



"Post-i2010" Consultation

USING ICT TO EMPOWER INDIVIDUALS AND COMMUNITIES TO INNOVATE: AN OPPORTUNITY EUROPE MUST NOT OVERLOOK

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The Post-i2010 consultation document covers a lot of ground and raises meaningful issues. However, in concentrating on a number of goals (low-carbon economy, R&I performance, public services, e-inclusion, a user-centred Internet...), it risks missing a highly significant process-related set of issues: How the dynamics of innovation have changed and might be changing in the future; What that may mean in terms of economic value creation but also of social cohesion and sustainability; And what Europe should do in order to embrace and extend "broadly open innovation".

The dynamics of innovation have changed

In the last 15 years, the consumer market has been the main driver of disruptive innovations in the IT and content industries. However, *none* one of the major consumer uses of the Internet was invented in a major ICT lab or company! These innovations (the Web itself, Google and other search engines, instant messaging, P2P, social networks, etc.) originated in user communities, hatching start-ups, individual users or user communities, hacker groups, artists...

This did not happen because IT companies or research labs did not invest enough, or hire the best people, or do market research. They did all that, and they mostly did it well. But the Internet has ushered a new regime of innovation.

Indeed, one of the often overlooked characteristics of the digital revolution is its ability to empower ever-larger numbers of individuals and communities with the means to gather and process information, to formulate and exchange ideas, to produce new content and services, to transform existing contents and services, and to reach a public with their productions or transformations. Whether they explicitly consider themselves as innovators or not, the fact is, there are simply far more innovators than ever before. And networks allow these innovations can scale much faster and much higher: Think Microsoft, Google and on another note, Wikipedia, OpenStreetMap or Linux.

Several companies have started to recognize that. They have theorized "open innovation" and put it in practice: Crowdsourcing, licensing, creating ecosystems... Understanding and promoting this model, which runs counter the culture of many European executives, should be part of the i2010 agenda.

But the new dynamics of innovation have more far-reaching implications:

- It turns innovation processes into incremental loops, from usage to R&D to product development to spin-offs to new entrants, in whatever order – rather than a linear process descending from research to applications to industrial development. In (now) classic "open innovation" theory, major companies still control their R&D agenda, they simply outsource answers or further applications. In "broadly open

innovation", the questions and the goals themselves originate from all over the place.

- It turns innovation into a continuous flow, rather than a discrete series of discontinuities that produce lasting competitive advantage. Innovations are almost immediately copied, improved upon, used elsewhere in unforeseen ways.
- It respects no boundary, be it geographic, statutory, industrial, or disciplinary – and therefore, does not respect the distinction between incremental and disruptive innovation either.

This new regime of innovation is now moving beyond the Internet

As the digital and the physical worlds merge (ambient intelligence, nano-bio-info-cogno "convergence"...), this regime of innovation tends to contaminate the design and manufacturing of physical products, of buildings and places. And possibly, also, public services (see below).

Could we build an "Internet of things" that is as vibrant, dynamic, innovative, creative and disruptive as the Internet of data? And could Europe be on the forefront? Of course, industrial production is the world of diminishing returns, safety norms and heavy logistics: It is far less plastic than purely digital production. However, a worldwide movement is currently exploring the potential of "broadly open innovation" (down to the individual user) in physical objects and placemaking: "desktop fabrication" and Fab Labs; Hacklabs, Arduino and other symbols of "open electronics" from which some of the most innovative smart objects currently emerge; Distributed sensing and usage of sensing data; "makers" and do-it-yourself communities such as dorkbot; open-source objects, from 3D models to manufacturing plans...

Where this movement will take us remains an open question. At one extreme, it joins up with the groundbreaking potential of 3D printing, self-replicating machines (this community already built one, the RepRap) or even molecular manufacturing, should it ever emerge. It also resonates with the push for relocating some industrial production for sustainability. At the other end, it is unlikely that cars, for example, will be manufactured in this way.

In any case, the EU cannot afford to miss this opportunity to liberate the transformative potential that the merger of digital and physical production is heralding. And it is highly likely that the really disruptive concepts will emerge from these open, grassroots initiatives, even if they are further scaled and developed by larger firms.

Broadly open innovation has large economic and societal benefits

- It dramatically lowers the barriers to innovation and raises the overall innovative capacity of European societies, which has obvious economic benefits.
- It multiplies the sources of innovative ideas and endeavours, and therefore increases the chances for groundbreaking or at least disruptive innovations to emerge from Europe.
- In an era of increasingly constrained public resources, it facilitates innovation in public services, by allowing citizens, associations and entrepreneurs to coproduce, customize or improve public services.
- By empowering a much larger community of citizens to reflect on problems they meet with and act on them, it enhances self-confidence and social capital.
- It creates a bridge between social innovation, public innovation, business innovation and technological innovation.

In the area of public services, several European and American experiences demonstrate the power of broadly open innovation. Mixing private or community-run car-sharing initiatives with public transport and traffic information facilitates mobility while

contributing to making it more sustainable. In Britain, self-directed social care experiments such as inControl put patients in control of their lives, improve their health and well-being and cost slightly less than centrally-managed care. In several cities, OpenStreetMap provides more precise and more accurate maps than any commercial or public map. The reference Web portals and online cultural agendas of a small city such as Romans sur Isère (France) is coproduced by local bloggers. Bike-sharing services such as Velib' have hugely benefited from "hacks" that allow users to subscribe to bike stations in order to check the availability of bikes or spaces to return them. In Britain, FixMyStreet allows citizens to report local problems faster than existing systems, and tracks the response from local authorities...

What policy implications?

Opening up the space for small, under-the-radar, often amateur innovation, is not an objective for which many proven public policies exist. Obviously, a large part of the effort should be towards providing a very open ground for innovations to emerge at minimal cost and risk. But there are probably more proactive actions to undertake as well¹.

Improve the knowledge and awareness of "broadly open innovation"

- Promote and share research into the measurement and understanding of open innovation and user-generated innovation, and invent indexes to be included in future Innovation Barometers.
- Raise awareness of open innovation among corporations, research and higher education institutions, and public institutions in charge of supporting innovation.

Lower the barriers to innovation

- Promote open standards in technology as well as in information (information formats, metadata...);
- Defend "network neutrality" in Internet access provision, here understood as non-discrimination between kinds of traffic, and the lack of restrictions for new applications and protocols to use the network;
- Implement a prudent intellectual property agenda that protects commercial innovators but does not inhibit the circulation of knowledge, emulation, the permanent transformation of existing products and services, or the concurrent implementation of new ideas.

Share public resources

Many innovations will originate at a local level. In many cases, they will not think of themselves as "innovations" from the beginning, rather as solutions to specific problems, or citizen initiatives, or artistic works...

However, several public initiatives can facilitate the emergence of such endeavours, and help them become conscious of their potential.

- Sharing public resources, such as information and application interfaces, but also places to work and test new ideas, medias to access potential partners and users... is an efficient way to allow would-be innovators to turn their ideas into reality.
- In particular, a more deliberate push is required towards the sharing and re-use of public-sector information (and possibly some private-sector information relative to public space, although the scope for regulatory action is obviously much narrower). The 2012 revision of the directive should invite member states and local communities to become much more proactive in this area, for the sake of economic development as well as public innovation, social innovation and democratic participation.

¹ Some recommendations are inspired by the "High level roundtable of innovation experts" organised by DG Enterprise and Industry on 8-9 June 2009, Brussels.

Support "Open Innovation Platforms"

As part of its R&D agenda, Europe should deliberately support projects that proactively explore the potential of broadly open innovation, in the area of digital technologies and services and beyond.

The "Living labs" programme was an initial and positive step in that direction. However, most Living Labs turned out to be large testing platforms rather than empowering platforms for all kinds of innovators. Based on existing works on platforms and multi-sided markets, programmes could support more active platforms that reduce barriers to innovation, share costs and resources, facilitate access to partnerships, to competencies and ultimately, to the public, and reduce risks for innovators as well as users.

- In the area of digital services, "InfoLabs" could be (virtual, temporary, physical...) places and/or operations where people can play with urban information and the tools to manipulate them, co-design services, test them...
- In the area of physical objects, "Fab Labs" share CAD/CAM tools, low-cost digitally-controlled machines, materials and parts, and professional or peer advice, in order to facilitate the design, the prototyping and the local production of all kinds of physical objects, "smart" or not. There are currently 40 fab labs in the world, 10 in Europe. "Hacklabs" are based on the same idea, but focus more on "open-source electronics" and originate from more alternative and militant communities. Both are an example of what should be supported, networked and researched by Europe.

Make the scaling up of "under-the-radar" innovation easier

- By providing long-term legislative and normative support (public-sector information reuse, intellectual property moderation, network neutrality, interoperability...)
- Through the facilitation of small-ticket seed financing, including for non-profit projects (micro-credit, micro-foundations, use of intermediary NGOs...)
- Through public (and possibly private) public procurement, which need to become much more friendly to innovative solutions. Insurance funds that would reduce the risk of discontinuity in case of failure could contribute to such a goal.
- Through active publicity (showcasing, trophies...) and networking between projects, larger corporations, established institutions, user communities, etc.

ABOUT FING

Fing, the Next-Generation Internet Foundation, is a Paris-based NGO working on the transformative uses of technology. It was created in 2000 by a team of entrepreneurs and experts, with the aim of detecting, fostering and promoting innovation in digital services and uses.

Working at the crossroads between technology, business, public institutions, the arts and social change, Fing is a network, an idea accelerator, a think tank and a resource for innovators.

Objectives

- Play a pivotal role in the emergence of innovative ideas and projects
- Mobilize stakeholders around the future technological cycles
- Take part in emerging ethical and societal debates
- Facilitate open, bottom-up innovation and collaboration between users, researchers and entrepreneurs

Three lines of action

- **Think/do tank** - Formulated around future-looking challenges, Fing's programmes mobilize a wide diversity of stakeholders and innovators in order to share ideas, explore radically new opportunities and stimulate innovative action.
- **Open innovation** - Fing networks internationally with start-ups, researchers, designers, students and social innovators, as well as with major corporations and public institutions, in order to accelerate innovative projects and facilitate open innovation.
- **Intelligence and foresight** - Fing reports on new ideas, weak signals, emerging innovations, and trends at the crossroads of society, economy and technology.

Members

As an association, FING has more than 160 members, including major firms, start-ups, research laboratories, universities, local authorities, administrations, associations...