

**Integrating nanotechnology research efforts in
the European Research Area**

Intervention by Commissioner Philippe Busquin

at the media briefing on

"Nanotechnology: From Vision to Industrial Revolution?"

14 June 2002 - MINATEC, Grenoble

I should first of all like to reply to the words of welcome of Mr Colombani, to thank him for the hospitality and for organising this press conference in Grenoble. The MINATEC project, with its joint approach to research, teaching and industrial development, is highly symbolic...

- ***The nanotechnology revolution has started...***

It is already being used for practical applications in such varied industries as electronics, transport, cosmetics, chemicals and packaging. Considerable developments are likely to be made in diverse domains from energy storage to mass consumption products, in medical analyses, in medicines and in robotics.

- ***A multidisciplinary dimension ...***

Nanotechnology is by its very nature multidisciplinary, and today this is reflected in large research teams. This also means enormous investment ... We shall see that here in Grenoble. All these efforts must of course be conducted in parallel, with the promise of major impacts from the industrial, social and economic points of view!

- ***Nanotechnology, a golden opportunity for the creation of networks ...***

A little under fifteen years ago, European research has started a transformation. The Framework Programmes have, bit by bit, changed the mentality of researchers by stimulating their mobility through making them aware of the benefits of trans-border research and the benefits of co-operation with industry. Framework Programmes have also shaped more specific actions, encouraging the "problem solving approach", for example.

Today the special European feature is the existence of multidisciplinary research networks which are continually expanding.

- ***An international dimension ...***

Given the scale of the research effort, nanotechnology research goes beyond normal geographical frontiers. It is today at the centre of unprecedented international cooperation and is stimulating informative discussions and scientific exchanges both within Europe and between Europe, the United States, Asia and other regions.

I am pleased to learn that the fourth working seminar on nanotechnology and nanomanufacturing, between European and American researchers, reached a successful conclusion here yesterday evening. I am also pleased to note the presence among us today of **Mihail Roco**, special adviser to the President of the United States of America in the field of nanotechnologies. I am sure that future Community activities will see a strengthening of links with our partners on the other side of the Atlantic.

- ***Towards a European Research Area***

The characteristics of "nano" research (multi-disciplinarity, international effort and financing) demand that the research is carried out in a structured and integrated manner. For this reason, it fits very well with my political project, the creation of a European Research Area. As you well know, the 6th Framework Programme will be a key element in support of the creation of this research area. I am happy that the Programme was adopted on the third of June.

The Sixth Framework Programme, which covers the period 2002 – 2006, will have at its disposal 17.5 Billion €. It will help to concentrate on the key questions of European research, to re-enforce and structure the scientific and technological basis, to stimulate new approaches and to achieve a better co-ordination at European level.

Nanotechnology has been identified as one of the seven key areas, because it poses extraordinary challenges for industry and for society as a whole.

- ***Nanotechnology in the 6th Framework Programme...***

To avoid a dispersion of effort, the "nano" approach will, for the first time, be substantially concentrated within *priority 3*: "nanotechnologies and nanosciences,, knowledge-based multifunctional materials and new production processes and devices". The objectives are twofold:

- on the one hand, to advance the basic knowledge needed for breakthroughs in science and technology, and
- on the other hand, to promote the application of this knowledge by promoting the development of new materials, a new generation of processes and products as well as the *emergence of new industrial sectors*.

Nanotechnology research will, however, not be limited to priority 3. It will also feature in priority 1 "Genomics and biotechnology for health" and in priority 2 "Information society technologies". This in itself well illustrates the diversity of nanotechnology applications, as well as the political importance which the European Union attaches to it.

- ***€200 million of public funding for nanotechnology at present***

A survey concerning European research networks has identified 86 international networks in nanotechnology. The networks identified bring together on average 21 partners, involving a total of around 2000 organisations. This represents nearly €200 million of public funding each year. If we add private funding to this figure, this gives a grand total of nearly €300 million at European level.

- ***In 2003 between two and three times as much funding as at present***

In general, the new FP will result in between two and three times as much funding for nanotechnology compared with the present situation.

However, it is not just a question of money. What is important is how the money is used: to stimulate and to facilitate integration, and to create networks, are in my view the priority actions.

Allow me to explain:

When we see the quantity of resources required to develop knowledge and applications of nanotechnology, no single organisation or country in Europe has the capacity to do so effectively... To increase the effectiveness of research and avoid duplication, I have therefore proposed two new instruments known as "integrated projects" and "networks of excellence".

- ***The integrated projects..***

... are in response to the need to improve the development and transfer of knowledge aimed at practical use. Integrated projects will make it possible to obtain a critical mass

of resources. They will also make it possible, in a single contract, to combine research, demonstration, technology transfer and training activities. In brief, the projects aim to integrate “research and innovation”. By fostering the co-operation between research and industry, they must also help towards the radical transformation of the processes of production, cleaner, more ecological ...

- ***The networks of excellence...***

... these have the objective of a lasting integration of research actors around joint work-programmes, and the strengthening of the European scientific and technological basis. The European funding will aim at an optimum efficiency of this integration, by combining it with activities as the spreading of excellence and the training and exchange of researchers. In the framework of nanotechnology, these networks should lead to a clear strengthening of the European capacity for research and innovation.

- ***And now ? The preparation of the next calls for research proposals***

A call for expressions of interest, devoted to the integrated projects and networks of excellence, closed on June 7, 2002. Its objective was to encourage dialogue within the scientific community and help to prepare the work programmes on which the next calls will be based. The first calls for research proposals will be launched before the end of this year.

- ***Let us return to the main theme of this press briefing ...***

The challenges of which I have spoken will now be presented to you by members of the scientific community:

- first of all, with **Professor Gourdon**, on aspects relating to nanosciences and the development of knowledge;
- then, with **Professor Kern**, on aspects relating to manufacturing and control;
- **Professor Bayot** will explain to us the challenges of nanotechnology for teachers, students, engineers, and society in general;
- finally **Tim Harper** will address the question of innovation and industrial applications, which is generally Europe's weakest link;
- the discussions will be chaired by **Ezio Andreta**, the Director in charge of nanotechnology in the Directorate General for Research.

- ***Two planned visits...***

You will also be able to visit two laboratories this afternoon in order to see the more practical aspects. In particular, visiting TRIXELL will enable you to see how innovation and research are so essential in order to combine growth and sustainable development.

- ***In conclusion ...***

Systems competitiveness and support for sustainable development require new approaches in the research field. This requires:

- an enormous effort to renew basic knowledge in a constantly changing world,
- greater integration of expertise and resources,
- the development of new industrial concepts, and especially,
- better innovation capacities.

In this context, I have also made an appeal to the Heads of State and governments during the Council meeting in Barcelona in March: that the investment in research will be increased from the present level of 1.9% to 3.0% of the European gross product. This is the only way to face the challenge put to us by our international partners, notably the United States. This objective can not be achieved without in the first place an increased effort from the private sector, to complement the public effort.

Also here, the “nano” domain is key.

I hope you share with me the objective to create the most favourable climate for high-level research and effective research.

The presentations that will follow are a good opportunity to become aware of the enormous potentialities offered by the nanoscience and the nanotechnology.

For sure, a nano-meters definitely extremely small, and not easy to visualise. But I hope nevertheless that the presentations will clearly demonstrate the importance of these research actions ...

And without research, no innovation ...

This is a message which is at the centre of this day and which refers to you, as media professionals.... I hope that the information circulated today in your presence at this remarkable research centre will enable there to be a greater awareness of the challenges in question and the importance of new approaches such as those connected with nanotechnology.

I thank you for your attention.

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