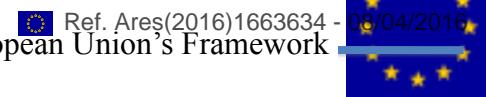


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Road-, Air- and Water-based Future Internet Experimentation

Project Acronym: RAWFIE			
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D7.1 Building the RAWFIE community

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D7.1 Building the RAWFIE community

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CHANGE HISTORY



D7.1 Building the RAWFIE community

Version	Date	Reason for Change	Pages/Sections Affected
01	26.02.2016	First Document Issue with Introduction & ToC.	
02	25.03.2016	Structure updated /assignments among partners	
03	29.03.2016	Content update	Ch. 1.6, Ch.2.2
04	31.03.2016	Structure updated /assignments among partners	Ch. 3.4
05	05.04.2016	Content update from partner review	Ch.4, Ch.5
06	06.04.2016	Content update from partner review	Ch 2.2. Ch 3.3
07	07.04.2016	Content update from partner review	Ch 2.2. Ch 3.4



D7.1 Building the RAWFIE community

**Abstract:**

RAWFIE is a Research and Innovation Action (RIA) that addresses virtually every aspect raised by the **FIRE+ (Future Internet Research & Experimentation)** call, namely Collaboration on experimental infrastructures, the use of Europe's Research and Education Network infrastructures and the development of the concept of Experimentation-as-a-Service (EaaS) in order to provide Experimenters with equipment, services, systems and tools on demand, seamlessly and regardless of their geographical location.

This report contains the initial results on establishing the RAWFIE community and the strategy to further expand it to the target members, including experimenters, testbed operators, UxV manufacturers and suppliers, research institutes, universities, and other interested parties. In the elapsed 15 months from the beginning of the project, the RAWFIE Consortium has actively pursued various means to raise awareness, inform the target audience to follow the development of the platform, create interest in joining the RAWFIE community, and to inform the broader audience of the first Open Call.

The approaches used for awareness raising and information sharing were: 1) an actively maintained web-site (www.rawfie.eu) with clear and concise content, 2) social media presence (Facebook, Twitter, LinkedIn, etc.), 3) participation in FIRE (EC) events and plenary meetings, 4) participation in conferences and exhibitions, and 5) personal contacts by Consortium partners with target members. This activity was supported by a Community Manager.

These efforts will be complemented in the future by 1) creating RAWFIE Community pages on the RAWFIE web site, 2) the Community Manager actively soliciting material from partners and members and using appropriate channels to reach prospective members and encouraging them to sign up as members 3) participative interaction with other similar communities (FIRE, FIWARE, SPARC, FETAG, Fed4Fire 4), open online exchange (blog posts, forum conversations, newsgroup articles, etc and 5) Digital Single Market involvement

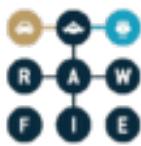
The ultimate goal is to build this community into a Federation that is self-sustaining beyond the end of the RAWFIE project.

Keywords: RAWFIE, RAWFIE Community, Social Media Communication, FIRE, Digital Single Market, UxV, UxV testbeds, UxV experimenters

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Part III: Executive Summary

This report describes the achievements in the first 15 months in building the RAWFIE community and outlines the strategy to be implemented within the remaining RAWFIE project lifespan in order to formalise and expand the RAWFIE Community.

The target members of the RAWFIE community comprise a mix of scientists, engineers, ICT professionals, and others from research universities and institutes, industry, government, and the public. They all have an interest in UxV experimentation and the Future Internet. Many are already involved in UxV experimentation and even more may be interested in using a RAWFIE testbed for their experiments. By actively working with the community, the goal is to create continuous interaction and dialog between the consortium partners and the larger community and to have a channel for the dissemination of RAWFIE activity.

The RAWFIE project will be promoted as Experimentation-as-a-Service (EaaS) to the RAWFIE community. The goal is to encourage experimenters to use the RAWFIE platform. Among other features, the IoT paradigm will be fully adopted and further refined for supporting highly dynamic node architectures.

The RAWFIE project goes beyond state-of-the-art technology by supporting “at scale” research in networking and rapid innovation in novel, large-scale services. A strong vibrant RAWFIE community will encourage the wide-spread deployment of diverse and extensible new technologies.

Throughout the initial project period, RAWFIE has been promoted to the target community in order to raise their awareness of the project. This includes the use of the RAWFIE web site, social media interaction (Twitter, Facebook and LinkedIn), participation in exhibitions and conferences, and interaction by the partners with the community. A Community Manager has been appointed to actively drive interest in RAWFIE, solicit members and generate interaction within the community.

The first major interaction with the RAWFIE community was the 1st Open Call. This was followed by the Call for Reviewers. These involved the use of the RAWFIE web site, social media, and information posted on FIRE and other web sites. In addition, Consortium partners approached testbed operators, UxV experimenters, and others to participate in the Open Call.

As the project progresses, significant information will become available to share with target members. The Community Manager will encourage partners to provide information and will disseminate this information through appropriate channels. These channels include the RAWFIE web site, particularly the Community section, social media, blogs, and attendance at relevant exhibitions and conferences. A major goal of this effort is to encourage target members to sign up as Community Members so that they can be directly addressed by the promotional efforts.



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This will facilitate keeping members involved and supportive of RAWFIE. This will be particularly important for the 2nd Open Call.



Part IV: Main Section

1. Introduction (Epsilon)

1.1. Scope of D7.1

The purpose of this deliverable is to:

1. Report the activities undertaken in building the RAWFIE community
2. Define the objectives of the RAWFIE community
3. Relationship with FIRE
4. Outline the steps in expanding the RAWFIE community
5. List the target members and the factors that will drive them into the Community
6. Outline alternative ways of promoting RAWFIE to target members and keeping them involved



1.2. Abbreviations

Abbreviation	Meaning
AUV	Autonomous Underwater Vehicle
FI	Future Internet
FIRE	Future Internet Research and Experimentation Initiative
IoT	Internet of Things
KPI	Key Performance Indicator
PPC	Pay per Click (Internet advertising)
SLA	Service Level Agreement
UAV	Unmanned Aerial Vehicle
UGV	Unmanned Ground Vehicle
USV	Unmanned Surface Vehicle
UxV	Unmanned aerial/ground/surface Vehicle
VT	Vehicular Testbed

1.3. Objectives of the RAWFIE community

The objectives of the RAWFIE community are to:

- Enable interaction between RAWFIE members, experimenters, testbed operators, UxV, sensor and network manufacturers, integrators and users, suppliers, and other interested parties.
- Educate the community on RAWFIE resources, projects, experiments, usage, and availability.
- Encourage the use of RAWFIE testbeds and resources
- Disseminate the results of RAWFIE projects
- Provide a communication channel for RAWFIE Open Calls
- Provide the basis for a strong federation that lives beyond the life of the project

1.4. Principles underlying the functioning of the RAWFIE community

The main principles of the community building effort are:



- Attracting the target members to join the RAWFIE community
- Integrating SMEs, Industry, Academic Institutions and others into the Community
- Ensuring openness and know-how sharing
- Providing useful information through easily accessible interfaces at all levels
- Coordinate efforts with all European research instruments and relevant institutions

1.5. Relationship to FIRE

The purpose of the RAWFIE platform is to bring together the knowledge and competences of different stakeholders within the FIRE scene to collaborate and set up a federated platform for UxV testbed facilities and experimentation. FIRE broadens the awareness and will result in increased usage of the RAWFIE infrastructure, improved service delivery to the experimenters, economies of scale, etc. FIRE enhances the sustainability of the ICT research infrastructures in general and will be supportive of RAWFIE.

On a technical level, the services offered by RAWFIE should meet the standards and requirements of FIRE. They should be innovative, kept up to date, be reliable and manageable.

1.6. RAWFIE Community - overview of development activities

Building the RAWFIE community can be broken into each of the three cycles of the project.

Cycle 1—Specification, Design and Initial Implementation.

This initial cycle of RAWFIE is about defining the project and implementing a first test version. During this cycle, the main focus has been on building the working relationship between the partners of the Consortium. In addition, testbed operators have been identified and asked for their requirements and the first Open Call has been publicized. In terms of technical information available for dissemination, the project was not expected to be far enough along to present meaningful data to the Community and to promote interaction. Hence, effort has been focused on:

- (1) Developing the RAWFIE logo and other marketing material
- (2) Setting up the RAWFIE website with relevant content that is easily accessible to the public



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- (3) Establishing RAWFIE presence on various social media, including Facebook, Twitter, LinkedIn.
- (4) Identifying potential test bed operators and discovering their requirements,
- (5) Promoting through the consortium partners' networks, EU related programs and institutions, and Social Media the First Open Call and the Call for Reviewers
- (6) Participating in target events, such as the ICT (EC) conference in Lisbon and the Panhellenic Conference on Informatics in Athens, to inform the broader community about RAWFIE,
- (7) Direct interaction of partners with the broader community to promote RAWFIE
- (8) Encouraging the partners to assist in identifying potential members of the Community,
- (9) Planning for the broader rollout of the RAWFIE community

Cycle 2—Second Iteration of Implementing & Validating the System

During this cycle, the project is expected to have advanced to the point of having significant learning and results suitable for dissemination. As a result, a significant effort will be put into expanding the Community. This effort will be focused on:

- (1) The Community Manager actively working to enlarge the community through strong web and social media presence along with more directed activities, such as email and tweets. Through frequent contact with relevant information, the goal is to encourage interaction between members of the community, particularly with the Consortium partners. The term of this activity will be limited by the available funds.
- (2) Adding a “RAWFIE Community” section to the RAWFIE website with the ability to encourage target members to join the Community and to capture personal information, including contact information and interests,



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- (3) Adding to the RAWFIE website a link for the RAWFIE blog,
- (4) Expanding the use of social media to both inform potential Community members and to encourage signing up as a member on the RAWFIE website,
- (5) Contacting universities, research institutes, IT consortia, UxV manufacturers and suppliers, and other relevant stakeholders in order to expose RAWFIE and to encourage them to join the RAWFIE community, and
- (6) Using the mailing list (particularly email and Twitter) to promote RAWFIE programs, the 2nd Open Call, blog, and other information.
- (7) Issuing press releases to the relevant digital and print media on highlights from the project.
- (8) If needed, selective advertising of RAWFIE will be implemented, such as PPC on search engines and presence in digital and print media.

Cycle 3—Third Iteration of Implementing & Validating the System

By this cycle, it is expected that the project will have amassed considerable knowledge, results and experience to disseminate to the Community and to seek interaction within. While the effort to expand and mobilize the Community will be continued during this phase, the emphasis will be more on dissemination and interaction. Hence, efforts during Cycle 3 will be focused on:

- (1) Maintaining a strong web presence, particularly of the Community section
- (2) Maintaining strong presence for RAWFIE on social media,
- (3) Continuing to add members to the community,
- (4) Actively posting material to the blog and responding to user comments,
- (5) Promoting training programs and other RAWFIE events,



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- (6) Continue to liaise with universities, research institutes, related projects, etc and
- (7) Regular contact with the list of members through email, Twitter, etc about RAWFIE activity, experiments and programs
- (8) Continuing contact with relevant digital and print media to promote the work of RAWFIE. This will include invitations to observe the work of RAWFIE directly.

2. Expanding the RAWFIE Community

2.1. On-going development activities to build the RAWFIE community

- The most important activity in the first cycle has been the activity associated with the 1st Open Call. This has involved using social media, the RAWFIE web site and direct contacts with potential applicants by partners. This has already created a level of interaction between the partners and the community.
- The web site and social media are already being used to share information about the project. RAWFIE already has a Facebook page, Twitter identity and LinkedIn account. These and other media will continue to be used and expanded to share knowledge and experience about on-going and completed RAWFIE projects, including project and consortia information, technical details and results, strategic considerations, etc..
- RAWFIE has directly participated in exhibitions and conferences in order to promote RAWFIE. For example, RAWFIE had a booth at the ICT Exhibition in Lisbon in October and at the 19th Panhellenic Conference on Informatics in Athens in October.
- Consortium partners have been active in promoting RAWFIE to target members, both generally and in their interest in joining a RAWFIE Open Call. For example, 1) IES disseminated RAWFIE information within EENA (European Emergency Number Association (<http://www.eena.org/>) to the working group about the use of “Remote Piloted Airborne Systems (RPAS)” by the Emergency Services. 2) Pegase worked with French test bed operators in the System Factory project to identify potential testbed operators for RAWFIE and to promote the Open Calls.



- Consortium partners have been active in submitting manuscripts for publication in professional technical journals. For example, IES, along with other project partners, submitted a manuscript to the IEEE Internet of Things Journal titled “Innovative Management of Remote Future Internet Experimentation over Mobile Nodes. This covered the concepts, architecture and technical solutions adopted by RAWFIE

▪

- **2.2 Expected Activities and Contribution of the RAWFIE Community**

As the community reaches a critical size, composition and level of involvement, its role in the RAWFIE project will grow. It is already involved, but the range of activities will be expanded. Some of the expected activities and contribution of the community are:

- Support of a coordinated and coherent approach to the development, deployment and support of RAWFIE testbeds, technologies and services;
- Provide input to RAWFIE plans, orientation and operations, including direction for maximizing European added value and enhancing Europe’s competitiveness (e.g. identifying UxV test users, encouraging the second open call applications and effectiveness, promoting R&D and innovation, encouraging procurement of R&D services, fostering the emergence of lead markets, etc.), and identifying needs and opportunities for the post-completion continuation;
- Make recommendations regarding priorities and resource requirements to ensure that RAWFIE’s efforts are well placed to take advantage of innovations and best practices;
- Enable appropriate communication and consultation within the wider Future Internet community, as appropriate;
- Share information on key support/test infrastructures of European relevance, including information on national, regional and local investments in experimental facilities and test beds, infrastructures for innovation, etc.
- Identify major application and services drivers and requirements of interest to its members, including specific needs for interoperability with national regulations,



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customisation to regional and local environments, demand for skills, support to education and training, etc.

- Encourage the establishment of permanent RAWFIE Forums as the key actors to holding, driving and interconnecting RAWFIE-related activities at the national level and as the main interface with the EU

2.3 Target members. Drivers to join the RAWFIE community

As a Future Internet (FI) project, the target community for RAWFIE is large due to the range of partners and interested parties. RAWFIE aims at delivering a federated infrastructure of heterogeneous testbeds for experimenting with unmanned road, air and water vehicle technologies. By delivering an integrated and scalable FI experimentation platform, RAWFIE provides sophisticated management techniques while targeting to a rapidly growing research field that requires sophistication along with a high degree of integration of resources/capabilities and services. This along with the deployment of new and advanced mobile IOT technologies and network infrastructure means that RAWFIE is “cutting edge” and will drive significant interest from all parties.

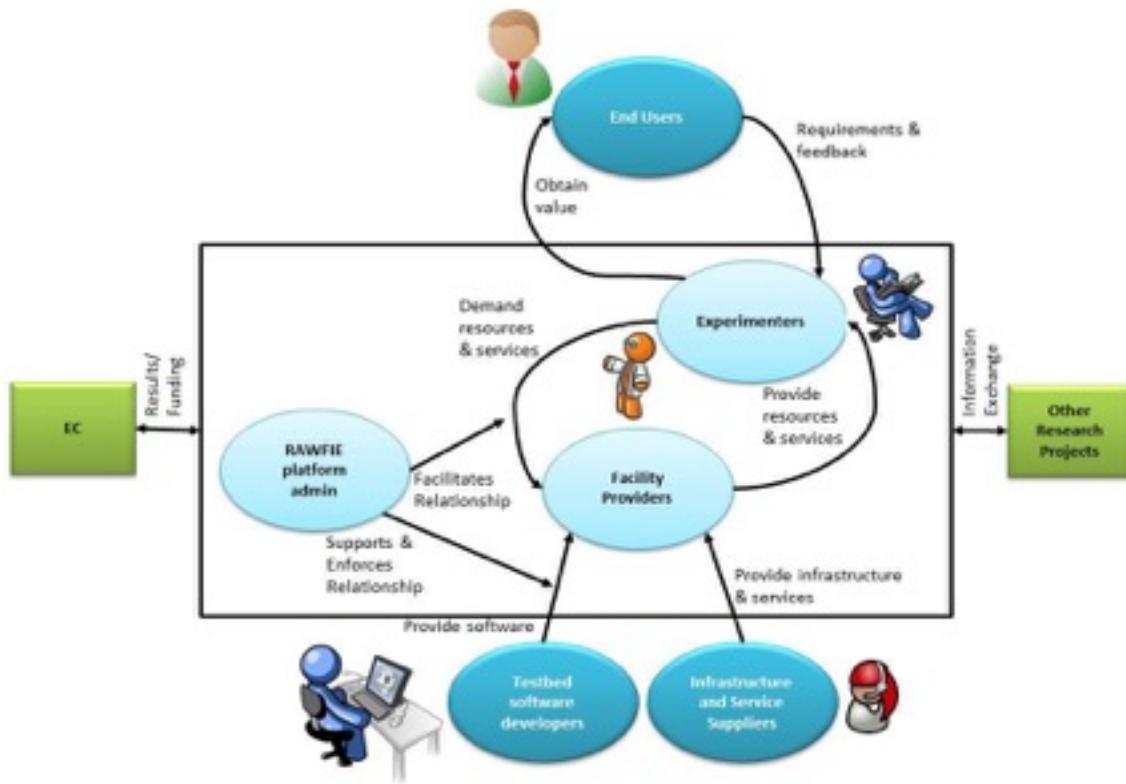


Figure 1: RAWFIE stakeholders

2.3.1 RAWFIE Consortium Members

By default, the RAWFIE consortium members are an integral part of the community and are responsible for providing most of the benefits to the community. Members are expected to publish blogs, scientific papers and other documents that are made available to the broader community. They will support the test bed operators and experimenters as they set up and run experiments and then analyze the data. They will also be responsible for outreach and training programs.

2.3.2 Facility Owners

By contributing test beds, facility owners benefit from the resources, analytical and other tools, and support provided by the enlarged RAWFIE federation. This enhances the functionality of their contribution and automatically makes them a member with exposure to all of the benefits.



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By being part of the community, they have access to key players in the FI arena and other areas of interest to them. It also raises their profile among community members.

2.3.3 Experimenters

Experimenters are the immediate beneficiaries of the RAWFIE federation where they are able to benefit from a powerful multi-parametric environment. This environment will be attractive to experimenters as they will enjoy an extensive suite of tools, including booking resources, space and time, activating the experiment, managing the mobile devices, and the generated streams of experiment data. The post-experiment analysis of all the accumulated information will provide insight into their vehicles and sensors that will likely exceed what otherwise would be available to them. The benefits will be compelling for large numbers of experimenters.

2.3.4 Industry

The RAWFIE platform is being built as an important “instrument” for EU high tech firms, particularly small and medium scale businesses. The highly dynamic, configurable and fully managed technology provided will enable firms to experiment solidly on their prototypes (hardware, software, integrated solutions) prior to their commercial launch and massive production.

RAWFIE provides the ideal testbed for technology creators and technology integrators. Therefore, the contributions of the platform and the infrastructure as a whole can be considered either horizontal or vertical. Horizontal contributions refer to aspects like communications and smart sensing. Vertical contributions refer mostly to the process of integration and the implications to the constituent technologies.

Hence, the interest by industry can be expected to be broad. For example, RAWFIE is a perfect “incubator” for the relatively new, yet rapidly expanding domain of on-demand deployable Internet facilities through UxV’s. Similarly for sensor manufacturers and integrators, RAWFIE allows for testing new and enhanced smart sensor solutions (e.g., IEEE 1451) and integrating them with legacy systems. For the UxV’s, adaptive on-board systems with cognitive abilities can be tested along with advanced communications, sensing, processing and actuating capabilities.



These are expected to become huge markets with a very large interested community that needs to be reached.

2.3.5 Scientific and Academic Communities

The RAWFIE ecosystem will bring together experts and researchers from diverse domains in a multi-disciplinary effort to deliver innovative FI experimentation. RAWFIE will support field and experimental studies on different UxV testbed deployments and their effects on issues still open in the research community. The IoT scientific community will significantly benefit from this context, as it will expand its current research activities and improve their adopted processes and tools.

In the academia landscape, RAWFIE can be viewed as a multi-use educational instrument that allows the validation of solutions in the micro- (resource) and macro- (federation) level. RAWFIE can be treated as a study item in many different courses in the graduate level. Some of the RAWFIE programs that will drive academia to the RAWFIE community includes the following activities.

- *Short courses.* RAWFIE will provide short courses focusing on smart sensing, communication technologies, testbed deployments, federated architectures, tools and management techniques, both for established researchers aiming to update their knowledge and skills, but also for new scientists (doctoral or post-doctoral researchers) interested in “entering” the FI domain.
- *Open access infrastructure and data.* RAWFIE will become a unique and powerful tool for new researchers, offering a field for thorough studies and innovation on improving the infrastructure, delivering new services and extending existing ones or discovering new application fields. Additionally, RAWFIE will serve as an open data repository for information originating from real-life testbed deployments. Experiments can be conducted in real environments instead of simulated ones.



2.3.6 Citizens and Public Sector

The RAWFIE infrastructure is expected to deliver results of broader importance and applicability. The proposed architecture will provide a complete solution in the field of experimentation with IoT technologies and applications that will attract broad interest from government and the public. This allows them to follow the status of the industry and anticipate outcomes. Certainly RAWFIE could have a profound impact on multiple human activities since the proposed infrastructure covers a wide range of application fields and facilities that touch the everyday life of citizens, such as large scale environmental monitoring, surveillance applications, etc.

3. Communication channels

Digital media has dramatically widened the choice of communication channels. RAWFIE must continue to use the traditional media through press releases and personal contact. However, to more quickly and effectively reach the target members, social media and other digital channels, such as web presence, blogs, emails, and tweets are central. To build the list of target members for digital solicitation, related associations and other groups will be asked to provide member lists. A significant part of this effort is directed towards having target members join the RAWFIE community by signing up on the RAWFIE web site.

With its own list of “opt-in” email and Tweeter addresses built from its member list, there is much more discretion about what is communicated. This allows for more private interaction with members versus the more public exposure through social and other web channels. This allows the message to change. It is changed even further with the publication of scientific and conference papers.

3.1. Gaining Presence on Social Media and other Digital Channels

Social Media has the capacity to quickly enlarge, enrich and inform the RAWFIE community as well as providing channels for interaction. However, this takes effort, planning and resources. There are multiple channels, each with different audiences and requirements. For RAWFIE, it is essential that all partners be involved with social media in order to build presence. Some of the issues currently being addressed are as follows:



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- Deciding on which social media channels are going to be the most effective for RAWFIE. Currently, Facebook, Tweeter and LinkedIn have been selected, but additional media are being considered. Each takes time and effort to get to the point of judging effectiveness.
- Building the RAWFIE personality for each channel...deciding how to present RAWFIEand what is expected to be achieved
- Informing all partners about RAWFIE's social media presence and providing guidance on how to contribute and respond.
- Motivate partners for their active contribution
- Promoting RAWFIE's activities, achievements, services and benefits to the community

Gaining the level of presence required on social media and other channels is taking significant effort and management on the part of the Consortium members. To coordinate this effort, a Community Manager has been appointed to drive the process forward. The activities of the Manager include the following:

- Assigning partners and others to write postings, news, press releases, blogs, and so on
- Recruiting community members and guests to contribute reviews, requests, comments, postings, and so on
- Editing material for content and conformance to established policies
- Ensuring that comments are reviewed and responded to. Removing inappropriate comments, if needed
- Ensuring news, reviews, postings and so on will be crawled by the major search engines
- Maintaining the list of members, including contact addresses and interests, that can be used to notify members about new postings
- Working with IT to maintain the blog, social presence, and so on



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- Promoting each blog, review, press release and related materials on digital and traditional channels

3.1.1. Blogs

Blogs are well suited to RAWFIE as there is a lot of information to communicate and they allow open interaction with readers. While RAWFIE should maintain its own blog on the RAWFIE website along with a link from the RAWFIE portal, it should also use other sites to promote its presence and activity. Also, RAWFIE should request other sites to provide a link to its blog along with a description of the project and what it offers readers.

The RAWFIE blog will increase RAWFIE's social presence and result in a significant increase in the RAWFIE community. It will elevate its role as a thought leader in the industry and provide a medium for the exchange of information among partners and the community. But its availability needs to be known. This is where the other social and traditional media can provide significant traffic as they announce new postings to the RAWFIE blog, such emails and tweets to members and postings to RAWFIE social media sites.

Managing a blog is a challenge that requires continuous attention. Initially, the Community Manager will coordinate the development of materials for the blog and

- its posting.
- Deciding on links to social media, such as a button for Facebook, Twitter, LinkedIn, and other social media sites
- Deciding on and tracking key metrics (KPIs), such as number of postings, number of social shares, audience growth showing unique and return visitors, inbound links

3.1.2. Professional Social Networks - LinkedIn

Most potential members of the RAWFIE community are already on LinkedIn. To leverage this presence, a Group might be formed on LinkedIn specifically related to UxV research and



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development. While this Group might be initiated by RAWFIE, it would be open to all LinkedIn members. This has the potential of expanding the community to people and institutions that are not otherwise known to RAWFIE. Also, it could be a valuable way to promote the RAWFIE blog and to promote upcoming events involving RAWFIE.

In addition to creating a Group, contributions could be posted to related sites with reference back to the various RAWFIE sites. Adding comments, likes and shares to existing postings also raises RAWFIE awareness. This is an excellent way to drive members to the RAWFIE sites and postings.

However, the challenge is to encourage RAWFIE partners to not only list their name in all postings but to also include reference to RAWFIE. A standard tag line could be developed and passed to all partners that they could use for this purpose. This line might be something like

...(partner organization)... is a member of the RAWFIE (Road, Air and Water Future Internet Experimentation) project. For more details on RAWFIE, see www.rawfie.eu.

Managing a Group on LinkedIn requires a similar effort as a blog but with less control. However, its initial reach will be greater and can serve as a driver of prospects to the RAWFIE web site to sign up as a community member. It also can result in engagement with influencers and industry leaders.

3.1.3. Presentation Sharing - SlideShare

SlideShare is part of LinkedIn that offers an alternative presentation medium. While it currently does not have the exposure of LinkedIn itself, it is a growing site. SlideShare allows a slideshow to be uploaded and shared. In addition, it also allows other information to be listed. Given the



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key words associated with RAWFIE, it seems that RAWFIE presentations could receive a significant and growing number of hits. This exposure would have the potential of driving additional prospects to the RAWFIE website and joining the RAWFIE community.

3.1.4. On Line Video - YouTube, Vimeo, Vine, Instagram

Video of some of RAWFIE's experiments have the potential of garnering very wide interest with the possibility of going viral. Much of the internet and smart phone crowd like to see new and exciting things and will take time to watch them in action ...and pass on links to others. If the link to RAWFIE is very conspicuous in the brief description along with a copyright notice and a link to RAWFIE on the screen for the length of the video, then it could substantially add members to the RAWFIE community. It will be important to be sure the ownership of the video is displayed appropriately. Also, it would be useful to track new members based on the source to determine if additional videos are a good means of extending the RAWFIE community.

3.1.5. On Line Photo & Video Sharing Sites - Instagram, Tumblr, Flickr, Snapchat

While not as popular or as powerful in pushing RAWFIE as the on-line video sites, particularly YouTube, these sites could also prove useful in gaining recognition for RAWFIE and its experiments. By posting photos and videos with an appropriate link to the RAWFIE website, it is possible to add members to the RAWFIE community. This requires that they sign up and be known to RAWFIE.

3.1.6. Personal Social Networks - Facebook, Google+, Twitter, Pinterest

RAWFIE already has its own account on the various social networks. Expanding this list should be considered for their ability to drive interest in RAWFIE and add target members. These sites allow RAWFIE to create its own persona, post and interact accordingly. The Community Manager is critical to building this social presence for the RAWFIE community. A very strong purpose for RAWFIE involvement in social networks is to drive traffic to its own website and blog as well as to build the RAWFIE community on a continuing basis.



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In the case of Twitter, the Twitter hashtag should be captured as new members join the RAWFIE community. This will allow tweets to be sent to community members when new information or exciting developments occur, such as a new blog posting or experiments of special interest or about UxVs or uses that have evolved from using a RAWFIE testbed. This will likely be an important way of informing the RAWFIE community and building support for RAWFIE events.

In the case of Facebook, RAWFIE content is already published through the News Feed for people who have created a link to the RAWFIE page. This results in RAWFIE messages being displayed in the members timeline .

In the case of Google+, RAWFIE could create a fan club that follows the postings of RAWFIE.

In the case of Pinterest, RAWFIE could either join or create an interest group on UxVs, or more specifically on UGVs, USGs, UUGs, and UAVs. There is already a large presence on unmanned vehicles with a heavy presence of drones. In addition, it should consider how it might contribute to groups related to the Future Internet.

3.2. Tools and mechanisms to build the RAWFIE community

3.2.1. Promoting RAWFIE to the broader community

Various tool, mechanisms and events have been used to build the RAWFIE Community and will continue to be used. This includes in a non-exhaustive order:



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- **Project Logo and identity:** The unique RAWFIE logo was created and promoted as a unified image of the project. All dissemination and communication materials will carry the logo of the RAWFIE project
- **Design, build and maintain the RAWFIE website:** The website, www.rawfie.eu, is built and already contains significant content. It is designed to be flexible and will be progressively enriched with information as the work evolves. The website is expected to be maintained for at least two further years after the end of the co-funded period.
- **Cross links to RAWFIE website:** Not only should partner websites cross-link to the RAWFIE website, but other related projects, such as FIRE projects, and associated institutions and universities should also. This not only makes the RAWFIE site more accessible to the Community but it also enhances the search engine rankings.
- **Social Networks:** RAWFIE uses web 2.0 social networks to virally promote RAWFIE and project outcomes and to demonstrate RAWFIE potential to the wider public. RAWFIE has created specific web presence through, among other, a project's LinkedIn Group (<https://www.linkedin.com/groups/8284105/profile>), Facebook page (<https://www.facebook.com/rawfieproject>), YouTube video channel, and a dedicated Twitter feed (https://twitter.com/rawfie_project).
- **Liaison with other projects:** By building relationships with FIRE and other related projects, the Community will be further enlarged. This allows for collaboration and the opportunity to exploit the exchange of knowledge and innovative ideas.
- **Liaison with universities, research institutes and industry:** RAWFIE partners already have relationships with faculties, departments and individuals in relevant institutions, both in the EU and outside. This is being built on and expanded. There is significant



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synergism that can be obtained from such associations. In particular, many of these institutions are involved in UxV research where the RAWFIE testbed is their best option.

- **Conference Papers, Journal Articles, Press Releases:** Fairs, conferences, exhibitions, workshops and other institutional related events are an ideal setting for disseminating information on RAWFIE. Sectorial conferences and specialized magazines are also excellent channels for communicating the possibilities of technology transfer. Examples of professional events and media include:
 - International Conferences
 - Workshops and Symposia
 - Journals
 - Magazines
 - European Community Publications (e.g., Cordis Focus, ICT-Newsletter)
- **Participation in Related Conferences and Events:** The Consortium partners are involved in various professional conferences, workshops, special events, and demonstrations where RAWFIE information can be disseminated. This materially expands the presence of RAWFIE, allows for collaboration with the larger community and provides a broader platform for the dissemination of results.
- **Direct dissemination activities:** user workshops will be organised by RAWFIE during the project to disseminate project results as well as focusing on capacity building, and utilizing the connection of RAWFIE to existing sources of multi-media data.
- **Project Brochures and Materials:** This includes a banner (<http://rawfie.eu/sites/default/files/banner.pdf>), a flyer (http://rawfie.eu/sites/default/files/rawfie_flyer.pdf) and a poster (<http://rawfie.eu/sites/default/files/poster-01.pdf>) prepared in English to promote RAWFIE and to highlight the project's impacts. Project brochures aim at a very large



spectrum of users, practitioners, and technicians. All presentation materials, as appropriate, shall be published on the project's web site.

- **Training sessions:** Organization of at least two training sessions
- **Multimedia Project Presentation:** Creation of multimedia material targeted to a specific audience and describing the research objectives, challenges, tangible results and benefits will be setup together with the consortium members.

3.2.2. Communication Channels

The RAWFIE Communication plan aims at enhancing the visibility of the RAWFIE project and results, promote its research infrastructure, inform the public and attract appropriate target audiences as Community members. Realization of this plan must result in a strong Community interaction that will ultimately be able to maintain the RAWFIE infrastructure in the post-project period.

The following are some of the communication channels and activities already exploited and planned for further use by RAWFIE:

- **Public relations:** the initial objective is to promote awareness of RAWFIE, its goals and plans. Later, the objective is more about promoting the RAWFIE testbeds, experiment results and learning. This includes press conferences, such as one covering the RAWFIE framework launch, press releases, advertorials focusing on high technology, and articles supplied to print and digital magazines. PR professionals may be used to advice on content and to ensure media coverage and acceptance.
- **Below the line promotion** (events and exhibitions): These build awareness in the targeted audiences.
- **Promotional events:** (such as a launch event in Greece, France and/or Portugal to promote the initial testbeds included in the project). By directly inviting testbed



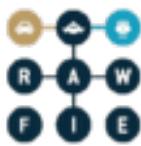
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operators, UxV manufacturers and suppliers and experimenters, these events provide direct and broad exposure to the RAWFIE infrastructure and project.

- **Cooperation with FIRE and related projects:** By participating in selected, relevant exhibitions, events and workshops related to the FIRE project, facilities and methodology, RAWFIE can gain both exposure and credibility.
- **Direct Contact with the Community.** Direct mail, email, Twitter and other Social Media are used to invite or inform the intended audiences.
- **RAWFIE Blog:** With frequent well written and to the point postings to the blog, this is a very effective way of informing the Community and generating inter-action.
- **Above the line promotion** (digital marketing and advertising): The web site and social media presence are required to effectively communicate RAWFIE through digital channels. This is supported by a well-defined digital strategy and the selection of the most effective media. A digital marketing professional may be used to support this process.
- **Search engine and social media advertising:** To the degree that digital marketing is not generating the desired outcome, paying for digital advertising is an option. This includes Pay Per Click (PPC) for greater presence in internet searches and for more pervasive presence on social media. The use of PPC depends on the availability of a budget for this purpose.
- **In-App advertising** (for iOS and Android): This rapidly growing medium is an option that might be used if the other channels are not generating members at the desired rate. Similarly, the more traditional advertising channels, such as print advertising in selected sector magazines, might be optionally used. Again, this depends on the availability of a budget for this purpose.

3.2.3. Measuring Effectiveness of Channels

Standard KPI metrics will be used to measure the effectiveness of the channels used, such as web visitors, page views, likes, follows, and tweets. In addition, more sophisticated methods using



sentiment analysis of the blogosphere to measure digital impact might be used. This will not only evaluate marketing effectiveness but it will also validate market potential and key insights.

3.2.4. Managing the Communication Channels and Activities

The Community Manager will work to build and maintain presence in an organized and unified manner. A constant flow of postings and interaction are required. Most of the technical content posted to the blog and other sites/channels will be written by the partners. This requires significant planning and regular follow up.

3.3. Activities to continuously engage Community members

One goal of the community is to keep members engaged and active. This means that there must be continuous activity and events that are of interest to the community with enough incentive to create dialog. It also means that members must be informed about what is available in such a way that they want to be involved.

3.3.1. Community Pages on RAWFIE Web site

Valuable and timely content on the web site is important in keeping the community active and engaged. Some of the content in the community section of the RAWFIE web site may be as follows:

- **Community Web Page - News.** A continuous feed of news from partners, experimenters, members and others that is of interest to the community. The main page should be a summary with a link to the full article, event, etc. In the case of experiment results, the full article will be posted elsewhere, either on the RAWFIE website or third party site. Similarly with blog postings. Ideally, members should be able to comment on news items and so generate additional interaction
- **Community Web Page - Upcoming Events.** A listing of future events related to RAWFIE should be maintained. In the case of public events, such as exhibits, there should also be an



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invitation to visit the RAWFIE pavilion. Also, listing who may attend may add an incentive for members to be involved with RAWFIE partners and other members. The opportunity for members to post comments should be provided.

- **Community Web Page - Event Reviews.** Following each event, a review should be written with photos highlighting the key features and observations. Mentioning the contribution and interaction of members is a valuable way of keeping members engaged. The opportunity for members to post comments should be provided.
- **Community Web Page - Requests.** While members could contact partners and other members directly, many would prefer to be less intrusive and ask their request as a web request. Then, the answer would also be public and potentially lead to additional member interaction. This might include requests for advice, recommendations, required resources, available resources, and so on.
- **Community Web Page - Discussion Groups.** Ideally, members would take the initiative to create a group and then lead it. Partners may also find it useful to create discussion groups to share their experience and results while looking for feedback from members. This has the potential of involving sub-groups of members that are interested in the topic as the discussion may last for weeks before it is closed.
- **Community Web Page - Tips.** As a community, there is a huge amount of experience and knowledge. The idea of sharing this with the broader community is appealing to many members. Why have others repeat their mistakes if they can be saved? This section would need to be broken down into meaningful topics and might include everything from UxV features—advantages and disadvantages, lessons learned at each testbed, control issues, support issues, and so on.
- **Community Web Page - Hardware and Services Available.** The idea of a classified advertisements section specific to RAWFIE hardware and services might be explored. If implemented, this would allow members to list UxV's for sale or rent that might be used by other experimenters, sensors for sale or rent, professional services for hire, and so on. Such sections generally garner significant interest and help maintain an active community.



- **Community Web Page - Member Activity.** This allows members to post information about their planned, on-going and completed projects that may be of interest to other members. It encourages interaction as members share experience and provide comments on the activity. Often, this will result in members working together and more closely sharing their work. Job opportunities may also be associated with these activities.
- **Community Web Page - Member or Partner Interviews/Contributions.** These are valuable in continuing to keep members engaged. Not only will they generate ideas and interest, but they also allow members to compare their activity and accomplishments with their peers. It also encourages referrals to the community web pages and the possibility of adding members.
- **Community Web Page - VIP Interviews/Contributions.** Interviews with industry, scientific and public leaders are valued for their insight into the industry and the Future Internet. Such leaders are generally willing to share their views and express them in terms of the audience. Topics can be selected to be of broad interest to members, such as regulatory issues. Such topics are then likely to generate follow on interaction and may result in responses from the leader.
- **Community Web Page - Product Reviews.** This section allows members to post reviews of products that they have tested or are building or modifying. The review may be relatively short expressing strengths, weaknesses and recommendation, or long with detailed test results. Members can be expected to be very interested in such reviews.

3.3.1. Activities to Encourage Engagement

Unless there are constant reminders about what is available to members, there will be a strong tendency for involvement to dissipate. Hence, the on-going plan must contain a strong program for maintaining constant contact with members. Some of the activities that may be employed are as follows:

- **Frequent News Updates.** It is essential that the community news page be updated frequently, ideally daily. Once this becomes an expectation, it will add an incentive for members to visit the site.



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- **Email/Tweet News Updates to all members.** As news becomes available, email or tweet a link to all members. This email can also contain other information as well, such as new requests, new tips, new interviews, new blog postings, and so on. Also, it is an opportunity to request members to start new discussion groups or post requests.
- **Email/Tweet new Discussion Groups created to members interested in the topic.** As a new discussion group is started, an email or tweet can be sent to all members that have shown interest in the associated topic based on their profile. As additional postings are made to the discussion, additional emails may be considered.
- **Email/Tweet member when comments are made on their posting.** Ideally, members should be notified when a comment is posted to something they have already posted. This will prompt them to review the comment and potentially add a further comment. This keeps the original posting active.
- **Encourage Discussion Groups, Requests and Member Activity Postings.** Encourage members (or assign partners) to contribute to the community web pages. In each case, the subject matter topic can be used to promote the activity such as through emails and Twitter feeds to interested members based on their profile.
- **Create Discussion Groups to Solicit Feedback or Opinions.** Requesting feedback or opinions from members when it will be useful to the project is another way of actively involving members. For example, it could be used to ask about topics members would like to see discussed or VIPs they would like to see interviewed. However, this can be overdone with negative consequences. Hence, it has to be carefully balanced.
- **Make it Personal.** Refer to members by name where ever possible as that tends to tighten their relationship with the community. Add a photo of the member, if possible.
- **Periodic Newsletter.** By the time they are published, newsletters tend to be already out of date and inferior to a good website. However, there may be periodic opportunities to summarize information already posted into a Newsletter as another way of maintaining interest in the community. They can also be used as a prospecting tool to stimulate interest in the community by potential new members.



3.4. Dissemination Activity for each Consortium Partner

Each Consortium Partner is actively involved in their own community that contains prospects for the RAWFIE community. As a result, their marketing and communication efforts on their own behalf will supplement the work of RAWFIE. However, this requires encouragement and the easy availability of materials that they can use.

The following lists the expected dissemination plans of the Partners. This will evolve as the project matures and results become available. .

UOA

UOA is a non-profit, public University and as such it does not aim at direct commercial exploitation. However, it has a strong commitment in pursuing the public interest objectives set by its charter and, in that sense there is a strong interest in the exploitation of the results from research projects to fulfil such objectives. These are educational on one hand and the improvement of understanding of scientific disciplines through research on the other. Postgraduate and Ph.D. students will benefit from the applied research activities that will be introduced through RAWFIE. UOA MSc course features two directions dealing with mobile/wireless networking and service engineering (“Communication Systems and Networks” and “Advanced Information and Communication Technologies” respectively), and, thus, participation on the RAWFIE project will exploit R&D opportunities for MSc students research activities and theses. Furthermore, UOA will exploit the results and use them within on-going and forthcoming research initiatives.

CSEM

In accordance with CSEMs mission to bridge the gap between research and Industry, the technology developed in RAWFIE will be transferred into industrial developments in the field of low-power WSN, monitoring, etc. This will be the prime channel for dissemination. In addition,



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CSEM will use its industrial liaison channels to disseminate the results to the local industry as well as at international fairs in which CSEM has exhibition booths.

IES

IES will bring the research carried out in RAWFIE to the forefront of the discussions with stakeholders. Moreover, it will actively create awareness on social media through the standard company communication channels. Building on the on-going activities in the NESSI Initiative, the challenges studied by RAWFIE will be both disseminated and discussed to collect valuable feedback, suggestions and, wherever possible, lessons learnt. The participation of IES' researchers in the working groups on "OASIS-EDXL (Emergency Data Exchange Language)" and "EGEA" meetings will also ensure that the technical aspect of RAWFIE will be brought at the attention of decision makers at any level.

FRAUNHOFER

During and after the project, several channels for dissemination of the progress and results achieved are available. Target of the dissemination are companies, software developers, decision makers, researchers and also the public. Appearances of Fraunhofer at national and international fairs open up opportunities for the commercial marketing of the system developed in RAWFIE for further market-oriented developments. Special fairs related to this topic, or general trade fairs provide excellent conditions for showcasing project contents or project results and promote networking with other stakeholders. Fraunhofer participates in several annual conferences where the project can be presented to a wider audience. Active participation will be documented by peer-reviewed publications. These means are appropriate to achieve the intended dissemination and exploitation goals. Further, Fraunhofer IVI actively participates in internal networks and alliances of the Fraunhofer-Gesellschaft, for instance in the Fraunhofer Traffic and Transportation Alliance. The technical and conceptual solutions from the project RAWFIE are of



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interest also to this specific alliance and can be presented at regular networking meetings of the group.

EPSILON

EPSILON, located in Bulgaria has well-built links with various and important technology organizations. It will exploit this network as the leader of the Community Building effort in association with the networks of other partners to build the community. Initially, it will provide the Community Manager to build the community and to disseminate the results and outcomes of the RAWFIE projects. The dissemination actions will include printing of brochures, posters, flyers and their distribution in conferences, workshops and events which will be organized by the Consortium. Moreover, the Community Manager will encourage partners to publish in journals, newspapers, conference proceedings, scientific magazines, webpages, social networks, as well as with video design, radio and TV broadcasts.

HAI

HAI recognizes dissemination of project activities and results as an important instrument to have a return on the investments made in the programme. Apart from tangible economic returns, HAI values high the public acknowledgment that RAWFIE may gain since it will support its attempt for involvement as key player in the area of unmanned systems. Based on that, HAI can utilize client liaisons and collaborations worldwide but also with Greek authorities in order to make them aware of the project's results. In addition, HAI participates in a number of international and national exhibitions which can provide an alternative channel for promoting RAWFIE findings.

PEGASE

PEGASE is a non-profit association and as such, it does not aim at direct commercial exploitation. However PEGASE is gathering companies (large groups and SMEs), research centers and high education organizations ("Aix Marseille university", Arts et métiers, Ecole des Mines de paris) interested in aeronautics and space issues and thus will disseminate Rawfie result



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to its members but also more widely during French convention and airshow such as “ le Bourget Air show”. PEGASE is part of European consortium such as EACP (European Aeronautic Cluster Partnership) and participate with its international deputy to airshow and convention in Berlin, Prague, Brazil PEGASE features two directions dealing with UxVs operation, and UxVs development on one hand and one the other hand new aerial services such as aerial firefighting, civil rescue coordination (test on DRIVER Program), infrastructure visual inspection thus, PEGASE participation on the RAWFIE project will be disseminated via SME and labs research activities. Furthermore, PEGASE will exploit the results and use them within on-going and forthcoming development and research initiatives.

CERTH

CERTH will disseminate its experience and findings to the broader scientific community. Publications in high prestigious scientific journals and conferences with topics relevant to the research work will target the scientific communities directly or indirectly in the scope of RAWFIE. These activities allow the developed methodologies, concepts and solutions to leverage other research projects. Additionally, the development of the control module will also provide to our team a valuable platform for evaluating our previously developed algorithms and methodologies. Such experiments will provide needed data in order to reinforce the effectiveness of the existing algorithms. Moreover, advancements and new methodologies will arise through the use of the improved algorithms.

MST

OceanScan-MST participates every year in fairs and events related with underwater robotics, such as Oceanology International and Ocean Business. The events receive worldwide visitors and it is a great opportunity for companies and institutions to present new developments and last achievements. Another dissemination channel is magazines that can be used to present the RAWFIE project, to an enormous robotics community. OceanScan-MST will use the past experience and contacts to disseminate RAWFIE project.



HES-SO

The dissemination of the project results will be assured on an international level. The DMML has as one of its main targets the publication of its research results in top data mining and machine learning conferences; as a result the main form of dissemination will be that of publications in scientific conferences, such as ICML, NIPS, KDD, ICDM and journals such as ML, DM, and JMLR. In addition we foresee tutorials within the context of large DM and ML events, publications in the popular press, as well as on the internet: web page, presence in the social networks, etc.

AVIONTEK

Pilot and dissemination activities will have to engage by a lot of stakeholders. As AvionTek is located in headquarter at the ESA/BIC Oberpfaffenhofen Airport facilities, it will directly involve hosted and visiting entrepreneurs as users of the system. Possible interest from the entrepreneurs to develop complementary services based on RAWFIE UAV technologies, and become resellers or users of the systems will be proactively encouraged and assessed. In addition, further dissemination of the project will be made through exhibitions, participation in relevant events and press releases.

HMOD

Dissemination is of utmost importance to ensure the impact and the effectiveness of project results.

HMOD, as a public body, with non-profit character will disseminate the expertise and the knowledge among its interested directorates. In order to fulfil its objectives HMOD is going to organize internal seminars for briefing the key personnel so as to anticipate future infrastructure exploitation. Moreover, the results of the projects can be projected through its existing web sites and the existing international HMOD networks to other EU parties. Furthermore, HMOD can provide its infrastructures and resources for the dissemination of project's achievements and installed capabilities.



4. Federation

To take advantage of the long term benefits of the RAWFIE project, it is expected that a Federation of members will be formed to manage the infrastructure, resources and services. The actual structure of the Federation will be detailed in a later phase. However, it will be important that the Federation be promoted to the community members.

At the Federation level, a solid governance structure should be set up to manage responsibilities, deal with facilities joining and leaving, service level agreements (SLA), running actual operations, etc. This includes day-to-day operational functionality, such as dealing with first level support, maintaining and upgrading services and central infrastructure. Finally the economic picture must fit (costs for running the operational activities within the federation should be covered, either by contributions in kind, revenues or funding mechanisms). These activities require that a Federation be in place in order to support the value proposition in the long run.