



RRI APPLICATION & GOVERNANCE

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RESPONSIBILITY

Global Model and Observatory for International Responsible Research and Innovation Coordination

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What is RRI?

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The EU, as well as most other political and economic powers, relies on research and innovation to achieve its policy goals.

At the same time, the reach and impact of research and innovation is such that it can no longer be left to scientists and researchers alone.

All citizens are stakeholders of research and innovation, partly because they provide required resources, partly, because they have to deal with the consequences.

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European policy initiative for research and innovation

What made RRI a necessity? Cases to reflect

- In recent research history, the research on genetically modified organisms (GMO), nanotechnology or human ICT implants, where the resulting controversies and ethical issues had a broad resonance in society
- INDECT project provoked intensive controversial discussions in the European Parliament

What is RRI? - 2011

- 2011, Responsible Research and Innovation is a transparent, interactive process in which societal actors and innovators become mutually responsible to each other with view on the (ethical) acceptability, sustainability and society desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technologies advances in our society.)” Rene Von Schomberg

What is RRI? - today

RRI is an inclusive approach to research and innovation (R&I), to ensure that societal actors work together during the whole research and innovation process. It aims to better align both the process and outcomes of R&I, with the values, needs and expectations of European society. In general terms, RRI implies anticipating and assessing potential implications and societal expectations with regard to research and innovation. (Horizon 2020)

Is RRI important for mining industry activities?

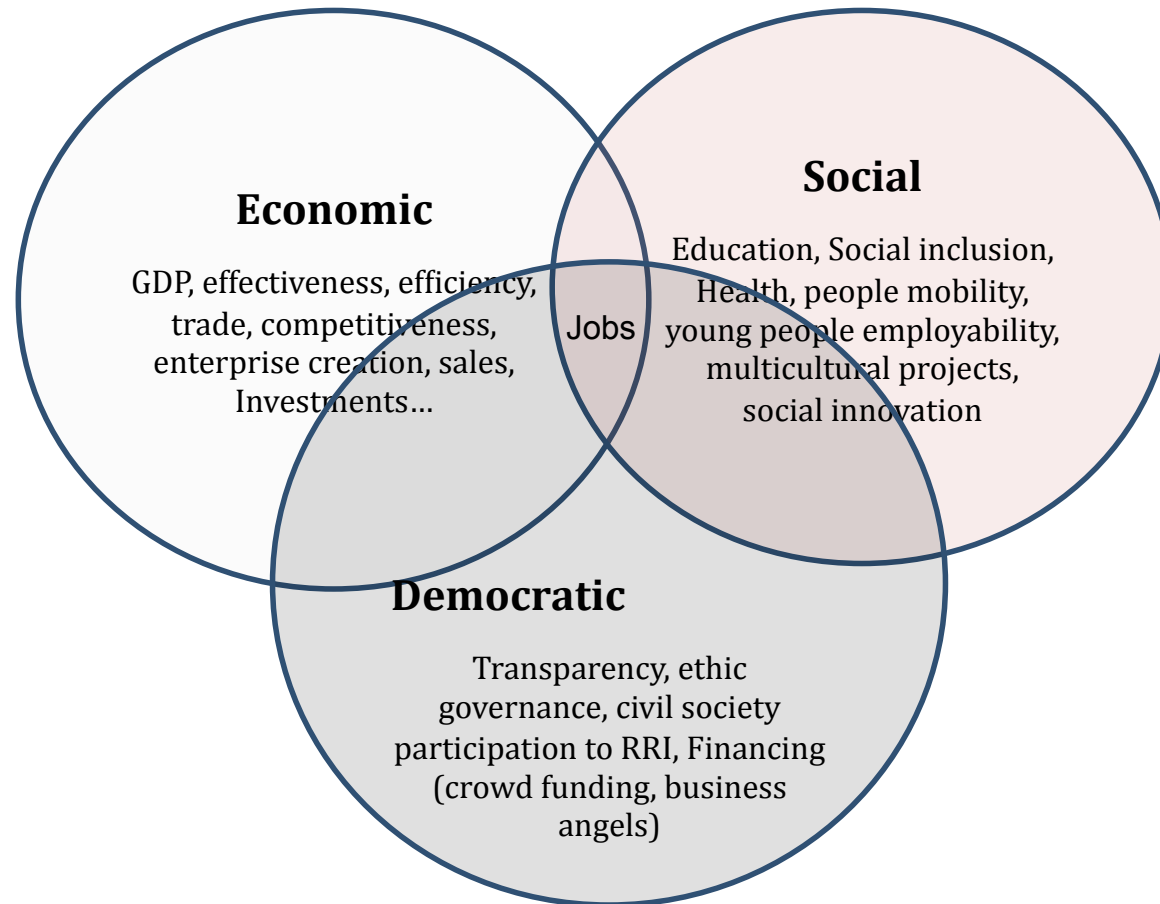
- Examples

- New innovative mining exploration practices and land disturbance
- Research on acid mine drainage and water contamination
- Innovative solutions regarding the extraction of copper (production of uranium oxide, lead, zinc concentrates)
- Research for social impacts of mining (displacement – resettlement of population)
- Research on submarine tailings disposal
- Research on carbon capture and storage technologies and to material emissions reductions

RRI Dimensions

- Citizen engagement and participation of societal actors in research and innovation
- Science literacy and scientific innovation
- Gender equality in research and innovation and gender dimension in research and innovation content
- Open Access to scientific knowledge research results and data
- Research and innovation governance (including ethics)

RRI Benefits



RRI Benefits - economic

| <i>RRI Benefits related to implementation lead time</i> | | Time-frame | | |
|---|----------|---|---|--|
| | | Short term | Medium term | Long term |
| Benefits | Economic | <p>Increased economic performance on terms of</p> <ul style="list-style-type: none"> a. new services/products creation b. number of services/products delivered to the market c. social innovation d. knowledge deployment in the market product/services <p>Lowering barriers of entrance to the market due to less initial investments</p> <p>New enterprises establishment</p> | <p>Increased R&I performance on terms of Sustainability</p> <p>Acceptability of new services/products, when in the market, avoiding financial losses of non-acceptance</p> <p>Increasing of employment</p> <p>Increasing the workforce efficiency</p> | <p>Increased R&I performance on terms of Sustainability</p> <p>Avoiding the costs of innovations' rejection from the society</p> <p>Flourishing business environment</p> |
| | | | | |

RRI Benefits - social

| <i>RRI Benefits related to implementation lead time</i> | | Time-frame | | |
|---|---------------|--|--|--|
| | | Short term | Medium term | Long term |
| Benefits | | | | |
| | Social | <p>Increase on creativity and innovative capacities of the society</p> <p>Increased risk-taking attitudes from entrepreneurs</p> <p>Faster circulation of knowledge</p> <p>Acceleration of innovations due to the minimisation of risk of non-acceptance of the market</p> | <p>Increasing risk-taking attitudes from entrepreneurs</p> <p>Increased participation</p> <p>New jobs creation</p> <p>Protection of citizens from the negative impacts of new and emerging technological services/products</p> <p>Minimise undesirable impacts of innovation</p> <p>Increased attractiveness of science and innovation careers</p> | <p>Increased trust between science and society</p> <p>Democratisation of R&D</p> <p>Respect for the societal values and ethics supporting societal coherence and prosperity</p> <p>Knowledgable and participating society in all innovation processes</p> <p>Co-construction of research and innovation circle</p> <p>Ethical awareness of the impacts of innovation from the researchers; ethics considerations' increasement</p> |

RRI Benefits - environmental

| <i>RRI Benefits related to implementation lead time</i> | | Time-frame | | |
|---|---------------|---|--|--|
| | | Short term | Medium term | Long term |
| Benefits | Environmental | Protection of citizens from the negative impacts of new and emerging technological applications | Sustainability on environmental resources Faster solutions for acute environmental issues | Increased R&I performance on terms of Sustainability Better quality of life |
| | | | | |

Thank you for your attention

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