PROJECT FINAL REPORT

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[1] Usually the contact person of the coordinator as specified in Art. 8.1. of the Grant Agreement.

Table of Contents

LIST OF FIGURES

Disclaimer

The NextMEDIA Consortium consists of the following companies:

No	Participant name	Participant short name	Country	Country
1	Universidad Politécnica de Madrid	UPM	Coordinator	Spain
2	ATOS Origin	ATOS	Contractor	Spain
3	Centre for Research and Technology Hellas	CERTH	Contractor	Greece
4	CREATE-NET	CREATE	Contractor	Italy
5	Queen Mary University of London	QMUL	Contractor	UK
6	Synelixis Solutions Ltd	Synelixis	Contractor	Greece

Table 1. Partners list

1. Executive summary of nextMEDIA

The Media Internet is evolving to support novel user experiences such as immersive environments including sensorial experiences beyond video and audio (engaging all the human senses) that are adaptable to the user, the networks and the services.

The objective of nextMEDIA (www.fi-nextmedia.eu) is to enhance the coordination of the efforts in Europe towards producing a clear situation of the Future Media Internet, create common pillars (e.g. the Future Media Internet reference architecture for Europe) and support the results of the developments of the European projects by means of the following actions:

- Coordinate and Support of research collaboration in networked media scientific fields, especially in Future Media Internet (with strong orientation to the combination of 3D Internet Media and Content-aware Networks/Network-aware applications), where different groups have been coordinated, and a strong support to the media Internet in the Future Internet Assembly was carried out during the project lifetime, without forgetting the support to the collaboration in the clusters of the networked media Unit.

- Support the cooperation and future research of the European projects in the field of Networked Media by means of driving Task Forces and propose and coordinate new ones ("Future Media Internet Architecture" or the Future Internet Architectures), where concrete proposals such as white papers and collaboration has been established, with relevant results.

- Identify the position and clear opportunities in the areas where the European research in Future Media Internet is more competitive world-wide and develop studies and roadmaps by means of analysing the situation, technology and patents in the most developed countries in relevant research areas, where nextMEDIA has published a research roadmap and compated the situation of Europe vs. the one in Japan/Korea and US.

- Create the necessary dissemination means to advertise and spread excellence of the European research in Future Media Internet world-wide and attract the prominent scientists and company managers to the events, where nextMEDIA has organized workshops for Future Media Internet is relevant conferences such as INFOCOM, Call-fo-Papers in top-notch journals or industrial events such as in the IBC, in Europe and another regions such as US/Canada and in Japan, everything supporting the European research projects.

    - In this activity the coordination of projects towards standardization in different bodies such as IETF and ETSI was fulfilled
    - The Future Media Internet most relevant technologies were communicated to the young researchers to support the European talent.

The results of the nextMEDIA coordination action will be used to promote and disseminate the common European position, by accessing different channels, such as stakeholder workshops and exchange of best practices but also to have a common ground (e.g. a FI Architecture) which can help the new research in Future Media to be developed in a more coordinated manner and enhance the visibility and results.

2. Summary description of project context and objectives

The Media Internet is evolving to support novel user experiences such as immersive environments including sensorial experiences beyond video and audio (engaging all the human senses) that are adaptable to the user, the networks and the services.

Future Internet is, probably, the hottest topic in ICT worldwide. Many initiatives have already been initiated all over the globe and a race nowadays is taking place between the most developed economies of the planet. The situation regarding the research in Future Internet related areas is being coordinated directly by the European Commission. Thus, the European Commission is devoting significant efforts to address open challenges under the concept of Future Internet with a **holistic view**.

This holistic view includes the following Future Internet constituents: Internet of Things, Internet of Services, Networks of the Future, Internet of People, Future Internet Research and Experimentation and what is targeted by nextMEDIA, the **Future Media Internet**. Nowadays, the different developments in Europe, at both European and national levels, are fragmented and in certain cases are lacking of sufficient coordination to achieve a stronger position in the Future Internet worldwide.

In particular, one of the areas that European Commission has identified as strategic in this field is that corresponding to Networked Media and more specifically to Content Networks and 3D Media[2]. These two areas will go through a major revolution in the coming years and will importantly shape the everyday life spheres of people (entertainment, work, health and users communities)[3]. Specific challenges to be addressed related to these new technologies involved the creation of new open architectures and technologies for converged and scalable, seamless streaming services and for searching, caching, filtering, aggregation and presentation of 3D contents[4]. In order to achieve these challenges, the present Support Action intends to reinforce ongoing EU projects in these topics by a coordinated effort in order to maximize the impact of results generated at European level and overall repositioning of European research and development strategies in this field worldwide.

Currently the USA dominates most areas of science and technology. The structure, cohesion and productivity of its research and its educated society act as a magnet for talent throughout the world. This virtuous cycle can be seen as an example of how innovation combined with multidisciplinary research leads to high productivity and therefore can guarantee a constant flow of resources for more research and innovation. While Europe has always shown pockets of first class expertise, it lacks the pull and scale of its American counterparts that makes possible cross-fertilization and the achievement of critical mass.

However, given the respective population sizes, it is clear that the USA punches above its weight. The success of the USA can be emulated if certain problems in European research are addressed. This has been already demonstrated by some technologies, e.g. GSM, and there is no reason to believe that the same could not happen in areas related to Future Internet technology and specifically 3D Media Internet. One of the causes of this relative European underperformance is arguably the

[2] The Future of the Internet: Report from the National ICT Research Directors, Working Group on Future Internet (FI), July 2008 – November 2008. (http://www.future-internet.eu/fileadmin/documents/reports/FI_Rep_final__281108_.pdf)
[3] ISTAG Working Group Report on "Future Internet Infrastructure". January 2008. (ftp://ftp.cordis.europa.eu/pub/ist/docs/future-internet-istag_en.pdf)
[4] Th.Zahariadis, P.Daras and I.Laso-Ballesteros: "Towards Future 3D Media Internet", 2008 NEM Summit, "Towards Future Media Internet", Saint-Malo, France, 2008.

fragmented nature of European efforts. Additionally 3D Media Internet engineering is, by its nature, interdisciplinary. For example, it draws on semantic multimedia signal processing, computer vision, Internet protocols, etc.This CA aims to stimulate joint research so that within a few years the European research institutes will be the primary feeding ground for innovation and cross fertilization allowing Europe to exploit its currently isolated, yet world class, research in specific areas in the Media Internet domain.

nextMEDIA is motivated by the growing number of EU and International projects and initiatives that research, develop and deploy the Future Internet visions to improve the exchange of all type of knowledge, including Media.

The objective of nextMEDIA (www.fi-nextmedia.eu) is to enhance the coordination of the efforts in Europe towards producing a clear situation of the Future Media Internet, create common pillars (e.g. the Future Media Internet reference architecture for Europe) and support the results of the developments of the European projects by means of the following actions:

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- Support the cooperation and future research of the European projects in the field of Networked Media by means of driving Task Forces and propose and coordinate new ones ("Future Media Internet Architecture" or the Future Internet Architectures), where concrete proposals such as white papers and collaboration has been established, with relevant results.

- Identify the position and clear opportunities in the areas where the European research in Future Media Internet is more competitive world-wide and develop studies and roadmaps by means of analysing the situation, technology and patents in the most developed countries in relevant research areas, where nextMEDIA has published a research roadmap and compated the situation of Europe vs. the one in Japan/Korea and US.

- Create the necessary dissemination means to advertise and spread excellence of the European research in Future Media Internet world-wide.

nextMEDIA aimed (in 2009 when prepared) at contributing to the coordination of high quality research by means of:

- *Coordinating the activities towards a Future Media Internet European common proposal:* The main goal of nextMEDIA is to coordinate the activities towards creating a common European position in Future Media Internet. In order to achieve the latter, nextMEDIA consortium delegates will participate to the different groups of the Future Internet Assembly, will collect, process and compile the relevant information from the different EU funded Projects (which are related to Future Media Internet), will participate to Future Internet related conferences worldwide and will organise group of experts meetings and phone calls towards defining the Future Media Internet Architecture.

- *Coordinated Efforts towards Results Dissemination:* In order to maximise visibility and impact of ongoing EU projects, the nextMEDIA Support Action will provide a coordinated strategy for dissemination of results. This strategy will include the organization of special sessions in International scientific events and participation in Special Issues of selected Journal publications. In this way, the different projects will have a privileged scenario in the form of an International showcase of their work results.

  Moreover, the different ongoing EU projects will strengthen the efficacy of their individual approaches on dissemination by presenting their work in conjunction with the other projects in a way that will improve their overall impact through a more focused and collegiate approach. This coordinated effort for dissemination of the results will allow to minimise duplication of efforts and will achieve more solid presence of European research in International forums.

- *Awareness of Relevant Research in Other Geographical Areas:* An important contribution to the coordination of ongoing EU projects efforts will be given through this Support Action by identifying visionary initiatives in National level and in other countries (e.g. ASIA and EU) and inviting top-notch researchers to share their experiences in dedicated events. Indeed this Support Action intends to organise panels, workshops and collaboration events to discuss about trends and strategies worldwide.

- *Support to Different Clusters and Other European Initiatives:* nextMEDIA project will operate as a catalyst for other ongoing initiatives, to provide the vision of Content Networks and 3D Media in the overall picture of Networked Media activities (clusters, ETPs, JTIs, etc.). In this way, nextMEDIA intends to work in close contact with other initiatives in order to share visions and exchange experiences that will provide to be benefitted for the overall strategies of Networked Media activities.

- *Positioning of European Efforts in Content Networks and 3D Media:* As a result of the coordinated activities mentioned above, this Support Action will produce roadmaps considering relevant research directions, policy aspects, socio-economic considerations and for revaluing and strengthening the European leadership in this field.

- *Creation of a living think tank for defining the Future Media Internet architecture:* One of the main objectives of nextMEDIA is to setup and coordinate a living think tank in Europe for defining the Future Media Internet architecture having the support of the EC. Successful paradigms will be exhaustively analysed (e.g. the AKARI project in Japan, the FI project in Korea, the NetSE project in the USA) and the European position on this area will be recorded. The think tank will be formed by the experts from Europe and will have the support from this project in the activities.

The results of the nextMEDIA coordination action has been used to promote and disseminate the common European position, by accessing different channels, such as stakeholder workshops and exchange of best practices. The project has used the results of the information gathering and best practice identification and definition, and has disseminate them to the community at large.

3. Main S&T results/foregrounds

The main results can be classified into several activities, which summary is the following:

3.1. Activity 1: "Coordination and Support of the FMI-related initiatives"

The aim of the 1st activity of nextMEDIA was the coordination and support the Future Media Internet related activities. Towards this aim two are the main objectives of the project:

- to support the current initiatives organised by the EC, such as the "Future Media Internet Task Force" and the "Future Content Networks" group and be the bridge between them and the other Future Internet Assembly groups (such as RWI, MANA, Identity & trust, FIRE), and
- to set up and coordinate, together with the EC, a new think tank, namely the "Future Media Internet Architecture" Think Tank with the aim to reinforce the leadership of the EU in this field.

In order to realise the aforementioned objectives, nextMEDIA activities can be classified into 4 main categories:

- Future Internet Assembly (FIA) related activities
- Coordination and related activities of the high-level experts groups such as:
  - Future Content Networks (FCN)
  - Future Media Internet – Task Force (FMI-TF)
  - Future Media Internet Architecture – Think Tank (FMIA-TT)
- Coordination and participation in the Future Internet Architectures (FIArch) related activities
- FIA book

The main highlights of nextMEDIA's work in the aforementioned groups are the following:

- Participation and organisation of Break-out Sessions in FIA Stockholm, FIA Valencia, FIA Ghent, FIA Budapest and FIA Poznan related to Future Media Internet
- Coordination of the FCN group and input to FIA workshops.
- Development, in the Future Media Internet Task Force 2 versions of a white paper
- Development of a Future Media Internet reference Architecture white paper.
- Development of the Design Principles of the Future Internet in the FIArch group
- Participation in the editorial team of the FIA 2011 Book.
- Coordination and participation in the editorial team of the upcoming FIA 2012 Book.

3.1.1. Participation and organisation of Break-out Sessions in FIA

FIA Stockholm, FIA Valencia, FIA Ghent, FIA Budapest and FIA Poznan related to Future Media Internet

In early 2008, the EC launched the Future Internet Initiative with the aim *to strengthen and focus European activities on the Future Internet to maintain Europe's competitiveness in the global marketplace*. Towards this aim the Bled declaration was agreed and signed by EC-funded projects

(Fig 1.) which were participated in the 1st FIA workshop, which was held in Bled, Slovenia in March 31- April 2, 2008 (during the Slovenian presidency).

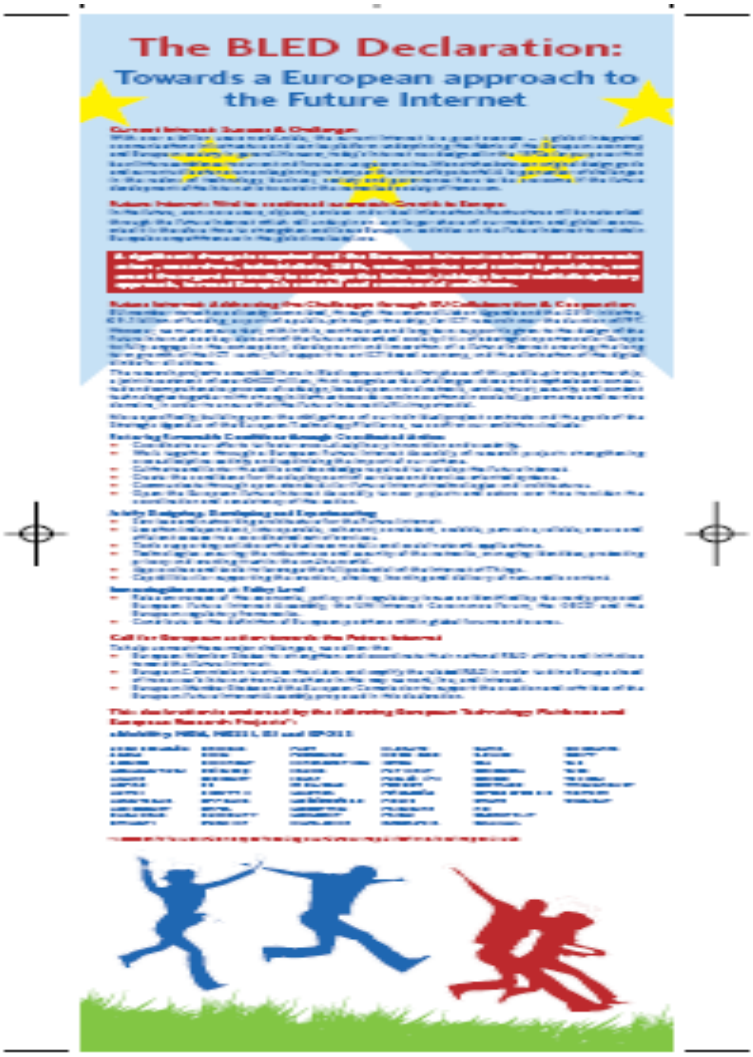

Figure 1 The Bled declaration

Since then, the FIA workshops took place every 6 months in Madrid, Prague, Stockholm and Valencia. Some of the nextMEDIA beneficiaries (ITI, SYNELIXIS, UPM) were among the first members of the Future Content Networks (FCN) group which was actively present even in Bled. In this deliverable the activities of nextMEDIA for FIA Stockholm, Valencia and Ghent will be reported in detail.

nextMEDIA was very actively involved in preparing the FCN Session in 4th FIA Workshop (23-24 November 2009, Stockholm, Sweden). Theodore Zahariadis (Synelixis), Petros Daras (CERTH) – as FIA FCN session caretakers - and all nextMEDIA beneficiaries contributed in identifying and inviting well known speakers and also preparing the agenda of the FCN session (in collaboration with the Scientific Officer Mr. Isidro Laso Ballesteros). Moreover, some of the nextMEDIA beneficiaries were co-organisers and speakers of the different BO sessions that took place in Stockholm.

nextMEDIA was also heavily involved in preparing the different BO session for the 5th FIA Workshop (15-16 April 2010, Valencia, Spain). Theodore Zahariadis (Synelixis), Petros Daras (CERTH), Paul Moore (ATOS) as caretakers for the new sessions (Architecture, Search Engines and eHealth, respectively) and all nextMEDIA beneficiaries contributed in finding and inviting well known speakers (e.g. Prof. Van Jacobson, was invited to be the keynote speaker of the plenary workshop – all his travel expenses were covered by nextMEDIA). Moreover, some of the nextMEDIA beneficiaries were co-organisers and speakers of the different BO sessions that took place in Valencia.

nextMEDIA was very actively involved in participating in the organization of the 6th FIA Workshop (16-17 December 2010, Ghent, Belgium). More specifically, Theodore Zahariadis (Synelixis) and Petros Daras (CERTH) are among the organizers of the BO Session "Search as an architectural component". Moreover, Federico Alvarez (UPM), Ebroul Izquierdo (QMUL), Theodore Zahariadis (Synelixis) and Petros Daras (CERTH) are participating in the organization of the BO Session "Architecture"

Moreover, nextMEDIA beneficiaries were active in contributing to the 7th FIA workshop which was held in Budapest, Hungary on 18-19 May 2011. nextMEDIA partner QMUL organised the session: "Interactive Media Experience". It should be noted that speakers and panelists of this session were members of the FMI-TF and the FCN group. Moreover, the FCN member UCL with the support of nextMEDIA organized the session: Information Centric Networking. nextMedia beneficiaries actively participated at this session.

Finally, nextMEDIA beneficiaries significantly contributed to the 8th FIA workshop which was held in Poznan, Poland on 25-26 October 2011. More specifically, Paul Moore (ATOS) was the organiser of the Session: "Networked Media Roadmap", where the results of the roadmap drafted in nextMEDIA was presented. Among the presenter has been Paul Moore (ATOS), Federico Alvarez (UPM), Theodore Zahariadis (SYN) and Oscar Mayora (CREATE). Tomas Piatrik (QMUL) was among the main speakers of the Session: Standardization - "Debate on the role for the standardisation WG ". Theodore Zahariadis (SYN) was among the organizers of the Session "Architectures" where he presented the FIArch results and the draft version of the "Future Internet Architecture Design Principles". Th. Zahariadis was also one of the chair and organizer of the FIA Poznan Closing Plenary panel "On Future Internet Architecture". Finally, Federico Alvarez (UPM) gave a presentation concerning the new FIA Book 2012.

For more information please visit: www.future-internet.eu

3.1.2. Coordination of the FCN group and input to FIA workshops

The Future Content Networks (FCN) group has as main aim to identify, qualify and highlight the impact that both media and networks (networked media) may have on a Future Internet environment.

Its concrete objectives are:

- To disseminate the goals of the cluster by participating in many Break-out sessions in FIA events, and

- To assist in organising new horizontal sessions and inviting well known scientists for giving key-note speeches in FIA events.

The clear goal of nextMEDIA was to enlarge the FCN group with the participation of more industrial members, so as to be active in FIA events, as it was a clear request by the nextMEDIA reviewers. Therefore, the role of FCN was:

- Contribution to the FCN Session & Contribution to the different BO sessions so as:
  - to identify new goals for the upcoming FIA workshops,
  - to contribute/participate to the different FIA Break-Out sessions,
  - to identify/propose new horizontal sessions that might be of interest for the FIA attendees,

3.1.3. Future Media Internet-Task Force

The FMI-TF aims to shape the research agenda and outline the research challenges in Future Media Internet in the years to come, to map these research challenges to specific application areas taking into account the industrial point of view and finally, to identify potential business models and business benefits that could address these challenges.

During the first reporting period the Future Media Internet Task Force (FMI-TF) prepared and published the white paper: "Future Media Internet Research Challenges and the Road Ahead", April 2010 (http://cordis.europa.eu/fp7/ict/netmedia/fmi-research-challenges.pdf)

In this reporting period the TF prepared the white paper: "Social Networks Overview: Current Trends and Research Challenges", European Commission, Networked Media Unit, Information Society and Media, ISBN 978-92-79-18923-4 doi:10.2759/1559, Nov 2010 (http://cordis.europa.eu/fp7/ict/netmedia/docs/publications/social-networks.pdf)

Moreover, the TF prepared the report “Research Challenges, Applications Areas and Business Models”. This document has been produced by a discussion forum of experts in the area of media Internet, namely the Future Media Internet – Task Force (FMI-TF). The FMI-TF aims to shape the research agenda and outline the research challenges in Future Media Internet in the years to come, to map these research challenges to specific application areas taking into account the industrial point of view and finally, to identify potential business models and business benefits that could address these challenges.

3.1.4. Future Media Internet-Think Tank

The Future Media Internet Think Tank (FMIA-TT) was created by the nextMEDIA. The FMIA-TT is strongly linked to the activities of the European “Future Internet Assembly (FIA)”. FIA brings together projects that subscribed to the Bled Declaration, and agreed to coordinate their R&D activities towards a robust European footprint on Future Internet. These individual projects deliver results according to individual contractual objectives. Various FIA domains and working groups have already produced specific position papers[5] and reports on requirements, scenarios and research challenges of the Future Internet, combining the inputs of a number of research projects.

[5] http://www.future-internet.eu/home/future-internet-assembly/prague-may-2009/fia-plenary.html

The aim of the FMIA-TT is to gather and commit renowned experts in the area of content and networks, to discuss and produce a proposal for a reference model of a *Future (Media) Internet Architecture*, as part of a generic Future Internet Architecture.

The objectives of the work of the TT are the following:

- Identification and analysis of the problems of the current Internet and future requirements.
- Comparison of the different architectural visions and identification of weaknesses and strengths of the best alternatives as well as open issues.
- Design principles and techniques of the Future Media Internet.
- Produce a proposal for a Future Internet Architecture (focused on media) reference model creation.
- Ways of validating the architecture.

The concrete output of the TT work was a document containing the design principles, alternatives comparison and the proposal for a reference model of the Future Media Internet Architecture.

The FMIA-TT reference model was publicly distributed and it is available as the Deliverable 1.4 in nextMEDIA (http://www.gatv.ssr.upm.es/nextmedia/index.php?option=com_content&view=article&id=11&Itemid=11). This work produced a publication ("An architectural approach towards Future Media Internet," Springer Multimedia Tools and Applications, Published on-line 7 June 2011, 10.1007/s11042-011-0826-x, available on-line).

3.1.5. Future Internet Architectures group (FIArch)

The main objective of Future Internet Architecture (FIArch) group activity is to define a common set of architectural design principles and a reference architecture of the Future Internet that can guide and unify key technology developments in the future.

The scope is a FI Reference Architecture developed in a holistic way by incorporating design principles and by integrating key viewpoints. It will focus on core functionality of a Future Internet, including protocols, interfaces, invariants, interoperability and generic enablers.

The first outcome of the FIArch group covers the fundamental limitations of the current Internet and the main Design Objectives of the Future Internet. It focuses on a few key architectural issues and fundamental limitations, shared and agreed by a considerable representation and coverage of FI stakeholders (for more information visit: http://ec.europa.eu/information_society/activities/foi/research/fiarch/index_en.htm)

After completion of the Future Internet Fundamental Limitations document (March 2011), the FIAgroup moved to the next step which is the definition of the Future Internet Design Principles.
The FIArch Group 3rd workshop on the Design Principles took place in Brussels on 23 May 2011 at the EC premises. One may notice that also the DG INFSO Director Dr. Megan Richards participated at the workshop.

Via several phone-conferences, a pre-final version of the Design Principles was formed, which was discussed in a face to face meeting that took place on 23 September 2011 in EC premises in Brussels. The final draft of the FIArch Design Principles document was presented on the Future Internet Assembly (FIA) Poznan event on 24-26 October 2011.

3.1.6. FIA Books

nextMEDIA beneficiaries were active either as editors of FIA Books or as contributors. More specifically:

The book on "Future Internet Assembly 2011: Achievements and Promising Technology" was published by Springer, Series: Lecture Notes in Computer Science, Vol. 6656,Subseries: Computer Communication Networks and Telecommunications
Domingue, J.; Galis, A.; Gavras, A.; Zahariadis, T.; Lambert, D.; Cleary, F.; Daras, P.; Krco, S.; Müller, H.; Li, M.-S.; Schaffers, H.; Lotz, V.; Alvarez, F.; Stiller, B.; Karnouskos, S.; Avessta, S.; Nilsson, M. (Eds.) 1st Edition., 2011, XVI, 465 p.

nextMEDIA beneficiaries Federico Alvarez, Petros Daras and Theodore Zahariadis are among the editors (and reviewers) of this book. More information can be found at: http://www.springer.com/computer/communication+networks/book/978-3-642-20897-3

It should be noted that members of nextMEDIA published the following book chapters:

- "Towards a Future Internet Architecture", Theodore Zahariadis, Dimitri Papadimitriou, Hannes Tschofenig, Stephan Haller, Petros Daras, George D. Stamoulis, and Manfred Hauswirth

- "Scalable and Adaptable Media Coding Techniques for Future Internet" Naeem Ramzan and Ebroul Izquierdo

- "Semantic Context Inference in Multimedia Search", Qianni Zhang and Ebroul Izquierdo

The FIA book 2012 on "Future Internet – from the technological promises to the application in the field" is led by Federico Alvarez as editor-ion-chief.

In structuring the book, the following topics with an orientation to the results are provided:

- Future Internet Foundations: covers the core cross-domain technical and horizontal topics. The chapters under this section are: Architectural Issues; mobile Internet, Cloud Computing, Socio-Economic Issues; Trust and Identity; Search and Discovery; and Experiments and experimental design.
- Future Internet Areas: the technical domains associated with the Future Internet, mainly but not limited to Networks; Services; Internet of Things; Content; and Inter-area Issues.
- Future Internet Application Areas: user areas and communities, where Future Internet can boost their innovation capabilities. The chapters under this section are: Smart Cities; Smart Energy; Smart Health; Smart Environment; Smart Transportation, Logistics and Mobility; Smart Manufacturing; Smart Agriculture, and Tourism.
- Future Internet infrastructures: covering experimentation and results in real infrastructures in the FI domain.

3.2. Activity 2: "Coordination of projects towards Future Media Internet activities"

The main objective of this activity was to collect, analyse and categorise the different scientific areas that are covered by current and evolving Network Media clusters, and the support the cross-cluster collaboration objectives in the view of the Future Internet era.

During the project, Future Internet activities have been extensively disseminated in the different clusters namely: the Future Media Networks cluster, the 3D cluster and the Search Engines Cluster of the networked Media Unit of the European Commission. nextMEDIA will contribute to the authoring of the Search Engines Cluster white paper: "Search Computing: Business Areas, Research and Socio-Economic Challenges" which was edited and coordinated by the project CHORUS+ and contributed to the common activities of the User Centric Media cluster, where a new position paper has been prepared: "User and societal aspects of Social Networks and Internet Communities".

During the project lifetime the following off-line activities have taken place:

- Off-line communication and information of the various clusters meetings.
- Drafting and organization of the FMN and UCM cluster agenda
- Participation in the UCM, FMN, Search and 3D cluster meeting and presentations/ discussion of the FIA related activities.

nextMEDIA analysed the needs of the projects of the networked media unit and highlighted the areas with more interest for the projects, and for collaboration via an structured questionnaire:

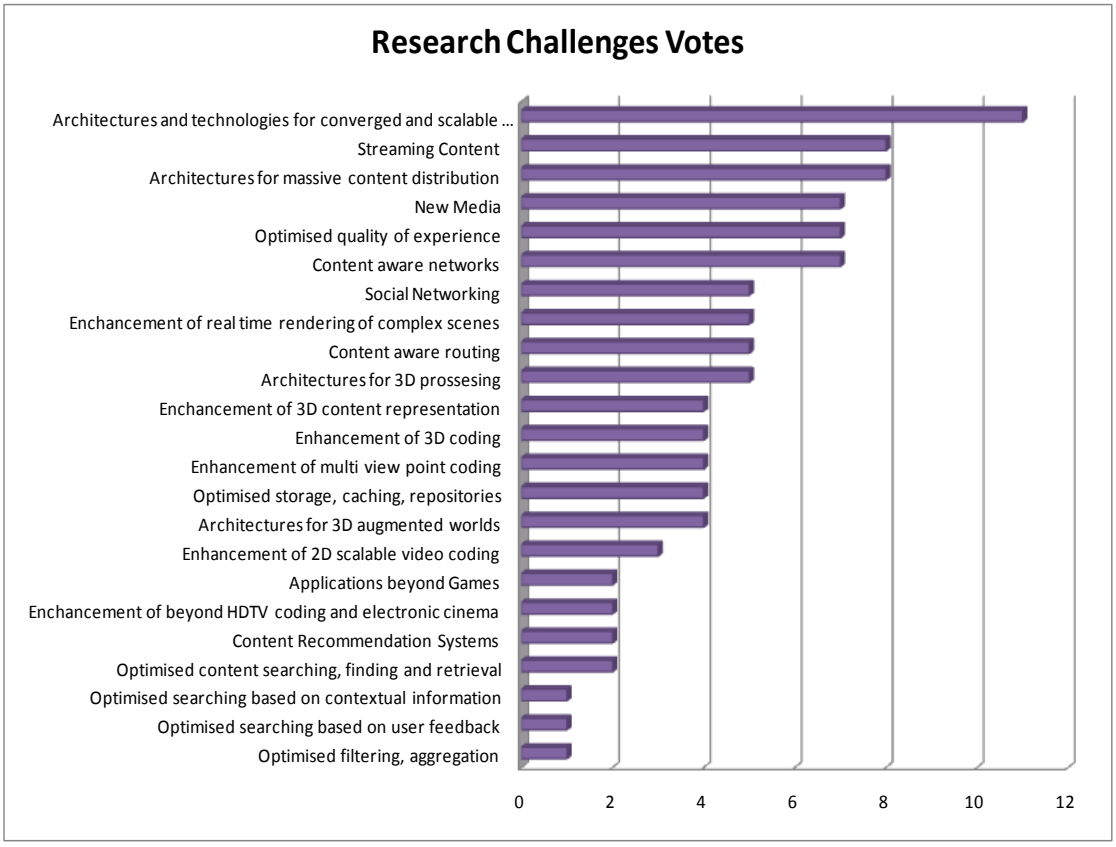

Figure 2: Research Challenges Votes on the Questionnaire

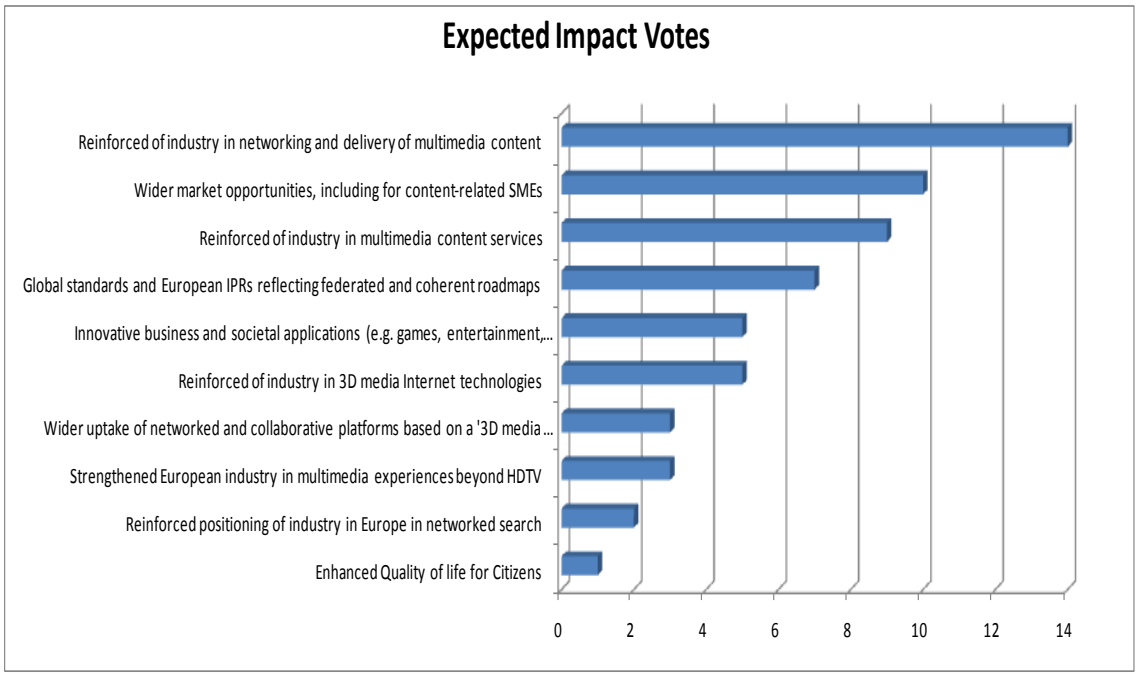

Figure 3: Expected Impact Votes on the Questionnaire

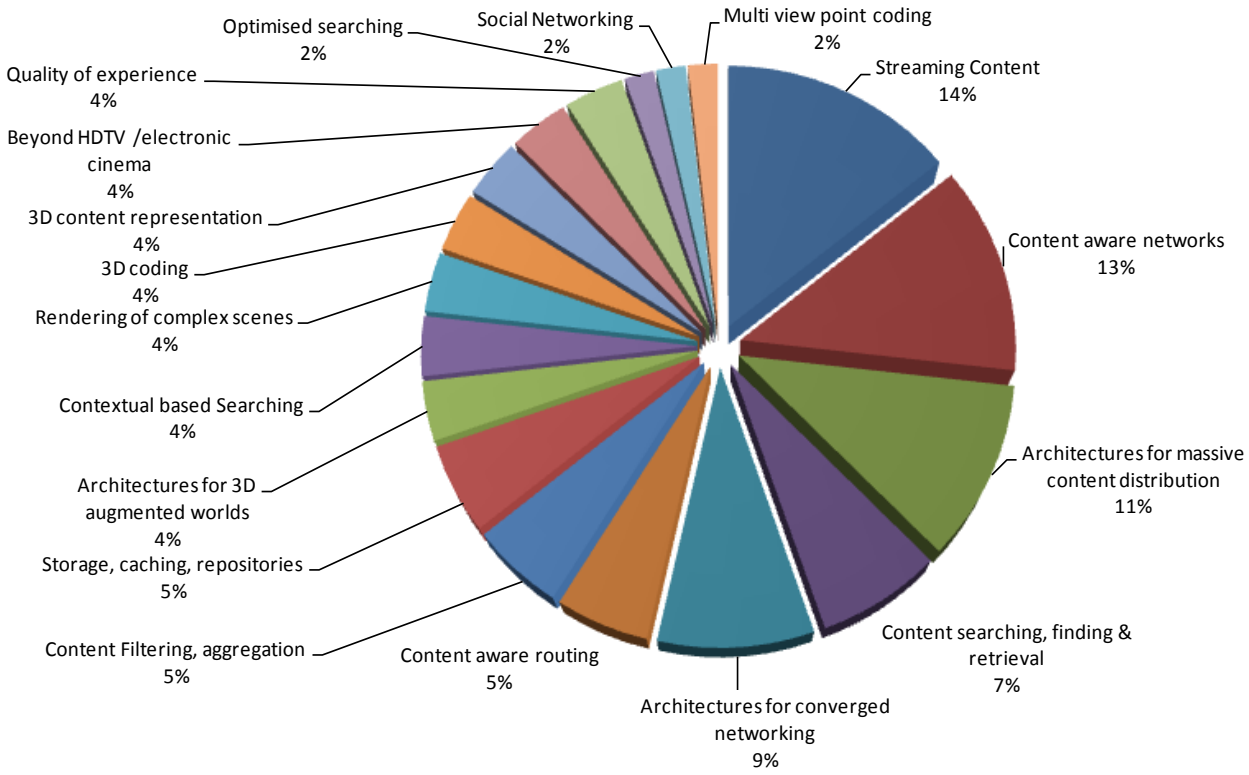

Figure 4: Research area of interest in Standardisation

Taking into account also the market trends and potential business targets, we may define the roadmap shown in Figure 5. Of course there are interrelations between the different research

challenges and advances in one area may pose advances in other. Moreover, there will always be the innovations and the early adopters, but in general we conclude that Future Media Internet in the way that we have defined here will be a reality by 2020-2022.

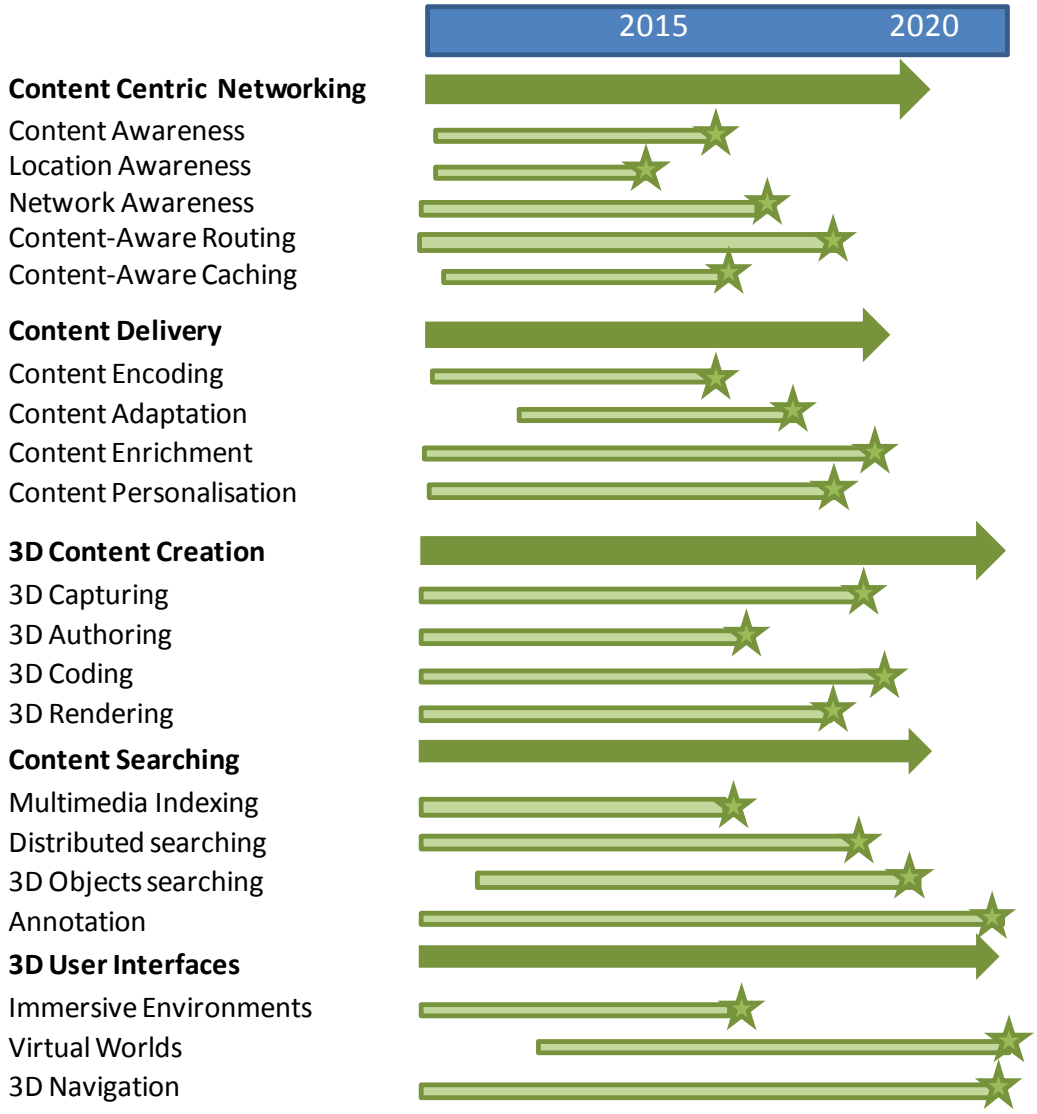

Figure 5: Networked Media Research Challenges related to FMI

As conclusions we may highlight the current research challenges related to the FMI from all the clusters in the following:

- ***Content Centric Networking***, including content location awareness, content-aware caching and routing (expected in market by 2017-2022)
- ***Content Delivery***, including encoding, in the network content adaptation, enrichment & personalisation to achieve better Quality of Experience (expected in market by 2016-2021)
- ***3D Content Creation*** including capturing, authoring, compression, coding & Rendering (expected in market by 2019-2024)
- ***Content Searching & Retrieval*** including content-based large scale multimedia indexing, annotation and content-aware and (3D) object searching (expected in market by 2015-2020)

- ***3D User Interfaces*** including immersive environments/applications, virtual world and 3D Navigation (expected in market by 2020-2025)

The results of the collaboration with projects are not only the meetings, organization and collaboration but:

a) The impact of the FIArch group, leaded by nextMedia is already obvious and has implications much beyond than only technical, even on economic sectors. This fact is recognised in the message from **Vice President Neelie Kroes** to the OECD's High Level Meeting on the Internet Economy. She announced EC strategy on Internet essentials named **COMPACT**, and the 'A' is that Architecture matters[6].

In addition several projects in the FIA, not only media Internet oriented, could profit from the coordination of this work. The full list can be found in the web-site of this group (http://ec.europa.eu/information_society/activities/foi/research/fiarch/index_en.htm)

b) The impact of the FMIA reference model, produced by nextMedia is already obvious.

The projects COAST, ALICANTE, COMET and OCEAN have already adopted part of the FMIA Reference Architecture, while COAST is also implementing that architecture and is planning to experiment on that. This is one of the success of the group, which have provided a common orientation of the architectural research on media Internet.

c) The impact of nextMedia in FIA is essential. The coordination work, especially in the Future Internet Architecture has driven the event. The sessions proposed by nextMedia for the FIA Poznan have been ranked among the top 5. As a result, two sessions have been assigned to nextMedia (roadmap and FI Architecture), while the complete closing session is organized by nextMedia (Th. Zahariadis).

In the FIA 40+ projects have attended nextMEDIA organized sessions, and especially in the media area the coordination insider the FCN group have produced a coordinated approach within the FIA for media based technologies.

d) Apart from monitoring the relevant activities and informing the Unit projects, in order to further coordinate the activities of the projects towards standardization, nextMedia has initiated a common Internet Draft to be submitted to CDNi.

Currently, COAST, ENVISION, ALICANTE and OCEAN have submitted contributions and 4 phone calls to coordinate contributions have already been organized. The draft will be in extending current WG use cases and the plan is to submit it as a common Internet Draft.

The coordination work has helped these projects to have a bigger impact and consideration in the group.

In addition nextMEDIA has been coordinating efforts for ETSI standardization and promotion to the media projects. In the FIA this issue will be reintroduced in the next FIA Poznan at the end of October 2011 at the Steering Board level.

[6] You can find the speech at: http://blogs.ec.europa.eu/neelie-kroes/i-propose-a-compact-for-the-internet/

e) other collaboration activities carried out with the projects:

nextMedia project has managed to increase information exchange between projects and common activities.
The first exchange has been regarding the activities and vision towards exploiting the media research in social networks. For this area, a common number of discussions in the concertation meetings of the user centric media cluster, involving around 10 projects of the media field, where ATOS, UPM and CREATE-NET have led and edited the common view documents, edited the white paper as a result of the work . As a result the vision paper "Future Internet media communities vision and challenges".

In addition, the nextMEDIA partners Synelixis, UPM and CERTH contributed in the common discussions of the Future Media Networks cluster.

For trials and testing, COAST and OCEAN are in close collaboration and common trials in CDN and ALTO environment are planned, as a result of the activities in the Future Content Networks cluster of projects within the networked media unit, led by Synelixis.

For common writing of standardization contributions, as a result of the nextMedia coordination activities and information exchange, the following IETF drafts have been produced:

- http://tools.ietf.org/html/draft-ietf-alto-server-discovery (joint COAST/ENVISION)
- http://tools.ietf.org/html/draft-kiesel-alto-3pdisc (joint COAST/ENVISION)
- http://tools.ietf.org/html/draft-seedorf-ppsp-design-considerations (joint COAST/ NAPA-WINE)

Other information exchanges have been produced between projects and external industrial members, although a really clear outcome is difficult to define but in terms of knowledge exchange it can be understood.

3.3. "Future Media Internet international roadmap"

nextMEDIA carried out a study on the situation in Europe versus the one in Japan and United States, for Future Media Internet in the research and in the innovation field. The main work in this activity was divided in 3 steps:

- The analysis of the current situation as well as the research areas that are most important in Europe.
- A similar analysis of our parts of the world, especially USA and Japan.
- A comparison of these 2 situations leading to conclusions about what areas should be prioritary for Europe in terms of investment in research in the Future Media Internet.

For the development of the Roadmap, nextMEDIA asked the collaboration of international experts in the media technologies field.

The first 2 steps were carried out though on the one hand, an overview of literature on the topic including consultancy reports, white papers, etc. and on the other, a questionnaire which was distributed amongst a small group of scientists who were considered experts in the field of Internet and Media. An effort was made to include experts from very different backgrounds so as to get a

balanced view – both academic and industry experts from different areas of research and from a number of different countries both inside and outside Europe.

The two main conclusions that can be drawn from this study is the relatively healthy position of Europe with regards to other parts of the world in terms of research in the area of the Future Media Internet and the, more generally, the relative parity between these different areas of the world. There do not seem to be areas, in research, where Europe can be considered to have "already lost the race", where making further great efforts would be a waste of resources. But, at the same time there also do not seem to be areas where Europe is clearly ahead of other others and that should be exploited at the expense of others to take advantage of this leading position. All in all it would seem that the areas where Europe should make a strong effort in terms of research are simply those areas where it is considered will be the most important in the internet of the future and where most economic advantage can be achieved.

Having come to the conclusion of the good position of Europe in research in this area, it should also be noted how, up until now, this good position has not been reflected in economic success in the Internet. Virtually all of the economically important successes in the Internet have been done by American companies, whether it is in the areas of search, ecommerce, social networking, video, etc. It is not within the scope of this report to analyse the reasons for this lack of European success (tax structures? entrepreneurial cultural differences? Venture capital markets?, …) but it would seem that it is not due to an inferior position in research. In the area of the Future Media Internet Europe should, it would appear, invest in those areas which seem globally most promising (and not in areas where Europe has an advantage in research) while at the same time look for mechanisms that would allow Europe to leverage this research into economic successes in the FMI.

The starting point for this is the reality that Europe reaps relatively little economic benefit from Internet innovation, whether in media or other areas. At the same time there is a consensus that research in the internet area is world class and that, in general, it can be considered comparable to that which is being carried out in other parts of the world, especially USA and Japan. The original objective of this Roadmap was to pinpoint areas where Europe has already established a lead and where it would have been possible to take advantage of this fact through directed investments in research as well as other areas of relative weakness where it would have been unwise to invest. One of the main results of the consultation with the experts was that significant areas of comparative advantage and comparative weakness do not exist. The conclusion that therefore comes from that is that Europe should invest in those areas that are economically promising towards the future.

The result of the roadmap is that there are clear areas for research trends for the FMI where the experts that were consulted considered such as architectures, streaming technologies, optimised searching based on contextual information or user feedback and recommender systems. In terms of promising application areas the experts considered trust, security & privacy cloud, search and virtualization to be the most important.

Nevertheless while the basic scope of this Roadmap is to identify promising research areas for the Future Media Internet, as has been pointed out several times previously in this document, the strengthening of the European position in the FMI goes well beyond the confines of FMI. This is true both because technologically there is not a clear dividing line between FMI and what is more generally Future Internet and the fact many of the most important causes of the lack of European Internet champions are organisational, economic and financial, legal, cultural and educational.

The full version of the Roadmap can be found in the Deliverable 3.3 of nextMEDIA, "Future Media Internet Roadmap", in www.fi-nextmedia.eu.

3.4. WP4 "Coordination Actions for European Research Promotion at International Level"

The following actions have been carried out to promote the European research in Future Media Internet:

3.4.1. Workshops on Content Networks and 3D Media Internet and industry panels in cooperation with relevant Conferences

In nextMEDIA there were organized the following workshops in international events, where European projects were invited to submit research papers in order to promote European excellence I media research:

NextMedia coordinated the organization of 5 workshops within the First UCMedia Conference. These workshops involved a total of 27 participants from which 3 from America and 2 from Asia-Oceania. The conference accepted 22 publications from which (at least) 7 belong to European Projects.

The workshops included the following:

- TrustVWs 2009 - Virtual Worlds: Trust, Security, Rule of Law
- NSA (No-Strings Attached) Domesticity on Digitally Mediated Home-on-demand
- PerMeD - Personalization in Media Delivery Platforms
- MINUCS - Mining User-Generated Content for Security
- ExpDes - Experience Design and Evaluation of Social UCM applications

The analysis of the 5 workshops organized during the first quarter resulted in the deliverable D4.1. This deliverable main goal was to contribute as an input to other roadmapping activities performed in NextMedia project.

nextMEDIA proposed a workshop in the CASON 2011 Conference. The workshop proposal was submitted and accepted as a Special Session on *Technologies and Applications for Social-Networks and Internet of Things Integration* during the Third International Conference on Computational Aspects of Social Networks (CASoN 2011) in Salamanca, Spain (Oct. 19-21 2011). The focus of the conference was the presentation and discussion of results about all aspects (theory, applications and tools) of intelligent methods applied to Social Network, and the practical challenges encountered and the solutions adopted. Detailed information of the Special Session organized by NextMedia is published in: http://www.mirlabs.org/cason11/index.php-c=main&a=show&id=18.htm

In the industrial events, two Sessions were organized during ICT Event 2010 (http://ec.europa.eu/information_society/events/ict/2010/index_en.htm) with NextMedia Involvement:

- Future User-Centric Media Networks
- International cooperation on Future Internet: perspectives and roadmap

It was organized a Special Workshop during NEM Summit 2010 in Barcelona (http://nem-summit.eu/past-events/2010-nem-summit/). In this Workshop there were discussions from NextMedia members together with representatives of industries, university and research organizations on topics related to Future Internet. The outcome of this workshop was to set the basis for the planning of NextMedia activities towards the next FIA in Ghent.

3.4.2. Organization of Networked Media Track in Scientific Events

nextMEDIA organized networked media tracks in scientific events, with the focus on the technologies and hot topics in the European research projects of the networked media unit of the EC. After a benchmarking of upcoming conferences and Journals where to organize special tracks/special issues respectively, nextMEDIA organized:

a) Call for Papers in high impact journals:

- The Special Issue for ACM Springer Mobile Networks and Applications Journal on Mobility and User Centric Media (Guest Editors: Petros Daras and Oscar Mayora). http://www.springerlink.com/content/w5527n6r71373274/
- Special Issue on User Centric Media. Springer Journal on Multimedia Tools and Applications (Guest Editors: Tomas Piatrik and Cristina Costa). http://www.springer.com/computer/information+systems+and+applications/journal/11042
- Special Issue on Future Media Internet. IEEE Communications Magazine (Guest Editors: Theodore Zahariadis, Gonzalo Camarillo and Giovanni Pau). http://dl.comsoc.org/ci1/info/cfp/cfpcommag0311.htm, http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=05723807
- Journal Special Issue in Mobile Networks and Applications Journal (MONET) in the topic of Mobility and Social Networks Confluence. Details about this special issue follow in the open call for papers: http://www.springer.com/engineering/signals/journal/11036

b) Events supporting EU dissemination of research activity:

- TEMU 2010 - Special Session on Future Media Internet. Crete, Greece. Jul 2010 (http://www.temu.gr/2010/filez/FMI.pdf)
- Second User Centric Media Conference, Palma de Mallorca, Spain, September 2010 (http://www.usercentricmedia.org/)
- NEM Summit 2010 NextMedia Workshop on Future Media Internet. Barcelona, Sep 2010 (http://nem-summit.eu/2010/09/14/the-nextmedia-workshop-agenda-now-available/)

c) Workshops in top-notch conferences

NextMedia partners prepared and submitted Workshop Proposals to three relevant conferences in the topic of the Support Action (ICASSP, INFOCOM and SIGCOMM) from which INFOCOM

Workshop has been confirmed to be accepted. INFOCOM is one of the most relevant conferences in the Future Internet domain.

The **International Workshop on Future Multimedia Networks and IP-based TV (FMN-IPTV)** has been a half-day event focusing on the recent disruptions in the future media networks and how these will shape the IP-based television of the future. It is believed that holding it in conjunction with INFOCOM can provide the community with recent advances in IP video that will impact the media networks of the future. The workshop addressed the Future Media Internet and IP-based TV, which will not only radically change the telecommunications and the entertainment industries, but they are also expected to stimulate and enhance creativity, professional productivity and community relations. In particular, the workshop intended to have ample time for discussion amongst participants on research topics of emerging trends in the area of seamless media delivery and how the networks, current and future, will support the converged multimedia.

The workshop included as a keynote speaker Prof. Keith W. Ross.

It was prepared, submitted and accepted the final report of NextMedia INFOCOM Workshop to IEEE Global Communications Letters that was published in September 2011. A copy of the published report is included below:

Global
Communications
Newsletter

September 2011

International Workshop on Future Multimedia Networks and IP-based TV (FMN-IPTV 2011)

By Oscar M. Bonastre, Oscar Mayora and Federico Alvarez, Co-Chairs of FMN-IPTV 2011, Spain

The International Workshop on Future Multimedia Networks and IP-based TV (FMN-IPTV) took place on 10 April 2011 at the Shanghai International Convention Center, China, and was held in conjunction with the 30th IEEE International Conference on Computer Communications (INFOCOM 2011). This scientific event was organized by Dr. Oscar M. Bonastre (Operations Research Center, Miguel Hernandez University, Spain), Dr. Oscar Mayora (CREATE-NET International Research Center, Italy), and Dr. Federico Alvarez (Technical University of Madrid, Spain).

FMN-IPTV was a half-day scientific workshop focused on the recent disruptions in the future media networks and how these will shape the IP-based television of the future. The workshop covered ample interaction, networking and discussion among participants on research topics of emerging trends in the area of seamless media delivery and how the networks, current and future, will support the converged multimedia. As a successful result, FMN-IPTV provided the community with those recent advances in IP video and IP-based Television that will impact the media networks of the future. Additionally, the special track of FMN-IPTV dealing with IP-based TV technologies was linked to the third edition of the International Workshop on IPTV Technologies and Multidisciplinary Applications (IWITMA). As a consequence, it was consolidated with the success of the last editions of IWITMA that were held in conjunction with the IEEE International Conference on Multimedia and Expo (ICME 2010) and the International Conference in Telecommunications (ConTEL 2009), respectively.

In particular, the technical program of FMN-IPTV started with an opening session and a talk given by Co-Chair Oscar M Bonastre about Emerging Trends in Future Media Networks and IP-based TV. Then, six technical papers, accepted from a total of sixteen submissions, were presented through two sessions moderated by Dr. J. Liu (University of North Dakota, USA) and María Alduán (Polytechnic University of Madrid, Spain), respectively. Next, Prof. Keith W. Ross (Polytechnic Institute of New York, USA) gave the keynote lecture, "You Can't Hide: On the Privacy of IP-Video." To finish, Co-Chair Oscar Mayora completed the workshop with a closing ceremony and the presentation the best workshop paper award to "Learning in User-Centric IPTV Services Selection in Heterogeneous Wireless Networks," authored by M. Khan, S. Marx (DAI-Labor, Technical University Berlin, Germany), and H. Tembine (SUPELEC, Paris, France).

The invited speaker Prof. Keith W. Ross giving the keynote at FMN-IPTV 2011.

The FMN-IPTV 2011 General Chairs Oscar M Bonastre and Oscar Mayora with keynote speaker Prof. Keith W. Ross

As a final point to this short article, we want to thank all authors contributing to the technical excellence of FMN-IPTV 2011, and all the members of the Technical Program Committee for their effort in providing timely and constructive reviews, which ensured the scientific excellence of this international workshop. The success relied also on the valuable contribution of the invited speaker, who gave a high quality keynote, as well as promoted the participation of the attendees, who triggered many lively discussions. We hope the event fulfilled the expectations of the workshop participants and audience of INFOCOM. Special thanks go to the sponsors of the workshop. FMN-IPTV was supported by the European Union through the project NextMEDIA, and by the Ministry of Science and Innovation (Spain) through the project "Game theory applications to resource management and socio-economic problems" (MTM2008-06778-C02-01 and ACOMP/2011/129).

Global Communications Newsletter • September 2011 1

Figure 6: INFOCOM workshop result

3.4.3. Events with 3rd countries

As part of the activities conducted in NextMedia, it was envisioned the organization of events in third countries with the objective of strengthening links with leader partners abroad and dissemination of NextMedia activities. In fact, these activities were organized as collaborative events between NextMedia and key actors in the field of Networked Media in third countries (mostly USA/Canada and Asia). The objective of this task was twofold: in one hand the aim was to bring international visibility to European results in a coordinated way and in the other to reinforce European positions with feedback and experiences from key actors in third countries. In this way, the activities done under that task served as a basis for receiving feedback and learning lessons from third countries experiences and as a good starting point for establishing further collaborations with the target regions.

a) Event in Japan

As a result of NextMedia participation in an event organized by the EU Commission, "The 3rd EU-Japan Symposium on Future Internet and New Generation Networks" (Tampere, Finland, Oct. 2010), it was identified the need and opportunity for establishing direct dialog between EU and Japanese counterparts in strategic research topics.

One of the emerging fields of interest identified in such opportunity was the Integration of Physical-World Sensing with Online Social Networks and Web Mining. In this regard, researchers from Japan and NextMedia discussed about the possibility of organizing a joint workshop in such topic. The main motivation on such topic was on the exchange of experiences of Japanese and NextMedia counterparts and in the identification of where and how this topic is evolving

The EU-Japan Workshop on Media and Social Networks was held in Kyoto, Japan. The workshop included the following agenda (presentations are available at http://www.create-net.org/ubint/Nextmedia/agenda.html)

The event was organized on the basis of a 1-day workshop around the following topics:

- Future Mobile Social Networks Applications and Business Models
- Mobility Geo-Localization and Social Networks
- Implications to System Design of Integrated Physical and Social Network Sensing
- Crossroads between Internet of things, Internet of Media & People
- Multi-Source Information Integration and Scalability
- Challenges of Participatory Sensing
- Case studies and applications of mixed sensing and mining
- Social Metrics for Network Operation
- Middleware for joint Mobile, WSN and Social Networks
- Web dynamics and grid/cloud computing
- Security, privacy, reputation and trust issues

The agenda of the meeting was scheduled as follows (all presentations are available at http://www.create-net.org/ubint/Nextmedia/agenda.html):

MORNING SESSION

9:00 - 9:20 Welcome and Introduction - Ryoichi Shinkuma and Oscar Mayora

9:20 - 10:40 - Session I - Chair - Ryoichi SHINKUMA

Hideyuki KOTO - KDDI R&D Labs. Inc
"Statistical Characteristics of Social Network Structure revealed by Analysis of Telecommunication Services"

Oscar MAYORA - CREATE-NET, Italy
"Social Networks and Participatory Sensing"

Shinichi DOI - C&C Innovation Research Laboratories, NEC Corporation
"Pro-Social Activity Promotion in Symbiotic Social Intelligence System"

Koji ZETTSU -National Institute of Information and Communications Technology (NICT)
"Japan Information Services Platform for Real-World Awareness via Social Sensing"

10:40 - 11:00 Coffee Break
11:00 - 12:20 - Session II - Chair - Oscar MAYORA

Hendrik BERNDT - DOCOMO Communications Laboratories Europe GmbH
"Challenges in taking Social Networking Services to the Real World"

Ryoichi SHINKUMA - Kyoto University
"Social metric based network and service control"

Kiran YEDUGUNDIA - CREATE-NET
"Emerging business models and trends using online social networks"

Kazuhiro YAMAGUCHI - Kobe Digital Labo
" Structuring and searching method of the data defining social relationship"

12.20 - 13.30 Lunch Break

AFTERNOON SESSION
13:30 - 14:30 - Brainstorming and Discussion on Research Challenges and Opportunities

14:30 - 16:00 - Definition of table of contents of White Paper and assignment of responsibilities + (individual video interviews in parallel)

16:00 - 16:20 - Wrap up & Closing

Figure 7: Participants in the EU-Japan nextMEDIA organized workshop

b) Event in USA/Canada

It took place in March 2011 in the Canadian city of Waterloo which is home to the most respected Canadian university in the areas of computer science and mathematics (University of Waterloo). As well, it is home to Research in Motion, the company behind the Blackberry as well as being the most vibrant area for start ups and high tech companies in Canada (*"the Canadian Silicon Valley"*).
The event was co-sponsored by the EU and the National Research Council of Canada.
The agenda for the event can be found at http://www.futureinternet-internetdufutur.nrc-cnrc.gc.ca/eng/index.html

The major outcome of the event was to provide the opportunity to connect directly researchers from Canada and the EU to explore potential opportunities for collaboration as well as allow these researchers to clearly see what is being done in the other region.

For NextMedia the major outcome was to increase awareness of the project amongst the Canadian research community. To that end contacts were made who especially expressed interest in receiving a copy of the deliverable D3.3 Future Media Internet Roadmap.

3.4.4. Final nextMEDIA workshop

As part of this period's activities, it was organized the Final nextMedia Workshop as part of FIA Poznan as the main industrial partners of Future Internet were present in the event which was organized by the European Commission.

The Final NextMEDIA workshop has been organised within the FIA workshop in Poznan. The decision to bring nextMEDIA final outcomes to the community during the FIA workshop rather than in a separate event has been made based on following reasons:

- NextMEDIA has been strongly involved in participating to the past FIA events
- The event was live broadcasted and several industrial members were informed to follow the event via webcasting

- FIA brings together around 150 research projects and other researchers engaged in Future Internet research which gives us great opportunity to target wide and right audience.
- FIA workshop in Poznan is well timed in the end of the October 2011 (the official last month of the NextMEDIA project).
- The FIA sessions organised by nextMEDIA will have a significant impact on FIA roadmap and further planning of the next FIA events.

During the workshop there were presentations from NextMedia representatives and from other external speakers.

The session was named: "The Future of Networked Media and the Internet: Facts, Reflections and the Road Ahead"

The chair of the session was Paul Moore (Atos) with the shepherd of the Session Christophe Diot (Technicolor). The session has been attended by a wide audience of around 60 people, including the new Head of Unit Net Media Viriol Peca. The session could be followed via live streaming and is still available via VoD.

The session has been divided into several parts where specific areas were dealt, with the perspective of two different speakers respectively, followed by a Q&A session with the audience. The short summary of each presentation is given below.

Introduction
Paul Moore (Atos, Spain) representing the Coordination Action NextMedia presented the different speakers and set the scene.

Architecture
Krzysztof Kurowski (PSNC Poland) and Theodore Zahariadis (Synelixis, Coordinator FIArch Working Group) presented different perspectives on the needs and requirements and future evolution of Future Internet Architecture were presented.

3D
Krzysztof Kurowski (PSNC Poland), and Ebroul Izquierdo (QMUL, Coordinator of NoE 3DLife) examined future scenarios and challenges in the area of 3D.

Connected TV
Ralf Neudel (IRT, Editor "NEM Strategic Research Agenda ") and Federico Alvarez (UPM, Coordinator of NextMedia) focused on portraying the evolving landscape of Connected TV in Europe. A technology overview was presented and the current market situation in Europe explained including a quick outlook on future trends and open challenges in this domain.

Social Media
Oscar Mayora (Create-Net) and Paul Moore (Atos) presented different prospectives on the Social Media and its impact. It is becoming more and more difficult to clearly separate the social networks from the media internet. Google is Google search but it is also Youtube and Google+. Facebook's goal is to become the gateway to internet media (Spotify and Netflix now available from inside Facebook for example.) Is Daily Motion a social network or a video platform? Social media are rapidly expanding to business media as companies come to realize the power and efficiencies of social media to resolve many of today's business problems.

Business Models and Wrap-up - Paul Moore (Atos) closed the session with discussions about the Business Models. More and more the question of business models is coming to the fore in any discussion of the Future Media Internet. The battle between Apple, Google, Facebook, Amazon, etc. for the hearts and minds (but especially wallets!) of internauts over the next 10 years is partly a struggle for technological supremacy but just as important will be the struggle for business model supremacy.

The Oucome of the Session

The results of a questionnaire survey were presented, which revealed the fact that Research Challenges such as "*3D content generation leveraging emerging acquisition channels*" and "*Immersive multimedia experiences*" appear to be in the mid-term future interest while "Content with memory and behaviour" is believed to be a challenge in the long-term. In order to support such technologies, the network design has to adapt 3-D content, link different heterogeneous devices and create new models for content distribution involving social and user contextual aspects.

Moreover, bringing rich-media experience to home users, the "Connected TV" conception has to deal with many different challenges in order to become a standard in the TV industry. Hybrid Broadband TV can deliver the specifications to this field of research. Currently, only 3 EU countries are operating the HbbTV technology, while seven more exist which are on a trial or service-announcement phase.

Finally, an extended talk was given for a "Participatory Sensing World" of an IoT network where the Real World and the Online World should be bridged. The huge amount of user data that is available through billions of mobile devices and different social networks, like location, activities, posts to social networks, surroundings environment, behavior etc., can lead to new application scenarios and emerging technologies like management of emergency services, monitor of environment and pollution, healthcare, games and entertainment.

3.5. "Dissemination and standardisation coordination"

This activity contained the dissemination measures for the promotion of the nextMEDIA results, not only as the former activity to promote the European research.

3.5.1. ETSI ISG on Future Media Internet

The first semester of the project brought lots of active discussions regarding the ETSI Industry Specification Group (ISG) proposal. NextMedia partners were discussing the ISG scope and acronym with Gaby Lenhart from Strategy & New Initiatives in ETSI who has been constantly contacted and involved in more productive discussions. The final proposal of the ISG name and scope is as follows:

The ISG name: "Towards Future Internet Architectures" with acronym "FIA"

The ISG scope includes:

- define the requirements for Future Internet Architectures,
- design a reference model and the building components of Future Internet Architectures,

- define interoperability, orchestration, communication and self-organisation issues and constrains of Future Internet Architectures resources and systems (networking, computation, storage, content, context), and
- define technologies for content-aware and network-aware caching and multi-source context-aware multimedia streaming.

NextMedia ISG FIA will not include following:

- define business models for Future Internet Architectures,
- define service based architectures and applications,
- define security architectures and security protocols,
- define communication interfaces, ontologies and semantics.

The proposal of ISG FIA has been presented during the FIA in Valencia to the industrial partners of the FIA, and finally it was postponed due to the immaturity of the FIA advances in the matter.

The group was again re-launched in September 2011, and the proposed idea was to create standardisation WG under ETSI through the FIA steering board. Creating WG via FIA steering board would bring greater long-term impact even after the NextMEDIA project is finished. NextMEDIA made contacts with FIA members and proposed the plan. After the discussion with ETSI regarding the standardisation group on Future Internet Architectures, nextMEDIA contacted members of the FIA steering board and proposed to take over and create the group under the FIA umbrella. The group is still under discussion at this document release date.

3.5.2. Standardisation in IETF: Projects of the networked media unit coordinated approach

Communication with IRTF triggered discussions between NextMEDIA partners about the options and future plans to accomplish this task. Furthermore, members of the FIArch group have been involved in discussions regarding the creation of the standardisation group in order to hear also from the experts outside the project consortium. As a result, NextMEDIA partners decided to get strongly involved in the upcoming IETF meeting and join the BOF session on Content Centric Networking. The 80th IETF meeting has been held in Prague from 27 March to 1 April together with workshop on Interconnecting Smart Objects with the Internet on 25 March.

After internal discussions between NextMEDIA partners and members of the FIArch group, it has been decided to get strongly involved and join the BOF session on Content Centric Networking. nextMEDIA participated in the IETF content Delivery Networks Interconnection (CDNI) BOF during the 80th IETF meeting held in Prague. The session ended with a discussion of the proposed charter which is in large accepted by the attendees.

The final step of asking the community if there is support for such an action was positive, i.e., most of the CDNI BOF attendees were in favour of this becoming a WG. NextMEDIA has expressed interest in helping with shaping the charter of the group and disseminating the group to the wider community.

During the CDNI PhC it was agreed that the best strategy for a joint contribution from the projects would be on creating a new draft containing a set of more advanced CDN interconnection use cases

from the projects which could be a useful catalogue of scenarios that could drive future expansion of the WG. NextMedia as a coordination action offered supporting work in creating CDNI documents.

Meanwhile, nextMEDIA participated in the coordination conference calls and agreed to collate the contributions from other projects and edit the joint document and its evolution into an Internet Draft. nextMEDIA has being coordinating the production of this work until the release of the final version. The CDNI draft has been produced by the Future Media Networks (FMN) cluster of the Networked Media Systems FP7 projects, namely NextMEDIA, ALICANTE, COAST, COMET, ENVISION and OCEAN . The list of contributors can be found below:

- Theodore Zahariadis (nextMEDIA, editor), Synelixis, Greece;
- Andrzej Beben, Warsaw University of Technology, Poland;
- Christian Timmerer, UNI-KLU, Austria;
- David Florez Rodriguez, Telefonica R&D, Spain;
- David Griffin, Yiannis Psaras, Raul Landa, UCL, UK;
- Daniel Negru, Labri, France;
- Evangelos Pallis, Petros Anapliotis, TEIC, Greece;
- George Xilouris, DEMOKRITOS, Greece;
- Isidro Laso, European Commission, Belgium (on a personal basis);
- Klaus Satzke, Alcatel-Lucent Bell Labs, Germany;
- Michalis Georgiadis, PrimeTel, Cyprus;
- Ning Wang, University of Surrey, UK;
- Spiros Spirou, Intracom Telecom, Greece;
- Yannick Le Louedec, Orange Labs, France;
- Yiping Chen, Daniel Negru, CNRS-LaBRI, France.

Thodore Zahariadis is an editor of the Internet Draft and he has been strongly involved in shaping the document. The draft is accessible at the following site http://tools.ietf.org/pdf/draft-fmn-cdni-advanced-use-cases-00.pdf

3.5.3. Standardisation groups monitoring

NextMedia carried on with monitoring standardisation activities of existing regulatory bodies related to Future Media Internet, namely IETF (/W3C) IETF/IRTF, ETSI and MPEGFurthermore, QMUL hosted 89th MPEG meeting in London on 3rd July 2009 where objectives of upcoming NextMedia project were promoted.

NextMEDIA produced special questionnaires asking for standardisation actions in different projects and distributed these questionnaires to the attendees of the FIA in Stockholm. The outcome of questionnaires have been analysed and published and was a great help for the definition of the standardization scope.

nextMEDIA produced reports on recent standardisation activities in MPEG and IETF. These reports were used for finalising the FP7 Future Internet Support Actions group (FISA) documents on standardisation activities.

nextMEDIA continued with leading FISA networked media oriented activities. nextMEDIA has attended number of conference calls and supported organisation of the FIA Standardisation session in Poznan. nextMEDIA actively participated to the session as a speaker, presenting the goals of the

FISA group and the road ahead. Furthermore, NextMedia presented the analysis results for projects interest in standardisation. The focus of the last part of his presentation has been put on IETF CDNI WG and the NextMedia proposal on creating the ETSI ISG on Future Internet Architectures. The presentation triggered long discussions from the audience.

NextMEDIA participated in various FISA teleconferences to shape the action plan and documents about standardisation activities. NextMEDIA has been helping with creating dissemination materials of the FISA group and identifying the roadmap and has prepared presentation slides introducing NextMEDIA activities in standardisation that have been presented during the FIA in Ghent and prepared a FISA poster.

Documents summarising existing pre-standardisation tracks in various standardisation bodies have been updated.

3.5.4. Web page and dissemination material

NextMEDIA website has been updated with all new project related information (www.fi-nextmedia.eu), such as upcoming events, working groups and publications and dissemination material.

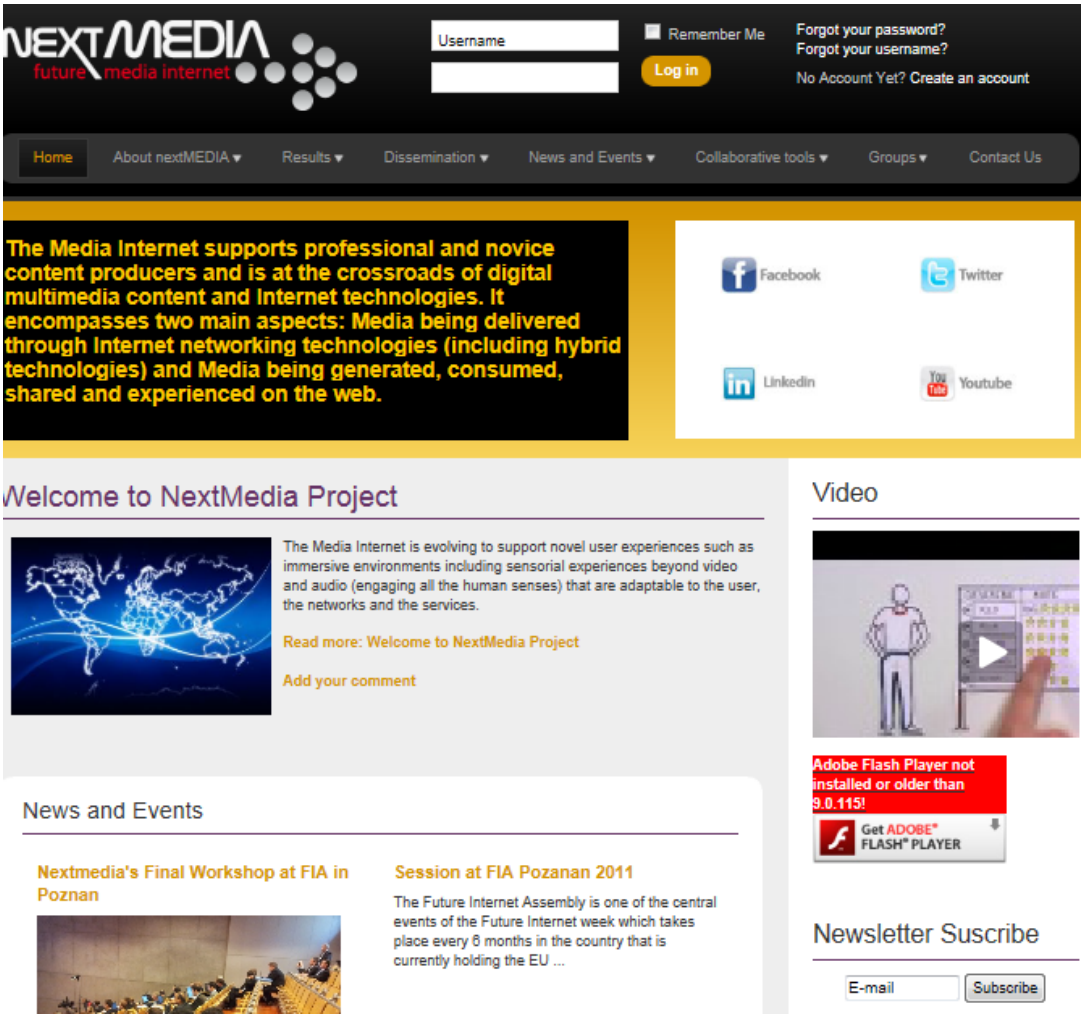

Figure 8: nextMEDIA website

NextMEDIA does not want to be outside the social networks wave, therefore provided the following:

- A group in Facebook for allowing (mainly young people) communication with the general public :
  http://www.facebook.com/?ref=logo#/group.php?gid=290386606968
- A channel in YouTube for uploading and sharing visual information about Future Media Internet:
  http://www.youtube.com/nextmediaeu
  A twitter site, to inform our followers about activities related to FMI: https://twitter.com/nextMEDIAeu
- A group for professionals in Linked-in:
  http://www.linkedin.com/groups?home=&gid=2702601&trk=anet_ug_hm

nextMEDIA created leaflets, posters, brochures, copies of the call for papers organized by nextMEDIA, etc. to disseminate the results.

In addition, 4 issues of the NextMEDIA newsletter (one every 6 months) has been finalized giving readers a summary of all new activities and achievements during the project. Readers could find information about NextMEDIA recent events, workshops, special issues, dissemination and standardisation activities, cooperation with the projects of the networked media and search engines area, networked media research orientations & standardisation focus in current and evolving networked media projects, etc.

In order to distribute the newsletter to the right audience, NextMEDIA has created the special distributing channel combining mailing lists of projects from D2 unit and other NextMEDIA working groups, including FCN, FMI-TF, FMIA-TT and FIArch.

NextMEDIA newsletter has been distributed during the concertation meeting and in every event where nextMEDIA have participated.

3.5.5. Participation at exhibition events

NextMEDIA has brought project outcomes to the broad research community during the Future Internet Conference Week, a series of events concerning different aspects of the Future Internet, where nextMEDIA had a booth in 2 of the occasions and in the others presented posters, leaflets, gave presentations, etc. to raise the awareness of the project.

Other booth was organized in the 2010 NEM Summit, and other big participation was in NEM Summit 2011 hosted by Politecnico di Torino on 27-29 Sept. 2011, in the centre of Torino, Italy. The NEM Summit is an annual Conference and Exhibition annually organised by the NEM Initiative under the aegis of the European Commission (DG Information Society and Media).

Morevover, NextMEDIA distributed project leaflets and newsletter during the event in order to disseminate project activities to large ICT community.

Another important industrial event was the participation at IBC – International Broadcasting Conference - (www.ibc.org/) which is the most important event for the broadcasting industry in Europe with the participation of almost 50.000 professionals from around the world. The general

profile of visitors to IBC is eminently industrial with representatives from all of the important broadcasters and companies in the media and broadcast sphere.

IBC takes place annually in Amsterdam and this year ran between Sept 9 and Sept 14, 2011. Atos Research & Innovation had a booth in the Connected World section of the conference and NextMedia was one of the projects and assets that Atos presented to visitors. Another important aspect is internal dissemination in Atos. Most of the European Atos Account Managers for broadcast and New Media attended IBC and visited the booth where projects and activities such as NextMedia could be described to them. Furthermore, these Account Managers brought important clients to the booth to learn more about the different research activities.

Specifically, the following material was distributed to visitors:

- leaflets of NextMedia
- the NextMedia Newsletter
- a near final version of the NextMedia Future Media Internet Roadmap
- a NextMedia poster was part of the booth (see Figure 12)
- copies of White Papers coordinated by NextMedia ("Research *Challenges* and the Road Ahead", Social Networks Trends and Research Challenges")

Atos was represented by Paul Moore, David Salama and Irene Schmidt.

Figure 9: Paul Moore in the ATOS booth during the IBC conference

3.5.6. Talent support

This activity aims at supporting young researchers working on the field of Media Internet through online course materials. nextMedia has created an electronic library of relevant educational materials (tutorial and lectures). These tutorials will covered most of the basic scientific/technological topics of

nextMedia (http://www.gatv.ssr.upm.es/nextmedia/index.php?option=com_content&view=category&id=14&Itemid=22).

The videos are classified into the following categories:

- Semantic Web
- Content Streaming
- Content Aware Networks
- Information Extraction and Data Mining
- Social Networking
- Content Searching, Finding and Retrieval
- Architectures for massive content distribution
- Semantic Web
- Content Streaming
- Content Aware Networks
- Information Extraction and Data Mining
- Social Networking
- Content Searching, Finding and Retrieval

nextMEDIA collected recorded talks and presentations from recent conferences, workshops and exhibitions related to the future internet. This material will be complementary to the existing list of talks published on the website.

The final amount of future internet oriented talks uploaded to the website reached 50 hours.

4. Use and dissemination of foreground

nextMEDIA as coordination action plans to reuse the knowledge acquired by:

- Finish the publication of the special issues and results of events which are taking place after the project lifetime (e.g. the special issue for social sensing).
- Incorporate the knowledge in the partners research and inform the project of the networked media unit of the results of the project.
- Continue the participation in the activities, as much as the effort can be derived to other projects or has the support of the organizations participating in nextMEDIA.
- nextMEDIA will continue with the communication with any interested party and the website and documentation will be accessible at least for the next 5 years.
- Continue with the support with the CDNi standardization, support to clusters and FIArch work, until they get finished (with a balance of the resources).

The knowledge generated, as nextMEDIA is a coordination action, is not going to be implemented as patents, products or IPRs, but we believe that the results will help the Future Media Internet coordination and the results are valuable and will remain long time.

The list of published documents and contribution to events is detailed in the following sections:

Section A (public)

This section includes two templates

- Template A1: List of all scientific (peer reviewed) publications relating to the foreground of the project.
- Template A2: List of all dissemination activities (publications, conferences, workshops, web sites/applications, press releases, flyers, articles published in the popular press, videos, media briefings, presentations, exhibitions, thesis, interviews, films, TV clips, posters).

These tables are cumulative, which means that they should always show all publications and activities from the beginning until after the end of the project. Updates are possible at any time.

TEMPLATE A1: LIST OF SCIENTIFIC (PEER REVIEWED) PUBLICATIONS, STARTING WITH THE MOST IMPORTANT ONES

NO.	Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publication	Relevant pages	Permanent identifiers[7] (if available)	Is/Will open access[8] provided to this publication?
1	*An architectural approach towards Future Media Internet*	*Theodore Zahariadis*	*Springer Multimedia Tools and Applications*	*Online first*	*Springer*	*online*	*2011*	*1-10*	*http://www.springerlink.com/content/y61t3185457k1848/ DOI: 10.1007/s11042-011-0826-x*	*no*
2	*Future Media Internet editorial*	*Theodore Zahariadis*	*IEEE Communications magazine*	*Vol 49, issue 3, March 2011*	*IEEE*	*U.S.*	*2011*	*pp. 110-111*	DOI: 10.1109/MCOM.2011.5723807 http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=5723807	no
3	*Editorial for Mobility and User-Centric Media*	*Oscar Mayora*	*Mobile Networks and Applications*	*Volume 16, Number 3,*	*Springer*	*Germany*	*2011*	*P. 350*	http://www.springerlink.com/content/w5527n6r71373274/	no
4	*Internet Architecture for Innovation*	*Paul Moore*	*Networked media publications*	*June 2011*	*Office for Official Publications of the European Communities*	*Luxembourg*	*2011*	*pp. 1-20*	http://cordis.europa.eu/fp7/ict/netmedia/internet-architecture-for-innovation-full-v2.pdf	yes

[7] A permanent identifier should be a persistent link to the published version full text if open access or abstract if article is pay per view) or to the final manuscript accepted for publication (link to article in repository).

[8] Open Access is defined as free of charge access for anyone via Internet. Please answer "yes" if the open access to the publication is already established and also if the embargo period for open access is not yet over but you intend to establish open access afterwards.

5	*Future Media Networks - Research Challenges 2010*	*Theodore Zahariadis*	*Networked media publications*	*October 2010*	*Office for Official Publications of the European Communities*	*Luxembourg*	*2010*	*pp. 1-52*	http://cordis.europa.eu/fp7/ict/netmedia/fmi-research-challenges.pdf	yes
6	*Future Media Internet Research Challenges and the Road Ahead*	*Petros Daras*	*Networked media publications*	*April 2010*	*Office for Official Publications of the European Communities*	*Luxembourg*	*2010*	*pp. 1-40*	cordis.europa.eu/fp7/ict/netmedia/fmi-research-challenges.pdf	
7	*Social Networks Overview: Current Trends and Research Challenges",*	*Petros Daras*	*Networked media publications*	*Nov. 2010*	*Office for Official Publications of the European Communities*	*Luxembourg*	*2010*	*pp. 1-32*	*ISBN 978-92-79-18923-4 doi:10.2759/1559 cordis.europa.eu/fp7/ict/netmedia/docs/publications/social-networks.pdf*	*yes*
8	*"Towards a Future Internet Architecture",*	*Theodore Zahariadis*	*Lecture Notes in Computer Science*	*Vol. 6656*	*Springer*	*Germany*	*2011*	*7-18*	*http://www.springer.com/computer/communication+networks/book/978-3-642-20897-3*	*yes*
9	*Scalable and Adaptable Media Coding Techniques for Future Internet*	*Naeem Ramzan*	*Lecture Notes in Computer Science*	*Vol. 6656*	*Springer*	*Germany*	*2011*	*381-389*	*http://www.springer.com/computer/communication+networks/book/978-3-642-20897-3*	*yes*
10	*Semantic Context Inference in Multimedia Search*	*Qianni Zhang*	*Lecture Notes in Computer Science*	*Vol. 6656*	*Springer*	*Germany*	*2011*	*391-400*	*http://www.springer.com/computer/communication+networks/book/978-3-642-20897-3*	*yes*
11	*Distributing real time user generated video over P2P networks"*	*Nikolaos Papaoulakis*	*Proceedings of the CASON conference*	*TBC*	*IEEE*	*-*	*2011*		*to be published*	*No*
12	*Personalized adaptive media interfaces for multimedia search"*	*Silvia uribe*	*Proceedings of the CASON conference*	*TBC*	*IEEE*	*-*	*2011*		*to be published*	*no*

TEMPLATE A2: LIST OF DISSEMINATION ACTIVITIES								
NO.	Type of activities[9]	Main leader	Title	Date	Place	Type of audience[10]	Size of audience	Countries addressed
1	*Special Issue*	*Oscar Mayora*	*Springer Mobile Networks and Applications (MONET) Journal on Mobility and Social Networks Confluence*	*16th March 2012*		*Scientific community*	-	*all*
2	*Special issue*	*Theodore Zahariadis*	*Future Media Internet. IEEE Communications Magazine*	*March 2011*	*US*	*Industry, scientific community, media, policy makers*		*All*
3	*Special issue*	*Tomas Piatrik*	*User Centric Media. MTAP*	*June 2011*		*Scientific community*		*All*
4	*Special issue 4*	*Oscar Mayora*	*ACM Springer Mobile Networks and Applications Journal*	*March 2010*		*Scientific community*		*all*
5	*White paper*	*Theodore Zahariadis*	*Future Internet Limitations*	*March 2011*		*Scientific community*	-	*all*
6	*Book*	*Theodore Zahariadis*	*Future Internet Assembly 2011: Achievements and Promising Technology*	*May 2011*		*Industry, scientific community,*	-	*All*

[9] A drop down list allows choosing the dissemination activity: publications, conferences, workshops, web, press releases, flyers, articles published in the popular press, videos, media briefings, presentations, exhibitions, thesis, interviews, films, TV clips, posters, Other.

[10] A drop down list allows choosing the type of public: Scientific Community (higher education, Research), Industry, Civil Society, Policy makers, Medias ('multiple choices' is possible.

						media		
7	Book	Federico Alvarez	FIA Book 2012 on "Future Future Internet – From Technological Promises to Reality"	May 2012	Aalborg, Denmark	Industry, scientific community, media	-	all
8	Workshop /Assembly	All	4th Future Internet Assembly workshop	23-24 November 2009,	Stockholm, Sweden	Industry, scientific community, media	300	All, especially European countries
9	Workshop /Assembly	All	5th Future Internet Assembly workshop	15-16 April 2010	Valencia, Spain	Industry, scientific community, media	350	All, especially European countries
10	Workshop /Assembly	All	6th Future Internet Assembly workshop	16-17 December 2010	Ghent, Belgium	Industry, scientific community, media	300	All, especially European countries
11	Workshop /Assembly	All	7th Future Internet Assembly workshop	18-19 May 2011	Budapest, Hungary	Industry, scientific community, media	300	All, especially European countries
12	Workshop /Assembly	All	8th Future Internet Assembly workshop	25-26 October 2011	Poznan, Poland	Industry, scientific community, media	300	All, especially European countries
13	workshop	Oscar Mayora	Eu-Japan workshop	10th June 2011	Kyoto, Japan	Industry, scientific community, media	30	EU and Japan
14	workshop	Paul Moore	Eu-Canada workshop	March 2011	Waterloo, Canada	Industry, scientific community, media	100	USA and Canada
15	workshop	Oscar Mayora	INFOCOM International Workshop on Future Multimedia Networks and IP-based TV	10th April 2011	Shangai, china	scientific community	400	all
16	Industrial conference	Federico	NEM Summit 2010	September	Barcelona,	Industry	250	All, especially

		Alvarez		*2010*	*Spain*			*European countries*
17	Industrial conference	*Tomas Piatrik*	NEM Summit 2011	*October 2011*	*Torino, Italy*	*industry*	*260*	*All, especially European countries*
18	Scientific conference	*Petros Datas*	User Centric Media conference 2009	*December 2009*	*Venice, Italy*	*scientific community*	*80*	*All, especially European countries*
19	Scientific conference	*Federico Alvarez*	User Centric Media conference 2010	*September 2010*	*Palma de Mallorca, Spain*	*scientific community*	*80*	*All, especially European countries*
20	Scientific conference	*Oscar Mayora*	CASON conference	*October 2011*	*Salamanca, Spain*	*scientific community*	*200*	*All, especially European countries*
21	Industrial event	*Federico Alvarez*	ICT event 2010	*September 2010*	*Brussels, Belgium*	*Industry, scientific community, media*	*2000*	*All, especially European countries*
22	Concertation meetings	*All*	several concertation meetings with the projects of the unit	Every 6 months between 2009 and 2011	*Brussels, Belgium*	*Industry, scientific community,*	*60*	*European and associated countries*
23	Special session	Theodore Zahariadis	TEMU 2010	July 2010	Crete, Greeece	*scientific community*	*150*	*All*
24	Standardisation meeting	*Tomas Piatrik*	80th IETF meeting	*25th March 2011*	*Prague, Czech Republic*	*Industry, scientific community, policy makers*	*500*	*All*
25	Industrial exhibition event	*Paul Moore*	IBC 2011	*9-12th September 2011*	*Amsterdam, Netherlands*	*Industry*	*3000*	*All*

Section B (Confidential[11] or public: confidential information to be marked clearly)

This section is not applicable to nextMEDIA since it is a coordination action

Part B1

The applications for patents, trademarks, registered designs, etc. shall be listed according to the template B1 provided hereafter.

The list should, specify at least one unique identifier e.g. European Patent application reference. For patent applications, only if applicable, contributions to standards should be specified. This table is cumulative, which means that it should always show all applications from the beginning until after the end of the project.

TEMPLATE B1: LIST OF APPLICATIONS FOR PATENTS, TRADEMARKS, REGISTERED DESIGNS, ETC.					
Type of IP Rights[12]:	Confidential Click on YES/NO	Foreseen embargo date dd/mm/yyyy	Application reference(s) (e.g. EP123456)	Subject or title of application	Applicant (s) (as on the application)

[11] Note to be confused with the "EU CONFIDENTIAL" classification for some security research projects.

[12] A drop down list allows choosing the type of IP rights: Patents, Trademarks, Registered designs, Utility models, Others.

Part B2

Please complete the table hereafter:

Type of Exploitable Foreground[13]	Description of exploitable foreground	Confidential Click on YES/NO	Foreseen embargo date dd/mm/yyyy	Exploitable product(s) or measure(s)	Sector(s) of application[14]	Timetable, commercial or any other use	Patents or other IPR exploitation (licences)	Owner & Other Beneficiary(s) involved
	Ex: New supercond uctive Nb-Ti alloy			*MRI equipment*	*1. Medical 2. Industrial inspection*	*2008 2010*	*A materials patent is planned for 2006*	*Beneficiary X (owner) Beneficiary Y, Beneficiary Z, Poss. licensing to equipment manuf. ABC*

In addition to the table, please provide a text to explain the exploitable foreground, in particular:

- Its purpose
- How the foreground might be exploited, when and by whom
- IPR exploitable measures taken or intended
- Further research necessary, if any
- Potential/expected impact (quantify where possible)

[19] A drop down list allows choosing the type of foreground: General advancement of knowledge, Commercial exploitation of R&D results, Exploitation of R&D results via standards, exploitation of results through EU policies, exploitation of results through (social) innovation.

[14] A drop down list allows choosing the type sector (NACE nomenclature) : http://ec.europa.eu/competition/mergers/cases/index/nace_all.html

5. Report on societal implications

Replies to the following questions will assist the Commission to obtain statistics and indicators on societal and socio-economic issues addressed by projects. The questions are arranged in a number of key themes. As well as producing certain statistics, the replies will also help identify those projects that have shown a real engagement with wider societal issues, and thereby identify interesting approaches to these issues and best practices. The replies for individual projects will not be made public.

A General Information *(completed automatically when **Grant Agreement number** is entered.*

Grant Agreement Number:	249065
Title of Project:	Future Media Internet Coordination Action
Name and Title of Coordinator:	Dr. Federico Alvarez

B Ethics

1. Did your project undergo an Ethics Review (and/or Screening)? 6. If Yes: have you described the progress of compliance with the relevant Ethics Review/Screening Requirements in the frame of the periodic/final project reports? Special Reminder: the progress of compliance with the Ethics Review/Screening Requirements should be described in the Period/Final Project Reports under the Section 3.2.2 *'Work Progress and Achievements'*	***No***
2. Please indicate whether your project involved any of the following issues (tick box) :	***NO***
RESEARCH ON HUMANS	
7. Did the project involve children?	
8. Did the project involve patients?	
9. Did the project involve persons not able to give consent?	
10. Did the project involve adult healthy volunteers?	
11. Did the project involve Human genetic material?	
• Did the project involve Human biological samples?	
• Did the project involve Human data collection?	
RESEARCH ON HUMAN EMBRYO/FOETUS	
12. Did the project involve Human Embryos?	
13. Did the project involve Human Foetal Tissue / Cells?	
14. Did the project involve Human Embryonic Stem Cells (hESCs)?	
15. Did the project on human Embryonic Stem Cells involve cells in culture?	
16. Did the project on human Embryonic Stem Cells involve the derivation of cells from Embryos?	
PRIVACY	
17. Did the project involve processing of genetic information or personal data (eg. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)?	
18. Did the project involve tracking the location or observation of people?	
RESEARCH ON ANIMALS	
19. Did the project involve research on animals?	
20. Were those animals transgenic small laboratory animals?	
21. Were those animals transgenic farm animals?	
22. Were those animals cloned farm animals?	

23. Were those animals non-human primates?	
RESEARCH INVOLVING DEVELOPING COUNTRIES	
24. Did the project involve the use of local resources (genetic, animal, plant etc)?	
25. Was the project of benefit to local community (capacity building, access to healthcare, education etc)?	
DUAL USE	
• Research having direct military use	0 Yes 0 No
26. Research having the potential for terrorist abuse	

C Workforce Statistics

3. Workforce statistics for the project: Please indicate in the table below the number of people who worked on the project (on a headcount basis).

Type of Position	Number of Women	Number of Men
Scientific Coordinator		2
Work package leaders		6
Experienced researchers (i.e. PhD holders)	2	2
PhD Students	2	2
Other	2	

4. How many additional researchers (in companies and universities) were recruited specifically for this project?	**3**
Of which, indicate the number of men:	1

D Gender Aspects

5. Did you carry out specific Gender Equality Actions under the project?

○	Yes
x	No

6. Which of the following actions did you carry out and how effective were they?

		Not at all effective				Very effective
❑	Design and implement an equal opportunity policy	○	○	○	○	○
❑	Set targets to achieve a gender balance in the workforce	○	○	○	○	○
❑	Organise conferences and workshops on gender	○	○	○	○	○
❑	Actions to improve work-life balance	○	○	○	○	○
○	Other:					

7. Was there a gender dimension associated with the research content – i.e. wherever people were the focus of the research as, for example, consumers, users, patients or in trials, was the issue of gender considered and addressed?

○ Yes- please specify

x No

E Synergies with Science Education

8. Did your project involve working with students and/or school pupils (e.g. open days, participation in science festivals and events, prizes/competitions or joint projects)?

x Yes- please specify: Talent support and teaching

○ No

9. Did the project generate any science education material (e.g. kits, websites, explanatory booklets, DVDs)?

x Yes- please specify: Collection of videos and tutuorials for media internet

○ No

F Interdisciplinarity

10. Which disciplines (see list below) are involved in your project?

x Main discipline[15]: 2.2

x Associated discipline[15]: ○ Associated discipline[15]:

G Engaging with Civil society and policy makers

11a	**Did your project engage with societal actors beyond the research community?** *(if 'No', go to Question 14)*	x ○	Yes No

11b If yes, did you engage with citizens (citizens' panels / juries) or organised civil society (NGOs, patients' groups etc.)?

x No

○ Yes- in determining what research should be performed

○ Yes - in implementing the research

○ Yes, in communicating /disseminating / using the results of the project

[15] Insert number from list below (Frascati Manual).

11c In doing so, did your project involve actors whose role is mainly to organise the dialogue with citizens and organised civil society (e.g. professional mediator; communication company, science museums)?	x ○	Yes No

12. Did you engage with government / public bodies or policy makers (including international organisations)

○	No
○	Yes- in framing the research agenda
○	Yes - in implementing the research agenda
x	Yes, in communicating /disseminating / using the results of the project

13a Will the project generate outputs (expertise or scientific advice) which could be used by policy makers?

x	Yes – as a **primary** objective (please indicate areas below- multiple answers possible)
○	Yes – as a **secondary** objective (please indicate areas below - multiple answer possible)
○	No

13b If Yes, in which fields?

Agriculture		Energy		Human rights	
Audiovisual and Media		Enlargement		Information Society	
Budget		Enterprise		Institutional affairs	
Competition		Environment		Internal Market	
Consumers		External Relations		Justice, freedom and security	
Culture		External Trade		Public Health	
Customs		Fisheries and Maritime Affairs		Regional Policy	
Development Economic and Monetary Affairs		Food Safety		Research and Innovation	
		Foreign and Security Policy		Space	
Education, Training, Youth		Fraud		Taxation	
Employment and Social Affairs		Humanitarian aid		Transport	

13c If Yes, at which level?

- ○ Local / regional levels
- ○ National level
- ○ European level
- x International level

H Use and dissemination

14. How many Articles were published/accepted for publication in peer-reviewed journals?	**6**
To how many of these is open access[16] provided?	**3**
How many of these are published in open access journals?	**3**
How many of these are published in open repositories?	**0**
To how many of these is open access not provided?	**3**
Please check all applicable reasons for not providing open access:	
x publisher's licensing agreement would not permit publishing in a repository ❑ no suitable repository available ❑ no suitable open access journal available x no funds available to publish in an open access journal ❑ lack of time and resources ❑ lack of information on open access ❑ other[17]: ……	

15. How many new patent applications ('priority filings') have been made? *("Technologically unique": multiple applications for the same invention in different jurisdictions should be counted as just one application of grant).*		**0**
16. Indicate how many of the following Intellectual Property Rights were applied for (give number in each box).	Trademark	**0**
	Registered design	**1**
	Other	**0**
17. How many spin-off companies were created / are planned as a direct result of the project?		**0**
Indicate the approximate number of additional jobs in these companies:		

18. Please indicate whether your project has a potential impact on employment, in comparison with the situation before your project:

❑	Increase in employment, or	❑	In small & medium-sized enterprises
❑	Safeguard employment, or	❑	In large companies
❑	Decrease in employment,	❑	None of the above / not relevant to the project
x	Difficult to estimate / not possible to quantify		

19. For your project partnership please estimate the employment effect resulting directly from your participation in Full Time Equivalent (*FTE = one person working fulltime for a year*) jobs:	*Indicate figure:*

[16] Open Access is defined as free of charge access for anyone via Internet.
[17] For instance: classification for security project.

Difficult to estimate / not possible to quantify	x

I Media and Communication to the general public

20. As part of the project, were any of the beneficiaries professionals in communication or media relations?

○ Yes x No

21. As part of the project, have any beneficiaries received professional media / communication training / advice to improve communication with the general public?

○ Yes x No

22 Which of the following have been used to communicate information about your project to the general public, or have resulted from your project?

❑	Press Release	x	Coverage in specialist press
❑	Media briefing	❑	Coverage in general (non-specialist) press
x	TV coverage / report	❑	Coverage in national press
❑	Radio coverage / report	❑	Coverage in international press
x	Brochures /posters / flyers	x	Website for the general public / internet
x	DVD /Film /Multimedia	x	Event targeting general public (festival, conference, exhibition, science café)

23 In which languages are the information products for the general public produced?

x	Language of the coordinator	x	English
x	Other language(s)		

***Question F-10*:** Classification of Scientific Disciplines according to the Frascati Manual 2002 (Proposed Standard Practice for Surveys on Research and Experimental Development, OECD 2002):

FIELDS OF SCIENCE AND TECHNOLOGY

1. NATURAL SCIENCES

1.1 Mathematics and computer sciences [mathematics and other allied fields: computer sciences and other allied subjects (software development only; hardware development should be classified in the engineering fields)]

1.2 Physical sciences (astronomy and space sciences, physics and other allied subjects)

1.3 Chemical sciences (chemistry, other allied subjects)

1.4 Earth and related environmental sciences (geology, geophysics, mineralogy, physical geography and other geosciences, meteorology and other atmospheric sciences including climatic research, oceanography, vulcanology, palaeoecology, other allied sciences)

1.5 Biological sciences (biology, botany, bacteriology, microbiology, zoology, entomology, genetics, biochemistry, biophysics, other allied sciences, excluding clinical and veterinary sciences)

2 ENGINEERING AND TECHNOLOGY

2.1 Civil engineering (architecture engineering, building science and engineering, construction engineering, municipal and structural engineering and other allied subjects)

2.2 Electrical engineering, electronics [electrical engineering, electronics, communication engineering and systems, computer engineering (hardware only) and other allied subjects]

2.3. Other engineering sciences (such as chemical, aeronautical and space, mechanical, metallurgical and materials engineering, and their specialised subdivisions; forest products; applied sciences such as geodesy, industrial chemistry, etc.; the science and technology of food production; specialised technologies of interdisciplinary fields, e.g. systems analysis, metallurgy, mining, textile technology and other applied subjects)

3. MEDICAL SCIENCES

3.1 Basic medicine (anatomy, cytology, physiology, genetics, pharmacy, pharmacology, toxicology, immunology and immunohaematology, clinical chemistry, clinical microbiology, pathology)

3.2 Clinical medicine (anaesthesiology, paediatrics, obstetrics and gynaecology, internal medicine, surgery, dentistry, neurology, psychiatry, radiology, therapeutics, otorhinolaryngology, ophthalmology)

3.3 Health sciences (public health services, social medicine, hygiene, nursing, epidemiology)

4. AGRICULTURAL SCIENCES

4.1 Agriculture, forestry, fisheries and allied sciences (agronomy, animal husbandry, fisheries, forestry, horticulture, other allied subjects)

4.2 Veterinary medicine

5. SOCIAL SCIENCES

5.1 Psychology

5.2 Economics

5.3 Educational sciences (education and training and other allied subjects)

5.4 Other social sciences [anthropology (social and cultural) and ethnology, demography, geography (human, economic and social), town and country planning, management, law, linguistics, political sciences, sociology, organisation and methods, miscellaneous social sciences and interdisciplinary , methodological and historical S1T activities relating to subjects in this group. Physical anthropology, physical geography and psychophysiology should normally be classified with the natural sciences].

6. HUMANITIES

6.1 History (history, prehistory and history, together with auxiliary historical disciplines such as archaeology, numismatics, palaeography, genealogy, etc.)

6.2 Languages and literature (ancient and modern)

6.3 Other humanities [philosophy (including the history of science and technology) arts, history of art, art criticism, painting, sculpture, musicology, dramatic art excluding artistic "research" of any kind, religion, theology, other fields and subjects pertaining to the humanities, methodological, historical and other S1T activities relating to the subjects in this group]