Problems of Inequality in Science, Technology and Innovation Policy

Susan E. Cozzens, Technology Policy and Assessment Center
School of Public Policy, Georgia Institute of Technology, USA
Egil Kallerud, NIFU STEP, Oslo, Norway
Louise Ackers and Bryony Gill, University of Leeds, UK
Jennifer Harper, University of Malta
Tiago Santos Pereira, CES, University of Coimbra, Portugal
Noel Zarb-Adami, University of Malta

Full paper available at:

www.resist-research.net/cms/site/docs/WP1-2_final.pdf

National leaders in science, technology, and innovation policies face two kinds of challenges of inequality: the competitive challenge of closing gaps in economic performance, and the social cohesion challenge of sharing the benefits of economic growth broadly. This paper

- o describes the relationship between the two challenges;
- o articulates how the social cohesion challenge is currently being addressed in policies at national, European, and international levels;
- o and suggests how those efforts might be strengthened.

A dominant concept in science, technology, and innovation (STI) policy is the Knowledge Economy, which focuses on science-based industries and turning knowledge into profit. Narrow high-tech focused versions of this, focused on competitiveness, load the dice in favour of those particular advanced knowledge economies which are best placed to succeed in these particular industries, and restrict the range of policy options and strategies for the knowledge economy. The creation of "level" playing fields in single areas like intellectual property policy, for example, may cement the competitive advantage of the already strong players of the game.

However, we now understand that innovation needs to be thought of in broader and more systemic terms: the effective commercial and social exploitation of new knowledge depends on a combination of complementary assets, competencies and conditions, and require policies going way beyond R&D and innovation to the educational, industrial and social. R&D contributes to innovation not only as immediate source of innovations, but also by expanding and enhancing the capacity of people, firms and institutions to

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assimilate knowledge and put it to productive use. This is why it is important that knowledge production is strongly connected to the needs and capacities of local communities through more open innovation systems and knowledge exchange strategies linking researchers and end-users.

The social cohesion approach is one such strategy. It focuses on reducing inequalities in order to spread the benefits and costs of technological advance more evenly, creating win-win situations. We see reducing inequality to be a step towards "social inclusion" and "social cohesion," a general policy goal in many countries.

At national level, *human resource policies* are often aimed at reducing inequalities in capacity, through programs that recruit women or members of under-represented ethnic minorities into science and engineering careers or by building institutional capacity in disadvantaged communities. *Innovation policies* generally respond primarily to the competitiveness agenda, but can also be directed in pro-poor ways by putting jobs front and center and focusing on pro-poor technologies. *Research and regulatory policies* often become re-distributional through the active participation of civil society groups.

At European level, there is an unresolved tension between concentrating STI resources for competitiveness and spreading them around the region to achieve cohesion.

At international level, while intellectual property laws are creating advantages for countries with strong STI capabilities already, there are many organizations, including the development banks, the United Nations and its agencies, foundations, and non-governmental organizations, that put significant effort into directing innovation toward human needs, empowering women, and activating communities to solve their own problems actively and demand accountability from the public sector.

We conclude that there is an emerging social cohesion agenda in science, technology, and innovation policy, but that there is ample room to expand its scope and sharpen its policy and program tools. We think that this is likely to be achieved through strengthening interdependencies between three dimensions of science, technology and innovation systems:

structural - the organization and distribution of STI resources and capacities;

representational - concerning political power and voice, and accountability processes;

distributional – who gets the benefits and who bears the costs of S&T.

ResIST research over the next few years will explore the concepts and pathways more deeply, to inform that developing social cohesion agenda.