



QUESTIONNAIRE FOR THE PREPARATION FOR THE ICT ETP LEADERS MEETING WITH COMMISSIONER REDING ON FEBRUARY 21ST 2008

Questions for the plenary session: “ICT research and innovation: Policies for leadership”

The questions below address the role of the ETPs in the development and implementation of ICT research and innovation policies across Europe. Each question is further detailed by an example of bullets to be considered if addressed by your ETP. Please include any other issues you consider relevant either in the current questions or as an additional topic.

1. How do you see the role of ETPs in the coordination of R&D policies and investments at EU, MS, and regional level?

- Influence of ETP SRA on national policies
 - ETPs raise SRA awareness at National and Regional levels, with the objective of ensuring that SRA major topics are reflected at in national and regional policies.
 - Very different situations in the different countries but currently, SRA issues are not or poorly reflected at national level.
 - Open issue – how can effective coordination be achieved taking into account the ETPs as a major source of input?
 - The influence of ETPs SRAs on national policies has to be strengthened. The process to align ETPs with national R&D-programs has to be continued. An ongoing example to be monitored is the attempt to coordinate German industry involvement in ARTEMIS and ARTEMIS Joint Undertaking and to consider it in defining national R&D policies and investments.
 - National influences are higher when a national TP exists – current examples for NESSI include Slovenia, Bulgaria, Spain, The Netherlands and Norway and an emerging TP in Italy.
 - The role and structure of ETPs is starting to become an example of industry led R&D in the MS. In the Netherlands the ICT Innovation Platforms are effectively ETPs at member state level.
- Role of Mirror Groups
 - Mirror groups could be a channel as national representatives, who are in charge of national and regional programmes, can identify the overlap and synergies between national objectives and the ones identified by ETPs. Consequently, national representatives can:
 - adapt their policies accordingly;
 - promote national participation in ETP action plan, projects, etc.

- However, if the mirror groups are considered as the instrument to share European initiatives at national levels, more visibility and effective support from Member States and European Commission should be given to such groups. (ex : refer to COSINE support action)
- Due to the number of ETPs, an ETP linked Mirror Group is not the most efficient approach – on the contrary, multiple ETPs operating in the same overall field (i.e. IT) should collaborate with a single Mirror Group.
- Clear link between Mirror Group membership and national R&D influence in all areas of relevance to the ETPs should be established for each country prior to the creation of Mirror Groups
- NESSI's experience: NESSI mirror group has not fulfilled this role so far.
- On this topic, also refer to the bullet in question 2 linked to access to finance through complementary national and EU funding

2. How do you see the role of ETPs in strengthening private and public investments in ICT R&D and innovation?

- Genral aspects
 - ETPs are increasingly strengthened networks of R&D stakeholders. Thus ETPs strongly support the bundling of resources and allow or facilitate the faster formation of appropriate consortia for certain R&D topics (compared to FP6) because all major stakeholders are per definition ETP members.
- Role of public procurement policies
 - Public procurement policies such as those in place in the United States clearly facilitate the transfer from research to market and the elaboration of large pilots
 - Public procurement should operate through scenario based approaches (defining a complete end-to-end scenarios) in collaboration with the relevant ETPs –
 - In this approach, public procurement to be used both as a user, as a catalyst for cross collaboration between ETPs and as an innovator for new business models
- Access to finance for research and innovation using tools at EU, MS, regional and industrial level
 - Complementary funding at national level when already funded at EC level and vice versa strongly positive to support industrial projects and to align National policies and European policy.
 - Use of MS and Regional Funding to be clearly defined.
- Availability of qualified human resources for ICT R&D
 - Working Groups could call for new training Education Courses (example Services Science & Engineering)
 - Each ETP should include in its SRA a specific section on education need – when an NoE exists in the area of focus of the ETP, clear link should be established between the NoE and the ETP SRA activity
 - Dedicated collaborations to be set up between Technology Schools and Universities and ETPs through research programmes

3. How do you see the role of ETPs in research exploitation and innovation policies?

- The standardisation processes
 - ETPs' primary focus is not to define standards, but to ensure industrial presence in areas that are strategic to the economy. As such, ETPs contribute

to standardisation processes through existing standardisation bodies, with a focus on ensuring uptake or evolution when standards are needed – new standards to be defined only when necessary in a clearly defined need and context. These actions are coordinated by an ETP level committee but have to be implemented through Research Projects such as NESSI Strategic Projects.

- The lead market initiative is not well known, more communication on that topic is needed.
- Involving SMEs as drivers for innovation
 - NESSI set up a SME Working Group, and created a WP dedicated to that topic in the next NESSI-2010 support action. These initiatives should help NESSI to define concrete actions to foster SME creation and growth.
 - Ensuring a single channel of information towards SMEs for all ETPs would ease the involvement process
- Becoming involved in large market pilots
 - Innovation policies such as CIP are largely uncoupled from ETPs – closer involvement between should be achieved

4. How do you see the role of ETPs in promoting EU ICT R&D on the international scene?

- International collaborations
 - Through ETPs, the ICT R&D scene can act as „EU Community“ to outside Europe. This effectiveness is achieved through ETPs as the flag-bearers of the European research and innovation and as such they have the capacity for raising the awareness on research topics and promote results adoption all over the world. The size of an ETP and its memberships provides it with an increased credibility and industrial representativeness than isolated or even clustered projects.
 - To ensure ETP representativeness, strong links should be established between not only the ETP partners and members but also with on-going research. This approach will be tested in NESSI during 2008 through the implementation of **coordination** towards achieving NEXOF – the NESSI Open Service framework. International collaborations require that a) internal coordination be achieved and b) representative
 - To ensure visibility, outcomes should be shared using international events as dissemination opportunities. However, effective impact on the international landscape depends on the coherence and consistency of the SRA and its implementation through research and developments. NESSI has acquired visibility at international level, its SRA is being translated in Chinese and its General Assembly attracts international participation. However, effective collaborations have to be implemented at research partnership level and participation to international standardisation efforts for effectiveness.
 - The ETPs may undertake the effort to align MS initiatives on similar domains for those MS initiatives that have a built-up an international reputation and a proven track record in collaboration.

5. Do the current ETP structures and mechanisms allow for a more active involvement in policy development and implementation?

- Please describe how (including possible synergies between ETPs) **or**
 - While ETPs contribute to the Research and Technology policy development (strategy, SRA...), there is no direct link between the SRA and the research selection process. While it is clear that ETPs are not and should not be the

single mechanism used to channel industrial input to European research, their coordination role is key to the advances of strategic areas and therefore synergies between ETPs and priorities of research projects selected through calls should be defined.

- This point is also true for MS call processes, where a lack of coordination undermines the possibilities to build new large scale infrastructures with an industrial objective.
- With the current mechanism of ETPs, ETPs have limited means to move from definition to implementation of their SRAs – this potentially limits the impact of ETPs on delivered innovation
- Please propose ideas for revised structures and/or new mechanisms
 - ETPs mission and means should support the delivery of the research prioritised through the SRA
 - More specifically, new means including funding and responsibilities should be allocated to ETPs to cover the continuum between :
 1. delivering the SRA ,
 2. implementing this SRA
 3. and delivering innovation through research results to address a broad range of market needs and seize new business opportunities
 - ETP should collaborate with the EU programmes to promote or labelise a limited number of projects which are key to implement the SRA and to take on responsibility for the consistency and the complementarity between projects. This should be promoted at MS level as well in order to coordinate this process with MS counterparts
 - Transversal or federating projects taking into account other projects should be also be supported.
- JTI's: lessons learned
 - Feed back on ARTEMIS and Cleansky experience should be made available to the various stakeholder: Industry , Research Technological organisation, EC, MS;
 - the successful start of the ARTEMIS Joint Undertaking has the potential in bundling and coordinating investments in the relevant technology field. It is expected that the various stakeholders (companies, EU and national governments) work together in a smooth way to bring this to a success.
- Prospects/interests for moving non JTI ETPs into JTIs
 - NESSI has analysed the first feedback from ARTEMIS JTI
 - The Burden is huge but it could be a relevant answer to problems encountered. (see above proposal)
 - NESSI is open but there is a question mark: Is JTI the only vehicle to improve the impact of ETPs?

Questions for the thematic sessions:

1) The Internet of the future

- How do you assess the current position of Europe with regards to the shaping of the Future Internet?
 - Europe will have a chance to shape the Future Internet, especially on higher level protocols, e.g. on service platforms and on core technologies like networked embedded systems, semantic technologies or on application domains like Ambient Intelligence. Prerequisites are the alignment of national

programs with European programs and international co-operations, especially with US, Korea, Japan on this subject. Even the EU-projects related to Future Internet have to be coordinated.

- Our current position is weak mainly due to fragmentation of research in relevant areas.
- The position of Europe should be taken from a usage point of view and not an infrastructure point of view. In other words, Future Internet should be shaped based on the future services to be delivered and which will use the Web as one of the delivery means. Elements that are key to shaping the Future Internet include the fact that services will be delivered between people and objects – across location, devices, borders etc.
- The importance for Europe is to ensure that the evolution of the Internet is a) in sync with the needs related to foreseen usage, b) secure, consistent, coherent and reliable and c) independent from political and geopolitical events from whatever source and origin
- What is the role of industry, academia and public authorities in setting the agenda for the future internet?
 - The future Internet will be the key for economic growth.
 - Role of industry, academia and public authorities is key in the setting of this agenda – as explained in previous point (usage has to drive the change, i.e. industrial applications are key) -> this is why ETPs have to play a major role. FP7 2009-2010 WP is a great opportunity to de-fragment research in the area of the future internet in order to come up with a shared and agreed research agenda and implementation path addressing the challenges of tomorrow where major business innovation will rely on the future internet.
 - ETPs demonstrated that industrial partners and academics could agree on a vision and an SRA.
 - But building the Future Internet is beyond the scope of a single ETP. It needs a European Policy (Galileo like) including participation of major industrial players, a large involvement of users and Member States commitment.
 - Industry and Academics can elaborate a Future Internet Vision, SRA, and implementation plan.
 - European and National Public Authorities should both commit to this vision and support its vision. The proposed Future Internet Assembly is an interesting step – but it is being created hastily as a coordination mechanism and has to be revised to ensure that the overall vision is well scoped and defined.
- What in your views are the issues addressed by your platform that are directly relevant to the Future Internet and which can be shared by other platforms and hence become part of an overall EU R&D path to the Future Internet?
 - NESSI is going to deliver open, interoperable, safe and secure service environments. Sharing with the other platforms including the embedded level is key, as networked embedded services are one of the most important topics for the Internet of the Future, e.g. Internet of Services, Internet of Things, Ambient Intelligence.
 - The future internet delivers new services or services of services and must be ready to support ultra large scale systems applications with unknown size and dynamically evolving and emerging behaviours and it must provide novel testing and simulation techniques for these services.

- The envisioned future internet techniques require novel and revolutionary business, public and societal governance processes going far beyond technological issues.
- Services reference Architecture (NEXOF) that NESSI will deliver will be directly applicable as the Future Internet middleware, Future Internet Major building Blocks i.e. Trust Security dependability, etc.. Reference architectures & implementation for connectivity & services
- A network of connected test beds using network and infrastructure capabilities to deliver services – hence the importance of ensuring strong scenario based collaboration between at least NEM, NESSI and eMobility
- Distributed Collaborative development facilities, Capabilities and environments in Engineering, Modelling, Simulation, Testing, Integration, Migration and management, Domain scenarios and profiles (functional based) and “dummies” services
- Supporting competences and skills centres dealing with technical and non technical issues (adoption & dissemination)
- SME oriented actions through the SME Working Group and participation in the definition of NEXOF
- Domain specific activities (public sector launched 2/2008, energy under analysis) – key to ensure applicability and adoption of Future Internet
- What are your views regarding the best way to put together EU R&D efforts in various fields contributing to the Future Internet challenge? What sort of co-operation strategy should be put in place: 1) towards the national Future Internet initiatives (D, F, Fin...) 2) towards third countries initiatives (US/GENI, JP/AKARI, Ko/FI_Forum...)?
 - First of all a European view has to be established which defines the role of Europe in the development of the Future Internet. This view should be the foundation of a European Internet Initiative. All stakeholders should identify on the base of this view projects and work on challenges which will bring Europe to a leading position. Some of these projects have to include partners from US, Korea, Japan and other countries. All activities should be coordinated by a strong Internet Forum which represents the European Internet Initiative worldwide.
 - NESSI has established in January 2007 a strong coordination mechanism to ensure consistency of research proposals and projects
 - Starting to operate in March 2008, a specific activity NEXOF_RA will be responsible to implement the coordination, define and maintain the overall architecture
 - Establishing such a coordination mechanism is a challenge – NESSI is open to expand its coordination mechanism towards the other ETPs and research projects
 - Beyond coordination mechanisms, the challenge is to a) define a single SRA for Future Internet, b) support it through a strong European initiative involving industrials, academics and Member States
- How should your answers to the above questions influence the setting of the Future Internet Assembly to be kicked off in Bled on 31st of March?
 - Establish a European view (see above)
 - Create a governance of the Future Internet assembly which clearly supports coordination of research and implementation of the SRA, defines an open contribution process and an open membership method to ensure the largest possible base of stakeholders and establish clear links to users.

2) Alternative paths to the next generation components and systems

- Given the major transformation in the relevant industries, how do you see the role of ETPs/JTIs in helping Europe to position itself in the domain of components and systems in the future?
 - ETPs are in principle the right means. But we have to establish a systematic and consistent process to identify the relevant topics for the future across all ETPs .
 - The research agenda of ARTEMIS, focusing on Embedded Systems, is intended to make relevant contributions in the field
- How do we ensure the right balance in investment in research and innovation between the different sectors involved?
 - Identify stakeholders of each sectors
 - Establish Road map for all stakeholders
- What are the major challenges/opportunities (technological and non-technological) you would like to see addressed by a future ICT research and innovation policy in order to ensure European leadership in the components and systems of the future and how do you plan to address them?
 - Europe faces unique challenges such as our aging society and our quest for sustainable energy. We must link ICT R&D directly to these challenges and better align European initiatives with national programs, with again a systematic and consistent process to identify the right topics for the future
 - Technological: Software and service engineering, architectures and processes, Business Process Automation, Service Ecosystem, Service Grids, Internet of Services, Business Process Automation, Internet of Things, Context Awareness, Semantic Technologies, Knowledge Management for technical systems, Ambient Intelligence.
- Do you see a need for enhanced synergies between ETPs/JTIs to address these challenges and how could this be implemented?
 - Set-up cross cutting projects based clear commitment of the Commission and ETP partners.

3) ICT for sustainability

- To which extent are the technological developments in your area driven by the targets for lower carbon emission and/or energy efficiency, both in terms of the technologies themselves and as well as their applications? Please give examples.
 - IC-Technologies for sustainability are of high importance for our businesses especially in the sectors of Energy and Industry. Examples of ICT Services devoted to sustainability, carbon emission reduction and energy efficiency are numerous. Energy networks supervision, optimal use of renewable energy; load balancing technologies; optimization of energy systems to improve the degree of efficiency; intelligent metering; energy services, energy management technologies, computational material engineering etc.
 - Also on the energy demand side (user side), ICT is only a small part of the problem (energy use) but a large part of the solution that our businesses can offer to customers: in their contribution to the overall CO2 abatement targets in many different industry sectors, ICT technologies are further being developed and result in technologies
 - that enhance existing processes by making things/processes more efficient (eg logistics in the supply chain, minimizing energy use in

buildings, energy management technologies to minimize energy wastage, ...)

- that enable new ways of working (eg. technologies based on virtualisation, including testing and modelling, advanced PLM processes)
 - that transform what we do altogether: Transforming technologies do not just save energy (and thus reduce CO2 emissions) but they change what we do, stimulate innovation and open new markets: These ICT transforming technologies include broadband (which has enabled tele-working and teleconferencing and transformed the telecom marketplace) and satellite applications.
- What elements of an ICT research and innovation policy would help strengthen the role of ICT in the sustainability agenda?
 - A coherent European view on this topic should be developed. Europe is able to gain competitive advantages in the areas of services, safety and security, networked embedded systems, optimization technologies.
 - Clear political support of ICT as an *enabler* of sustainability
 - Integration of sustainability as a dedicated topic in the ETP SRA and subsequent implementation paths
 - A stronger focus on multidisciplinary in ICT R&D.
 - Do you see a need for enhanced synergies between ETPs/JTIs to address these elements and how could this be implemented?
 - NESSI ETP focuses on the future of services and, as such, will work in close cooperation with researchers working on Internet of Things. To this extent we do expect to also have a contribution with respect to ICT for sustainability.
 - The best approach towards implementation of synergies is the identification of usage scenarios where services can play a role

4) Confidence in the digital economy

- How could Europe ensure a leading position in this field and what elements of an ICT research and innovation policy would help strengthen Europe's global competitiveness?
 - Internet of services and Internet of things
 - Europe has a leadership position in embedded systems – linking services to intelligent objects through a strong collaboration between the relevant ETPs (Artemis, NESSI, NEM, eMobility) based on this objective of extended leadership is key.
 - Allow European industry to deliver services by mastering the middleware platforms.
- What is the respective role of industry, academia and public authorities in setting the agenda for ICT trust and security in Europe?
 - Industrial role to make sure that research is directed towards identified business needs and new business models.
 - Legal issues and their influence on the digital economy (new business models!) have to be investigated.
- To which extent are the research agendas and other activities in your platform taking into consideration users confidence aspects?
 - Security and privacy are one of the main topics of focus for NESSI

- We consider that users' confidence is key to develop the digital economy. Beyond this consideration, NESSI has moved into implementation through a) user oriented working groups (health, public sector, Future Internet and under analysis – energy) and an open call for user involvement at partner level. In addition, NESSI Strategic Projects include pilots to ensure user acceptance.
- Do you see a need for enhanced synergies between ETPs/JTIs to address these elements and how could this be implemented?
 - Technologies for Security, safety and trust are necessarily present at different levels (infrastructure, middleware, services) and need to be addressed consistently by the relevant platforms. In this regard an alignment between research topics and interchange of research results is needed.
 - Usage scenarios from provider to user (whether human users and / or intelligent objects) have to be defined in common by all ETPs / JTIs to ensure a common understanding, a comprehensive implementation, a clear definition of the areas that are strategic for Europe and support for the standards that are crucial for these scenarios to come to live.