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Title of Report	**Impact creation plan**

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1 Table of Contents

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3 Document History

The aim of this deliverable is to provide relevant information about the impact that VITAL++ project may create.

Revision Month	Filename version	Summary of Changes
M1	V1.0	Initial Report - ToC
M5	V1.1	"Individual dissemination" from BlueChip
M5	V1.2	"Scientific publications" from WIT
M5	V1.3	"Individual dissemination" and link sections from TID
M5	V1.4	"Individual dissemination" from VoiceGlobe
M5	V1.5	"Standardisation efforts (IETF P2P-SIP)" from Fraunhofer FOKUS
M6	V1.6	"Individual dissemination" and "Societal & economical impact" from RBB
M6	V1.7	"Introduction" from TID "Individual dissemination" from Fraunfoher FOKUS
M6	V1.8	"Individual dissemination" from WIT "Individual dissemination" from TA
M6	V1.9	"Synergies with other projects" from TA and TID
M6	V 1.10	"Estimated action plan" and "Individual dissemination" from UoP
M6	V 1.11	"Events and Workshops" and "Individual dissemination" from CTRC
M6	V1.12	General revision from TID
M6	V1.13	"Scientific Publications" and "Support FIRE facilities" from UoP
M7	V1.14	First comments
M7	V1.15	Final review
M7	V2.0	Final version
M9	V3.5	Final version with Business model section

Revision Month	Filename version	Summary of Changes
		completed

Deliverable 6.2. Reviewer tasks have been done by BlueChip.

4 Introduction

4.1 Scope

The *Impact creation plan,* developed in this deliverable, aims to outline the major channels that the project consortium has selected for disseminating the project results. The document objective is to trace the impact creation roadmap that will be followed in the remaining part of the project and to report on the achieved dissemination results.

According to the content of the deliverable, an overview of the document is detailed below:

- Overall consortium project dissemination plan, covering all the timeline of the project.

- Brief description of the standardization groups TISPAN and IETF P2P-SIP, in which the project consortium has focused its efforts, together with the specific contributions that VITAL++ can provide.

- List of all the planned scientific publications.

- Information about VITAL++ workshops.

- Brief description of the related ongoing European research projects that have some correlations with VITAL++, trying to highlight common elements.

- Explanation of the intent to use FIRE facilities, which supports network research for the future Internet.

- Societal and economical impact that this project could create to the general public (focused in each usage scenario).

- Individual dissemination plans: each partner has provided a brief description of its particular dissemination role in the project, its dissemination philosophy inside its organization and the planned actions and exploitation for the next project period.

4.2 Deliverable structure

This deliverable is structured into three chapters, not corresponding with the number of the sections:

- Chapter 1 is the introduction of the document, in which the scope and the structure of the report is presented.

- Chapter 2 presents the project consortium impact creation strategy and the corresponding planned actions, together with a detailed description of the main activities.

- Chapter 3 elaborates the individual dissemination plans of the project consortium members.

5 Impact creation roadmap

5.1 Dissemination context

VITAL++ aims at practically showing a completely new approach of combining the newly emerged IP communication platforms in Telecommunication business (IMS) and the already longer existing P2P technology, which has been well known since even the early days of Internet. This approach embraces P2P technology based on the implementation in an IMS surrounding and thus creates **significant impact towards the definition of parts of future Internet in Europe**.

IMS as in the current stage of standardisation at e.g. ETSI TISPAN with its Release 1 shows some significant drawbacks, which still hinder industry and Telecommunication Operators to implement IMS systems. Currently, the status of IMS implementation in European Telecommunication landscape is still in a proprietary Pre-IMS phase, where different entities show major differences to the architecture proposed in the standardisation. However, VITAL++ nurturing from the challenging approach of combining IMS with P2P technology, **uses a wider take up of these technological developments in IMS and P2P networks and services and will practically prove and validate the results in various sophisticated trial scenarios**.

The results foreseen may unleash new communication opportunities and will pave the way to a network infrastructure with high flexibility in usage resulting from the practical aggregation of the two different but complementary approaches. The formulation of contributions to different standardisation bodies including ETSI and IETF is foreseen within the dissemination activities of the project and serves as basis for the **global consensus towards standards**.

The balanced consortium of the VITAL++ project consisting of research institutes, developers and operators with a strong background in each part of the IMS value chain settles the base for the results to be achieved during the trial period of the project. The project aims at practically validating the theoretically developed network architecture of VITAL++, considering and monitoring users needs combined with the trials in a heterogeneous trial surrounding, by which **the international cooperation is being strengthened by use of interconnected test beds**.

5.2 Estimated action plan

The relevant actions that are outlined in this section and further discussed and expanded further bellow aim to raise awareness and publicity about the project and its results.

To achieve this goal, dissemination practices include advertisement of the project in the form of website, deliverables, public trials, workshops, publications and electronic media.

Besides creating its own dissemination events, VITAL++ will participate on a regular basis in exhibitions, workshops and conferences, through the publication and distribution of material like leaflets, through the Internet, etc. VITAL++ platform will provide access to third parties and particularly in parallel EC driven initiatives.

Related standardisation working groups and fora (IETF, ETSI TISPAN, ITU-T, etc.) are monitored, and contributions will be made in order to establish links and promote project results, and support the evolution of IMS and peer-to-peer technologies. At this point, there is initial contribution, via TID, to newly established standardisation effort within ETSI (see also TID exploitation & standardisation plan).

Moreover, exploitation plans based on the project's technical outcome, the results from the market survey and the analysis of the competition, will establish the proposed communication paradigm as a potential solution. For that reason, the project will consistently monitor the current trends on IMS and peer-to-peer technology and the relevant market areas in order to provide updated information to technical teams and, thus, guarantee a successful result. Unexpected technology changes or user needs can thus be followed accordingly.

5.3 Standardisations efforts

Vital++ has potential of creating impact on standardisation in two different domains. One is the NGN/IMS area, while the other one is the P2P area.

For NGN/IMS, basically two standardisation bodies are of relevance, which are 3GPP and ETSI. 3GPP is the original standardisation body for IMS and has published 9 revisions of its standards according to NGNs so far in different stages. 3GPP has focused on the mobility aspect of user terminals. ETSI on the other hand has invoked the TISPAN workgroup, which defines deltas to the 3GPP revisions, in order to meet fixed-line requirements. In TISPAN, a work item for P2P and IMS integration has been established, which makes this one a

feasible target for contributions. Submitting contributions to 3GPP is therefore questionable, but not excluded.

The other area for standardisation is P2P. In this area, only the P2PSIP group at the IETF exists. The aim of this group is to develop protocols and mechanisms for the use of the Session Initiation Protocol (SIP) in settings where the service of establishing and managing sessions is principally handled by a collection of intelligent endpoints, rather than centralized servers as in SIP as currently deployed.

5.3.1   TISPAN

TISPAN (Telecommunications and Internet converged Services and Protocols for Advanced Networking) received in July 2008 a proposal to start a new Work Item.

It was signed by TNO (Editor), KPN, Alcatel-Lucent, ZTE, NEC, Telecom Italia and Huawei and was titled "Peer-to-peer for content delivery for IPTV services: analysis of mechanisms and NGN impacts". This Work Item is going to be developed in WG1/2 (Requirements and Architecture) but liaisons with other groups are not discarded.

During the first meeting, only 4 hours were allocated for the WI, and 3 companies provided contributions. This meeting was held in Nice in September 2008, and one representative for VITAL++ assisted.

It was agreed that for the next meeting, more time will be allocated to this issue. This second meeting was scheduled for the first week of November 2008. Again, a representative form Vital++ will attended.

The Technical Report (TR) is expected to last until February 2009. ETSI members can check the status of the Work Item at: http://portal.etsi.org/docbox/TISPAN/TISPAN/50-Meetings/20080926-18Bis/

Currently there are two architectures of IPTV defined in TISPAN:
- Dedicated Subsystem (proposal developed by Alcatel-Lucent)
- IMS Solution

Since Vital++ is IMS oriented and WI is oriented to both, VITAL++ will focus on contributions to the IMS side.

The main contributions have been done in the following areas:
- Use cases (remote rural areas)
- Requirements
- Architecture studies

5.3.2 IETF P2P-SIP

In VITAL++, use of the P2P-SIP protocols is very likely, as the P2P protocols use SIP as underlying protocol. Because IMS is also addressed by the client, SIP will be present in every client anyway. Nevertheless, P2PSIP as a protocol is quite generic and does not imply any concrete P2P overlay architecture or structure, although Chord has been defined over P2PSIP. Therefore, the P2P neighbour selection and scheduling methods for constructing streaming overlays, which are currently developed in the VITAL++ project, could become subject to submission to the P2P-SIP group at the IETF as additional algorithms for constructing overlays to Chord.

5.4 Scientific Publications

Vital++ proposes the integration of P2P content distribution overlays with an IMS infrastructure. This is done to take advantage of IMS AAA features and potentially QoS. The implications of the integrated Vital++ platform are technical challenges and resulting benefits of efficient content delivery through integration between the overlay and the IMS control plane. Technical challenges will include

- Hybrid P2P and IMS AAA & trust mechanisms;
- Interoperability between IMS control plane and Vital++ P2P Overlay;
- Efficient P2P content distribution for on demand and real-time content;
- Overlay self-organisation using autonomic principles to improve overall platform content throughput, thereby increasing utility and value of the Vital++ solution in a commercial deployment.
- Incorporation of content security mechanisms within a P2P overlay;

The Vital++ platform will by necessity advance the state of the art in different technology domains including.

- P2P Networking & Overlays (P2P);
- NGN & IMS (IMS);
- Autonomic Communications (Auto);
- Security (Sec).

We will target a list of reputable conferences and journals for publication submission to ensure Vital++ innovations are disseminated. Some examples are listed below.

Title	Conf/ Journal	Category	Partner(s)	Date	Submission Deadline	URL
Manweek 09	Conf	Auto	WIT	26-30 Oct '09	TBA	(1)
Telecom I+D	Conf	P2P-IMS	TID	TBA - Throughout 2009	TBA	(2)
Springer, Peer-to-Peer Networking and applications	Journal	P2P	UoP	Summer 2009	31-9-2008	(3)
Elsevier Visual Communication and Image Representation	Journal	P2P – Special Issue on Emerging Broadband Multimedia Services	UoP	June 2009	31-12-2008	(4)
IEEE P2P	Conf	P2P	UoP	September 2009	TBA (estimation 4-2009)	(5)
Infocom 2010	Conf	P2P	UoP	TBA (estimation July 2009)	TBA (estimation Summer 2010)	
IPTPS 2010	Conf	P2P	UoP	TBA (estimation 4-2010)	TBA (estimation 1-2010)	(6)

Conference URLs

(1) http://magellan.tssg.org/2009/index.php

(2) http://www.telecom-id.com/   (Spanish)

(3) http://www.springer.com/engineering/signals/journal/12083

(4)   http://www.elsevier.com/wps/find/journaldescription.cws_home/622906/description#description

(5) http://www.p2p2009.org/ (under construction))

(6) http://www.iptps.org/

5.5 Attendance to events and workshops

VITAL++ Consortium mainly focused on raising awareness and publicity about the project and its results. VITAL++ targets on attending various events and workshops. Each partner performs the monitoring of the events and workshop that are held in Europe and relevant information is disseminated thought the mai-list of the project. Until now the VITAL Consortium has attended the following events and workshops.

Title	Subject	Partner(s)	Date	Type of Dissemination	URL
TEMU 2008	TELECOMMUNICATIONS MULTIMEDIA	CTRC	16/6/2008	Leaflet	(1)
4th International FOKUS IMS Workshop 2008	Challenges and Opportunities in a Converged Services World - an Update on IMS, IPTV, SDPs, SOA and Web X.0	FOKUS UoP	6/11/2008	Conference	(2)
Telecom I+D	Lines of the future of telecommunication sector.	TID	TBA – Throughout 2009	Conference	(3)

Conference URLs

(1) http://www.temu.gr

(2) http://www.fokus.fraunhofer.de/en/fokus_events/ngni/ims_ws_08/index.html

(3) http://www.telecom-id.com/   (Spanish)

5.6 VITAL++ workshop

VITAL++ mainly aspires at defining and illustrating a new communication paradigm that will demonstrate how content-based applications and services, highly heterogeneous in terms of user functions and distributed in the network, can be enrolled in the frame designated by the operations of traditional telecommunication networks and thus be made widely available to the users with proper Quality of Service, security and adequate privacy.

VITAL++ new communication paradigm contributes to strengthening Europe's position in the future Internet deployment as it contributes to enhancing NGN technology and enables creation of a new breed of Internet applications, featuring operations telecommunication network.

VITAL++ results will be a useful feedback for the existing service/content providers (a broader market will be open for them).Towards these goals a dedicated VITAL++ workshop will be organised where this communication paradigm will be presented in details to the telecommunications and scientific community providing useful information about the networking potential and the local aspect of the new communication paradigm proposed.

5.7 Synergies with other EU funded projects

5.7.1   VITAL

5.7.1.1   Project summary and objectives

The FP6-funded project **VITAL** focuses on the elaboration of generic solutions that will consolidate the technological status of IMS and accelerate the seamless transition to an all-IP communications environment, particularly via the establishment of the first experimental, Europe-wide IMS platform, and the conduction of large-scale traffic experiments with the purpose to test, validate and finally prove IMS efficiency for hosting rich-content audio-visual and data communications. VITAL introduces new resource allocation algorithms, which ensure the Quality of Service for a broad variety of convergent services in a multi-vendor network environment involving the following access technologies:

- Mobile (UMTS),
- Fixed VoIP (ADSL, Broadband),
- V.92 access technology for SIP based videotelephony over the PSTN,
- Wireless 802.11 (Wi-Fi) and
- Wireless 802.16 (Wi-Max).

Moreover, new and innovative strategies for moving users' management on IP level are explored and specified.

5.7.1.2 Relevance to VITAL++

VITAL++ is the follow-up project of VITAL, which has ended in September 2008. University of Patras, Voiceglobe, Telefonica and Telekom Austria have been among the partners of the VITAL Project. In this way, the transfer of knowledge - generated within VITAL - to users of VITAL++ is guaranteed. In particular, the following lessons learnt, recommendations and results can be reported from VITAL:

➢ Mobility Management in IMS

- Dedicated mobility management application servers communicating with the ISC interface with the S-CSCF are required.

- FMC terminals that combine mobile and wireless radio interfaces and support IMS SIP and mobility management procedures are required for realising handovers preserving service continuity in IMS.

- The lower layer handover procedures are handled by the terminal, while the mobility management application server being responsible for realising the new signalling path.

➢ Harmonisation of QoS in IMS

- End to End QoS implementation in a converged environment is a very complicated and challenging task depending on both the control and the transport layer.

- Lack of standardised resource management mechanism specifications for access networks using peering mode configurations (VoIP, H323/VoIP, WLAN, V.92) for interconnection with the IMS core.

- 3GPP and TISPAN available solutions apply to mobile and fixed networks respectively, which require significant effort to be integrated with peering mode configurations (VoIP, H323/VoIP, WLAN, V.92).

- DiffServ enabled access network can interoperate with IMS QoS handling mechanisms for achieving end to end QoS.

➢ Interoperability in IMS

- VITAL demonstrated that interworking of different access networks in an IMS environment really works. This is extremely important since up to now no similar installations are available in the field.

- Realisation of voice and video calls, video conferencing trials, video streaming trials and data sharing trials through in a multi-access and multi-vendor environment.

- Conformance testing ensures interoperability and reduces the effort required for the interconnection of the different SIP/IMS network components.

- The main interoperability issues that have to be solved towards interconnecting the IMS core with different access networks include:

  - Media failure – Codecs

  - Packet Fragmentation

  - NAT traversal

  - Different Paths for Signal – Media

- The control part of content applications like video streaming and data sharing can be realised in IMS using the SIP.

- The impact of VITAL's functional units on the performance of the overall IMS network architecture was evaluated and the S-CSCF was identified as the bottleneck device. It was shown that the performance of the Application Servers connected through the ISC interface to the S-CSCF will be low in heavy traffic conditions.

5.7.2   EuQoS

5.7.2.1   Project summary and objectives

EuQoS (http://www.euqos.eu/) is an Integrated Project within FP6. The key objective of EuQoS is to research, develop, integrate, test, validate and demonstrate end-to-end QoS technologies with the intention to support advanced QoS-aware applications - voice, video conferencing, video streaming, tele-engineering and medical applications - over multiple, heterogeneous research, scientific industrial and national research network infrastructure testbeds.

EuQoS started on 01/09/2004 with an overall duration of 36 months.

5.7.2.2   Relevance to VITAL++

EuQoS has ended in August 2007. P2P technologies have not been considered in EuQoS. The QoS mechanisms are based on IETF standards, IMS QoS components such as PDF or RACS have not been implemented.

However, EuQoS is also aiming at an optimum use of the available bandwidth for content-rich applications in order to achieve a better utilisation of the network components and connections. In this way and esp. with the end-to-

end view on QoS in a heterogeneous environment synergies between EuQoS and VITAL++ can be found.

5.7.3 Anemone

5.7.3.1 Project summary and objectives

The primary goal of the FP6 STREP **Anemone** (http://www.ist-anemone.eu/) is to realize a large-scale, open testbed providing support of mobile users, devices and enhanced services by integrating cutting edge IPv6 mobility and multihoming initiatives together with the majority of current and future wireless access technologies.

Anemone started on 01/06/2006 with an overall duration of 29 months.

5.7.3.2 Relevance to VITAL++

Anemone has ended in October 2008. Thus, the support for practically interconnecting or testing with the Anemone testbed is not given any longer. According to the testbed repository on Panlab (http://www.panlab.net/testbed-repository/) the individual platforms of the Anemone partners are offering IPv6 applications and services such as VoIP, VoD, conferencing and mobility. Therefore, the exchange of knowledge in setting up, running and testing such applications and services is very beneficial for VITAL++, though the main focus is not set on IPv6 in VITAL++.

5.7.4 EuroLabs

5.7.4.1 Project summary and objectives

The main objective of the FP6 SSA **EuroLabs** is to set up and maintain five well-equipped, interconnected testbeds, offering state-of-the-art NGN technologies as well as advanced applications and services. These testbeds are open to IST and other (national and international) projects, offering possibilities to implement and test innovative products, as well as interoperability testing.

Resource allocation and reservation is a crucial aspect within EuroLabs as well as with this proposal.

5.7.4.2 Relevance to VITAL++

Eurolabs started its timeline on 1st October 2004 and it has ended in Sept 2007. The use of its testbeds infrastructure could help VITAL++ to do trials in order to know which services are interesting to be included and to define them as use cases.

Resource allocation and reservation is a crucial aspect within EuroLabs as well as with VITAL++.

5.7.5 OpenNet

5.7.5.1 Project summary and objectives

The **OpenNet** project is a SSA sponsored by the EC IST FP6 Programme. The project addresses one of the main barriers to the wider usage of the Internet for all services: the lack of predictable support for aspects such as QoS (availability, throughput, delay, delay variation, loss), security and privacy, when packets have to cross domains operated by different providers. The OpenNet project is based on the following objectives:

- To identify the barriers that hinder use of the Internet for global "Premium" services
- To map these to relevant solutions being worked on in standards bodies

5.7.5.2 Relevance to VITAL++

One of the main reasons for deploying P2P technologies is to attain a smooth distribution of the overall traffic load, which is exchanged between the network nodes, in order to improve the achievable level of QoS.

Using P2P to distribute video content between peers (users), the information needs to cross different domains of several providers (each user could have its own provider). These concepts around quality of service affecting different providers (availability, delay, losses, etc...) and the critical element of security attach importance to the synergy between OpenNet and VITAL++.

5.7.6 NetQoS

5.7.6.1 Project summary and objectives

The main objective of the FP6 STREP **NETQoS** is the development of an autonomous policy-based QoS management for wired/wireless heterogeneous communications networks aimed to provide enhanced end-to-end QoS and

efficient resource utilisation. The automation of network level policy management addressed in the project allows for dynamic adaptation of the managed system in response to changing requirements of the operational environment, with more flexibility to users and applications to dynamically change their QoS requirements while maintaining a smooth delivery of the required QoS. The project addresses the architecture, protocols, access technologies, configuration, dynamic QoS and resource allocation, and distributed management schemes in achieving the project objectives.

5.7.6.2 Relevance to VITAL++

The policy-based QoS management system of NETQoS heavily correlates with the approach of this project. The fact of applying end-to-end QoS to P2P exchanges of content gives the chance to the network of implementing an efficient resource utilisation. This has been always the main objective of P2P technologies.

The management schemes should be adapted to the requirements of the operational environment, according to the flexibility of users and applications that IMS-P2P philosophy gives.

5.7.7 Daidalos

5.7.7.1 Project summary and objectives

Daidalos is an Integrated Project within FP6. The Daidalos vision is to seamlessly integrate heterogeneous network technologies that allow network operators and service providers to offer new and profitable services, giving users access to a wide range of personalised voice, data, and multimedia services.

Among others, Daidalos is focusing on QoS aspects such as differentiated services, QoS signalling, L2/L3 mapping and policing.

5.7.7.2 Relevance to VITAL++

Daidalos is currently in its second phase. Any project that is focused in QoS aspects should be concerned to be of the interest of VITAL++. The new wide range of personalised voice, data and multimedia services could help VITAL++ to create new content based services.

5.8 Support FIRE facilities

VITAL++ has been positioned as one of the four experimental facilities projects accepted by FIRE initiative during Call 2 of the 7th Framework. To this end, VITAL++ as part of Task 6.4 in WP6 is going to address support of the FIRE facilities through its participation and planned contributions in the FIREworks activities (see Deliverables D6.6.1a,b – D6.6.2a,b).

More specifically, VITAL++ aspires to act as a reference platform for P2P protocol experimentation as well as for content distribution capabilities. The former may be supported through the integrated IMS-P2P client architecture and implementation that can host new P2P algorithms and testing thereof in the VITAL++ experimental facility. The latter may be compared with conventional means of content distribution in an effort to assess the pros and cons of the P2P technology when used for content delivery e.g live streaming. Such capability may lead into new hybrid systems and network functionality.

Furthermore, VITAL++ being a research project is expected to propose and try new network mechanisms influenced by P2P technology. These mechanisms may be adopted as alternative functionality to Future Internet or adopted by other experimental facilities e.g PII and Onelab2. One of such mechanisms to be investigated is QoS.

VITAL++ has already defined a number of use cases. As this is also one of the objectives of the FIRE initiative special effort will be devoted in contributing these use cases into the suite of FIRE use cases.

Finally, members of VITAL++ are participating in the FIRE experts group aiming at contributing to the FIRE report addressing issues like the FIRE vision, Implementation and Roadmap and Emerging Strategic research topics.

5.9 Internet Presence

The project Internet presence is mainly realised through a dedicated website (www.ict-vitalpp.upatras.gr). The site is used to promote its research, besides some internal part that is used as a document repository, using BSCW technology, as well as for facilitating the delivery of documents to the EC.

The VITAL++ website is used as the main dissemination tool providing information related to the project. The website follows the project evolution and is updated constantly with every new information and outcome. Moreover, it covers the project goals, objectives, accomplishments, and background information.

Figure 1 VITAL++ website capture

Among all the elements in the website, it is necessary to mention:

- A generic technical approach in order to locate the project in its context.
- Up-to-date news about the progress of the project.
- Information about the presence of the project in conferences, fairs, exhibitions, etc.
- Schedule of activities.
- Contact details.
- A private area is used by the partners.

When the project will be concluded, all members of the consortium will decide whether the website will be maintained depending on the final path for the exploitation of the results.

5.10 Societal and economic impact

The envisaged VITAL++ technical features and content-based services will support a free information market and a more horizontal content market.

In such a market, the user will be able to acquire content and information in a less provider-oriented, more topic-oriented way. Allowing the integration of user-generated content and third party content providers in a common service will enable content provision based on content quality rather than the power of technical equipment. The dynamic content delivery system will lower the initial service start-up costs – thus considerably support SME in the content sector - and the integration of the IMS architecture will create novel personalised content-related services and new business models applied directly from the unified network management model for different access networks and services (voice, data and video). Supporting such a horizontal content provision will open and enrich the content market and thus be beneficial for both small and medium content providers as well as users/viewers.

Innovative encoding standards open network interfaces as well as new capabilities and features for media servers, based on open standards, are important conditions for achieving open competition. This prevents locking customers into one proprietary network system and the operators into proprietary service delivery platforms. Through the VITAL++ service concepts application providers will be able to compete by means of innovative services while manufacturers of home and mobile appliances can compete by means of different features of their devices.

5.10.1   rbb Remote

The concept of rbb Remote, an IMS-based content provisioning service, would deliver IPTV and other content available over IP to hitherto excluded rightful content users, such as fee payers outside the geographical area they paid for. This would be a considerable societal impact as it would improve the justice of public service content provision. Such a service would enable providers to distribute their content and services outside their geographical service area without evoking further costs. This could also enlarge their market field decisively as they would only supply resources for a smaller target group and rely on active users to distribute the content further.

5.10.2   SoftMix

The possibility to allow users to personalise their multimedia content experience from a broadcasting to an individual paradigm, as is envisaged

through the SoftMix service, will have an indirect but remarkable economic impact on public service content provision. As it is now, users who are looking for different content have to leave the programme they listened to or watched so far. This always incurs a certain "risk" for the broadcaster that, once the user left the service, they may not come back soon, if at all. With a service like the SoftMix offer, rbb (and other providers who might be using it in the future) can ensure that users enjoy their freedom of choice of content without actually having to leave the rbb service. The user would tune back in to the public service automatically, according to their own, self-defined schedule, where they might stay away if they had to actively tune in and out again every time. This would support a perfect mixture of public service content quality and individual freedom of choice.

5.10.3   Remote rural areas

Nowadays some remote rural areas are served by satellite connection, however, it is not feasible (from the economic point of view and sometimes also from the technical point of view) to put services on top of it. This is a digital and social gap for people living there and thus for development of these regions.

A combination of satellite access, LAN connection and P2P can improve the way multimedia content distribution services can be provided to these areas. The grouping of satellite access and LAN connections make feasible the deployment of high bandwidth accesses to remote rural areas. Adding P2P to this scenario will make it possible, in a economical way, to provide VoD services. In this approach, this remote rural area can receive the same service any citizen is receiving in big cities.

This improvement on today's services is based on the high probability, for VoD scenarios, that several users are going to select the same content during a certain period. Any further, users requesting the same content will be served by the first user and so on, instead of using the satellite link. This will mean a significant economic advantage for the operator.

For advanced telecom services, Vital++ aims to reduce the digital and social gaps in remote rural areas, proposing new paradigms for service delivery and development, allowing to provide the same products and services that in the urban areas.

6 Individual dissemination plans

6.1 University of Patras

Figure 2 University of Patras logo

6.1.1   Positioning of dissemination for the partner

University of Patras is an academic partner that is founded in the city of Patras, Greece, in 1964 and it began functioning in the academic year 1966-67. The Department of Electrical & Computer Engineering was the first department of the School of Engineering founded at the same year and now is comprised of three divisions. The Wire Communications Laboratory (WCL), and in particular the Network and Management Architecture Group, which is going to carry out the work in this project, belongs to the Division of Telecommunications & Information Technology. WCL is active in three main areas with six organised R&D teams: Telecommunications, Speech & Natural Language Technology, Audio & Electroacoustics. In particular, the Telecommunications research area is comprised of 3 subgroups: DIGItal Transmission and CODing Group (DIGICOM), MULTImedia COMmunications Group (MULTICOM) and NETWork OPTimization and Management Group (NETWOPT). The research activity of this area of WCL includes the development of advanced IP–controlled telecom equipment, transmission and optimisation of telecom networks, and image processing. Most of the expertise acquired by WCL has been through co-operation with Greek and foreign firms as well as participation in national and EU projects with the most recent ones being the FP6 projects FlexiNET, Autonomic Communications Coordinated Action (ACCA) and VITAL.

The Network and Management Architecture Group, members of which will participate in this project, has developed an expertise in network management, in particular monitoring, P2P systems, programmable and active networks and autonomic networking while currently is deploying an IMS platform. Those will be the main areas of work and dissemination of the partner. Moreover, the team holds the Project and Technical Management of VITAL++ and therefore oversees all dissemination activities within European and International fora.

6.1.2   Planned Actions & Exploitation

UoP aims at leveraging the current expertise as well as further extending it in the areas of monitoring, autonomic networking and P2P systems as enablers of autonomicity in the network. The acquired knowledge will be used to setup advanced educational courses and final year projects. Furthermore, UoP will contribute to dissemination of VITAL++ results in major conferences and journal as well as organize related workshops. We also expect that VITAL++ will provide the basis for new European projects in this fast progressing area. As project manager UoP will steer actions related to the dissemination of VITAL++ in standardisation bodies and in other related EC driven activities. The platform of VITAL++ is envisaged to be utilised by large experimental platforms such as PII and OneLab 2.

6.2 Telefónica I+D

Figure 3 Telefónica I+D logo

6.2.1   Positioning of dissemination for the partner

Telefonica Investigación y Desarrollo is a company totally owned by *Telefónica S.A.* and operational since 1988. *Telefónica S.A.* has created *Telefonica Investigación y Desarrollo* to fulfil its Research and Development requirements with more excellence and profitability and to contribute to *Telefónica Group* competitiveness through technological innovation. Over the last years, the line of work of *Telefonica Investigación y Desarrollo* has evolved to conform to the objective of becoming a service creation lab. This objective is driven by the emergence of interactive multimedia services, which are increasingly becoming a mayor force in the telecommunications market. *Telefonica Investigación y Desarrollo* employs over 1200 persons, 93% of them hold a University degree.

Nowadays, *Telefonica Investigación y Desarrollo* is the most important private company in Spain devoted to R&D and very active in the following major areas: Services creation, related to the broadband, ADSL, intelligent network, data communications, narrow band ISDN, mobile communications, speech technology, multimedia services, and public use telecommunications, Network and services management, both fixed and mobile, using solutions based on the

latest standards and Network innovation, with the purpose of supporting *Telefónica* in its effort to offer the widest possible range of services.

For *Telefonica I+D*, as the 'department' of research and development of the global enterprise *Telefónica*, the dissemination of its working projects is one of its main objectives. That is why it owns some different ways or platforms to contribute to the scientific community and not only to develop the products or services that *Telefónica* needs to improve its business as a telecommunication operator.

6.2.2   Planned Actions & Exploitation

TID has planned to do some dissemination activities within VITAL++ project. In concrete, these activities are between others:

- Articles publication on "Boletín Ventana Abierta" using the Telefónica group dissemination platform. This platform reaches scientific groups in countries where Telefónica is established. For all VITAL++ timeline.

- Articles publication on "El diario de Telefónica" from Telefónica. This diary is daily sent to all Telefónica Group employees (about.233.000 persons in more than 20 countries).

- Periodical Plasma TV advertising publication at Telefónica I+D's Madrid centre premises (hall entrance).

- Attendance and participation, including Vital++ presentation, in the Telecom I+D days (19th edition) where Spanish administration, enterprises, universities and professional associations give lines of the future of telecommunication sector. This is the most important event for telecom industry in Spain and is supported by the Spanish Administration.

- Articles publications in SIMTID from Telefónica I+D. This is the entrance page for internal Web for all Telefónica I+D employees where they get informed about the most relevant events from this company. These articles guarantee internal communication and synergies between different departments from same or different activity lines for all Telefónica I+D centres within Spain and abroad.

According to the exploitation plan, Telefónica would like to obtain new services for the Telefónica's IPTV platform. That means to test these new developments in IMS platform using P2P, which is predictably the future of the IPTV.

With the participation of Telefónica in the demonstrator, Telefónica gives to the VITAL++ project the opportunity of testing our own IPTV services having as

basis our own IMS platform. This will be a good way to increment and improve it, because it should be adapted to other non-intrinsic requirements of our own company, and that gives us knowledge and the opportunity of being involved in the whole development process of the final demonstrator. Besides, it opens an interesting distribution channel to show the Telefónica's products for new clients, with a system and interface more oriented to our interests.

6.3 Fraunhofer Fokus

Figure 4 Fraunhofer logo

6.3.1   Positioning of dissemination for the partner

Fraunhofer FOKUS is a German research institute with long term history in telecommunication networks. In this scope, FOKUS runs multiple test beds for the exploration of network technologies and services like SOA, IMS, eGovernment, to name just a few. One of the most well known test beds is the open IMS playground in Berlin. This test bed is mostly used to demonstrate the IMS dynamics in serve creation, administration and monitoring, as well as for interoperability case studies.

6.3.2   Planned Actions & Exploitation

FOKUS has planned to do some dissemination activities within VITAL++ project. In concrete, these activities are between others:

- Publication of journal articles about VITAL++ research topics.

- Participation and publication of papers at Conferences, oriented to network- and multimedia technologies and content delivery.

- Enrichment of the open IMS playground test bed with P2P enabler functions.

- Enable the MONSTER IMS client framework with P2P functions.

6.4 Rundfunk Berlin-Brandenburg

Figure 5 RBB logo

6.4.1   Positioning of dissemination for the partner

rbb as a Public Service Broadcaster is not involved in technological or scientific communities to an extent that would suggest scientific presentations or publications. However, rbb is present regularly at dissemination events related to media services and technologies, such as IFA, ibc as well as local and national workshops on media issues.

6.4.2   Planned Actions & Exploitation

rbb intends to offer a VITAL++-based content service to its users. This will broaden the customer base or at least ensure that those users who tend to be driven from the traditional TV set to their PCs or other IP-based devices will not be lost as viewers. Implementing the envisaged services will furthermore help to interlink several channels and thus ensure that rbb's channels will not lure new consumers from other rbb channels but rather share them in the future. Consequently, the publication of this service will be promoted on relevant rbb channels (incl. radio and online).

Dissemination efforts will start even before the availability of the VITAL++ architecture and respective services. rbb plans to promote the project and its services at annual events like IFA (Technical-scientific Forum, Berlin) and ibc (Amsterdam), as applicable.

6.5 Blue Chip Technologies SA

Figure 6 BlueChip logo.

6.5.1   Positioning of dissemination for the partner

Blue Chip Technologies (BCT in short) has been established as SIM Card supplier, acting as the local technical and commercial interface for major telecom operators in Greece and the Balkans.

BCT is also involved in the integration and technical support services of related systems such as Over-The-Air (OTA) Portable Device Management, SIM Card management and messaging platforms.

Today BCT performs trading and integration services for smart card based solutions and products for mobile network operators. In this field BCT has the leading position in Balkans, with sales in Greece and in neighbouring countries, including Skopje, Albania, Bulgaria, Romania and Serbia.

BCT is primary member of the SIM alliance and the NFC forum where systematically contributes to the development of smart card based customer solutions for next generation networks and the transportation sector.

Ongoing tendencies in the context of these two bodies have shown that future services for next generation networks will be dynamically dependant on the capabilities of the user terminal and the user profile stored in the embedded smart card. As such, smart cards will become integral part of terminals functionality and network services, lending users a sense of ubiquity in their communications. On the other hand terminal architectures will gradually open to third party developers making possible implementation of diversified user applications and network services driven by user demand.

6.5.2   Planned Actions & Exploitation

Following this trend BCT is planning to port the enhanced IMS VITAL client to mobile handsets in order to make it available as a smart card based communication solution for next generation networks. For this purpose BCT has already adopted the predecessor VITAL IMS client and currently conducts trials in real mobile operator networks. In the same fashion, in the context of the project BCT will enhance the IMS VITAL client with P2P communication functionality with the view to present it to its customers as a new innovative communication solution suitable for exploitation in next generation networks.

6.6 Centre for Technological Research of Crete

Figure 7 Centre for Technological Research of Crete logo

6.6.1   Positioning of dissemination for the partner

Centre for Technological Research of Crete is one of the five created (by the Greek Government) Centres for Technological Research - with large administrative and financial flexibility and autonomy in their status – the target of which is the transfer of technological and know-how issues, from the Greek Technological Educational Institutes laboratories to the Industry. Besides these, CTRC is also responsible for carrying out studies for the sake of the Greek authorities, at National level.

The Sector of Design and Development for Systems and Constructions is actively involved in many areas of information technology, including the design, implementation and the performance evaluation measurements (including radio-propagation tests and measurements) for broadband wireless networks, terrestrial interactive digital TV infrastructures, satellite communication systems, networked multimedia and interactive broadcasting services/applications, software engineering with emphasis to automatically customisable software. Those will be the main areas of work and dissemination of CTRC.

6.6.2   Planned Actions & Exploitation

The dissemination activities that CTRC intents to do within the scope of VITAL++ project are:

- Deployment of the IMS and P2P services in a terrestrial interactive digital TV infrastructures

- Publication of journal articles about VITAL++ research topics.

- Participation and publication of papers at Conferences, oriented to network- and multimedia technologies and content delivery.

6.7 Waterford Institute of Technology

Figure 8 Waterford Institute of Technology logo

6.7.1   Positioning of dissemination for the partner

WIT intends to follow 3 strands of dissemination of their Vital++ results. As leaders of Work Package 4 WIT are closely involved in the development and implementation of Vital++'s AAA architecture.   Task 4.2 deals with the development of new algorithms for efficient distribution of content, from files to time sensitive isochronous streams.

We're also the task leaders on the content security tasks where we intend to investigate the incorporation of Digital Rights Management technologies within the Vital++ platform.

WIT plans to submit scientific publication to the relevant conferences in the areas of autonomics, AAA and content security.

WIT joined ETSI in 2008 and are currently engaged in creating an Autonomics Industry Specification Group (ISG) within ETSI. This should be ratified in early 2009 and we'd hope to provide input to this group regarding the use of self-organising P2P overlays for multimedia content distribution, drawing from the Vital++ research into the design of innovative content distribution algorithms.

With University of Patras, Fokus and TID we intend to review the ongoing work on Peer-to-peer mechanisms within ETSI's P2P working group and make a joint contribution on behalf of Vital++.

6.7.2   Planned Actions & Exploitation

WIT aims to disseminate research results through paper submission to conferences and through participation in standards bodies, namely ETSI.

Targeted Conferences:

- ManWeek 2009, 5th International Week on Managmeent of Networks and Services, Venice, Italy, 26-30 Oct 2009.

- IEEE 9th International P2P Conference, Sept/Oct 09.

- TridentCom 2010, 6th International Conference on Testbeds and Research Infrastructures, March/April 2010

Targeted Journals:

- We aim to submit a journal publication to the IEEE Transactions on Content Privacy detailing the challenges surrounding incorporation of digital rights management technology into a decentralised P2P-IMS environment.

Industry Consortia and Fora:

- Initial engagement with the ETSI Autonomics Industry Specifications Group. 2009

- Recommendations to the ETSI IPTV working group in relation to P2P-IPTV, 2009-2010.

6.8 Telekom Austria TA AG

Figure 9 Telekom Austria TA AG logo

6.8.1   Positioning of dissemination for the partner

Telekom Austria TA AG, as the leader of WP6, is in charge of the overall dissemination activities of the VITAL++ Project. Among those activities are the organisation of the VITAL++ workshop, contributions to standardisation bodies, publications in selected journals, magazines and books as well as conference presentations.

Moreover, Telekom Austria TA AG will disseminate the knowledge gathered within the VITAL++ Project through

- Regular management presentations including the latest developments, strategies and schedules,

- Internal workshops for a selected group of engineers working on IMS architectures and content distribution,

- Publications on Telekom Austria's internal web site (intranet) and

- Demonstrations of the VITAL usage scenarios executed on Telekom Austria's VITAL++ access networks.

6.8.2   Planned Actions & Exploitation

Telekom Austria TA AG is considered to be the leading network operator and service provider on the Austrian telecommunications market. With a customer base of about 80.000 at the time of writing, Telekom Austria is offering an IPTV service bundled with POTS and/or HSI (High Speed Internet) to its broadband customers. The access lines for IPTV are based on ADSL2+ with an Ethernet aggregation network to the respective servers, which, in turn, are fed by satellite receivers. About 85 TV channels are constantly broadcasted to the Ethernet DSLAMs located in and around the bigger cities of Austria.

Within VITAL++ Telekom Austria TA AG provides an access network for experimenting on the VITAL++ usage scenarios. The newly designed P2P/IMS clients are installed on the access network and they are linked to the central IMS platform hosted by FOKUS. The experiments run by the clients shall assess and prove that the various scenarios are delivering content with proper QoS, security and adequate privacy.

Network planning activities for improved IPTV scalability and for optimised delivery schemes as well as distribution of user provided content (with limited upload capacities) and the integration of the IMS architecture are among the exploitable results for Telekom Austria TA AG.

6.9 Voiceglobe Belgium Sprl.

Figure 10 Voiceglobe Belgium Sprl. logo

6.9.1   Positioning of dissemination for the partner

Voiceglobe is a Next Generation Internet Telephony & IP Multimedia Services Provider, introducing to the Internet community worldwide innovative voice and advanced real time communication services over the public Internet.

Based on a distributed business setup and the technology advance of Internet Telephony Voiceglobe is targeting any Internet user worldwide, especially the ones using Broadband access.

Voiceglobe offers VoIP services as third party over operator networks and maintains its own infrastructure for service retention and execution, billing and user management.

Following this practise nowadays Voiceglobe offers VoIP services over fixed, mobile and wireless networks on a diversity of user terminals.

In its effort to systematically investigate upon new technologies in the area, in the frame of the VITAL project Voiceglobe has integrated in its network SIP based IMS services and clients. Especially the latter was made possible with the adoption of the VITAL IMS client, which was proven concerning its efficiency to offer Voiceglobe users a number of multimedia services beyond the voice communications model, using the SIP protocol. Nowadays Voiceglobe has adopted the IMS communication model and is currently conducting trials on its commercial network with the aspiration to lunch IMS services commercially using the VITAL client.

In continuation of this effort and in conjunction with the evolution plan set for the VITAL IMS client concerning integration of P2P services, Voiceglobe is poised to examine the possibility of the P2P technology to be launched commercially in the form of a decentralised service for community-based user applications implementation.

6.9.2   Planned Actions & Exploitation

In the frame of the aforementioned business area Voiceglobe plans to:

- Host on its network experimental P2P applications realised with the VITAL IMS client.

- Perform traffic experiments with the view to examine issues of VITAL client exploitation in large groups of users.

- Examine the level of conformance of P2P services to the mechanisms of subscriber networks and especially those foreseen by the IMS technology.

Voiceglobe will take these actions to make possible the commercial exploitation of the enhanced VITAL IMS client in subscriber networks. Behind this goal is the interest of Voiceglobe to enhance its competency through the continuous investigation on new services, leading to new communication models. Combining IP multimedia services, VoIP communications and P2P services, the VITAL client is considered by Voiceglobe as an one-fit-all communication platform for new generation user applications realisation.

7 Business model

7.1 Telefónica I+D

The industry has to develop a qualitative understanding of the impact of peer-based free exchanges on the social and economic value of information goods, and use that to investigate possible sustainable online business models for information goods industries.

Recently, the internet market over radio stations that have their own streaming audio system via web have been increased a lot. Peer-to-peer technology is entering the mainstream and is being chosen as the solution for broadcasters who are witnessing the popularity of their online broadcast content. The online advertising market is growing rapidly and has proven to be a stable and prosperous online business model.

Telefónica is the main IPTV provider for Spanish market that is being implanted at several countries. This platform, called Imagenio, is the most popular system that provides over 100 channels and provides internet access, content on demand (video and audio) and interactive services as well as TV and digital audio to the final user.

The idea is to integrate these audio - streaming channels as an application in the Imagenio. To develop a unique home media station that improves the service to the client. As a result of this, first objective in the market will be increase clients fidelity and satisfaction.

Telefónica wants to give the most services offer in Spain based on this platform and VITAL++ and its demonstrator will give to Telefónica this opportunity in order to increase the quality of services offered to its clients.

7.2 Rundfunk Berlin-Brandenburg

As a Public Service Broadcaster a "business model" at RBB will always be a model that is not targeting Return on Investment but rather improvments of the production processes and/or the programme so as to win back or win new audience for its 6 radio channels and its TV programme.

To offer a service as envisaged in RBB's SoftMix Scenario may help to

- o Get new insights that will help improving the service offer through innovative profiling
- o Keep listeners and viewers receiving RBB's programmes because the new service enables them to individualise their RBB service experience, especially when it comes to mixing RBB's journalistic quality content with their own or their buddies' music thanks to P2P
- o Keeping and/or winning new (presumably younger) users who primarily use the Internet as their source for receiving radio and TV programmes

Despite the fact that the effects of RBB's VITAL++ service will not easily be measured, the team is confident that implementing such services will support estabishing a new connection with users who tend to move from traditional media to online reception.

7.3 Telekom Austria TA AG

The business model deals with the already existing IPTV service of Telekom Austria. The relevant VITAL++ results used for the exploitation have already been presented in previous chapter.

Telekom Austria is going to enhance the IPTV service by offering additional P2P channels and by implementing VITAL++ concepts for QoS assurance and measurement. In this way, Telekom Austria will have an added value for the IPTV service to be sold to premium customers as add-on package.

Telekom Austria intends to optimize the distribution mechanisms for the IPTV channels in order to improve the scalability for future enhancements, e.g. introduction of HDTV channels based on MPEG4. In this way, CAPEX for switching components and for link capacities can be saved.

7.4 Voiceglobe Belgium Sprl

Voiceglobe, as a Next Generation Internet Telephony Provider, introducing to the Internet community innovative voice and advanced real time communication services over the public Internet, aims at experimenting with the added value services that are introduced in Vital++ so that it can evaluate their applicability according to VoG's customer needs. With an existing customer base VoG plans to extend its service and product portfolio with next generation services that take the best of the two technologies P2P and IMS. Enhanced and efficient provision of multimedia content as it is empowered by P2P means and kept under the control of SIP procedures seems to be a promising and attractive approach that has to be tested in real network conditions so that it can be precisely evaluated and lead to the establishment new business schemes targeting existing and new customers.

7.5 Blue Chip Technologies SA

BCT aims at acquiring significant knowledge and hands-on experience with respect to the integration of its existing software for SIP/IMS in large scale deployments. It also plans to thoroughly experiment with and conclude to more mature developments that can be used in a broad range of products and services in the area of NGN networks aiming to
 cover the requirements of its customer operators for communication services convergence.

Ensuring compliance with third party tools and services that also exist in the project application and network platform is also considered as a key aspect in the plans for formulating trustworthy products and solutions on top of the Vital++ achievements with respect to NGN networks.

Moreover, the developments with respect to media handling and sharing capabilities are expected to set the basis for the provision of added value services and applications.

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