



To: ETSI MEMBERS, OBSERVERS AND COUNSELLORS

Subject: Preliminary Call for Experts for Specialist Task Force RD (ETSI/GRID)
on ICT GRID Technologies Interoperability and Standardization

Note: this letter includes updated Terms of Reference, based upon the final version of the Technical Proposal submitted to EC/EFTA.

Dear Madam,
Dear Sir,

ETSI has obtained from EC/EFTA the agreement in principle on the proposal for ICT GRID Technologies Interoperability and Standardization, as given in [Annex C](#). The EC/EFTA has announced that the process for the formal signature of the agreement is in progress.

Considering the urgency of the work, we are now anticipating the Call for Experts, in order to be able to establish the Specialist Task Force (STF), as soon as the EC/EFTA funding becomes available.

Candidatures must be proposed to the ETSI Secretariat before **27 May 2007**, however, we kindly invite interested Companies to propose experts, if possible, before 8 May, so that a first review can be made during the next GRID#3 meeting in Manchester.

It should be noted that this Call for Experts only concerns **Work Packages 1, 2, 3 and 5** described in [Annex C](#). A separate recruitment will be announced in due time for Work Package 4 (Plugtests).

The Team will be based at the ETSI Headquarters in Sophia Antipolis, where the Secretariat is offering technical support and co-ordination. The activity will be organized either over long continuous periods or in sessions, so that experts can carry out their normal duties in their respective organisations. The sessions plan will be agreed during the Preparatory Meeting, to achieve the best compromise between the STF organization and the requirements of the experts and their Companies.

A short list of candidates will be set up in agreement with the GRID Steering Group. These candidates will be invited to attend the Preparatory Meeting to set up the STF, which is provisionally scheduled on **11 June 2007**, in ETSI Headquarters. The actual set-up of the STF remains subject to the formal confirmation of funding from EC/EFTA, which we expect to be available at that time.

The candidature must be sent to the STF Manager Mr. Alberto Berrini alberto.berrini@etsi.org, in electronic form, including the Curriculum Vitae of the candidate, in English, and the questionnaire in Annex B1 (and B2 if applicable), duly completed.

Yours faithfully,

Dr. Walter Weigel
ETSI Director General

Encl.

ANNEX A - CONTACTS

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For further information see also:

[STF home page](#)

[Terms and conditions for the participation of experts in ETSI STFs](#)

[Letter of engagement \(LoE\)](#)

[Other Open Call for Experts](#)

[STF working methods and practice](#)

[Travelling to ETSI](#)

ANNEX B1 – Organization proposing the candidature

Candidature for Specialist Task Force RD (ETSI/GRID) on ICT GRID Technologies Interoperability and Standardization (C.L. 07_2532)

Please return to alberto.berrini@etsi.org, together with the CV of the candidate, before **27 May 2007**

[Candidatures](#) must be proposed by ETSI Members (including Observers and Associate Members) or formally supported by ETSI Members (Annex B2 required). If the candidate is selected, the [Letter of Engagement](#) (LoE) will be made with the Organization proposing the candidature, as indicated in this Annex. LoEs can be made only with registered Organizations and Companies, not with individuals.

Please replace the explanatory text with the actual information.

Organization proposing the candidature:

ETSI Member: exact name, as registered in the [ETSI membership list](#)

Not ETSI Member: Company Name (and please complete Annex B2)

Person proposing the candidature:

Role:

e-mail: (mandatory)

The person in the Organization who is responsible to authorize the proposal of the candidate to ETSI if he/she is selected.

Candidate: Title, First name, Last name

e-mail: (mandatory)

Mobile phone:

Nationality: (information required for work permit procedure)

Availability for the duration of this project (see ToR):

Indicate the availability of the candidate with respect to the requirements in the ToR, e.g. number of days/months that can be offered, percentage of time, availability to work in sessions, over continuous periods or both, unavailability periods.

Availability to work in ETSI premises: STF work is normally done in the ETSI premises of Sophia Antipolis. Please indicate whether you have limitations in the number of days (or percentage of time) you can spend working in the ETSI premises.

Specific experience in relation with this project:

Provide information to assess the qualification of the candidate with regard to the [specific requirements](#) of the project. In addition to the CV, this element will play an essential role for the pre-selection of the candidates to invite to the Preparatory Meeting.

Experience in standardization areas related to this project:

Indicate the candidate's standardization experience in ETSI and/or other organizations and, in particular, if he/she is actively involved in the work of the reference TB for this STF, its WGs or other related bodies.

Motivation to participate in the project

Indicate the interest of your Organization to be involved in the STF work.

Remarks:

Provide here any additional information to assess the qualification of the Candidate for this project or any special requirement of the Organization with respect to STF normal working methods.

ANNEX B2 – Nomination from ETSI Member

(required if the Organization proposing the candidature is not an ETSI Member)

Support of Candidature for Specialist Task Force RD (ETSI/GRID) on ICT GRID Technologies Interoperability and Standardization (C.L. 07_2532)

Please return to alberto.berrini@etsi.org, before 27 May 2007

Note: STF experts are proposed preferably by ETSI Member companies (including Observers and Associate Members). Experts formally supported by Members may be recruited if a suitable candidate from a Member is not available. ETSI will make the Letter of Engagement directly with the Organization seconding the expert, as in Annex B1. The Member supporting the candidature takes the moral responsibility that the competence of the candidate is suitable for the success of the project.

Please replace the explanatory text with the actual information.

ETSI Member supporting the candidature: exact name, as registered in the [ETSI membership list](#)
Person supporting this application*: **Role:**
e-mail: (mandatory)

** If not the Official contact, the ETSI Secretariat will inform the Official contact of the Member*

Candidate: Title, First name, Last name

Reasons for supporting the candidature:

Indicate the motivation of the Member to contribute to this standardization area and provide elements of your assessment of the qualification of the candidate.

Activities performed by the Candidate in relation with the Member:

Indicate the activities performed by the candidate or his/her Company in co-operation with or on behalf of the Member, the period of time and the nature of the relationship (employee, sub-contractor, partner, etc.).

Remarks:

Provide here any additional information.

ANNEX C

Terms of Reference for Specialist Task Force STF RD "ICT GRID Technologies Interoperability and Standardization"

Part I – Policy relevance and expected market impact

1 Objective

The objective of this proposal is to address, in general, IT-Telecom (Information Technology and Telecommunications) convergence and, in particular, the lack of interoperable GRID solutions built by IT in conjunction with the Telecom industry. This is called hereafter: ICT GRID. The proposal places the emphasis on GRID applications and services based on global standards and their associated validation tools. The goal is to enlarge the sphere of, to actively support and involve GRID stakeholders in the standardisation of GRID test specifications in the IT-Telecom converged world.

The results of the projects will contribute to improvement in **worldwide cooperation** of the ICT-Telecom collaborative GRID standardisation efforts. This GRID proposal, in the global convergence and evolution of IT infrastructure and electronic communications transformation, is aligned with the i2010 initiative, NESSI ETP and the Next Generation GRID (NGG) vision of the SOKU (Service Oriented Knowledge Utility).

In this proposal, ETSI will organise and attend GRID workshops, GRID standardisation meetings and will organise an ICT GRID Plugtests event. Further to this, ETSI will animate a dedicated GRID email discussion list, provide content for a dedicated GRID web site and produce 2 Technical Reports (one being a multi-part TR).

The following deliverables will be submitted:

- ICT GRID Interoperability State-of-the-Art Website
 - <http://www.grid.etsi.org/>
- ICT GRID Interoperability strategic and policy-oriented roadmap website section listing the project liaisons established
 - <http://www.grid.etsi.org/ROADMAP>
- ICTGRID@list.etsi.org with on line web archives <http://list.etsi.org/ICTGRID.html>
- ETSI TR "Study of ICT GRID interoperability gaps"
 - Part1: Inventory of ICT Stakeholders
 - Part2: List of identified Gaps
- ETSI TR "ICT GRID Interoperability Testing Framework"
- ICT GRID Plugtests Event <http://www.etsi.org/plugtests>
- ICT GRID Plugtests Report on line <http://www.etsi.org/plugtests/History/History.htm>
- Information on ETSI Cooperation Agreement negotiations (OGF, GGF, EGA)
- ICT GRID STF Interim Report, at the latest 16 months after the start of the work
- ICT GRID Final Report, at the latest 30 months after the start of the work

2 Rationale

GRID Definition and context:

A **GRID** is a system that:

- 1) coordinates resources that are not subject to centralized control,
- 2) using standard, open, general-purpose protocols and interfaces,
- 3) delivers non-trivial qualities of service.

<http://www-fp.mcs.anl.gov/~foster/Articles/WhatIsTheGrid.pdf>

"A **GRID** provides an abstraction for resource sharing and collaboration across multiple administrative domains..." (Source: NGG Expert Group, 16 June 2003 "European Grid Research 2005-2010")

The main conclusions of the NGG3 (*) SWOT analysis can be summarised as follows:

- *Ontologies and Semantic Web technologies will be crucial to provide scalable support for complex, heterogeneous Grids middleware and applications.*
- *The strengths of the European telecommunications industry and the diversity of its market for electronic control systems have given Europe a leading position in the areas of mobile and embedded technology. This is of particular relevance for the realisation of the vision of a Grid as a pervasive, user-centred utility.*
- *The weakness in hardware and primary software products (e.g. commodity processors, server and desktop Operating systems, Programming Languages, etc.) may hamper the development of a European leadership in Grid Technologies.*
- *The convergence between Grids and Web Services provides a significant opportunity to move to a model of software development and service provision where the market dominance of particular OS vendors is no longer a major economic issue.*
- *The distinctive European vision of a Grids environment that operates from the level of devices to supercomputers, to serve communities ranging from individuals to whole industries, including data, information and knowledge and emphasising resilience and scalability could have a significant economic and social impact far beyond the scope of existing compute and data Grids. This should be contrasted with the North American Grid vision of programmer-level meta-computing.*
- *It is vital that any European vision for the evolution of Grids is accompanied by a clear representation of that vision to the key standards bodies and technology providers worldwide.*

(*) ftp://ftp.cordis.lu/pub/ist/docs/grids/ngg3_eg_final.pdf

<i>Like the word Web (or WWW), the GRID will be the new name of the Internet.</i>
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For more information on the IT GRID, see: http://en.wikipedia.org/wiki/Grid_computing

Potential benefits of ICT GRID technology include:

- a democratisation of GRID applications and services (SME, government, education, healthcare etc);
- an increase productivity by reducing the Total Cost of Ownership (both CAPEX and OPEX);
- it offers any-type, anywhere, anytime services by/for all (utility service vision);
- it offers a dynamic virtual infrastructure for building variable sized virtual organisations;
- extensibility, since based on a converged infrastructure, including the next generation Internet services backbone (considering NGN too).

The objective of ETSI GRID standardization is to reduce its complexity, while empowering individuals and organizations to create, provide access to and use a variety of services, anywhere, anytime, in a transparent and cost-effective way, realizing the vision of a knowledge-based and ubiquitous utility.

As EC DG INFSO wrote in a Letter to ETSI Director General about the 2nd GRID Plugtests (Grids @Work) organized by ETSI in October 2005 (<http://www.etsi.org/plugtests/History/2005GRID.htm>)

“We see this as a sign of increased need for proper testing and verification procedures during the elaboration of new GRID technology standards supporting their development in different phases from conceptual design to test beds. In this context, we regard openness and interoperability between products and services, proprietary or open source, as the most critical issues. We recognize that ETSI could play a complementary role in addition to the GGF, OASIS, W3C, EGA and others. The current trend in the convergence of GRID services and Web Services as well as Telecom and IT services suggests the increased involvement of ETSI as a standardization body for the European ICT industry.”

The GRID landscape, as perceived by developers and hence, users, is today somewhat fragmented due to the existence of many, not fully interoperable solutions, limiting the uptake of GRID infrastructure use within business and society in everyday life.

ETSI will consider a broad context of interoperable GRID standards at extended levels:

- resource and service access, protocol, middleware, security, service, application with a large panel of GRID actors in the GRID value chain
- standardization bodies, FORA and organizations in conjunction with relevant industrial stakeholders, research and innovation actors considering broad convergence in:
 - Information Technology (IT) and Web Services
 - Electronic communication (Telecom) and IT
 - Fixed and Mobile Communications – such as electronic communication manufacturers (Telecom), network operators, service providers, end resource equipment manufacturers, and various IT actors
 - Mobile standards, broadband communications, and ubiquitous services

ETSI alone will not address all the GRID issues that may be identified but by networking with the involved standardization bodies will produce consensus-based Technical Reports that will be freely available. ETSI will propose a roadmap to interoperable ICT GRID standards.

The number of GRID developments from diverse industry segments is growing rapidly. The uptake of the resulting products by scientific and industrial users is increasing significantly. At present the number of existing GRID solutions combined with the lack of proper testing and verification procedures limit the interoperability of GRID solutions and the generation of standards driven by interoperability requirements.

As mentioned in IEEE Publication *“Emerging Grid Standards (April 2005)”*, with Abstract *“Individual projects carried out to meet specific needs must interact as part of a larger Grid environment, but no international consensus exists as to which of the many ideas, proposed standards, and specifications are likely to dominate in the future.”*

There is a lack of interoperability of IT GRID standards both at the level of infrastructures and middleware. It has both a direct and indirect impact on the way programmers see and use the GRID technology as a whole. It is very difficult to write portable GRID applications that can be deployed on any implemented GRID thus limiting the impact of investment in GRID infrastructures and middleware research and development.

In the area of GRID, the Global GRID Forum (<http://www.ggf.org> now merged with EGA into OGF <http://www.ogf.org>) has been the first community to recognize the need for work on GRID-related community standards. In parallel, due to technology evolution, the adoption of Web Services (WS) and Service Oriented Architecture (SOA) principles has brought on the increasing influence of GRID technologies on society. This results in a number of potential standardization bodies and industry FORA, including e.g., the EGA (Enterprise Grid Alliance, merged with GGF into OGF), OASIS (the Organization for the Advancement of Structured Information Standards), W3C (the World Wide Web Consortium), IETF (the Internet Engineering Task Force), and now ETSI. As a result it is becoming more difficult for projects and institutions on both the European and national level, but also for large companies and SMEs, to keep an overview of potential activities concerning GRID standards to be used or being developed.

Although this fact has already been taken into account by tightly integrating the standards collaboration activity into pre-existing FP6 Grid projects (*), it is evident that a common supportive effort beyond the lifetime of those individual projects is necessary. (*) <http://www.cordis.lu/ist/grids/projects.htm>

This proposal addresses specifically the issues of openness and interoperability between GRID infrastructures and services. ETSI proposes to build a consensus among ICT GRID actors about the

needs to solve interoperability issues through the proposal to adopt a shared standardization roadmap and the inclusion of better validating, testing, and verifying procedures during the elaboration (or improvement) of ICT GRID standards. It is obvious that joint forces are needed to reach this goal, therefore ETSI will closely collaborate with other European initiatives like the GSCG (*) (Grid Standards Co-ordination Group) and the European Technology Platform (**) **NESSI** (Networked European Software and Services Initiative) <http://www.nessi-europe.com/index.htm>

(*) GSCG: "The IST FP6 Grid projects Collaboration Task 'Co-ordination of Standardisation Efforts' is fostered and managed by the Grid Standards Co-ordination Group, a forum which comprises representatives from all IST FP6 Grid projects and external experts in Grid standardization."

(**) ftp://ftp.cordis.lu/pub/technology-platforms/docs/rec57900_web.pdf

It was decided at ETSI GA#46 (November 2005) that GRID Technology is one of the major strategic topics for ETSI in 2006.

GRID technology plays an important role and pushes the emphasis on the convergence of IT sector and traditional telecommunications.

ETSI will play a pivotal role in cooperation with existing IT Standards Development Organizations (OGF, GGF, EGA, W3C, OASIS, WS-I, IETF...) and Electronic Communications Standards Development Organizations (ITU, ISO/IEC, IEEE...) to foster the uptake of GRID technology in next generation electronic communications networks and services.

ETSI Plugtests™ has already organized 2 GRID Plugtests (interoperability events) in 2004 and 2005 (eEurope, FP6 Research Projects UniGrids, CoreGRID, NextGRID, GridCoord, also supported by IBM, SUN, HP, Universities and research bodies INRIA, etc.) The last GRID Plugtests event, Grids@Work, was very successful with 240 participants taking part in various competitions: <http://www.etsi.org/plugtests/History/2005GRID.htm>

ETSI has already contacted the NESSI European Technology Platform and NESSI-GRID SSA, a pre-FP7 initiative, to link partner activities with GRID standardization in the early stages. This proposal empowers this initiative by giving to all players the ability to work together in a worldwide coordinated project.

ETSI is already involved in the IST Project COPRAS and actively contributes to maintain the roadmap to standardization required by the IST Projects to capitalize the research effort into standards. This proposal extends this approach to Standards Development Organizations, Industrial FORA and all other GRID initiatives. In this proposal, ETSI proposes to provide its proven expertise to ICT GRID interoperability and validation standards in ICT domain (convergence IT and telecom).

The exploitation of GRID research results consists of integrating them in services and solutions, which can subsequently be utilized in all countries, regions and user communities. This can only be achieved through the deployment of seamless GRID solutions, which essentially requires that such solutions are globally standardized and interoperable, being either proprietary or open-source.

This proposal focuses on fostering convergence of today's competing perceptions of the possible GRID architectural implementations and associated standards to follow (in ICT).

Using links between ETSI Members and most of the past and present GRID initiatives, ETSI will propose a pragmatic approach to define a GRID standardization roadmap, including the strategic action plan to be implemented and supported by the ETSI-renowned standards testing and validation approach in electronic communications (ICT).

Through the identification of interoperability gaps, both theoretically and practically, ETSI will classify the gaps depending on their potential impact and will, in parallel, define the actions that should be pursued in order to fill the gaps. During the entire project, ETSI will encourage the participation of GRID stakeholders through the use of appropriate tools.

ETSI and NESSI

ETSI plans to actively collaborate with international standards bodies, consortia, community and industry FORA and the **NESSI** European Technology Platform in the field of standardization, interoperability and openness of GRID-based service oriented architectures.

ETSI will work in close relation with GRID Research Projects, European Technology Platforms, involved Research Institutes, Universities and Industrial companies (mainly all already ETSI Members).

European Technology Platforms (ETPs) like NESSI bring together stakeholders, led by industry, to define medium to long-term research and technological development objectives and lay down markers for achieving them. The initiative is led by industrial players, amongst which there are many ETSI members companies. Getting closer to Members' R&D and strategic research arms will help to be on the roadmap of those companies when a standardization topic emerges.

The ETPs are part of the *Cooperation* component of FP7. *Cooperation* includes two other subsets of interest to ETSI: International Cooperation and Coordination of non-Community research programmes.

Amongst others, the GRID opportunities for ETSI and NESSI involved together are:

- The IT and telecom convergence is happening (there is a challenge for standardization of compatibility and interoperability).
- ETSI and the EC/EFTA have a recognized know how in "Telecom Standards" (ECNS - Electronic Communications Networks and Services) and strong ability to play an important role in Global Standards Collaboration.
- Telecom operators are moving to GRID Service Oriented Architectures (BT, Telefonica, Telenor, France Telecom, Telecom Italia, etc). It presents a unique opportunity.
- There is a high potential for synergies between **NESSI-GRID** and the ETSI common membership.

ETSI will play a pivotal role in Interoperability and Validation of GRID Standards with NESSI

The short-term objectives of ETSI & NESSI collaboration are to:

- exchange views in order to achieve a common understanding on requirements & options;
- establish a working relationship between NESSI and ETSI;
- maintain the dialogue between NESSI & DG ENTR and ETSI & DG INFSO.

The long-term objectives of ETSI & NESSI collaboration are to:

- derive a coherent approach and strategy on GRID Standardization from the European industry;
- identify common action plans and roadmaps;
- initiate coordination activities related to standardization strategy and planning.

3 Policy relevance and market impact

This proposed project is fully relevant to the *2006 ICT Standardisation Work Programme (17/03/2006)*.

This proposal answers directly to Item 1 (COMMUNICATION AND NETWORK SERVICES), action 2 of Part II of the document.

“Action 2: *The European Standardisation Organisations are invited to carry out a study on Interoperability & Validation of International Open Grid Standards; the study should cover the following issues:*

- *Identification of interoperability gaps in existing and emerging international/European Grid standards: an inventory and analysis shall be made across the range of involved standards - making bodies with a view to determining the shortcomings; overlaps and loopholes in current and proposed de facto Grid standards at all levels of the middleware/protocol stack (network to application interfaces).*
- *Identify and propose solutions for the identified interoperability gaps in terms of approach and methods: depending on the size of the interoperability problems as identified, a series of practical recommendations on how to address and resolve them shall be made in the form of appropriate actions ranging from application best practices compilation, profiles definition, operational use guidelines, (open source) reference implementations, conformity - compliance test suite specifications, up to "plug" test tools development, standards validation benchmarking environment or other requirements for parallel or additional new standards regarding for instance the networking infrastructure (including e.g. IPv6).*
- *Establishment of a strategic and policy-oriented roadmap with concrete and itemised steps for planning and coordinating the realisation of the above-described approach and methods including the positioning vis-à-vis, and collaboration with, international standards bodies and consortia (IETF, W3C, OASIS etc), community and industry fora and initiatives (GGF, DMTF, WS-I, EGA etc), the European Standardisation Organisations (CEN, CENELEC and ETSI) and the NESSI European Technology Platform in the field of standardisation, interoperability and openness of Grid based service oriented architectures.*

This proposal also answers directly to Action 1 of Part II:

“The European standardisation organisations are invited, in the context of the announced revision of the legal Framework, to consider the impact of the convergence aspects as well as the need to take into account Next Generation Networks (NGN)”.

because ETSI GRID Standardization is working in close collaboration with ETSI TC TISPAN (NGN) and will effectively take into account Next Generation Networks (NGN).

“EU legislation, policies and actions for which ICT standardization support is proposed and in particular to the General policy framework”. The proposed project is highly relevant to the following directive:

1.2) COM(2002) 96: Next Generation Internet – priorities for action in migrating to the new Internet protocol IPv6.

ETSI is recognized as an important key player in IPv6 testing (Plugtests™ events, PTCC support, STFs, collaboration with the IPv6 Forum, etc.). GRID Standardization will, like NGN, work in close collaboration with existing ETSI IPv6 efforts.

The GRID Standardization project is also fully aligned with the *2006 ICT Standardisation Work Programme Action 41:*

Action 41: *The European Standardisation Organisations are invited to propose standardisation related initiatives to further support the effective take up and implementation of standards in the domains listed by this work programme. These actions should cover: awareness, promotion, information actions, educational actions as well as implementation of pilot projects and interoperability testing.*

Priority will be given to standardization actions aiming at ensuring interoperability, facilitating ICT uptake in key areas (e.g. e-business, e-health, etc.), and ensuring accessibility.

ETSI's ability to ease Global Standardization and Cooperation in GRID fits with proposed FP7 (organized in four programmes corresponding to four basic components of European research). ETP (**European Technology Platforms**) and **International Cooperation** plays an important role in the **Cooperation** component as mentioned in “structure and budget breakdown of FP7”

Cooperation

Support will be given to the whole range of research activities carried out in trans-national cooperation, from collaborative projects and networks to the coordination of national research programmes. International cooperation between the EU and third countries is an integral part of this action. This action is industry-driven and organized in four sub-programmes:

- Collaborative research will constitute the bulk and the core of EU research funding;
- **Joint Technology Initiatives** will mainly be created on the basis of the work undertaken by the **European Technology Platforms**;
- Coordination of non-Community research programmes;
- International Cooperation.

Because this project plans to collaborate with NESSI from the beginning, this also complies with the 2006 ICT Standardisation Work Programme Action 42:

Action 42: *The European Standards Organizations are invited to submit proposals concerning the development of interfaces between IST and other information society related projects under Framework Programme 7 and the ICT standards community.*

Both GRID Technology and Interoperability are strategic issues for both the EC/EFTA and ETSI. It was decided at ETSI GA#46 that GRID and Interoperability Testing are two of the six major strategic topics for ETSI in 2006 (GRID, NGN, EMTel, Interop&Testing, Security and Radio Spectrum usage).

In the past, the growing importance and potential of GRID - and the EU's commitment to this area - is underlined by the fact that Grids for Complex Problem Solving has been chosen as one of the 'Strategic Objectives' of Information Society Technologies (IST), one of the EU's 'Thematic Priorities' under the specific programme 'Integrating and Strengthening the European Research Area (ERA)' of FP6. And this will take more importance in FP7.

ETSI GRID standardization is aiming at facilitating the exploitation and broad take-up of past, present and future GRID programmes results and opening the way to an enhanced European position on GRID technologies. It will permit the uptake and use within business and society of GRID infrastructures by fostering international collaboration between GRID stakeholders, including standardization bodies, to agree and participate on a shared standardization roadmap with its associated action plan.

Since the GRID computing age, Grids have evolved toward GRID services, whose uptake and use in business and society are being slowed down today by the jungle of standards and solutions initiatives leading to partially interoperable solutions. Improving this interoperability, looking both at the primary user side (the applications programmers) and at the middleware manufacturer's side, is ETSI's primary objective:

- through the definition of a standardization roadmap, encouraging its definition and adoption among all GRID stakeholders, be they industrial, GRID research projects, users communities...
- by encouraging a testing and validation approach when defining standards. Following the ETSI recognized testing approach, standards are no longer only lists of specifications but are associated with testing and validation procedures allowing developers and manufacturers to validate the conformance of their products to the standards.

With ETSI, ICT GRID stakeholders will learn how to merge existing solutions to provide and use interoperable standards. Interoperable GRID solutions based on these standards will ensure uptake of GRID solutions for the benefit of the society.

On a longer term, ETSI objective is to put together all ICT GRID actors to describe how worldwide Virtual Organizations can become reality.

4 Market impact

ETSI Members involved or associated to this proposal (strong commitment) include:

- British Telecom, Full ETSI Member, partner of NESSI and partner of NextGRID (NGG)
- Alcatel, Full ETSI Member and also involved in NESSI
- Siemens, Full ETSI Member and a partner of NESSI
- MINEFI/ARCEP (« *Ministère des Finances du gouvernement français* » and Regulator)
- INRIA, Full ETSI Member is also a partner in GRIDCoord, CoreGRID, GRID@Asia, ObjectWeb, and GridComp.
- Parlay Group (API, WebServices), collaborating with ETSI and already involved in Web Services Plugtests™

Alcatel and BT are the two leaders of GRID Strategic Topic in ETSI.

Siemens, MINEFI, EADS and INRIA already confirmed their full support to this proposal.

During the ETSI GRID Workshop organized on 30 September 2005 (*), the following actors were in favour to take part in ETSI GRID Standardization from the beginning:

- BT, France Telecom, Alcatel, Telefonica
- IBM, SUN
- Federal Ministry of Economics and Labor (about ITU-T Regulation)
- W3C, COPRAS
- INRIA, Inno, EADS, Fraunhofer/TeleTrust, HITACHI
- GRIDCOORD, Universität Stuttgart - High Performance Computing Center Stuttgart (HLRS)
- Research Centre Juelich (FZJ)

(*) <http://portal.etsi.org/docbox/bran/BRAN/GRIDWorkshop/>

The following ETSI Members and organizations are already ready to collaborate with ETSI GRID actions:

- EADS, Full ETSI Member
- IBM, Full ETSI Member
- France Telecom involved in GRID4ALL (and GGF Telco-CG like BT)
- FUJITSU already in past ebXML Plugtests and FUJITSU (**Vice Chair of Standards** at GGF)
- Telenor (involved in AKOGRIMO)
- HITACHI present in Sophia Antipolis
- HP, NESSI Partner and Plugtests™ sponsor
- ORACLE
- ObjectWeb with INRIA/ProActive Middleware
- W3C (COPRAS) and common activities on XML Electronic Signatures
- EGEE (Grids@Work)

ObjectWeb (Proactive GRID Middleware supported by INRIA) supported two ETSI GRID Plugtests in 2004 and 2005.

At the time of the drafting of this proposal, contact with experts from the following companies has been established to take part in ICT ETSI GRID Standardization:

- Oracle
- Intel
- Cisco
- Nokia
- Ericsson
- Philips
- NEC
- Deutsch Telecom
- T-Systems
- Telecom Italia
- Microsoft
- Thales
- SAP
- Fraunhofer , FhG SCAI

In the past at ETSI, during the preparation of Plugtests™ events (Web Services, ebXML, ESI) or Cooperation Agreement negotiations, we contacted:

- WS-I www.ws-i.org (Jacques Durand/Fujitsu)
- OASIS www.oasis-open.org (Jacques Durand/Fujitsu, Patrick Gannon/OASIS)
- TMF <http://www.tmforum.org/>, already cooperation with ETSI TISPAN
- Parlay Group, OSA, (ETSI Cooperation Agreement) <http://www.parlay.org>
- IETF (SIP, IPv6, NGI) ETSI PTCC produces these protocols test suite <http://www.ietf.org>
- ITU-T NGN (full cooperation, standard partner)
- IEEE (802.11, 802.16 HiperMAN/WiMAX test protocols, PLC) <http://www.ieee.org/>
- ISO/IEC (ETSI Cooperation Agreement)

ETSI anticipates contacts in progress with (at this stage of the proposal elaboration):

- GGF Telco-CG and SCRM-WG (GGF#17, 11-14 September 2006 GGF#18) www.ggf.org
- GGF SCRM-WG involves the following Standards Development Organizations: DMTF, GGF, IETF, ITU, OASIS, SNIA, TMF and W3C and focus on “management of networked resources” <https://forge.gridforum.org/projects/scrm/>
- EGA (GGF#17, 11-14 September 2006 GGF#18) www.gridalliance.org
- OGF, www.ogf.org, the merger of EGA and GGF, 11-14 September 2006 GGF#18
- Globus Alliance: <http://www.globus.org> (Ian Foster)
- OMA (ETSI Cooperation Agreement) <http://www.openmobilealliance.org>
- The Open Group (ETSI COPRAS) www.opengroup.org
- 3GPP (ETSI) <http://www.3gpp.org/>
- ICTSB (ETSI) <http://www.ictsb.org/>
- ECMA (TC32, cooperation agreement) <http://www.ecma-international.org>
- DMTF <http://www.dmtf.org>
- ... See more at <http://webapp.etsi.org/AgreementView/AgreementSearch.asp>

EC Research Projects and initiatives to be associated include:

- GRID is already in the scope of the IST Project COPRAS and its Roadmap to Standardization (CEN, CENELEC, W3C, Open Group and ETSI) <http://www.copras.org>
- NESSI-GRID http://www.cordis.lu/ist/grids/ssa_proposal.htm
- NESSI : European Technology Platform Partners: BT, Siemens, IBM, HP, Nokia, ObjectWeb, Telecom Italia, Telefonica, (as today, not yet Thales. <http://www.nessi-europe.com/index.htm>)
- GRID Infrastructures: EGEE, China National Grid, Grid5000, NORDUGRID and DEISA <http://www-sop.inria.fr/oasis/plugtest2005/OpenGrids.html>
- GRID Middleware: gLite, ProActive (ObjectWeb), LCG, UNICORE (*)
- NextGRID, CoreGRID, GRIDCoord (*); UniGrids (**)
 - <http://www.unigrids.org/> UniGrids STREP (GRID Interoperability UNICORE, GGF/OGSA, OASIS/WSRF)
 - <http://www.coregrid.net/> CoreGRID NoE (Coordinated by ERCIM & INRIA)
 - <http://www.gridcoord.org> GRIDCoord SSA
- GSCG: 'Grid Standards Coordination Group' (Call2 FP6 Grid Projects) with Proactive goal to identify common requirements and to draw a plan to influence and orientate standardisation mainly in GGF. Capitalize with the white paper on "Standards Needs identified by GSCG". We are in contact with GSCG via Philipp Wieder NextGRID/FZJ
- OMII University of Southampton, UK eScience collaboration and implication. We are in contact with David De Roure <http://www.omii.ac.uk/>

(*) <http://www.gridcoord.org>

(**) <http://www.etsi.org/plugtests/History/DOC/GRIDMIDDLEWARESINFRASTRUCTURES.pdf>
<http://www.etsi.org/plugtests/History/2005GRID.htm>

List of the members of the GSCG to refer to:

- | | |
|------------------|---|
| • Akogrimo | Julian Gallop, CCLRC (co-chair) |
| • CoreGRID | Wolfgang Ziegler, Fraunhofer SCAI |
| • DataMiningGrid | Vlado Stankovski, Ljubljana University |
| • GridCoord | Roman Tirlor, University of Pisa |
| • HPC4U | Rolf Welde Skeie, Scali |
| • IntelliGrid | Matevz Dolenc, Ljubljana University |
| • K-Wf Grid | Marian Bubak, CYFRONET |
| • NextGRID | Philipp Wieder, Research Centre Jülich (chair); Joris Claessens, EMIC |
| • OntoGrid | Sean Bechhofer, University of Manchester |
| • Provenance | Luc Moreau, University of Southampton |
| • SIMDAT | Jamil Appa, BEA |
| • UniGrids | Daniel Mallmann, Research Centre Jülich |
| • David De Roure | University of Southampton, GGF/W3C liaison |
| • Rigo Wenning | W3C/ERCIM, COPRAS contact |

ETSI is in contact with partners in China. At the time this proposal was drafted, ETSI had submitted an SSA called GO4GRID(*) about EU and China collaboration with three GRID Middleware(**) and two GRID + IPv6 interoperability test events. The GO4GRID SSA proposal is linked to running GO4IT Project (TTCN, IPv6 Open Development Platform). Of course ETSI will synchronize the proposed GRID efforts if GO4GRID SSA is accepted.

(*) GO4GRID consortium with ETSI for GRID roadmap to standardization, testing forces (CETECOM, CATR), research and development in GRID technologies organizations (INRIA, Tsinghua University, Huazhong University of Science and Technology), communications networks (BUPT) and exploitation of innovation (Inno Group)

(**) The middleware of CNGrid (China National Grid) is GOS (Grid Operation System). The CNgrid interoperability with EGEE has already started with the EUCHINAGRID project. The middleware of ChinaGRID (China Education and Research Grid) is CGSP (ChinaGrid Support Platform). Regarding the ChinaGRID initiative, interoperability between the CGSP middleware and Globus (GGF, Globus Alliance) have already been proven. The middleware of NSFGrid (Grid of National Science Foundation of China) is CROWN.

ETSI met GGF groups and chairs at GGF#17 in Tokyo to discuss about GRID Standardization collaboration like described in the current proposal.

http://www.ggf.org/gf/event_schedule/index.php?id=247

ETSI was present at the GGF#18 in Washington to meet the new OGF stakeholders and commit experts to participate in the current GRID standardisation project proposal. See http://www.ggf.org/gf/event_schedule/index.php?id=421

There is an important GRID momentum with GRID Technology in the ICT convergence. If the proposal is not implemented, the current situation with a lack of GRID interoperability and a lack of global cooperation in ICT and GRID will continue. EC/EFTA funded activities are a catalyst of global standardization and cooperation.

Most GRID stakeholders contacted to participate are SMEs as defined in:

http://ec.europa.eu/enterprise/enterprise_policy/sme_definition/sme_user_guide.pdf (page 10).

To promote innovation and improve access to R&D, specific provisions now apply to universities and non-profit research centres enabling them to have a financial stake in a SME. This co-operation will benefit both parties. It strengthens an enterprise by giving it a worthwhile financial partner and access to R&D. It also offers universities and research centres a route for the practical application of their innovative work.

ETSI Membership offered to SMEs will facilitate their approach to GRID standardisation via the GRID Plugtests events and their direct participation to ICT GRID standards. The Policy Oriented Roadmap to be produced in this project will disseminate this opportunity for the SMEs and so increase the other SMEs participation

Standardisation as an instrument to avoid technical barriers to trade is part of the World Trade Organisation's (WTO) policies, for the benefit of all companies including SMEs.

The open source test cases (like FlowShop and N-Queens ETSI Plugtests Contests) provided during two previous ETSI GRID Plugtests have been used widely and did contribute to increase SME involvement in GRID. The Open Source Middlewares proposed to deploy the test cases in the GRID infrastructure allowed SMEs to deploy their implementation on huge and real GRID infrastructures like Grid5000, NORDUGRID, EGEE, DEISA and CHINA GRID. The goal of GRID Plugtests events for the SMEs and the other participants is to:

- Bring together GRID researchers and GRID users
- Learn through the GRID users experience about the future features need for the GRID platform
- Learn how to best program GRID-aware applications
- Get important feedback on the deployment of GRID applications on various GRIDs
- ETSI ICT GRID Standardization efforts will yield to a contribution in the setup of standards for the GRID community. ETSI will disseminate its methodology, support, and advice toward a wide spectrum of projects.

Part II - Execution of the work

5 Working method/approach

To minimize the administrative and financial burden, one ETSI STF is proposed, split into five work packages:

- WP1: ICT GRID interoperability State of the Art
- WP2: Establishment of a roadmap for planning and coordinating the realization of ETSI ICT GRID Standardization approach and methods.
- WP3: Proposals (methods, approaches) to solve identified interoperability gaps.
- WP4: ICT GRID Plugtests
- WP5: STF project management, reporting an coordination

The final roadmap deliverables to this ICT GRID project are D3 and D4 (web site, mailing list and co-operation agreements described above). They are to be initiated during WP2 and will be finalised at the same time as WP3 (as seen in Table 3: Overall Workflow). The web site will be open to all and there will also be the ETSI TRs that will also be freely available for download.

The reason for the reverse ordering impression as compared to the "Action 2 order" is that it takes time to identify the principle stakeholders, attend the ad hoc meetings, initiate the contacts, explain the Project and ETSI role, negotiate the Standards Organisations and Fora links to discuss the agreement for an agreed Roadmap.

The Action plan (Action 2) places this Roadmap after the:

- Identification of interoperability gaps
- And identification and proposal of solutions for the identified interoperability gaps

and the project proposal conforms to this order in its spirit.

The actual number of experts and mix of skills may depend on the actual applications received and will be decided when setting up the STF. It is expected that experts will be engaged for approximately 25% of their time, for this project.

5.1 Experts required

Members of this Specialist Task Force (STF) will be expected to have a mixture of the following skills:

- Excellent international communications skills and ability to carry broad studies summarize worldwide complex technology situation in clear terms
- expert knowledge of GRID technology, aware of existing GRID initiatives and GRID standards (OGSA, WSRF, WS-I*,...) and GRID Middlewares
- good knowledge of software engineering techniques;
- good knowledge of validation and testing techniques (conformance and interoperability), knowledge of ISO/IEC 9646 and TS 102 237-1: Interoperability test methods and approaches; Part 1: Generic approach to interoperability testing – Skeleton applicable to NGN and SIP+H.323)

In terms on time allocated, the STF Leader will also take on much of the project management task on top of the technical contribution. He/she will also perform the formal reporting of the work to the Steering Group and Technical Body as well as performing the majority of the missions and reporting back on them. He/she will draft the Interim and Final Reports to the EC/EFTA as well as managing the other experts in the STF as required. The project is to have 30-month duration and this will involve plenty of co-ordination work with fellow experts, outside bodies and the ETSI Secretariat, especially if sessions are held away from the ETSI premises. The table at the end of Clause 7 provides an estimate of the breakdown of the work in the 5 different work packages.

5.2 STF Steering Group

At GRID starter group lead by Alcatel and BT has been formed by ETSI. The ETSI Board meeting held on 21-22 June 2006 decided to create an ETSI GRID Technical Committee (<http://portal.etsi.org/GRID>). A GRID Steering Group will be nominated for this project at the 1st December 2006 GRID#2 meeting.

This STF will co-ordinate with the relevant ETSI Board and OCG meetings and TB (e.g. TISPAN/NGN, GRID and MTS) meetings. The STF will report to the Steering Group once every two months (generally by conference call but with physical meetings being held in conjunction with some Board/OCG GRID meetings).

5.3 Time records and reporting

Both paid and voluntary time for the STF experts will be recorded in the ETSI TAM (Time Allocation Management) system. The PTCC expert time will be recorded in the PTCC Timesheets.

The Interim Report to the EC/EFTA will be available 16 months after any start of work (assuming a 30 month project duration). The Final Report will be made available no later than month 30. In addition, ETSI Progress Reports will be produced every three months in order to ensure timely follow-up of the project by the ETSI STF management. These can be made available to the EC/EFTA if desired but are not deliverables as such.

As much as possible, ETSI meeting facilities will be used to host project meetings, conferences and workshops.

The GRID standardization will also be supported by ETSI SPA (Standards Production Area).

6 Work Packages description

WP1: Working Package 1 - ICT GRID interoperability State of the Art

In direct correspondence with the following ICT Standardization Action: Identification of interoperability gaps in existing and emerging international/European Grid standards: an inventory and analysis shall be made across the range of involved standards - making bodies with a view to determining the shortcomings; overlaps and loopholes in current and proposed de facto Grid standards at all levels of the middleware/protocol stack (network to application interfaces).

Identify all international ICT GRID Stakeholders willing to collaborate with ETSI in search of ICT GRID interoperability and validation. List all GRID Standards interoperability and validation projects standards and initiatives. Study their mutual compatibility, gaps and needs for improvements in the interoperability requirements at all levels of the middleware/protocol stack (network to application interfaces).

There will be a task to see how to define methods for identifying GRID standards interoperability requirements and their validation. The approach will be to identify use cases/scenarios, starting from the OGSA (GGF) and EGA. These are probably the most widely known so should be a good starting point and may also allow straightforward linkage to solutions developed in these bodies. Additional ones from other organisations/projects will also be identified (as a specific example of a FP6 project, BEinGRID may provide some good examples in its "Business Experiments"). There may also be a need to define additional scenarios to reflect convergence with networks which is in general not fully represented in most existing standards development organisations.

Ideally the scenarios identified will represent complete business models with all stakeholders represented. They may need to be extended to make them more representative and complete.

Scenarios will then be mapped to existing proposed standards (i.e. identify what solutions/specifications are relevant to which part of each use case). This will highlight where different technical components need to have interactions and also if there is a lack of candidate technologies (or lack of consensus) in any component.

Create a live GRID stakeholder group (open mailing list ICTGRID@list.etsi.org & web site <http://www.grid.etsi.org>) to network GRID experts, organizations and worldwide active actors in GRID standardization. The web site will be used to disseminate the project achievements and ETSI GRID standardization efforts progress.

List of currently identified GRID Actors (listed in the "Market Impact chapter) is to be extended in this proposal.

D1: ICT GRID Interoperability State of Art the Website + Mailing List

<http://www.grid.etsi.org/>

ICTGRID@list.etsi.org + <http://list.etsi.org/ICTGRID.html>

D2: Draft Inventory of ICT Stakeholders Part1 of the TR "Study report of ICT GRID interoperability gaps"

Open source reference implementations of proposed standards are to be encouraged. They play an important role in ensuring that candidate open standards are evaluated and tested thoroughly by as wide a community as possible. A valuable outcome of ETSI interactions with research projects (like FP6 and FP7) should be that key standards are identified to promote harmonisation of implementations in these projects.

A Workshop of GRID stakeholders will be organized at ETSI within WP1.

WP2: Working Package 2 - Establishment of a roadmap for planning and coordinating the realization of ETSI ICT GRID Standardization approach and methods.

In direct correspondence with the following ICT Standardization Action: Establishment of a strategic and policy-oriented roadmap with concrete and itemised steps for planning and coordinating the realisation of the above-described approach and methods including the positioning vis-à-vis, and collaboration with, international standards bodies and consortia (IETF, W3C, OASIS etc), community and industry fora and initiatives (GGF, DMTF, WS-I, EGA etc), the European Standardization Organisations (CEN, CENELEC and ETSI) and the NESSI European Technology Platform in the field of standardization, interoperability and openness of GRID based service oriented architectures.

NESSI, i2010 and NGG (SOKU Service Oriented Knowledge Utility vision) Stakeholders (and also ETSI Members) will be consulted to align the proposals and short term conclusions with the NESSI/FP7, i2010 and beyond GRID standardization policy requirements.

NESSI has a strong emphasis on the involvement of SMEs and working with NESSI will be beneficial in this regard, particularly when ETSI can be seen as a useful route to standardisation by NESSI Working Groups. Engagement with smaller companies participating in collaborative projects will be a priority.

The role of ETSI is to describe how to bring together the IT/traditional GRID world with the Telco world dealing with:

- Interoperability / Convergence
- Conformity / compliance testing
- Open test platform / validation toolkit for Grid and Utility Services Standards
- Reference implementations + repository (Open Source or proprietary)
- Migration of Grid standards/ MW from IPv4 to IPv6 including « mobile » Grids

Complying with

Action 41: The European Standardisation Organisations are invited to propose standardisation related initiatives to further support the effective take up and implementation of standards in the domains listed by this work programme. These actions should cover: awareness, promotion, information actions, educational actions as well as implementation of pilot projects and interoperability testing.

At each milestone of this proposal achieved in ICT GRID standardization ad hoc communications (Mail Exploder List, Web site, Workshop, Conference Calls, Standardization Meetings, Liaisons, Press Releases) will be used for global collaboration.

D3: ICT GRID Interoperability strategic and policy-oriented roadmap Website section listing the liaison established and extension of the Mailing List with respective new contacts established:

<http://www.grid.etsi.org/ROADMAP>
ICTGRID@list.etsi.org + <http://list.etsi.org/ICTGRID.html>

D4: ETSI Cooperation Agreements negotiations engaged

<http://portal.etsi.org/pep/home.asp>
http://docbox.etsi.org/ga/ga47/ga47_18r1%20Status%20of%20Co-operation%20agreements.doc ETSI GAs are organized 2 times per year (in March and November). The ETSI Board meets every 2 to 3 months.

The purpose of the policy-oriented roadmap website (D3) will be clearly presented in the context of the European GRID infrastructures and their needs for interoperability.

Specifications and proposals for standardisation exist at widely varying levels of maturity in existing standards development organisations (SDOs). There is a need to understand the relative maturity and status of consensus around solutions to specific technical issues required to deliver end-to-end systems and applications. In this sense it is an essential planning tool for the standards co-ordination activities addressed by this project. The roadmap will act as a focus for building awareness across the GRID community and its various SDOs. It should identify in particular, critical components where the

understanding of technical options is weak. This will allow priority areas for standards development to be identified. In addition, the roadmap will build confidence in the vendor and user communities that accepted standards will be ready for use and available on defined timescales.

WP3: Working Package 3 - Proposals (methods, approaches) to solve identified interoperability gaps.

The difference between the current WP3 and WP1 is that WP1 will start the work to identify interoperability gaps and WP3 can provide possible solutions after these gaps are completely identified.

There is principally a split in time rather than content. WP1 starts earlier because the momentum of connected experts takes time. There could be some overlap between WP1 and WP3, the work of D2 (Draft Inventory of ICT Stakeholders Part 1 of the TR “Study report of ICT GRID interoperability gaps”) will be refined and finalised in D5 containing D2 and the Part 2: “List of identified gaps”, in direct correspondence with the following ICT Standardization Action:

Select and propose solutions for the identified interoperability gaps in terms of approach and methods: depending on the size of the interoperability problems as identified, a series of practical recommendations on how to address and resolve them shall be made in the form of appropriate actions ranging from application best practices compilation, profiles definition, operational use guidelines, (**open source**) reference implementations, conformity - compliance test suite specifications, up to testing tools development, standards validation benchmarking environment or other requirements for parallel or additional new standards regarding for instance the networking infrastructure (including e.g. IPv6).

Elaborate and produce an open consensus based study (Technical Report) on ICT GRID interoperability gap analysis (Testing, Validation) with a proposed roadmap (solutions) able to solve the identified problems.

Produce ICT GRID interoperability requirement analysis (**Technical Report**) in collaboration with ETSI PTCC service expertise (like ETSI did at the beginning with IPv6). Define a GRID testing working framework (tests and validation methodologies, approach and tools to be used). Propose to re-use the tools developed by MTS-IPT (<http://www.ipt.etsi.org/>) to create easily a so called “Requirement Catalogue” able to transform existing ICT GRID specifications into tests requirements standards corresponding to selected GRID interoperability case studies. In both the IT sectors and in the Telecom world, produce the best practices to obtain ICT Interoperability using ETSI consensus based Standardization approach producing it in a form of a Technical Report. List and compile existing GRID interoperability solutions including in particular: interoperability events, state of the Art papers, guidelines, interoperability profiles, reference implementations, use cases, test suites, test beds, testing tools, benchmarking existing in ICT including NGN, IPv6 and **open source** developments.

D5: TR Draft “Study of ICT GRID interoperability gaps”

Part1: Inventory of ICT Stakeholders (updated and finalized in this Work Package WP3)

Scope: In direct correspondence with the following ICT Standardization Action: Identification of interoperability gaps in existing and emerging international/European Grid standards: an inventory and analysis will be made across the range of involved standards - making bodies with a view to determining the shortcomings; overlaps and loopholes in current and proposed de facto Grid standards at all levels of the middleware/protocol stack (network to application interfaces).

D5: ETSI TR “Study of ICT GRID interoperability gaps”

Part 2: List of identified Gaps

Scope: Select and propose solutions for the identified interoperability gaps in terms of approach and methods: depending on the size of the interoperability problems as identified, a series of practical recommendations on how to address and resolve them will be made in the form of appropriate actions ranging from application best practices compilation, profiles definition, operational use guidelines, (open source) reference implementations, conformity - compliance test suite specifications, up to testing tools development, standards validation benchmarking environment or other requirements for parallel or additional new standards regarding for instance the networking infrastructure (including e.g. IPv6).

D5 describes interoperability gaps and potential solutions. The solutions will consist of a set of potential solutions from various Standard Development Organizations with relevant dependencies/interfaces identified. Requirements to support interoperability, and any apparent barriers or problems, will be specified and communicated back to the originators of the solutions. Where no solution is available, requirements will be specified in a form suitable for defining the terms of reference of a working group in a standards development organization.

D6: TR Draft "ICT GRID Interoperability Testing Framework"

Scope: Define a GRID testing working framework (tests and validation methodologies, approach and tools to be used. By example, propose to re-use the tools developed by MTS-IPT to create easily a "Requirement Catalogue" able to transform existing ICT GRID specifications into tests requirements standards corresponding to selected GRID interoperability case studies. In both the IT sectors and in the Telecom world, produce the best practices to obtain ICT Interoperability. List and compile existing GRID interoperability solutions including in particular: interoperability events, state of the Art papers, guidelines, interoperability profiles, reference implementations, use cases, test suites, test beds, testing tools, benchmarking existing in ICT including NGN, IPv6 and open source developments.

D6 will be based on previous experience of developing testing frameworks like those done at ETSI with IPv6, SIP, H.323, SIGTRAN, 3GPP/UMTS, HiperMAN/WIMAX, DMR, OSA/Parlay described at: <http://portal.etsi.org/ptcc/testing.asp>

The problems and implications in terms of software quality assurance and benchmarking of the interoperability testing of GRID middleware higher layers will be elaborated in this Work Package (WP3). The implication of the ETSI PTCC service is to be a key success factor. ETSI has a large experience and unique strength in developing and managing interoperability/conformance testing methodologies. ETSI provides a permanent testing expertise and is recognised worldwide for the support to unique testing standards for IPv6, SIP, H.323, SIGTRAN, 3GPP/UMTS, HiperMAN/WIMAX, DMR, OSA/Parlay, etc.

WP4: Working Package 4: ICT GRID Plugtests

Organization of a dedicated ICT GRID interoperability test event and associated workshop (as with the "Grids@Work" event held in 2005), where the ETSI Plugtests™ service will be used.

Organized in the 2/3 of the project, the event will allow to:

- verify the assumptions,
- put it in practices, disseminate the project proposals,
- network all GRID stakeholders and possibly extend the number of stakeholders,
- refine the studies (Technical Reports) before their finalization.

Based on the very good experience of the 2nd GRID Plugtests organized 10-14 October 2005 (Grids @ Work), the ETSI Plugtests™ service will provide in this proposal an ICT GRID interoperability event dedicated to GRID standardization, interoperability and validation in cooperation with an open and broad panel of GRID actors

The sub tasks of the Working Package are

GRID Plugtests Technical management:

- Providing a customized test bed according to the needs
- Setting up test cases with experts
- Scheduling test slots (when requested)
- Collecting feedback from the Plugtests™ Event for the standards process

GRID Plugtests Event management:

- GRID Plugtests Website creation (under <http://www.etsi.org/plugtests>)
- Online registration & payment
- Local and logistical arrangements (hosting site, hotels, catering, shipment,...)
- Legal aspects (MoUs, NDAs, rules of engagement)
- Social events facilitation

GRID Plugtests Communication management

- Development of GRID Plugtests event promotional kit
- GRID Plugtests Event representation at key conferences
- Dissemination by press

Sponsorship management

A sponsoring programme has been enhanced in order to let the customers benefit from the ETSI high-long-term visibility thanks to Collective Letters, Press Releases, newsletters, the ETSI web site.

The first GRID Plugtests event organized by and held at ETSI in October 2004 attracted 43 Companies and 79 participants.

(*) The 2nd GRID Plugtests organized on 10-14 October 2005 (Grids @ Work) with eEurope support, FP6 Research Projects UniGrids, CoreGRID, NextGRID, GRIDCoord, Sponsored by IBM, SUN, Microsoft, Universities and research bodies INRIA..This event was very successful with 230 participants from +80 companies: <http://www.etsi.org/plugtests/History/2005GRID.htm>

The initial project plan for the ICT GRID Plugtests event is:

- Selecting and inviting task force members and working rules (periodicity of audio conference calls, usage of email, allocation of tasks, action follow up, minutes, decisions, other contacts)
- Organizing task force face-to-face meeting and audio conference call (ETSI propose to provide it). Perhaps meeting at GRID events where we could present ETSI Plugtests.
- Setting up a discussion list (ETSI propose PLUGTESTS-GRID@LIST.ETSI.ORG) with web archives. Initial email contact is plugtests@etsi.org
- Setting up on-line registration and technical information at <http://www.etsi.org/plugtests>
- Searching for the common understanding of the best customers selection (future participants, testers, experts, applications, service providers, users, industry leader, education and research community, small companies, engineers, developers)
- Defining the subset of GRID use cases we will focus on during the event preparation and in the Plugtests (hardware, software, protocols, standards, conformance tests, interoperability tests, contest, challenge, showcase, workshop, conference, education, etc...)
- Selecting the ad hoc tests - we should say applications in this case - that could be conducted. We will define tests required and their related constraints (location, local network needs, wan, firewall, Internet access, bandwidth, security, rules of engagement, servers, products, support, preliminary conformance tests, etc...)
- With experts, tests providers, test cases and participant matrix under time constraint we will have to refine the test plan (scheduling)

In addition, as far as expenses are concerned, The ETSI Interoperability Service (Plugtests™ Service) for this event includes:

- Communication and promotion of the event
- The provision of accommodation and IT services (high speed internet, LAN, etc) at the event.
- Rental of IT equipment, test measurement equipments needed for GRID interoperability testing.
- The payment of travel and hotel expenses of independent expert(s) to provide support and expertise on site at the event or in support in promotion at relevant worldwide meetings
- Provision of the independent external expertise for the technical preparation of the event and its follow up (preparation of the technical programme, liaisons, expertise on site, reporting, marketing and promotion)

This ICT GRID Plugtests event will be coordinated with other EC projects on GRID in general and on GRID interoperability activities in particular. The coordination with EU projects will be ensured in particular through INRIA, a partner of ETSI on this initiative, involved in many projects and mainly active for this topic on projects such as GRIDCoord and CoreGRID which will ensure coordination. Presentation and communication of the ETSI Plugtests team on this initiative will also support such coordination.

This ICT GRID Plugtests event will have a large and very open scope , inviting all GRID Middlewares, applications and standards wherever technology they use or country they come. ETSI has attracted Asian, US and Latin American teams in 2004 and 2005. ICT GRID Plugtests participants will participate and demonstrate GRID interoperability independently of the precise middleware or applications used. A specific unique and well-defined benchmark, successfully experimented in 2004 and 2005 will still be used in order to ensure independence and technical reference in the evaluation of the level of interoperability achieved at the 2005 event (e.g. maximum number of nodes deployed, level of performance in the computation). Lessons learned from this event will be fed into the work for D6 (the "ICT GRID interoperability Testing Framework") under WP3.

If the current proposal is accepted and starts in Q1 2007, this ICT GRID Plugtests is planned to happen in or around **September 2008**. Previous GRID Plugtests have been organized in October

2004, October 2005. At the time of drafting this proposal, a GRID Plugtests is being planned for November 2006.

- D7: ICT GRID Plugtests Event <http://www.etsi.org/plugtests>
- D8: ICT GRID Plugtests Report on line <http://www.etsi.org/plugtests/History/History.htm>

WP5: Working Package 5: STF Management, reporting and coordination

All Working Packages co-ordination, project management, internal and external animation, minutes, reports, liaisons, organization of audio conference call, invitation to meetings, maintenance of event calendar, elaboration of power point presentations, preparation of press release, etc., will be under the responsibility of the STF Leader (and Project Manager). As this is a new activity, this effort has been provisioned 10% of the work package man-days.

- D9: Interim Report
- D10: Final Report

7 Performance indicators

The project progress reports (interim and final) will reflect the effective schedule compared to the initial work plan. The measured delivery dates for each deliverable should not exceed 2 or 3 weeks of delay, also depending on the actual schedule of the relevant TB meetings.

Records of the following actions will be provided:

- ETSI GRID Standardization meetings, conferences, workshop events organized with lists of speakers (profiles), presentations and signed participant list showing stakeholders involvement and effective dissemination of results.
- External meetings attendance (with presentations when applicable) showing how industry awareness of the activity was raised about the ETSI deliverables (TRs) and their effective production as presented in ETSI Work Programme.
- GRID Plugtests™ events attendance and report published in www.etsi.org/plugtests web site.
- STF progress reports with its record of publication, adoption and in time submission of drafts available on the web site for comments.
- Visits, downloaded draft for comments statistics.
- Mail exploder discussion list (ictgrid@list.etsi.org) number and types of subscribers and associated volume of mails exchanged.
- The number of liaison activities performed (especially at the international level) showing the stakeholder engagement.

Special Performance Indicator for the WP4: ICT GRID Plugtests

Since the beginning of the ETSI Interoperability service (ETSI Plugtests™ service, it has developed, implemented and improved a full quality system and benchmark to assess:

- the correspondence between the expectations of the industry and partners to the service delivered
- the quality of the service delivered
- the overall usefulness of the service provided in the view of the participants
- improvements suggested by the participants
- the alignment of the service provided with the EU policy, guidance and contractual requirements

All these constraints have been included in a set of indicators leading to an overall performance indicator. The measurable indicators are:

- Indicator on the organization of the event judging value of service provided on event organization.
- Test bed satisfaction indicator judging whether participant found the right technical environment to perform the test they wanted.
- IT support organisation indicator judging satisfaction on IT support to the event.
- Facilities satisfaction indicator judging quality of the overall facilities mainly depending on the premises and related in-house services.
- Usefulness for companies' indicator, to judge the interest of the event for the companies.

All these indicators are merged into a global satisfaction indicator given per event.

8 Dissemination of the ICT GRID Plugtests event WP5 results

Results are disseminated using different means:

- Dissemination of the results directly by company participating
- Dissemination of the results to mass media and markets by press release drafted for each event usually the last day of the event.
- Dissemination of the results by the promotion of the event and its results in the ETSI promotion and communication channels (e.g. ETSI news)
- Dissemination of the results by the development and maintenance of all the history and information, in the history section of the ETSI Plugtests website
- Dissemination of the results at the relevant standardization committee(s) after the event
- Dissemination of the results at one of the following key world wide meeting for a given technical area (e.g. Global Grid Forum, EC GRID-related meetings)

9 Work plan, milestones and deliverables

The STF project will be carried out over a minimum period of 30 months with the following Working Packages:

- WP1: ICT GRID interoperability State of the Art
- WP2: Establishment of a roadmap for planning and coordinating the realization of ETSI ICT GRID Standardization approach and methods.
- WP3: Proposals (methods, approaches) to solve identified interoperability gaps.
- WP4: ICT GRID Plugtests
- WP5: STF Management, reporting an coordination

The project will be carried out with the following main tasks

- T01: Establish the STF 3 months after the date of signature
- T02: Start STF activities 5 months after the date of signature
- T03: Start WP5, WP1, WP2 8 months after date of signature
- T04: Start WP3 12 months after date of signature
- T05: Draft Standards (all TR of WP1 and WP2 plus deliverable from WP3) 15 months after date of signature
- T06: Interim Report to the EC/EFTA 16 months after date of signature
- T07: Organize ICT GRID Plugtests event (WP4) and hold by 21 months after the date of signature
- T08: Approval for publication (all TRs and deliverables from of WP1 to WP4) 26 months after date of signature
- T09: Final report to ETSI Director-General and GRID Starter Group 27 months after date of signature
- T10: Submission of the Final Report to EC/EFTA 30 months after date of signature with full cost declaration.

10 Work Packages and deliverables

Project Deliverables

The project will deliver a number of ETSI Technical Specifications (TR) as well as dissemination material such as web pages, presentational slides and possibly a conference paper.

The formal list of deliverables is in Table 1.

Table 1: List of Deliverables

D#	WP	Title	Scope
D0	N/A	STF preparatory meeting report	http://portal.etsi.org/stfs/process/home.asp
D1	WP1	ICT GRID Interoperability State of the Website + Mailing List	http://www.grid.etsi.org/ ICTGRID@list.etsi.org + http://list.etsi.org/ICTGRID.html
D2	WP1	Draft TR Inventory part of "Study report of ICT GRID interoperability gaps"	ETSI TR "Study of ICT GRID interoperability gaps" Part 1: Inventory of ICT Stakeholders Scope: In direct correspondence with the following ICT Standardization Action: Identification of interoperability gaps in existing and emerging international/European Grid standards: an inventory and analysis will be made across the range of involved standards - making bodies with a view to determining the shortcomings; overlaps and loopholes in current and proposed de facto Grid standards at all levels of the middleware/protocol stack (network to application interfaces).
D3	WP2	ICT GRID Interoperability strategic and policy-oriented roadmap Website section listing the liaison established and extension of the Mailing List with respective new contacts established	http://www.grid.etsi.org/ROADMAP ICTGRID@list.etsi.org + http://list.etsi.org/ICTGRID.html
D4	WP2	ETSI Cooperation Agreements negotiations engaged	http://portal.etsi.org/pep/home.asp http://docbox.etsi.org/ga/ga47/ga47_18r1%20Status%20of%20Co-operation%20agreements.doc ETSI GA are organized 2 times per year in March and November. The ETSI Board meet every 2 Months.
D5	WP3	Draft TR "Study report of ICT GRID interoperability gaps"	ETSI TR "Study of ICT GRID interoperability gaps" Part 2: List of identified Gaps Scope: Select and propose solutions for the identified interoperability gaps in terms of approach and methods: depending on the size of the interoperability problems as identified, a series of practical recommendations on how to address and resolve them will be made in the form of appropriate actions ranging from application best practices compilation, profiles definition, operational use guidelines, (open source) reference implementations, conformity - compliance test suite specifications, up to testing tools development, standards validation benchmarking environment or other requirements for parallel or additional new standards regarding for instance the networking infrastructure (including e.g. IPv6).
D6	WP3	Draft TR Deliverable GRID Interoperability Testing Framework	ETSI TR "ICT GRID Interoperability Testing Framework" Scope: Define a GRID testing working framework (tests and validation methodologies, approach and tools to be used. By example, propose to re-use the tools developed by MTS-IPT to create easily a "Requirement Catalogue" able to transform existing ICT GRID specifications into tests requirements standards corresponding to selected GRID interoperability case studies. In both the IT sectors and in the Telecom world, produce the best practices to obtain ICT Interoperability. List and compile existing

Table 5: WP cost breakdown

	Effort	Days remun	Days volunt	Days Staff	Days in-kind	Rate	Travel cost	Other cost	Other cost	Total cost	Total cost	Total cost	
		EC	ETSI	ETSI	ETSI		EC	EC	ETSI	EC	ETSI	Project	
WP1	2 or 3 STF Expert	180	20			600				108 000	12 000	120 000	
	Workshop stakeholders				30	600				0	18 000	18 000	30 participants * 1 day
	Subtotal WP1	180	20	0	30		0	0	0	108 000	30 000	138 000	
WP2	1-2 expert	30	4			600				18 000	2 400	20 400	Work for develop (26 days) & internal co-ord (8 meet)
	PTCC experts			12		600				0	7 200	7 200	
	GGF (2 non-Euro)	6			20	600	5 000			8 600	12 000	20 600	2 meet * 10 deleg * 1 day
	NESSI, EU R&D, ETP, etc.	5			15	600	5 000			8 000	9 000	17 000	5 meet * 3 deleg * 1 day
	SDO (2 non-Euro) OASIS, WC3	4			10	600	5 000			7 400	6 000	13 400	2 meet * 5 deleg * 1 day
	Subtotal WP2	45	4	12	45		15 000	0	0	42 000	36 600	78 600	
WP3	2 or 3 STF Expert	180	20			600				108 000	12 000	120 000	
	PTCC experts			10		600				0	6 000	6 000	
	GGF (3 non-Euro)	9			30	600	7 500			12 900	18 000	30 900	3 meet * 10 deleg * 1 day
	SDO (1 non-Euro)	2			5	600	2 500			3 700	3 000	6 700	1 meet * 5 deleg * 1 day
	Subtotal WP3	191	20	10	35		10 000	0	0	124 600	39 000	163 600	
WP4	Plugtests Project Mgt			20		600				0	12 000	12 000	
	Plugtests Technial Mgt			15		600				0	9 000	9 000	
	Plugtests Administrative tasks			40		210				0	8 400	8 400	
	Travel GGF (1 non-Euro)				10	600	2 500			2 500	6 000	8 500	1 meet * 10 deleg * 1 day
	Travel to SDO (3 non-Euro)				30	600	7 500			7 500	18 000	25 500	3 meet * 10 deleg * 1 day
	Plugtests event delegates				90	600				0	54 000	54 000	30 particip * 3 days event
	Plugtests IT Equip Rental							8 000		8 000	0	8 000	
	Plugtests consum&supplies							5 000		5 000	0	5 000	
	Plugtests accomodation							15 000		15 000	0	15 000	
	External Experts							20 000		20 000	0	20 000	
	Subtotal WP4	0	0	75	130		10 000	48 000	0	58 000	107 400	165 400	
WP5	Project co-ord & techn. managem	50	6			600				30 000	3 600	33 600	22 meetings, 36 days
	STF leader MTS/TISPAN meet	10			150	600	1 000			7 000	90 000	97 000	4*MTS + 6*TISPAN (10 meet * 5 deleg * 3 days)
	STF leader TB/GRID	6			180	600	1 000			4 600	108 000	112 600	6 GRID meet * 10 deleg * 3 days
	NESSI, EU R&D, ETP, etc.	5			15	600	5 000			8 000	9 000	17 000	5 meet * 3 deleg * 1 day
	SDO (2 non-Euro) OASIS, WC3	6			15	600				3 600	9 000	12 600	3 meet * 5 deleg * 1 day
	Subtotal WP5	77	6	0	360		7 000	0	0	53 200	219 600	272 800	

Part III: Financial part

This proposed project is estimated to have a total action cost of 818 400 € as summarised in table 3.1. The EC/EFTA contribution is estimated to be **385 800 €**. The ETSI contribution is made up of **42 600 €** of ETSI real cost (partner contribution) plus a further **390 000 €** (650 man-days) of in-kind contribution.

Table 3.1: Total resources required (WP1 + WP2 + WP3 + WP4 + WP5)

	€	%
EC contribution	385 800	47
ETSI contribution	432 600	53
Total (WP1+2+3+4+5)	818 400	100

Resource breakdown Work Package 1: ICT GRID interoperability State of the Art

The total action cost for WP1 is 138 000 € (see table 3.2). The EC/EFTA contribution is 108 000 €.

Table 3.2: Total resources required (WP1 only)

	€	%
EC contribution	108 000	78
ETSI contribution	30 000	22
Total WP1	138 000	100

Table 3.3 summarises the detailed breakdown of contributions for WP1. The contribution from other organizations is mainly expert resource provided by the ETSI membership.

Table 3.3: Breakdown of resource contributions (WP1)

	Man/Days	Rate	€
EC	180	600€	108 000
Travel	N/A	N/A	0
Total EC contribution			108 000
Contributions from other organizations	20	600€	12 000
Contributions in kind	30	600€	18 000
Total ETSI contribution WP1			30 000

Resource breakdown Work Package 2: ICT Establishment of a roadmap for planning and coordinating the realization of ETSI ICT GRID Standardisation approach and methods

The total cost for WP2 is 78 600 € (see table 3.4). The EC/EFTA contribution is 42 000 €.

Table 3.4: Total resources required (WP2 only)

	€	%
EC contribution	42 000	53
ETSI contribution	36 600	47
Total WP2	78 600	100

Table 3.5 summarises the detailed breakdown of contributions for WP2. The contribution from other organisations comprises mainly expert resource provided by the ETSI membership plus man-days support from the ETSI PTCC.

Table 3.5: Breakdown of resource contributions (WP2)

	Man/Days	Rate	€
EC	45	600€	27 000
Travel	N/A	N/A	15 000
Total EC contribution			42 000
Partner contribution (ETSI PTCC)	12	600€	7 200
Contributions from other organizations	4	600€	2 400
Contributions in kind	45	600€	27 000
Total ETSI contribution WP2			36 600

Resource breakdown Work Package 3: Proposals (methods, approaches) to solve identified interoperability gaps

The total cost for WP3 is 163 600 € (see Table 3.6). The EC/EFTA contribution is 124 600 €.

Table 3.6: Total resources required (WP3 only)

	€	%
EC contribution	124 600	76
ETSI contribution	39 000	24
Total WP3	163 600	100

Table 3.7 summarises the detailed breakdown of contributions for WP3. The contribution from other organisations comprises mainly expert resource provided by the ETSI membership plus man-days support from the ETSI PTCC.

Table 3.7: Breakdown of resource contributions (WP3)

	Man/Days	Rate	€
EC	191	600€	114 600
Travel	N/A	N/A	10 000
Total EC contribution			124 600
Partner contribution (ETSI PTCC)	10	600€	6 000
Contributions from other organizations	20	600€	12 000
Contributions in kind	35	600€	21 000
Total ETSI contribution WP3			39 000

Resource breakdown Work Package 4: ICT GRID Plugtests

The total cost for WP4 is 165 400 € (see table 3.8). The EC/EFTA contribution is 58 000 €.

Table 3.8: Total resources required (WP4 only)

	€	%
EC contribution	58 000	35
ETSI contribution	107 400	65
Total WP4	165 400	100

Table 3.9 summarises the detailed breakdown of contributions for WP4. The contribution from other organizations is mainly expert resource provided by the ETSI membership and support from the ETSI Plugtests™ service.

Table 3.9: Breakdown of resource contributions (WP4)

	Man/Days	Rate	€
Plugtests IT Equip Rental	N/A	N/A	8 000
Plugtests consumable and supplies	N/A	N/A	5 000
Plugtest event accommodation	N/A	N/A	15 000
External Experts	N/A	N/A	20 000
Travel	N/A	N/A	10 000
Total EC contribution			58 000
Partner contribution (ETSI Plugtests) Project & Technical Management	35	600€	21 000
Partner contribution (ETSI Plugtests) Administrative support	40	210€	8 400
Contributions in kind	130	600€	78 000
Total ETSI contribution WP4			107 400

The subcontracting involved in this task will be for the recruitment of external experts for the technical preparation of the event and its follow-up (preparation of the technical programme, liaisons, expertise on site, reporting). Such expertise is not available in the ETSI Plugtests™ service and hence the task has to be subcontracted. At least 5 candidates will be contacted with a request to submit tenders and full details of the reasons for selecting the successful tender will be provided on request to the EC/EFTA. As the decision on the award of this subcontract will be made after the signature of any grant agreement, all related information will be provided to the EC/EFTA as soon as it becomes available so that written authorisation can be obtained from the EC/EFTA. It is also understood that the EC/EFTA will reply within 3 weeks.

Examples of what is covered by consumables and supplies, IT equipment rental and accommodation are given below:

i) Consumables and Supplies

All events require some promotion and logistical actions more or less depending on the complexity and the amount of equipment involved. Expenses in this category may be used on one or a combination of items such as:

- Stationary and printing materials: paper, tapes, etc.;
- Small IT consumables: cables, plugs, hard-disks, etc.;
- Packing material: boxes, films, etc.;
- Promotional material: posters, cd-card, flyers, banners, hand-outs, etc.

ii) IT Equipment rental

Each event is different and might require the rental of equipment which will depend on the technological area concerned. Four main types of equipment rental can be identified:

- a) IT equipment:
 - PC, Workstations, etc.
 - Specific software: Operating Systems, complex environment
- b) Measurement tools:
 - Spectrum analyser (e.g. the case of the RFID and UWB Interops)
 - Radio test system
- c) Complex test beds:
 - Video servers, Voice servers (case of triple-play/quadruple-play Interop)
 - Java test platform (case of mobile application)
- d) Protocol test system(s)
 - Signalling System No. 7 (SS7)
 - SIGTRAN (case of SIGTRAN, NGN Interops)

iii) Accommodation & other services

Depending on the location of the interoperability event some expenses must be incurred for:

- Accommodation: room rental;
- Security guards: to protect the room at breaks and during the week;
- Setting up – pull down of the test beds: power supply;
- Power installation;
- Local Area Network (LAN) installation;
- Transport of the test bed/equipment on site;
- Insurance for the room(s) if needed."

Resource breakdown Work Package 5: STF Management, reporting and co-ordination

The total cost for WP5 is 272 800 € (see table 3.10). The EC/EFTA contribution is 53 200 €.

Table 3.10: Total resources required (WP5 only)

	€	%
EC contribution	53 200	20
ETSI contribution	219 600	80
Total WP5	272 800	100

Table 3.11 summarises the detailed breakdown of contributions for WP5. The contribution from other organizations is mainly expert resource provided by the ETSI membership.

Table 3.11: Breakdown of resource contributions (WP5)

	Man/Days	Rate	€
EC	77	600€	46 200
Travel	N/A	N/A	7 000
Total EC contribution			53 200
Contributions from other organizations	6	600€	3 600
Contributions in kind	360	600€	216 000
Total ETSI contribution WP5			219 600

Travels

A total travel budget of **42 000 €** is foreseen (this is split across the work packages as shown in the tables above)

Attendance at international meetings of the GRID community will be essential. This will include:

- GGF, EGA : 6 meetings in two years in Asia and USA with one in Europe
- DG INSFO F2 GRID Unit and NESSI, NESSI-GRID : 10 meetings in Europe in two years
- W3C, OASIS, WS-I, OSA/Parlay, IETF, ICTSB : 6 international meeting in two years

ETSI related meetings: OCG, Board, MTS (Methodology PTCC, TTCN), TISPAN, GRID will be held at times when the project members are at ETSI headquarters thus reducing travel costs.

It is ESTIMATED that there will be up to 44 meetings to attend. The non-EU based meetings are likely to cost more than 1 500 EUR (as they will tend to be held in Asia and the US). However, if an average estimated cost per travel is required as an estimate then the proposed 42 000 EUR travel budget results in an ESTIMATED average of 954,5 EUR cost per travel. Should the travel budget be under spent then the difference will be refunded to the EC/EFTA as required.

In-kind contribution

This proposal will also provide the equivalent of 650 days of in-kind contribution over the period of the work. The in-kind contribution will be collected and calculated following the information provided for in clause 4 in the "Note for Guidance for the implementation of the Framework Partnership Agreement 2004-2007 between CEN, CENELEC, ETSI and the European Commission signed on 11 December 2003", version September 2006.

50 of these days will be provided by the STF experts or volunteers from the TB. This aspect will also be part of their contracted arrangements and specific details will be recorded in the web-based ETSI Time-sheet application (TAM). The remaining 600 days will be provided by the attendance at meetings and events in relation to the work packages.

11 Document history

Version	Date	Author	Status	Comments
0.0	06 May 06	Patrick Guillemin	Approved Board#57 doc20 a1	Submitted to EC/EFTA (ICT Standardization Action Plan Application Form 6 May 2006)
0.1	04 Apr 07	Alberto Berrini		Re-shaping into STF ToR format used in CfE CL2532 (CfE 04 Apr 2007)
0.2	26 Apr 07	Alberto Berrini		Updated version, final proposal to EC, used in updated CL2532r1 (CfE 27Apr 2007)