

Europe INNOVA Thematic Workshop
"Lead Markets and Innovation"
June 29th and 30th, 2006, Munich, Germany

Executive Summary

The first Europe INNOVA Thematic Workshop explored the concept of lead markets, as proposed by the Aho Report. The workshop brought together Europe INNOVA partners with other key stakeholders and experts in the field and discussed the requirements for creating new market opportunities in Europe based on leading edge technologies.

The discussions during the two days of the workshop produced a number of ideas and policy recommendations that could be exploited by the Europe INNOVA partners, and the European Commission, for policy formulation. During the two parallel workshop sessions, discussions took place on how to define and further develop the concept of lead markets in the specific fields of Space and Eco-innovation. These two areas were selected because of the radical scaling up of technological and market importance that they have experienced.

A. Towards a better understanding of the “lead markets”

Lead markets are defined as new or emerging markets characterised by wide adoption of state-of-the-art technologies and introduction of globally leading innovations; they lead the international diffusion of an innovation and set the global standards. Lead-markets are usually regional markets (most often countries) that utilise a certain innovation design earlier than other countries and which have specific properties (lead market factors) that increase the probability that other countries will adopt the same innovation design. Lead markets are usually characterised by high per-capita income, demanding and innovative consumers, high quality standards, and flexible, innovation-friendly framework conditions for producers and users.

Firms, governments and the favourable (or not) environment for the application of the specific innovations are the main aspects influencing the potential development of a lead market. **Lead Markets cannot be "made" or created**, but their creation and development significantly depends on their national or local settings, which in turn need to be designed (and implemented) in order to support innovation and market needs.

There was much scepticism about the term 'lead markets' among workshop participants. The example of the Concorde technology (leading technology – extremely small market with small profit margins) highlights that past attempts to lead a market have proved disastrous. A state of the art technology cannot on its own establish a dominant global market; there are also the issues of economics and profit. A leading technology will never establish a lead market if it does not promise financial success. The term **"innovation friendly markets"**, was proposed as an alternative.

B. Lead Markets in Strategic Areas

Companies are the drivers of the lead market concept and those that promote and "implement" it. The development of lead markets is based on the **capacity of companies to internationalise their market activities**. But are there real chances for Europe to create new jobs and market opportunities building on leading edge technologies? According to the workshop participants, areas such as eHealth, Pharmaceuticals, Energy, Environment, Security, Electronic Entertainment & Content and Transport and Logistics appear to be promising for Europe. Nevertheless, three important factors regarding the technology should be taken into account: the creation of high added value, the broad range of applications and the estimation of high profits and market share.

In the cases of both the Space sector and Eco-innovation it seems that technologies are developed within structures and cultures focused around scientific or technological objectives and lack of information about consumer behaviour.

Therefore, it is critical to develop ideas on how we can turn traditionally '*science push*' oriented support policies towards '*need pull*' policies.

While foreseeing the development of future markets for space-related technologies is difficult, this is not the case for eco-innovation. The limited and reduced world resources are a fact and as a result markets for eco-innovation are gaining importance. However, it seems that past experience does not provide much information for future estimations.

Despite the differences among the various sectors and fields it was widely accepted by participants that the support of the creation and development of lead markets needs strong political commitment at European and Member State level, and a common representation of interests on a global scale (e.g. with respect to regulation, environmental targets and agreements). This applies even to very time-consuming fields such as Galileo. If it is to become a dominant technology for future world navigation markets, this will require *strong political commitment* and regulatory support from Europe and its Member States.

C. From practical experience to policy recommendations¹

The following key points could be mentioned:

1. A successful innovation policy in the field calls for very high expenditure of R&D. It also requires improved **coordination among public authorities**. Although governments have only limited means for fostering market innovation,

¹ According to the 'Aho' report, 'many elements for encouraging the development of lead markets are already in place, including relatively high incomes and a willingness to purchase higher quality goods. However, this is not enough - further steps need to be taken to':

- Provide harmonised regulatory environment across the EU favourable to innovation and based on early anticipation of needs;
- Use standards-setting powers to demand high technical performance levels and reach agreement on new standards quickly and efficiently;
- Use public procurement to drive demand for innovative goods, while at the same time improving the level of public services; and
- Foster a cultural shift which celebrates innovation, and a desire to possess innovative goods and experience innovative services, such that Europe develops as a natural home for innovators.

they significantly influence demand for advanced goods and services by shaping the business environment.

2. The **role of the public sector** is very specific - to satisfy the needs of the public. Procurement must ensure that goods and services are adapted to the obligations of the public sector towards society. In addition, purchasing must be professional, unaffected by politics and according to strict criteria. The risk of adopting leading technologies is large and potential failure would directly reflect in the lives of citizens.
3. More **proactive public procurement** is required (for goods that do not yet exist) through new EU directives that create opportunities, complementary actions and structure demand (in two ways; Aggregation or unbundling and training professionals to be intelligent customers) and strict criteria for the most economically advantageous outcomes in tender selection. In addition, it is important to keep the rules of participation easy to understand for SMEs.
4. Opportunities need to be opened up more for innovative SMEs and **human resources** need to be channelled towards the new knowledge. Norms, regulations and a wider understanding of the lead market concept should update customers and providers to become “intelligent” actors, who will be aware of potential new solutions, and will further support the evolution of the lead market by providing new opportunities to drive innovation for both public procurement and private investment.
5. **Regulation does matter.** If Member States would speed up adoption of regulations related to the application of new technologies, this would shorten the time to market. The creation of dominant markets for leading technologies is linked more to decisions about content, collaboration and regulation than to provision of subsidies. A harmonised regulatory environment serves and anticipates needs. The regulatory framework should be built such that when a new product is introduced, regulation ‘clears the way’, and assists in creating new market places. Diffusion of environmental policies and regulations, for example, is one of the main factors for success in becoming a strong local market - a Lead Market for the eco-industry.

6. The idea of **financing “ambitious” projects** in leading technologies in strategic areas like eHealth, Pharmaceuticals, Energy, Environment, Security, Electronic Entertainment & Content and Transport & Logistics, has been supported. However, mobilisation of equity financing, such as Venture Capital, seems extremely weak.
7. A more concrete **standardisation policy** is needed. However, there are two things that need to be taken into consideration. Firstly, in Europe standards are not obligatory as they are not set by State Governments. Secondly, standards are usually developed by private companies and their broad acceptance is related to the power of the company imposing them. These “voluntary” standards (those imposed by companies) could be generally acceptable as a practice but they will not assure market creation.
8. A strong **IPR System** which protects “European interests” should be developed. In both the space industry and eco-innovation, IPR issues are difficult and complicated.
9. A critical mass of private initiatives occurs when the lead market is developed and established. Therefore, public **financial support** plays an important role during the diffusion phase of a leading technology.
10. Finally, **cluster policies** are particularly suitable instruments for developing lead markets in a holistic and interactive way.

Reports of the Parallel Sessions

A. Parallel session on Space

Participants

Knut Blind	Florence Ghiron
Pierre Brisson (Chairman)	Raimondo de Laurentiis
Kimmo Halme (rapporteur)	Wolfgang Herpolsheimer
Oliver Hermann	Helmut Blomenhofer
Thomas Heinemeier	Marc Jochemich
Dick Kwist	Stefano Scarda
Sascha Haselmayer	George Stroglyopoulos
Hannes Leo	Jürgen Vogel

1. Towards a better understanding of the “Lead Markets”

Space sector and the space-related technologies are developed within structures and cultures highly focused around the scientific objectives. This culture of operation is not, by definition, oriented towards commercial applications and market development. The overriding question is how can we turn the traditionally *‘science push’* oriented space sector policies more towards *‘need pull’* policies?

A concern was raised in this context as to what would happen if European space-related industries and markets do not grow sufficiently fast to commercially exploit the available technologies? Will American companies eventually develop successful applications based on European space architectures? It is crucial that European SMEs are linked as early as possible with the development of new lead markets.

Creating lead markets from the space sector was considered to be possible, but challenging and time-consuming. If for example Galileo was to become a dominant technology for future world navigation markets, this would require *strong political commitment* and regulatory support from Europe and its member states, which would probably take a decade.

2. Lead markets in strategic areas

The most promising potential lead markets in the field of European space technologies were considered to be:

1. Galileo and its relevant navigation applications. Among the different fields, this was considered as the most promising one.
2. Telecommunication applications through space. Within this field, European companies are in leading positions and to a large extent, the market is already operational.
3. Earth observation and remote sensing with its various applications within environmental observations, for example.
4. Space launchers.

During the session, much of the discussion concerning potential lead markets within the European space sector focused on the potential of Galileo, although other markets were considered. Although Galileo has many advantages and great potential, these are not always well communicated, and this probably applies to other space programmes. More attention should be paid to how Galileo can be sold to a wider audience and what are its benefits over other existing systems.

With relation to the foregoing, there are many risks and uncertainties. *Foreseeing* the development of *future markets for space-related technologies is difficult* as in future markets different things will be important. A question was raised about what have we learned from experience in past lead markets - what do we need to do differently to ensure market success, for example, what would be done if Concorde were being developed today?

It was emphasised that technologies developed and tested for space should be seen not only as a source of space technology, but as a source of new technologies that can be applied in other, non-space, sectors.

3. From practical experience to policy recommendations

Within the space industry, there are challenges related to *IPR protection* and to the lack of available *venture capital*. IPR issues are very complicated in space, and business and venture capitalist do not find the market lucrative.

In parallel, it will be necessary for new *services to be developed* and *user needs* to be addressed. Access to space-related services should be made easier, particularly for small companies.

Cluster policies were considered particularly suitable instruments for developing lead markets in a holistic and interactive way.

Regulation does matter in the application of space technologies. If member states would speed up adoption of regulations for the application of new technologies, this would shorten the time to market for products generated from space technologies.

The creation of dominant markets for leading technologies is more firmly *linked* to decisions on the *content, collaboration and regulation* than to provision of subsidies.

It was also emphasised that particularly in space industries, which require significant investments and typically have small national markets, no single country can operate as a lead market for any sustained period. To a great extent, the market development of European space sector has to be *addressed at the European level*.

From the point of view of SMEs, it is important to keep the rules for participation in space programmes easy and clear. Specific and flexible tools were requested. Overall, the European space programmes would benefit from increased private funding. This would require *closer involvement of industry from the outset*.

It was noted that the industrial structure of the European space sector is skewed. There are currently only a handful of large companies, which dominate, many small companies (but fewer medium-sized ones) in addition to service providers and research centres and universities. The industry fabric within the space sector is narrow. There is a need for a *European level organisation* to transfer technologies, to share business opportunities and to develop European space markets.

B. Parallel session on Eco-Innovation

Participants

Stephan Corvers	Paolo Masoni
Per Errikson	Pawel Poneta
Sebastian Gallehr (chairman)	Bernhard Puttinger
Iñaki Gorriño	Rolf Reiner (rapporteur)
Friedrich Hinterberger	Friedrich Schmidt-Bleek
Daniela Kletzan	Astrid Severin
Kari Luoma	Wolfgang Sofka
Klaus Menrad	Andrea Tilche
Anna Moreno	

1. Definition of eco-innovation

In order to facilitate a common understanding on eco-innovation, the following definitions were used during the session. Eco-innovation cannot be categorised within a specific sector; it addresses a variety of different markets and customers (businesses as well as consumers).

Eco-innovation is the creation of novel and competitively priced goods, processes, systems, services, and procedures designed to satisfy human needs and provide a better quality of life for all, with a life-cycle minimal use of natural resources (materials including energy, and surface area) per unit output, and a minimal release of toxic substances.

“Eco-industry” includes businesses across all sectors that are pro-actively and demonstrably involved in eco-innovation, including novel solutions to satisfy legally set standards, norms and requirements.

2. General remarks

Before entering into the Lead Market discussions, some (individual) statements were recorded:

- ▲ In general, prices of resources are too low compared to labour costs, yielding "market irregularities", which might be corrected by adjusting these prices (e.g. based on internalisation of external costs).
- ▲ As there is no single industry sector called the "eco-industry", answers have to be found that apply across several sectors.
- ▲ The process of eco-innovation should be redesigned to focus on market needs (rather than technology push).
- ▲ Recommendations clearly should address the appropriate level of policy implementation (local, national, European).
- ▲ In general, it is agreed that Lead Markets cannot be "made" or created, and their existence depends greatly on national or local "settings", which themselves must be designed (and implemented) through innovation and market policies.
- ▲ The growing importance and volume of markets for eco-innovation is well known; we are aware of which resources are limited and which markets will require eco-innovative products and services.

3. Towards a better understanding of Lead Markets

Eco-innovation takes place in different sectors and products of the eco-innovation industries, accounts for about one-third of the global market and employs over 2 million people in the EU. Due to limited (natural) resources such as energy, water and the urgent need to reduce pollution, innovation and the acceptance of improved products will continue to be in demand. Therefore, there must be readiness for innovation in sectors contributing to the eco-industry. Conditions favouring early market launch of eco-efficient products and services should yield competitive advantage for the companies serving this market. If this competitive advantage can be turned into business opportunities (export, new market segments etc.) then a Lead Market is formed.

In general, consumer behaviour (often caused by lack of information on eco-efficient products and services) is seen as one of the main barriers. Energy technologies, one of

the most important fields for eco-innovation, often belong to strong value chains, each link of which must be convinced before products, processes or services can be replaced.

Support for the creation and development of lead markets in the eco-industries needs strong political commitment at European and Member State levels, and common representation of interests on a global scale (e.g. with respect to regulations, environmental targets and agreements). Diffusion of environmental policies and regulations will be one of the factors crucial to the successful formation of a Lead Market for the eco-industry.

4. Lead markets in strategic areas




Due to the broad definition of eco-industry, a research or technology push approach is not recommended; basic customer needs (living / housing, mobility, health) should be addressed and balanced against eco-innovation requirements (minimal use of resources and toxic emissions over the complete life cycle of products and services), to identify strategic areas.

Energy technologies will be important to achieve energy efficiency / conservation, and to contribute to construction and transport / mobility.

Eco-innovation is seen as being different from other kinds of innovation, because environmental goals and targets are often accompanied by strict regulation which may vary from one region to another.



5. From practical experience to policy recommendations

Set ambitious targets to create investment security, but:

-  Open to competing technological solutions
-  Limited to a well defined period
-  Mandatory and obligatory.





The Top Runner Program in Japan is an example of an efficient instrument fostering innovation².

Encourage an integrated approach

-  Strong governance on local, national and European levels
-  Harmonisation of subsidy programmes after a protected period allowing diverse approaches.







During early stages of market penetration, Europe may make use of different approaches (subsidy programmes, regulations, tax incentives, REFITs, etc.) in order to allow the establishment of competing markets. These kinds of activities should be time limited and followed by a joint strategy (making use of the best model), allowing European diversity to be exploited as competitive advantage on a global scale.

Improve information diffusion (and education) to

-  Customers (start in schools)
-  Politicians and NGOs
-  Producers and service providers
-  Industry and crafts.




This information policy should be designed as a co-ordinated approach directed to all target groups relevant for a specific new technology, process or service.

Policy instruments strengthening eco-innovation:

-  Regulations (to provide (legal) security for consumers and companies)
-  (International) technical standards (diffusion along the value chain)
-  (Collect and make available to companies information, through Energy efficiency agencies for example
-  Fiscal incentives
-  Green public procurement
-  Labelling (Blauer Engel, organic food, etc.) => European Eco-Label

² for details see http://www.eccj.or.jp/top_runner/index.html



-  Lowering the barriers: provide ready to take solutions for SMEs
-  Subsidies / grants (available for limited periods)
-  Consulting programmes