.
- Heather Flanagan was contracted to produce a [cloud service cookbook](#). The document offers a set of recommendations on how vendors of cloud services and institutional customers should engage with each other to support federated identity. The recommendations are extrapolated but cookbook produced by the IAM managers from the US academic consortia. REFEDS are exploring how they can be generalized to all federations.
- Taking advantage of the work in AARC related to library, REFEDS provided support to promote the key messages for federated access. [REFEDS value proposition](#) document served as input for the additional work carried out in AARC.



***b) Entity Category Usage and Support***

The following tables show the adoption rates of the two main Entity Categories supported by REFEDS as at December 2016.


***c) REFEDS Consultations***

As part of its work, REFEDS carries out regular consultations to ensure that community consensus is achieved on all proposed REFEDS specifications. The following consultations were carried out in 2016:

- April 2016: Managing Metadata Extensions.
- June 2016: Research and Scholarship version 2.
- September 2016: Sirtfi Identity Assurance Certification Description.
- December 2016: change request for wording in Security Contact Metadata specification.

### 3.5 REF16-5 REFEDS Services

*Core Aim: To provide support for existing REFEDS pilots as well as for new developments.*

This workpackage focuses on tools being designed to support the flow and use of metadata within and across federations. Three main areas have been developed:

a) PEER-REEP (<https://reep.refeds.org>)

PEER is a tool that allows for easy and simple registration of entity metadata in a central source (<https://github.com/Emergya/peer>). REEP (<https://reep.refeds.org/>) is a service instance of PEER that aims of offer a central repository for metadata.

The revisited software (contracted in 2015) with a better user interface and a better workflow, was delivered in the spring 2016. The migration was more challenged than expected, due to database compatibility aspects. Energya was contracted in fall 2026 to migrate the new software into production. REFEDS continue to run RREP/PEER as best effort. However due to its scope, REFEDS steering committee has recommended not to fund any additional development and possibly to find a better host for it in the longer term.

b) MET (<https://met.refeds.org/>)

The Metadata Explorer Tool is designed to give federations a quick overview of the metadata in existing federations. In 2015 the tool was moved to GARR, that is currently operating it. Additional software enhancements and bug fixes were contracted in 2016 to RETI, the organization where the developer (Andrea Biancini) moved to. Thanks to these enhancements MET is now a very useful tool.

c) FedLab (<https://fed-lab.org/>)

This work was started in the GN3 project and it has now evolved into a bigger project with different funding: REFEDS, GN4 and Vietsch Foundation.

FedLab aimed to offer a test suite to help check the interoperability of products for federated identity management.

Although the aim of FedLab is still valid, there was little progress with the tool development. At the time of writing the tool is still not ready. REFEDS have agreed not invest in this item any further.

## 3. Finances

A summary of the costs incurred by REFEDS in the period reported (January 2016 – December 2016) is given below.

Overview Budget Period 1st Jan 2016 - 31 <sup>st</sup> Dec 2016	EUR	Comments
Left over budget from 2015	13000	
Contributions from Sponsors in 2016	75500	
<b>TOT Budget available</b>	<b>88500</b>	

<b>Total Costs for REFEDS 2016</b>	<b>72,720</b>	
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Table 1: Budget Summary

<b>Breakdown of Cost 2015</b>	<b>EUR</b>	<b>Comments</b>
<b>Tot Contracts Costs:</b>	<b>27,852</b>	
Ian Young	2,267	Work on the RFC specs
Heather Flanagan	9,656	Final work on Cloud cookbook and support for the working groups \$120/hour up to a total of 180 hours.
		Migration of REEP into production and bug fixes
Emergya	1,540	MET enhancements
RETI	5,500	FEDLAB.
Identinetics	8,889	
<b>Total Travel Costs</b>	<b>11,102</b>	
<b>Total GÉANT Costs:</b>	<b>33,766</b>	
Total Personal Costs	16,916	Nicole Harris and Licia Florio manpower
Total Overhead	4,229	
VAT	12,621	
<b>TOTAL Costs</b>	<b>72,720</b>	

Table 2: Breakdown of the costs