



Project no. NMP4-CT-2005-013544

NANO DIALOGUE
Enhancing dialogue on nanotechnologies and nanosciences in society
at the European level

Specific Support Action

Thematic Priority :

NMP - Nanotechnologies and nano-sciences, knowledge based multi-functional materials and new production processes and devices

Final Report

MANAGEMENT REPORT

- see separate excel files

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PROJECT EXECUTION

The nanodialogue project: an integrated approach to communication

Summary

Engaging citizens in dialogue and discussions about emerging science and technologies has been recognized by the European Commission as a fundamental component to create the knowledge economy at the basis of the European Union's Lisbon Agenda. Science centres and museums are the natural choice of venue to begin such activities, since they offer an opportunity for a wider exchange of ideas, providing information that is generally perceived to be reliable and giving different actors a chance to meet and voice their concerns.

In the field of nanotechnology, dialogue on the risks and ethical issues is particularly relevant. In fact, while some nanotech products are already on the market, public awareness of the real economic and social potential of this technology is still low.

In this framework, Fondazione IDIS - Città della Scienza has coordinated the NanoDialogue project (Enhancing dialogue on Nanotechnologies and Nanosciences in society at European level - www.nanodialogue.org), with funding provided by the European Commission, under the Nanotechnologies and Nanoscience program.

The "pillars" of Nanodialogue are a modular exhibition, designed for display in 8 different countries (Belgium, Estonia, France, Germany, Italy, Portugal, Spain, Sweden), a program of events and participatory activities in each location, and a survey of public perceptions and expectations with 800 questionnaires and a multimedia polling station at each location.

The analysis of these components has led to a final conference, held in the seat of the European Parliament in Brussels, in order to present the results of the project to the European Commission and Parliament.

Participants

This proponent consortium is coordinated by the Fondazione IDIS – Città della Scienza, based in Naples, Italy. It comprises a total of 11 organisations of excellence in different fields (scientific research, social participation, science communication) representing a wide European dimension. These elements will ensure that high quality standards are maintained in the communication tools and methodologies, while

contributing to the widespread diffusion of the project's results.

The participant institutions and their team members include: Fondazione Idis - Città della Scienza (Italy); Associazione MQC2 (Italy); University of Westminster - Centre for Study on; Democracy (United Kingdom); Ecsite - the European Network of Science Centres; and Museums (Belgium) ; Centre de Culture Scientifique, Technique et ; Industrielle de Grenoble (France) Flanders Technology International Foundation (Belgium); Deutsches Museum (Germany); Universeum AB (Sweden); Ciência Viva - Agência Nacional para a Cultura; Científica e Tecnológica (Portugal); Ahhaa Science Centre (Estonia) and Fundació Parc Científic de Barcelona (Spain).

Description of the method and work performed

The first step in the project was the establishment of a Scientific Advisory Board, composed of nanoscientists, as well as social scientists, philosophers and experts in communication; in total 26 members from 11 European Countries.

The second step was to have the Scientific Advisory Board and the Steering Committee (with representatives from all the partners) working together in a participatory procedure, namely a scenario workshop, in order to generate guidelines, directions and specific subjects to be included in the exhibition. Two main proposals emerged from the scenario workshop, both representing a “common ground” for all the partners. These two visions were discussed and eventually the Steering Committee agreed on the final design inspired by one of the two proposals.

Key issues that contributed to the choice were the possibility to have, even in a limited space (the exhibition is about 60 sqm), ample room for live programmes and demonstrations, display of real objects and tools, and the flexibility to customise the exhibition with local input from research and industry.

In each Country, the exhibition became a catalyst for further activities, thus encouraging visitors to view the museum not as a display of information, but as an active crossroad of social actors.

Nanodialogue: the exhibition module

A “Preliminary program of the exhibition” was developed and presented to the partners and to the Commission on November 2005 in Brussels, following the results of the Scenario Workshop – held in Naples in July 2005. The enhancement of the project during the following steps, both from the architectural and the graphical points of view, was developed in line with that presentation and implemented by the analysis and conversation that followed between participants to the meeting.

The “Overall Approach”

The main goal of the project was to arise curiosity and stimulate debate on nanotechnologies and nanosciences, both for the general public and for more sophisticated targets. So, the exhibition should be exciting enough to achieve curiosity for science and research in general, and specifically for nanosciences and nanotechnologies. The debate approach - and the Ethical, Legal and Social Aspects (ELSA) involved – suggested to organise the exhibition module as an ancient “agorà”, a public area to meet, discuss and concentrate, an area where visitors could compare their ideas, opinions and points of view.

Different Levels of Messages

The exhibition communicates to visitors at different levels, in order to arise the largest interest. There were 3 levels of messages: the first concerned the three great walls, and it included the appropriate artistic and graphic background with images related to the topic, the titles of the sections and the “Eight questions” on nanotechnology, a double interview with answers from scientists with two different backgrounds. The second level concerned the “Information” panels, with scientific information on the different topics and the “ELSA” panels, where opinions of scientists, researchers, philosophers and other people with different background were given. The third level concerns the “in-depth” panels: more detailed material presented locally in “books”, labels, files, etc.

Nanodialogue: the press coverage

To share information about N&N with citizens, the width of reach of the Nanodialogue consortium relied on a multitude of tools and activities, each targeted to specific publics with different information needs. In particular, the consortium carried out and implemented several activities like seminars, demonstrations, lectures, guided tours, shows, workshops, discussions and theatre performances.

The main publics can be grouped in three clusters: schools, families (general public) and industry/university. Especially for this last group, the Nanodialogue project has contributed to consolidate existing collaborations and to create new partnerships. In some instances, science centres have been spontaneously contacted by N&N industries in order to conduct public presentations and discussions of their products within the exhibition space. To stimulate public interest for front line research in N&N, Nanodialogue provide the public with different levels of information, allowing various degrees of depth according to the needs and desires of the public.

This was mainly achieved through the programs and activities, for which the Nanodialogue exhibition module was a catalyst. Worth noticing is on the one hand the pro-active interest of the industry, as noted before, and the self-declared interest of groups of visitors that came to the science centre on purpose to

visit the exhibition and take part in the programs. Although these visitors represent a very small part, in numerical terms, they are at the same time “engaged citizens” that take advantage of the Nanodialogue exhibition as a platform to understand more and discuss about N&N. This phenomenon is especially visible when N&N are reported in the news.

It shows that despite the small size of the exhibition, its role as “attractor” for public debate is considerable. It is also an instrument for science centres to reflect on the “value” of their visitors, which lies not only in their numbers but also in the quality of the activities they engage in at the science centre and the kind of contributions they make. Nanodialogue is also contributing to challenge science centres and museums as “repositories of truth”, and presenting them instead as a place for public debate and dialogue, and to support the development of science rather than just acknowledging it.

To stimulate dialogue with various groups, in addition to the sociological research coordinated by the CSD, all the partners organized several debates using the “Decide” format (a tool to structure conversations and debates, see). In addition, on 9 May 6 institutions held debates on nanotechnology simultaneously. This activity was particularly welcomed by teachers, who could use it at school, acting effectively as “multipliers” to reach the student population in a direct way.

Finally, Ecsite has dedicated the last issue of its newsletter to Nanotechnology (available at http://www.ecsiteuk.net/news/ecsite/ecsite_newsletter_66_spring_2006.pdf), with ample coverage about Nanodialogue, its partners and the dissemination activities that will spread the results and experiences gained in Nanodialogue outside of the consortium.

Citizens feedback assessment

The Citizens’ Feedback Assessment explored visitors’ perceptions and expectations on nanotechnologies and nanosciences (N&N). The questions and the resulting data analysis was produced by the University of Westminster, to elaborate a list of recommendation and suggestion for the “governance” agenda in the ERA.

From March to October 2006, 706 visitors to the exhibitions held in the eight participating countries were invited at random to complete a brief questionnaire to determine: 1) their sociodemographic profile, 2) their perceptions and expectations regarding N&N, and 3) their assessment of the potential benefits and risks posed by N&N, based on the content of the exhibition. Sections 1 and 2 were completed by the visitors before viewing the exhibition while section (iii) was completed following the exhibition.

Some of the respondents to the questionnaires were also involved in a series of 16 focus groups across Europe for a brief discussion to further explore their views with the aid of professional moderators.

Questionnaire responses

The socio-demographic categories correspond with those used by Eurobarometer to enable comparative analysis where possible. A gender balance of respondents was achieved, young people under the age of 24 were the largest single socio-demographic group to visit the exhibitions (45%), 47 percent of respondents indicated that they were still studying. The exhibitions appeared to attract visitors with a high-level of educational attainment as 35 percent of respondents indicated that they had completed their education above the age of 20.

Prior to visiting the exhibition, the majority of respondents rated their level of understanding of N&N as low (55%) compared to just 14 percent who thought their level of understanding was high. A significant proportion (20%) of visitors stated that they had no understanding at all. Responses to the question where have you heard/read about N&N? varied considerably with 20 percent of respondents indicating their primary source as television followed by school or university (14%), newspapers (13%), and magazines (12%). Surprisingly, the internet (10%) and talking to other people (10%) did not feature as major sources of information about N&N, perhaps indicating a lack of sufficient interest in the topic to actively seek out further information. Even fewer respondents had heard or read about N&N from the radio (5%), from trade, professional or scholarly journals (5%) or from science-fiction books or stories (4%). Where respondents stated that they have heard or read about N&N from 'other' sources (7%), this included mainly the museums, science centres and public spaces in which the exhibitions were held, however many also indicated that they had never heard of N&N.

When asked what effect do you think N&N will have on your way of life in the next 20 years, 60 percent of respondents believed the effect would be positive while only three percent envisaged negative effects. Of the nine risk/benefit scenarios proposed, respondents perceived more benefits than risks posed by N&N. Benefits to human health and environment were the most keenly anticipated while risks to national security and the economy posed the most concerns. Finally, 88 percent of respondents agreed that the NanoDialogue exhibition had increased their understanding of N&N.

A discussion on ethical, legal and social aspects of nanotechnologies and nanosciences

The final conference marks the conclusion of the "NanoDialogue" project, the first at the European level focused on an intense dialogue activity with citizens and stakeholders centred around an interactive exhibition module on nanosciences and nanotechnologies displayed across Europe.

The interdisciplinary characterization of the project – which has seen the involvement of experts from different backgrounds, such as nanosciences, social sciences and philosophy, is mirrored in the choice of speakers.

The morning session was devoted to presenting the activities in the project and the related social, ethical

and political aspects, from various points of view. In particular, the first session concerned the activities accompanying the exhibition and the results of the survey conducted on a sample of visitors with regards to their knowledge of, and attitude towards, nanotechnology and its products.

The conference represented the timely commitment of the European Commission to encourage debate on cutting edge science, in a phase in which the impact of science – and particularly nanosciences - on society is becoming stronger, thus provoking widely diffused doubts and uncertainties, although it is still virtually unknown.

DISSEMINATION AND USE:**Final plan for using and disseminating the knowledge****Section 1 – Exploitable knowledge and its use**

Overview Table

Exploitable Knowledge (description)	Exploitable product(s) or measures(s)	Sector(s) of application	Timetable for commercial use	Patents or other IPR protection	Owner & other Partner(s) involved
NanoDialogue Method	New method of interactive dialogue on N&N involving actors from different fields and citizens	Nanotechnology and nanosciences, but applicable also in other sectors	March 2007 - onwards	No	NanoDialogue Partners consortium
Nanodialogue Final Conference: N&N: a discussion on ethical, legal and social aspects	Final conference reports and complete results	Nanotechnology and nanosciences, Research and Development; Health, Education, Communication, Ethics of Science, European Governance	May 2007 - onwards	No	NanoDialogue Partners consortium

1) The Nanodialogue method

What is the exploitable result (functionality, purpose, innovation etc) of the NanoDialogue method?

Result: A new way of interactive tool to implement dialogue between researchers, social scientists, politicians and citizens on nanotechnology and its legal, social and ethical implications. As a result, the tools (in form of exhibition module) were displayed simultaneously in 7 European Countries in a 6 month period.

Functionality: active and participatory contribution to the development of new forms of informative and debate tools on nanotechnology at the European level, involving nano-scientists, social scientists, museums experts and politicians. This methods holds promise for discussion on new technologies in many other fields and is already inspiring similar initiatives at European level.

Purpose: the initiative aims at providing information and stimulating debate, so it wanted to create the right environment for public to discuss about topics that they hardly knew. So since science centres are widely recognized as being ideal places to establish dialogue with citizens on topic of science and technology, it was decided to involve 7 European science centres in the consortium and to develop a common information and dialogue tool, in form of an exhibition module, able to perform these results.

Innovation: The main innovative task in the project was to design the structure, the content and the shape of the exhibition module in a special participatory activity (in form of a Scenario Workshop) where all the actors involved – nano scientists, social scientists, philosophers, designers, museum staff and politicians were put together to collaborate at the identification of the main features of the exhibition module. Including in the consortium a group of European science centres and museums helped to reach a wide European audience (more than 1.000.000 visitors), to be involved into the dialogue process. This approach is an interesting response to EU efforts towards greater public involvement, as an exciting new method of transactional public discussion over future research.

Partners involved in the exploitable, role and activities

The consortium, coordinated by the Fondazione IDIS – Città della Scienza, based in Naples, Italy, comprised a total of 8 organisations of excellence in the field of Science Communication representing a wide European dimension. These elements ensured that high quality standards were maintained in the communication tools and methodologies, so contributing to the widespread diffusion of the project's results. The participant institutions and their team members involved in the exploitation were included:

P1 - Fondazione IDIS-Città della Scienza, Italy

A non-profit making organisation whose mission is to create fertile ground for embracing scientific culture and innovation transfer, with as main objective to encourage social and economic development within a National, European and Mediterranean framework. The core activities are in Città della Scienza; an innovative structure that includes a Interactive Science Centre, a Business Innovation Centre, a Centre for Vocational Training and a Congress Centre. The Science centre inaugurated in November 2001, has become, for the quality it proposes, the contents, the high interactivity, the dimension (10.000 sq.m) and the innovation of technologies and exhibition areas, the first interactive science museum in Italy. It received 350.000 visitors each year. It represents a reference institution for public understanding of science and informal learning where new methodologies are developed. Fondazione IDIS is coordinator of the NanoDialogue project and one of the displayer of the exhibition module.

<http://www.cittadellascienza.it>

P4 - ECSITE-The European Network of Science Centres and Museums, Belgium

ECSITE is the European-wide network organisation that links all major Science Centres and science museums in Europe as active members. The core of ECSITE covers a network of about 150 institutions in Europe, visited by 25 millions persons per year. The total operational budget for these institutions is about 300 millions Euro/year. ECSITE co-operates as well very closely with universities, research institutes, private and public companies and other international organizations such as UNESCO in order to promote co-operation and an intensive dissemination of knowledge between the European Science Centres and to stimulate the discussion and scientific research concerning the progress of the European Science Centre movement in general. ECSITE has developed different tools to allow its members to come in a productive international dialogue. ECSITE is mentioned in the Science & Society Action Plan and in the IFOK Interim Report as a reference organisation for the promotion of public understanding of science and

informal learning at the European level. ECSITE is leader of the WP3 and responsible for the coordination of the communication activity in all the 7 science centres displaying the exhibition.

<http://www.ecsite.net>

P5 - CCSTI, France

The Centre for Scientific, Technical and Industrial Culture (CCSTI) of Grenoble has been founded in 1979. Its main mission is to broadcast and promote scientific, technical and industrial culture to all populations. CCSTI-Grenoble's actions take many forms: interactive exhibitions, scientific discovery workshops, publications, meetings and debates. Since 1999, CCSTI-Grenoble concentrates its activity around the new technologies and their impact on the society. Every year, CCSTI-Grenoble welcomes approximately 50 000 visitors, among which 43 % of school. The development of the CCSTI-Grenoble joins clearly the science-society concern, through the presentation of interactive exhibitions making a wide place for the debate, for the controversy, and for the contributions of the social sciences and the art. CCSTI is one of the displayer of the exhibition module.

<http://www.ccsti-grenoble.org>

P6 - Flanders Technology International Foundation, Belgium

The Flanders Technology International Foundation is a non-profit institution which was founded in 1988 by the government of Flanders with as most important aim the organisation of the international technology exhibition Flanders Technology International. In the early nineties the mission of Stichting F.T.I was expanded and its objectives were included in the following mission statement: "bringing science and technology closer to the people". This occurs by a whole range of activities oriented towards the field of education as well as to the general public: science weeks, science festivals, activity books, television programs, a travelling science truck, teaching packages, science theatre and a lot more. With Technopolis, the Flemish science centre, opened in February 2000, the F.T.I Foundation gained a lot of experience in the development and realisation of interactive exhibitions, workshops, shows and demonstrations, lectures. F.T.I. collaborate frequently with universities in Flanders. Technopolis is visited each year by 260.000 persons. Technopolis is one of the displayer of the exhibition module

<http://www.technopolis.be>

P7 - Deutsches Museum, Germany

Deutsches Museum is one of the biggest museums devoted to technology and natural sciences in Europe with more than 55,000 square meters of exhibition space, 40 departments and approximately **1.4 million**

visitors per year. It shows and explains the evolution of technology and science from the early beginnings to the present. The unique collection of exhibits (historical and modern) on display are supplemented by interactive experiments, dioramas, films and multi-media systems. A large library and extended archives as well as a research institute for the history of technology and sciences and the Kerschensteiner Kolleg for the advanced training of teachers, students and museum staff also belong to the Deutsches Museum. Is currently working on a new exhibition project for the Centre for New Technologies which will bring together nanotechnology, genetic engineering and material research at the molecular level.

The Deutsches Museum collaborates with the Centre for NanoScience CeNS at the Ludwig Maximilians-Universität München) and the Forschungszentrum Karlsruhe FZK in Karlsruhe. The DM is one of the displayer of the exhibition module.

<http://www.deutsches-museum.de>

P8 - Stiftelsen Korsvägen- UNIVERSEUM, Sweden

Universeum is Sweden's national science discovery centre. It is the result of joined forces of the private sector, the Swedish Government, the Göteborg Regional Federation of Local Authorities, Göteborg University, Chalmers University of Technology, and the West Sweden Chamber of Commerce and Industry. Universeum serves as a meeting place for various fields of scientific study, the academic world, the private sector and the school system. The basic idea is to create experiences that increase people's desire to enhance their knowledge and to become actively involved with the natural sciences, technology, and environmental awareness. Its objectives are also to support the development of learning, increase knowledge about society, boost recruitment levels in higher education, trade and industry and answer to the continuous demand from teachers at all levels for information about the latest research results to be presented in a form that can be understood by non-researchers. Universeum is visited each year by 500.000 persons. Universeum is one of the displayer of the exhibition module.

<http://www.universeum.se>

P9 - Ciência Viva-Agência Nacional para a Cultura Científica e Tecnológica, Portugal

Pavilhão do Conhecimento – Ciência Viva is the largest Science Center in Portugal and constitutes the headquarters of the Ciência Viva Association. Ciência Viva was created in 1996 to promote scientific culture, in particular science education projects at school, short placements for students in research laboratories, a Science and Technology Week and summer science activities for the general public. Public debates, colloquia and science cafes are regularly organized.

A network of interactive Science Centers is being created throughout the country with the technical support of Ciência Viva – 8 are already open to the public. Presently, Ciência Viva is an Association, including public bodies and nine research institutes as its members. Il Pavilhão do Conhecimento is visited each year by more than 300.000 persons, and it is one of the displayer of the exhibition module <http://www.cienciaviva.pt>

P10 - Ahhaa-Tallin Technology and Science Centre, Estonia

AHHAA was established in 1997 as a special project of the Department of Research and Institutional Development of Tartu University and has now become an independent contemporary Science Centre with up-to-date science communication and display possibilities to introduce science to people at large. It uses interactive and entertaining methods, combining Tartu's educational traditions and latest developments of information society. AHHAA Science Centre started a new practice to work all around the country and got 82.000 visitors per year to different science events, including lectures, demos, science theatre shows, Technology Day events etc. Also a special school program was developed to support the formal education curricula by Science Centre activities. Since 1997, more than 300.000 visitors have been visiting AHHAA events. AHHAA is one of the displayer of the exhibition module

<http://www.ahhaa.ee>

How the results might be exploited (products, processes) – directly (spin offs etc) or indirectly (licensing) – on an individual basis or as a consortium/group of partners

The different attempts to inform citizens about the latest research on nanotechnology, and the tries to establish a citizens debate on Nanotechnology and Nanoscience were always organized in separate venues. In common perception, the role of museums and science centres is to inform, while there are other places devoted to social research on public acceptance of nanotechnology impact on our life. We wanted here to demonstrate that science centres are ideal place not only for informing their visitors, but also to establish a real dialogue between citizens and the various actors involved.

Seen the wide spreading of science centres in Europe, their ability of involving different actors, and their gaining reputation of neutral place for debate, (as the opinion of visitors show), this model of dialogue (common communication tool born from a participative activity and social analysis of the opinion collected) could be well used for any kind of public consultancy about science and technology issues. The data coming from the social survey in the science centres don't differ much from those ones coming from

other public consultancy action, but it is remarkable that in the same venue people can have not only the occasion to be informed, but also to deepen the topic, to make links with other information and to meet experts, from scientific background and from ethical, social and legal fields. So this experience can be seen as a novel contribution to the public assessment and debate of a socially complex science and technology issue, plus in a European dimension and with the involvement of citizens.

It is not possible to commercialise the results of this initiative but it is desirable to diffuse the results as broad as possible.

Further additional research and development work, including need for further collaboration and who they may be

No

Intellectual Property rights protection measures

There is no intention to commercialise results, only to diffuse them.

Any commercial contacts already taken, demonstration given to potential licensees and/or investors and any comment received (market requirements, potential, etc.)

No

Where possible, also include any other potential impact from the exploitation of the result (socio economic impact

The recommendations which the consortium produced at the final conference should help to shape policy at the European and national level.

2) Nanodialogue Final Conference

N&N: a discussion on ethical, legal and social aspects

What is the exploitable result (functionality, purpose, innovation etc) of the NanoDialogue final conference?

Result: After the first session, dedicated to the results of the project – the exhibition, the social survey -, the discussion moved on a different fields, more related to the current debate on premises and possible problems related to the wide spreading of nano application on our daily life. Several inputs were given by the speakers on the need to engage citizens in the debate and this is an output coming also from the social survey. The 14 recommendation prepared by the consortium, on the basis of the opinions of citizens, are addressed to relevant policymakers, scientific and research communities at European and National level.

Functionality: the final conference marks the conclusion of the “NanoDialogue” project, the first at the European level focused on an intense dialogue activity with citizens and stakeholders centred around an interactive exhibition module on nanosciences and nanotechnologies displayed across Europe. The citizens recommendations relate to different fields related to the Nanotechnology and Nanosciences discussion: *Research and development, Regulation and control, Current or future uses and applications, Human health and the environment, Economic aspects, Information and understanding and Ethical, legal and social aspects*, all this recommendation are considered to have a clear European dimension.

Purpose: The conference represents the timely commitment of the European Commission to encourage debate on cutting edge science, in a phase in which the impact of science – and particularly nanosciences - on society is becoming stronger, thus provoking widely diffused doubts and uncertainties, although it is still virtually unknown. The results of this process wants to contribute to European policymaking affecting nanotechnology and nanosciences. Furthermore, the process wants to enlighten the direct involvement of citizens in the current and future research policy at the European level.

Innovation: The interdisciplinary characterization of the project – which has seen the involvement of experts from different backgrounds, such as nanosciences, social sciences and philosophy, is mirrored in the choice of speakers of the conference, representing not only different fields (research, politics, industries, Ngos, ethical committees), but also different European countries.

This approach is an interesting response to EU efforts towards greater public involvement, as an exciting

new method of transactional public discussion over future research. NanoDialogue has also contributed to the development of the EC's innovative communication tools participating at the Communicating European Research 2005, International Conference held in Brussels Exhibition Centre, 14-15 November 2005

Partners involved in the exploitable, role and activities

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<http://www.cittadellascienza.it>

P2 – Association MQC2, Italy

Since its establishment, the MQC2 Association (MQC2-Macroscopic Quantum Coherence and Computing) has been active in enhancing international scientific exchange in the fields of Physical Sciences, with particular attention to modern physics, to quantum mechanics, to advanced computer science and to nanotechnologies. The headquarter is located in the CNR (Naples) and it collaborates closely with local research institutes and universities such as the University of Naples (II Università), the laboratories from the National Research Council (CNR). It is partner with the Centre for Regional Competences on IT and Materials.

<http://www.mqc2.it>

P3 - University of Westminster-Centre for the Study on Democracy, United Kingdom

The Centre for the Study of Democracy (CSD) at the University of Westminster, is a leading postgraduate

and research centre and is well known for its interdisciplinary work, and comprises a team of more than a dozen internationally recognised scholars, whose teaching and research concentrates on the interplay of democracy, states, cultures, technology and civil societies. The CSD's research and teaching activities are guided by clear scholarly aims and a distinctive commitment to:

- conducting open and critical enquiries into politics, governance, international relations, media, cultural and technology studies and other related disciplines;
- synthesising the study of democracy, politics and global contexts;
- pursuing comparative research in local, regional and global contexts;
- fostering awareness of the advantage and disadvantage of democracy at the local, national and international levels.

<http://www.wmin.ac.uk>

P4 - ECSITE-The European Network of Science Centres and Museums, Belgium

ECSITE is the European-wide network organisation that links all major Science Centres and science museums in Europe as active members. The core of ECSITE covers a network of about 150 institutions in Europe, visited by 25 millions persons per year. The total operational budget for these institutions is about 300 millions Euro/year. ECSITE co-operates as well very closely with universities, research institutes, private and public companies and other international organizations such as UNESCO in order to promote co-operation and an intensive dissemination of knowledge between the European Science Centres and to stimulate the discussion and scientific research concerning the progress of the European Science Centre movement in general. ECSITE has developed different tools to allow its members to come in a productive international dialogue. ECSITE is mentioned in the Science & Society Action Plan and in the IFOK Interim Report as a reference organisation for the promotion of public understanding of science and informal learning at the European level. ECSITE is leader of the WP3 and responsible for the coordination of the communication activity in all the 7 science centres displaying the exhibition.

<http://www.ecsite.net>

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approximately 50 000 visitors, among which 43 % of school. The development of the CCSTI-Grenoble joins clearly the science-society concern, through the presentation of interactive exhibitions making a wide place for the debate, for the controversy, and for the contributions of the social sciences and the art. CCSTI is one of the displayer of the exhibition module.

<http://www.ccasti-grenoble.org>

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<http://www.technopolis.be>

P7 - Deutsches Museum, Germany

Deutsches Museum is one of the biggest museums devoted to technology and natural sciences in Europe with more than 55,000 square meters of exhibition space, 40 departments and approximately **1.4 million visitors per year**. It shows and explains the evolution of technology and science from the early beginnings to the present. The unique collection of exhibits (historical and modern) on display are supplemented by interactive experiments, dioramas, films and multi-media systems. A large library and extended archives as well as a research institute for the history of technology and sciences and the Kerschensteiner Kolleg for the advanced training of teachers, students and museum staff also belong to the Deutsches Museum. Is currently working on a new exhibition project for the Center for New Technologies which will bring together nanotechnology, genetic engineering and material research at the molecular level.

The Deutsches Museum collaborates with the Center for NanoScience CeNS at the Ludwig Maximilians-Universität München) and the Forschungszentrum Karlsruhe FZK in Karlsruhe. The DM is one of the displayer of the exhibition module.

<http://www.deutsches-museum.de>

P8 - Stiftelsen Korsvägen- UNIVERSEUM, Sweden

Universeum is Sweden's national science discovery centre. It is the result of joined forces of the private sector, the Swedish Government, the Göteborg Regional Federation of Local Authorities, Göteborg University, Chalmers University of Technology, and the West Sweden Chamber of Commerce and Industry. Universeum serves as a meeting place for various fields of scientific study, the academic world, the private sector and the school system. The basic idea is to create experiences that increase people's desire to enhance their knowledge and to become actively involved with the natural sciences, technology, and environmental awareness. Its objectives are also to support the development of learning, increase knowledge about society, boost recruitment levels in higher education, trade and industry and answer to the continuous demand from teachers at all levels for information about the latest research results to be presented in a form that can be understood by non-researchers. Universeum is visited each year by 500.000 persons. Universeum is one of the displayer of the exhibition module.

<http://www.universeum.se>

P9 - Ciência Viva-Agência Nacional para a Cultura Científica e Tecnológica, Portugal

Pavilhão do Conhecimento – Ciência Viva is the largest Science Centre in Portugal and constitutes the headquarters of the Ciência Viva Association. Ciência Viva was created in 1996 to promote scientific culture, in particular science education projects at school, short placements for students in research laboratories, a Science and Technology Week and summer science activities for the general public. Public debates, colloquia and science cafes are regularly organized.

A network of interactive Science Centers is being created throughout the country with the technical support of Ciência Viva – 8 are already open to the public. Presently, Ciência Viva is an Association, including public bodies and nine research institutes as its members. Il Pavilhão do Conhecimento is visited each year by more than 300.000 persons, and it is one of the displayer of the exhibition module

<http://www.cienciaviva.pt>

P10 - Ahhaa-Tallin Technology and Science Centre, Estonia

AHHAA was established in 1997 as a special project of the Department of Research and Institutional

Development of Tartu University and has now become an independent contemporary Science Centre with up-to-date science communication and display possibilities to introduce science to people at large. It uses interactive and entertaining methods, combining Tartu's educational traditions and latest developments of information society. AHHA Science Centre started a new practice to work all around the country and got 82.000 visitors per year to different science events, including lectures, demos, science theatre shows, Technology Day events etc. Also a special school program was developed to support the formal education curricula by Science Centre activities. Since 1997, more than 300.000 visitors have been visiting AHHA events. AHHA is one of the displayers of the exhibition module

<http://www.ahha.ee>

How the results might be exploited (products, processes) – directly (spin offs etc) or indirectly (licensing) – on an individual basis or as a consortium/group of partners

The final conference and its results may represent a new challenge to give citizens more voice in the process of governance of science and technology at the European level. The output of the project and of the final conference seems to be a clear help to European Commission in the developing and shaping of common policies regarding the investment, the exploitation and the regulation of nano research and the distribution of its applications.

It is not possible to commercialise the results of this initiative but it is desirable to diffuse the results as broad as possible.

Further additional research and development work, including need for further collaboration and who they may be

No

Intellectual Property rights protection measures

There is no intention to commercialise results, only to diffuse them.

Any commercial contacts already taken, demonstration given to potential licensees and/or investors and any comment received (market requirements, potential, etc.)

No

Where possible, also include any other potential impact from the exploitation of the result (socio economic impact

The recommendations which the consortium produced at the final conference should help to shape policy at the European and national level.

SECTION 2

Dissemination of the Knowledge

Since NanoDialogue started, it was clear that one of the strong points was the possibility to communicate with a large European public. The science centres partners have an attendance (in the 6 months display period of the exhibition) of more than 1,000,000 visitors! This large audience could be informed, through the exhibition module, the local events, the lectures and the science demo organized in the different venues, about the latest researches on Nanotechnology and Nanosciences. More over the exhibition and the events organized wanted also to give input to citizens to take part in the debate, leaving their opinions and comments on the topic. In order to have more structured datas for the social survey, a limited number of visitors were requested to fill questionnaires (706) and to participate to focus groups (nearly 200).

Furthermore the project involved a large community of stakeholders (researchers, students, social scientists, museums experts) to participate at the initial scenario workshop activity. These participants (Scientific advisory board and other actors interested) were contacted in many phases of the projects in order to be informed and to give their support.

Finally, the final conference gave the opportunity to contact also those actors that weren't actively involved into the project, as industries, NGOs and venture capital. The audience of the conference was of 130 participants, but during the informative campaign, more than 2000 persons interested were contacted, and were also informed on the project

Besides, the nanodialogue project gave also the opportunity to establish relations between other 6FP projects, not only in the field of Nanotechnologies and Nanosciences (like Nanologue, Nanoforum, Nanobioraise), but also with other project from the Science and Society world, like DeCiDe, Cipast, Meeting of Minds) and thanks to the ECSITE network (partner of the consortium), NanoDialogue was not only able to spread its results all over European Science centres and museums, but also to establish proficient relations also with similar projects running in other continents (like the NISE project from US and the NANOAVENTURA from Brasil). The results of the Nanodialogue project will be communicated again in other important worldwide meetings to come (like the ECSITE meeting in Lisbon, June 2007, and the ESOF meeting in Barcelona, July 2008).

Overview Table

Planned/actual date	Type	Type of audience	Country addressed	Size of audience	Partner responsible /involved
Brussels 7-8 March 2005	Kick off meeting	Consortium		20	P1, P2, P3, P4, P5, P6, P7, P8, P10, P11
Brussels 9-11 March 2005	Science in Society Forum – Conference	Journalists, museums, general public, communicators	Europe	+/- 2000	P1
Naples 23-24 June 2005	Exhibition Game Scenario Workshop	Scientists, Philosophers, Nano- researchers, museum staff, designers, social scientists		50	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11
Brussels 14-15 November 2005	Communicating European Research 2005 International Conference Brussels Exhibition Centre (Heysel)	Experts in communication	Europe	300	P1
Brussels 24-25 November 2005	Seminar: from science and society to science in society: towards a framework for cooperative research, by Governance and Scientific Advice Unit of DG RTD Directorate C2	Experts in communication	Europe	200	P1

Brussels 25 November 2005	Steering Committee meeting	Consortium		20	P1, P2, P3, P4, P5, P6, P7, P8, P10, P11
Bourgoin Jallieu, 7 march 2006	Opening of the exhibition at the Town library	Citizens	France	3000 (in the whole display period)	P5
Goteborg, 9 March 2006	Opening of the Exhibition at the Universeum	Citizens	Sweden		P8
Naples, 9 March 2006	Opening of the exhibition at Città della Scienza	Citizens	Italy	100.000 (in the whole display period)	P1
Mechelen, 9 March 2006	Opening of the exhibition at Technopolis	Citizens	Belgium		P6
Munich, 9 March 2006	Opening of the exhibition at the Deutsches Museum in Munich	Citizens	Germany	500.000 (in the whole display	P7

				period)	
Tartu, 9 March 2006	Opening of the exhibition at the Tartu Lõunakeskus	Citizens	Estonia	7.000 (in the whole display period)	P10
Lisbon, 23 March 2006	Opening of the exhibition at the Ciência Viva Centre of Libon	Citizens	Portugal	100.000 (in the whole display period)	P9
Grenoble, 30 March 2006	First French Focus Group	Citizens	France	13	P5
Grenoble 24 April 2006	Opening of the exhibition at the EA / Minatec, Grenoble	Citizens	France	3000 (in the whole display period)	P5
Naples 25 April 2006	First italian Focus Group	Citizens	Italy	8	P1
Tartu, 4 May 2006	First Estonian Focus group	Citizens	Estonia	6	P10

Goteborg, 9 May 2006	First Swedish Focus Group	Citizens	Sweden	8	P8
Tartu, 9 th May 2006	Event “nano-day”	Citizens	Estonia	50	P10
Goteborg, 12 May 2006	Second Swedish Focus Group	Citizens	Sweden	8	P8
Mechelen 22 May 2006	Conference on nanotechnology by Prof. Dirk Van Dyck	Citizens	Belgium	100	P5
Vaujany 1 st June 2006	Opening of the exhibition at the Museum of hydroelectricity, Vaujany	Citizens	France	3000 (in the whole display period)	P5
Tallin 1 st June 2006	Opening of the exhibition at the Tallinna Linnahall	Citizens	Estonia	12.000 (in the whole display period)	P10
Brussels 7 June 2006	Mit term assessment meeting	Consortium		20	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11

Naples 12-16 June 2006	V International conference on nanotechnology	Scientists, Politicians	International	200	P1
Naples 15 June 2006	Second Italian Focus Group	Citizens	Italy	8	P1
Mechelen, 20 June 2006	First and second Belgian Focus Groups	Citizens	Belgium	20	P6
Munich, 8 July 2006	First German Focus Group	Citizens	Germany	18	P7
Grenoble 13 July 2006	Second French focus group	Citizens	France	20	P5
Tallin 27 July 2006	Second Estonian Focus group	Citizens	Estonia	6	P10
Tallin 28 July 2006	Third Estonian Focus group	Citizens	Estonia	5	P10
Mechelen, 3 August 2006	Third Belgian Focus Groups	Citizens	Belgium	10	P6
Munich, 4 August 2006	First German Focus Group	Citizens	Germany	18	P7
Goteborg, 18 August 2006	Third Swedish Focus Group	Citizens	Sweden	8	P8
Tallinn, 23 August 2006	Café Scientifique organized with the British Council. We invited Andrew Pelling from UK. The café took place on in Tallinn in “Kloostriait”.	Citizens	Estonia	100	P10

Tartu, 24 August 2006	Public seminar “Lets get to know nanotechnology” in collaboration with Tartu Foundation for Science and Liberal Arts – Domus Dorpatensis.	Citizens	Estonia	65	P10
Naples 15 September 2006	Third Italian Focus Group	Citizens	Italy	8	P1
Crolles, 2 October 2006	Opening of the exhibition at the Town cultural centre, Crolles (during French festival of science)	Citizens	France	3000 (in the whole display period)	P5
Munich, 7 October 2006	Citizens’ debate	Citizens	Germany	70	P7
Aveiro, 9 October 2006	Opening of the exhibition at the Ciência Viva Centre of Aveiro	Citizens	Portugal		P9
Aveiro, 25 October 2006	First Portuguese Focus Group	Citizens	Portugal	6	P9
Genova, 26 October 2006	Opening of the exhibition at the Festival della Scienza di Genova	Citizens	Italy	30.000 (in the whole display period)	P1
Tubingen, 7 November 2006	Opening of the exhibition at the KMRC-Knowledge Media Research Centre in Tuebingen	Citizens	Germany		P7

Brussels, 8 November 2006	Workshop on Ethics of Nanotech	Social scientists, ethicists, researchers, coordinators of EU projects	Europe	20	P1
Aveiro, 22 November 2006	Second Portuguese Focus Group	Citizens	Portugal	6	P9
Aveiro 23 November 2006	Conference “Bio in Machina” João Rocha, Chemistry Department, Aveiro University	Scientists, citizens	Portugal	100	P9
Naples 24 November	Ecsite directors forum	Museums, Journalists	Europe	200	
San Francisco November 2006	Presenting the Nanodialogue project at the NISE workshop in	Nano scientists, museums, communicators	US	30	P7
Aveiro, 29 November 2006	Third Portuguese Focus Group	Citizens	Portugal	8	P9
Campinas Brasil, 9 December 2006	Presenting NanoDialogue at the University of Campinas, http://www.unicamp.br/unicamp/divulgacao/BDNAG/NAG_927/NAG_927.html	Nano scientists, museums, communicators	Brazil	50	P1
Aveiro, 14 December 2006	Conference “Robotics and Bioinformatics: two contributes for the quality of life”. Laura Carreto, Biology Department, Aveiro University, Nuno Miguel Gonçalves, Electronics and Computer Engineering Department, Coimbra University, Joel Arrais, Instituto de Engenharia e Electrónica Telemática	Scientists, citizens	Portugal	100	P9

	Aveiro				
Boston January 2007	Presenting NanoDialogue at the Nano Initiatives	Nano scientists, museums, communicators	US	50	P7
Grenoble, 15 January 2007	Opening of the exhibition at the Science library, Grenoble	Citizens	France	3000 (in the whole display period)	P5
Aveiro, 16 January 2007	Fourth Portuguese Focus Group	Citizens	Portugal	7	P9
Aveiro, 18 January 2007	Conference “Nanotechnology: discovering the world on the tip of a pin”. Tito Trindade, Chemistry Department, Aveiro University;	Scientists, citizens	Portugal	100	P9
Kerkarde, January 2007	Opening of the exhibition at the Kerkarde Industrion	Citizens	The Netherlands		P6
Udine, 2 February 2007	Opening of the exhibition at the Teatro stabile di Udine	School students	Italy	300	P1
Hengelo February 2007	Techniekmuseum Heim	Citizens	The Netherlands		P6
Brussels, 5 February 2007	Final Conference	Nano scientists, museums, ngos	Europe	130	P1, P2, P3, P4, P5. P6,

		communicators, politicians, industries			P7, P8, P9, P10, P11
Paris 19-20 March 2007	Nanotechnologies : Le point sur les débats, des orientations pour demain, Cité des sciences et de l'industrie http://www.cite-sciences.fr/francais/ala_cite/college/v2/html/2006_2007/conferences/conference_338.htm	Nano researchers, scientists, communicators	France	200	P5
Leiden, April 2007	Opening of the exhibition at the Leiden Naturalis	Citizens	The Netherlands		P6
Brussels, May 7, 2007	Presenting Nanodialogue results at Technopolis, at Nanotech Outreach Workshop www.imecexpo.be/images/NOW-program.pdf	Nano researchers, scientists, communicators	Europe	500	P6
Lisbon, May 30 – June 3 2007	Presenting Nanodialogue project at the Ecsite Conference	Communicators, museum staff, journalists	Europe	800	P1
Naples 21-24 June, 2007	Presenting Nanodialogue project as a case study at the Cipast Workshop	Communicators, museum staff, journalists	Europe	120	P3
Mattrop, July 2007	Opening of the exhibition at the Lattrop Cosmos	Citizens	The Netherlands		P6

SECTION 3

Publishable results

NANODIALOGUE

Nanotechnologies and nanosciences

A discussion on ethical, legal and social aspects

This proponent consortium is coordinated by the Fondazione IDIS – Città della Scienza, based in Naples, Italy. It comprises a total of 11 organisations of excellence in different fields (scientific research, social participation, science communication) representing a wide European dimension. These elements will ensure that high quality standards are maintained in the communication tools and methodologies, while contributing to the widespread diffusion of the project's results.

The participant institutions and their team members include: Fondazione Idis - Città della Scienza (Italy); Associazione MQC2 (Italy); University of Westminster - Centre for Study on; Democracy (United Kingdom); Ecsite - the European Network of Science Centres; and Museums (Belgium); Centre de Culture Scientifique, Technique et ; Industrielle de Grenoble (France) Flanders Technology International Foundation (Belgium); Deutsches Museum (Germany); Universeum AB (Sweden); Ciência Viva - Agência Nacional para a Cultura; Científica e Tecnológica (Portugal); Ahhaa Science Centre (Estonia) and Fundació Parc Científic de Barcelona (Spain).

The nanodialogue project: an integrated approach to communication

Engaging citizens in dialogue and discussions about emerging science and technologies has been recognized by the European Commission as a fundamental component to create the knowledge economy at the basis of the European Union's Lisbon Agenda. Science centres and museums are the natural choice of venue to begin such activities, since they offer an opportunity for a wider exchange of ideas, providing information that is generally perceived to be reliable and giving different actors a chance to meet and voice their concerns.

In the field of nanotechnology, dialogue on the risks and ethical issues is particularly relevant. In fact, while some nanotech products are already on the market, public awareness of the real economic and social potential of this technology is still low.

In this framework, Fondazione IDIS - Città della Scienza has coordinated the NanoDialogue project

(Enhancing dialogue on Nanotechnologies and Nanosciences in society at European level - www.nanodialogue.org), with funding provided by the European Commission, under the Nanotechnologies and Nanoscience program.

The “pillars” of Nanodialogue are a modular exhibition, designed for display in 8 different countries (Belgium, Estonia, France, Germany, Italy, Portugal, Spain, Sweden), a program of events and participatory activities in each location, and a survey of public perceptions and expectations with 800 questionnaires and a multimedia polling station at each location.

The analysis of these components has led to a final conference, held in the seat of the European Parliament in Brussels, in order to present the results of the project to the European Commission and Parliament.

The first step in the project was the establishment of a Scientific Advisory Board, composed of nanoscientists, as well as social scientists, philosophers and experts in communication; in total 26 members from 11 European Countries.

The second step was to have the Scientific Advisory Board and the Steering Committee (with representatives from all the partners) working together in a participatory procedure, namely a scenario workshop, in order to generate guidelines, directions and specific subjects to be included in the exhibition. Two main proposals emerged from the scenario workshop, both representing a “common ground” for all the partners. These two visions were discussed and eventually the Steering Committee agreed on the final design inspired by one of the two proposals.

Key issues that contributed to the choice were the possibility to have, even in a limited space (the exhibition is about 60 sqm), ample room for live programmes and demonstrations, display of real objects and tools, and the flexibility to customise the exhibition with local input from research and industry.

In each Country, the exhibition became a catalyst for further activities, thus encouraging visitors to view the museum not as a display of information, but as an active crossroad of social actors.

Nanodialogue: the exhibition module

A “Preliminary program of the exhibition” was developed and presented to the partners and to the Commission on November 2005 in Brussels, following the results of the Scenario Workshop – held in Naples in July 2005. The enhancement of the project during the following steps, both from the architectural and the graphical points of view, was developed in line with that presentation and implemented by the analysis and conversation that followed between participants to the meeting.

- The “Overall Approach”

The main goal of the project was to arise curiosity and stimulate debate on nanotechnologies and

nanosciences, both for the general public and for more sophisticated targets. So, the exhibition should be exciting enough to achieve curiosity for science and research in general, and specifically for nanosciences and nanotechnologies. The debate approach - and the Ethical, Legal and Social Aspects (ELSA) involved – suggested to organise the exhibition module as an ancient “agorà”, a public area to meet, discuss and concentrate, an area where visitors could compare their ideas, opinions and points of view.

- Different Levels of Messages

The exhibition communicates to visitors at different levels, in order to arise the largest interest. There were 3 levels of messages: the first concerned the three great walls, and it included the appropriate artistic and graphic background with images related to the topic, the titles of the sections and the “Eight questions” on nanotechnology, a double interview with answers from scientists with two different backgrounds.

The second level concerned the “Information” panels, with scientific information on the different topics and the “ELSA” panels, where opinions of scientists, researchers, philosophers and other people with different background were given.

The third level concerns the “in-depth” panels: more detailed material presented locally in “books”, labels, files, etc.

- General “Structure”

The contents of the exhibition module were organized in 7 sections; Sections 1, 3 and 4 were defined by freestanding “scenery walls” with graphics, background and explanatory text. Each wall has a characteristic colour uniting the scenery and the exhibits.

The rear parts of the walls contained information too: the “agorà” is an open place, which wants to arise curiosity, also from the outside, and to welcoming everybody. In every section, together with the main information, there were comments and opinions on the same topic, so visitors could confront their ideas and opinion with those expressed by scientists, politicians, philosophers and science fiction writers.

The central table, representing a space for debate and discussion, gave people the opportunity to “play” with real nano-objects; at the same time the space was also used for science demos, focus groups and small debates. During the display of the exhibition, in all 8 Countries, different events were performed, in order to enrich the exhibition module, but also to give visitors the opportunity to be involved more actively into the debate.

Section 1 - Facts or Fantasy?

Here the aim was to illustrate how much science fiction influenced our perception of new technologies. Scenarios coming from social and psychological studies and from science fiction were illustrated and analysed. At the same time some information on the advance of the nano research were given, together with samples of nano structures already present in nature.

Section 2 - Historical narrative

A self-standing bookstand showed the main steps of research and applications towards the new outcomes in the field of nanosciences and nanotechnologies. Semi-circular pages, which could be turned by visitors, also allowed to implement the History section with new information as required.

Section 3 - Into the nano-world

Here visitors could learn more about the technologies and the dimensions of the nanoworld. Models of nanoparticles together with real applications and exhibits were shown.

Section 4 - Who controls?

Here ethical, legal and social aspects of the research were given in form of comments of scientists, philosophers and experts.

Section 5 - Applications

A big structure with boxes showed samples of real nano applications (most of them already on the market). They were displayed but also used for events and demonstrations. At the same time panels gave information on future developments of nanotechnologies and on the places, in each Country, where nano researches are currently carried out.

Section 6 - Video

The video contains the whole content storyboard of the exhibition, plus some extra contributions (animation, movies). It went on in a loop, but eventually could be stopped by a guide/explainer to deepen certain topics. "Atomos", the story teller, guided visitors through the different topics.

Section 7 - Feed-back multimedia

The final section of the exhibition focused on people's perceptions and points of view. Visitors can record their comments and read these ones left by others, as well as to access additional, in depth information. Furthermore, the multimedia is linked to the project website. Three options are

available for visitors who can choose between: watching the video or specific parts of it, going on the Nanodialogue web site and on the connected sites, leaving comments.

Nanodialogue: the press coverage

To share information about N&N with citizens, the width of reach of the Nanodialogue consortium relied on a multitude of tools and activities, each targeted to specific publics with different information needs. In particular, the consortium carried out and implemented several activities like seminars, demonstrations, lectures, guided tours, shows, workshops, discussions and theatre performances.

The main publics can be grouped in three clusters: schools, families (general public) and industry/university. Especially for this last group, the Nanodialogue project has contributed to consolidate existing collaborations and to create new partnerships.

In some instances, science centres have been spontaneously contacted by N&N industries in order to conduct public presentations and discussions of their products within the exhibition space.

To stimulate public interest for front line research in N&N, Nanodialogue provide the public with different levels of information, allowing various degrees of depth according to the needs and desires of the public.

This was mainly achieved through the programs and activities, for which the Nanodialogue exhibition module was a catalyst. Worth noticing is on the one hand the pro-active interest of the industry, as noted before, and the self-declared interest of groups of visitors that came to the science centre on purpose to visit the exhibition and take part in the programs. Although these visitors represent a very small part, in numerical terms, they are at the same time “engaged citizens” that take advantage of the Nanodialogue exhibition as a platform to understand more and discuss about N&N. This phenomenon is especially visible when N&N are reported in the news.

It shows that despite the small size of the exhibition, its role as “attractor” for public debate is considerable. It is also an instrument for science centres to reflect on the “value” of their visitors, which lies not only in their numbers but also in the quality of the activities they engage in at the science centre and the kind of contributions they make. Nanodialogue is also contributing to challenge science centres and museums as “repositories of truth”, and presenting them instead as a place for public debate and dialogue, and to support the development of science rather than just acknowledging it.

To stimulate dialogue with various groups, in addition to the sociological research coordinated by the CSD, all the partners organized several debates using the “Decide” format (a tool to structure conversations and debates, see). In addition, on 9 May 6 institutions held debates on nanotechnology simultaneously. This activity was particularly welcomed by teachers, who could use it at school, acting effectively as “multipliers” to reach the student population in a direct way.

Finally, Ecsite has dedicated the last issue of its newsletter to Nanotechnology (available at http://www.ecsiteuk.net/news/ecsite/ecsite_newsletter_66_spring_2006.pdf), with ample coverage about Nanodialogue, its partners and the dissemination activities that will spread the results and experiences gained in Nanodialogue outside of the consortium.

Citizens feedback assessment

The Citizens' Feedback Assessment explored visitors' perceptions and expectations on nanotechnologies and nanosciences (N&N). The questions and the resulting data analysis was produced by the University of Westminster, to elaborate a list of recommendation and suggestion for the "governance" agenda in the ERA.

From March to October 2006, 706 visitors to the exhibitions held in the eight participating countries were invited at random to complete a brief questionnaire to determine: 1) their sociodemographic profile, 2) their perceptions and expectations regarding N&N, and 3) their assessment of the potential benefits and risks posed by N&N, based on the content of the exhibition.

Sections 1 and 2 were completed by the visitors before viewing the exhibition while section (iii) was completed following the exhibition.

Some of the respondents to the questionnaires were also involved in a series of 16 focus groups across Europe for a brief discussion to further explore their views with the aid of professional moderators.

Questionnaire responses

The socio-demographic categories correspond with those used by Eurobarometer to enable comparative analysis where possible.

A gender balance of respondents was achieved, young people under the age of 24 were the largest single socio-demographic group to visit the exhibitions (45%), 47 percent of respondents indicated that they were still studying. The exhibitions appeared to attract visitors with a high-level of educational attainment as 35 percent of respondents indicated that they had completed their education above the age of 20.

Prior to visiting the exhibition, the majority of respondents rated their level of understanding of N&N as low (55%) compared to just 14 percent who thought their level of understanding was high. A significant proportion (20%) of visitors stated that they had no understanding at all. Responses to the question where have you heard/read about N&N? varied considerably with 20 percent of respondents indicating their primary source as television followed by school or university (14%), newspapers (13%), and magazines (12%). Surprisingly, the internet (10%) and talking to other people (10%) did not feature as major sources of information about N&N, perhaps indicating a lack of sufficient interest in the topic to actively seek out

further information. Even fewer respondents had heard or read about N&N from the radio (5%), from trade, professional or scholarly journals (5%) or from science-fiction books or stories (4%). Where respondents stated that they have heard or read about N&N from 'other' sources (7%), this included mainly the museums, science centres and public spaces in which the exhibitions were held, however many also indicated that they had never heard of N&N.

When asked what effect do you think N&N will have on your way of life in the next 20 years, 60 percent of respondents believed the effect would be positive while only three percent envisaged negative effects.

Of the nine risk/benefit scenarios proposed, respondents perceived more benefits than risks posed by N&N. Benefits to human health and environment were the most keenly anticipated while risks to national security and the economy posed the most concerns.

Finally, 88 percent of respondents agreed that the NanoDialogue exhibition had increased their understanding of N&N.

A discussion on ethical, legal and social aspects of nanotechnologies and nanosciences

The final conference marks the conclusion of the "NanoDialogue" project, the first at the European level focused on an intense dialogue activity with citizens and stakeholders centred around an interactive exhibition module on nanosciences and nanotechnologies displayed across Europe.

The interdisciplinary characterization of the project – which has seen the involvement of experts from different backgrounds, such as nanosciences, social sciences and philosophy, is mirrored in the choice of speakers.

The morning is devoted to presenting the activities in the project and the related social, ethical and political aspects, from various points of view. In particular, the first session concerns the activities accompanying the exhibition and the results of the survey conducted on a sample of visitors to the exhibition concerning their knowledge of, and attitude towards, nanotechnology and its products.

The conference represents the timely commitment of the European Commission to encourage debate on cutting edge science, in a phase in which the impact of science – and particularly nanosciences - on society is becoming stronger, thus provoking widely diffused doubts and uncertainties, although it is still virtually unknown.

Acknowledgements

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