

TAKING TOOLS TO MARKET

A road-mapping workshop for Innovation Professionals wishing to exchange best practice and improve the way they work with industry

Copenhagen on Friday, 27 April 2012

Programme Objectives

Aimed at 'end users' of EU Innovation programmes, the workshop was planned to have four main purposes:

- 1) Evaluate the current stock of EU funded R&D and innovation tools**
- 2) Discuss the receptivity of different types of company to innovation**
- 3) Predict the 2020 drivers of change and their potential impact**
- 4) Produce an action plan for more efficient implementation of tools**

Note: The Take It Up project is tasked with promoting the wider adoption of innovative tools and services which have been developed under the Europe INNOVA initiative. Partners of some of the Europe INNOVA project consortia were invited to participate in order to contribute their experience and benefit from the conclusions/outputs.

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[1] WORKSHOP PARTICIPANTS

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Note: Team Leaders in Italics

[2] ACKNOWLEDGEMENTS

I would like to extend my thanks to Christine Robinson, Secretary General, TII – Technology Innovation international for her assistance in promoting the event and encouraging participation in the workshop.

Thanks are also due to Maria Augusta Mancini of Meta Group for her advice on the detail of the workshop and its integration into the mainstream TII Conference

Finally, I would like to thank all who participated in the workshop. You represented a diverse mix of organisations from 16 different countries and without your inputs and cooperation we would not have been able to have delivered such an interactive workshop.

Gordon Ollivere
TRM Facilitator

[3] CONCEPT OF THE WORKSHOP

The workshop made use of a T-PLAN road-mapping technique to validate the information gathered through the electronic survey and structured interviews.

The future priorities for business were defined by participants, and how innovation support can help to achieve these priorities was evaluated. In parallel with this, the 10 key objectives of the Innovation Union were discussed and any gaps in innovation programmes identified to establish the efficiency of current programmes and make recommendations for future implementation.

The strategy employed by the consortium was to merge the workshop with another European event so as to add value to the workshop and encourage attendance. This also raised the profile of the project (and the project we are collaborating with). With no budget to cover travel and accommodation for attendees, it was decided that this was the optimum strategy to ensure the success of the workshop, and secure the attendance of the key stakeholder representatives.

The workshop took place on 29th April 2012 at NOKIA's headquarters in Copenhagen and was integrated with the annual conference of TII. This gave it great added value - firstly because a large proportion of the EVP group also belong to TII and secondly because it exposed the activities of the EVP to the wider membership of the association.

In total there were 32 full participants in the workshop and a number of others who observed. The event was facilitated by Gordon Ollivere of RTC North with introductory talks from Christine Robinson and Maria Augusta Mancini (META Group).

[4] WORKSHOP METHODOLOGY

4.1 The Agenda

09.30 Introduction and Context

- * The Innovation Union – 10 priorities for the future
- * Presentation of Survey and Interview results
- * Outline of Road-mapping methodology

09.45 Strategic road-mapping session (1) - The Broad Landscape

Group activity in which the participants will populate a wall chart customised to examine the current stock of EU funded Innovation tools, the receptivity of end users (particularly SMEs) and the drivers of change 2010-2020 which will determine innovation priorities over the next 10 years. This will essentially be a time versus activity matrix breaking down the current and future issues into broad layers.

10.45 Coffee Break

11.15 Strategic road-mapping session (2) - The Dominant Priorities

A facilitated session to review the wall chart and select the key issues identified by participants in the broad landscape. The most important topics can then be isolated and analysed by using “Single Issue” maps.

12.30 Feedback and Next Steps

Wrap up session summarising workshop results in preparation for the compilation of a report and recommendations to the EU.

13.00 Close

4.2 The Road-Map

The roadmap was designed by RTC North to focus the discussion around 3 initial layers:

- **Drivers of Change** – Answering questions about future events will influence the nature and usage of innovation tools.
- **Main Users of Tools** - Answering questions about future events will influence the nature and usage of innovation tools.
- **Application Areas** - - Answering questions about future events will influence the nature and usage of innovation tools.

The blank roadmap was as follows :-

EVP Innovation Roadmap		TODAY					ULTIMATE VISION	
Taking Tools to Market 2000 - 2020		Recent Past (since 2000)	Short Term	+2 Years	Medium Term	+5 Years	Long Term	+10 Years
Which future events will influence tools?	DRIVERS OF CHANGE							
	Population & Social Change							
	Research & Development							
	Economy & Trade							
What are the real needs of the users?	MAIN USERS OF TOOLS							
	Small & Medium Companies							
	Clusters & Sectors							
	R&D Organisations							
How will user demand develop in these areas?	APPLICATION AREAS							
	Human Resources							
	Technology Exploitation							
	Business Improvement							
Can we identify possible solutions?	ACTION PLANNING							
	Promoting Tool Usage							
	Matching Client Needs							
	Producing Quality Tools							
	Influencing Policy Makers							

Workshop participants were encouraged to populate the roadmap layer by layer (starting with the top layer and independent of the following layers), with thoughts and issues relating to the categories on the roadmap.

Any issues that were considered ‘too radical’ or did not have a particular place on the roadmap were placed on a ‘Fish Tank’ page. This ensured that no ideas that were generated through the workshop were lost.

Getting started on the first layer



A collective thinking process



Identifying the dominant themes on the “Main Chart”



Smaller groups working on the ‘Single Issues Charts’



[5] PRELIMINARY RESULTS – THE MAIN CHART

Task 5.1: The Drivers of Change

POPULATION AND SOCIAL CHANGE

Current (since 2000)

- Bigger need for self managing aid products for elderly/handicapped people + training products (products to aid eating, preparing food, getting dressed, moving and carrying things)
- Rapidly increasing population in Developing Countries
- Changing population patterns in Europe – economic migration from poorer wealthier states
- Widening gap between IT producers users: Most school children taught how to use IT but have no clue on how to critically influence and produce the tools and apps they consume
- Cracks in societies: – significant percentage of population fails to participate in social and economic life. Lack of education, no jobs, ethnic problems
- *Europe requires steady immigration of highly skilled people to fill jobs*

Short Term Future (next two years)

- Growing group of poor people in western countries
- Change in balance of power between east and west
- High levels of youth unemployment creates disenfranchised classes = social problems
- Population is getting older at least in Europe: but also the average life expectancy is high and this will have a strong impact on our future.
- Shortage of people with technology skills causes slow down of the innovation capability.
- Increasing number of well educated young people and PHD students in new EU member countries.
- Aging population can be a threat (fewer workers) or an opportunity (bigger domestic market)
- Contrasting age profiles above and below the Mediterranean (older North / younger South).
- Growing age of people more diseases and help needed
- Development of new financial services to meet elderly peoples needs
- Development of new and cheaper health care services for the old

Medium term Future (next five years)

- Social media dominates how people communicate and share information (worldwide)
- Genuine attention for people is going to become a highly valued USP
- Long distance video communication will be used by the whole populations
- Heavy burden on less young people to support more old people. Especially in China.
- A healthy lifestyle is becoming a very important aspect. That means that food sports etc
- Everyone is seeking his “15 minutes of fame” People want to stand out from the crowd
- Demographic changes in the EU: shrinking middle class bigger portion of poor people (and maybe rich people) rich middle class poor
- Bigger proportion of poor people (especially elderly people) in the EU bigger need for more poverty products/cheaper products for the NESS in the EU (eg food, cars, home equipments, housing)
- Acquire international staff

- Transportation cost and pollution will induce home working
- Increase of working nomads/ project/based contracts/ self employed
- Retirement age put back to 70!

Long Term Future (next ten years)

- People want to benefit from products instead of being the owners of them
- More and more people are going to be self employed
- Cities will pay to produce more energy than they need – smart grids have to be put in place
- 50% of knowledge workers no longer travel to work (increase of home offices)
- Key leading position will be managed by graduates from new emerging countries. Each country/region will be specialised in some sectors, so with high level of “mobility”
- Growth potential will come from engaging companies
- Aging population will need more health services
- No one leaves school without having a minimum degree – economically : potential of labour force is exploited, socially: changes for the young people (UV)
- Everyone learns to respect other cultures and opinions (UV)

RESEARCH AND DEVELOPMENT

Current (since 2000)

- Too much R&D based on new technologies and not on market needs – technology push rather than market pull
- Public funds for R&D are decreasing. Other emerging countries are increasing their own R&D capability
- Research in EU is bureaucratic and process orientated
- All regions try to become leaders in the R&D topics stimulated by the EC

Short term (next two years)

- Urban development focussed on eco-innovative transport systems and social housing
- Public funds still decrease
- Research and development produces efficient solutions for minimising effects on the environment – mainly in transport and efficient use of energy in everyday life.
- Products/services need to be greener, lighter, resource efficient.

Medium Term (next five years)

- Major breakthrough in development of carbon nanomaterials opening many opportunities.
- People will be made more and more interested by wellbeing = social innovation
- The use of biobased products will increase dramatically
- Main interpretations come from south asian countries.
- Each country/region have to focus R&D inventiveness in specific area of specialisation
- Competitive advantages will come from either high quality or low costs business model
- “good in everything will be good in nothing”
- Augmented reality for every in all aspects of live

Long Term (next 10 years)

- Direct brain upload as a means of communication will become a reality
- Computers will not only design R&D programmes but will generate its results
- Research more responsive to business which will provide co-funding .
- New R&D models with clusters of independent laboratories monitored by enterprises.
- 50% of innovation will come from procreation processes with consumers/presumers
- Ultimate Vision is that R&D will become more output and outcome orientated.

ECONOMY AND TRADE*Current (since 2000)*

- Powerful oil multinational block or delay alternative energy developments
- European labour costs too high to compete in Global Markets
- Manufacturing migrates to developing countries whilst developed countries try to retain high technology industry. The gap is becoming bigger with time.
- EURO is going to fall. EU economy severely hit. Social unrest. Split of EU
- The world economy is in crisis, developed countries are losing their leading position

Short Term (next two years)

- European economy worsens – Greece and Spain withdraw from the Euro – two speed Europe
- Facebook launches virtual currency resulting in de-stabilisation of the dollar and the pound
- High EU unemployment helps development of entrepreneurship and creative industry
- Increasing number of retired people with professional experience
- New programming period, new programmes, and changes in financing
- Decline of EU industry will encourage the creation of new tools for innovation support

Medium Term (next five years)

- Time to market and life cycle of products/services is becoming shorter and shorter
- China will buy 20% - 30% shares of Western/European companies on average
- Development of parallel online personal identities (second life but on a much bigger scale)
- Collaboration models will be used for cutting costs and producing and delivering products/services more efficiently. More efficient governance models/management for collaboration
- Multiple enterprises share a common vision and goals but manage themselves independently in small business units under an umbrella organisation eg, clusters
- Nuclear power is phased out.

Long Term (next 10 years)

- Digitalisation of production processes (machine to machine commercial)
- Europe starts to manufacture again at home as costs rise in China (+ standard of living)
- People choose no longer to own their own car.

Ultimate vision

- Augmented reality/avatars will enable efficient learning processes integrated in our daily working issues

GOVERNMENT AND POLITICS

Current (since 2000)

- Government taxes on fuel damaging to the economy – oil for transport/industry
- Some countries have to high public services cost. Very poor efficiency in public offices.
- European policies are not applied equally at regional level and towards local industries.
- The democracy is becoming oligarchic
- Russia begins using gas supply reduction to blackmail EU countries. EU solidarity falters.
- New French president demands revision of key EU treaties – Horizon 2020 reduced severely

Short term (next two years)

- German austerity measures rejected by France and southern countries
- European Central Bank prints money EU hit by hyper-inflation and dissolves
- Intensifying problems in education policy - both in schools and higher education
- Budgets for public and social services not available because of the finance crisis
- Instability due to decline in centre left/right parties and growth in extreme/single issue parties
- Israel Iran war in the middle east follows prolonged unrest in the Mediterranean area
- Israel attacks Iran, oil supplies majorly impacted. World economy enters severe recession.

Medium term (next five years)

- Environment crisis disaster and politics technology invention
- Politics becoming very short term - but charismatic leader could make a difference
- Public organisations begin to support the creation of a proper eco system to better support entrepreneurship and stimulate social innovation.
- Government delegate more control over society to private sector bodies who exploit this trend.
- Ownership of natural resources will be challenged, public versus private and national versus global
- Government structures change to become less bureaucratic and more efficient, closer to the citizen's needs. Citizens are more involved in formulating policies according to their needs – participation of citizens in local governments.

Long term (next ten years)

- Politics and parties depend upon social networks to be elected.
- Power is devolved to the regions.
- In next decade, the new developing countries will lead the world economy
- We will see wars for water as a scarce resource.
- Democracy has to become transparent. Basis democratic (UV)
- Lack of resources such as oil. Extremely increased prices because of that (UV)

Task 5.2: Future Needs of the Users

SMALL & MEDIUM COMPANIES

Current (since 2000)

- Awareness of the need of innovation in a difficult environment and economic situation
- Companies finding new customers in previously unexplored sectors and markets

Short term (next two years)

- Enterprises must offer flexible work places and contracts
- New enterprises find it more difficult to get a first client for innovative products/solutions.
- Increasing need for a 'one stop shop' for ready to use R&D solutions
- SMEs becoming much more skilled in moving to developing countries.
- Finance restricted to organisations/initiatives which demonstrate impact and actual change

Medium Term (next five years)

- Enterprises realise innovation often needs to be located close to manufacturing plants
- Demand for better methods to access technology and finance for innovation
- Enterprises will have to work more in networking than in pursuing their own agenda
- Need for better contacts with potential partners and investor community (worldwide)
- Lack of long term working contracts and increase of working nomads – intelligent knowledge management systems to keep and develop core competences
- National, European and international support programmes become complimentary
- Future programmes will cover broader range of innovation requirements
- More social enterprises will be created.

Long term (next ten years)

- Over 50% of future workforce will be based on flexible employment
- SME companies need less bureaucracy and clear strategic visions and goals (UV)

CLUSTERS & SECTORS

Current (since 2000)

- Optimize production processes in regard to energy and resource consumption
- Little room to survive because of big companies grab bigger share of the market
- Lack of programmers and software engineers. Lack of qualified staff generally.
- Declining interest of female students in the fields of science and engineering.

Short term (next two years)

- Emphasis on collaboration – team building – working with common goals
- Project (results) oriented approach to business and activities.
- Difficulties in become more specialised – moving up the value chain
- Group actions (within clusters) to improve competitiveness and partnership potential
- Problems in maintaining current levels of financing for business development / support
- Leadership will become more important than excellence.

Medium term (next five years)

- Greater potential and skills in out-sourcing functions to Asia/South America
- Dynamic Information services / alerts about what happens in other parts of the world
- Research laboratories would set up mixed activities with a strategy agreed with enterprises.
- Clusters and sectors will be born from the bottom, from a real need of working together.

Long term (next ten years)

- Clusters will comprise the whole value chain including customers – new collaboration tools and intelligent trust and in creative mechanisms needed.

R&D ORGANISATIONS*Current (since 2000)*

- Tools needed to promote conversion of inventions) into products.
- We don't capitalise the ideas in the R&D projects enough (such as FP7 results)
- Increasing number of start-ups created by students, old PHDs based on their research results in health, food and safety areas in new EU member countries

Short term (next two years)

- R&D organisations will develop goals/objectives based on understanding the needs of the society
- Skills in developing efficient teams of and with users / alerting service providers with user needs.
- R&D organisations will have to change their approach, working to solve real problems,
- Increasing focus on mapping future trends. (and preparing 'genuinely new' solutions)

Medium Term (next five years)

- Students in science and engineering are taught casual reasoning rather than effectual reasoning and how to be creative.
- Need for more education in creativity and ideation and design – too little experimentation.
- More flexible system to recruit specialist staff. For example – Technologies are transferred together with the personnel required to implement and optimise.
- To be specialised in some areas attracting international teams.

Long Term (next ten years): **“Ultimate Goals”**

- R&D organisations finally benefit from coordinated actions by universities and government
- European R&D infrastructure is governed by simple, transparent rules and common goals (UV)

BUSINESS SUPPORT AGENCIES

Current (since 2000)

- Helping start-ups to find their first clients.
- Helping established companies to improve product and service delivery

Short term (next two years)

- Need for management tools for network economy (to handle complex business models)
- With some public budget public funding agencies will have to focus on supporting winners instead of picking the winners ie give money to every enterprises without prechecking their real potential.
- New ideas for co-operation

Medium term (next five years)

- More co-operation amongst business support agencies is needed to put up with the rapidly changing environment
- Provide not only link between enterprises and research activity but also trained people on specialised training to interact the technology into the enterprises.
- Provide capacity building to SMEs on different issues (empower entrepreneurs) rather than services.

Long term (next 10 years): **“Ultimate Goals”**

- Web based tools of sufficient quality to substitute any kind of intermediary activity
- No need for institutional business support agencies. They disappear due to easy access to relevant knowledge via internet and social/business networks

Task 5.3 : Main Areas of Application

HUMAN RESOURCES

Current (since 2000)

- Training and personnel – policy is generic and too network orientated
- Distributed services of workers
- Understanding culture differences. Training.
- The same countries there is a large unemployment of university degree young people because of the mismatch of enterprise skill requirements and university programmes.
- Training needs for network business models

Short term (next two years)

- Efficient training – tailored to their needs, including individual coaching/mentoring on business development and improvement.
- Employees will travel more because of the trend of internationalisation. Therefore they want to have more time to stay at home when they are in their own countries. So, working at home can be a requirement.
- More use of part time specialised professionals who will work for more enterprises.
- Authentic leadership is necessary to meet the high demands of employees. This means less control, less management, more trust.

Medium term (next five years)

- Blended learning including web 2.0 for employees to allow flexible training/compliance development in social/business networks
- Real colleagues working in different places all over the world
- Total individualisation of learning and uniforming of learning progress becomes reality.
- There will be a lack of leaders. Young generations at least neu, seem not to create positive leaders with strong problem solving attitude.

Long term (next ten years)

- People should change their involvement in public sector into private one. More input on self employed.
- Towards happy employees and well and high motivated staff.
- Assistance in the fight for labour force /models to keep and attract skilled people (striking because of demography)

Ultimate vision

- No slaves for working into a firm 2050
- Education has to be team orientated and less competitive

TECHNOLOGY EXPLOITATION

Current (since 2000)

- Companies require more design services to improve their products.

Short term (next two years)

- Guidance on most efficient ways of exploiting intellectual property, matching specific needs of each organisation. Integrate intellectual property exploitation in the strategic plays of each organisation – full protection of intellectual property as an investment plan.
- More development on – housing – recycling – better use of energy, better use of resources
- EU framework programme projects need skills to exploit results commercially.
- SMEs in most regions will need to absorb knowledge created elsewhere. How to transfer knowledge from region A to region B for co-application in existing traditional sectors

Medium Term (next five years)

- Open source software becomes the norm/ overall decline in use of traditional form of IP
- (aging population = increased immobility) + transport congestion = need for medical solution delivered to homes directly.
- Combining technology from all over the world, also for SMEs
- We need more demonstration scheme allowing SMEs to show that their product/process/solution are working in real condition.
- Exploitation should be a horizontal action managed by specialists, and projects have to be obliged to be supported.

Long term (next ten years)

- Technical universities should be capable to teach how to start new business which meet the need of more flexible enterprises.

Ultimate vision

- Internet security + risks reduce functionality and openness
- Women equally represented in leading positions

BUSINESS IMPROVEMENT

Short term (next two years)

- Growth in Chinese and Indian middle class efficiency creates new demand

Medium term (next five years)

- Multi-Culturalisation creates need for products reflecting diverse values and lifestyles
- R&D organisations responsible for fundamental research and possible stage exploitation. Training to combine research and entrepreneurship

Long term (next ten years)

- Shift of business support services from general information to customised monitoring
- Networking and training
- New enterprises should be able to be more prompt to change products and services due to change in the demand.

ENVIRONMENT AND REGULATION

Short term (next two years)

- Government disincentive become outright bans (road transport, smoking etc)
- Support to access new markets at international level – efficient networking that produces results
- In china, people want to buy more cars, to live in big houses, etc, which can be a serious problem for the protection of environment. The making of regulations cannot catch the speed of environmental pollution
- Enterprises need to work at function of different technology to develop unique products

Medium term (next five years)

- Decline in traditional IP necessities the development of new models and tools to protect business
- Environmental issues will require strong investments (water, waste, nuclear fusion)
- Decline in demand for aspirational products and increase in demand for solution to basic necessities

Long term (next ten years)

- Customers who are time rich and cash poor
- Regulation should be made without the pressure of oil company – transport and housing should be developed taking into account other renewable energy sources
- Regulations for – building insulation – percentage of energy from renewable sources energy saved

Ultimate vision

- The harmony of people and nature with complete governmental loans on regulative and people's high moral standard
- Environmental rules have to be supported by incentives.

Task 5.4: Analysis of Demand Side Drivers

One of the criticisms levelled at public funded projects is that they focus too much on the views of the intermediary (supply side) rather than the ultimate target group. It is important that "Take it Up" is not seen in this light. Demand side influences fall into two categories (a) those which are the result of external or global drivers of change and (b) those which represent the end users of innovation tools, including the companies, clusters and R&D organisations.

(a) Global Drivers

Population and Social Change: Attention was drawn to the changing population patterns in Europe, particularly the increasing age profile, the migration from poorer to richer countries, high rates of unemployment everywhere and the breakup of traditional family structures. It was felt that this created a new framework for economic development in Europe requiring additional innovation strategies. For example EU business must now cater for the domestic needs of old people, worklessness and single person households. As a result there are growing demands for products geared towards the healthcare, finance, leisure and entertainment industries. **Globalisation** brings additional pressures, not just because of population explosion and poverty - but because of the demands created by the rapidly expanding middle class in some of those developing countries (such as China and India).

Shortage of skills is another big driver. Europe needs a steady supply of highly skilled people to fill the jobs that will move its industry up the value chain and enable it to compete in the coming decades. A shortage of people with technology skills causes a slow-down of innovation capability. Some of these skills will inevitably come from Eastern Europe and the Far East. There is also a widening gap between IT producers and users in a society in which most people are taught how to use computers but very few understand how to critically influence and produce the tools and apps that make them work. Changing social patterns, single person households and the trend towards home working (partly because of high transport costs) are all factors which were considered likely to influence the environment for innovation.

Research and Development: In terms of scientific R&D it was noted that public funds were decreasing all over Europe and that the pressure to focus research directly on market needs will intensify. Regulation will dictate that environment and energy saving will be prioritised in EU budgets and that innovation in these areas will be welcomed. Products and services need to be greener, lighter and more resource efficient. The industrial use of carbon nano-materials and bio-based products will increase dramatically and people will become more and more interested in shared transport solutions, energy efficiency and well-being (social innovation). The discussion of trends relating to the **Economy and trade** made much reference to the current political situation in southern Europe and the financial crisis linked to the Euro. Fears related to the current political instability and war in the Middle East were emphasised although the implications for innovation and business support are not well understood.

(b) End User Drivers

Innovation needs are summarised below in relation to four main categories of user groups

Small and medium enterprises: SMEs will need innovation tools to find new customers in previously unexplored sectors and foreign markets. Priorities will be to obtain better contacts with potential partners and improved methods to access technology and finance. SMEs need to work more efficiently with universities and there is an increasing need for a 'one stop shop for ready to use R&D solutions. Flexible working practices and effective B2B networking will be essential.

Clusters and sectors: Companies will come together in groups to optimise production, innovation and management resources. Cluster collaboration will be emphasised as a means of becoming more specialised in the face of competition from low wage countries and multinationals. This will be enhanced through greater skills in IP management, outsourcing basic production functions and developing dynamic information systems. Action is needed to provide leadership tools for group company actions.

R&D Organisations: The EU is failing to capitalise on research programmes and better tools are needed to promote conversion of inventions into products. In future RTOs must develop practical goals based on industry needs. Opportunities exist to provide Enterprise training for researchers and support for start-ups and spin-outs. An increasing priority for science and engineering departments will be to develop softer skills like foresight, creativity and design and to increase teamwork and personnel exchange.

Business Support Agencies: Greater functional cooperation between agencies will improve professionalism and permit specialist training of intermediaries. There is also a need for better management tools to handle complex business models and assist in long term capacity building rather than one-off service provision. Ultimately the goal may be to produce web based tools of sufficient quality that they substitute for conventional business support.

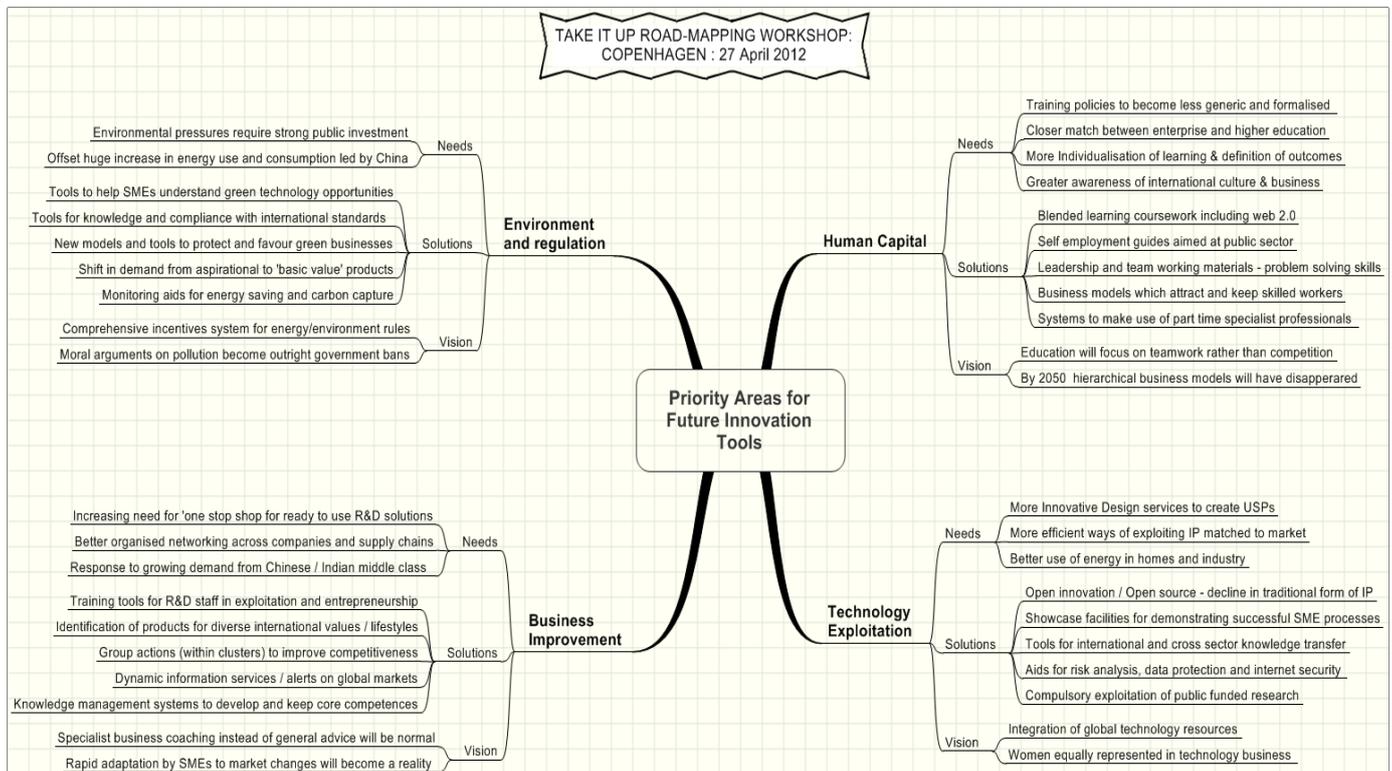
(c) "FISH TANK" – Unclassifiable Ideas (off the wall)

The following comments were posted by workshop participants on the fish-tank chart. This caters for ideas which cannot easily be classified but nevertheless are quite original and worth recording.

- Support Agencies must understand that real help is not provided by "tools" but by a listening person that can be trusted.
- Economic crisis forces people into lifestyle changes & new consumption patterns
- There is not enough room in the knowledge economy for all our young people
- The target of innovation should be creativity, happiness and fulfilment NOT MONEY
- Employees are the SMEs treasure and should be treated as such
- Transition from 'more money the better' to 'more free time the better'
- Developed countries should measure success in terms of HDL (Healthy Domestic Life) instead of GDP (Gross Domestic Product).
- Development of systems to use all the energy dissipated in vehicles – both when stopping and cooling down eg, a radiator to cool down the exhaust gas and engine instead of using it.
- GLOBALISATION means ...
 - = equality of people and conditions for all people in the world
 - = lower salaries and harder work for people in the EU
 - = less public sector funding and help

[6] PRIORITY AREAS FOR FUTURE ACTION

The illustration shown below is useful summary of the workshop discussion about what type of tools will be needed in the future and in which application areas. The large ‘landscape’ chart contained nearly 300 separate ideas posted by 30 participants and it is difficult to justice to the full content. Nevertheless, the mind-map format is a good visual method for grouping these ideas into a useful analytical framework.



6.1 Human Capital

This was the area in which most ideas for the future were proposed. The general feeling was that current training policies were too rigid to be useful in the innovation context. There should be more flexibility and attention to the specific needs of both individuals and teams. In addition innovation training should be cross cutting - linking industry with education and providing better knowledge of international as well as EU business. Future innovation tools should include blended learning course materials (accessible on-line), self employment guides to help former public sector workers to find work and coaching materials to develop leadership and problem solving skills. As far as companies are concerned, they will need tools for recruitment and retention of skilled workers and ‘shared’ systems to employ specialists on a part time and economical basis. Opinions on the long term vision for HR management included the expectation that innovation tools will focus on teamwork rather than competitive skills. One rather controversial opinion was that hierarchical business models will disappear by 2050.

6.2 Technology Exploitation

EU competitiveness will increasingly depend on technology and innovative design services to create the USPs for future products and processes. Matched to this we need to focus R&D and IP resources on areas of greatest market need and also to conserve natural resources (energy and environment). Much is talked about open innovation but there are precious few tools around to help with

implementation. These are especially necessary at a time when the difficulties of protecting IP in the traditional way are becoming obvious. Internet based tools to assist technology transfer across international boundaries and between different sectors were emphasised but the security risks of internet work do cause concern. Methodologies for showcasing successful SME processes and transferring good practice were also considered a fruitful area for tools development. There was also a feeling that too much tax-payers money was being spent on R&D that never reached the market. Indeed one suggestion was that exploitation of research should be compulsory. In any case researchers should receive structured commercial training. The long term vision was for a world in which global technology resources will be fully integrated and that women will be equally represented with men in the technology domain.

6.3 Business Improvement

Ideas regarding tools for business improvement were fewer in number than in other application areas. However the call for better organised networking across companies and supply chains was emphasised together with the need to respond to global market demands – particularly because of increased disposable income among consumers in China and India. The latter should result in improved systems of alerts and techniques for identifying products suitable for diverse cultures and lifestyles. Tools to enable group actions by clusters to improve competitiveness will also be important.

As mentioned earlier, organisations do require tools for their R&D staff to get a better understanding of enterprise and exploitation processes. All businesses will become more and more dependent on knowledge management systems. In terms of the long term vision, we look forward to a time when European SMEs automatically and rapidly adapt to market changes. To enable this to happen what is required now is specialist business coaching not generalist advice.

6.4 Environment and Regulation

Environment was the fourth main application area for tools development. This is made more a priority because of the huge increase in energy use and consumption in developing countries led by China. Significant public expenditure is expected in this area which makes it an attractive topic for innovation tools development. Such tools would be designed not only to help SMEs understand green technology opportunities but also implement new capacity and processes for manufacturing green products.

There will be a corresponding shift, on the demand side, from aspirational to 'basic value' products. Regulation will become a major driver and this, in turn, will generate the demand for monitoring aids to control energy consumption and measure carbon capture. The process of regulation is expected to begin with a comprehensive incentives system for energy and environmental conformance. Ultimately the vision is that moral arguments against pollution will be replaced by outright government bans.

[7] SINGLE ISSUE ANALYSIS

Single Issue Group 1: Tools for new Business Models – Christian Saublans

Challenges	Trends	Tools / Actions	VISION
<p>The customer has the ultimate power (how do we harness it)</p> <p><i>“Hype methods” ?</i></p>	<ul style="list-style-type: none"> • Users increasingly drive the innovation process • Users become embedded in the innovation process • Customer demand must be the main focus • B2B & B2C collaboration 	<ul style="list-style-type: none"> • Tools for ‘co-creation • Open Innovation is a ‘must’ training/tools needed! • Co-creation models for different sectors & clusters • Create user groups to define needs and solutions 	<p>[1] <u>MASS CUSTOMISATION</u></p> <p>Individualisation of products and services becomes a reality</p>
<p>Knowledge management tools are not effective (they have not kept pace with technology)</p>	<ul style="list-style-type: none"> • Semantic web will lever more focused/efficient search for knowledge • Techno-collaboration will become a commodity, enabling more and better crowd sourcing 	<ul style="list-style-type: none"> • R&D based on user needs will require new Knowledge Mgt tools Involving users during development phase • Integration of the supply channels will occur at the global level 	<p>[2] <u>B2B NETWORKS</u></p> <p>Business development based on structured cluster models with common goals but separate management of small business units</p>
<p>Modern SMEs need more ‘inspiring’ tools for future business modelling</p>	<ul style="list-style-type: none"> • Creativity and ideation will become more and more systemised • More collaboration between SMEs and consumers 	<ul style="list-style-type: none"> • Models, models, models get outdated fast ... • Proof of concept tools for SMEs to test product usefulness & acceptance 	<p>[3] <u>VALUE GENERATION</u></p> <p>will be directed towards social welfare Adding to community (new concept of profit)</p>
<p>There is a need for entrepreneurs ‘with a purpose’ instead of employers</p>	<ul style="list-style-type: none"> • Technology & media convergence will open up /induce new markets 	<ul style="list-style-type: none"> • Social media dominates how people communicate and share information, experiences and ideas 	<p><i>Proximology = (the welfare needs of the local population)</i></p> <p>No OPEX - No CAPEX</p> 

Single Issue Group 2: How to Improve Policy – Maria Augusta Mancini

Challenges	Initial Actions	Tools	Resulting Policy
<p>To improve the quality of research into innovation needs</p>	<ul style="list-style-type: none"> • Commission studies and reports • Consultation with innovation ‘users 	<ul style="list-style-type: none"> • Tools to link R&D Centres & Enterprises • Consultation and event management tools 	<ol style="list-style-type: none"> 1. <u>EFFECTIVE</u> (focus on impact) 2. <u>LEAN</u> 3. <u>EMPOWERING</u> (capacity)
<p>To enable effective communication with all stakeholders</p>	<ul style="list-style-type: none"> • Compose a clear message • Keep it simple • Target a broad public audience 	<ul style="list-style-type: none"> • Mix of conventional and electronic training materials for widespread “take-up” of improved innovation tools 	<ol style="list-style-type: none"> 4. <u>RESILIENT</u> 5. <u>SUSTAINABLE</u> 6. <u>BALANCED</u> (combination of resources and legislation)
<p>To increase influence with policy makers</p>	<ul style="list-style-type: none"> • Encourage dialogue between different policy departments • Integrate efforts at national and EU level 	<ul style="list-style-type: none"> • Web tools for remote learning and debate which reflect 21st century organisational models 	<ol style="list-style-type: none"> 7. <u>LONG TERM</u> (not politically manipulated) 8. <u>PARTICIPATIVE</u> (bottom up) 8. <u>EXPERIENCED</u>
<p>Emphasis on results (economic and social)</p>	<ul style="list-style-type: none"> • Focus clearly on impact 	<ul style="list-style-type: none"> • Effective international benchmarking systems • Feedback benefits/ROI 	

Single Issue Group 3: Promoting Tools Effectively - Gosse Hiemstra

Objectives	Actions	Tools	VISION
To overcome the barriers to acceptance of innovation tools	<ul style="list-style-type: none"> Analyse awareness and market acceptance Address lower levels of understanding in new EU member states Assess levels of trust 	<ul style="list-style-type: none"> Materials for training the trainers to increase acceptance of tools Demonstrators to build trust in quality and impact 	
To develop skills in the use of existing tools	<ul style="list-style-type: none"> Generalised training on tools utilisation Address different goals of innovation process internationally 	<ul style="list-style-type: none"> Workshops for training SME staff on specific tools Customise generic tools to immediate company needs eg, export opportunities 	1) A committed and skilled user base of innovative companies
To adapt tools for the needs of various target groups	<ul style="list-style-type: none"> Assess market and social needs (fit for purpose) Investigate options for localisation of tools and adapting to culture 	<ul style="list-style-type: none"> Adapt tools to specific problems of the client Check that revised tools worked well (iterative) Create generic tools for clusters & groups of SMEs 	2) A new generation of flexible, effective innovation tools
To focus strongly on the market and social benefits	<ul style="list-style-type: none"> Prepare 'open' atmosphere for tools Use networks to promote examples of successful application 	<ul style="list-style-type: none"> promote only tools that have demonstrated impact introduce payment on the basis of market results 	

Single Issue Group 4: Tools for Internationalisation - Jasper Hemmes

Challenges	Trends	Tools / Actions	VISION
To foster Global cooperation in ... [1] CULTURE	<ul style="list-style-type: none"> Prioritised exchange of people – students and staff Harmonisation of education programmes 	<ul style="list-style-type: none"> Training materials for understanding cross cultural differences Tools for integrating education standards and accreditation 	Genuine collaboration across all key sectors and enabling technologies (BIO/IT)
[2] R&D	<ul style="list-style-type: none"> Widespread introduction of 'soft landing' schemes International Missions Selling of Intellectual Property (OSEO Model) 	<ul style="list-style-type: none"> Global Horizons 2020 – visioning exercise for future R&D priorities International investment programme in research 	Big International research centre(s) with country satellites
[3] TRADE	<ul style="list-style-type: none"> Promotion of English as the language of business (public duty) Increasing number of 'Meet the buyers' events / reverse fairs 	<ul style="list-style-type: none"> Focus on sustainable WTO products (World Trade Organisation) 	25% participation in International Trade among enterprises
ACTION PLANNING	<i>Need for Specialist Intermediaries to organise this all!</i>		

[8] FINAL REMARKS

The workshop was very successful, in that a full roadmap was populated with interesting and relevant issues relating to expected future developments that will shape the nature of innovation tools. Priorities were identified relating both to the Users of Tools and the principal Action Areas within which they will be most successfully employed.

Following the landscape session, participants split into four groups to focus on specific issues which were considered to be of particular importance (see section 7). All the groups produced excellent maps but the one on “Tools for the new Business Models” was exceptionally rich and contained many original ideas.

It is impossible to do full justice to the wealth of ideas discussed in the ‘Take-it-Up’ workshop in Copenhagen. However, road-mapping format allowed participants to all have a voice during the various sessions and the feedback suggests that this format was both interesting and useful for all who took part. Hopefully, a good number of the suggestions made will be embraced and turned into useful project outputs.

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