



**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

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](mailto: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](mailto: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](mailto: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 the lack of ICT GRID (Information Technology and Communications GRID) interoperable solutions, applications, services based on global standards and their associated validation tools. The goal is to actively support and involve GRID stakeholders in the standardization of ICT GRID test specifications.

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

In this proposal, ETSI will organize and attend GRID workshops, GRID standardization meetings and organize a ICT GRID Plugtests event. ETSI will animate a dedicated GRID email discussion list, provide content for a dedicated GRID web site produce Technical Reports.

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>
- ETSI Cooperation Agreements negotiations (GGF, EGA)
- ICT GRID STF Interim Report, at the latest 15 months after the start of the work
- ICT GRID Final Report, at the latest 25 months after the start of the work

## 2 Rationale

### GRID Definition and context:

What is the GRID? A three point checklist by Ian Foster (\*)

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) to deliver nontrivial 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 centered 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 Grids 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](ftp://ftp.cordis.lu/pub/ist/docs/grids/ngg3_eg_final.pdf)

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

*Potential benefits of GRID technology:*

- *increase productivity by reducing Total Cost of Ownership*
- *offers any-type, anywhere, anytime services by/for all*
- *offers infrastructure for dynamic virtual organisations*
- *is based on next generation Internet services backbone (considering NGN too)*

ETSI GRID standardization objective is to reduce its complexity, 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 2<sup>nd</sup> 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 “conceptional” 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.

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

- access, protocol, middleware, services, applications with a large panel of GRID actors,
- 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
  - Mobile standards, broadband communications and ubiquitous services

ETSI will not address alone all the GRID issues that may be identified but, from networking the involved standardization bodies to produce consensus based technical reports. ETSI will propose a roadmap to interoperable ICT GRID standards

The number of GRID developments is rapidly growing. The uptake of the resulting products by scientific and industrial users is significantly increasing. 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 direct or 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>) has been the first community to recognize the need for work on GRID-related community standards. However, due to the adoption of Web Services (WS) techniques and Service Oriented Architecture (SOA) principles and the increasing influence of GRID technologies, the number of potential standardization bodies and industry FORA has grown significantly. This includes e.g. EGA (Enterprise Grid Alliance, currently merging with GGF) 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 European and on national level, but also for large companies and SMEs, to keep an overview of potential activities concerning standards to use or develop.

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 effort beyond the lifetime of the individual projects is necessary. (\*) <http://www.cordis.lu/ist/grids/projects.htm>  
This proposal addresses the issues of openness and interoperability between GRID infrastructures and services. ETSI propose 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 testing and verification 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).

(\*) [ftp://ftp.cordis.lu/pub/technology-platforms/docs/rec57900\\_web.pdf](ftp://ftp.cordis.lu/pub/technology-platforms/docs/rec57900_web.pdf)

**NESSI** (Networked European Software and Services Initiative) <http://www.nessi-europe.com/index.htm>

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

GRID technology plays an important role in the convergence of IT sector and traditional telecommunications.

ETSI will play a pivotal role in cooperation with existing IT Standards Development Organizations (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, Sponsored by IBM, SUN, HP, Universities and research bodies INRIA...). The last GRID Plugtests event, Grids@Work, was very successful with 240 participants: <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 in IST Projects 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 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 Institute, University 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 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 EC 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, FT, Telecom Italia, etc). It presents a unique opportunity
- There is a high potential of synergies between **NESSI-GRID** and 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 dialog 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 Standardization Work Programme*

This proposal answers directly to Action 2 of Part 1

**Action 2:** *The European Standardization 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 problems 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 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.*

This proposal answers directly to Action 1 of Part 1:

The European Standardization 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 TISPAN (NGN) Technical Body and will effectively take into account Next Generation Networks (NGN).

*Part I: 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:

[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 IPv6 Forum etc.). GRID Standardization will, like NGN, work in close collaboration with existing ETSI IPv6 efforts.

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

**Action 41:** *The European Standardization Organisations are invited to propose Standardization 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.*

Like requested in The 2006 ICT Standardization Work Programme, ETSI GRID Standardization 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 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 **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 plan is to collaborate with NESSI from the beginning, it complies with the 2006 ICT Standardization 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 for EC 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 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 industrials, GRID research projects, users communities ...
- by encouraging a testing and validation approach when defining standards. Following the ETSI recognized testing approach, standards are not any more only long 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) are:

- British Telecom : Mike Fisher (Keith Dickerson, Frank Falcon), Full ETSI Member, partner of NESSI and member of NextGRID (NGG)
- Alcatel : Bela Berde (Alistair Urie), Full ETSI Member involved in NESSI
- Siemens : Karlo Nemeth, Full ETSI Member partner of NESSI
- MINEFI/ARCEP : Laurent Rojey (Didier Chauveau Jean-Pierre Henninot), (« *Ministère des Finances du gouvernement français* » and Regulator)
- INRIA : Denis Caromel, Françoise Baude. INRIA, Full ETSI Member is 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 at ETSI.

Siemens, MINEFI, EADS and INRIA already confirmed their full support to the 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)
  - FZJ
- (\*) <http://portal.etsi.org/docbox/bran/BRAN/GRIDWorkshop/>

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

- EADS : Guillaume ALLEON (Walter Legrand), Full ETSI Member
- IBM Jean-Pierre Prost
- France Telecom involved in GRID4ALL (and GGF Telco-CG like BT)
- FUJITSU (Jacques Durand) already in past ebXML Plugtests and FUJITSU Dr David Snelling (**Vice Chair of Standards** at GGF)
- Telenor (involved in AKOGRIMO)
- HITACHI present in Sophia Antipolis
- HP, NESSI Partner and Plugests Sponsor
- ORACLE (David Pearson representing EGA)
- ObjectWeb with INRIA/ProActive Middleware
- W3C (COPRAS) and common activities on XML Electronic Signatures
- EGEE (Grids@Work, Bob Jones)

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

At the time this proposal is written, 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](http://www.ws-i.org) (Jacques Durand/Fujitsu)
- OASIS [www.oasis-open.org](http://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 SCRUM-WG (GGF#17) <http://www.ggf.org/>
  - GGF SCRUM-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) [www.gridalliance.org](http://www.gridalliance.org)
- Globus Alliance: <http://www.globus.org> (Ian Foster)
- OMA (ETSI Cooperation Agreement) <http://www.openmobilealliance.org>
- The Open Group (ETSI COPRAS) [www.opengroup.org](http://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 Project and initiatives to be associated:

- 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](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 Standardization mainly in GGF .Capitalize with the white paper on "Standards Needs identified by GSCG". We are in contact with GSCG FZJ/Philipp Wieder
- 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>

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<http://www.etsi.org/plugtests/History/2005GRID.htm>

ETSI is in contact with partners in China. At the time this proposal was written, 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 be proven
- The middleware of NSFGrid (Grid of National Science Foundation of China) is CROWN.

At the time this proposal is written ETSI will meet GGF and EGA at GGF#17 in Tokyo to discuss about GRID Standardization collaboration like described in the current proposal.

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

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 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 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 STF Steering Group**

At the time this proposal is written, a GRID starter group lead by Alcatel and BT has been formed. The ETSI Board will decide if GRID standardization will be realized in a new Technical Body or inside an existing Technical Body to be selected. As soon as this decision is taken, a GRID Steering Group will be nominated for this project.

This STF will coordinate with relevant 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).

#### **5.2 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 EC Report will be available in month 15 (assuming 24-months project duration). The Final Report will be made available no later than month 25 (i.e., one month after termination of the project). 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.

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

The GRID standardization will be covered by ETSI SPA (Standards Production Area) Department.

## **6 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, workshops events organized with list 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 is raised ETSI deliverables (TR) effective production as presented in ETSI Work Programme
- GRID Plugtests events attendance and report published in [www.etsi.org/plugtests](http://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](mailto:ictgrid@list.etsi.org) ) number and types of subscribers and associated volume of mails exchanged
- number of liaison activities performed (especially at the international level) showing the stakeholder engagement

### **6.1 Special Performance Indicator for the WP5: ICT GRID Plugtests**

Since the beginning the ETSI Interoperability service 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 industry usefulness of the service provided
- the improvement 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.

### **6.2 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)

## **7 Work plan, milestones and deliverables**

The STF project will be carried out over a two-year period 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 5 months after the date of signature
- T02: Start STF activities 8 months after the date of signature
- T03: Start WP5, WP1, WP2
- T04: Start WP3
- T05: Draft Standards (all TR of WP1 and WP2)
- T06: Interim report
- T07: Organize ICT Plugtests event (WP3)
- T08: Approve Standards for publications (all TR of WP1 and WP2)
- T09: Final report
- T10: Submission of the final report to EC/EFTA
- T11: Dissemination of the final report

## 8 Work Packages and deliverables

### 8.1 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 deliverables are listed in Table 1 below.

D#	WP	Title	Scope
D0	N/A	STF preparatory meeting report	<a href="http://portal.etsi.org/stfs/process/home.asp">http://portal.etsi.org/stfs/process/home.asp</a>
D1	WP1	ICT GRID Interoperability State of the <b>Website + Mailing List</b>	<a href="http://www.grid.etsi.org/">http://www.grid.etsi.org/</a> <a href="mailto:ICTGRID@list.etsi.org">ICTGRID@list.etsi.org</a> + <a href="http://list.etsi.org/ICTGRID.html">http://list.etsi.org/ICTGRID.html</a>
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 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).
D3	WP2	ICT GRID Interoperability strategic and policy-oriented roadmap <b>Website</b> section listing the liaison established and extension of the <b>Mailing List</b> with respective new contacts established	<a href="http://www.grid.etsi.org/ROADMAP">http://www.grid.etsi.org/ROADMAP</a> <a href="mailto:ICTGRID@list.etsi.org">ICTGRID@list.etsi.org</a> + <a href="http://list.etsi.org/ICTGRID.html">http://list.etsi.org/ICTGRID.html</a>
D4	WP2	ETSI Cooperation Agreements negotiations engaged	<a href="http://portal.etsi.org/pep/home.asp">http://portal.etsi.org/pep/home.asp</a> <a href="http://docbox.etsi.org/ga/ga47/ga47_18r1%20Status%20of%20Co-operation%20agreements.doc">http://docbox.etsi.org/ga/ga47/ga47_18r1%20Status%20of%20Co-operation%20agreements.doc</a> 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 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).
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 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.
D7	WP4	ICT GRID Plugtests Event	<a href="http://www.etsi.org/plugtests">http://www.etsi.org/plugtests</a>
D8	WP4	ICT GRID Plugtests Report on line	<a href="http://www.etsi.org/plugtests/History/History.htm">http://www.etsi.org/plugtests/History/History.htm</a>
D9	WP5	Interim Report	(ToC template)
D10	WP5	Final Report	(ToC template)

Table 1: List of Deliverables

## 8.2 Milestones

Table 2 shows the milestones related to each task. The due date for each milestone is given as the number of months into the project.

Milestone	Description	Month Due
M1	Call for STF expert	3
M2	STF Kick-Off meeting & D0	5
M3	Start WP5, WP1, WP2	8
M4	Start WP3	12
M5	Early deliverable D1, D2 (WP1)	15
M6	Early deliverable D3, D4 (WP2)	15
M7	Early deliverable D5, D6 (WP3)	15
M8	Interim Report D9 (2/3 time)	16
M9	ICT GRID Plugtests Event D7 (WP4)	20
M10	ICT GRID Plugtests Report D8 (WP4)	22
M11	Publication of D2	24
M12	Publication of D5	24
M13	Publication of D6	24
M14	Final Report D10	25

Table 2 Milestones related to each task.

Table 3 shows the Milestones related to each task:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
M1			X																						
M2					X																				
M3								X																	
M4												X													
M5															X										
M6															X										
M7															X										
M8																X									
M9																				X					
M10																					X				
M11																								X	
M12																								X	
M13																								X	
M14																									X

Table 3 Milestones related to each task (in a bar chart)

### 8.3 Workflow

Table 4 shows the relative duration of the Working Packages:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
WP1																									
WP2																									
WP3																									
WP4																									
WP5																									

Table 4: Overall Workflow

## 9 Work Packages descriptions

### WP1: Working Package: 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).

Create a live GRID stakeholder group (open mailing list [ICTGRID@list.etsi.org](mailto: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](mailto: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”

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

### WP2: Working Package: 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.

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 Standardization Organisations are invited to propose Standardization 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](mailto: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](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.

**WP3: Working Package: proposals (methods, approaches) to solve identified interoperability 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 with 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)  
Part2: List of identified Gaps
- D6: TR Draft "ICT GRID Interoperability Testing Framework"

**WP4: Working Package: ICT GRID Plugtests**

Organization of a dedicated ICT GRID interoperability test events and associated workshop (like Grids @ Work 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
- and 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 a 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 the CL, Press releases, news letters, ETSI web site.

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

(\*) The 2<sup>nd</sup> GRID Plugtests organized on 10-14 October 2005 (Grids @ Work) with eEurope, FP6 Research Projects UniGrids, CoreGRID, NextGRID, GRIDCoord, Sponsored by IBM, SUN, HP, Universities and research bodies INRIA. This event was very successful with 20 participants from +80 companies: <http://www.etsi.org/plugtests/History/2005GRID.htm>

The initial project plan for the ICT GRID Plugtests even 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](mailto:PLUGTESTS-GRID@LIST.ETSI.ORG)) with web archives. Initial email contact is [plugtests@etsi.org](mailto: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, 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 Middleware's, 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)

If the current proposal is accepted and starts in Q1 2007, this ICT GRID Plugtests is planned to happen D+20 month, around **September 2008**. Previous GRID Plugtests have been organized in October 2004, October 2005. At the time this proposal is written a GRID Plugtests is 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: STF management, reporting and coordination**

All Working Packages coordination, 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). Because this is a new activity, this effort has been provisioned 10% of the work package man days.

D9: Interim Report

D10: Final Report

Final and Intermediate Report Table of Content (ToC) template to be used

1	Executive summary
2	Introduction
2.1	Scope, major aims of the STF work
2.2	STF activity and expected output
2.3	Relation with the reference TB and with other bodies, inside and outside ETSI
3	Overview of the organization of the activity
3.1	Team composition and experts' qualification
3.2	STF teamwork, distribution of tasks, working methods
3.3	Liaison with the reference TB and/or the Steering Group
3.4	Meetings attended on behalf of the STF with the reference TB and other ETSI TBs
3.5	STF communications, presentations, promotion, inside and outside ETSI, WEB pages
3.5.1	ETSI Web portal
4	Final status of the activity
4.1	Overview of the STF work
4.2	Assessment of the achievements
4.3	Technical risk, difficulties encountered, lessons learned and corrective actions taken
4.4	Recommendations for future activities in related domains
5	Final deliverables
6	Resources allocated and spent
6.1	Time spent by the STF experts (paid time)
6.2	Travel expenditure
6.3	Hosting costs (ETSI contribution)
6.4	Time spent by PTCC experts (ETSI contribution)
6.5	Time spent by the STF experts (voluntary contribution)
6.6	Contribution in kind (ETSI contribution)
Annex A: Performance indicators	
A.1	Effectiveness
A.1.1	Number of meetings held in relation to this work
A.1.2	Project progress in relation to the schedule specified in the road map.
A.2	Stakeholder engagement
A.3	Dissemination of results
A.3.1	Presentations, conferences and workshops
A.3.2	Project website hits
A.3.3	Draft downloads
A.4	Impact

## **Part III: Financial part**

### **10 Cost breakdown**

#### **10.1 Total resources**

This proposed project requires **818 400 EUR**, as summarised in table 3.1.

The EC/EFTA contribution is **385 800 EUR**.

	<b>EUR</b>	<b>%</b>
<b>EC contribution</b>	385 800	47
<b>ETSI contribution</b>	432 600	53
<b>Total (WP 1+2+3+4+5)</b>	818 400	

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

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

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

	<b>EUR</b>	<b>%</b>
<b>EC contribution</b>	108 000	78
<b>ETSI contribution</b>	30 000	22
<b>Total WP1</b>	138 000	

Table 3.2: Total resources required (WP1 only)

Table 3.3 summarises the detailed breakdown of contributions for WP1.

Contribution from other organizations is mainly expert resource provided by the ETSI membership.

	<b>Man/Days</b>	<b>Rate</b>	<b>EUR</b>
EC	180	600 EUR/day	108 000
Travel	N/A	N/A	
<b>Total EC contribution</b>			<b>108 000</b>
Contribution from other organizations	20	600 EUR/day	12 000
Contribution in kind	30	600 EUR/day	18 000
<b>Total ETSI contribution WP1</b>			<b>30 000</b>

Table 3.3: Breakdown of resource contributions (WP1)

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

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

	EUR	%
<b>EC contribution</b>	42 000	53
<b>ETSI contribution</b>	36 600	47
<b>Total WP2</b>	78 600	

Table 3.4: Total resources required (WP2 only)

Table 3.5 summarises the detailed breakdown of contributions for WP2.

Contribution from other organizations is mainly expert resource provided by the ETSI membership.

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

Table 3.5: Breakdown of resource contributions (WP2)

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

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

	EUR	%
<b>EC contribution</b>	124 600	76
<b>ETSI contribution</b>	39 000	24
<b>Total WP3</b>	163 600	

Table 3.6: Total resources required (WP3 only)

Table 3.7 summarises the detailed breakdown of contributions for WP3.

Contribution from other organizations is mainly expert resource provided by the ETSI membership.

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

Table 3.7: Breakdown of resource contributions (WP3)

**10.5 Resource breakdown Work Package 4: ICT GRID Plugtests**

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

	EUR	%
<b>EC contribution</b>	58 000	35
<b>ETSI contribution</b>	107 400	65
<b>Total WP4</b>	165 400	

Table 3.8: Total resources required (WP4 only)

Table 3.9 summarises the detailed breakdown of contributions for WP4.

Contribution from other organizations is mainly expert resource provided by the ETSI membership.

	Man/Days	Rate	EUR
Plugtests IT Equip Rental	N/A	N/A	8 000
Plugtests consumable and supplies	N/A	N/A	5 000
Plugtests accommodations	N/A	N/A	15 000
External Experts	N/A	N/A	20 000
Travel	N/A	N/A	10 000
<b>Total EC contribution</b>			<b>58 000</b>
Partner contribution (ETSI Plugtests)	35	600 EUR/day	21 000
Partner contribution (ETSI Plugtests)	40	210 EUR/day	8 400
Contribution in kind	130	600 EUR/day	78 000
<b>Total ETSI contribution WP4</b>			<b>107 400</b>

Table 3.9: Breakdown of resource contributions (WP4)

**10.6 Resource breakdown Work Package 5: STF management, reporting and coordination**

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

	EUR	%
<b>EC contribution</b>	53 200	20
<b>ETSI contribution</b>	219 600	80
<b>Total WP5</b>	272 800	

Table 3.10: Total resources required (WP5 only)

Table 3.11 summarises the detailed breakdown of contributions for WP5.

Contribution from other organizations is mainly expert resource provided by the ETSI membership.

	Man/Days	Rate	EUR
EC	77	600 EUR/day	46 200
Travel	N/A	N/A	7 000
<b>Total EC contribution</b>			<b>53 200</b>
Contribution from other organizations	6	600 EUR/day	3 600
Contribution in kind	360	600 EUR/day	216 000
<b>Total ETSI contribution WP5</b>			<b>219 600</b>

Table 3.11: Breakdown of resource contributions (WP5)

## 10.7 Travels

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

This includes, in particular:

- 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, GA, MTS (Methodology PTCC, TTCN), TISPAN, GRID will be held at times when the project members are at ETSI headquarters thus reducing travel costs.

## 11 Experts required

Members of this project team 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 Middleware's.
- 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)

## 12 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