

ResponsibleNanoCode

INFORMATION ON THE RESPONSIBLE NANO CODE INITIATIVE

MAY 2008

THE SEVEN PRINCIPLES OF THE RESPONSIBLE NANO CODE

Principle One – Board Accountability

Each organisation shall ensure that accountability for guiding and managing its involvement with nanotechnologies resides with the Board or is delegated to an appropriate senior executive or committee.

Principle Two – Stakeholder Involvement

Each organisation shall identify its nanotechnology stakeholders, proactively engage with them and be responsive to their views.

Principle Three – Worker Health & Safety

Each organisation shall ensure high standards of occupational health and safety for its workers handling nano-materials and nano-enabled products. It shall also consider occupational health and safety issues for workers at other stages of the product lifecycle.

Principle Four – Public Health, Safety & Environmental Risks

Each Organisation shall carry out thorough risk assessments and minimise any potential public health, safety or environmental risks relating to its products using nanotechnologies. It shall also consider the public health, safety and environmental risks throughout the product lifecycle.

Principle Five – Wider Social, Environmental, Health and Ethical Implications and Impacts

Each organisation shall consider and contribute to addressing the wider social, environmental, health and ethical implications and impacts of their involvement with nanotechnologies.

Principle Six – Engaging with Business Partners

Each organisation shall engage proactively, openly and co-operatively with business partners to encourage and stimulate their adoption of the Code.

Principle Seven – Transparency and Disclosure

Each organisation shall be open and transparent about its involvement with and management of nanotechnologies and report regularly and clearly on how it implements the Responsible Nano Code

Information on The Responsible Nano Code Initiative

What is the aim of the Responsible Nano Code Initiative?

The aim of the Responsible Nano Code Initiative is to establish a consensus of good practice in the research, production, retail and disposal of products using nanotechnologies¹ and to provide guidance on what organisations can do to demonstrate responsible governance of this dynamic area of technology.

Who is it for?

Through an inclusive process – by engaging with companies, scientists, governments, NGOs and labour organisations around the world – the Working Group has developed a voluntary, principles-based Code of Conduct, which is appropriate for adoption by organisations of all sizes, in all countries. These may include:

- Companies and commercial partnerships researching or manufacturing nanomaterials
- Companies of all sizes manufacturing products using nanotechnologies – whether their focus is business-to-business or the end consumer
- Retailers of products using nanotechnologies
- Research laboratories
- Universities
- Other private or publicly funded bodies involved in research and development

Whilst the Responsible Nano Code was developed by a process undertaken from the UK, it was designed to be adopted by organisations in any part of the world, under any regulatory regime. The Working Group included mainly companies who trade internationally and the Consultation process which helped develop the Code was international with initiatives in Europe, the USA and Australia.

Why is a Code such as this important?

To help ensure the technology achieves its potential for good

It is in the collective interests of business, government and society to ensure that this potentially powerful set of enabling technologies achieves its potential to deliver health, environmental, social and economic benefits. By fostering accountability and clarifying expectations, the Responsible Nano Code can play an important role in helping organisations to develop nanotechnologies responsibly, helping to ensure that this vision is realised.

To this end, the Code and the soon to be developed Framework of Good Practice aims to stimulate organisations to consider all aspects of their involvement with nanotechnologies, including the views of their stakeholders and the broader social and ethical issues.

¹ See page 5 of this document for a definition of nanotechnologies

To help promote accountability and responsibility

In addition, stakeholders (*i.e.* the general public, customers, employees, governments, business partners, investors and insurance companies), need to be reassured that companies commercialising nanotechnologies are adopting a responsible approach to doing so and are proactively and effectively mitigating any risks related to them.

The Responsible Nano Code is NOT intended to....

...supplant or delay effective legislation

It is important to stress that the Code is not envisaged as, in any way, supplanting, displacing or otherwise subverting the evolving regulatory processes. The Code is designed to provide guidance on best practice for organisations during the transitional period in which the appropriate national and international regulatory frameworks are being evaluated and, if necessary, developed, and to complement any existing regulation.

It is designed to give an overview of good practice across all aspects of nanotechnologies; the Principles are relevant for organisations involved throughout the lifecycle of nano-enabled products and in all sectors. This broad remit may ensure the Code is relevant even after any new regulation is introduced.

However, this is an issue of significant concern and many view voluntary initiatives with suspicion. In the past, similar initiatives have been designed specifically with the intention of obviating or delaying regulation in certain areas. This is fundamentally NOT the case with the Responsible Nano Code; this position is reinforced in the examples of good practice which accompany the Principles which suggest that organisations should *'support the development of effective regulatory frameworks and be responsible, transparent and consistent in [their] external statements and public policy lobbying.'*

...be an auditable set of standards or offer detail performance guidance

It is intended that this initiative should provide strategic guidance on the governance of nanotechnology. It is not an auditable set of standards, nor does it offer detailed guidance on expected performance. The Code and the subsequent Framework of Good Practice is designed to provide clarity on the strategic issues that organisations need to address in order to be responsible in their development and management of nanotechnologies, and offers potential examples of good practice to guide their behaviour in the most important areas.

The Code is aimed at the Boards or governing bodies of organisations. The Principles embodied in the Code should be promulgated throughout the organisation and should guide operational decisions.

It is not a prescriptive 'management systems' code, which focuses on the operational processes, though clearly the decisions that are sanctioned at the highest level in relation to nanotechnology governance will be delivered at an operational level.

...provide any new definitions, characterisation or measurement of nanotechnologies

In order to provide clarity on what constitutes nanotechnology and is therefore within the remit of this Code a clear definition is required. It is not the intention of the Working Group to consider new definitions, characterisation or measurements of nanotechnologies. However, as there is currently no internationally agreed definition and what appears to be best available definition of nanotechnology has been chosen for this Code. The Code will follow the evolution of an agreed definition and revise this when appropriate.

Therefore the Code Working Group used the wording currently being defined by the ISO Working Group TC229 where nanotechnology is considered to be:

"design, characterisation, production and application of structures, devices and systems by controlling shape and size at the nanoscale," where "nanoscale", is defined as:- "the size range from approximately 1nm to 100 nm.

Properties that are not extrapolations from a larger size will typically, but not exclusively, be exhibited in this size range. For such properties, the size limits are considered approximate."

However, even those organisations working on the boundaries of what is currently considered nanotechnology are strongly encouraged to demonstrate transparency and undertake stakeholder engagement in order to clarify for the public the nature of their products, their benefits and any risks associated with them.

Is a Code for specifically for nanotechnologies really needed?

In many ways, the issues associated with the responsible development of nanotechnologies are no different from those encountered when working with other emerging technologies. Some commentators have suggested that this Code be made applicable to all emerging technologies and others that such a Code is not needed because current risk management systems in organisations are adequate and the technology does not merit a nano-specific approach.

The Principles may potentially be applied to other areas and may, in the future, be adapted for such a purpose. However, a Code for nanotechnologies is valuable because of the particular nature of engineered nanomaterials, the potential unquantified risks in some areas and the likely eventual pervasive usage of these technologies in many industries and in many product areas. The Code will help promote transparency and accountability and so help build confidence in the technology to ensure its potential is also fulfilled.

Opportunities...

Nanotechnologies present huge commercial opportunities for organisations involved in a wide variety of sectors from medicines to computing, from chemicals to food and consumer products.

Many of these new products also have the potential for important social benefits – for example through the supply of cheap clean water, portable renewable energy or the replacement of hazardous chemicals – which could have a major impact on health and quality of life in developed and developing countries.

The progress of these technologies therefore offers the potential to generate new jobs, social and environmental benefits and to contribute to economic growth.

...and the potential for risk

However, at the same time – while the evidence is currently limited – there is uncertainty over the potential environmental, health and safety (EHS) risks of some nanoscale materials, particularly the impact of free manufactured nanoparticles and nanotubes.

The development of nanotechnologies also gives rise to a variety of often complex social and ethical issues – both in relation to their governance, (*e.g.* issues relating to who has control of the development of the technologies), the social impact of their development (*e.g.* the social and economic implications of the divide between those countries who have capabilities in this area and those who do not) and the impact of the specific applications (*e.g.* areas such as military and security technologies).

Why a ‘principles-based’ Code and a Benchmark?

The high level ‘principles-based’ Code has been chosen for a number of reasons:

1. To focus the attention at the most senior level on the issues associated with nanotechnologies, because there is uncertainty over the potential environmental, health and safety (EHS) risks of some nanoscale materials. This level in an organisation is where the big strategic decisions are made and the most impact can be leveraged.
2. Because nanotechnologies are used in a diverse range of applications and by a wide range of organisations. The aim of the initiative was to produce a Code that is applicable to all types of organisation, from those involved in research through manufacturers of nanomaterials, those developing consumer or business-to-business products, consumer retailers and those involved in disposal.
3. To create a Code that organisations with widely differing management models can adopt. It is not appropriate, at this early stage in the evolution of nanotechnologies, to prescribe detailed behaviours where there is uncertainty regarding the most appropriate action at present.

It was also agreed that it would be more effective to combine these high level principles with a Framework of Good Practice and a Benchmarking Process in order to allow a wide range of organisations to be evaluated to assess the extent to which they are operating according to the Code. This methodology does not rely on receiving information only from those organisations adopting the Code, it ensures a broader evaluation of organisations including those who adopt and don’t adopt the Principles.

Who is involved?

In 2006, two UK-based organisations came together, for differing reasons, to consider the future of nanotechnologies. Following the publication of its joint report in 2004, the Royal Society felt there was a gap in nanotechnology engagement; business did not appear to be closely involved in debates about nanotechnology governance. Insight Investment, the asset manager of HBOS Group, and one of the UK's largest investment managers, had itself identified potential investment issues and risks associated with nanotechnologies. Together, they approached the Nanotechnologies Industries Association which had also seen the need to engage more widely. A Business Workshop was held in November 2006 to explore uncertainties and solutions. (see www.responsiblenanocode.org for the workshop report and the paper prepared for the event '*An Uncertain Business: the technical, social and commercial challenges presented by nanotechnology*').

Following the success of the workshop, several organisations agreed to take forward one of the key recommendations that emerged from the discussions – the development of a voluntary code for businesses involved in nanotechnologies.

The three organisations (Royal Society, Insight Investment and the NIA) were joined by the Nanotechnology Knowledge Transfer Network – an initiative sponsored by the UK government's Department for Business, Enterprise and Regulatory Reform. These four organisations are the 'Founding Partners', (see Appendix 1 for details on each).

Funding

When considering funding, the Founding Partners sought to achieve a balance of funding sources and ensure independence from business and other specific influences.

It was therefore agreed that three organisations, the Royal Society, Insight Investment and the Nanotechnology Knowledge Transfer Network would fund the initiative, as organisations not involved or representing those involved in the development or commercialisation of nanotechnologies.

Chair and Secretariat

The Founding Partners then approached Lord (John) Selborne KBE , FRS to Chair the Working Group (see Appendix 1) and appointed an independent organisation, Responsible Futures, as the Secretariat to the initiative (see Appendix 1).

Working Group Members

In convening the Working Group to develop this Code, the Founding Partners sought to involve experts from a range of stakeholders, including representatives from businesses, non-governmental organisations and academics. The Working Group members were selected to achieve representation from diverse business areas in which nanotechnologies are being developed or applied, while maintaining a group size that is able to develop a workable Code in a realistic timeframe. International expertise was also sought; in particular international businesses were invited to help

achieve the aim of a Code, which can be adopted by organisations in any part of the world. (see Appendix 2 for details of the Working Group).

How was the Responsible Nano Code developed?

The Initiative began in June 2007, when the Working Group first met to develop the Code content. (Records of these deliberations are available on the website www.responsiblenanocode.org).

In September of that year a Consultation Draft of the Code was prepared and disseminated widely to organisations involved with nanotechnology including businesses, non-governmental organisations, academic institutions, trade bodies, standards organisations, civil society organisations and some governments and multilateral organisations. In addition to extensive individual mailings and one-to-one consultation meetings by the Founding Partners and Secretariat, five 'Consultation Partners' also volunteered their involvement with the consultation process.

Events were held at the **European Commission** in Brussels, the **Woodrow Wilson Centre** in the USA, in Australia by the **Australian Nano Business Forum** and its partners and for investors in Europe by the **European Social Investment Forum**. Small and medium sized businesses in Germany were also consulted by **Forumnano** a newly formed business alliance seeking to promote responsible practice for smaller companies involved in nanotechnologies.

In total, 45 formal submissions to the consultation were received, 17 personal meetings or calls undertaken, over 150 individuals attended consultation partner events and over 600 were emailed individually to ask for their views.

This feedback was then used to inform the development of the Seven Principles of the Responsible Nano Code and a series of Examples of Good Practice, which were agreed in May 2008.

From June to September 2008 these will be developed into a more detailed Framework of Good Practice and Benchmarking process and used to independently assess the extent to which organisations involved in the research, production, retail and disposal of products using nanotechnologies are operating according to the Code.

The Code, the Framework and the Benchmarking process are likely to be formally launched in October 2008, and the independent group who undertake the Benchmarking identified. The first Benchmarking process will take place in 2009.

Supporters of the Responsible Nano Code

Until such a time as they are able to formally adopt the Code, organisations are encouraged to express their support for the Code through communication on their website or company reports; initiating conversations about the Principles outlined with customers or suppliers; promoting the Code and its Principles to their industry associations and participate or initiate initiatives to develop more detailed guidance on a sector specific basis.

Transparency

A public website (www.responsiblenanocode.org) was developed to allow the group to communicate with external audiences about the purpose and process of the Code's development and to form the focus of the consultation programme. Information on the process, including 'Terms of Reference', Working Group composition, 'Records of the Deliberations' of each meeting and the Update of the Responsible Nano Code is available on the site.

The Responsible Nano Code Principles and Examples of Good Practice

The Responsible Nano Code comprises Seven Principles that the Working Group believes are central to the responsible development of nanotechnologies. Each Principle is illustrated by examples of the types of behaviours organisations adopting the Code are likely to display.

This is not a definitive list and all may not be applicable to all types of organisation. There may be different approaches, for example, for a company whose whole focus is nanomaterials to one which has perhaps one or two such products in a large portfolio, or a retailer stocking a handful of nano-enabled products. Small research laboratories with 10 employees may have a different approach to global companies with hundreds of thousands of employees where only a small number are involved in creating products using nanotechnologies. However, these examples have been created with this spectrum in mind – as will the Framework of Good Practice which will be developed from these.

Most organisations will already have in place many of the practices outlined here for their existing products where that is the remit of the company – *e.g.* risk management procedures, occupational health and safety, stakeholder involvement etc. Many are already required by law in most countries.

For the full text of the Principles and the Examples of Good Practice see below:

Principle One – Board Accountability

Each organisation shall ensure that accountability for guiding and managing its involvement with nanotechnologies resides with the Board or is delegated to an appropriate senior executive or committee

Examples of how the organisation can demonstrate implementation of the Code may include:

1. Assigning accountability for nanotechnology, and for the implementation of the Code, to the Board or by the Board to an appropriate senior level executive or committee.
2. Clearly articulating how responsibility for nanotechnologies, and for implementation of the Code, is assigned within the organisation.
3. Publishing its commitment to the responsible management of its involvement with nanotechnologies. This is likely to include, among other things, commitments to:
 - a) understand, assess and mitigate any health, safety, environmental, social or ethical issues associated with the company's involvement with nanotechnologies
 - b) elicit, consider and take account of stakeholders' concerns
 - c) support the development of effective regulatory frameworks, and be responsible, transparent and consistent in its external statements and public policy lobbying
 - d) undertake continuous improvement in its management of nanotechnologies
 - e) be transparent and disclose the organisation's involvement with nanotechnologies
4. Explicitly incorporate consideration of nanotechnology-related opportunities and risks into its regular strategic business risk assessments.
5. Establish or adapt and publicise, mechanisms through which staff or external stakeholders may bring concerns to the Board or governing body relating to any social, ethical, environmental, health or safety issues relevant to its involvement with nanotechnologies.

Principle Two – Stakeholder Involvement

Each organisation shall identify its nanotechnology stakeholders, proactively engage with them and be responsive to their views.

Examples of how the organisation can implement the Code may include:

1. Identifying and take the initiative to engage with stakeholders – including those whose views they may not agree with. Examples of stakeholder groups are employees, customers (business-to-business and end-consumers), shareholders, suppliers, non-governmental organisations (NGOs), civil society organisations, academics, consumer bodies, trade unions, national governments, international governing bodies and the general public.

Engagement may take the form of contributions to programmes run by other organisations, or the organisation's own initiatives, for example, individual meetings with stakeholder groups, supplier engagement and training, stakeholder panels, consultations, or web forums.

2. Identifying, considering and responding, as appropriate, to the concerns of stakeholders (including those that the organisation has no direct contact with, but whose concerns the organisation may be able to play a part in addressing). This will be particularly appropriate for applications where potential environmental and human health and safety issues are involved.
3. Demonstrating how stakeholder views have been considered and taken into account, or explaining why they have not, if it is felt they are not appropriate.

Principle Three – Worker Health & Safety

Each organisation shall ensure high standards of occupational health and safety for its workers handling nano-materials and nano-enabled products. It shall also consider occupational health and safety issues for workers at other stages of the product lifecycle.

Examples of how the organisation can implement the Code may include:

1. Developing or revising policies, procedures and tests that provide high standards of protection for those working in the development, manufacture, distribution, use, disposal and recycling of nanomaterials and nano-enabled products. In particular, demonstrate clearly that there is no default assumption that the risks associated with nanotechnology are the same as those involved with existing materials at a larger scale.
2. Disclosing publicly the relevant standards and protocols that it uses and the steps it has taken which are specific to its use of nanomaterials.
3. Providing appropriate information on the inclusion of engineered nanoparticles, and their safe handling, to onward users of nano-materials or nano-enabled products throughout the product lifecycle.
4. Disclosing any breaches of safety guidelines or regulations relating to workers, their impact, and the actions taken in response, to the relevant authorities.
5. Sharing information and good practice on worker safety through appropriate forums – eg trade associations, unions, think tanks and government initiatives.

Principle Four – Public Health, Safety & Environmental Risks

Each organisation shall carry out thorough risk assessments and minimise any potential public health, safety or environmental risks relating to its products using nanotechnologies. It shall also consider the public health, safety and environmental risks throughout the product lifecycle.

Examples of how the organisation can implement the Code may include:

1. Putting processes in place to identify, evaluate and minimise any risks to the general public, users or the environment from the development, manufacture, distribution, use, disposal or recycling of nano-materials or nano-enabled products. In particular, demonstrate clearly that there is no default assumption that the risks associated with nanotechnology are the same as those involved with existing materials at a larger scale.
2. Highlighting to other appropriate organisations in the supply chain any risks that they might need to address.
3. Disclosing publicly the standards and protocols it has used to assess product safety and the actions it has taken in the absence of appropriate standards, protocols or relevant legislation.
4. Disclosing how it identifies, assesses, manages and mitigates any public health, safety and environmental risks identified as relating to its products.
5. Marketing products only after ensuring that the safety of the nanotechnology enabled elements of the products have been substantiated.
6. Sharing information on risk assessment and mitigation methodologies, and assessment results, with government agencies, regulators and other organisations in order to enhance global understanding and the development of appropriate risk assessment methodologies.
7. Contributing constructively to the development of appropriate regulations and standards in all markets. Proactively support government and independent research initiatives to bridge information or research gaps which hinder the responsible development of nanotechnologies.

Principle Five – Wider Social, Environmental, Health and Ethical Implications and Impacts

Each organisation shall consider and contribute to addressing the wider social, environmental, health and ethical implications and impacts of their involvement with nanotechnologies.

NB: The many potential applications and uses of nanotechnology can have wider social, environmental, health and ethical impacts. The responsibility to consider and address these lies with all stakeholders, including companies, governments, shareholders, NGOs, consumer groups, academics, business associations, media and the general public. The aim of this principle is to stimulate companies to consider what part they may play and how they may engage with others to develop appropriate responses to these important issues.

Examples of how the organisation can implement the Code may include:

1. Taking steps to understand the wider social, environmental, health and ethical implications and impacts of its involvement with nanotechnologies and its potential contribution to developing solutions.
2. Becoming involved in research, collaborative initiatives, partnerships and community or charitable projects that help to develop an understanding of, and address issues arising from, its involvement with nanotechnologies.
3. Disclosing the results of any assessments it undertakes on the social, environmental, health and ethical issues relating to nanotechnology, and the activities it undertakes in response.

Principle Six – Engaging with Business Partners

Each organisation shall engage proactively, openly and co-operatively with business partners to encourage and stimulate their adoption of the Code

Examples of how the organisation can implement the Code may include:

1. Engaging co-operatively and proactively with its business partners (including suppliers, customers and commercial partnerships) to encourage them to adopt the Code.
2. Communicating to suppliers or commercial partners its policies and required standards of behaviour relating to the development and use of nanotechnologies.
3. Providing appropriate information and guidance for customers and onward users on the safe processing, usage, transportation, storage, disposal or recycling of its nano-enabled materials or products .
4. Ensuring that it can identify and trace products using nanotechnologies in its supply chain.

Principle Seven – Transparency and Disclosure

Each organisation shall be open and transparent about its involvement with and management of nanotechnologies and report regularly and clearly on how it implements the Responsible Nano Code

NB: Transparency and disclosure is at the heart of all the principles in the Responsible Nano Code and shall be a core element of each organisation's approach to implementing its Code commitments.

Examples of how the organisation can implement the Code may include:

1. Take a proactive approach to communicating with all stakeholders on its involvement and use of nanotechnologies. This may be achieved through its website, annual reports, corporate responsibility report or similar, in appropriate printed materials, through participation in voluntary public disclosure schemes, public product databases, product labelling, seminars, conferences etc.
2. Communicate, at least annually ideally, with stakeholders (including shareholders), on its adherence to the Code. This should cover both its involvement in, and management of nanotechnologies. Where principles are not relevant or have not been adhered to, the reasons will be explained.
3. Use the term 'nano' appropriately when promoting nanotechnology-enabled products – ie not using the term 'nano' where the product is not nano-enabled, but also not deliberately hiding the use of nanomaterials.
4. Substantiate product effectiveness claims with sound and specific scientific research and makes this available to stakeholders.
5. Adopt a policy or adapt an existing policy to specify its approach to sales, advertising, public relations and promotion of products using nanotechnologies

For further information on the Responsible Nano Code or the process of its development, please see our website www.responsiblenanocode.org contact Hilary Sutcliffe on 0207 520 9086 or hilary@responsiblefutures.com

Appendix 1 - Information about Founding Partners, Chair and Secretariat

The Earl of Selborne KBE FRS

Lord Selborne is a hereditary (elected) Conservative member of The House of Lords. He currently serves on the Select Committee for Science and Technology, of which he is a previous chair. He has also chaired Sub-Committee D (Agriculture and Environment) of the European Union Select Committee. He is Chair of the Foundation for Science and Technology, Chair of the Trustees of the Royal Botanic Gardens, Kew and Chair of the Royal Society's Science in Society Consultative Group.

He has previously chaired the UK Chemical Stakeholders' Forum and served as Chancellor of the University of Southampton, President of the Royal Geographical Society and Chairman of the Agricultural and Food Research Council. He is a Fellow of the Royal Society, The Institute of Biology and the Linnean Society.

The Royal Society

The Royal Society is national academy of science for the UK and the Commonwealth. It is the world's oldest scientific academy in continuous existence, and has been at the forefront of enquiry and discovery since its foundation in 1660. As well as providing an authoritative voice and leadership for UK science, it provides objective advice for policymakers on science and its relationship with society. It aims to ensure that policies on key issues are influenced by the best independent science.

The Royal Society is committed to encouraging the responsible development of new and emerging technologies for the maximum benefit of humanity and the environment. It is well placed to provide an expert, independent and realistic assessment of the risks and benefits that new and emerging technologies could present. The Society has undertaken projects on a wide range of scientific areas. For more information visit www.royalsoc.ac.uk/policy.

In 2003, the UK Government commissioned the Royal Society and the Royal Academy of Engineering to carry out an independent study on nanotechnologies. The two organisations set up a group to consider current and future developments in the field, and to identify the potential pros and cons of nanotechnologies for society.

The group consisted of scientists and engineers, and experts on consumer affairs, the environment, social sciences and ethics. They consulted with a wide range of people, including members of the public, and the Royal Society and Royal Academy of Engineering published their joint report in July 2004. The report recognises that nanotechnologies have the potential to bring benefits to society, and recommends a series of steps to realise this potential, whilst minimising possible future uncertainties and risks. More information can be found at www.nantec.org.

Insight Investment

Insight Investment is the asset manager of the HBOS group and is one of the UK's largest investment managers. It manages £96.1 billion as at March 2007

Insight adopted a responsible investment policy in 2002. That policy committed Insight to take into account in all of its investment decisions the potential financial impacts of companies' exposure to, and quality of their management of, a wide range of environmental, social and governance issues. Further, it committed Insight to use its influence as a shareholder to encourage companies to achieve high standards of corporate governance and corporate responsibility.

Insight has been tracking the development and issues associated with nanotechnology since 2004 and began its engagement with companies on the issue in 2006. As an investment manager, it is important that prior to making an investment in any company involved in nanotechnology Insight thoroughly assesses a company's understanding of the risks associated with nano-applications and determines how effectively it is managing those risks. Insight also aims to contribute to the development of nanotechnology by working with a wide range of stakeholders to identify and develop effective approaches to managing those risks. The principal way it is doing so is by collaborating in this initiative to develop a Code for the responsible development of nanotechnology. For further information see www.insightinvestment.com

The Nanotechnology Industries Association

Formed in 2005, by a group of companies from a variety of industry sectors including healthcare, chemicals, automotive and consumer products, the Nanotechnology Industries Association (NIA) creates a clear single voice to represent the diverse industries' views in the multi-stakeholder debate on nanotechnology, by providing an interface with government, acting as a source for consultation on regulation and standards, communicating the benefits of nanotechnologies and interacting with the media to ensure an ongoing advancement and commercialisation of nanotechnologies.

The NIA promotes the responsible use of nanotechnology and raises awareness of its many applications among key audiences. Many representative organisations have been established around the world to support the research, invention, development, and exploitation of nanotechnologies, but few of these organisations are grounded in industry, or currently represent industrial views on practical applications for nanotechnologies.

The unique feature of the NIA is that it represents a purely industry-led perspective derived from the views of the collective membership, which is made up of many varied companies all at different stages of life cycle and with a variety of interests in the huge range of technologies that derive their benefit from the nanoscale. This enables those seeking comment from industry to have one port of call and avoids the need to approach individual companies for statements on specific issues. The breadth of the membership enables the NIA to put forward strong proposals to government and regulatory authorities to promote an environment that supports the application and utilisation of nanotechnologies. For further information see www.nanotechia.co.uk

The Nanotechnology Knowledge Transfer Network

The Nanotechnology Knowledge Transfer Network (Nano KTN) is one of twenty-three KTNs established by the DTI and the Technology Strategy Board (TSB) that cover a range of technologies and market sectors. The aims of the KTNs are to deliver improved industrial performance through innovation and new collaborations, to drive knowledge transfer between the supply and demand sides of technology-enabled markets, to facilitate innovation and knowledge transfer, and to provide a forum for a coherent business voice to inform government of its technology needs and about issues, such as regulation, which are enhancing or inhibiting innovation in the UK.

The UK, as one of the worlds leading science and technology countries, is at the forefront of developments in nanotechnology and the UK Government has invested significant funds to support the development of a UK industrial capability. The Nanotechnology KTN has been established to build upon the successes of the MNT Network and to provide the UK with a strong network to support the exploitation and commercialisation of principally nanotechnologies, but also microtechnologies as these are often intimately linked together in applications, through informing, linking and facilitating innovation and collaborations between suppliers and users with the aim of strengthening the supply chains and building a powerful UK community.

For further information see www.nanotechnologyKTN.com

Responsible Futures

Responsible Futures is an organisation which specialises in work at the leading edge of the responsibility agenda – both in the corporate and public policy arenas. Its focus is on developing new approaches, innovative solutions or bringing a fresh eye to existing problems.

Responsible Futures was appointed the Secretariat to the Responsible Nanotech Code Initiative. Director Hilary Sutcliffe had been an early initiator of the process and had drafted the supporting paper and workshop report for the three Founding Partners. She has over 12 years experience in corporate responsibility including participating in a number of Code development initiatives and working with businesses and ngos to understand and implement responsible business practice.

For further information see www.responsiblefutures.com

Appendix 2

Responsible Nanotechnologies Code Working Group

<u>Name</u>	<u>Title</u>	<u>Organisation</u>
Chair Lord John Selborne KBE FRS		
Royal Society Dr Nick Green	Manager, Science Policy	Royal Society
Insight Investment Ms Rachel Crossley	Director, Investor Responsibility	Insight Investment
NIA Dr Steffi Friedrichs	Director	NIA
Nanotechnology Knowledge Transfer Network Dr Mike Pitkethly	CEO	Nanotechnology KTN
Secretariat Ms Hilary Sutcliffe	Director	Responsible Futures
Business Mr Chris Wilson Mr Benjamin Gannon Dr Peter Bishop Dr Sally Jones Dr Barry Park Dr Anthony Dagger Dr Graeme Howling Mr Stuart Challenor Dr Russell Clarke Dr Charles-Francois Gaudefroy Ms Truus Huisman	External Communications Manager Exec Director Gov Affairs & Policy EU Research Manager Public Relations Manager COO Research Scientist Project Manager – Biomaterials Trading Law & Technical Manager Commercial Manager Head of Technical Affairs External Affairs Director EU	BASF Johnson & Johnson Johnson Matthey Johnson Matthey Oxonica Smith & Nephew Smith & Nephew Tesco Thomas Swann & Co Unilever Unilever
Academic/Science Prof Nick Pidgeon Dr Rob Aitken Professor Vicki Stone Professor Richard Jones FRS	Prof of Applied Psychology Director of Research Development Professor of Toxicology Prof of Physics	Cardiff University Inst. of Occupational Medicine Napier Univ Univ of Sheffield
NGO and other organisations Mr Frank Barry Dr David Grimshaw Ms Sue Davies	Representative International Team Leader – Nanotech Chief Policy Advisor	Amicus Union Practical Action Which?