COMPASS

Responsible Innovation Roadmap
Nanotechnology

> **Step 1: Embed vital and review desirable aspects for company management.**

> **Step 2: Reflect on integration of responsible innovation practices throughout the entire innovation process of your company.**

COMPANY MANAGEMENT

Vital

- ❑ Developing, reviewing or re-affirming mission statement to set context for responsible innovation. Demonstrating therein a commitment to the care and protection of employees, customers and other stakeholders.

- ❑ Ensuring commitment at all levels to ethical and safe modes of operation for products and services at stages of (a) idea generation and research; (b) development; (c) testing & production; and (d) market and impact.

- ❑ Ensuring that the ethos around safety and ethical working practices is clear within employment contracts, and recruitment procedures, and will, where breached, lead to disciplinary action.

- ❑ Ensuring impact assessments are undertaken at all stages (taking account of the range of stakeholders and wider environmental issues). Linking these to procedures (with clear lines of responsibility) that facilitate the making of key decisions to move forward or halt the innovation process.

- ❑ Having emergency and contingency plans in place for the accidental release of nanoparticles.

- ❑ Demonstrating readiness to engage with and respond to feedback from clients, customers, end users and ensuring protocols are in place for dealing with feedback (openness to information sharing) and involving them in decision-making process.

- ❑ Adhering to codes of practice and applicable standards. Obtaining certification after compliance established via an accredited external agency.

- ❑ Working and collaborating with a relevant industry association body with a shared ethos and, with or independently of it, to contribute to standards development in the field.

- ❑ Developing and/or maintaining a code of conduct that is transparent and publicly available.

Desirable

- ❑ Being forward in raising public awareness of nanotechnology; and providing support for science education (with a gender-balanced approach).

- ❑ Leaving room for fundamental research (where appropriate in collaboration with centres of expertise) applicable to the sector.

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IDEA GENERATION & RESEARCH

⇒ Base research on the best evidence available and be ready to consider implications of new knowledge arising from ongoing research.

⇒ Give specific attention to research that relates to risk, ways for risk avoidance and minimisation, and consider necessary responses to 'worst case' scenarios.

⇒ Be sure about market need for the product and that nanotechnology is appropriate way to meet that need (are there non-nanotechnology alternatives?).

⇒ Reach out to and use feedback from stakeholders to inform the research.

⇒ Be very aware of emerging standards and be ready to conform with requirements that may relate to these.

External Engagement
…ensuring regular feedback from clients, customers and users – impacting on design and production.

DEVELOPMENT & TESTING

⇒ Ensure 'Safe by Design' approach embedded in all stages, taking account of the life-cycle of the nanomaterials used (and related issues for recovery and disposal).

⇒ At a minimum, ensure that the five principles of design for safer nanotechnology are followed.

⇒ Recognise the need for product 'fit' in relation to specific standards.

⇒ Use robust testing techniques commensurate with the risks concerned.

⇒ Implement guidelines for workplace safety (not just production areas) and provide training regularly to promote conformity.

⇒ Ensure regular feedback and discussion with designers and researchers regarding matters arising during the production. process (or preparation for the same).

⇒ Ensure safe procedures for packing and storage before despatch.

Internal Feedback
Regular feedback within the organisation

MARKET & IMPACT

⇒ Provide clear and comprehensive information in all marketing and sales materials and activities (including risks).

⇒ Ensure that the information addresses the matter of risk with the extent of risk never understated.

⇒ Guide, with absolute clarity, customers and users (and those involved in collection, storage, transporting and delivery) regarding the risks and reporting arrangements in the event of damage or accident.

⇒ Maintain contact with customers and users over a sustained period in order to ensure effective use and gather relevant feedback.

How to read this roadmap:

❑ Solid lines represent transitions between stages.

❑ Dotted lines represent feedback.

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