Stakeholder's Attitudes towards the **European Code of Conduct** for Nanosciences & Nanotechnologies Research

# NANOCODE NEWSLETTERS

Published under the NanoCode project for Work Package 4

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Institute of Nanotechnology (IoN), UK
www.nano.org.uk

University of Stuttgart, Germany
www.uni-stuttgart.de

Commissariat à l'énergie Atomique (CEA), France
www.cea.fr

Phantoms Foundation (PH), Spain
www.phantomsnet.net

The Technology Centre of the Academy of Sciences of the Czech Republic (TC)
www.tc.cz

Centro Atomico Bariloche (CAB), Argentina
www.cab.cnea.gov.ar

The Department of Science and Technology, Republic of South Africa
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Technische Universiteit Delft, The Netherlands
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**NANOCODE NEWSLETTERS**

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The Commission Recommendation of 07/02/2008 on a Code of Conduct for Responsible Nanosciences and Nanotechnologies Research is available at:

http://ec.europa.eu/nanotechnology/pdf/nanocode-rec_pe0894c_en.pdf

# Newsletter

Issue 1
May 2011

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## Demonstrating responsible nanotechnology research

Nanotechnology is one of a number of novel enabling technologies that offers huge potential to benefit society. But these advantages will only fully materialise if nanotechnologies, and products incorporating nanomaterials, are shown to be acceptable to society when benefits are balanced against potential risks and when research and manufacturing are shown to be conducted responsibly.

With this objective in mind, the European Commission developed, and published in February 2008, a Code of Conduct (CoC) Recommendation for European Code of Conduct for Responsible Nanosciences and Nanotechnologies Research which sets out a number of principles aimed at guiding stakeholders towards undertaking nanotechnologies research in the European Community in a safe, ethical and effective framework, so as to support sustainable economic, social and environmental development.

The CoC itself is voluntary but is intended to facilitate and underpin regulatory and governance approaches towards nanotechnologies and to help cope with scientific uncertainties. It is also intended to provide a European basis for dialogue with third countries and international organisations.

Consultation has shown, however, that not all stakeholders are aware of the CoC and that, due to the general way its principles and provisions are expressed, others have had difficulty in implementing it in a consistent way. The NanoCode project has therefore been supported by the EC in order to analyse user perspectives in more detail and to develop and provide guidance and tools to address these issues.

## NanoCode at a glance

***What is the NanoCode Project?***

NanoCode is a European project, funded under the "Capacities – Science in Society" area of Framework Programme 7, with the overall objective of gathering information about knowledge and perception of the European Commission's European Code of Conduct for Responsible Nanosciences and Nanotechnologies Research (CoC), and developing tools to improve understanding, implementation and use of the CoC amongst companies and organisations carrying out such research activities.

*The European Project NanoCode: a multistakeholder dialogue providing inputs to implement the European Code of Conduct for Responsible Nanosciences & Nanotechnologies Research commenced in January 2010. This two-year project is funded under the Programme Capacities, in the area Science in Society, within the 7th Framework Program (FP7).*

***What is the CoC?***

The European Commission's Recommendation for European Code of Conduct for Responsible Nanosciences and Nanotechnologies Research (CoC) collects together a set of principles, based on concepts and values that have emerged in recent years concerning the governance and ethics of nanotechnologies. It was developed to promote the principles that should underpin research activities, interaction amongst key stakeholders and, in general, "good governance" for the responsible development of nanotechnologies. The European Commission has encouraged voluntary adoption of the CoC by relevant national and regional authorities, employers and research funding bodies, researchers, and individual or civil society organisations involved or interested in nanosciences and nanotechnologies research.

The text of the CoC is available at:

http://ec.europa.eu/research/science-society/document_library/pdf_06/nanocode-apr09_en.pdf

***How long does the NanoCode project run for?***

The NanoCode project started in January 2010 and concludes at the end of November 2011.

## Nanocode project partners

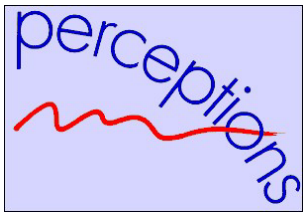
NanoCode brings together the following highly experienced full and associated partners from ten different countries:

| | |
|---|---|
| Czech Republic | Technology Centre AS |
| France | Atomic Energy Commission (CEA) |
| Germany | Interdisciplinary Research Unit on Risk Governance and Sustainable Technology Development (ZIRN), University of Stuttgart |
| Italy | AIRI/Nanotec IT |
| Netherlands | Delft University of Technology |
| Spain | Phantoms Foundation |
| Switzerland | The Innovation Society |
| UK | Institute of Nanotechnology (IoN) |
| Argentina | Centro Atómico Bariloche |
| South Africa | Department of Science and Technology (DST) |

Korea Korea Institute of Science and Technology (KIST) (Associated Member)

The project is coordinated by AIRI/Nanotec IT (Italy).

## User perceptions of the European Code of Conduct




In March 2011, the NanoCode project published its report Stakeholders' Attitudes towards the European Code of Conduct for Nanosciences & Nanotechnologies Research following a detailed consultation of concerned organisations and experts, both inside and outside Europe. The consultation comprised a country-by-country electronic survey of stakeholders followed up by structured interviews or focus groups.

[www.nanocode.eu/files/reports/nanocode/nanocode-consultation-synthesis-report.pdf]

In total, some 300 European and international experts contributed to the NanoCode online survey, which took place between August and October 2010. Around 150 experts were subsequently involved in qualitative interviews or in focus groups in the different countries between October 2010 and January 2011. Taking account of this large and varied group, the results show surprisingly unambiguous trends.

A broad general support was found for the principles described in the CoC with about 80% of participants agreeing with them. However, somewhat limited use of the CoC was observed in practice with only about 20% of the participants stating that their organization had adopted the Code. Around half of the sample was under the impression that their government had adopted the CoC although only the Netherlands has done so formally.

It was found that most governments had not communicated the CoC as expected and only 21% of the participants were aware of initiatives to do so. Furthermore, only 15% of the respondents had been involved personally in discussions about the CoC and only about the half of the experts consulted had heard about the CoC prior the survey.

It is therefore clear that improvements in strategies to increase awareness and understanding of the CoC amongst different target groups are required.

### The accountability issue

The principle of "accountability" in the CoC was a source of concern to many respondents and of confusion to others. For some, the term "accountability" is linked to the legal concept of "liability", perhaps partially due to translation issues, especially in German or French speaking countries. In such cases there was often a recommendation to use the term "responsibility" instead and there were clear messages that some researchers felt uncomfortable with the term "accountability" and questioned how this concept fitted with "open-minded, creative and innovative research".

There is a clear indication that, for a significant proportion of stakeholders at least, this is a difficult issue which needs to be addressed before they could consider adopting the CoC.

### The precautionary approach

The "precautionary approach" is one of the principles addressed by the CoC but, as for "accountability", some respondents stressed that this should not block creativity and innovation in research and felt that the CoC would only be useful if it promoted an equilibrium between risks and benefits and recommended a clear distinction between emerging and well-known risks.

### Other suggestions for improvements

Over three-quarters of the survey participants suggested various actions, including:

- improving communication measures and dialogue activities at European, national and organisational levels;
- designing incentives to promote uptake and implementation of the COC;
- reviewing the wording and scope of the COC itself;
- developing tools, possibly web-based, aimed at better explaining the CoC and defining criteria to measure its use.

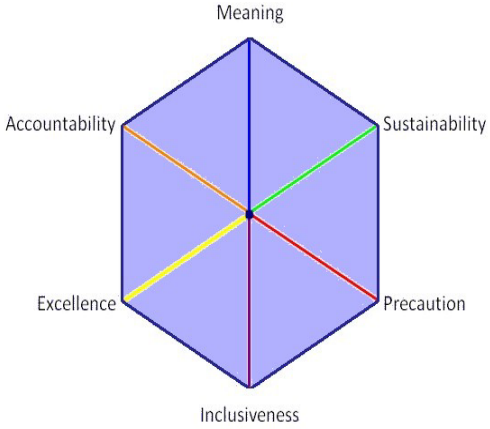
## Next steps in developing tools to support the European Code of Conduct

A key objective of the NanoCode project is, on the basis of existing national situations and on the results of its consultation of involved stakeholders and experts, to develop suitable tools to improve awareness of, and use of the CoC, and to support dialogue and communication about it.

The next stage of the NanoCode project (present – end November) will therefore concentrate on two main activities:

1.

Development of an online tool to support understanding and implementation of the CoC.




Known as the "CodeMeter", this tool will translate the broad principles of the CoC into a number of clear criteria, will provide users with a simple and straightforward means of measuring their performance against these criteria, will offer a means of self-assessment of compliance with the CoC and will offer guidance to aid improvement of performance. Use of the CodeMeter will be free and anonymous.

2.

Development of comprehensive guidance aimed at improving awareness and understanding of the CoC, supporting communication and dialogue concerning it, providing examples of measures that can be implemented by users to aid compliance with the principles of the CoC, and suggesting ways for improving performance.

## National Experts Workshops

Between April 2011 and June 2011, NanoCode project members will be organising expert workshops in each of their own countries to obtain feedback on the draft CodeMeter tool and other guidance developed by the NanoCode project.

Interested experts should contact their local project member for more information [www.nanocode.eu/content/section/11/53]

## NanoCode International Conference

The NanoCode project will hold a major international conference on 29 September 2011, at the Hotel Silken Berlaymont, Brussels. The main theme of this conference will be to present the results of the NanoCode project, including the detailed guidance produced to support and complement the CoC, and to demonstrate and discuss the finalised CodeMeter tool.

Full details of the international conference, including registration and accommodation information, will be provided on the NanoCode website (www.nanocode.eu) and in future editions of this newsletter.

The conference will be of interest to all European and internationally-based organisations undertaking or supporting research in the field of nanoscience and nanotechnology and also to those with an interest in promoting responsible research in advanced technologies.

## NanoCode National Conferences

Each of the NanoCode project members will hold a national conference late October/November 2011 in their own country (Argentina, Czech Republic, France, Germany, Italy, Korea, Netherlands, South Africa, Spain, Switzerland, and UK). The purpose of these national conferences will be to communicate the results of the NanoCode project including the comprehensive supporting guidance produced to support the CoC and the final version of the online CodeMeter tool.

Dates for the various national conferences, together with details for registering, will be communicated via the NanoCode website [www.nanocode.eu] and in future editions of this newsletter.

The national conferences will be of interest to all local organisations and companies in the above-mentioned countries undertaking or supporting research in nanotechnologies.

*This newsletter has been prepared by the NanoCode Project consortium.*

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NANO CODE

# Newsletter

Issue 2
September 2011

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## NanoCode holds International Conference on 29 September 2011

NanoCode will hold its International Conference in Brussels on 29 September 2011. The Conference will mark the beginning of the final phase of the NanoCode Project and the first of a number of stages concerned with the revision of the EC Code of Conduct for Responsible Nanosciences and Nanotechnologies Research (hereafter referred to as the CoC).

The NanoCode Project has been concerned both with analysing stakeholder attitudes towards the CoC through a series of consultations and workshops across Europe and internationally, and developing proposals for its future revision together with tools to support its use and implementation. Key outputs of the project include a comprehensive set of recommendations to the European Commission, referred to as the Master Plan, and an electronic, self-assessment tool that stakeholders can use to measure their performance against the CoC, called the CodeMeter.

The International Conference will give attendees a first-hand opportunity to shape the final and definitive versions of the Master Plan and CodeMeter, as well as being able to actively participate in discussions about responsible innovation and influence the forthcoming revision of the CoC by the European Commission. The programme of the Conference will also include presentations on:

- steps towards an innovative and responsible European research area by from the European Commission;
- those principles and needs that should guide responsible innovation;
- what responsible innovation really means and on defining “accountability” and “responsibility”;

- the pros and cons of applying the CoC and challenges in its implementation;
- experiences in applying a voluntary industry code.

The afternoon session of the Conference will include a chaired discussion with experts from a wide range of stakeholder groups in different regions on the opportunities and mechanisms to extend the boundaries and scope of the CoC towards responsible innovation across a range of novel technologies.

The NanoCode International Conference is an important event for all those who have an interest in responsible research and innovation. It will form an important milestone in the European Commission's initiatives to facilitate an innovation-friendly and responsible research environment, in efforts to revise and recast the CoC with potentially wider and deeper application, and in discussions aimed at contributing to global initiatives to foster responsible innovation. Attendance at the NanoCode International Conference is open to all interested parties and is free of charge but online registration is required. Early registration is recommended as limited space is available). www.nanocode.eu/eventsreg/

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## The CodeMeter – a practical self-assessment tool for gauging responsible innovation performance


Part of the NanoCode International Conference will also describe NanoCode's new tool, the CodeMeter, which is designed to be an easy-to-use, electronic self-assessment tool that enables users to see how well they are performing against the principles of the CoC.

The CodeMeter has been developed as one of a number of tools and recommendations intended to support awareness, implementation and use of the CoC. As a supporting tool to the CoC, it is primarily aimed at researchers in the field of N&N although the concept is capable of being extended to cover responsible innovation across a wider range of novel technologies. The CodeMeter has been designed to be easy-to-use and comprises a number of questions based on the seven broad principles outlined in the CoC: precaution, inclusiveness, excellence, innovation, accountability, meaning and sustainability. The CodeMeter translates these broad principles into a number of criteria that the user can claim compliance with or not in a confidential way, leading to a "score" or profile of performance displayed as a spidergram. Where the user claims compliance, the tool invites them to describe evidence of how this is achieved or, in the case of negative response, brings up a number of suggestions and hints as to how performance may be improved. The CodeMeter may therefore be used as a powerful continuous improvement tool or, potentially, as a useful voluntary tool to demonstrate performance in responsible innovation in a wider context.

The NanoCode International Conference will also provide attendees with an opportunity to comment on and suggest possible further development of the CodeMeter tool in the light of possible revision of the CoC. Any stakeholders interested in testing the CodeMeter are invited to contact the NanoCode Project (coordinator@nanocode.eu) whereupon a draft version will be provided for evaluation and comments.

## Supporting and improving the EU Code of Conduct – Recommendations from the NanoCode Project

A major theme of work within NanoCode has been to analyse users' perceptions and use of the CoC across a number of countries and a variety of stakeholders through a wide-ranging consultation process and series of workshops. These consultations have revealed a number of recurring comments from users and a wide variety of levels of awareness and implementation of the CoC in different countries.

This feedback from stakeholders has now been analysed and forms the basis of a series of recommendations concerning the CoC to the European Commission which are detailed in a NanoCode report entitled the Master Plan. A presentation of the key points in the Master Plan will, again, form an important agenda item during the forthcoming NanoCode International Conference.

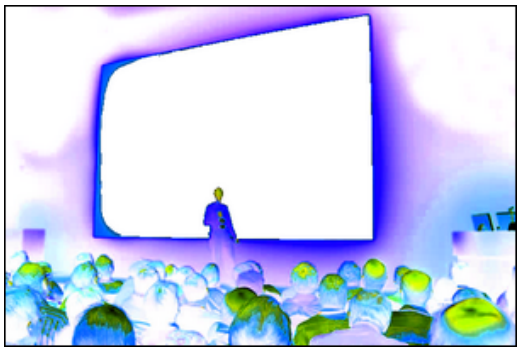
Some key stakeholder perception issues identified during the consultation phase included:

- lack of legitimacy: some stakeholders question whether the field of nanotechnology requires its own code of conduct and suggest that it should be considered alongside other novel technologies;
- lack of practicability: the all-embracing and general character of the principles and guidelines of the CoC, and a lack of support in implementation and monitoring, means that many users are unable to identify specific or verifiable actions in order to comply with it in practice;
- stumbling blocks: certain elements of the content of the CoC have led to a rejection of parts of, or the entire, CoC among some target groups. In addition, language misunderstandings and a lack of comprehensibility have been cited as barriers to implementation;
- lack of pressure to implement to CoC: many respondents suggested that it would be necessary to associate the CoC with incentives, disincentives or penalties (in case of non-compliance) to encourage stakeholders to adopt and comply with it;
- lack of commitment: it was generally considered that a general lack of communication and inadequate dissemination by the European Commission and Member States had given the impression that the CoC was of low priority with commitment, coordination and leadership lacking.

In the light of these stakeholder perceptions, a series of recommendations to the EC has been drawn up in the "NanoCode Master Plan: Issues and Options on the Path Forward with the EC Code of Conduct on Responsible N&N Research" that will be discussed during the NanoCode International Conference.

These includes a proposal for a revision of the contents and structure of the EC CoC, the definition of policy actions and tools to improve its implementation as well as options for extending the scope of the CoC to a broader range of novel technologies in the context of responsible innovation (whilst retaining its broad wide thrust across a set of principles).

On the base of the outcomes of the Conference, a final version of the MasterPlan will be prepared and disseminated through a series of national events.



## Supporting national initiatives in responsible innovation

The final phase of the NanoCode Project will include a series of national NanoCode Conferences held in the countries of NanoCode partners.

The purpose of these conferences will be to:

- convey the final outputs of the project, i.e. the recommendations concerning the CoC made in the MasterPlan, and the electronic NanoCode tool, to interested national stakeholders;
- to highlight those issues of particular relevance to national stakeholders concerning the CoC and also issues surrounding responsible innovation. These may well vary from country to country depending on the level of awareness of the CoC and level of implementation nationally (this may be from hardly at all, to some practical use of the CoC);
- to identify national routes for awareness-raising, communication, further dialogue, and integration of the CoC and the tools developed by NanoCode into national practice;
- to identify and promote opportunities for facilitating national dialogue concerning the future revision of the CoC.

Details of the various NanoCode National Conferences, together with contact and registration details will be posted on the NanoCode website as they are confirmed.

## Other news


### FDA publishes Strategic Plan addressing the regulation of products containing nanotechnology

The US FDA has published a strategic plan in August 2011 that identifies eight priority areas with implications for nanotechnology and nanomanufacturing and in which it will establish or expand its engagement in regulatory activities.

The FDA seeks to foster and advance innovation in the products it regulates and the strategic plan was developed to keep pace with these innovations and incorporate new scientific advances within the regulatory process including developing new tools, standards, and approaches to assess the safety, efficacy, quality, and performance of FDA-regulated products.

The strategic plan identifies eight priority areas in which the FDA will establish or expand its engagement in regulatory activities. One priority area, "Support New Approaches to Improve Product Manufacturing and Quality" will be implemented through the development of improved methods and tools to detect and measure the physical structure, chemical properties, and safety of engineered nanomaterials and complex dosage forms in FDA-regulated products. In another priority area concerning the evaluation of innovative emerging technologies, the FDA recognises the impact of nanotechnology on medical products, and seeks to better understand how nanomaterials are being used in these products.

To support the strategic plan, the FDA has established a number of “Nanotechnology Core Centers” to facilitate investigations on the safety of products that use nanomaterials, establish methods to assess quality and effectiveness of products that use nanomaterials, and identify standards to be incorporated in the preclinical safety assessment of products that contain nanomaterials.

Advancing Regulatory Science at FDA – A Strategic Plan

## Nanotechnology increasingly viewed as beneficial in Australia

A survey carried out in Australia between 2005 and 2011 suggests that Australian citizens are becoming increasingly aware and positive about nanotechnology and, in particular, it's potential to improve their lives.

The survey, of around 1100 randomly-selected people, was carried out on behalf of the Australian Department of Innovation, Industry, Science and Research (DIISR) by the company Market Attitude Research Services. The study shows a shift in awareness of nanotechnology, up from 51% in 2005 to 76% in 2011, with 18% understanding some details about the technology in 2011 as opposed to 4% in 2005. When considering particular benefits of technology, such as in medical technologies and potential improvements to the environment, support grew to an impressive 90% and 87% respectively.

The survey results can be viewed in full in the August 2011 Final Report.

## What happens to silver nanoparticles during waste water treatment?

Silver nanoparticles are widely used in a variety of consumer products, such as antibacterials in clothing and in surface treatments, and in cosmetics.

But there is a lack of information about how nanomaterials move from manufactured products into the environment and what their impact might be. This has raised fears from some groups concerning potential effects on the environment should the silver nanoparticles enter wastewater treatment plants, e.g. by leaching during the washing of textiles.

New research at the Virginia Polytechnic Institute and State University using x-ray transmission electron microscopy, an extremely sensitive technique that can identify both composition and structure, identified nanoparticles from 5nm to 20 nm in diameter from sludge from a Midwest US treatment plant and confirmed that the particles had a 2-to-1 silver-to-sulphur ratio. The researchers also obtained a crystal structure to confirm that the particles were formed from silver sulphide ($Ag_2S$).

The researchers suggest that nanomaterials probably entered the treatment plant in the form of silver nanoparticles and then transformed into silver sulphide, as wastewater plants contain high concentrations of sulphide and silver readily binds to sulphur, and also note that the observations underscores some of the complexity in studying the environmental effects of nanoparticles.

The results have been published in the journal Environmental Science & Technology and will provide scientists with important new information about the life cycle of these nanomaterials.

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# Newsletter

Issue 3
January 2012

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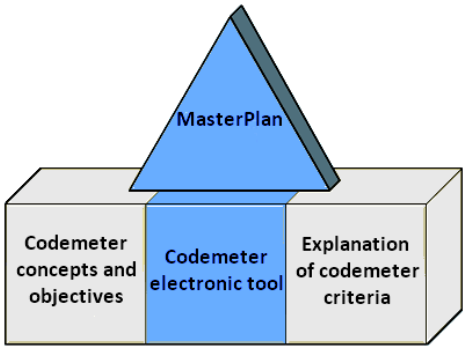
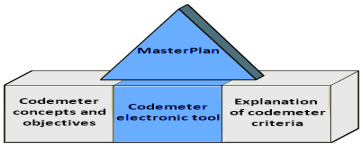
## Final NanoCode Project outputs now available online




The final documents from the NanoCode Project are now available online at www.nanocode.eu. These comprise:

- NanoCode's recommendations to the European Commission on the key issues and way forward with the EC code of conduct (EC CoC) for responsible nanotechnologies research (the MasterPlan;)
- the finalised CodeMeter electronic self-assessment and learning tool based on the EC CoC's principles and values;
- a report on the concepts, objectives and application of the CodeMeter
- an annex providing additional information on the criteria incorporated into the CodeMeter

As well as providing information on the outcomes of the NanoCode Project, it is envisaged that these final documents, which are based on extensive stakeholder consultation, will be a rich resource for all parties involved in both nanotechnology research and in responsible innovation activities in general, and will provide a firm basis for ongoing initiatives and discussions on these topics.

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## Videos from NanoCode International Conference now available to view.

Videos of the presentations from the NanoCode International Conference Promoting Responsible Innovation: The Future of the European Code of Conduct for Nanotechnologies are now downloadable from the NanoCode website as a resource for interested stakeholders. For ease of downloading, the video proceedings have been edited into 14 separate videos by agenda item/presenter.

## NanoCode Project concludes with a series of national events.

One of the key strengths of the NanoCode Project has been the involvement of partners from 11 countries, in Europe and beyond. This wide spread has ensured that the Project was able to collect input from and carry out surveys amongst a wide and representative range of stakeholder groups internationally, adding a great deal of value to the information obtained. The NanoCode Project culminated at the end of November 2011 with a series of national conferences or workshops (or, in the case of Argentina, an extensive consultation procedure), held in its member partners' countries with the aim of disseminating the results of the Project as well as contributing, on a national basis, towards initiatives promoting responsible innovation. The following are selected reports from these national conferences, workshops and consultations.

## Argentina

The National Conference in Argentina was replaced by an extensive consultation procedure together with a dissemination process that included the CodeMeter (CM) and MasterPlan (MP). This had to be done due to the impossibility of realising the meeting in Bariloche, the home town of the Argentine partner and an eruption of the Puyehue-Caulle volcano which disrupted air travel.

The results of this delocalised dissemination process were very satisfactory and enabled the gathering of information and opinions of important stakeholders that can be used both to contribute to improvement of the CodeMeter and MasterPlan and, importantly, to analyse the possibility of adopting an Argentine National Code of Conduct following the European example.

The consultation and dissemination consisted of a series of emails, personal interviews and phone calls with the stakeholders. The CodeMeter, MasterPlan and a special ad-hoc questionnaire in Spanish with points concerning both NanoCode documents were also sent to stakeholders with the aim of using the general concepts in the CM and MP to trigger a reflection and analysis of the current situation in research and development in nanotechnology in Argentina, and to evaluate the possibility of implementing or adopting a CoC similar to the European model (with logical local adaptations).

The diversity of points of view and of professional backgrounds obtained contributed to a rich spectrum of suggestions and analysis that were forwarded to the Nanocode coordinator.

## Czech Republic

The Czech national conference “NanoSafety and NanoCode project outputs”, organised by the Czech Technology Centre, took place in Prague on 1 November 2011 and was attended by researchers from universities, public and private research institutions, representatives from companies, public authorities, health care organisations and NGOs.

The main presentation concerning the results of the NanoCode Project was given by its coordinator, Dr Elvio Mantovani, and the conference also included a lecture “Risk Assessment of Engineered Nanomaterials” given by Dr Lang Tran, scientist at the Institute of Occupational Medicine in Edinburgh, and a guided panel discussion on responsible research and applications of nanomaterials and nanotechnologies in the Czech Republic.

During the panel discussion participants made short presentations on: the filtration of aerosol nanoparticles (V. Zdimal, Institute of Chemical Process Fundamentals, Academy of Sciences of the Czech Republic (ASCR)); the creation of undesirable nanoparticles in different industrial processes (D. Nohavica, Institute of Photonics and Electronics, ASCR); Czech participation in the new EU project NANOFORCE (I. Stancek, Association of Chemical Industry of the CR); Czech standardization activities regarding nanotechnologies and nanomaterials at the EU level (T. Velat, Czech Office for Standards, Metrology and Testing); and on the activities of CZECHINVEST in promoting nanotechnologies (V. Helikar, Czech Investment and Business Development Agency (CZECHINVEST)).

## France

The French national NanoCode conference took place on 30 November in Paris at L'École normale supérieure and was organised by the French NanoCode partner the Commissariat à l'énergie atomique (CEA).

As well as presentations on the NanoCode MasterPlan and CodeMeter, the conference included sessions covering the perspectives of researchers and industry, links with standardization activities and points of view from an non-governmental organisation, France Nature Environnement, together with a final discussion session. Key recommendations included proposals that a future revised EC CoC should clearly define rights, duties and guidelines for different stakeholders, be linked closely with standardization activities of CEN/TC 352 and ISO/TC 229, and that a future EC COC is fully compatible with soft law at both EU and Member State levels and with the legal responsibilities of stakeholders.

## Germany

The German national NanoCode conference took place in Berlin on 15 November 2011 under the responsibility and organisation of the German NanoCode partner, Universität Stuttgart.

The agenda comprised introductions from Dr. Antje Grobe, Universität Stuttgart, the German partner to the NanoCode Project and Wolf-Michael Catenhusen, Chairman of the German Nano Commission. The final NanoCode outputs (MasterPlan and CodeMeter) were outlined by Nico Kreinberger of the Universität Stuttgart. Issues surrounding the opportunities and limitations of voluntary measures such as codes of conduct and practical challenges relating to them were considered by Julia Hertin of the German Advisory Council on the Environment and Dr. Günther Tovar of the Fraunhofer Society.

Further discussions addressed challenges for the successful implementation of a code of conduct for responsible innovation in Germany; the balance between voluntary self evaluation and compulsory audits; views from industry and commerce (Dr. Jacques Ragot, Bayer Material Sciences) and an open plenary discussion which resulted in a number of key conclusions and recommendations concerning the possible way forward with a proposed new EC Code of Conduct for responsible research and innovation.

## Italy

Dissemination of the NanoCode project outcomes, namely the MasterPlan and the CodeMeter, took place within the framework of the International Conference “NanotechItaly 2011: Promoting Responsible Innovation” held in Venice (November23-25, 2001).

This communication comprised a presentation *“Voluntary measures for responsible innovation: outcomes from the NanoCode project”* as part of the Conference session devoted to responsible development and nanotoxicology, together with a dedicated NanoCode project booth in the Conference exhibition area to illustrate the MasterPlan and the CodeMeter. A quite large audience attended the presentation at the Conference session and many delegates paid a visit to the booth to ask further information and see the CodeMeter at work.

## South Korea

The Korean national NanoCode conference was held in Seoul on 28 November 2011 at the premises of Korean Institute of Science and Technology (KIST), the Korean NanoCode partner.

Chaired by Jungil Lee, the agenda included the following topics: a description of the EU CoC and the NanoCode MasterPlan and Codemeter (YoonSuhn Chung, KIST); the Korean NanoResearch Safety Guidelines (Jungwon Lee, University of Seoul); Communication among Stakeholders - Necessity and Methodology (SangHoon Kim, KIST); Bioethics vs. Nanoethics (Hanjo Lim, Ajou University); Researchers and Innovation (SunYang Chung, Konkuk University) ; General and Social Aspects of Innovation (Wi Chin Song, STEPI).

## Netherlands

The Netherlands national NanoCode conference took place on 25 November 2011 at Delft University of Technology. The event was free-of-charge and open to representatives of public authorities, politicians, industry, NGOs, interested stakeholders and members of the wider public with an interest in responsible nanotechnology.

As well as presentations on the final outputs of the NanoCode project and Dutch stakeholders perspectives on the European Code of Conduct, the conference included discussions concerning policies on responsible nanotechnologies in the Netherlands (Jacqueline Mout, OCW); information flow - KIR Nano and other supporting projects (Dr Adrienne Sips, RIVM); the implementation of the precautionary principle (Dr Pieter van Broekhuizen, IVAM); industry's strategies on self-regulation (Willem-Henk Streekstra, VNO-NCW); Nanopodium - the experience of a national communication platform (Prof. Peter Nijkamp, NanoPodium) and  vision for the European Commission Code of Conduct (Dr Rene von Schomberg, DG Research & Innovation, European Commission).

## South Africa

The South African national NanoCode conference took place on 25 November 2011 in Gauteng Conference themes included; the whys of the Code and making it work;the strategic role of the Code and its strengths and weaknesses; a description of the MasterPlan for the further implementation of the Code and of the CodeMeter; a discussion of global trends in ELSI of emerging technologies and lessons to be learned from other technologies.

Perspectives on international best practices for responsible innovation were also discussed. The event was open to public and private researchers, academics and policy makers, industry, business associations, NGOs and all those interested in the responsible innovation of emerging technologies. A number of recommendations were made during the presentations and plenary debate and it was concluded that the MasterPlan and Codemeter formed a very useful basis for elaboration of a future code of conduct in South Africa tailored for local conditions.

## Spain

The Spanish national NanoCode conference was held in two separate complementary sessions; in Madrid on 10 November 2011 with a specific event for industry, funders, decision-makers and NGOs; and in the Canary Islands, on 22 November 2011 with a specific session for researchers which included the following topics:

Engineering Aspects of Nanosafety (Francisco Balas, INA/CIBER-BBN); Research Ethics and NanoScience (Fernando Briones, IMM-CSIC); Nanocode EU project results - CodeMeter and MasterPlan (Maite Fernández Jiménez, Phantoms Foundation); Spanish contribution to the sponsorship program for the safety testing of manufactured nanomaterials (Philipp Rosenkranz, INIA); Nanotechnogy: European and Spanish regulatory frameworks (Ruth Jiménez Saavedra, ISTAS-CCOO) and a French perspective on the Nanocode project (Yves Sicard, CEA, France).

## Switzerland

The Swiss national NanoCode workshop was held in Bern on 8 November 2011. The major landmarks of the NanoCode project and its final major outputs, the MasterPlan and CodeMeter, were described by Sascha Schwarzkopf and Christoph Meili of the Innovation Society, who organised the event.

Further presentations covered the Swiss Action Plan on nanotechnology (Dr. Kaspar Schmid, Staatssekretariat für Wirtschaft (SECO)); industry perspectives (Helmut Elbert, Innovation Society) and the IG DHS code of conduct for nanotechnologies (Dr. Thomas Gude, SQTS). The workshop also included a plenary discussion session involving all participants chaired by Dr. Sergio Bellucci (TA Swiss) which resulted in a good perception of the CodeMeter as a useful practical tool and a number of recommendations regarding the scope and implementation of a future revised EC CoC.

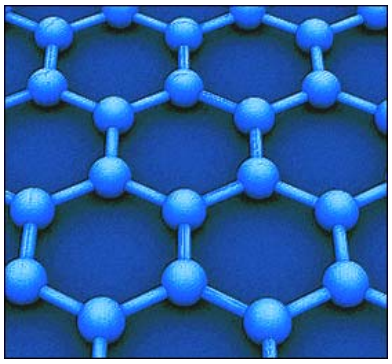
## United Kingdom

The UK national workshop took place in London on 24 November 2011 and was organised by NanoCode's UK partner, the Institute of Nanotechnology (IoN). IoN's Scientific Director, Richard Moore, described the key stages of the project and its principle output, the recommendations to the European Commission on the future of the EC Code of Conduct on responsible nanotechnologies research (MasterPlan) and the electronic self-assessment tool (the CodeMeter).

Mrs Hilary Sutcliffe, Director of Matter, presented a paper describing proposals for a system for responsible innovation prepared at the request of the European Commission; Professor Robert Lee of the Centre for Business Relationships, Accountability, Sustainability and Society (BRASS), Cardiff University, explored issues of accountability and responsibility and what these terms mean in relation to responsible innovation; Dr Sally Randles of the Manchester Institute of Innovation Research (MIOIR) gave a presentation describing a recent transatlanic dialogue on "actor strategies and international perspectives on responsible innovation and responsible governance (RI-RG)"; a discussion session was then chaired by Dr Barry Park of the Nano Knowledge Transfer Network (NanoKTN).

The free event provided an important opportunity for a number of important UK stakeholders to engage on the topic of how to take responsible innovation forward and for a detailed exchange of views to take place on possible strategies for this.

## Other key news



### Commission adopts definition of a nano material

On 18 October 2011 the Commission adopted a Recommendation on the definition of a nanomaterial.
According to this Recommendation a "nanomaterial" is defined as:

*A natural, incidental or manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50 % or more of the particles in the number size distribution, one or more external dimensions is in the size range 1 nm - 100 nm.*

*In specific cases and where warranted by concerns for the environment, health, safety or competitiveness the number size distribution threshold of 50 % may be replaced by a threshold between 1 and 50 %.*

*By derogation from the above, fullerenes, graphene flakes and single wall carbon nanotubes with one or more external dimensions below 1 nm should be considered as nanomaterials.*

The definition will be used primarily to identify materials for which special provisions might apply (e.g. for risk assessment or ingredient labelling). Those special provisions are not part of the definition but of specific legislation in which the definition will be used.

The relevant Commission webpage on nanomaterials goes on to say

*"Nanomaterials are not intrinsically hazardous per se but there may be a need to take into account specific considerations in their risk assessment. Therefore one purpose of the definition is to provide clear and unambiguous criteria to identify materials for which such considerations apply. It is only the results of the risk assessment that will determine whether the nanomaterial is hazardous and whether or not further action is justified.*

*Today there are several pieces of EU legislation, and technical guidance supporting implementation of legislation, with specific references to nanomaterials. To ensure conformity across legislative areas, where often the same materials are used in different contexts, the purpose of the Recommendation is to enable a coherent cross-cutting reference. Therefore another basic purpose is to ensure that a material which is a nanomaterial in one sector will also be treated as such when it is used in another sector."*

The official text of the definition may be downloaded at the following link
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:275:FULL:EN:PDF (page 38).

## New European Commission report on corporate social responsibility highlights how responsible strategies can benefit businesses

A new European Commission report *A renewed EU strategy 2011-14 for Corporate Social Responsibility*, published on 25 October 2011, suggests that businesses can benefit by becoming more responsible and can also make Europe more competitive.

The report provides a new EU definition of CSR based on core business purposes and strategies and how businesses make their money. It highlights CSR as "the responsibility of enterprises for their impacts on society", focusing on minimising negative environmental, social and economic impacts and maximising the positive impacts.

The report contains a clear endorsement of global standards such as the OECD guidelines for multinationals, the UN guiding principles on business and human rights, and the recent ISO 26000 guidance on social responsibility. The report also supports a smart mix of laws, market incentives, and collective self- or co-regulation as the best way to advance CSR to maximise shared value for business and society.

*This newsletter has been prepared by the NanoCode Project consortium.*