

The Nanotechnology Engagement Group

An Introduction

The NEG Core Group

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Objectives of the document:

- 1) To set out the terms of reference of the Nanotechnology Engagement Group (NEG) as a research and dissemination project.
- 2) To put the work of the NEG in the context of current public engagement activities on nanotechnologies.
- 3) To communicate the above to NEG members, relevant civil servants, and other interested parties. In particular this paper will inform the government commitment to produce an outline programme of public engagement with nanotechnologies; and set out the path to supporting the autumn comprehensive programme.

Summary

The Nanotechnology Engagement Group (NEG) has been established to bring about a step change in thinking and acting on public engagement in the lifecycle of nanotechnologies. Its purpose is to support public bodies develop a coherent programme of social and ethical research and public dialogue around nanotechnology; and transfer this learning to wider science and technology arenas.

Although nanotechnology is currently an emerging field, it has been recognised that early public engagement on the subject is essential if that engagement is to be meaningful. There are already a number of public engagement activities on nanotechnology taking place. One of the NEG's initial objectives is to develop a complete picture of current activities and analyse their impact. Following on from this the NEG will seek to better understand the concept of upstream engagement and the expectations of what public engagement around nanotechnologies should offer.

NEG will also examine wider issues such as the relationship between institutions and the engagement processes taking place; and the role of the media in providing the public with information. A key role of the NEG will be to disseminate its research findings to government and other interested parties.

The NEG will work with a wide range of stakeholders including scientific institutions, government institutions, research councils, public participation practitioners, the media, communication specialists and participants.

The NEG's six primary objectives are:

1. **Sharing learning** between nanotechnology engagement projects, ensuring consistency and cohesion
2. **Mapping** current public engagement on nanotechnologies in the UK and internationally
3. **Informing OST policy** by keeping them up to date with progress and outcomes on nanotechnology-related public engagement projects
4. **Identifying knowledge gaps** for future social and ethical research and public engagement
5. **Understanding Upstream Engagement**
6. **Making its findings public** through reports on their research

The NEG's specific outputs will be 4 reports over 2 years and their subjects will, in large part, be directed by the above objectives.

The NEG is an independent, government funded, research and dissemination group. It will consist of a Core Team (those listed as the authors of this document), a Forum (20 individuals representing projects or organisations) and a Network (100+ stakeholders).

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1. The Nanotechnology Engagement Group

The Nanotechnology Engagement Group (NEG) has been established to help bring about a step change in our thinking and acting on public engagement in the lifecycle of nanotechnologies.

In addition, the NEG will also draw more general lessons for policy and decision-making around emerging technologies, as the development of nanotechnologies has become a testing ground for the application of public engagement processes to science and technology.

The purpose of this paper is to describe briefly what the NEG hopes to achieve and how it will operate. It starts by setting out the context for public engagement on nanotechnologies in the UK. Secondly, it describes the role of the NEG in linking public engagement research, nanoscience research, government policy and wider public debate. Thirdly, it describes the research and dissemination goals of the NEG. The paper concludes with an outline of the NEG's terms of reference and work plan.

The NEG will not start operating officially until September 2005. A central purpose of this paper is therefore to communicate our plans to a new, external audience as early as possible. This will enable them to get involved in the work and shape it in new ways. The Core Group has already been established, its first output being this report.

2. Nanotechnologies and Public Engagement

2.1 An Upstream Convergence

The calls for public engagement on nanoscience and nanotechnologies at early stages in research and development have come from all sides of the emerging debate. Nanotechnology proponents, such as the Royal Society (RS) and the Royal Academy of Engineering (RAE), "believe that a constructive and pro-active debate about the future of nanotechnologies should be undertaken now" (RS/RAE, 2004). They see public engagement as an essential pre-condition for building the public acceptance necessary for the technology to thrive. Nano-sceptics on the other hand fear that "nano-scale technologies will be rushed to market without transparent and democratic processes of review" (ETC, 2003), exacerbating the existing divides between those who can and those who cannot access the benefits offered by the new technology.

Other high profile calls for public engagement on nanotechnologies have come from the ESRC¹, Greenpeace², and the Treasury³. In addition, the Demos pamphlet 'See Through Science' begins to map out a 'Nano Nation' dialogue. Each publication details recent science and technology controversies, from BSE to radioactive waste and GM crops. These reports share the view that early public engagement with an emerging technology is desirable in order that lessons learned can be incorporated into the design of research programmes and

¹ Wood, S., Jones, R. & Geldert, A. (2003) *The Social and Economic Challenges of Nanotechnology*. Swindon: ESRC.

² Arnall, A. H. (2003) *Future Technologies, Today's Choice: Nanotechnology, Artificial Intelligence and Robotics; A technical, political and institutional map of emerging technologies*. London: Greenpeace.

³ HM Treasury/DTI/DFES (2004) *Science & Innovation Investment Framework 2004-2014*. London: HMG.

regulatory measures. "Upstream public engagement", it is argued, is better than responding to public concerns once particular technological and regulatory trajectories have been established.

Change was clearly in the air in the Summer of 2004 when the government disbanded the COPUS science communication grants scheme in favour of Sciencewise, an explicitly dialogue centred fund. So it came as little surprise when in February 2005, speaking in response to the RS/RAE report, Lord Sainsbury committed to:

"promoting constructive dialogue on nanotechnologies. The Government agrees that properly targeted and sufficiently resourced public dialogue will be crucial in securing a future for nanotechnologies"⁴

By this stage, the emerging consensus that dialogue around nanotechnologies is necessary had taken root, and with it came a commitment from government to make it happen. Now all that was needed was some clarity as to what 'it' would look like.

2.2 What is Upstream Engagement?

Many of the activities in the previous section are attempts at operationalising upstream engagement, but important questions remain as to the mechanics of that engagement. As the RS & RAE report predicted "specifying the precise forms of such dialogue will be no simple matter".

At present, nanotechnology research is driven by the R&D departments of national and international public and private sector organisations. The stakes of the 'nano race' are high. The investment required to bring nanotechnologies to the market will be enormous but, if the technologies take off, so will the financial returns. As nanotechnologists learn from previous controversies around issues such as nuclear power and environmental pollution, there is a growing awareness that raising the funds for investment will be contingent on public acceptance of the technology.

But this engagement, which may become a pre-requisite for acceptance of the technologies, could be hampered by commercial pressures. For example, the need to maintain the confidentiality of innovation programmes to ensure competitive advantage does not necessarily facilitate the kind of transparency needed for open and meaningful dialogue.

This is just one of many obstacles to upstream engagement. It is also quite clear that the practice of upstream engagement presents a fundamental challenge to how institutions work. It is not simply about running more participative processes ('soft' reforms), but also about reflecting on the degree to which institutional decision-making enables participative processes to be meaningful and effective ('hard' reforms). Without considering institutional issues, initiatives that focus solely on the process of dialogue have proved ineffective. The challenge for the NEG is to suggest new relationships that can serve science and society as we move into the fast changing 21st century.

There is also little practical experience of upstream public engagement. Many public engagement techniques do exist but few, if any, have been used to inform the direction

⁴ The Royal Society and Royal Academy of Engineering (2004) *Nanoscience and Nanotechnologies: Opportunities and Uncertainties*. London: The Royal Society.

of science research trajectories. The engagement processes that have been undertaken (e.g. DTI Foresight or DEFRA Horizons Scanning) have always involved experts or stakeholders, and even the BBSRC's proposed committee of non-scientists does not involve the wider public.

This lack of expertise exists for good reason, as upstream public engagement faces the following challenges will people be motivated to be involved in an activity with distant impact horizons? Do you need to involve large numbers of people to get widespread public trust, and if so how? How do we appropriately link upstream processes into institutions?

Indeed, upstream engagement is not always appropriate. Some challenge the need for wider public involvement, citing expert-led initiatives (such as the Human Fertilisation and Embryo Authority) as exemplars in undertaking trusted and robust scientific decisions. The point though is not that engagement should be pursued for its own sake, but in order to improve policy and decision-making in science. We therefore need to understand when and where public dialogues might be deployed.

2.3 Process and institutional arrangements for engagement

In his recent pamphlet 'Everyday Democracy', Tom Bentley, Director of Demos introduced the idea that 'hard' and 'soft' reforms underpin a renewal of political-participation. This concept is usefully transferable to upstream engagement.

Much of the criticism of historical public engagement activities is that they have been 'naïve', operating at some distance from institutional decision-making. Similarly, there is a long-standing criticism that institutions are yet to establish the optimum conditions whereby public engagement will prosper.

The NEG will specifically examine the interface between institutions and public engagement and offer its views on both the process and institutional aspects, which will need to underpin effective upstream engagement.

The NEG will also try to foster learning between those operating in an institutional environment and public engagement practitioners. This will entail engagement practitioners and their processes becoming aware of the political and personnel realities of how institutions work, and not simply relying upon 'good process design'. Similarly, institutions will have to become much more 'process savvy'.

3. The Role of the Nanotechnology Engagement Group?

It is clear then, that there are many open questions about how to put calls for public engagement on nanotechnologies into practice. Experience from past public engagement exercises around science suggest that the many relevant voices in these discussions do not necessarily share the same assumptions about the purpose and mechanisms of public engagement. We have broken down important issues that need to be addressed to understand the role of public engagement in the Cycle of Public Debate (where is the debate at?); the Stage of Science and Technology Development Trajectory (where is the technology at?) and the Mechanics of the Debate (how the debate works).

3.1 The Cycle of Debate

Understanding the character and mechanics of how public debates emerge and develop will be critical for managing any nano dialogue. By any measure the nanotechnology debate is still in its infancy and positions have not been taken, although battle lines are being drawn by NGOs such as the ETC Group.

Historically, public debates have been characterised by special interest groups feeding newsworthy stories to the media. In many senses nanotechnology is following that well trodden path, with Drexler's visions of Grey-Goo being the dominant public conception of nanotechnology, if one exists at all. Such public conceptions can be enduring, as 'Frankenstein Foods' proved to be with GM. Once that debate started products had already hit the shelves and crops were growing, which made more nuanced discussions difficult. The challenge, therefore, is to involve the public in a meaningful dialogue before hyperbolic positions dominate the media.

Understanding the information flows between the various actors will underpin whether this is achievable. Ray Sheath, a founder of Charter 88, claims that "information is the fuel of public engagement" and, indeed, experience tells us that public engagement can stand or fall on the integrity of the information being discussed.

A key actor in this process will therefore be the media, who act as the information arbitrator. The media is coming under increasing pressure to provide guarantees as to the quality of its reporting of scientific issues⁵. Yet, at the same time, the media has a critical role in generating the enthusiasm necessary for people to get engaged and act as a conduit for the competing views that are a necessary part of any contentious debate.

The challenge is to have a media able and willing to present engaging but balanced perspectives on nanotechnology.

3.2 Stage of Science and Technology Development

We are at an early stage in the nanotechnology development trajectory. So much so, that it may prove difficult to engage people with a technology with 15+ year time horizons.

An aim of the NEG will be to draw together views on the interactions between the public debate and the development of nanotechnologies. The idea being, to

⁵ Mulgan, G., Salem, O., Steinberg, T. (2005) *Wide Open: Open source methods and their future potential*. London: Demos

better understand the relationship between the two and its effect on undertaking public engagement.

The RS/RAE report suggests that engagement may have to take place on specific applications as they arise. This may be the case, but what is important for the NEG is to better understand the overall trajectory of technology development in relation to the debate, to achieve greater clarity as to what the necessary conditions for meaningful public engagement are. The Food Ethics Commission identified the need for a different order of questioning in upstream engagement, such as who owns / controls / benefits from a given technology.⁶ It will therefore be crucial to have engagement at a stage when such questions can be debated.

3.3 The Mechanics of the Debate

We have already established that our collective experience of upstream engagement is very limited. We must be careful therefore not to over-sell it, as it may well be that the conditions necessary for it to function prove impossibly challenging.

Clarity of outcome is an essential pre-requisite for effective public engagement and public engagement in science and technology often reflects a number of purposes:

- Increasing public confidence in the use, management and regulation of technologies;
- Building trustworthy institutions;
- Reflecting public aspirations and concerns in the development of science and technology; and
- Promoting a wider agenda of civil renewal.

To take just one example, trust, it is clear that achieving these objectives will be difficult. Under what conditions does public engagement create public trust? Much of the work that has already been done in this area suggests that achieving this goal through public engagement can depend on any of the following conditions:

- Engaging large numbers of people, so that the public goes through the same deliberative learning process;
- Simply opening-up the science and technology processes themselves to other more trusted parties (e.g. NGOs, members of the public);
- Ensuring that the processes have influence; and
- Opening up to scrutiny the fundamental questions of who or what controls a particular technological development.

Each of these conditions has knock on effects to the type of public engagement used and some have never been effectively tested in practice. Similarly, if the goal of integration with institutional decision-making is going to be achieved, it will inevitably affect process. For example, having demographic input as opposed to just stakeholder input will be essential if maintaining democratic legitimacy is key. Clearly then, our ability to successfully operationalise public engagement is uncertain and we must be cognisant of the challenges it will bring.

⁶ Food Ethics Council (2004) *Just Knowledge? Governing Research on Food and Farming*. Brighton: Food Ethics Council.

3.4 Partnership

For upstream engagement to fulfil its promise will require new, constructive relationships between the key actors operating in this arena. In particular, we envisage the following will be involved:

- Scientific institutions
- Government institutions
- Research councils
- Public participation practitioners
- The media (printed and broadcast)
- Communication specialists
- Participants

The evidence emerging from the practice of public engagement suggests that a culture of co-production is likely to be central to successfully operationalising upstream engagement. In practice, this means designing and delivering the engagement collectively – institutions working with participants, practitioners and the media. It has become clear that effective public engagement depends on a variety of skills and is context specific.

We hope to support such partnership working through face to face meetings and workshops, as well as through provision of an online platform to work through documentation remotely.

4. Research and dissemination goals of NEG

The NEG can play an important role in bringing together all the relevant sectors in the UK to reflect on the theory and practice of public engagement around emerging nanotechnologies.

The NEG will have short and medium term research dissemination goals. In the short term the NEG will play an important role in informing the Government's comprehensive programme, due in autumn. This work will also provide the foundations for the following main project deliverables:

1. The NEG will carry out research on different stakeholders' expectations of public engagement with nanotechnologies. In order to understand the role of different engagement activities it is important to understand the different assumptions made about the purposes of public engagement. This research will then facilitate the communication of lessons from the various engagement activities to different audiences.
2. What public engagement activities are being carried out on nanotechnologies? This mapping project will give an up to date account of the range of activities going on in this area – both in the UK and internationally.
3. What lessons can be drawn from the engagement activities? This third strand of the NEG's work plan will involve workshops bringing together the different public engagement activities to highlight the lessons learned. These may differ between projects, or common lessons may emerge. These lessons may be relevant only to specific sections of the wider audience identified in the first workstream, or they might be relevant across the board.
4. The NEG will then analyse how the lessons learned relate back to the range of interested audiences (1) and the spectrum of engagement activities undertaken (2). The NEG can then draw up recommendations for communicating the learning and areas of work that might need to be developed.
5. The NEG will also facilitate communication of the learning to government, other stakeholders, nanoscience researchers and the wider public.

5. Learning

A critical role for the NEG will be to draw together the learning currently available on upstream engagement, within a nanotech context, for dissemination to a wider audience.

As detailed in previous sections, we need to learn more about the practicalities of upstream public engagement, but we should not wait until we have got the process absolutely right. Nanotechnology is being developed now, and we can not simply ask scientists to wait.

The NEG seeks to address this short term imperative by investing its initial efforts in understanding what is happening now and stakeholders' expectations and needs. As detailed in Sections 3 and 4 this is to support the government in delivering its comprehensive programme and build strong foundations for the NEG.

5.1 Non-Nano Arenas

It is imperative that our enthusiasm for nanotechnology engagement does not distract us from learning the engagement lessons from other science and technology arenas. The work of BBSRC on biotechnology is probably most relevant, however the traditional Foresight approaches to upstream thinking have much merit, which should not be lost in moves to engage upstream.

Similarly, just as we should not assume that downstream methods of public engagement applied in arenas such as radioactive waste and GM are directly applicable, many of the lessons they offer should not be ignored on this basis.

5.2 International

There has been much excellent public engagement work undertaken overseas that will be drawn upon as part of this work. For example, the US National Science Foundation is about to commission a £10 million, 5 year Center for Nanotechnology in Society (commencing 1st January 2006). The successful consortium is likely to be researching upstream dialogue processes in the USA and elsewhere.

The NEG will link up with this important US Centre in its early stages.

5.3 The Future

A critical role for the NEG will be to maintain a map/understanding of what nano-engagement work is taking place and stakeholder's expectations. As new projects emerge the NEG will put them on the 'map' and seek to draw learning from them. The NEG will also seek to prevent duplication of effort and disseminate good practice, thereby having a reciprocal, supportive relationship with the projects. This knowledge will be critical in informing the government's comprehensive programme as it develops; ensuring that resources are directed where they are most needed.

6 Current Activities

There are already a host of relevant activities taking place that the NEG will be seeking to draw upon. We have listed some below to give an idea of the sort of work that we intend to support and learn from. The list is incomplete but serves to provide an idea of what is happening at the moment. A priority task for the NEG when it starts will be to create a complete picture of current activities.

6.1 Participatory processes

Nanodialogues

The Nanodialogues project aims to explore the role of society in early stage discussions on the direction of nanotechnology research. The project looks at the debate from a mixture of public and private sector perspectives. It will undertake a variety of dialogue processes that involve stakeholder, representative and randomly selected participants. These 'experiments' will investigate the practicalities of public engagement, so that the outputs of future dialogue events will be useful to decision making processes

Nanodialogues is supported by £120,000 through the DTI's Sciencewise programme. The project's partners include Demos, Lancaster University, the Environment Agency, two UK Research Councils, an NGO and a company. Their first report, called 'The Public Value of Science', will be published in September 2005. The final report, including the results of the experiments, will be published in September 2006. Reports from the project will be available from the Sciencewise website, www.sciencewise.org.uk.

Small Talk

This project aims to bring coherence to the wide range of activities around the UK that are focused on discussing nanotechnologies with the public and scientists. The project website (www.smalltalk.org.uk) provides resources, data, and advice, to help science communicators plan and deliver successful dialogue events.

Small Talk is also actively forging links with policymakers so that the results of dialogue events on public and scientists' attitudes towards nanotechnologies can reach the right people to inform the course of action for future research, use and regulation.

The project is being delivered by a collaboration of The British Association for the Advancement of Science, Ecsite-UK, the Royal Institution, the Cheltenham Science Festival, and Think Lab with £50,000 of COPUS funding. Locations for the 2005 events include the BA Festival of Science in September and the Manchester Museum of Science and Industry in October.

Democs

Democs is a conversation card game designed for 6 – 8 people to play at a time, which helps people to informally discuss complex topics. The approach is rooted in deliberative democratic theory, and helps participants understand the various perspectives on the issue in question. The game has been played on nanotechnology 6 times since February 2005 but it has been harder to attract people to engage with nanotechnology as a topic.

Currently, using the game to discuss nanotechnology is part of a wider project, funded by the Wellcome Trust, which is promoting the game as a way to engage the public with science. In the case of nanotechnology this includes use of the game at science festivals.

The game is primarily designed to enable people to have their say, by having organisations use it as an engagement technique. To date though, the main outputs in

regards to nanotechnology have been increased information and awareness amongst those who have played the game. Other outcomes of using the game are increased social capital, due to people meeting and sharing their experience as part of playing it.

NanoJury UK

NanoJury UK brings together 20 people from a range of backgrounds to constitute a citizen's jury. It aims to:

- Be a vehicle for enabling peoples' informed views to influence policy
- Be a mutually educative dialogue
- Create potential for deliberative processes to broaden the issues discussed in nanotechnology research and the diversity of people involved in them

The jury will hear evidence from a balanced set of witnesses about a range of possible futures and the role which nanotechnologies may play in them. The jury will then draw on the evidence and produce recommendations on how research policy should develop.

The jurors are randomly selected and there are also facilitators and a science advisory panel involved. The panel provides advice on the technical aspects of the future scenarios being explored and the witness submissions.

All evidence provided by witnesses will be posted on the NanoJury website (www.nanojury.org) and following their recommendations on September 21st 2005, there is a commitment from the Nanotechnology Issues dialogue Group (NIDG) to provide a written response.

Greenpeace, the IRC in Nanotechnology at Cambridge, the Guardian and the city of Newcastle are partners in the project.

This project is a multi-stakeholder dialogue, which aims to:

- Raise awareness about the implications of nanotechnology for the poor
- Close the gaps within and between sectors of society to develop an action plan that addresses opportunities and risks
- Identify ways that science and technology can play an appropriate role in the development process.

Global Dialogue on Nanotechnology and the Poor (GDNP)

The GDNP has been running since January 2005 when the Meridian Institute published a paper called 'Nanotechnology and the Poor: Opportunities and Risks'. This paper was intended to raise interest and awareness about the impacts of nanotechnology on the poor and served as a starting point for the GDNP. Between January and March 2005 an online consultation process on the paper took place and Meridian Institute staff also attended various workshops and spoke to individual stakeholders.

The Institute has convened a GDNP steering group, which met for the first time in June 2005, in order to decide on the best way forward for the dialogue. A Nanotechnology and Development News Service is also in development. This will provide daily emails with one-paragraph summaries of the 2-4 most important nanotechnology developments in the previous 24 hours, which are relevant to developing countries. This will be running by September 2005.

The GDNP is funded by the Rockefeller Foundation and the news service is funded by DIFID.

6.2 Research projects

Nanotechnology Research Co-ordination Group (NRCG) stakeholder meetings

The NRCG is made up of key Government Departments, regulatory agencies, the National Physical Laboratory, and the Research Councils. Its specific mandate is to develop and oversee the implementation of a cross-Government research programme into the potential human health and environmental risks posed by free manufactured nanoparticles and nanotubes.

To inform the decisions of the research co-ordination group, two stakeholder meetings have been organised this year. Specific aims of the meeting are to:

- Make certain that stakeholder/expert views feed into the early deliberations of the NRCG, when considering what research is needed to set in place appropriate regulation;
- Bring greater transparency to the regulatory development process;
- Inform Government policy making activities in the area of nanotechnology more generally;
- Begin the process of dialogue on nanotechnology regulation between Government and key stakeholders/experts, and between different stakeholders/experts;
- Clarify and challenge different stakeholder/expert perspectives and concerns; and
- Add value to the Government's longer-term plans for public engagement.

Nanotechnologies, risk and sustainability

This project investigates how dialogue between the public, scientists and regulators could shape the innovation and regulation of nanotechnology. It explores how expert and public perceptions are formed around the social, cultural and environmental implications of nanotechnology, including benefits, risks, and uncertainties. It also asks whether the public debate around new technologies can be moved upstream, closer to the heart of nanotechnology R&D processes.

By looking at the development of nanotechnology applications in healthcare, computing, energy, new materials and cosmetics, the research aims to develop techniques for incorporating sustainability considerations early in the development of the technologies and associated regulatory processes.

Lancaster University and Demos partner on the £226,000 ESRC-funded project, which includes input from scientists, journalists, industrialists, administrators, and the public. The project culminates in a report in January 2006 on how the benefits and sustainability of nanotechnology can be maximised.

Nanologue

This project is bringing together leading researchers from across Europe to facilitate an international dialogue on the social, ethical and legal benefits and potential impacts of nanoscience and nanotechnologies.

The project's three main stages are mapping, engagement and communication. The mapping exercise is identifying the benefits and potential impacts of nanotechnology, based on current literature. These findings will be used to prompt discussion during the project's engagement phase. Through stakeholder interviews and workshops and an expert panel, three future scenarios will be developed. These will help to rationalise the information to assist with communication to the wider public and to help develop policy ideas.

The key output of the project, and specifically of the mapping and engagement exercises, will be a comprehensive communication to a variety of audiences, including the media and civil society, of the benefits and potential ethical, legal and social issues of the nanotechnology applications that are likely to be widely available by 2010. The intention is that this communication can be used to prompt wider dialogue.

In addition the project will provide educators with material for nanotechnology courses at schools and universities, as well as developing an interactive internet tool to allow swift assessment of ethical, legal and societal aspects of nanotechnology research during early-stage development.

The project has European Commission funding of Eur340,000 and is running over 18 months. Its partners are Forum for the Future, the Wuppertal Institute, EMPA and Triple Innova.

6.3 Relevant organisations

Institute of Nanotechnology

The Institute of Nanotechnology is a unique organization that was established in 1994 to develop and promote all aspects of nanotechnology. It works closely with industry, government, universities and researchers worldwide, and provides information to the general public through its website. It organises international scientific events, conferences, and educational courses designed to encourage nanotechnology take up by industry, as well as stimulating interest in less developed countries.

The Institute runs Nanoforum (www.nanoforum.org), an EU funded information network. It also runs a club for nanostart-ups called the NanoMicroClub, which has over 150 members, and is in the process of launching the European Nanotechnology Trade Alliance (ENTA). This will involve the promotion of engagement between nanoindustries and the public. The first stakeholders meeting of ENTA is scheduled to take place in London on July 22nd.

Additionally, the Institute is a joint partner in www.azonano.com, which is a large unrivalled source of information relevant to the nanotechnology industry.

The Institute is funded by the projects it undertakes.

Nanoforum

Nanoforum aims to provide information on all areas of Nanotechnology to the business, the scientific and social communities and to provide a linking framework for all nanotechnology activity within the European Community.

In 2004 Nanoforum ran an online survey to assess attitudes towards nanotechnology within the European Union and to gather opinions on the need for an integrated and responsible approach to nanotechnology RTD.

The survey was a response to the EC Communication 'Towards a European Strategy for Nanotechnology' and some of its key findings were:

- 60% of respondents noted the lack of infrastructure around nanotechnology in Europe
- 75% wanted to see health, safety and environmental risks integrated early on in research
- 75% wanted to see the societal impact of nanotechnology taken into account early on

- 87% would welcome an international code of conduct

Nanoforum is a European Sponsored body run by the Institute for Nanotechnology.

6.4 Policy initiatives

Action plan for Europe's Nanotechnology Strategy

On the 12th May 2004, the European Commission adopted the Communication "Towards a European Strategy for Nanotechnology". It sought to bring the discussion on nanoscience and nanotechnology to an institutional level and proposed an integrated and responsible strategy for Europe. An 'Action Plan' for taking the strategy forward was then published on 7th June 2005.

The Action Plan states that the European Commission will establish a focal point for implementing the plan. This body, once created, will report on progress every two years to the Council of Europe and the European Parliament, making use of indicators, where possible.

The Action Plan sets out the areas which the European Commission will be working on. They include:

- Increasing investment and co-ordination of research
- Establishing a map of existing nanotechnology infrastructure and exploring ways of maximising its value
- Promoting the creation of an interdisciplinary European award in nanotechnology and nanoscience
- Bringing stakeholders together to exchange best practice in the commercialisation of nanotechnology
- Ensuring that ethical reviews take place
- Pursuing true dialogue with stakeholders and encouraging industry to take account of social, health and safety and environmental concerns
- Intensifying international dialogue with a view to adopting an international code of good conduct

As of early July 2005 there is no clarity on when the body to drive the work forward will be set up. The work is funded by the European Union and falls under the Research Directorate.

7. Structure of NEG

The NEG will consist of a Core Team, a Forum and a Network. The NEG will operate in a highly networked manner, explicitly striving to involve members of the forum and network in the activities of the core team. The aim of this approach is to attempt to support learning between those involved and to ensure that the research is closely tied to practice.

The inter-relationships are illustrated in Figure 1.

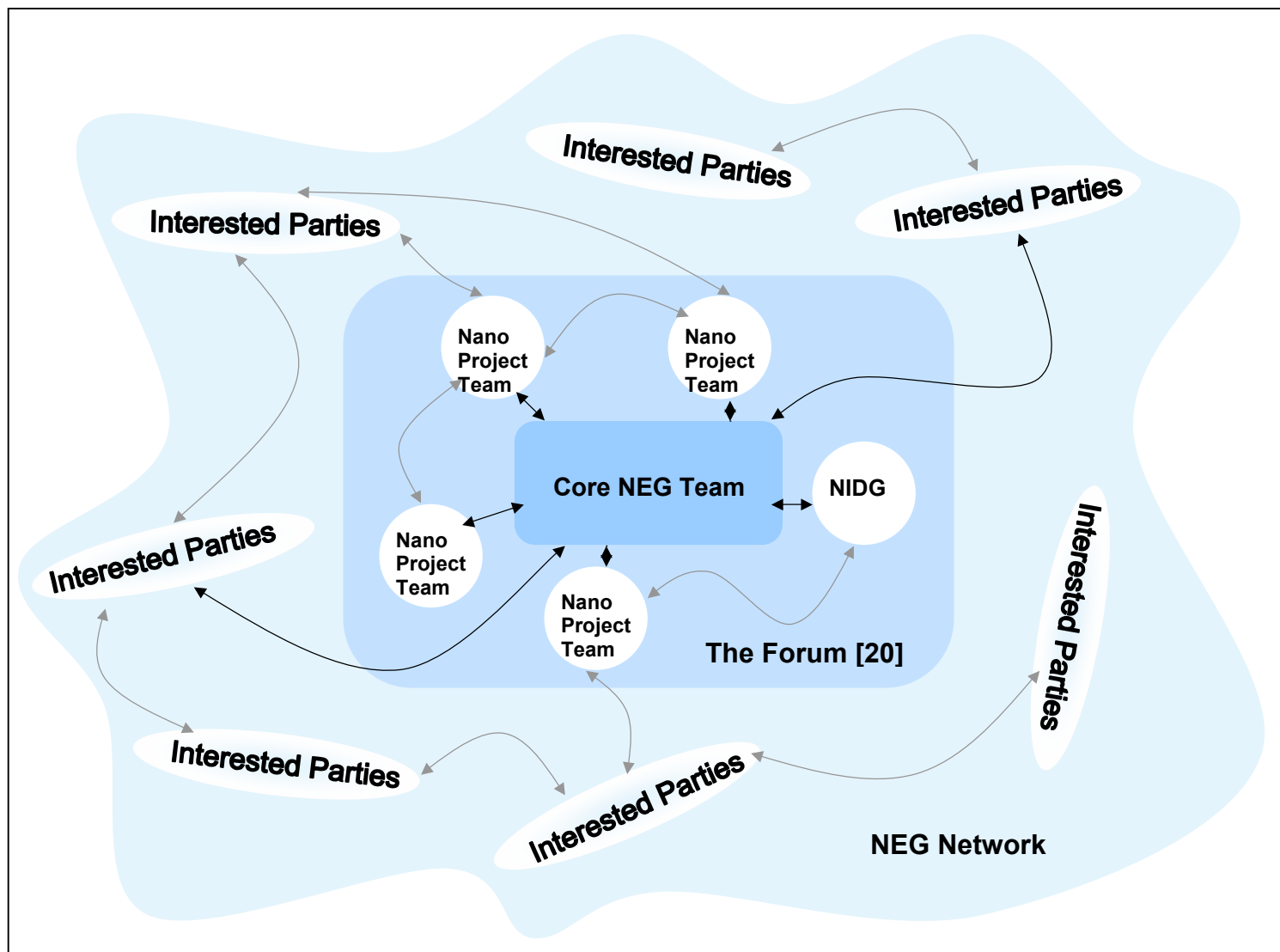


Figure 1: The NEG [Core Team, Forum and Network]

The Core Group:

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 Malcolm Eames, Policy Studies Institute [research advisor]
 Nick Pigeon, UEA [research advisor]
 Faye Scott – Involve [researcher]
 Richard Wilson, Involve [project director]

Roles: to conduct the research and to service the network and forum. Overall responsibility for delivering the outputs and outcomes detailed in Section 7.

The Forum:

Membership: TBC

Numbers: 20 individuals representing projects or organisations

Roles and responsibilities: to provide strategic direction to the Core Team and learn from one another.

Mechanism for Involvement: quarterly meeting or workshop

The Network:

Membership: TBC

Numbers: 100+

Roles and responsibilities: to input and make use of the research.

Mechanism: through online processes and informal communications

8. Terms of reference of NEG

The purpose of the NEG is twofold, to:

- Support public bodies (e.g. government and its agencies, research councils and the NIDG) through the OST led Nanotechnology Issues Dialogue Group (NIDG), in developing a coherent programme of social and ethical research and public dialogue around nanotechnology; and
- Ensure that the learning from the above is transferred to the policy and decision-making in other science and technology areas.

8.1 Status of NEG

The status of the NEG is:

- Funded by government but an independent body
- A research and dissemination group.

8.2 Primary Objectives

The NEG will have six primary objectives:

1. **Mapping** current public engagement on nanotechnologies in the UK and internationally
2. **Sharing learning** between nanotechnology engagement projects, ensuring consistency and cohesion
3. **Understanding Upstream Engagement**
4. **Informing OST policy** by keeping them up to date with progress and outcomes on nanotechnology-related public engagement projects
5. **Identifying knowledge gaps** for future social and ethical research and public engagement
6. **Making its findings public** through reports on their research.

8.3 Outcomes

This piece of work will produce the following headline outcomes:

- Better and more 'joined-up' nanotechnology engagement projects
- A clear understanding of who is doing what in terms of nanotechnology engagement across the UK
- Better informed government policy on public engagement for science and technology development
- Evidence of what works for integration of upstream engagement into science and technology related policies and decisions.

8.4 Outputs

The following outputs will be produced to support the achievement of the outcomes above:

Reports – we are committed to produce 4 reports over 2 years. The first of these will inform the government’s comprehensive autumn programme on nanotechnology engagement. Others may include a map of nanotechnology engagement across the UK; practicalities of upstream engagement; and two others, directed by members of the NEG forum.

The NEG – this will be formed and meet quarterly

A Research Group – working to the NEG, this will produce the reports and undertake research

Improved understanding – through research dissemination to government, members of NEG and other parties, all will gain an improved understanding of the field.

8.5 Delivery Strategy

The NEG intends to be fully operational by Autumn 2005. Through July and August the NEG will be formed and initial mapping work undertaken, with a view to understanding activities and identifying gaps. This work will both inform the Government’s programme of public engagement on nanotechnologies, as well as the work of the NEG itself.

8.5.1 Form NEG and the Research Group

This will happen through initial meetings with key stakeholders (e.g. project managers and government officials) during July - September. In the meetings, the scope and role of the groups will be discussed, as part of establishing buy-in to the work.

Due to the immediacy of the current nanotechnology R&D it will be necessary to commence initial scoping research in July, prior to full establishment of the NEG.

8.5.2 Agree Scope/Role of Working Group

1st Meeting – September 05

8.5.3 Work Plan

2nd Meeting – December 05

3rd Meeting – March 05

Report 1 – Provisional Map & Status of Nanotechnology. Engagement in the UK – April 06

4th Meeting – June 06

5th Meeting – September 06

Report 2 – Practicalities of Upstream Engagement – September 06

6th Meeting – December 06

7th Meeting – March 07

Report 3 – subject TBC – March 07

8th Meeting – June 07

Final Report – subject TBC - July 07

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