

FIA Valencia

Session: What does Future Internet mean for enterprise?

15 April 2010, 11.30 – 13.30 Hour

Session Report



Caretakers

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Websites and Interaction Channels

- FIA Enterprise Wiki
<http://services.future-internet.eu/index.php/Enterprises>
- FIA Enterprise Blog
<http://fiaenterprise.wordpress.com/>
- FIA Enterprise Twitter
<http://twitter.com/FIAEnt>
- FIA Valencia Enterprise Session Webpage
<http://www.future-internet.eu/home/future-internet-assembly/valencia-april-2010/session-agendas/enterprises.html>

Background and Objective

This session was motivated by the outcome and follow-up activities of the FIA Stockholm Enterprise session. The FIA Stockholm session debated the problem statement “What will the Future Internet deliver for Enterprises”. The debate continued via open consultation on the FIA Enterprise public wiki for 3 months after the event, leading to a set of tentative priority topics for further investigation.

The objective of the FIA Valencia Enterprise session was to further advance the above results by:

- Stimulating additional debates on several of the priority topics
- Attracting new inputs from a broad spectrum of stakeholders of FIA
- Reaching agreement (where possible) on the direction of the Future Internet research that would motivate, enable and support enterprises, including SMEs, to achieve their business aspirations and objectives, thereby creating a positive impact on the economy and society.

The multi-disciplinary nature of the enterprise domain was emphasised in the Stockholm discussion and subsequent consultation. Accordingly, the Valencia session was targeted at all interested parties in Future Internet research and development. It was specifically organised to encourage energetic debates and active participation in advance of, during and after FIA Valencia.

Organisation

The session was planned by the caretakers in close consultation with the Future Internet Enterprise Systems (FInES) Cluster of DG INFSO, taking into account the Cluster's recent publications¹. A set of inputs was collected from interested parties via open consultation on the FIA Enterprise wiki in the run up to Valencia. Blog and Twitter were used in the preparation of and during the session. The session was blogged in real time on the FIA Enterprise Blog, which was also used to collect real time feedback and questions during the session. A total of 194 persons registered for the session. Just under 100 persons physically attended the session.

Session Description

Recent research and ongoing consultations suggest that the new drivers for prosperity and growth will come from innovation and from using resources better, where the key input will be knowledge. Future competitiveness will be driven by factors far beyond conventional economic dynamics. Instead, the focus is increasingly on conserving and making more effective use of energy, natural resources and raw materials; it is also on social cohesion, tackling unemployment and fostering social inclusion. European enterprises have the opportunity to thrive in this post-crisis landscape by means of environmentally and socially responsible business innovation and creativity.

Enterprises of the future are envisioned to be ever more open, creative and sustainable – they will become *Smart Enterprises*. Smart enterprises will reap competitive advantage through innovation. Innovation is at work at different levels. It includes not only products, services and processes; but also the organisational model and the full set of relationships that comprise the enterprise's value chain. The unifying glue is the enterprise's business model. New value propositions and business models will arise, generating new demands for and from ICT. The Future Internet will best support and enable enterprises by directly meeting requirements as determined by the business models. It will give enterprises a new set of capabilities not possible today. Specifically, Future Internet will enable enterprises to innovate through flexibility and diversity in experimentation with new business models, structures and arrangements.

The time has come to consider what Future Internet systems may be, that will deliver to and deliver for future enterprises. Whatever they might be, one thing is certain – those systems will not be based on technologies in silos. Instead, it is envisioned that they will directly reflect the “*DNA of the Future Internet*” so that they are, for example, simple to use, adaptable to dynamic needs, customisable to highly specialised markets, affordable to small budget holders, as well as having the required technical attributes of accessibility, reliability and interoperability. They will be enterprise-centric rather than technology-centric. The availability of such systems would lead to an explosion of adoption by particularly SMEs. The DNA of the Future Internet would become the building blocks for potentially an unlimited array of value-added enterprise applications.

The session focused on the following themes, emphasising the central role of innovation in catalysing Europe's economic recovery and pursuing future growth and prosperity:

- **Vision:** Smart Enterprises of the future and Innovation as a business routine
- **Business Models:** business models to support new value propositions and drive new business values
- **Future Internet Systems:** next generation systems that will support enterprises to innovate and thrive in the post-crisis landscape.

¹ http://cordis.europa.eu/fp7/ict/enet/ei_en.html.

Speakers Panel

Welcome and Introduction, by Man-Sze Li (Lead Caretaker)

Ms Li described the context of the enterprise research within the ICT research landscape. She also presented the result of the open consultation on the research priorities for the enterprise domain which started in the FIA Stockholm enterprise session. While a range of opinions had been expressed, there was unanimity among all contributors on “business models and relationships” as the top priority. The majority of the contributors also attributed high importance to better definition of the Future Internet research streams (and the positioning of enterprise research within these), as well as the impact of the Future Internet on enterprises particularly in relation to SMEs. The overall message was:

- For enterprises, “business as usual” is over
- The Future Internet research, including the forthcoming PPP, needs to produce positive high impact on society at large, and bring concrete benefits to European enterprises
- There is a need to understand, define and specify the “DNA” of the Future Internet (e.g. values, properties, attributes, and ultimately standards)

“FInES - What can FI technologies deliver for enterprises and what can enterprise as a research domain contribute to the FI research and FI PPP”, Stefano De Panfilis, Engineering / EFII

Mr De Panfilis recalled the starting point of the FI research and described 3 main groups of beneficiaries of the FI: citizens, (dynamic) communities and enterprises. For the enterprise, the FI is a significant opportunity, at least indirectly; example: selling an app allowing painting with fingers on iPhone for a few dollars - the developer is now a millionaire! Mr De Panfilis discussed the potential direct impact of the FI on enterprises. This is possible if enterprises evolve, and are willing to change. To achieve this, FI supporting technologies are needed, which he identified as “XaaS”. He then described the vision of the EFII regarding the FI Core Platform, described as “a unified and consolidated open architectural approach that globally coordinates the creation, deployment and execution of applications by using hardware, software, network enabling capabilities etc”. Such a platform is itself based on generic enablers, requiring high flexibility, standardisation, factorisation from common needs, and easy adoption and evolvability. He suggested: why not a Use Case project from the FInES community?

“The Future Internet – SAP’s Vision in an Enterprise Context”, Thomas Michael Bohnert, SAP Research CEC Zurich

In attempting to establish what may be the emerging requirements for enterprises, Mr Bohnert presented evidence to demonstrate that services are driving economies. Global business networks are emerging, global competition is increasing, and risks and risk potentials are also increasing. An SAP survey shows that the main business applications to drive ICT innovation are Web based services, business intelligence, and modelling & design. The concept for the Future Internet requires a holistic framework. He discussed the value proposition of Internet of Things (IoT) and showed a video of integrated car communications with advanced features, as an example of the business opportunities that IoT can offer. The Internet of Services (IoS) is the foundation of the Web-based service economies – it is an open service platform enabling the activities of the various communities of network participants, and is itself supported by network enabler and foundation (secure network infrastructure, IoT, cloud computing). Mr Bohnert discussed the value chain of IoS and SAP’s proposal for a Universal Service Description Language (USDL) in addressing the needs arising from diversified partnerships. Finally, he presented the architectural recommendation from the Future Internet Research Alliance (FIRA)

being spearheaded by SAP. The FIRA recommendation is not to be confused with the G15 Proposal.

“What does Future Internet mean for enterprise?”, Miguel Borrás, Antara Information Technology

Mr Borrás presented from the perspective of an entrepreneurial SME. He highlighted the difficulties and issues of technology & research for SMEs. Security, trust and usability are still big problems, and there are major risks associated with cloud computing; e.g. who has control of my data? Moreover, is cloud computing yet another buzz word, and is it really about SaaS? Also, which provider’s approach will prevail? For enterprises, *Future Internet means software and services become a commodity*. Web 2.0 has dealt a blow to the “semantic faith”. What will become of semantics in Web 3.0; indeed, will there be a Web 3.0? There is a need for semantic grid on the consumer side – semantics for competitive intelligence. However, the Collaborative Web is a “leaking faucet for enterprises” - the growth of collaborative and 2.0 environments rapidly increases the leaking of commercially sensitive information. Therefore, the Future Internet also means *Company Intellectual Rights management for enterprise*. This is a research topic that needs to be added in the FInES research roadmap.

A brief ***update of the FInES Research Roadmap*** was given by the roadmap rapporteur Michele Missikoff.

Open Discussion Panel

The panellists included all speakers and caretakers. The debate was conducted via active interaction with the session participants.

Vision: Smart Enterprises of the future and Innovation as a business routine, moderated by Man-Sze Li, IC Focus, and Stefano De Panfilis, EFII

Topics presented by the caretakers:

1. Exit from the crisis - what does it mean for enterprises?
2. Enterprises of the future - is it time to re-think and even to re-invent the nature of business, the characteristics of enterprises and the role of firms in a potential “new global order”?
3. Innovation Union - what is the role of FI for enterprise (and especially SME) innovation?
4. In terms of European research in FI, does it make sense to consider “enterprises” as a generic research domain?

Issues raised and debated from the floor included:

- Robustness of the Internet? What happens if catastrophic failure occurs? If everything is online, what is “Plan B” to deal with emergencies?
- What about enterprises of the present? Are we discarding the old? Or can the old be “upgraded”? How do we get from the now to the future?
- What about SMEs that aren’t or can’t afford to be “ICT savvy”?
- Reinventing products – what does this really mean? Can generic strategies be applied?

From the Panel:

- The panel offered several opinions on getting from the now to the future. On the one hand, backward compatibility needs to be maintained in order to enable enterprise

growth and IT support tools could help with this (e.g. maturity models investigated in the COIN IP). On the other hand, a revolutionary path to the FI could also be expected, because the context for doing business has changed and will continue to change. It was asked whether there is such a thing as a Future Internet that can be “switched on”? Potentially, the FI is an evolution that also supports revolution. Importantly, enterprise mission, organisation, intangibles need to be looked into. There was a view that the (re-)invention facilitated by the Internet is not about the business per se, but the enterprise’s market position and enterprise interaction. In sum, there is a need **to reconcile evolution and revolution**, which is potentially a major challenge.

- Some panellists also expressed the view that **Web 2.0 tools should be more extensively used in the enterprise environment**, particularly important for SMEs. This could open up significant opportunities.
- There was unanimity on the Panel that **FI needs to be based on open standards and should be relevant to enterprises of all sizes**. The Internet must be a community, and an inclusive one. Once again, the need to increase the awareness of SMEs of the FI opportunities was underlined.
- One panellist expressed the view that “If you go into business, you want to win”. Future enterprises need to think carefully what value they offer and how. These include both “hard” (financial) and soft (non-monetary) values. Especially in light of the global crises in financial systems and other environmental challenges, **the nature of “what business is” is potentially changing**. More so than before, those willing to take risks are more likely to succeed. That said, given that Europe “missed the boat” on Web 2.0 and many new opportunities on the Web, how can this be addressed?

Business Models: business models to support new value propositions and drive new business values, moderated by Michele Missikoff, CNR, and Jean-Dominique Meunier, Technicolor

Topics presented by the caretakers:

1. What will be the key drivers for business models in the Internet economy of the future?
 - Technology? Customers and end-users? Organisations and staff? Public Sector and laws & regulations? Others?
2. What will be the characterising elements of those business models?
 - Value proposition (goods and services)? Business processes and enterprise architectures? New value creation paradigms? New forms of innovation and IPR? Others?
3. Are there emerging examples of those business models?
 - e.g. Apple/Google Apps factory, emerging idea of *iAd*, SaaS-based business models, Amazon Mechanical Turk, Daimler Car2go etc.
4. What are the lessons that can be learnt so far? Are there already major barriers to business model experimentations?
 - e.g. Cultural resistance? Lack of innovation attitude? Inertia of enterprise organisations? Cost of re-engineering? Lack of appropriate or new skills?

Issues raised and debated from the floor and from the panel:

- Several views were expressed on the implications and impact of the trend towards ICT commoditisation. It was observed that ICT companies might need to focus on value added services (possibly “giving the rest for free”). A statement from the SAP speaker at the PPP launch of the previous day was recalled: “Greatest innovation comes from commoditised businesses”. The present SAP speaker mentioned his company’s Business By Design product as an example of addressing customer needs, on demand – this product has features set ten times over that of Salesforce. The general view was that

with commoditisation, the customer voice is getting stronger. ICT providers need to transform themselves and continuously evolve their offerings.

- Several views were also expressed on the patterns of emerging business models. There was a view that the new models are dependent on traditional models of enterprises; companies want to improve their business, whether the models are about the Future Internet is irrelevant. Others stated that there are huge changes even in traditional enterprises such as automotive, leading to the observation that there may be “no such thing as traditional enterprises”. Yet others drew a distinction between US enterprises and European enterprises - the former are (already) largely Internet-based, whereas European enterprises tend to use the Internet as a means to expand on the existing business. There are however major exceptions to this, notably European mobile players which have emerged from completely different industries being examples of transformation. The question then becomes: **Do we just think about evolving existing businesses rather than thinking outside the box?**
- There was a concern of the **timeframe from research to innovation**, typically 5 years. This is a long time for SMEs and does not induce them to get more involved in research.
- It was stated that many world leaders in ICT are not European based. There was a view that such leadership is also “not telco based”. It was asked: **Can an entirely new industry be launched in Europe based on services?** It was stated that if following others, we will always lag behind. Again the mobile industry was mentioned as an example of new businesses “starting from nothing”. Was this achievement a one-off, or can it be replicated? The fragmentation of Europe as a market such as in languages and cultures is a weakness, but it could potentially be turned into unique opportunities. There was a general view that the PPP is a key opportunity for forming a new platform to bolster the strength of Europe.

Future Internet Systems: next generation systems that will support enterprises to innovate and thrive in the post-crisis landscape, moderated by Sergio Gusmeroli, TXT, and John Kennedy, Intel

Topics presented by the caretakers:

1. Which FI technologies will specifically help revolutionise Enterprise Systems (FInES)?
 - Future Network (Universal Business Infrastructure / Networks Convergence)
 - Internet of Services (Cloud Computing / Service Web / Public Data Access)
 - Internet of Things (Sensor Networks / Smart Objects / Distributed Intelligence)
 - Internet by/for People (Social Networks / Empowerment / Enterprise 2.0)
 - Internet of Contents/Knowledge (3D Media / Fifth freedom / Openness)
2. In which Product Lifecycle phase(s) is FI representing the most promising post-crisis exit strategy for European Industrial SMEs?
 - New product development (3D Models / Virtualization / Open Innovation LLs)
 - Sustainable manufacturing (Smart / Virtual / Digital Factory of the Future)
 - EU Single Marketplace (virtual-physical points of sale / collective intelligence)
 - After Sales Services (extended products / intangibles / dismantling / recycling)
 - Where to start from for ICT as a Service in Industry? (Privacy / Legal / Trust / Security)
3. Is FI an Innovation Opportunity for European ICT SMEs?
 - What is the role played by EU ICT SMEs in the Internet of the Future?
 - Infrastructure, Platform, Software, Consultancy as a Service?
 - Smart-Niche Applications (Use Cases) on top of an Open Core Platform?
 - Is what sense “Openness” intended/understood? Open Source / Common Specifications

/ Standards?

- Closed Innovation / Collaborative Innovation / Open Innovation (Living Labs)?
- Is partnership with ICT Big Names mandatory? Just EU or also US Big Names?

Issues raised and debated from the floor and from the panel, regarding particularly what do the FI technical pillars mean for business:

- The view was expressed that combinations of FI technologies are needed to deliver value. The bottom line is what combinations deliver the most value. The FI PPP is exactly addressing this. The PPP is not about developing new technologies, but about **making existing generic enablers federatable and integratable so that specific instances can be built together**. The 8 use cases to be selected for the FI PPP should be able to provide broad understanding of the application of generic enablers and the sharing of these enablers across application areas. The 5 most promising use cases are expected to lead to large scale pilots.
- There was a general view that the **FI gives Europe a significant opportunity to maximise value for businesses, individuals and society**. The discussion of value is important for going forward. For example, is there a valid comparison between the US and European approach to value? What about the rest of the world; what if China buys companies based in Europe? Indeed, is there a difference between the perspectives of Eastern Europe and Western Europe on FI? Living Labs were said to offer one way of helping to identify values.
- According to a contribution from a Slovenian participant, a Danube River region is now forming. The river used to be the border, but now is bringing companies from neighbouring countries together. New ways are needed for companies to work together - cross border, experimental, and powered by ICT to create new and better businesses. Stakeholders in the region are keen to engage with the broader FIA Enterprise community. **If FI could add value to regional developments, it holds out even more opportunities on a global scale.**
- The question was asked **which mechanism is available to extract lessons from individual projects for application to other sectors**. For example:
 - Lessons from Smart Grids development could be applied to other sectors
 - Many lessons could be learnt from projects regarding SMEs
 - What does the transition to services mean for product based companies
 - How do businesses get value from data in the future?There was a suggestion that the Framework Programme needs to be updated to enable better sharing of the lessons learned. It was also asked whether the Knowledge and Innovation Communities (KICs) being established by the European Institute of Innovation and Technology (EIT) address this particular issue.
- Several views were expressed along the lines of businesses need education to see the opportunities presented by the FI. There is still a **considerable gulf between the research community and the business community as users of the technologies**.

Conclusions and Next Steps

The following messages emerged from the presentations and discussions:

- Everyone acknowledged that the opportunities of the Future Internet for enterprise are immense, both indirect and direct
- There were concerns raised including trust, failover alternatives, ease of use for SMEs, leaking of IP, and of course cost

- There was consensus that FI is relevant to existing “traditional” enterprises, as well as to entirely new industries. Indeed as mentioned by the SAP speaker in the formal launch of the PPP, commoditised businesses often generate the greatest innovation. Examples were given of the “traditional” automotive industry embracing Internet of Things, and of SMEs dedicated to Finger Painting iPhone applications
- The customer voice is getting stronger – businesses that listen will be more successful
- Evolutionary improvements of technology will enable revolutionary business models – this will need to be reconciled
- Companies need to be prepared to learn, to evolve, to change, maybe even to transform. And not necessarily just in relation to their products or their services; but also their vision, their values, and their business processes
- There were many references to successes in US and elsewhere. But if we follow others all the time, then we will never be in the lead. Enterprises need to think out of the box: the FI will enable a whole new world of business
- Interesting insight were given into perspectives of both EFII / ‘G15’ and FI Research Alliance
- There was broad support for a proposal for FInES to contribute a Use Case to the FI PPP

There was a wide spectrum of views on the kind of business models which would be promising for European businesses and how FI technologies could support and enable them. There was a general view that this needs to be pursued in FIA Ghent. The session agreed that a useful session topic would be scenarios for the future of businesses on the Internet.

The present session was motivated by the community for the community. The discussion will continue on the FIA Enterprise wiki, blog and twitter. All interested parties were invited by the chair to be actively engaged.