Digital Futures "Workshop on Visions and Policy Options" 29-30 March 2012, Brussels, Belgium

Synthesis and harmonising of the inputs from the March 29-30, 2012 workshop participants

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Overview of the report

This report consists of two parts.

The first part of the report is structured to reflect the key elements of the activity that took place during the First Core Foresight, March 29-30 2012, workshop. It includes the content of both the plenary sessions and the smaller breakout groups. Ultimately, it became the text of a short "report", "chronicle" or "newsletter" that summarised the main outcomes of the event. It was submitted to the European Commission (with the services' agreement) on April 11, 2012 and revised on April 18, 2012.

The second part of the report consists of a series of annexes. These annexes were provided to the European Commission at different phases over the period of the past six weeks. Some were provided in the early days following the workshop (for example, ANNEXES 1, 2 and 3). Others (such as ANNEXES 7 and 8) were sent more recently.

Each annex contains a refinement of the raw materials "harvested" (captured) during the workshop. Each is prefaced by a short italicised paragraph that explains its content. The refined materials draw, for the most part, on the actual contributions of participants in the exercises that took place throughout the two days of workshop. In some cases, such as the scenario (ANNEX 8), they are more creative pieces of text extracted from the messages transmitted by contributors to the workshops but somewhat "transformed" or "transposed".

This report is based on this harvester's attendance at the two-day First Core Foresight workshop, and the request for:

(a) Synthesising and harmonising the contributions of the March 29-30, 2012 workshop participants in view of forming the basis for the final workshop report.

(b) Drafting the report of the workshop (min. six A4 pages) and sending it in electronic format (MS Word) to the Commission services no later than 10 April 2012.

Summary of the First Core Foresight workshop on March 29-30, 2012

This is the text-based summary of the First Core Foresight workshop. It has, at different times, been called a "report", a "newsletter" and a "chronicle" (and was submitted e.g., in newsletter format complete with appropriate photographs). This revised version was submitted to the European Commission on April 18, 2012.

On 29-30 March 2012, 60 people gathered in Brussels in a participatory workshop to kick off a process of visioning how Europe may look in 2050.

Introduction. *The European Commission's Directorate-General for Information Society and Media (DG INFSO) is organising a series of events in the context of its Digital Futures Initiative. Digital Futures is a visioning exercise to prepare DG INFSO for reflections on ICT policies beyond 2020. The exercise is designed to be highly participatory, incrementally drawing in more people through both face-to-face and online engagement around a collective inquiry into the future. The first workshop took place on 29-30 March.*

Participants were invited through a DG INFSO internal call for contributors, where every staff member could propose names. Sixty contributors accepted the invitation and showed up to an inspiring two days of intense and productive interaction.

Setting the scene

Robert Madelin, Director-General responsible for Digital Futures, opened the day by setting the context.

"We are really pleased that you have accepted to come on our journey into the future. Starting today, we are here with you to look into the future, with all its perspectives, time horizons, and constraints. We are all part of a process, which, *with your help*, will be cutting-edge, professional and exemplary. Above all, we all hope that this initiative will deliver a better future for all Europeans. We want to deliver to European taxpayers, stakeholders and policy-makers – local, national, or European – a future that fits with their assumptions and expectations.

"We are not aiming for a 'predict and control' approach to the future. Between now and 2050, there are *many* different points at which uncertainty can arise. Things may change enormously in the global community over that time scale.

"Over the next two days, we hope to capture a vision of the general landscape, with a view of the general trends and where they may lead us, and gain some ideas about the main uncertainties. Two other workshops this summer will help us to search further. We will be able progressively to make all of these insights visible to the general public and engage more contributors.

"For the rest of this year, and next, we will be filling in the maps of the landscape. We expect to see the direction in which the trends go. Our visions may be related to, or differ from, what the rest of the world thinks. But it is a process that we would like to share with others around the globe.

"Today, at times, the future can seem particularly uncertain. Starting in the middle of next year, we will scope future plans for 2050 for European media and the ICT world. We will start with 2050, and look backward to 2020.

"As the conveners of this exercise, we hope that, with your help, it will help us to do better what we are paid to do. As a result, we should be able to spot good insights and knowledge. There is no way to predict precisely where we are heading. Yet, as a minimum, this journey will be a good one. At its highest level of achievement, it could even be transformative!

"This is a modest beginning on a journey which we hope will be very open and very participatory. It will involve people both like us and not like us. In a way, we are all guinea pigs at the start of a long process. I wish you fun, and also appeal to you to continue to be part of our conversation. Let us start to contribute – reflexively – over the next two days."

Building a lab together

Franco Accordino, who heads up the Digital Futures team, introduced the idea of becoming more nimble about ideas-gathering for the future.

"Our ultimate goal is to think ahead to 2040-50. We are very lucky people – because we are witnesses to an incredible transformation. Today, there is no single aspect of our lives that is not affected by ICT.

"Right now, we know that by 2020 we want to reduce our carbon footprint by 20%. Through active and healthy ageing, we want to increase people's life expectancy by 2 years. But what kinds of targets do we want to choose beyond 2020?

"It is really important to ask what kinds of policies can be developed in these next years, and to do it in a very agile way. This why we are working towards an online laboratory where ideas can take shape, and be refined, with the input of people throughout Europe and the world. We will involve all actors and stakeholders as well as the European Commission. This assignment is not done by the European Commission for others – rather, it is the other way around. It will be an online playground where we can really explore the future together.

"This workshop just sets up the first building blocks – an exercise of our collective imagination. It is the first physical component in developing many inspirational ideas."

Process for the day

As the Digital Futures project is all about encouraging participation, DG INFSO invited a pool of stakeholders into a highly collaborative process, facilitated by a team of 'hosts'.

The approach used to harness and amplify the collective intelligence of the experts gathered in the workshop is known as 'the art of hosting conversations that matter'.

A series of strategic conversations ensured that the fruits of each conversation fed into the next. Each phase of the process was designed to harness the knowledge of everyone present and encourage the shared imagination of potential futures. Key questions included:

What do we imagine life in Europe to be like in 2050? What are the digital futures we imagine will allow us to co-create relevant and adaptable policies for Europe – with citizens, member states, sectors, regions, Europe wide?

The process was designed so that the essence of what was happening in the room was continually reflected back to the group as the work progressed.

Who showed up and why

Understanding the journey on which we have been invited, and its series of steps, is very important. The two days of conversation opened around the question: "**Who are we, and why is it important that we are enquiring into Digital Futures together?**" People shared with each other information about themselves, their backgrounds, jobs, locations and motivations.

Among the attendees were futurists and futurologists, professors, students, and people from academies of science or think tanks. Many were from an industrial or business background. A number were from policy-making institutions or organisations with a political orientation. Yet others came from civic society, non-governmental organisations, or from various types of organisations representing citizens.

The attendees were mostly European. Nationalities included Belgian, British, Danish, Finnish, French, German, Greek, Hungarian, Italian, Romanian, Spanish and Swedish. Among the countries of origin were also Brazil, Canada, China, Japan, and the United States of America. Most attendees were male; only about one-fifth of the participants were female – an imbalance that was duly noted.

Technology and society were of keen concern to everyone. In terms of technology – interests covered artificial intelligence, databases, information management, interfaces, medical technology, personalised health and safety, and systems' security. In terms of society, people were passionate about creativity, democracy, education, environmentalism, human rights, and values.

People were very motivated to enquire into our Digital Futures. Most expressed a desire for openness, to listen and to learn. Some wanted to co-shape the future and instigate change. Others especially wanted to see the future from the viewpoints of either young children or older – and indeed much older – adults.

Other important motivations included what messages people could bring from or take back to their own place of work, teaching, research or study. Meeting people of like minds was important. Some especially were seeking to overcome a perceived degree of pessimism about the future.

Mostly, the messages about Digital Futures are that:
- The future is not fixed, just as our lives are not fixed.
- It is all about shaking minds, sharing ideas, shaping the future!

World Café: So, what do you think?

A 'World Café' was set up. This is an exercise that helps to form a living network of collaborative dialogue. It is a way to foster interaction around questions that really matter in real life. People joined each other in conversation clusters, and shared briefly key insights, questions and ideas with new table members. In this workshop, we focused our attention on casting light on our collective knowledge, and we then worked at creating new intelligence.

Visions – Illuminating our Current Collective Knowledge

First, the workshop visited a future that is 38 years ahead of us. We woke and entered an environment in which we could be of any age we chose, but which we were to experience as though we were living our day-to-day concerns.

Several rounds of activity took place in small and large groups to discuss our mutual visions of a 2050 future.

Take, for example, a vision of 2050 in which technologies are usable by absolutely everyone, no-one is left out – **"ICT is usable by all"**.

That technology will be fully and easily usable in 2050 will be very important because ICT will be used for education, employment, health and travel, and more! By 2050, there will be few or no public and private services that do not require the use of ICT. Key characteristics of the technologies will include access, awareness, individual needs, instant remote access, interfaces, invisibility, and ubiquity.

All these kinds of people can use ICT:
- Young people.
- Old people.
- People with disabilities.
- People are who non-technical or who have no technical experience.
- People who dislike complexity.
- People who either hate technology or fear it.
- People who cannot read the language on the device.

Visions – Creating new Collective Intelligence

A rich **mind map** of insights and ideas was drawn. Thirteen key categories of visions arose. Here they are listed in alphabetic order:

- Overall trends.
- Digital euthanasia'.
- Economy.
- Energy.
- Environment.
- Health.
- Knowledge.
- Outer space
- Personal.
- Politics.
- Robotics.
- Society.
- Technology.

We knew that we could expect to deal with at least six categories of issues throughout the workshop: economic, environmental, personal, political, social, and technological. But, as attendees, we vastly expanded and enhanced that number. The seven new categories of visions were: overall trends, 'digital euthanasia', energy, health, knowledge, outer space, and robotics. The term 'society' (or societal) seemed to arise rather than social. In the groups, there was a lot of talk about economy, society and technology. Particularly the last of these three received much focus.

In the workshop, we then looked back to the year 2012. Our assignment was to see what trends are in place or are already emerging. In several cases, some of the trends present a utopian view of 2050 as well as of 2012. In an opposite sense, dystopian views of both time-periods can also be observed. Attendees tended to hold more positive views of the more distant future than of many contemporary and near-future experiences.

The overall tendencies that were identified tended to colour the year 2012 as experiencing: an appetite for risk; climate change leading to new geography; more and more control; depletion, decline, decay; peace that cannot be taken for granted; the peak of the oil boom; a tremendous increase in augmented reality; and, ultimately, the challenge of how to integrate ethics into technological development.

The group worked to identify which of the developments would have the most impact, are the most likely, and are also the most desirable. Here is an indication of the top five or six issues in each category:

Impact

- Harmonisation towards human-machine integration.
- Participative democracy.
- Privacy and the right to be forgotten.
- Data, and how it is collected and processed.
- Education.
- Smart life.

Likely

- Invisible technology.
- Data and how it is collected and processed.
- How do we innovate better?
- Individualised education.
- Inequality, and we cannot buy our way out.

Desirable
- New models of democracy.
- Values for a balanced future.
- Balance, harmony, use of resources.
- The desire for empathy.
- Smart life.
- Work will not change.

Several of the directions seen as having high impact were also thought to be highly likely. Examples include the shifts towards human-machine integration and invisible technologies, changes towards a more individualised form of education, and the ways in which data are collected and processed.

Prospects seen as being of high impact and, indeed, even highly likely were not necessarily those described as the most desirable. Some examples that reflect these idiosyncrasies include the high impact and likelihood of information and communication technologies (ICT) that merge human-machine interaction and/or are invisible, but the very low level of desirability of invisible technologies. In terms of societal trends, new models of democracy or participative democracy were seen to have high impact and be highly desirable, yet neither was considered to be highly likely.

Those elements which were seen as the most desirable reflect fundamentally many of the most basic, common and shared of values: balance, democracy, empathy and harmony.

Getting specific: Ritual Dissent and Assent

The exercise of ritual dissent enables people to examine what connections there are among the visions, but also to see what is missing and what gaps exist. The diversity of the feedback received can really enrich these "baby ideas".

The ideas carriers moved from group to group. They listened carefully to the groups that they met, and built on the feedback they got from others in a constructive way.

The mass of the constructive criticism received focused around three of the six core categories of ideas: economic, social and political. For example:

- Markets that concentrate on emotions and the sale of emotions.
- Geo-politics between the east and the west, and who sits between the two?
- Traditional authorities losing power.

However, more than this, some new areas of thought arose, which to date had not been placed into concrete categories.

Some of the observations were *environmental*.

- Biosphere and the technological fix.
- Scarcity of resources.

Instead of simply social, there were many additional observations that related to *cultural*, *educational*, and *societal* views.

- Do [things] small and early, and learn.
- New family models.
- Participation initiatives.

There were many issues that, rather than simply being economic, related to business and/or the market, or were *organisational* in nature.

Last but not least, there were items missing that relate to *spirituality* and *values*.

- A "vote" from heaven.
- The "risky" influence of religion.
- Integrity of the human physical identity which might be harmed by technology.

This exercise shows that people are fully prepared to share with each other, and have plenty of good ideas. They saw that major challenges, for example, demographic and environmental,

are facing us. Organisationally and/or politically, however, we spotted that we may need to recapture the ability and competences to work together with each other more closely in decision-influencing and decision-making groups. And we may need to touch base with our common and shared human values.

Handing over from one day to the next

At the end of the first day, we were encouraged to share reflections on what had surprised, shocked or excited us.

There were some concerns about:

- "Black swans" and "black bears" (ranging from the really unexpected and unforeseeable to the more common and growing challenges).
- A trend towards increasingly short-term focus: if we become short-term, we will never be able to address the challenges quickly.
- The potential loss of the precautionary principle.

They were counterbalanced by desires to:

- Make more space and time to understand more and explore shared meanings among people.
- Make a better world for our children – because that is why we are here.

Overall, we were cheered by:

- A renewed confidence in the resilience of human beings.
- An eagerness to see what 2050 will look like when we get there.

By the end of the first day, therefore, we knew and understood that we predict the future by shaping it. We had found our common ground and, figuratively, invited our children, and the future generations, into the room. We were encouraged to dream overnight about all our futures in 2050.

The second day started by capturing the flavour of the main trends, and seeding the directions of the day to come. Given the gender balance in the room, the two 'harvesters' (who had been capturing the proceedings in different ways) stepped up to comment on what they had observed on the previous day, not only as witnesses of the event, but also, explicitly, as women:

"Social innovation is as important as technological innovation. Everyone has been sitting quite naturally in a circle *inside* the official set-up. This might be the first time that formal, official rooms like this have ever been used in quite this way. That, too, is innovation!

"The European Commission invited everyone here to dream about the future, but it is not institutions that believe in the future, it is human beings.

"One trend seen was that of individualisation. What we are prototyping here is methodologies for human connection that can help balance that trend. In the end, the innovation we find will not be in the individual ideas, but in the combination of our unique contributions. Yesterday really was an evolution in collective wisdom, not in the technological sense but with people, by people, and for people.

"It was a real voyage of discovery. People were able to discover each other through the exercises and through the process, by not knowing who we were in advance or by the sharing our business cards. Rather than simply "our business being the future", it had become clear that *our life's work is the future*. We seem to be at a point where we both need and want to work not just for the European common good but also for the good of the world. We want to focus on the future of our children and our children's children."

Some of the scenarios that people had seen ahead were threatening and frightening. Yet, in contrast to the push towards blinding speed and swiftness, there was an interest in going "slower, deeper and sweeter" and focusing on slow-tech.

There was also a realisation of how small the world is, and how fragile an ecosystem we live in, but yet we also saw how brilliant human beings are and how much we can do together to create the future!

Visioning Digital Future scenarios

In this part of the workshop, participants were invited to call out a session they were interested in facilitating, using an 'Open Space' process. The focus was to be on the important visions that we had for the year 2050.

The process produced over 20 sessions, exploring one or more specific areas, and the main elements that led to the vision, the underpinning trends, and who shared in the vision were all described (see box below).

A pearl of wisdom was drawn from each vision to attract people's attention. A small sample of these pearls gives a sense of the sometimes utopian, sometimes dystopian potential futures that were evoked. The challenges are enormous:

- In 2050, we are robots, we have nano robots inside our bodies; we are cyber robots 2.0, our skills inherited by children; these genetics are evolutionary.
- In 2050, what will society tolerate when knowledge can be extracted from the brain and we can be immortal, when we have the possibility to experience as many lifetimes as we want, and when we can insert pre-existing knowledge into new-born children?
- In 2050, human beings are the smartest species in the world – they are the emotional ones, smarter as a result of their awareness of the social problems that have to be faced.
- In 2050, wholeness, of whatever variety, is about being able to access all of our talents and all of our personalities.
- In 2050, altruism is in our self-interest! We have redefined our close relations and families. We are all working together on a kind of virtual digital ethnography: humanists, social scientists, and technologists.

Visioning Digital Future scenarios: A summary
- *Climate, demography, immigrations, avoiding nationalism, populism and closing gates. Geopolitics. Global equilibrium.*
- *Free public education libraries. What is the new school going to be like?*
- *Harmony and balance in life, without depleting resources and the overall environment. Exploring human empathy and gentleness. How can we develop our typically feminine and masculine sides, cooperation and competition?*
- *How to innovate better.*
- *Individuals living in alienation and isolation (virtual worlds, robots). Robots, human life and domotics.*
- *Immortality in a virtual world. The role of 'man' after the singularity.*
- *Invisible technology. Millions of sensors and bits of data. The Internet **with** Things. The Internet of people.*
- *The limits of representative democracy. "Harvesting the collective wisdom of the people". Technologies and those who can use them.*
- *Smart spaces and smart thinking. Cities and rural areas.*
- *Well-being and health. Health and disabilities. No more poverty or illnesses that can be prevented.*
- *What is work like in 2050? What is the factory like? Production and construction. Marketing 2050.*
- *Reinventing the welfare state for 2050. What new economic models, competition, cooperation, global, local, and governments are needed?*
- *What values should we have in 2050? Privacy is an issue for the future. After Pollyannaism. What will not change (such as a mountain I like)? Spiritual life in 2050.*

Exploring the shaping of our future together

In the afternoon of this second day, 12 'ProAction café' work groups explored together how to shape the immediate future. Each group was 'hosted' by a volunteer who had been inspired to

champion a topic that interested them from among those that had emerged during the morning's sessions.

Some topics related to societal purpose, with a focus on participatory democracy and full inclusion. Others focused on the social and organisational processes themselves. Several had a largely technological orientation, such as the use of data, and a shift towards cyborgs and robots:

Society enhanced by technologies

- Achieving ICT that adapts to all users by 2050 (whether young, old, tech, nontech).
- Promote examples of ICT for societal acceptance.
- Smart urban environments (S.U.E).

Participatory initiatives

- Digital Enlightenment: How can Europe bring its best to the world?
- Harvesting our Digital Futures: Can you help?
- How can participatory democracy exercise real power? Create a democratic revolution.
- How can we promote inclusion of disabled people?
- Participation in multi-stakeholder processes.

Technologies

- Define visions for data visualisation until 2050.
- Human to cyborg vision.
- Visions to develop ICT and robotics-based services.
- Visions to make use of all data.

After three rounds of conversation (during which the composition of the groups changed) each workshop leader reported in plenary session on the very first steps that could be made towards making each idea materialise in the immediate future, and the actions that each had committed to taking. For example, the session called "Harvesting our Digital Futures" explored how to maintain an accessible and constructive record of all these Digital Futures events and activities. It was decided to ask the whole community of participants to:

- Help with gathering together materials.
- Make sense of and interpret the two days of findings (and more).
- Expand, enhance and share the harvesting process as we move forward.

Closing the day

This first workshop had encouraged a first grouping of people to explore our Digital Futures together. We had met, bonded, and created together. We had met and shared huge numbers of creative ideas with each other. We had travelled together in a kind of time machine to the middle of this 21st century. Then, we began to see what might make for the influences on our nearer future. Focusing on a much smaller list of next, important steps, people started to make plans for how we will interact in the future and how we will transform initial, small ideas into something much more concrete.

The day was wrapped up with a large circle in which everyone shared with each other what the workshop had meant to them and what had struck them the most.

There was a considerable sense of transformation, and of people feeling themselves having been made human again.

So keen were people to continue the dialogue and associations with each other that they had great difficulty in leaving the room!

Hugely challenging directions were explored during the two days of intense activity. One possible 2050s future can be seen that comes after the singularity, in a world characterised by the Internet of Things and the use of robots, and is populated by transhuman beings.

However, yet another is one in which cyborgs are turned back into human beings or in fact never become cyborgs! That 2050s future is one that is firmly grounded in democracy, health,

inclusiveness and involvement: it is highly interactive and participative in a social sense, fully civilised and convivial.

Next steps

The workshop of 29-30 March was not a one-off event. A comprehensive report will be made available on the Digital Futures website by mid-April for comments and improvements by all.

An online event is planned for 4 May to further engage around the visions, analyse the challenges and opportunities stemming from them and assess them on the basis of their likelihood, desirability and impacts. A third workshop on 6 July focusing on the policy options will conclude this phase of the initiative.

A first draft release of the visions and policy options is due by the end of October 2012, the second release by May 2013. The final version will be presented and debated at a closing conference in Brussels in October 2013. The challenge will be to engage more and more contributors throughout the various phases of the initiative.

Work also has to be done to compare and contrast, and aim to merge in some way similar visioning work that has also been taking place in-house among the staff of DG INFSO. It would make all of these materials even more fruitful to bring their richness together in a single whole.

Getting involved

Digital Futures will soon launch an online participatory lab to engage all who wish to participate in shaping the visions and trends further and in identifying the policy options to be offered as inspiring ideas for the Commission's next policy framework.

This online engagement platform, to be co-developed with its users, will enable the co-elaboration of ideas from this workshop and beyond. For the time being, the project's basic web presence is at:

http://ec.europa.eu/information_society/digital_futures/index_en.htm

ANNEX 1: One-page report on the Digital Futures First Core Foresight workshop

This "one-pager" was used by DG Information Society and Media as a source of information on the First Core Foresight workshop on March 29-30, 2012. It was submitted on April 4, 2012. Extracts from it were used on the Digital Futures website in early April 2012 to capture the workshop content: http://ec.europa.eu/information_society/digital_futures/core-foresight/29-30March2012/index_en.htm.

On board to the future: DG Information Society and Media Digital Futures project was launched with the contribution of 50 external experts on 29-30 March 2012.

The European Commission's DG Information Society and Media (DG INFSO) is organising a series of consultations in the context of the Digital Futures Project. Digital Futures is a visioning exercise to prepare DG INFSO for reflections on ICT policies beyond 2020. The exercise is to strengthen anticipatory thinking in policy-making practices. It envisages scenarios along a time-horizon that leads up to 2040-50. It generates ideas and policy options with a view to inspire DG INFSO's future strategic choices. In the immediate short-term, however, this future-building will help to focus minds on the important policy decisions that have to be made in the 2013-2020 time-horizon. A cutting-edge, exemplary and highly professional method for sharing thoughts and ideas was used, facilitated by an internal European Commission team.

What are the latest developments? Following a series of internal workshops, on 29-30 March, 50 external experts came together to envision what 2050 might look like. They focused their collective intelligence and creativity on developing a set of snapshots of the present and the future. The ultimate goal was to "find the common ground and predict the future by actually shaping it". All the ideas have been captured in a mind map.

What were people's motivations? Attendees explored together their mutual motivations for attending the workshop and getting involved in the Digital Futures project. Their enthusiasm ranged from getting involved in shaping the future because "the future is not fixed, just as our lives are not fixed" to "gaining a better understanding of European policies" and "dropping old habits that are not useful anymore". Participants described themselves as being really inspired by the experience. These 50 also really wanted the exercise to become a truly participatory process.

Who was there? Attendees came from six areas of policy, research and implementation. These include economic, environmental, personal, political, social and technological fields. Everyone contributed to the visions in their personal capacity and agreed to the sharing of their contributions online. In their day jobs, the people present ranged from futurologists, policy-makers, researchers and teachers, business executives and sole traders, members of non-governmental organisations, to local and national civil servants. Attendees had come from as far away as China and the United States of America, from throughout the European Union, to the many whose organisations are Brussels-based.

What was the mood of the workshop? The workshop mood was extremely positive throughout its two days. There was constant small group work and meetings, combined with much drawing, sketching, taking of photos and videos and note-taking. Attendees were in regular communication among themselves and with the world outside the Charlemagne building, often tweeting the latest news and developments.

What topics are emerging? To name just a few, visions tumbled out of the group's imagination. The highlights evolved around communication, communities, the economy, learning, manufacturing and business, peace and war, the planet and climate, policies and politics, and regulation. Technology trends blended and contrasted with social and societal trends. Prospects seen as being of high impact and, indeed, even highly likely were not necessarily those described as the most desirable.

There was certainly a focus on the quality of life, work and well-being. But there were also dilemmas: trends towards empowerment that contrasted with increasing vulnerability; a tendency towards speed and short-termism counterbalanced by a longer-term focus on slow-tech; and anxiety about a growing "dark side" versus the truly hopeful, unexpected and unpredictable.

A whole afternoon was also spent in a ProAction Cafe. This exercise helps groups of people to commit to positive actions and next steps. Twelve of the workshop attendees were motivated to explore with their colleagues actions on which they will begin to work together over the next three months: ultimately, the final destination will be 2050.

Among the activities planned are creating roadmaps to the future. Up-tempo views of European futures came to the fore: a new Digital Enlightenment was one; the creation of smart, urban environments was another. Technology was focused on the positive use of data, data visualisation, cyborgs and robots. Several activities concentrated on societal processes including: ICT and societal acceptance, the exercise of participatory democracy, multi-stakeholder processes, and the full inclusion of people with disabilities in society. Last but not least, "harvesting our Digital Futures" explored how to maintain an accessible and constructive record of all these events and activities.

What are the upcoming events? After this sharing of visions, the group will progress to exploring policy options and counterbalancing them with a reality check.

Among the future activities planned by the Digital Futures team are a virtual forum (that combines a webinar and a World Café) that will be held on 4-5 May and another Brussels-based workshop on 6 July. Online participatory events are also planned. Photos of the event and its activities are currently located at [...].

ANNEX 2: List of participants at the First Core Foresight workshop on March 29-30, 2012

Here is a list of the attendees at the First Core Foresight workshop held on March 29-30, 2012.

Franco ACCORDINO
Beccy ALLEN
Ioana ANDREESCU
Alessandro BASSI
Margot BEZZI
Colin BLACKMAN
Julien CANO
Filippo CAVALLO
Giovanni CORAZZO
Raffaele DE AMICIS
Stephan DE SPIEGELEIRE
Kemal DELIC
Afonso FERREIRA
Martin FISCHER
Thomas FROEHLICHER
Philippe GOUJON
Christina GOUVEIA
Martin HAHN
Sirkka HEINONEN
Ursula HILLBRAND
Ronan KENNEDY
Matthieu KLEINSCHMAGER
Bernadett KOTELES-DEGRENDELE
Niwa KUNIHIKO
Dominique LACROIX
Yiannis LAOURIS
Carlos LEE
Karim LESINA
Man-Sze LI
Gui LIANG
Mats LINDGREN
Gian Mario MAGGIO
Isabel MARTINES GANTES
Andy MIAH
Christian MICAS
Jeremy MILLARD
Claire MILNE
Jonathan MITCHENER
Eszter MONDA
Vincent MUELLER
Margarita NICOLOVA
Jan NIELSEN-UPHILL
Gai OREN
Mika REINIKANEN
Collins RICHARD
Miguel RODRIGUES
André ROUYER
Benedicte RUSSEAU

Anna-Liisa SALMINEN
Roberto SARACCO
Maria SCORDIALOS
Ada SEKIRIN
Lucy SETIAN
Gabby SILBERMAN
Michahil SIMONOV
Bernd SKIERA
Martin SPANN
Helen TITCHEN BEATH
Laurence VAN HEE
Gregg VANDERHEIDEN
Adam WATSON BROWN
Diane WHITEHOUSE
John WORTH
Guang-Zhang YANG

ANNEX 3: List of various communications channels related to the Digital Futures First Core Foresight workshop

Here is a list of the communications channels used by the European Commission in relation to the Digital Futures First Core Foresight workshop held on March 29-30, 2012.

http://ec.europa.eu/information_society/digital_futures/workshops/core_foresight/outcome/index_en.htm

Twitter:
http://twitter.com/#!/futures2050,

HashTag:
digitalfutures

LinkedIn:
http://www.linkedin.com/groups/Digital-Futures-2050-4347838?home=&gid=4347838&trk=anet_ug_hm

Facebook:
http://www.facebook.com/pages/Digital-Futures/187244001354965

These elements of feedback come from the session entitled "Who are we and why it is important that we are enquiring into Digital Futures together" at the Digital Futures First Core Foresight workshop held on March 29-30, 2012.

Highlighted in boxes are parts of the First Core Foresight workshop participants' commentary that it was thought could be used as "pull quotes".

- Activating changes that may impact the strategies of our organisation.
- As a commons, to see the possibilities and risks for society, particularly for women; to learn something new, and – I believe that I can – to help our society.
- As an academic, I would like to know how this day would support our study in terms of how we approach, values, for example, privacy.
- Because I do research in field of human rights, and to learn about possible evolutions in this field.
- Bringing society and technology together with arts and humanities is important. I have looked at the future in other institutions. Now comes the digital bit. I am interested in getting closer to European policy-making ... just before my own government threatens to pull out of Europe!
- For new inspiration for my research.
- How can DG INFSO help in shaping the future of the people of Europe?
- How important human information is! This is about seeing how technology has an impact on the individual in her daily life. I am here to learn and share my ideas with you.
- How to make computing invisible, and concentrate on the user experience? What could be the future use of technology (for example, surfaces, lights, information)? It all looks fairly boring. Instead, it is really good to have this massive brainstorming with people who come from very different perspectives.
- I am a visionary, trying to learn from the past and, in the present, to predict the future. Thinking about current events in Brazil, Iran and Iraq. Trying to understand how small the world is. How technology is important as is knowledge and sharing visions.
- I am curious to see how this group can work together and effect change.
- I am very curious about future trends, and to bring these back into my own research and teaching.
- I am here for three reasons: 1) Curiosity. 2) A reality check for 2050. 3) To meet other crazy people.
- I am here to get a better understanding of European policy in the field of networks, and to meet other people from Europe – and elsewhere – to explore values and concerns in the field of Internet.
- I am here to know.
- I am here to learn.
- I am here to learn.
- I am here to learn. I am questioning whether, "when I am around 80 will I rule the technology or will the technology rule me?"
- I am here to learn about new participatory approaches about future conceptions and technology; to bring reflections on how the future will be respectful of technology, ethics and governance.
- I am here to learn about where we are heading and how the technology is going to shape personalised interfaces. Unless we are pro-active, we will be unequal. It is all about people's abilities to use the interfaces.

- I am here to learn, to see we how spend Europe's money, and to share my information about IT in general.
- I am here to learn. I welcome the opportunity to do so in this context. Ideas have counted for a great deal: what turns out to be inappropriate often has a remarkable durability. I also want to get out of the "Anglo sphere".
- I am here to meet people like me (who are crazy like me!), and to show myself how little I know.
- I am here to participate in exploring the transformation of the Internet into a digital experience society. To learn, and express, and work with you. But I am also here to pay attention to the potential risks and threats, and how to avoid the digital divide. Can we come up together with technological innovations and social innovations for citizens' lives and for sustainable development?
- I am here to see what the trends are that you all see and think.
- I am here to share and get fresh perspectives.
- I am interested in artificial intelligence.
- I am interested in digital communications, including the digital present.
- I am looking out 1-2-3 years (to over 5 years). It is much easier to invent the future than to predict it.
- I am striving for innovation and to see the far future and the near future – to shape and to define the future.
- I came because it is interesting, it fits with the others things I'm doing, and I *could* come.
- I want to find out new technologies to engage new people in new ways, to branch out and meet people from different perspectives and from different places.
- I want to meet interesting people (and I have done that)! I am very interested in creativity and science. I want to discover new trends, and to see how these will affect new policies in the European Commission.
- I would like to contribute in my own field that is personalised health and safety.
- If democracy fails, the future will become more participatory.
- In all the time I [*was*] a futurist, I never failed to learn from people from different backgrounds.
- It is about promoting user participation and especially on the part of young people, also in 2050. To see about all the policies. To know what we should follow up on when we want to get involved.
- In my context, I try to promote creativity, a transversal approach in my university and outside. All this while coping with my students and also – with my children – to find my iPad every Sunday night! My main concern is to look at 2050 with the eyes of my children.
- In terms of medical technology, it is about looking at future technology and how it will affect the regulatory system. With regard to self-diagnosis and self-preparing cyborgs, what will the regulations be? I will be 100, so the future is worth waiting for!
- It is my duty: I am here to support you and the process and to get a lot of things out of it. I am also curious.
- John Maynard Keynes wrote a fascinating 1930 paper about the economic possibilities for our grandchildren. It was all about a long-term world. My world is very much about the here and now. Maybe looking ahead to the five years' trends in society, and how technology and society interest, would be useful.
- My current job is to make strategic plans in research and development (R+D). To make effective R+D plans, we have to understand social, economic, and environmental issues, and therefore I thought this was the perfect place.

- My goal is to create a mindshare between resources and facilities.
- Seeking uplift, optimism and a bit of risk-taking.
- Shaking minds, sharing ideas, shaping future, sha sha sha – I like to dance!
- The future is not fixed, just like our lives are not fixed ... it is about education.
- The world puzzles me and people puzzle me. I am here to learn and to be inspired.
- There is a deep gap between China and the developed countries. ... I am here to learn about the European view of the Digital Futures. I am here to share an Asian view of how the future is. There is a Chinese saying about talking about the future: "It can be very dangerous to talk about the near future because you are soon proved wrong. But it is safe to talk about the long-term future!"
- To bring my expertise in robots and ambient intelligence, to contribute to the digital future, and to learn.
- To find out about technologies, energy efficiency, and the social acceptance of innovative technologies and what will benefit Europe from a socio-economic perspective.
- To get a better understanding of technology, the environment and economics, and to see how this will affect our security.
- To help change old habits that are not useful anymore.
- To learn about some new perspectives that can make Europeans move in some new directions at different times.
- To learn, participate, hold together our knowledge in a creative way and as an opportunity to build a better future for all of us in a collective way – a great opportunity to work with this team.
- To learn: always to learn in something like this is to contribute to a better European future.
- To overcome the doom and gloom that occupies my field (which is security).
- To see if the new European institutions are better than I thought!
- What will playing with robots/automation do to improve our lives? What will it bring for our children? There are a lot of things to think about for our children.
- Will they blame us?

Trends illuminating our current collective knowledge (Mind Map and list)
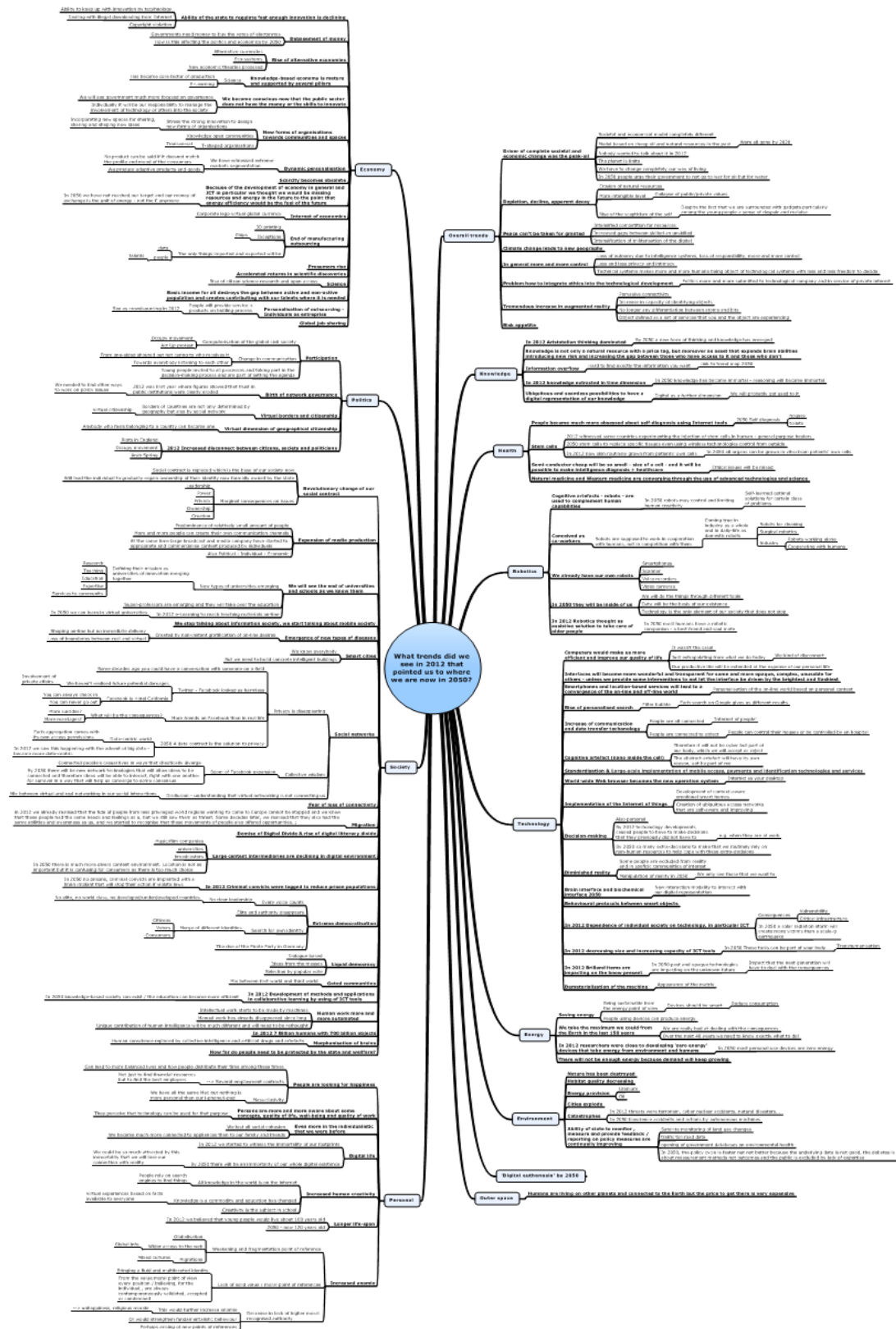
This is the Mind Map developed during the Digital Futures First Core Foresight workshop on March 29-30, 2012, followed by the individual statements that make up the Mind Map.

A Overall trends

A.1 Driver of complete societal and economic change was the peak-oil

A.1.1 Societal and economical model completely different

A.1.2 Model based on cheap oil and natural resources in the past were all gone by 2020

A.1.3 Nobody wanted to talk about it in 2012

A.1.4 The planet is finite

A.1.5 We have to change completely our way of living

A.1.6 In 2050 people urge their government to not go to war for oil but for water.

A.2 Depletion, decline, apparent decay

A.2.1 Erosion of natural resources

A.2.2 More intangible level. Collapse of public/private values

A.2.3 Rise of the scepticism of the self. Despite the fact that we are surrounded with gadgets particularly among the young people a sense of despair and malaise

A.3 Peace can't be taken for granted

A.3.1 Intensified competition for resources

A.3.2 Increased gaps between skilled an unskilled

A.3.3 Intensification of militarisation of the digital

A.4 Climate change leads to new geography

A.5 In general more and more control

A.5.1 Loss of autonomy due to intelligence systems, loss of responsibility, more and more control

A.5.2 Less and less privacy and intimacy

A.5.3 Technical systems makes more and more humans being object of technological systems with less and less freedom to decide

A.6 Problem how to integrate ethics into technological development

A.6.1 Politics more and more submitted to technological company and in service of private interest

A.7 Tremendous increase in augmented reality

A.7.1 Pervasive connectivity

A.7.2 Increase in capacity of identifying objects

A.7.3 No longer any differentiation between atoms and bits

A.7.4 Object defined as a set of services that you and the object are experiencing

A.8 Risk appetite

B Knowledge

B.1 In 2012 Aristotelian thinking dominated

B.1.1 By 2050 a new form of thinking and knowledge has emerged

B.2 Knowledge is not only a natural resource with a price tag, but moreover as asset that expands brain abilities introducing new risk and increasing the gap between those who have access to it and those who don't

B.3 Information overflow

B.3.1 Hard to find exactly the information you want. Link to trend map 2050

B.4 In 2012 knowledge extracted in time dimension

B.4.1 In 2050 knowledge has become immortal - reasoning will become immortal

B.5 Ubiquitous and seamless possibilities to have a digital representation of our knowledge

B.5.1 Digital as a further dimension. We will probably get used to it

C Health

C.1 People became much more obsessed about self-diagnosis using Internet tools

C.1.1 2050 Self diagnosis, houses, toilets

C.2 Stem cells

C.2.1 2012 witnessed some countries experimenting the injection of stem cells in human - general purpose healers

C.2.2 2050 stem cells to replace specific tissues even using wireless technologies control from outside

C.2.3 In 2012 new skin routinely grown from patients' own cells. In 2050 all organs can be grown in vitro from patients' own cells

C.3 Semi-conductor cheap will be so small - size of a cell - and it will be possible to make intelligence diagnosis + healthcare

C.3.1 Ethical issues will be raised

C.4 Natural medicine and Western medicine are converging through the use of advanced technologies and science

D Robotics

D.1 Cognitive artefacts - robots - are used to complement human capabilities

D.1.1 In 2050 robots may control and limiting human creativity. Self-learned optimal solutions for certain class of problems

D.2 Conceived as co-workers

D.2.1 Robots are supposed to work in cooperation with humans, not in competition with them. Coming true in industry as a whole and in daily-life as domestic robots. Robots for cleaning. Surgical robotics. Industry. Robots working alone. Cooperating with humans

D.3 We already have our own robots

D.3.1 Smartphones

D.3.2 Scanners

D.3.3 Voice recorders

D.3.4 Video cameras

D.4 In 2050 they will be inside of us

D.4.1 We will do the things through different tools

D.4.2 Data will be the basis of our existence

D.4.3 Technology is the only element of our society that does not stop

D.5 In 2012 robotics was thought as assistive solution to take care of older people

D.5.1 In 2050 most humans have a robotic companion - a best friend and soul mate

E Technology

E.1 Computers would make us more efficient and improve our quality of life

E.1.1 It wasn't the case!

E.1.2 Just extrapolating from what we do today. We kind of disconnect

E.1.3 Our productive life will be extended at the expense of our personal life

E.2 Interfaces will become more wonderful and transparent for some and more opaque, complex, unusable for others - unless we provide some interventions to not let the interface be driven by the brightest and flashiest

E.3 Smartphones and location-based services will lead to a convergence of the on-line and off-line world

E.3.1 Personalisation of the on-line world based on personal context

E.4 Rise of personalised search

E.4.1 Filter bubble. Each search on Google gives us different results

E.5 Increase of communication and data transfer technology

E.5.1 People are all connected. 'Internet of people'

E.5.2 People are connected to object. People can control their houses or be controlled by an hospital

E.6 Cognitive artefact (nano inside the cell)

E.6.1 Therefore it will not be cyber but part of our body, which we will accept or reject

E.6.2 The abstract artefact will have its own reason, yet be part of me

E.7 Standardisation & Large-scale implementation of mobile access, payments and identification technologies and services

E.8 World-wide Web browser becomes the new operating system

E.8.1 Internet as your desktop

E.9 Implementation of the Internet of Things

E.9.1 Development of context-aware emotional smart homes

E.9.2 Creation of ubiquitous access networks that are self-aware and improving

E.10 Decision-making

E.10.1 Also personal

E.10.2 By 2012 technology developments caused people to have to make decisions that they previously did not have to e.g. when they are at work

E.10.3 By 2050 so many extra-decisions to make that we routinely rely on non-human resources to help cope with these extra decisions

E.11 Diminished reality

E.11.1 Some people are excluded from reality and in specific communities of interest

E.11.2 Manipulation of reality in 2050. We only see those that we want to

E.12 Brain interface and biochemical interface 2050

E.12.1 New interaction modality to interact with our digital representation

E.13 Behavioural protocols between smart objects

E.14 In 2012 Dependence of individual society on technology, in particular ICT

E.14.1 Consequences. Vulnerability. Critical infrastructure

E.14.2 In 2050 a solar radiation storm will create more victims than a scale-g earthquake

E.15 In 2012 decreasing size and increasing capacity of ICT tools

E.15.1 In 2050 those tools can be part of your body. Transhumanisation

E.16 In 2012 Brilland items are impacting on the know present

E.16.1 In 2050 past and opaque technologies are impacting on the unknown future. Impact that the next generation will have to deal with the consequences.

E.17 Dematerialisation of the machine

E.17.1 Appearance of the matrix

F Energy

F.1 Saving energy

F.1.1 Being sustainable from the energy point of view. Devices should be smart. Reduce consumption

F.1.2 F1.2 People using devices can produce energy. We take the maximum we could from the Earth in the last 150 years

F.1.3 We are really bad at dealing with the consequences

F.1.4 Over the next 40 years we need to know exactly what to do!

F.2 In 2012 researchers were close to developing 'zero energy' devices that take energy from environment and humans

F.2.1 In 2050 most personal use devices are zero energy

F.3 There will not be enough energy because demand will keep growing

G Environment

G.1 Nature has been destroyed

G.2 Habitat quality decreasing

G.3 Energy provision

G.3.1 Uranium

G.3.2 Oil

G.4 Cities explode

G.5 Catastrophes

G.5.1 In 2012 threats were terrorism, cyber nuclear accidents, natural disasters...

G.5.2 In 2050 bioscience accidents and actions by autonomous machines

G.6 Ability of state to monitor , measure and provide feedback / reporting on policy measures are continually improving

G.6.1 Satellite monitoring of land use changes

G.6.2 Traffic toll road data

G.6.3 Opening of government databases on environmental health

G.6.4 In 2050, the policy cycle is faster but not better because the underlying data is not good, the debates is about measurement methods not outcomes and the public is excluded by lack of expertise

H 'Digital euthanasia' by 2050

I Outer space

I.1 Humans are living on other planets and connected to the Earth but the price to get there is very expensive

J Personal

J.1 People are looking for happiness

J.1.1 Can lead to more balanced lives and how people distribute their time among these times

J.1.2 --> Several employment contracts. Not just to find financial resources but to find the best employers

J.1.3 Mass-clusivity

We have all the same Mac but nothing is more personal than our i-phone/i-pad

J.2 Persons are more and more aware about some concepts, quality of life, well-being and quality of work

J.2.1 They perceive that technology can be used for that purpose

J.3 Even more in the individualistic that we were before

J.3.1 We lost all social cohesion

J.3.2 We became much more connected to appliances than to our family and friends

J.4 Digital life

J.4.1 In 2012 we started to witness the immortality of our footprints

J.4.2 By 2050 there will be an immortality of our whole digital existence

We could be so much attracted by this immortality that we will lose our connection with reality

J.5 Increased human creativity

J.5.1 All knowledge in the world is on the Internet. People rely on search engines to find things

J.5.2 Knowledge is a commodity and education has changed

Virtual experiences based on facts available to everyone

J.5.3 Creativity is the subject in school

J.6 Longer life-span

J.6.1 In 2012 we believed that young people would live about 100 years old

J.6.2 2050 - now 120 years old

J.7 Increased anomie

J.7.1 Weakening and fragmentation point of reference. Globalisation. Wider access to the web. Global info. Migrations. Mixed cultures

J.7.2 Lack of solid value / moral point of references

Bringing a fluid and multifaceted identity

From the value moral point of view every position / believing, for the individual,, are always contemporaneously validated, accepted or condemned

J.7.3 Decrease in lack of higher moral recognised authority

This would further increase anomie

--> unhappiness, religious moral

would strengthen fundamentalist behaviour

Perhaps arising of new points of references

K Society

K.1 Revolutionary change of our social contract

K.1.1 Social contract is replaced which is the base of our society now

K.1.2 Will lead the individual to gradually regain ownership of their identity now formally owned by the state

K.1.3 Marginal consequences on issues

Leadership

Power

Privacy

Ownership

Creation

K.2 Expansion of media production

K.2.1 Predominance of relatively small amount of people

K.2.2 More and more people can create their own communication channels

K.2.3 At the same time large broadcast and media company have started to appropriate and commercialise content produced by individuals

K.2.4 Also Political - Individual - Economic

K.3 We will see the end of universities and schools as we know them

K.3.1 New types of universities emerging

Defining their mission as universities of innovation merging together

Research

Teaching

Education

Expertise

Services to community

K.3.2 Super-professors are emerging and they will take over the education

K.3.3 In 2012 e-Learning to reach teaching materials on-line

In 2050 we can learn in virtual universities

K.4 We stop talking about information society, we start talking about mobile society

K.5 Emergence of new types of diseases

K.5.1 Created by non-instant gratification of on-line desires

Shopping on-line but no immediate delivery

Loss of boundaries between real and virtual

K.6 Smart cities

K.6.1 We know everybody

K.6.2 But we need to build concrete intelligent buildings

K.7 Social networks

K.7.1 Privacy is disappearing

Some decades ago you could have a conversation with someone on a field

Twitter - Facebook looked as harmless

We haven't realised future potential damages

Involvement of private affairs

Facebook is Hotel California

You can always check in

You can never go out

More friends on Facebook than in real life

What will be the consequences?

More suicides?

More marriages?

2050 A data contract is the solution to privacy

Data-centric world

Each aggregation comes with its own access permissions

In 2012 we saw this happening with the advent of big data - became more data-centric

K.7.2 Collective wisdom

Boom of Facebook expansion

Connected people's casual lives in ways that chaotically diverge

By 2050 there will be new network technologies that will allow ideas to be connected and therefore ideas will be able to interact, fight with one another for survival in a way that will help us converge to some consensus

K.7.3 Disillusion - understanding that virtual networking is not connecting us

Mix between virtual and real networking in our social interactions

K.8 Fear of loss of connectivity

K.9 Migration

K.9.1 in 2012 we already realised that the tide of people from less privileged world regions wanting to come to Europe cannot be stopped and we knew that these people had the same needs and feelings as u, but we still saw them as threat. Some decades later, we realised that they also had the same abilities and awareness as us, and we started to recognise that these movements of people also offered opportunities

K.10 Demise of Digital Divide & rise of digital literacy divide

K.11 Large content intermediaries are declining in digital environment

K.11.1 Music/film companies

K.11.2 universities

K.11.3 broadcasters

K.11.4 In 2050 there is much more divers content environment. Location is not as important but it is confusing for consumers as there is too much choice

K.12 In 2012 Criminal convicts were tagged to reduce prison populations

K.12.1 In 2050 no prisons, criminal convicts are implanted with a brain implant that will stop their action if violate laws

K.13 Extreme democratisation

K.13.1 Every voice counts

No clear leadership

No elite, no world class, no developed/underdeveloped countries

K.13.2 Elite and authority disappears

K.13.3 Search for own identity

Merge of different identities

Citizens

Voters

Consumers

K.13.4 The rise of the Pirate Party in Germany

K.14 Liquid democracy

K.14.1 Dialogue based

K.14.2 Ideas from the masses

K.14.3 Selection by popular vote

K.15 Gated communities

K.15.1 Mix between first world and third world

K.16 In 2012 Development of methods and applications in collaborative learning by using of ICT tools

K.16.1 In 2050 knowledge-based society can exist / the education can become more efficient

K.17 Human work more and more automated

K.17.1 Intellectual work starts to be made by machines

K.17.2 Manual work has already disappeared since long

K.17.3 Unique contribution of human intelligence will be much different and will need to be rethought

K.18 In 2012 7 Billion humans with 700 billion objects

K.19 Morphanisation of brains

K.19.1 Human conscience replaced by collective intelligence and artificial drugs and artefacts

K.20 How far do people need to be protected by the state and welfare?

L Politics

L.1 Participation

L.1.1 Computerisation of the global civil society

Occupy movement

Act Up protest

L.1.2 Change in communication

From one-sided shouted out not caring to who receives it

Towards everybody listening to each other

L.1.3 Young people invited to all processes and taking part in the decision-making process and are part of setting the agenda

L.2 Birth of network governance

L.2.1 2012 was first year where figures showed that trust in public institutions were clearly eroded

We needed to find other ways to work on policy issues

L.3 Virtual borders and citizenship

L.3.1 Borders of countries are not only determined by geography but also by social network

Virtual citizenship

L.4 Virtual dimension of geographical citizenship

L.4.1 Anybody who feels belonging to a country can become one

L.5 2012 Increased disconnect between citizens, society and politicians

L.5.1 Riots in England

L.5.2 Occupy movement

L.5.3 Arab Spring

M Economy

M.1 Ability of the state to regulate fast enough innovation is declining

M.1.1 Ability to keep up with innovation by technology

M.1.2 Dealing with illegal downloading from Internet

M.1.3 Copyright violation

M.2 Debasement of money

M.2.1 Governments need money to buy the votes of electorates

M.2.2 How is this affecting the politics and economics by 2050

M.3 Rise of alternative economies

M.3.1 Alternative currencies

M.3.2 Eco-systems

M.3.3 New economic theories proposed

M.4 Knowledge-based economy is mature and supported by several pillars

M.4.1 Science

Has become core factor of production

E-Learning

M.5 We become conscious now that the public sector does not have the money or the skills to innovate

M.5.1 We will see government much more focused on governance

M.5.2 Individually it will be our responsibility to manage the involvement of technology or others into the society

M.6 New forms of organisations towards communities and spaces

M.6.1 Stress the strong innovation to design new forms of organisations. Incorporating new spaces for sharing, sharing and shaping new ideas

M.6.2 Knowledge open communities

M.6.3 T-shaped organisations, Transversal

M.7 Dynamic personalisation

M.7.1 We have witnessed extreme market segmentation. No product can be sold if it does not match the profile and mood of the consumers. We produce adaptive products and goods

M.8 Scarcity becomes obsolete

M.9 Because of the development of economy in general and ICT in particular we thought we would be missing resources and energy in the future to the point that energy efficiency would be the fuel of the future

M.9.1 In 2050 we have not reached our target and our money of exchange is the unit of energy - not the € anymore

M.10 Internet of economics

M.10.1 Corporate Lego virtual global currency

M.11 End of manufacturing outsourcing

M.11.1 3D printing

M.11.2 Exceptions, chips

M.11.3 The only things imported and exported will be data, people, talents

M.12 Prosumers rise

M.13 Accelerated returns in scientific discoveries

M.14 Science

M.14.1 Rise of citizen science research and open access

M.15 Basic income for all destroys the gap between active and non-active population and creates contributing with our talents where it is needed

M.16 Personalisation of outsourcing - Individuals as enterprise

M.16.1 People will provide service + products on bidding process. See as crowdsourcing in 2012

M.17 Global job-sharing.

ANNEX 6: Thirteen key categories of "trends"

Thirteen key categories of trends were developed in the parts of the Digital Futures First Core Foresight workshop on trends and visions on March 29-30, 2012. These 13 categories are an expansion of the six fields about which the workshop contributors were informed ahead of the event: economic, environmental, personal, political, social, and technological.

The seven new categories chosen by participants were: overall trends, 'digital euthanasia', energy, health, knowledge, outer space, and robotics.

Here, the 13 categories are listed in alphabetic order:

- overall trends
- 'digital euthanasia'
- economy
- energy
- environment
- health
- knowledge
- outer space
- personal
- politics
- robotics
- society
- technology.

These categories have been synthesised into seven categories (see ANNEX 7). The first category is the general overview:

- general overview
- environment, energy and space
- economy
- personal
- politics
- social, including health
- technology, including robotics.

ANNEX 7: Snapshots from life in 2050

These seven snapshots are extracted from inputs offered by the 60 participants at the Digital Futures First Core Foresight workshop held on March 29-30, 2012.

Each of these seven snapshots of life in 2050 is between one-half and a page in length. The first is a general overview of 2050. The six other snapshots offer insights into environment, energy and space; the economy; personal life; politics; social life, including health; and technology, including robotics. Each snapshot is accompanied by a set of keywords. Where the participants voiced any concerns about the ethics, morals or values related to these snapshots, these have been captured under the sub-title of "Issues".

General overview

In 2050 ...

Life has changed absolutely.

Today, our societal and economic models are completely different from how they were in the past. The previous economic model based on cheap oil and natural resources has disappeared. Since no-one wanted to talk about these issues in 2012, our **resources** were all gone by 2020. The driver of complete societal and economic change was the peak oil price and consumption.

People now know that the **planet** is **finite**, and that we had to change completely our way of living. Climate change has led to a **new geography**.

Now, people are urging their government not to go to war for oil but for **water**.

Around us, there is **depletion**, **decline**, and apparent **decay**. There is a complete erosion of natural resources.

Peace cannot be taken for granted. There is an intensified **competition** for **resources** with increased **gaps** between skilled and unskilled persons.

Politics have become more and more subject to the will of **technology companies**, and are at the service of **private interests**.

On a more intangible level, there has been a **collapse** of **public/private values** and a rise in the **scepticism** of the **self**. There is – particularly among young people – a sense of **despair** and **malaise**. People are also experiencing a greater **appetite for risk**.

There is an intensification of the **militarisation of the digital**. In general, in society, there is more and more **control**. Human beings are more and more the **objects** of technological systems, with less and less freedom to decide for themselves. People experience more and more **control** by others and by authorities, both a **loss of autonomy** due to **intelligence systems** and a subsequent **loss of responsibility**. We have less and less **privacy**, and less **intimacy**. It has become a real problem how to integrate **ethics** into technological development.

There has been a tremendous increase in **augmented reality**: **connectivity** is completely pervasive. There is no longer any differentiation between **atoms and bits**. The capacity to **identify objects** has increased substantially, and these objects are now defined simply as a **set of services** that we and the object(s) are experiencing. We are surrounded by **gadgets**.

Environment, energy and space

In 2050 ...

Nature has been destroyed. The quality of our **habitat** is decreasing. We extracted the maximum of the earth's resources over the past 150 years. There are now real problems with **oil** and **uranium**. Now, there is just not enough energy available – and still **demand** keeps on growing.

Our **cities** are exploding. We are experiencing multiple **catastrophes**: principally as a result of **bio-science accidents**, and **autonomous machines** that have taken independent action.

We can travel in **outer space**. Human beings are living on **other planets** and are connected to the Earth, but the price of getting there is very expensive.

Positively speaking, today we focus on saving **energy**, reducing **consumption**, and using **smart devices**. Most of our **personal devices** use **zero energy**.

The state now has the possibility to **monitor**, **measure** and **provide feedback** on report on energy and environmental measures. Some say these measures are continuously improving. Others observe that, while the **policy cycle** is faster, it is not better or more accurate because the **underlying data** gathered is not good. The **public** is excluded as a result of lack of expertise. Our debates are about **measurement methods** rather than **outcomes**.

Economy

In 2050 ...

Scarcity has become obsolete.

New economies and **new economics** are on the scene; there is now a mature, **knowledge-based economy** that is based on **science** as a core factor of production and learning (i.e., **e-learning**). Various alternatives economies and currencies abound.

Energy efficiency has become the fuel of the future. Our currency of exchange is no longer the euro, it is the **unit of energy**.

We are living in an **Internet of economics**. Corporate Lego is a **virtual global currency**.

Science is fundamentally important. We are experiencing **accelerated returns** from scientific discoveries.

The outsourcing of **manufacturing**, such as 3D printing and chip production, has ended. The only things that are **imported** and **exported** are data, people, and talents. **Prosumers** are on the rise.

There is a **basic income-for-all**. It has destroyed the previous gap that existed between active and non-active members of the population. It means that we contribute with our **talents** whenever and wherever they are needed.

We are experiencing **dynamic personalisation**. **Market segmentation** has reached a kind of extreme: we produce **adaptive products and goods**, and no product can be sold if it does not match the profile and the **mood** of consumers.

There is also a **personalisation of outsourcing**. **Individuals** are **enterprises**. People provide services and products based on a **bidding process** that we initiated. We are in a **global job-sharing** context.

Keywords: accelerated returns, adaptive products and goods, basic income-for-all, bidding process, dynamic personalisation, e-learning, energy efficiency, export(s), enterprises, global job-sharing, import(s), individuals, Internet of economics, knowledge-based economy, manufacturing, market segmentation, mood, new economics, new economies, outsourcing, personalisation, prosumers, science, talents, unit of energy, virtual global currency.

Personal life

In 2050 ...

We live a **digital life**. There is an **immortality** of our whole digital existence. "Digital euthanasia" exists.

We live a longer **life-span**. We can all live to be 120 years old.

All the knowledge in the world is on the **Internet**. **Knowledge** is a commodity. **Education** has changed. Virtual experiences based on facts are available to everyone. There is a vastly increased human **creativity**. Creativity is *the* subject in school.

People are looking for **happiness**. People are more and more aware of the concepts of **quality of life**, **well-being**, and the **quality of work**.

We are even more **individualistic** than we were in the past. We have lost all **social cohesion**. We have become much more connected to our **appliances** than we are to our family or friends.

There is an increased *anomie*. There is a weakening and a **fragmentation** of points of reference. This brings **fluid** and multi-faceted identities. From the value/moral point of view, for the individual, every single belief or position is contemporaneously validated, accepted, or condemned. We lack a solid, **value**-based or moral **point(s) of reference**. There is a decrease in higher, moral recognised authority.

Issues: We could be so attracted by this immortality that we will lose our connection with reality. The decrease in higher, moral recognised authority would either lead to increased *anomie* and unhappiness, an increased religious morale or it would strengthen fundamentalist behaviour. It would perhaps lead to new points of reference.

Keywords: *anomie*; appliances, creativity; digital life; digital euthanasia; education; fragmentation; happiness; immortality; individualism; Internet; knowledge; life-span; quality of life; quality of work; social cohesion; well-being.

Politics

There is much more **participation** in politics. There has been a computerisation of the **global civil society**. It is called "**network governance**".

Communication has changed: everyone listens to each other rather than the "shouting-out" that used to take place in the past when people did not care about who received whose messages or what messages. **Young people** are invited into all the political processes: they take part in agenda-setting and decision-making.

Citizenship is based on **virtual borders**. Hence, countries' borders are not only determined by **geography** but also by social networks. We therefore have a virtual dimension to geographical citizenship: it is called "**virtual citizenship**". Anybody who feels that they belong to a country can become a citizen of that country. (Much of this movement started in 2012 when there was an increasing disconnect between citizens and politicians.)

Keywords: citizenship, geography, global civic society, "network governance", participation, virtual borders, virtual citizenship, young people.

Social life, including health

In 2050 ...

There has been a revolutionary change in our **social contract**: the social contract which is at the base of our society means that individuals are gradually regaining ownership of their identities that are now formally owned by the state.

There has been an expansion in **media** production. The media is operated by a relatively small number of people. While more and more people can create their own **communication channels**, at the same time large broadcasting and media companies have started to appropriate and commercialise the content produced by individuals. We have a much more diverse content environment. In today's digital environment, large content intermediaries are declining. While location is not so important, it is confusing for people. There is too much choice!

There is a loss of boundaries between what is **real** and what is **virtual**. There is a mix between virtual and real networking in our social interactions.

Privacy is disappearing. A **data contract** is the solution to **privacy**. We live in a data-centric world. Each aggregation comes with its own data permissions.

We experience **collective wisdom**. New network technologies enable our ideas to be interconnected. Ideas interact. They fight with each other for survival in ways that help them and us to converge to some kind of consensus.

There is extreme **democratisation**. Every voice counts. We live in a **liquid democracy**.[1] It is dialogue-based, takes ideas from the masses, and makes selections through popular votes.

There is no clear **leadership**. **Elites** and **authorities** have disappeared. There is no world class. There are no developed or underdeveloped countries. There is a mix between the first and the third world.

We live in **smart cities** in which we know everyone. We live in gated communities. But we still need to build concrete, intelligent buildings.

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[1] Since the original publication of Zygmunt Bauman's volume on *Liquid Modernity* Cambridge: Polity (2000), he has written several other volumes which expand the notion of "liquid" and liquidity.

The **knowledge**-based society exists. A new form of thinking and knowledge has emerged. Knowledge is not only a natural resource with a price-tag. It is an **asset** that expands the brain's capabilities. It has introduced new risks. It is increasing the **gap** between those who have access to knowledge and those who do not. Knowledge has become **immortal**; reasoning will also become immortal.

There is a **morphing** of our **brains**. The human conscience has been replaced by **collective intelligence**, artificial drugs and artefacts.

The **digital** is a further dimension. There are ubiquitous, seamless opportunities to have **digital representations** of our knowledge.

We have seen the end of **universities** and schools as they were known in the past. We learn in virtual universities. Education has become more efficient.

Human **work** has become more and more automated. Manual work disappeared long ago. Intellectual work starts to be done by machines. The unique contribution of human intelligence is vastly different, and needs to be rethought.

Migration is happening. In recent times, we have realised that people who want to move to Europe have the same skills and competences as us, and these movements of people offer us opportunities.

There are no prisons. Instead, all criminal convicts have a **brain implant** that inhibits their actions if they violate laws.

And also in 2050 ...

There is a rise in the **digital literacy divide** at the same time as the Digital Divide has had its demise.

We question just how far people need to be protected by the **state** and **welfare**.

We are disillusioned because we understand that virtual **networking** is not connecting us. We experience a fear of the loss of **connectivity**.

Issues: There are consequences of all these developments for creation, leadership, power, privacy and ownership. Some years ago, you could still have a private conversation with someone in a field.

Keywords: anxiety; asset(s); authority; brain; collective intelligence; collective wisdom; communication channels; connectivity; data contract; democracy and democratisation; digital; digital literacy divide; digital representation(s); disillusionment; education; elites; gaps; implants; leadership; liquid; media; morphing; migration; mobility; networking; privacy; real; smart cities; social contract; state; university; welfare; virtual; work.

Health

In 2050 ...

Self-diagnosis of our health is completely available: our houses and our toilets can tell us the state of our health and all about any physical or mental conditions that we are experiencing. Self-diagnosis of intelligence is also feasible.

On the clinical side, specific **human tissues** can be replaced by stem cells: this can be done even by the use of wireless technologies outside our bodies. For patients, all organs can be grown *in vitro* for replacement.

Natural medicine and Western medicine are **converging** through the use of advanced technologies and science.

Issues: A number of these developments do, however, raise a number of ethical challenges. There is an emergence of new types of diseases that are caused by the non-instant gratification of online desires.

Keywords: clinical; convergence; human tissue(s); medicine; self-diagnosis.

Technology, including robotics

In 2050 ....

Computers make our lives more efficient and improve the quality of life. Some computer **interfaces** have become more wonderful and transparent.

Smart phones and location-based services have led us to a **convergence** of the online and offline worlds. We experience a personalisation of the online world based on our **personal** context, and a rise in **personalised** search. We live in a **filter bubble**.[2] The amount of communication and data transfer technologies have increased considerably.

While all decision-making remains entirely personal, there are so many extra decisions we have to make that we rely regularly on non-human help for this.

Ubiquitous access networks that are self-aware and self-improving are typical.

All people are connected in an **Internet of People** – an implementation of the **Internet of Things**. Implicitly, all people are also connected with an object: for example, we can control our own homes; conversely we can be controlled by a hospital if we are unwell. Homes are smart and context-aware.

We human beings are in fact **cognitive artefacts**: the abstract artefact has its own reason, and yet it is part of "me" and "us". We call it the "nano inside the cell". There is no "cyber"; rather, technology is part of our bodies, and we either accept or reject it. The decreasing size and increasing capacity of ICT tools means that they are part of our bodies. We are experiencing **transhumanism**.

We experience a **brain** and **bio-chemical** interface. This new interaction modality interfaces with our digital representation. Behavioural protocols operate between smart objects.

There is a **standardisation** and large-scale implementation of **mobile** access, mobile payment, and mobile identification technologies and services. The World Wide Web browser has become the new operating system. The Internet is our desktop. The machine is **de-materialised**.

However, also in 2050 ...

A solar radiation storm leaves more people as patients than a "scale-g" earthquake.

Past technologies, and opaque technologies, are impacting on the unknown future. "**Brilliant**" items are impacting on the know-present.

Our lives have *not* become more efficient or their quality enhanced. Our productive life may be extended – but this is at the expense of our personal life! There is a diminished **reality**, and a manipulation of reality. Some people – and some specific communities of interest – are excluded from reality. We see only those people whom we really want to see.

Issues: We had to intervene to ensure that interfaces did not become more **opaque**, complex and unusable for other people. So, some interfaces are not always the flashiest and the brightest.

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[2] Eli Pariser's notion that people receive only information that is desired by them, since search engines are sufficiently sophisticated to provide their users with only the information that they prefer.

We have also had to deal with the consequences related to the vulnerability of critical infrastructures that had emerged from the year 2012's dependence of the individual and society on technology.

Brilliant technologies have consequences that next generations have to deal with.

Keywords: bio-chemical; brain; brilliant; cognitive artefacts; convergence; de-materialisation; filter bubble; interface; Internet of People; Internet of Things; mobility; opacity; personal; personalised; reality; standardisation; transhumanism, ubiquity.

Robotics
In 2050 ...
Cognitive artefacts – **robots** – are used to complement human capabilities. They are conceived of as co-workers: robots work in **cooperation** with human beings and not in **competition** with them.

Robots are inside of us. We do things differently with different tools. **Data** is the basis of our existence. Technology is the only element of our society that does not stop.

Most human beings have a robot **companion** – a best friend and soul mate.

Issues: Robots may control and limit human creativity.

Keywords: cognitive artefacts; companions; competition; cooperation; data; robots.

ANNEX 8: Scenario based partially on the vision of "social life, including health"

This scenario describes a picture of who "I" am ... what age I am ... who I communicate with ... who I work with ... who I live with ... what technologies I use ... in 2050.

Walking up one morning in 2050 ...

I slept well last night on my waterbed futon. Out of the bedroom window, as the southern spring light streams in, I can see the mix of rice paddies and vineyards that lie around the house. My name is Gek Kheng, a name I adopted some years ago when I became more and more interested in Chinese culture and thought. As a young adult I was known simply as Anne Louise.

I am now aged 96 and remain reasonably active and mobile. I'll "check out" at the end of the summer in four years' time when I am a hundred years' old: a date and time I chose for myself in agreement with my community.

I live in a small community of friends. We have resided together since we were in our mid-60s and 70s. We found it more and more convenient to live together, cook together and support all the members of our small community together. Most of us are in our 80s and 90s. But at the younger end of the scale, the great-nieces and great-nephews of at least two of the "family" live with us. I keep in contact with a number of the members of my actual family, none of whom live in this country. We chat regularly using video or audio, sometimes as a whole family – usually in my early morning or late at night because of time differences. We last all saw each other physically back in 2028.

I moved to the north of Italy in the third decade of the century, and stayed. It was a part of Europe that was showing such interest in collective and collaborative work, labour and life. Everyone in the small town, which is on the edge of a large urban community – which risks to become absorbed in the megapolis – contributes to supporting each other, providing our own heating and lighting, clothing and food. We use not only the land which surrounds the house, but also the walls and roof of the building. Our building is a smart building, just as the village is a smart village on the edge of a smart city.

I long since stopped doing exercise for the sake of doing exercise. Rather, I combine movement and mobility with the commitment I have to our gardening and cooking. Like most people of my age, I have had various prostheses fitted over the years. But I have always resisted actual implants. I still prefer to carry my pedometer on my waist. Yet this is a choice that many friends and colleagues find old-fashioned: especially the younger members of the community who all requested an implant as soon as they were adult and had the right to make that choice.

I learned early that it was good to walk and talk; so, three times a day I set off with different combinations of colleagues and friends to debate matters that concern the commune. When political issues involve our national or international friends and colleagues, we involve them in the conversation: they "tune in" – it is so easy given the around-the-body media that we wear embedded in our clothes.

A decade or so ago, I was stupid enough to get myself involved in a car accident: I wasn't paying enough attention to the road around me. I am happy not to drive anymore, since – when I need to travel further abroad – I use the local public transportation that still exists. I have always loved the high-speed bullet trains, but I also enjoy using my personal mini-scooter. However, I also agreed to carry a small device which – when I want to switch it on – reminds me of which route to take and where it is safest to head. I have always loved jewellery, which is good, since that is mostly what all these bits of equipment look like!

ANNEX 9: Identifying which trends will have the most impact, are the most likely, and are the most desirable

Impact
13 harmonised towards human-machine integration
10 participative democracy
10 privacy and the right to be forgotten
9 data, how collected and processed
9 education
9 smart life
8 reorganising the welfare state
7 health and ICT
7 how do we innovate better
7 inequality and cannot buy our way out
6 digital and empathy
6 Internet with Things
5 autopersonalisation of technology
5 digital enterprise and employment
5 marketing

Most likely
30 invisible technology
14 data and how it is collected
12 how do we innovate better
11 individualised education
9 inequality and cannot buy our way out
8 health and ICT
7 marketing
7 right to be forgotten
7 services in rural areas
6 Internet of Things
6 robotics
6 values for a balanced future
6 work will not change
3 likely changes to welfare
0 empathy

Desirability
16 new models of democracy
16 values for a balanced future
12 balance, harmony, use of resources
11 desire empathy
10 smart life
9 work will not change
8 wholeness
7 health
7 new economic models/anti-consumers/new forms of ownership
7 personalising technology
7 privacy and right to be forgotten
6 immortality
5 meritocratic solutions
5 spirituality
4 how to innovate
4 invisible technology

4 innovation and responsibility.

ANNEX 10: Comparative tables of views on impact, likelihood and desirability

NB. There is no especial significance to the colour coding allotted to these trends (e.g., technology, democracy, and empathy) other than to create legibility.

Impact	Likelihood	Desirability
13 harmonised towards human-machine integration	**30 invisible technology**	**16 new models of democracy**
10 participative democracy	**14 data and how it is collected**	**16 values for a balanced future**
10 privacy and the right to be forgotten	**12 how do we innovate better**	**12 balance, harmony, use of resources**
9 data, how collected and processed	**11 individualised education**	**11 empathy**
9 education	9 inequality and cannot buy our way out	**10 smart life**
9 smart life	8 health and ICT	9 work will not change
8 reorganising the welfare state	7 marketing	8 wholeness
7 health and ICT	7 right to be forgotten	7 health
7 how we innovate better	7 services in rural areas	7 new economic models/anti-consumers/new forms of ownership
7 inequality and "cannot buy our way out"	6 Internet of Things	7 personalising technology
6 digital developments and empathy	6 robotics	7 privacy and right to be forgotten
6 Internet with Things	6 values for a balanced future	6 immortality
5 autopersonalisation of technology	6 work will not change	5 meritocratic solutions
5 digital enterprise and employment	3 likely changes to welfare	5 spirituality
5 marketing	**0 empathy**	4 how to innovate
	No mention of democracy	**4 invisible technology**
		4 innovation and responsibility

ANNEX 11: "Harvesting our Digital Futures: Can you help?"

Proposer: Diane WHITEHOUSE

1. The quest

Participants: Stephan DE SPIEGELEIRE, Bernadett KOTELES-DEGRENDELE, Christian MICAS

> The intention of this ProAction Cafe is to harvest ("publish" and "communicate") the outcomes of this two-day Digital Futures of Europe Group deliberation, and to do it during the next time-period so as to help support the initiative in the most effective way.

- It is important to get information out about this meeting, this project, and ultimately the real quest of looking forward to 2050.
- Harvesting the outcomes of the workshops is intended for policy-makers *and* people.
- The people who might like to know about this news may live inside Europe but also outside Europe. Indeed, the information should be as multi-national, multi-lingual and multi-method as possible.
- Participation should involve all stakeholders. The work should be communal and collective, like a family, so that the people receiving it do not feel isolated. The openness and knowledge of this workshop should be retained.
- It could be useful to join up with a number of current and previous FP7 projects that have also been working on or are also working on envisioning the future. Examples include: EFMN http://www.efmn.info/ and IKnow.
- People who work in futures think tanks, e.g., FutureBase, could help with developing some of the methods for communicating with people.

2. What is missing

Participants: Ioana ANDREESCU, Gui LIANG, and Lucy SETIAN

These are items, activities and aspects to the quest that were considered to be missing in its first round.

- A communications and marketing strategy is needed: people who work in communications agencies could help to support this part of the process.
- Everyone in the world should know the benefits of looking towards the future.
- The message should be very simple.
- People are willing to act as "informal ambassadors", talking with their friends and family, and professors, using "word of mouth rather than word of mouse".
- A virtual workshop or a forum on the Internet would help to get the message out.
- The message needs to get out to smaller groups, local communities, and ultimately be in different languages. It is about getting everyone involved.
- It could be about working with small- and medium-sized enterprises in a lab development. Philosophers and sociologists could also be involved.

3. Proposed next steps

Participants: Philippe Goujon, Mats LINDGREN, André ROUYER

Given this positive action towards the future of the Digital Futures, here are some proposed next steps.

- It is about forming a European community.
- Clear objectives need to be set out.
- Simple headlines, pictures and illustrations need to be used.
- It is also about persuading European industry to get involved. Industry needs to understand clearly what the motivations and objectives are, e.g., energy efficiency.
- The idea needs to be formulated; it needs to be named and framed; and members of the community invited in.
- More formal newspaper and publishing companies can also be involved.
- Academics are also willing to engage: they can help with setting up observatories and laboratories.

4. Immediate actions summed up and offered by workshop leader offered to the plenary

Here are the immediate three actions identified to be taken over the upcoming week, by the end of the month, and before the end of June 2012.

- Draft an email to the whole "Digital Futures Lab" to ask for help with the harvesting of the materials, and perhaps particularly with views on the impact, likelihood and desirability of the futures that the group foresaw.
- Make sense of and interpret the findings, help the policy-makers to see the entire body of evidence, and prepare for the next meeting to take place on Friday 4 May, 2012.
- See if we can expand, enhance and share the harvesting process as part of this series of workshops.

*This was a proposal for a blank template for "report-backs". It was suggested that it could be used by those of the leaders of the various ProAction Café workshops held on Friday, March 30 2012 who were willing to report back on the activities that their groups had become involved in during the period **after** the workshop. It was submitted to the European Commission, at the services' request, on April 11, 2012.*

The "report-back" form that was eventually sent out to the ProAction Café leaders was a shortened and simplified version of this template.

Report back from the ProAction Cafe (March 30, 2012)

"Insert the title of your ProAction Cafe here"

Proposer: *Enter your name here.*

This template asks you to give further information on the quest of your ProAction Group, what is perhaps missing from the description of the action at this time, what are its next steps, and specifically what steps you committed to engaging in over the next week or so, before the end of May 2012 and by the end of June 2012. The description should ideally be no longer than one page in length.

1. The quest

Participants: *Insert the names of the group's three or four participants here.*

Insert the purpose of your ProAction Cafe here in 2-3 lines.

In the bullets below, insert the main comments made about the quest. Wherever possible illustrate the discussion with examples made by the participants (e.g., when they named on-going studies, research, initiatives or projects).
Use as many bullets as you need.

- ...
- ...
- ...

2. What is missing

Participants: *Insert the names of the group's three or four participants here.*

List the items, activities and aspects to the quest that were considered to be missing when it was first described. Use as many bullets as you need.

- ...
- ...
- ...

3. Proposed next steps

Participants: *Insert the names of the group's three or four participants here.*

Given the commitment to take action towards the future of the Digital Futures, list the proposed next steps in the bullets below. Use as many bullets as you need.

- ...
- ...
- ...

4. Immediate actions summed up and offered by workshop leader offered to the plenary

Here are the immediate three actions identified by you and your ProAction Cafe group to be taken over the upcoming week, by the end of the month, and before the end of June 2012. Describe them as they were announced to the plenary session. Three bullets should be enough.

- ...
- ...
- ...

Several completed templates were returned to the Digital Futures Initiative: one example is attached here.

Report back from the ProAction Cafe: **"Smart Urban Environments in 2050"**

Proposer: Miguel Rodrigues

1. The quest

Participants: Ester Monda, Margot Bezzi, Adam Brown

The intention of this ProAction Cafe is predict what will be a smart urban environment, what applications can be developed based on a massive technology integrations and data process from millions and millions of sensors embedded on the environment.

- Is important to understand where sensors on a massive scale can be embedded on all the urban elements, private, public or personal, developing conditions for a huge number of applications and services.
- Is important to create conditions through advanced computational capacity, to process in real time massive amounts of data generated by the sensors and actuators without human intervention.
- How this data will be collected and processed generating innovative services and facilitating the human interaction on a urban environment, as a base for more quality of life and more privacy.
- Important to develop common platforms to provide more transparency, efficiency and sustainable governance, private or public.

2. What is missing
Participants: Ester Monda, Margot Bezzi, Adam Brown

These are items, activities and aspects to the quest that were considered to be missing in its first round.

- Full conscience from a personal level regarding the positive and negative consequences of this technological evolution that will inevitably be led by the large technological corporations.
- Everyone in the world should know the benefits of looking towards the future, should have access to information regarding the future, and to develop the right knowledge to be adjusted to this new reality.
- The message should be very simple and objective and cross all the cultural, economic and social levels around the globe as a global task.

3. Proposed next steps
Participants: Ester Monda, Margot Bezzi, Adam Brown

Given this positive action towards the future of the Digital Futures, here are some proposed next steps.

- It is about forming a World conscience for the inevitability of the tech penetration of our lives.
- Academics, governors, companies, institutions are formed, on a first hand, by people. So people have to be involved with the right process.
- Education on all levels and on same time has to be prepared to provide the right level of knowledge regarding tech.

4. Immediate actions summed up and offered by workshop leader offered to the plenary

Here are the immediate three actions identified to be taken over the upcoming week, by the end of the month, and before the end of June 2012.

- Understand through the summary of the workshop where these concerns can be translated in action.
- The following step will be to evaluate the role of the EU in this process, what are the resources available, and way to make them more effective in this regard.
- Identify the policies that can develop these ideas considering the influence on European countries, and also on the world as a Institution.