

SOCIAL INNOVATION

THE POTENTIAL FOR TECHNOLOGY DEVELOPMENT, RTOS AND INDUSTRY

Policy Paper

IN COOPERATION WITH



Authors:

Martina Schraudner, martina.schraudner@iao.fraunhofer.de

Fabian Schroth fabian.schroth@iao.fraunhofer.de

Malte Jütting, malte.juetting@iao.fraunhofer.de

Simone Kaiser, simone.kaiser@iao.fraunhofer.de

Jeremy Millard, jrm@teknologisk.dk

1. Issue Statement:

Frame

Social innovation has evolved from an opportunity to a necessity. In the words of the EC's Commissioner for Research and Innovation, social innovation is the future of innovation. Social and technological innovations are closely interconnected - gains from fast-developing technological innovations cannot be fully realized without complementary social innovations that allow their successful societal adoption. In the face of accelerating technological change, societal change has become the next frontier for innovation.

The Fourth Industrial Revolution requires a Fourth Social Revolution if it is to be beneficial to society as a whole. Previous industrial revolutions have been accompanied by radical transformations in society and social structures. New systems and partnerships were designed to ease the transition from one socio-economic order to the next. The new industrial revolution is happening much faster than those earlier in history and will not be successful without social innovations that change social practices and lead to new forms of social and institutional organization.

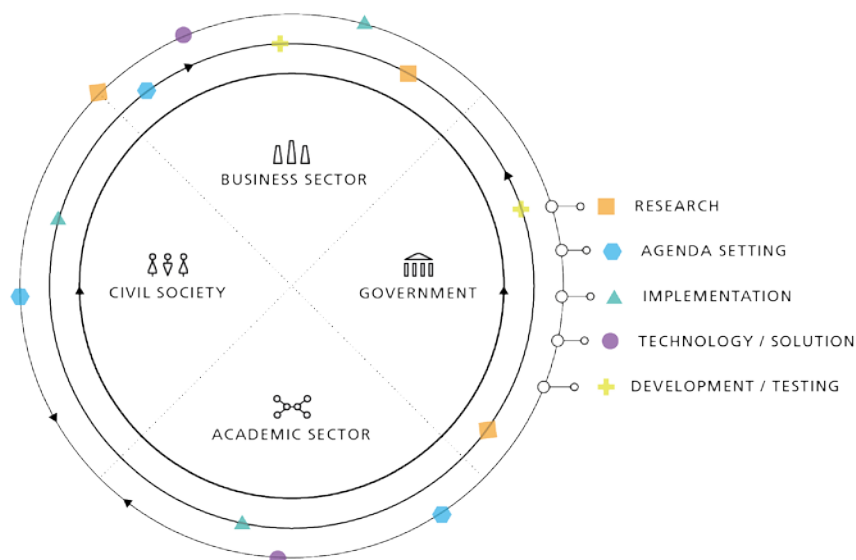
Definition

From the perspective of Research and Technology Organization (RTOs), social innovation can broadly be defined as a concept which recognizes the interdependence of technological and social change. Changing social practices and behaviours can be harnessed as innovation drivers for research and technology development; successful technological innovation can drive societal change. The capacity of social innovation to change societal practices makes it both a driver and a result of technological innovation.

Social innovation meets a social need in a new way which is more effective or efficient than existing ways and, importantly, empowers those in need by improving their access to power and resources, rather than only acting on their behalf¹. Social innovations are social both in their ends and in their means². By opening up research, development and innovation processes to those affected by technological developments, and being sensitive to societal changes along the whole R&D&I process, RTOs have the capacity to harness and impact social innovation. Taking into account the interdependence of social and technological innovation thus opens up particular opportunities for RTOs and industry to contribute to societal changes. As illustrated in Graphic 1, social and technological innovation should go hand-in-hand.

INTERCONNECTED PROCESSES

of social and technological innovation



Graphic 1: interconnected processes of social and technological innovation; © CeRRI, Fraunhofer IAO

¹ Millard J., Lauritzen J.R.K. and Simon J. (2014): Doing Social Innovation. A Guide for Practitioners (Funded by EC, TEPSIE Research Project); Passani A., Bellini F. and Vanobberghen W. (Eds.) (2016): Exploring Impacts of Collective Awareness Platforms for Sustainability and Social Innovation, Rome: Eurokleis Press (Funded by EC, IA4SI Project).

² Dro I., European Commission, and Bureau of European Policy Advisers (2011): Empowering People, Driving Change - Social Innovation in the European Union, Luxembourg: Publications Office; Murray R., Caulier-Grice J., and Mulgan G. (2010): The Open Book of Social Innovation: Ways to Design, Develop and Grow Social Innovation, London: NESTA.

- **Social and technological innovations are closely interconnected.**
- **Their capacity to change societal practices makes social innovations a prerequisite and concomitant phenomenon as both a driver and a result of technological innovation.**
- **RTOs have the capacity to harness and impact social innovation by aligning R&D&I processes to societal needs.**

New Perspectives on Innovation

Although the interdependence of social and technological innovations is not a novel phenomenon, awareness has only recently become widespread. Innovation systems have developed from triple helix, to quadruple helix and most recently to quintuple helix models, whilst the benefits of open innovation involving all relevant actors have become clear. From the perspective of RTOs, as well as of industry more broadly, recognizing the need for the full integration of social, technological and business insights to innovation is essential. The tools and methods of each approach need to be widely understood and used. This will enable successful societal and commercial adoption of new technologies with the potential to transform civil society, the economy, politics, industry and the environment in alignment with shared societal values.

For innovations to become adopted and to realize their full potential, social needs and behaviors are often more important than merely economic, political or technological aspects. However, technological innovation is essential in giving people the tools to shape and transform societies by dramatically increasing their knowledge, capacities and reach.

Social innovation also has importance for technological innovation by leading to the social acceptance and use of new technologies. This includes embedding the values and ethics of Responsible Research and Innovation into technology development through promoting social inclusion and empowerment. Social innovation can ensure that human factors are fully taken into account, thereby optimising the use of technology in tackling societal challenges, particularly those embedded in European policies, such as Horizon Europe's Pillar 2, 'global challenges and industrial competitiveness', as well as the UN's Sustainable Development Goals.

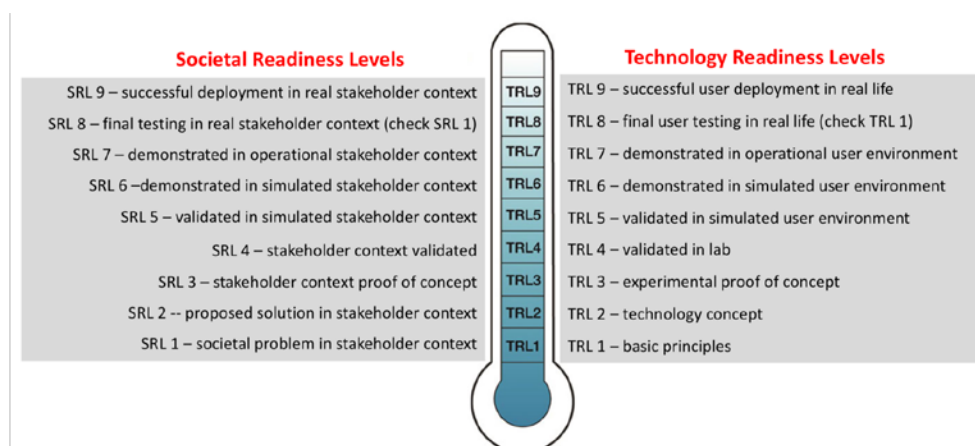
- **For innovations to become adopted and to realize their full potential, social needs and behaviors are often more important than merely economic, political or technological aspects.**
- **Social innovation also has importance for technological innovation by leading to the social acceptance and use of new technologies.**
- **Social innovation optimizes the use of technologies in tackling societal challenges, particularly those embedded in European policies and the UN's Sustainable Development Goals.**

Impact of SI:

There is ample evidence as to how social innovation tools and methods can result in better outcomes and impacts for RTOs and industry in tackling European and global challenges and in enhancing societal prosperity and welfare. For assessing the impact of social innovation as well as highlighting the particular role of RTOs, three different perspectives can be applied:

- **Changing the overall technology paradigm:** The incorporation of social innovation tools and methods changes the technology innovation paradigm. The previously assumed linearity of innovation processes gives way to an iterative approach to technology innovation, so the paradigm shifts from `technology push` to `society push`, reflecting the recognition that the success of technology innovations is no longer determined by the technology itself but by its ability to address societal needs and promote public value.
- **Bottom-Up:** RTOs can support and nurture bottom-up social innovation processes or movements by providing enabling research, technology, methods and forums. For example, digital social innovation develops and deploys open-source, user-friendly ICT tools for social good, typically at community level through a neighborhood time-share platform, or using hand-held sensors to measure air pollution at street level.
- **Top-Down:** RTOs can assess and co-opt SI processes when shaping and implementing top-down technological innovation. Both large- and small-scale technological innovation can benefit greatly from deploying social innovation processes that are open, co-creative and inclusive, for example by crowdsourcing not only so-called `expert` inputs but also the knowledge of customers, employees and ordinary people, as well as ensuring that value is widely shared amongst all stakeholders.

A new impact approach relevant for RTOs and industry are the nine Societal Readiness Levels (SRLs) designed to match and be used together with Technology Readiness Levels (TRLs), as illustrated in Graphic 2.



Graphic 2: Societal and technological readiness hand-in-hand; © Danish Technological Institute

The purpose of SRLs is to help technology innovators to be less research-driven and more end-user-driven, and to measure the gap between a given TRL and

SRL for the purpose of seeing how the gap might be closed. Both SRLs and TRLs should be designed into an innovation process from the beginning.

- **Social innovation tools and methods can successfully address societal challenges.**
- **Social innovation works at different levels and RTOs can shape its impact both from a top-down as well as from a bottom-up perspective.**
- **Assessing the impact of social innovation is challenging, however, Societal Readiness Levels (SRLs) depict an important measure for social innovation capacities.**

Challenges and Opportunities for RTOs and Industry:

Challenges and opportunities related to SI can be seen at three different levels:

At a **macro level**, there is systemic failure to appreciate that social innovation is inextricably linked with technological innovation, and this has become a blind spot in research policy and funding. However, this is slowly changing so, for example, within Horizon Europe, there will be a opportunity for RTOs and industry to deploy social innovation in the program's second pillar linking global challenges with industrial competitiveness.

At a **meso level**, RTOs and industries engaging in R&D still lack awareness of the fundamental need for social innovation in order for technological innovation to succeed. This means that investments in social innovation instruments and competences are not given priority which results, in turn, in a lack of organizational capacity within RTOs and industry more generally. The synchronization of social and technological innovation activities is thereby hampered, leaving them both inadequately prepared to diffuse the results of their technological advances across society.

At the **micro level**, the ability of social innovation to unfold its full potential is limited due to a lack of awareness and agency at the level of the individual. Raising awareness among researchers as well as R&D personnel within industry and pointing out the important role of social innovation for technological innovation processes, remains a long way off. Besides raising awareness, the necessary capacities among individuals working in R&D must be built in order to enable them to directly use social innovation tools and methods in their daily work.

- **The linkage between social and technological innovation is often not recognized in research policy and funding criteria.**
- **RTOs and industries lack awareness and capacities to systematically include the social innovation within their R&D activities.**
- **Individual researchers are not equipped to use social innovation tools and methods in their daily work.**

2. Policy Recommendations:

For the Horizon Europe proposal, the following recommendations will support the full potential of social innovations for welfare, prosperity and sustainability:

Policy & Governance

- Use all available policy instruments to design an overarching structure in which the importance, tools, methods and approaches of social innovation are noticed, valued and fully integrated into all innovation systems.
- In Horizon Europe (especially Pillar 2), strengthen the role of RTOs and industry within social innovation actions against the backdrop of their key role in linking technological knowledge with possible applications.
- Establish new governance systems to support multi-stakeholder dialogues between RTOs, industrialists, social innovators and the broader ecosystem, and encourage new R&I processes such as responsible research and innovation (RRI) in RTOs and industry.
- Use the Multiannual Financial Framework budget and its key instruments to create longer-term investment and strategic support for social innovation across all Commission services, and as part of this specifically ensure that social innovation supports industrial competitiveness.

Capacity building:

- Encourage capacity building in the area of social innovation among RTOs, technology developers and industry. Specific actions should include developing tailored social innovation guidance modules and bootstrapping initiatives for non-social innovation actors and programmes.
- Ensure access to suitable resources in terms of human resources, funding, and organizational capabilities for social innovations.
- Promote social innovation as a fundamental cross-cutting approach to industrial and business development, not an add-on. An integrated understanding of research, innovation and implementation activities for the public good should be incorporated into the mainstream EU agenda.
- Encourage the implementation of new R&I processes such as responsible research and innovation (RRI) in RTOs and industry.

Impact:

- Support the development of the evidence ecosystem for social innovation through robust and practical impact frameworks, such as SRLs, and strongly integrate these into more mainstream industry, business and policy.
- In public procurement policy, at European, national and local levels, strengthen the links between business services and social innovation, including the deployment of appropriate impact frameworks.
- Set up a strategic initiative to better enable micro enterprises and SMEs to access EU funding for social innovation support to maximize the beneficial impacts of social innovation on Europe's industrial competitiveness.