Innovating for our future: Responsibility, growth, and sustainability

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How do we harness our innovative capabilities to

<u>create</u> a better future? assess



Responsible Research & Innovation

Innovation and the economic imagination

Talk outline:

- Limits or challenges to RRI
- Alternative models of innovation & approaches to growth/ assessment of success
- Implications for the research and innovation system

Innovating responsibly

For innovation to have impact and be transformative, we need to:

- 1) ensure that what is being innovated aligns with social views, values and aspirations, and
- ensure that what is being innovated align with market and public demands so as not to invest in unusable/ unmarketable innovations

Responsible Research & Innovation

These are the underlying aspirations of Responsible Research & Innovation (RRI).



Responsible Research & Innovation

As a framework for achieving this, RRI has, at its core, 4 principles. Research and Innovation, according to RRI, should be:

- Anticipatory
- Reflective
- Inclusively Deliberative, and
- Responsiveness

Owen, Stilgoe, Macnaghten, Gorman, Fisher, and Guston, (2013). A Framework for Responsible Innovation.

Economics and Responsible Research & Innovation

Underlying much of our innovation landscape are social, economic, and political narratives.

The economic narrative, a narrative about the economic value of research and innovation, has been especially powerful and is especially important.



Economics and Responsible Research & Innovation

Easy narrative to sell (and accept)

More research & innovation=Economic Growth (measured as GDP)



Responsible Research & Innovation challenges: #1

What counts as innovation is limited

"Innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations."



(OECD, Statistical Office of the European Communities, 2005, p. 46)

Changing what we do-looking at alternative models

Frugal innovations

Reducing the complexity and cost of a product and its production often by removing nonessential features

Social innovations

"Developing and deploying effective solutions to challenging and often systemic social and environmental issues in support of social progress" Soule, S., Malhotra, N. & Clavier, B. (n.d.). *Defining Social Innovation*

Traditional knowledge

"Knowledge, innovations and practices of indigenous and local communities around the world. Developed from experience gained over the centuries and adapted to the local culture and environment" UNESCO (https://uis.unesco.org/en/glossary-term/traditional-knowledge) Responsible Research & Innovation challenges: #2

What counts as success is also too limited

Economic growth as a measure of success is:

- too short-sighted
- rerouting the aims of ST&I from creating a better future to creating more wealth

Changing what we do-looking at alternative models

<u>a-growth</u>: being agnostic as to the effect of a decision on economic growth.

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<u>a-growth</u>: being agnostic as to the effect of a decision on economic growth.

Benefit Corporation: a type of for-profit corporate entity that includes non-financial factors in addition to profit as its legally defined goals.





What if the research system was more like Benefit Corporations and our approach to research was (mostly) agrowth?

Engages with and responds to some of the ideas in "Remodeling science and society for the next 20 years: Ten recommendations from Young Academy of Japan" Implications for the research system: a primer

Research is run, largely, in a 'for-growth' paradigm.

- Competitive funding that will deliver '<u>impact</u>'.
- Often more focused on applied research
- Publication metrics as a measure of success.



Implications for the research system: a primer

Research is run, largely, in a 'for-growth' paradigm.

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- Publication metrics as a measure of success.

We (humans) are not very good at predicting the future.





Implications for the research system: a primer

"Basic research is not tied to a particular product or country and can be combined in unpredictable ways and used in different fields."

"We find that basic scientific research affects more sectors, in more countries and for a longer time than applied research"

Barrett, Hansen, Natal & Noureldin (2021), *Why Basic Science Matters for Economic Growth: Public investment in basic research will pay for itself.* IMF (https://www.imf.org/en/Blogs/Articles/2021/10/06/blog-ch3-weo-why-basic-science-matters-for-economic-growth)



What if our approach to research was (mostly) a-growth?

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Relevant for longer

Scientific articles continue to be cited years after publication, suggesting basic research has a longer-lasting influence than applied research. (density)



Sources: PATSTAT: Reliance on Science; and IMF staff calculations

Note: Shows the temporal distribution of citations to basic (patent to article citations) and applied research (patent to patent citations) as a way to measure the influence of respective research in time, Basic research is found to be relevant for a longer time than applied research. The sample is restricted to patents from 2010–19. Axis truncated at 50 years.

- Excessive emphasis on short-term evaluation
- Challenges with funding, and
- Challenges with integration across disciplines

We need to restructure our Research Environment. RRI aims to help us harness our innovative capabilities to create a better future by working with and for society, but these policies are themselves embedded in a fairly universal (for-growth) paradigm of research environment. And that needs reimagining.

Imagining the Research Environment as a-growth (pursuing what we think it right/ important to find out about, whether or not it will generate anything) requires us to come to terms with two very pressing issues: o Overcoming the "zero-failure" trap

• Breaking free from activity trap

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Breaking free from activity trap

One solution is to allocate funds on a threshold + lottery system







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Thanks to collaborators on prior/ related work.

Albertson, K., de Saille, S., Pandey, P., Amanatidou, E., Arthur, K. N. A., Van Oudheusden, M., & Medvecky, F. (2021). An RRI for the present moment: relational and 'well-up'innovation. *Journal of Responsible Innovation*, 8(2), 292-299.

de Saille, S., F. Medvecky, M van Oudheusden, K Albertson, E Amanatidou, T Birabi and M Pansera, (2020). Responsibility Beyond Growth: A Case for Responsible Stagnation, *Policy Press*.

de Saille, S. and Medvecky, F. (2016) Innovation for a Steady State: A case for Responsible Stagnation, *Economy and Society*, 45(1)1-23

Thank you

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