Risk analysis and technology assessment (RATA) involves assessing the possible human, environmental and societal risks of a novel technology at various stages of the development process. However, best practices for RATA’s successful incorporation into large-scale research programmes are still in development. In a recent study, researchers present a case study of their efforts to bring RATA into practice within a large Dutch nanotechnology consortium. By outlining the procedures and products they developed and reflecting on their experiences, the researchers provide valuable insights for the future integration of RATA in technology development projects. The findings are relevant to stakeholders with an interest in supporting the design of key enabling technologies, including governmental agencies and industrial partners.

Key enabling technologies are innovations developed to solve important societal challenges and boost national economies, and the public sector plays a significant role in stimulating and financing their development. If a novel technology is to succeed, however, it is vital that all potential risks and implications are considered. Failure to adequately account for such factors can result in unforeseen and unacceptable outcomes, which can limit public acceptance and implementation of a new technology and hamper the realisation of its intended benefits.

RATA integrates risk analysis and technology assessment. Risk analysis accounts for the human and environmental health effects of a new technology, while technology assessment considers potential social, sustainability, ethical and moral implications. By using risk analysis and technology assessment in combination, RATA facilitates a comprehensive assessment of the human, environmental and societal risks of a new technology. In so doing, it aligns with the EU’s commitment to responsible research and innovation (RRI), promoted as a key ‘cross-cutting issue’ in the Horizon 2020 research programme. However, best practices for RATA have not yet been established. Case studies of its successful incorporation into research programmes are, therefore, of value to stakeholders involved in supporting technology development. The published case study describes the experiences of NanoNextNL, a large-scale Dutch national research and technology programme for micro- and nanotechnology. In order to bring RATA into practice, the programme allocated 15% of its total budget to risk and impact research.

The programme employed a synergistic two-pronged strategy. First, the programme was divided into nine themes, one of which was devoted to RATA. The RATA theme was divided into three programmes focusing on human risks, environmental risks, and technology assessment, with the aim of creating excellent science in support of regulation of nanomaterials. This was achieved through the participation of programme members in, amongst others, the Scientific Committees of the European Commission, European Chemical Agency (ECHA) and International Organization for Standardization (ISO).

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At the same time, the programme wanted to bridge innovation with safety and society considerations and ensure the safety and societal discussions kept pace with the innovation processes. This was achieved in several ways, including:

- **Creating awareness of RATA** throughout the programme, through courses, in PhD theses, master classes and discussions;
- **Developing a safe innovation tool** (a set of easy-to-answer questions to check the RATA awareness behind an idea known as the ‘Safety and Society Check’), which was then applied in business cases;
- **Establishing a ‘societal incubator’** (comparable to a conventional business incubator) to facilitate experimentation and collective learning around nanotechnology-related RATA.

This case study appears to be the first published example of a large programme on emerging technologies where RATA has been integrated in practice. Overall, the paper’s researchers describe their dual approach as a good programme structure, as it ensured structural attention to, and integration of, RATA in technology development and the ensuing business and policymaking. In particular, they state that integrating RATA with technology development at the earliest possible phase (e.g. during the writing of research proposals) is a lesson to be expanded and stimulated. Such insights have the potential to inform future technology development efforts, and as such, are of interest to a wide range of stakeholders, including government agencies and industry partners.