



**Net Innovation:
Consultation for Work Programme 2016-17**

Synthesis Report

October 2014

Final

Contents

1. Introduction	1
2. Context for Net Innovation Actions	1
3. The Net Innovation Portfolio	2
4. The Future Internet PPP: Ensuring Sustainability and Openness	5
5. Digital Entrepreneurship: Building, Connecting, Internationalising	7
6. Digital Enterprises: Large-Scale Experimentation for Collaborative Business Innovation Platforms ..	10
7. Digital Social Innovation: Facilitating a Grassroots Digital Innovation Movement	13
8. Conclusions	14
Annex 1: Overview of Public Consultation.....	16

1. Introduction

In preparation for the Work Programme 2016-17, Unit E3 'Net Innovation' of the Directorate-General for Communications Networks, Content and Technology (DG CONNECT) organised a wide-ranging consultation exercise.

A public consultation was held canvassing suggestions on priorities and future directions under Work Programme 2016-17 from the stakeholder community. Other inputs included: a workshop held with experts in Brussels on 3 July 2014; consultations with current Net Innovation projects and initiatives; and internal discussions with other Units within DG CONNECT.

The public consultation ran from 12 August to 10 October 2014. Respondents were invited to address six main questions related to the next Work Programme 2016-2017 and the Net Innovation landscape in general. In total, 98 responses were received from across the Net Innovation community. Key themes in these responses are reflected in the main text and in the quotations cited (*in italics*); other aspects are highlighted in the Annex.

This report presents a summary and synthesis of all inputs received.

2. Context for Net Innovation Actions

Several of the responses examined the context for activities under the Work Programme 2016-17, both for the Net Innovation Unit and more generally. The main trends identified include:

- **Micro-enterprises and entrepreneurship as engines of economic growth:** In Europe, the number of self-employed, entrepreneurs and micro-enterprises is expected to grow significantly during the next ten years. With their agility and creativity, small and micro businesses are key sources of growth and innovation, and increasingly their success relies on developing and applying digital technologies. Micro-enterprises and startups are seeking to collaborate in complex ecosystems in order to share synergies and reach the critical mass to be sustainable and grow in a global market. The target groups concerned (self-employed, micro-enterprises, SMEs) are those that benefit the least from EU research and innovation initiatives at present, creating clear opportunities for new forms of support action.
- **A 'Technology Spring' offers an environment conducive to innovation:** Many innovative technologies are emerging or are on the horizon. Current developments around Internet of Things (IoT), Big Data, Cloud Computing, machine intelligence, mobile devices, 5G networks, and collective intelligence will converge, creating major opportunities for innovation, some of it disruptive. In addition to detailed research, these advanced data services and applications call for large-scale demonstration and experimentation in areas such as digital enterprises, smart cities, and health and wellbeing.
- **Emergence of innovative business models and new economic and social paradigms.** The new digital spaces have given birth to a grassroots innovation movement of unprecedented scale. Mass participation is now a key feature of our economy and society. For enterprises, the established order is threatened by new economics that promote a culture of sharing, 'prosumption' and supply circles, and allows dormant assets to be monetised. In the social sphere, innovators, users and communities are using digital technologies to collaborate in finding new solutions to societal challenges and effect social change.

- **The systemic nature of innovation calls for coordination:** Technology convergence and mass participation mean internet-based innovation will occur at a much larger scale. Whereas previous waves centred on individual platforms and connecting users to those platforms, the Future Internet will be aimed at innovating entire systems of society, industry and public services. These smart systems will be extremely interaction-intensive environments, involving a permanent and seamless mix of online and real world user experiences/behaviour, business offerings/transactions, and societal processes/frameworks. This large-scale systemic approach to innovation requires the coordination of a huge range of stakeholders, systems and services. Since the technologies are not mature, and many dimensions and parameters need to be explored, there are clear opportunities for large-scale experimental (yet coordinated) environments and platforms that bring many disparate actors together.

“Europe should realize that it needs innovation at the systems level rather than the application level. All this recycling of Java-based software got nowhere during the last decade. The gap with US widens over time. Let's get serious about virtualization, storage, operating systems; let's stop avoiding all the complexity where innovation really happens.” Anonymous

- **A growing regional and social divide in digital innovation:** Existing disparities between regions, in terms of access to digital technologies and services, are being exacerbated by differences in attitudes to and opportunities for entrepreneurship. Increasingly, entrepreneurship in Europe is becoming concentrated around a limited number of poles that leave the rest of the labour market and innovation ecosystem behind. More needs to be done to ensure that the opportunities and benefits of the European digital economy are accessible to all.

3. The Net Innovation Portfolio

As a frame for the next ICT Work Programme 2016-17, it is useful to recap on the project portfolio within the Net Innovation Unit as it is likely to exist at the end of 2015.

The Future Internet Public Private Partnership

To date, around €300 million has been invested in the Future Internet PPP, which is entering its final phase, running up to mid-2016. This third step (Phase 3) aims to ensure that technological developments and trials evolve into seed-type activities, generating actual take-up of innovative internet applications, services, products and solutions; €100 million has been allocated to help some 1000 small businesses and startups in that effort. Following a call for proposals, sixteen consortia were selected to act as ‘accelerators’ in this process and mobilize local SME and web entrepreneur ecosystems. In this way, the FI-PPP is seeking to stimulate regional smart growth in Europe while also making the most efficient usage of the outcomes of FI-PPP Phase 1 and Phase 2.

In technological terms, the main outcome of the FI-PPP is likely to be a **series of solutions and products** developed within FI-PPP Phases 1 and 2 branded under the common name ‘FIWARE’.¹ These include:

- ‘Generic Enablers’ (GEs), the original offer of the FI-WARE project, which allow acceleration of the development of Future Internet related applications and services in any given domain;
- ‘Specific Enablers’ (SEs), the vertical offer from the Use Case projects, which complement the FI-WARE GEs and are dedicated to a given domain or sector;

¹ Preliminary analysis provided by the FI-LINKS project

- ‘FI-Lab’, the live instance of FI-WARE that offers free resources to developers wishing to experiment with FI-WARE technologies;
- ‘FI-Ops’, the set of tools that support FI-Lab’s operation, and allows other providers to join the FI-Lab community;
- Other products and solutions that support the offer, e.g. the XiPi portal containing information about experimental infrastructures available for tests and trials, and other platforms that have been developed by some of the Use Case projects.

The FI-PPP has also created **an ecosystem of web entrepreneurs and SMEs** who will have developed Future Internet related applications and solutions, based (at least in part) on the FIWARE offer.

In addition, a third, more-intangible outcome should also be considered. The FI-PPP has been – and is still – demonstrating that **a new way of making innovation in Europe is possible**. If the results of Phase 3 are convincing, then the FI-PPP will have shown that such a global approach was successful and worth repeating for the next big challenges. As noted below, several respondents view this aspect as one of the FI-PPP’s most significant and lasting contributions.

Web Entrepreneurship

Proposals for Web Entrepreneurship were invited under objective 13 of Work Programme 2014. Details of selected proposals will be published shortly.

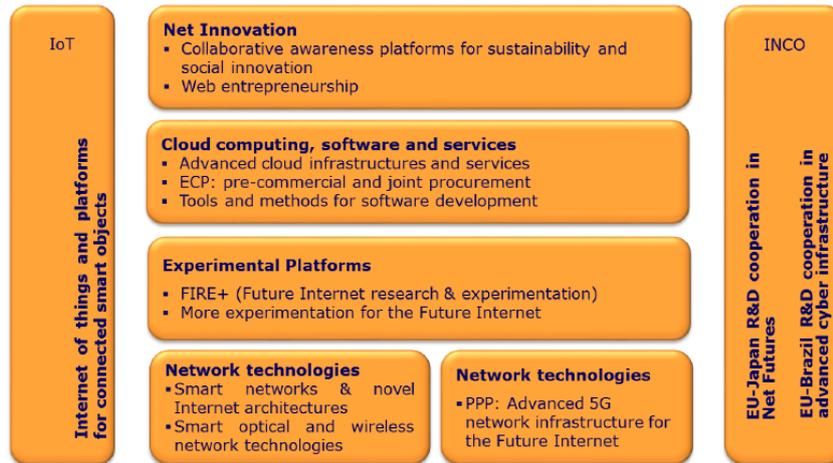
Collective Awareness Platforms

Proposals on Collective Awareness Platforms for Sustainability and Social Innovation (CAPS) were invited under objective 5.5 of Work Programme 2013.² The objective is to stimulate and support the emergence of innovative ICT-based platforms for grassroots social innovation, providing societally, environmentally and economically sustainable approaches and solutions to tackle societal challenges. Such collective intelligence platforms will include collective decision-making tools and innovation mechanisms allowing and encouraging individual and community creativity, participation and situational awareness. Seven research projects on grassroots experiments and pilots are being supported, together with an initiative on seed funding for social innovation activities and four Coordination and Support Actions (CSAs).

The Wider Perspective

The Net Innovation Work Programme cannot be considered in isolation; it needs to be positioned in a more global landscape which includes, firstly, other Net Futures domains.

² For projects see: <https://ec.europa.eu/digital-agenda/en/caps-projects>



Source: FI-LINKS Consortium

Of particular note here are:

- **A Proposed PPP in the 5G domain:** This high profile initiative aims to ensure that the next generation of communication networks will be ‘Made in the EU’. Advanced 5G networks for the Future Internet will stimulate the development of a new network infrastructure for internet-based innovation and provide advanced ICT services for all sectors and users. Although still in its early stages, this new PPP is attracting a lot of attention, including at the political level. The EU recently signed an agreement with Korea to strengthen cooperation in this area; other agreements with Japan and China are under discussion.

Potentially there are strong synergies here. For example, the Net Innovation Unit could encourage the web entrepreneurs and SME communities to engage in or take advantage of 5G PPP projects. More generally, this and other PPPs may benefit from the lessons and experiences gained under the FI-PPP, especially Phase 3 innovation projects.

- **A potential PPP on Big Data/data-driven economy:** The NESSI ETP has recently proposed to the European Commission a definition of a PPP in the area of the data-driven economy, to develop a big data community and encourage the exchange of best practices on big data. If evaluated successfully it could be launched by the end of 2014. This, too, offers opportunities for the involvement of the established Web entrepreneurs and SME communities, as well as existing FI-PPP technologies and other assets.
- **Supporting European initiatives in Cloud computing and IoT:** Cloud computing is a major enabler of innovation and is favoured by many startups as it enables them to scale quickly and effectively. There are opportunities to combine Phase 3-type instruments with regulatory aspects (from Unit E2) in charting a new model for cloud services in Europe (see Digital Enterprises, below). Similarly, in IoT where the massive growth in the number of connected and smart devices creates major opportunities for European citizens and businesses, opening new global markets.

Respondents emphasized that the Net Innovation Unit’s reach into the community is seen as a key asset. Hence, in scoping its activities the Unit should not limit itself to research projects but rather build on its established reputation by pioneering paths that bridge from research to innovation.

4. The Future Internet PPP: Ensuring Sustainability and Openness

Respondents express some concern that the EU is not making enough of the FI-PPP. Major investments have been made and some significant results have been achieved. The initiative should have higher visibility both in technology terms and in policy debates. Phase 3 will address this to some extent but more needs to be done.

Platforms are critical to the future of the digital space, providing the building blocks for the smart systems that will shape our world in the 21st century. The FI-PPP is an important development in this respect and has much valuable experience as well as technology. In particular, there has been clear progress on standards and APIs, and concerted support for SMEs. The Phase 3 accelerator projects represent a major escalation in the PPP's roll-out activity involving over 1000 organisations, predominantly SMEs and Web entrepreneurs who will apply FIWARE enablers in a whole variety of local ecosystem contexts.

The key issues now are **sustainability and openness**. The FI-PPP has to find means to support and grow the FIWARE platform and results and ensure they become embedded within viable real-world solutions. FIWARE should be widely recognized and accepted by technical and user communities alike, both within Europe and beyond. At the same time, the openness ethos of the current platform must be maintained and exported into other projects and initiatives.

A number of opportunities have been identified. Firstly, there are opportunities to build upon the FI-PPP results and outcomes by better exploiting and promoting the key tools. Such actions could align along five strategic directions:³

- 1) *Exploit and upgrade the best of the FI-PPP results*: Support the update of those Enablers which have been widely used (most accessed, downloaded or interacted with) by the startups and entrepreneurs during Phase 3, where a level of maturity has been achieved. In addition, third parties need to be incentivised to bring new enablers to the platform so as to keep it fresh and relevant. Such an Open Innovation approach in driving the evolution of FI-PPP results will help ensure their use in real commercial scenarios.
- 2) *Customise the offer*: Adapt FIWARE, FI-Lab and FI-Ops to the needs of specific applications or sectors, but with a dedicated approach and promotion of their use. Some effort has been dedicated in Phase 1 and Phase 2 projects towards Smart Cities; this effort should be expanded, and other real business applications for operators, service providers and EU manufacturers could be promoted. For example, dedicated "sub-platforms" made of relevant GEs and SEs for a given domain could be developed. The customization and adaptation process could be taken even further by providing an optimized platform where local experimenters and startups can offer apps to support the specific needs of a given domain (e.g. 3D gaming, IoT...).

"The FI needs to be more citizen-friendly, more social and participatory, and more private; further action is required in these directions", NESSI Technology Platform

- 3) *Work with the community to ensure continuity*: The developers of Future Internet tools should work in cooperation with the general developers' communities to ensure a wider adoption of FI-PPP results and their acceptance as *de-facto* 'standards': i.e. FIWARE as the Future Internet OS; FI-Ops as the operation environment; and FI-Lab as the meeting place for entrepreneurs and the capacity to build the Future Internet. Following initial encouraging

³ Scenarios partly proposed by the FI-LINKS project

results, future work should ensure that FIWARE is increasingly aligned and contributing to relevant open source initiatives (rather than building new ones), to ensure its impact and acceptance in a wider ecosystem than the European one. This could lead to exploring boundaries beyond open source software, and touch base with open source hardware-related initiatives such as Arduino in IoT, or RepRap in the field of 3D producers.

- 4) *Expand FI-WARE's reach and scope:* There are opportunities to expand FIWARE's reach into related and complementary technology fields by filling gaps in current enablers.
 - **Digital privacy** can be an enabler for innovation but at present the notion of privacy has many negative connotations. As an expandable, open and secure ecosystem, FIWARE should be extended into the privacy domain, and into the security area more generally. We need to develop tools that enable users to manage privacy and security issues in a practical way.
 - In the **IoT domain**, there are a number of adapters to different IoT gateway protocols and devices but more could be done: for example, device management, OS for devices, semantics at the device level, peer2peer communication between objects, could be added.
 - FIWARE should fully embrace the **cloud approach**, not only by making GEs available through the cloud and web-native, but by making them cloud-native services. This involves embracing a different design architecture and patterns based on the concept of high availability and scalability of cloud computing infrastructures.
 - **Cross-domain working** between initiatives (Big Data, 5G PPP, etc) and/or between application domains (e.g. travel and health), will allow common issues to be explored and help break down the 'silo mentality'.
- 5) *Further mobilise European infrastructure:* Extend further the mobilisation of European infrastructure to provide capacity and resources, e.g. through the enhancement of the infrastructure capacity to offer more services and more capacity to SMEs and experimenters. For example:
 - Incentives should be offered – and the value proposition made clear – to infrastructure owners and operators to join and increase FI-Lab capabilities.
 - Tools should be developed for easing SMEs' access to FIWARE, integrated with the regular innovation process of SMEs, so as to help the wider use and promotion.
 - Expand the XiPi portal into a full FIWARE brokerage service, starting from the existing XIFI federation of infrastructures.

Relationship between PPP and Experimental Platforms: The boundaries between the FI-PPP and FIRE have become blurred in recent years: there is increasing interaction between INFINITY/XIFI and FIRE projects, meanwhile FIRE is trying to attract SMEs and industry. The Net Futures Directorate may wish to distinguish more clearly between projects using the FI-PPP infrastructure as being closer to market, with FIRE going back to its original roots in more long-term advanced and open for disruptive Future Internet concepts. In parallel, FIRE testbeds (or elements of FIRE testbeds) should be encouraged to migrate to the FI-PPP family as they become more mature and adapted to the needs of industry, continuing the process already initiated with the XIFI project (where some FIRE facilities have joined the federated set of infrastructures).

*Ensure "a more integrated approach for the FI-PPP, for instance with FIRE, IoT and Networld.",
Sergio Gusmeroli*

Exploiting knowledge on large-scale innovation experiments: As well as specific results and tools, one of the PPP's main assets is the wealth of knowledge and experience accumulated in organising

large-scale innovation experiments. In domains such as security & privacy, IoT, and open data some of the main barriers to innovation revolve around social, economic and cultural factors rather than technology. In these areas (and others), large-scale experimentation is needed that addresses not just technological solutions but also business models and societal issues (e.g. attitudes to decision-making, choice and risk). The PPP's experience in orchestrating large-scale, user-led innovation environments could be essential here, including in tackling Societal Challenges (see below). This aspect links well to Net Innovation's existing work on CAPS.

Building national nodes and profile: National initiatives and other European initiatives, like EUREKA, should be encouraged to maintain pressure for relevant projects to use the FIWARE solution. FIWARE should be promoted at national, regional and local level to become *the* European platform for the Future Internet. At the European level, Big Data and 5G projects should also use FI-WARE, e.g. with existing data from Smart Cities as a sandbox to deploy new technologies.

Monitoring and assimilating results: From an industry standpoint, the FI-PPP is regarded as different from other initiatives in the sense that it allows for a deeper involvement of the industrial players, making the initiative more flexible and capable of responding more quickly and efficiently to market evolution. Further activities should be considered in relation to keeping track of the results, analysing the impact, and documenting the lessons and best practices learnt during the programme. This might help not only to validate the risky leap forward in the FI-PPP model, but also to predict the applicability and outcomes outside the ICT sector.

[re future topics] "Establishment of FIWARE technology centres in the Member States; Cooperation of the Member States in the FI-PPP programme; Future Internet Living Labs; FI-PPP activities in the New Member States; Education and training of FIWARE developers, and web entrepreneurs; Internet Science; National FI-PPP programmes.", Vilmos Nemeth, National Innovation Office (NIH), Hungary

5. Digital Entrepreneurship: Building, Connecting, Internationalising

Europe needs an educated entrepreneurial ecosystem that promotes new forms of enterprises. This whole area now has high visibility, both in policy debates and practical support actions.

The role of entrepreneurship in digital innovation is well known, as are the issues and barriers facing digital entrepreneurs in Europe. They include: access to finance; access to talent and skills; the need for highly responsive support frameworks; and a fragmented regulatory regime.

Given the range of support already available, why should entrepreneurship issues be addressed within Net Innovation? Essentially, it is because of the Horizon 2020 programme's ability to reach Web entrepreneurs on a large scale. Such entrepreneurs are delivering early stage services that will shape the future of the web, such as IoT and mobile services. Local accelerators (as now being launched in Phase 3) are essential in order to demonstrate such services in a local context and strengthen the fledging infrastructure. This approach could be extended further through encouraging interactions and exchanges between early stage projects (e.g. accelerators in London, Athens and Berlin).

*"We need to assemble and leverage, some of the European top notch players from education, mentoring, networking and funding companies, ...both global/online and local/face-to-face approaches are needed.",
University Professor, Germany (non-published contribution)*

Specific issues where Net Innovation could contribute include:

- 1) **Internationalising European startups and accelerators:** New technology means startups and SMEs are able to trade internationally and being small is no barrier to global ambitions. Yet many startups struggle with how to scale beyond Europe. More could be done to foster collaboration between EU and non-EU startups and hubs. The exchange of good practices and expertise should not be limited to the EU. Both individual startups and tech-hubs should be assisted in connecting to partners in markets such as US and Asia so that they are able to compete at the global level. The aim should be to create **global entrepreneurial community hubs** that constitute 'encounter venues' for mentoring collaboration and market validation among web entrepreneurs, internet-based enterprises, researchers and investors internationally (EU, US, BRICs, China).

*"...it will be vital to build on the various networks of startups that are being created. The next step will be to work and support the internationalization and scale-up of successful startups",
Michele Cimmino, Belgium*

- 2) **Strengthening entrepreneurship education:** In Europe entrepreneurship education lags behind our international competitors, especially the US. Young people need to learn as early as possible how the web changes our life, as well as to acquire the business, marketing and technical skills to put their ideas into action.

Massive open online courses (MOOCs) offer one such vehicle for interdisciplinary startup education (as being supported under ICT-13 Web Entrepreneurship). In addition, an 'Erasmus for Startups' should be considered. This would offer entrepreneurs (and programmers) the opportunity to stay in another country for a year during which time they would be able to develop their business idea. Similarly, support providers would be able to spend time in equivalent establishments so as to experience alternate ways of supporting entrepreneurs. A full-scale exchange scheme is clearly beyond the NI Unit's remit (and budget), but it could perhaps support pilot actions to demonstrate how it would work.

*"...to increase success rate of web ventures, it is necessary to ensure web entrepreneurs access critical resources: education and pan-European mentoring, networking and funding",
University Professor, Germany (non-published contribution)*

- 3) **Building cultural awareness:** More should be done to celebrate and promote entrepreneurship overall and to recognise the achievements of individual startups. For example:

- Startup Europe initiative would benefit from having **local ambassadors** able to spread information and awareness about EU programmes. Ambassadors should be an active and recognized part of the community rather than public employees.
- **A unified communications campaign** should be launched to raise awareness of funding opportunities. The campaign should celebrate the sense of competition between European cities and encourage cities to collaborate to make Europe attractive to serious entrepreneurs.
- **Pan-European events** to publicise opportunities under EU programmes to startups, investors and entrepreneurs. Such events could include pitches to investors and could be curated around particular topics.
- **Cultural understanding of entrepreneurship:** The motivations of founders across Europe can be very different (e.g. between Berlin and Athens). We need a much better understanding of social, economic and cultural factors in entrepreneurship.

Connecting and Nurturing Ecosystems

Innovation today happens across boundaries. A key success factor is the ability to bring communities together, combining knowledge and insights in different organisations, domains and localities. These multi-disciplinary communities should be based around people ‘in the field’ (e.g. business professionals, medical professionals, scientists, users) and be facilitated by access to the funding necessary to further their ideas.

“A complete innovation ecosystem, encompassing education, support to entrepreneurial initiatives, funding and facilities for internationalisation is still incipient and immature”, Telefonica, S.A., Spain

Prizes/competitions (both open and challenge based), **workshops** to pitch ideas, and **mentoring** by in-house experts are all valid approaches to help build communities. Physical meetings (‘brains in a room’) are to be preferred over virtual ones, especially in the early stages where trust is still being established. Organisations able to **accelerate exploitation** (such as angel investors) should also be involved, so that results get brought to market at an early stage.

Large corporations are key players here. They can shape the landscape in important ways, by supporting innovation in the European market and helping to ensure a level playing field at international level. In-kind support to startups (such as Amazon’s offer of its AWS platform) can also be valuable. Programmes need to be initiated that bring together corporates and startups in order to give entrepreneurs a better understanding of how a corporation operates and the challenges they face. For their part, corporates need to recognize these responsibilities and be given incentives to act in the right way (e.g. opening their IP portfolios, providing corporate venture funding).

“Better and simpler ways of cooperation between different sized players, beyond the consortium paradigm, should be more explicitly encouraged. E.g. large industry leaders providing transversal ICT platforms and medium-sized innovators providing vertical solutions with dedicated sectorial knowledge.”
Telefonica, S.A., Spain

Challenge-oriented approaches are a useful way of ensuring that innovation fully reflects user requirements and experiences. This applies also to ‘Grand Challenges’, i.e. societal issues. The aim should be significant (order of magnitude) improvements in products, services, processes or business models, and to ignore any current legal constraints (see Digital Social Innovation below).

Access to **open data**, **experimental environments** and **test infrastructures** can also play a role in helping startups to innovate successfully (as addressed elsewhere in this report).

“Support to entrepreneurs could be provided by opening-up more data, not only from the public sector but also from private businesses. ...Furthermore, support to web entrepreneurs could be provided by making some test infrastructures available to anyone interested in experimenting with a new application”,
NESSI Technology Platform

Entrepreneurship Policy & Regulatory Framework

Respondents flagged many issues that can be considered as part of the policy and regulatory framework for entrepreneurship: harmonisation of legislation; taxation regimes, access to finance, etc. While these are not generally issues for the Work Programme, there is possibly scope for support actions – such as studies, events, and pilots, etc. – that inform the policy-making process and align with broader digital innovation policy initiatives.

One area where policy lags behind market reality is ‘Net neutrality’. Similar competition issues to those encountered in relation to telcos are now arising in relation to key internet platforms, such as

music and video streaming services. Thus, Europe's existing policy on **Net neutrality may need to be extended to embrace platform neutrality as well**. Net Innovation could have a role here, supporting policy work undertaken by Directorates B and F. It could also inform policy-making (and possible legislation) in areas such as mass digitalization and 'software-based networks': both raise concerns about privacy and other aspects and robust legal frameworks have yet to be put in place.

"Net neutrality has been seen as an issue of privacy and security and openness, but the impacts of net neutrality on innovation, on infrastructure and on investment are critically important. ...Advanced and innovative economic models of the dynamics of internet economics are required. This work should involve key stakeholders from all sides of the debate", Anonymous

"the concept [of network neutrality] needs indeed to be extended to platform neutrality. This requires to understand the right tools to design the system and to enforce true neutrality despite the 'black-box' outfit of platforms available nowadays", Francesco De Pellegrini

"SDN is a useful concept, but we shouldn't emphasize innovation 'in the network' (done by operators) over innovation 'above the network' (outside the operators). Widespread availability of IPv6 would help hugely here - and doesn't require SDN, though it certainly doesn't preclude it.", SWITCH

6. Digital Enterprises: Large-Scale Experimentation for Collaborative Business Innovation Platforms

Within the enterprise domain, Europe faces a number of key challenges:⁴

- Capitalize and transform the new emerging forms of collaborative (circular, sharing) economies enabled by the internet into competitive advantage for European enterprises, delivering employment and growth.
- Turn Europe into the global leader of platforms and intelligence services for web entrepreneurship and digital business innovation.
- Facilitate the educational and socio-techno-political framework to easily connect and intelligently 'activate' the highly distributed entrepreneurial, investment and digital business innovation assets spread all over European regions to create flexible, ultra-dynamic and global business ecosystems.
- Facilitate ultra-fast, trusted and privacy-respecting digital ecosystems leveraging 'digital alliances for growth' to high-quality enterprises from startups to mid-cap enterprises.

This vision calls for invigorated 'platform thinking' and connected, intelligent business infrastructures for the digital economy. Enterprises and entrepreneurs need to be supported to breed innovation and spur the development of disruptive products and services bound with novel business models.

Research is envisaged into a new generation of federated, multi-sided enterprise-focused platforms that facilitate continuous innovation and allow internet-based enterprises and entrepreneurs to collaborate, evolve and scale in a hyper-connected world. Such platforms should combine business innovation and technology trends, addressing concrete business needs, generating value beyond short-term and opportunistic monetisation. Potential examples include: collaborative, real-time business analytics-as-a-service; innovative, web-based business models and architectures for new kinds of economies (along sharing economy/circular economy principles); and federated, innovation-

⁴ Scenarios developed by the FutureEnterprise project

driven platforms that promote new ways of trustful collaboration among internet-based enterprises and entrepreneurs.

Net Innovation could contribute to this vision through **support for the large-scale experimentation foreseen in these ‘collaborative business innovation platforms’**. Such actions also link to possible actions under the Big Data/data-driven economy PPP.

“How to generate value from Big Data, how to better deduce useful information from Big Data, and new ways of interacting with Big Data. Challenges are not just of volume but also of velocity, variety, and veracity.”
NESSI Technology Platform

“Methods (as opposed to merely technology) for collaboration of distributed groups should be developed and analyzed. ...[as well as software] the idea applies to development of physical products and of content.”
Lutz Prechelt

“The projects need demonstrate either a case, a proof of concept, formation of a community of vested interests, or suggest a set of tools with which to handle the combination of digital technology and interoperable businesses across industries, borders and languages.”, Mogens Kühn Pedersen

Specific opportunities are apparent in relation to:

- 1) **Open data standards and IoT**: Europe should be a powerhouse in IoT, but is falling behind the US in key areas such as health and home automation. Net Innovation can provide a strategic perspective here, building on the experience and assets of the FI-PPP. Measures should be taken to stimulate the IoT app ecosystem, for example by **creating a physical apps marketplace in Europe for IoT apps and services**, in other words an *‘iTunes for the IoT space’*.⁵ Building such communities will involve bringing in sectors such as tourism, media, creatives, and manufacturing as well as technologists. FI-WARE already has a few IoT enablers and these could be expanded – while retaining an open approach – as a first step towards a sustainable ecosystem. Common standards for data exchange, security and metadata will open up major innovation opportunities in IoT for entrepreneurs, public organisations and SMEs. Privacy and security are also key.

“Platform(s) for Internet of Things, directed to support, strengthen and accelerate the digital transformation of European industry, expected to lead from products to solutions and services across many industry segments. ...the next and better Android for running connected things in a trustworthy way.”, Martin Elixmann

“Making an IoT platform available as part of a digital infrastructure in Europe, in order to enable and accelerate the digital transformation of industry and society in the EU and to stay competitive in the new global digital service economy.”, Martin Elixmann

“Managed IoT (internet of things) and the related field of business and digital compliance.”
Mogens Kühn Pedersen

“IoT brings huge potential for new threats to privacy and security; we should tread carefully here, and make sure projects adequately address these concerns from the start.”
SWITCH

- 2) **Interoperability in digital enterprises**: In recent years substantial efforts have been made in enterprise interoperability, with many interesting results. These have yet to

⁵ Opportunities here are being explored by the CONNECT Advisory Forum for ICT Research and Innovation. <http://ec.europa.eu/digital-agenda/en/connect-advisory-forum>

reach the mainstream, however. There is an opportunity to create large-scale experiments involving startups and IT SMEs so as to push these results into the market. Large-scale pilots together with the third-party mechanism (50k-150k grants) could be used.

“Interoperability and standardisation aspects are important to add and also field tests, or even better pilots, permitting these services to work over several countries.”, Geoloc Systems

- 3) **New approaches in Cloud computing:** Cloud computing is one of the best enablers of innovation and consequently is used by many startups. There are opportunities to take ideas and experiences from the FI-PPP into the Cloud space (such as sub-granting, open calls, using/working with FIWARE, creation of SME ecosystems, etc.). FIWARE not only provides technology, but also data (e.g. from cities, electricity companies), the freedom for SMEs and others to develop apps and services, and access to potential customers. It provides a platform (FI-Lab) and building blocks to build customized platforms and applications that are particularly attractive in the cloud context.

The objective would be to bring together the Phase 3 instruments with cloud and regulatory expertise from Unit E2 to deliver new cloud-oriented solutions. Such solutions should not rely on FIWARE alone but allow a certain competition. An implementation on FIWARE could be required (because of its openness), with the possibility to have other implementations as well. Smart cities is a potential use case, creating a community of app developers that focus on this particular need. Any such initiative would need to be consistent with activities under the European Cloud Partnership (ECP) and Cloud4Europe.

“Better/beyond cloud computing: Efficient and easy-to-use access to storage and computational resources like the large commercial clouds provide today, but with less dependency on large commercially-driven entities and less vulnerability to large-scale surveillance.”
SWITCH

Indeed, there is a constellation of issues around big data, data analytics, IoT, and cloud computing that are inter-connected and raise important challenges in terms of both (semantic) interoperability and security and privacy.

“Big data analytics in conjunction with (consumer) privacy, smart X (integration of intelligent devices through networks), and security and trust; all this on a standardized / open source basis (or similar approaches like using the FI-PPP concept) so that European companies can build market momentum.”
Sachar Paulus

“Need for R&D with respect to the combination of social, mobile, data analytics and cloud technologies (SMAC) on the one hand and true content interoperability on the other hand.”
International Information Centre for Terminology (Infoterm), Austria

“Pervasive analytics integrating internet of things and Cloud technologies. Also data science models and data management and analysis for social good.”
Domenico Talia

“Future big data infrastructures should allow different groups of users to work on the same data sets, build their own (virtual) collaborative environments, safely store intermediate results, and later share the discovered results. [also] New data provenance, security and access control mechanisms and tools.”
NESSI Technology Platform

7. Digital Social Innovation: Facilitating a Grassroots Digital Innovation Movement

Digital Social Innovation (DSI) refers to the phenomenon whereby innovators, users and communities collaborate using digital technologies to co-create knowledge and solutions for a wide range of social needs and at massive scale. In essence, it is about exploiting “the collaborative power of networks to harness the collective intelligence of communities in order to tackle big social challenges”.⁶

Research points to a number of key success factors for DSI initiatives to be sustainable:

- Building communities based on the right mix of motivations and incentives, such as need, passion, and acquisition of reputation.
- Mix of financial and non-monetary incentives and outcomes (beyond GDP and monetization)
- Access to knowledge, enabling open and distributed infrastructures, and open licensing schemes.
- New indicators and metrics to measure the impact of DSI and calibrate interventions and investments.
- Addressing barriers to growth and scale, including reusability of solutions in order to avoid lock-in.
- And most importantly, making social impact.

*“...the development of research methods and applications to monitor and understand large-scale social media content. ...scalable and distributed approaches capable of handling the massive amounts of available data and capturing the emergent semantics, so-called Collective Intelligence, hidden in the crowdsourced content.”,
Multimedia Knowledge & Social Media Analytics Laboratory, CERTH*

A focus on DSI could be particularly timely for Net Innovation as a means to connect the LEIT and Societal Challenges research strands. User-led approaches will be crucial in tackling ‘Grand Challenges’. We have to start from real-world problems and build the ecosystems and new business models necessary to solve them. This could involve the user-led approach to platforms described above; or users – such as city authorities – setting challenges to industry for them to address.

The CAPS portfolio has value for DSI (although as the quote below emphasizes, the two are not synonymous). In a world with network effects, the prime issue is innovation *within* the network. With their emphasis on increasing creativity, empathy, and social interaction, CAPS projects offer new approaches for networked innovation.

*“[CAPS] is research with high innovation potential, able to support, network and reinforce local citizen's innovation. ... It is a research area in which EU can hold a forefront position on the international scene. ...Digital social innovation and CAPS are often presented as equivalent domains while they are not!”,
Sigma Orionis*

*“...the working definition of CAPS invites us to go beyond both IT and media in their narrow and 20th century definitions. Maybe try to become a bit more specific about the scope of 'collective awareness'”,
Anonymous*

*“Collective Awareness Platforms for Sustainability and Social Innovation need to progress from collective awareness to collaborative action and problem solving”,
NESSI Technology Platform.*

⁶ Interim Project Report, Digital Social Innovation study, <http://digitalsocial.eu/>

DSI will play a central role in the development of the Future Internet, in particular by empowering civil society organisations and grassroots communities to enable bottom-up social innovation. Examples include:

- i) New ways of making things, such as the Makers movement and open hardware projects like Arduino;
- ii) Participatory mechanisms and open democracy, through new approaches to direct democracy and citizen participation;
- iii) The sharing economy as a new economic model, based around approaches such as crowdsourcing, crowdfunding and crypto-digital currencies;
- iv) Participatory approaches to science and environmental issues (citizen-science, Science 2.0);
- v) Awareness networks enabling sustainable behaviours and lifestyles; and
- vi) Open access and information Commons, in areas such as open data, open sensor networks, free and open software, open hardware, and open standards.

Smart Cities is a natural ground for experimentation and hence a strong candidate as a take-up channel for the FI-PPP. As a platform, it has the potential to be **the 'operating system' for municipalities in Europe** and needs to be marketed to them as such. Wide adoption, as under the Phase 3 projects, with smart cities and entrepreneurs collaborating will be essential for long term viability. SME collaboration can be particularly effective in addressing interoperability, as SMEs naturally seek interoperable solutions. Engagement with citizens, including the fostering of volunteerism, should also be explored. Other aspects include: tools for accessing, searching and visualizing city-related data; and the evolution of the city as a marketplace of services for citizens and businesses (e.g. through open APIs).

8. Conclusions

Key Themes

While in no way binding, the inputs received under this consultation exercise suggest orientations for the Work Programme 2016-2017 in Net Innovation along the following lines:

- **The Future Internet Public Private Partnership: scope for actions to exploit and customise the PPP offer, build the community, and internationalise the current effort.** Capitalise on knowledge of large-scale innovation experiments as a key asset.
- **Digital Business Innovation: actions aimed at easing the transition of traditional businesses after the digital disruption.** In particular, **an initiative on IoT and open data** – helping to position Europe in this strategic area through extending the FIWARE platform and supporting development of a European IoT apps and services marketplace.
- **Digital Entrepreneurship: extending web entrepreneurship towards a broader transversal activity.** Main contributions should be in internationalising European startups and accelerators, strengthening the entrepreneurship education infrastructure, and aiding cultural understanding of entrepreneurship.
- **Digital Social Innovation:** Underpins the whole Net Innovation portfolio – FI-PPP, Web entrepreneurship, CAPS. Probably best viewed as a means of operationalising some of the aims above (e.g. Smart Cities, IoT), rather than as an objective on its own.
- **Cloud computing: scope for a specialised implementation of the FI-PPP** within an area that has high political profile. A strong candidate for WP 2016-17.

- **Smart Cities: scope as an experimental testbed for implementing Net Innovation actions.** The area has a high profile and significant potential as a take-up channel for FI-PPP results. Another strong candidate.
- **5G/Big Data:** Although significant contributions can be envisaged, the timeframe is probably too short to scope these in detail. Actions should be carried over to a future work programme.

Outcomes and Impacts

While not exhaustive, potential outcomes (short term) and impacts (long term) identified under this exercise include the following:

- **Increased awareness of the FI-PPP programme and FIWARE technology** and stronger cooperation within Europe in the development of the digital ecosystem.
- **System-level platforms, architectures and frameworks.** These should be user oriented, integrate with existing frameworks, be demonstrated in specific verticals, and feed into new standards with worldwide acceptance or at least visibility.
- **Showcase projects** based around innovative products and services with considerable market potential that demonstrate problem-oriented solutions and inspire others.
- **Prototype Development Centres (PDCs),** as an evolution from Living Labs, able to support innovation and bring operational solutions/systems to the wider SME market.
- **Connected, secure and intelligent business infrastructures and platforms for the digital economy,** supporting enterprises and entrepreneurs to breed innovation and spur the development of disruptive products and services bound with novel business models.
- **More joined up approaches to entrepreneurship,** providing entrepreneurs with all the resources necessary to turn technologies into actual solutions, which in turn can grow into scalable businesses.
- **A deeper understanding of social innovation,** through a better knowledge of how tools for social innovation should be built, what services they need to provide, how they can engage and sustain their users, and how to seed and grow communities.
- **A substantial and sustained involvement of and support for SMEs and startups,** including opportunities to exploit project/programme results through startup/spin-off initiatives.
- **The launch of commercially viable businesses** that can grow and are sustainable beyond the funding envelope. Projects should be allowed to return with results with different levels of maturity and different perspectives to reach the market.
- **Better support for open standards:** R&D projects building their applications on top of open standards layers and extending those layers through participation in internet SDOs.

Annex 1: Overview of Public Consultation

The public consultation ran from 12 August to 10th October 2014. Respondents were invited to address six main questions related to the next Work Programme 2016-2017 and the Net Innovation landscape in general. In total, 98 responses were received from across the Net Innovation community. Key themes in these responses are reflected in the main text and in the quotations cited; other aspects are highlighted below.

Question 1: What topics should be supported by the next "Horizon 2020" Work Programme 2016-2017 to accelerate new forms of Internet-based innovation throughout Europe?

A wide range of topics was identified. Many respondents called for **better deployment of internet-based applications within specific application areas** such as: eHealth, eEducation, eDemocracy, digital culture and media, cyber-security, environment, social inclusion, eScience and citizen science, and smart cities. Although most of these have separate action lines within H2020, each can also be seen as a basis for mass internet-based innovation and wider social change.

Other topics had a **strong technology research orientation**:

- Better cloud computing
- Virtualization and ‘softwarization’, in particular in the context of developments in 5G and network architectures (Virtual Network Function orchestration and management; chaining of network service functions; software-defined routing functions; network architectures beyond TCP/IP).
- “Internet of Everything” (multiple terminals, heterogeneous technologies, smart environments and applications). Plus solutions based on the use of these heterogeneous networks, providing real global coverage and ensuring also short- and long-range mobility.
- Semantic technologies and semantic interoperability within software development (multilinguality, multimodality and multimedia, inclusion and eAccessibility, multi-channel presentations).
- Research that would ensure Europe’s technological independence from other world regions, in particular the US (e.g. own operating systems, social networks, encryption technologies).

A third cluster specifically addressed **the innovation environment and related aspects**:

- Europe-wide collaboration and support for FIWARE through a variety of initiatives (see Question 2)
- A constellation of issues around the coming together of Big Data, IoT and cloud computing. Key aspects include data analysis, cloud computing, (semantic) interoperability, and privacy. On data privacy, aspects include strengthening and communication through EU policy and regulations, easy-to-use tools, and awareness campaigns. In Big Data, we need to find new ways to interact (infrastructures, tools, applications, services, etc.), and means to deduce useful information and generate value.
- Need for a European platform in IoT and for European leadership in IoT standards. More generally, a progression towards ‘Managed IoT’ and the related field of business and digital compliance.
- Systems level innovation
- Promoting the open paradigm: free and open source software, open data, open standards and open hardware

- Experimentation with cooperative and collaborative models of innovation.
- Support for and research into network neutrality and platform neutrality.
- Resources for entrepreneurs so as to increase the success of web ventures. This would include: entrepreneurship education; pan-European mentoring, networking and funding; and support for internationalisation of startups; and promoting an entrepreneurial culture.
- Large-scale experiments on enterprise interoperability involving startups and IT SMEs pilots and using third party mechanisms (50k-150k grants).
- Research on social, economic and business aspects of social networks, social media and mobile applications (e.g. lowering barriers to entry, implementing privacy by design, semantics within social media content).
- Multidisciplinarity and interdisciplinarity – digital innovation as the result of “bold research in multiple dimensions”.

Question 2: What would you like to see as outcomes from the projects funded through "Net Innovation" calls for proposals 2016-2017?

In terms of target outcomes, issues highlighted included:

- **Increased awareness of the FI-PPP programme and FIWARE technology** and stronger cooperation within Europe in the development of the digital ecosystem.
- **System-level platforms, architectures and frameworks.** These should be user oriented, integrate with existing frameworks, be demonstrated in specific verticals, and feed into new standards with worldwide acceptance or at least visibility.
- **Showcase projects** based around innovative products and services with considerable market potential that demonstrate problem-oriented solutions and inspire others.
- **Prototype Development Centres (PDCs)**, as an evolution from Living Labs, able to support innovation and bring operational solutions/systems to the wider SME market.
- **Connected, secure and intelligent business infrastructures and platforms for the digital economy**, supporting enterprises and entrepreneurs to breed innovation and spur the development of disruptive products and services bound with novel business models.
- **More joined up approaches to entrepreneurship**, providing entrepreneurs with all the resources necessary to turn technologies into actual solutions, which in turn can grow into scalable businesses.
- **A deeper understanding of social innovation**, through a better knowledge of how tools for social innovation should be built, what services they need to provide, how they can engage and sustain their users, and how to seed and grow communities.
- **A substantial and sustained involvement of and support for SMEs and startups**, including opportunities to exploit project/programme results through startup/spin-off initiatives.
- **The launch of commercially viable businesses** that can grow and are sustainable beyond the funding envelope. Projects should be allowed to return with results with different levels of maturity and different perspectives to reach the market.
- **Better support for open standards:** R&D projects building their applications on top of open standards layers and extending those layers through participation in internet SDOs.

Question 3. Which are the main barriers preventing new forms of Internet-based innovation throughout Europe?

In terms of the main barriers to internet-based innovation, respondents generally supported those identified by the other communities consulted. Again, a broad range of issues was identified, some generic, others highly specific. These included:

- Lack of an entrepreneurial culture and entrepreneurship education in Europe (e.g. administrative burdens in setting up and running a company).
- Over-reliance on monopoly players (and technology) from outside Europe, especially the US.
- Access to venture capital/seed funding and a risk-averse attitude to investment.
- Market fragmentation in Europe: regulatory, legislative, linguistic.
- Lack of open standards; lack of interoperability between the deployed systems and services.
- Lack of experimentation and user focus.
- Insufficient attention to interdisciplinarity: ICT alongside system science, simulation modelling, social science, economics, etc.
- Management of innovation – innovation cycles that are too long, lack the funding to bring results to market and emphasize results over innovative business models.
- Lack of innovation in public procurement and weak cooperation between public research institutions and industry.
- Openness of public data.
- Data privacy issues (EU legislation, national variations, public perceptions, trust, etc.).
- Issues relating to intellectual property – copyright, software patents.
- Competing standards in software and content development.
- Inertia in legal and regulatory agencies – policies lagging far behind the market.
- Complexity of H2020 procedures, especially for SMEs.

In addition, access to high-speed broadband and/or last-mile bottlenecks are still factors in some countries. This may prevent new forms of internet-based innovation in settings and regions where it is most needed (e.g. eHealth services in isolated regions). More generally, data roaming costs remain an issue, despite EU efforts in this respect.

Question 4: Do you recognise the trends, opportunities, and key issues described in the reference documents (see consultation page, under "Reference documents") as essential to 'Net Innovation'? Please specify based on your answer above.

Overall, respondents endorsed the analyses put forward in the reference documents. Substantive points included:

- Strong support for an EU-wide initiative on IoT. The target should be an EU-wide digital infrastructure, based on open IoT standards across digital industries and markets. There are risks here, too, in terms of privacy and security as IoT becomes more pervasive and commercialised. As one respondent noted: *"The Internet of things can be downright oppressive: imagine having Microsoft in your body through health applications, and wanting to make you dependent on them forever because it's really good for stabilizing revenue and the bottom line. The EC is a public body and should be pushing hard to defend individual liberties and break dependencies."* (Edgeryders)

- Strong support for approaches that balance societal needs and industrial competitiveness, best summed up in the comment: *“Emphasis should be on impact with respect to key societal needs and industrial competitiveness, practical platforms of broad scope and reach, disruptive service innovation across Europe”* (Martin Elixmann).
- Focus on applications and how to better serve society, rather than technologies and processes. *“It’s not about reinventing the Internet. It’s about enabling a large base of investors and innovators to quickly deploy and launch ideas who can better serve individuals, collectives and institutions.”* (Daniele Miorandi)
- A stronger focus on Free Open Source Software would help to guarantee freedoms for future users, as well as protect against possible licensing and copyright issues, and data loss.
- Support for focus/interest in network neutrality. For example, the comment: *“the concept [of network neutrality] needs indeed to be extended to platform neutrality. This requires to understand the right tools to design the system and to enforce true neutrality despite the ‘black-box’ outfit of platforms available nowadays.”* (Francesco De Pellegrini)
- Smart cities are seen as a potential setting for experimenting with the various approaches. *“The setting to foster these opportunities is currently un-specified, which makes it difficult for the projects to establish concrete objectives. Smart cities may well serve as a favourable setting with increased potential impact.”* (Centre for Research & Technology Hellas (CERTH))

Relevant arguments and supporting quotations around all these points are included in the main text.

In addition, some respondents suggested greater emphasis on funding startups and cross-border enterprises, although this is not an objective of Net Innovation *per se*.

In terms of entrepreneurship, there is a tension between those who see the absence of an American-style startup culture and related infrastructure (e.g. large-scale venture capital) as a barrier, and those who argue that Europe should find its own model and approach; one that emphasizes social and cultural value alongside economic returns. More generally, there is the issue of whether Europe should emulate the US approach to ICT or find its own path through “digital independence”.

“Take the strength of Europe as a starting point; don’t try to copy the US (Californian) startup culture which is not appropriate here; recognize that Europe is not just social but also cultural.”, University Professor, Germany (non-published contribution)

“...the differences in US and EU culture and the vendor (and public!) behaviour are not enough addressed. This will maintain the material differences in the ICT world.”, Advidata BV

“The Digital Business Innovation Orientations fails to identify ...the need for a way to compete with US initiatives (that automatically get the support of 300 million people). Anonymous

Question 5: At present Net Innovation supports research and innovation actions in the areas of a) Future Internet Public-Private Partnership, b) Collective Awareness Platforms for Sustainability and Social Innovation, c) Web Entrepreneurship, and d) Digital Business Innovation. In your view what further actions will be required in these areas?

Theme-specific comments and suggestions are reported in the main text. In particular, there was strong support for the ‘Europeanisation’ of the FI-PPP and for turning the Future Internet into “a real location for small and medium businesses”.

More general points included:

- The need to bridge the gap between innovators and entrepreneurs: the two are distinct groups and we need more effective means to connect innovators with entrepreneurs who have the skills, motivations and resources to build real businesses. The web is an arena for virtually all entrepreneurship today because that is where the opportunities are.
- Security, trust and privacy issues should be addressed as a horizontal topic, common to all initiatives.
- Focus on ‘end-games’ – the new scenarios and experiences made possible across Europe – rather than simply defining ‘programme areas’.
- Less focus on technology and tool development, and more on the science behind making them more usable, desirable, and engaging. All thematic areas should be product-oriented.
- Collaboration as a distinct skillset that needs to be taught, as well as served through design.
- Greater support for SMEs and new companies. Europe has many new companies with innovative technologies, but their financial capabilities can be a barrier to participation in EU programmes. A more flexible EU financial structure would encourage such companies to join EU-funded projects.
- Promoting the use of open standards in EU projects and encouraging participation in open standards forums.
- Build prototype network platforms for SME innovators as areas to trial software produced through the research developed from EU projects and beyond.

Question 6 merely asked respondents to attach supporting information, if they wished to do so. Contributions are reflected here and in the main text.

Question 7: Do you have further comments?

Comments ranged from, at one level, the need for ‘visions’ and overall strategy, to practical means to implement the various initiatives so as to achieve the greatest impact.

- *“Concentrate on smaller and short-time projects that offer a clear output, and then select some of them to make them real”. Anonymous*
- *“Concise visions and innovative topics are hidden in the program but they are diluted so much by political considerations that their effectiveness must be considered doubtful”. Ulrich Ruede*

- *“As an SME we are looking for R&D Partnership. The current situation isn't SME friendly”. Anonymous*
- *“Seems to us, that there is low contribution or point of view of SME sector, which is important for Internet innovation. SMEs have to be considered as key innovators”. Help Service Remote Sensing Ltd.*
- *“You need to learn to communicate succinctly; you need to make a difference. You need to deliver and not only promise”. Anonymous*
- *“Europe needs a clear policy for innovation and more openness to contribution from visionary people. Innovation will not originate from distributing tonnes of funding to the same groups for decades, just to satisfy old-fashioned political goals”. Anonymous*
- *“In general the unit should start to do more than transversal event style activities. It would be suitable to set up a large, real support programme - a little bit like the SME instrument, where everybody can submit a project and receive about 200k for a one-shot prototype”. University Professor, Germany (non-published contribution)*
- *“We would like the EC to promote the participation of future R&D projects in active W3C groups, or other SDOs, which will happen in our case by funding specific Web platform development areas and also by funding the participants time and expenses in the standardization development cycles”. W3C*