

Comment

SOCIALIZATION OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH: FURTHER COMMENTS

Embedding science in society: a European perspective

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ABSTRACT: Within the research framework programmes, the European Commission's interest in societal issues pertaining to science and technology has been increasing over time. An important step in this direction has been taken with the establishment during the Seventh Research Framework Programme (FP7) of the theme "Science in Society" (SiS) in the Specific Programme "Capacities".

From this perspective, the theoretical and practical horizon of science and technology (S&T) socialisation discussed in this issue of JCOM fits well with the SiS strategy. In fact, S&T socialisation refers, on the one hand, to the process of the adaptation of science to a changing society and, on the other hand, to the capacity of identifying and managing the social dynamics increasingly involved with scientific and technological research.

The European Commission's interest in societal issues pertaining to science and technology has been increasing over time. An important step in this direction has been taken with the establishment during the Seventh Research Framework Programme (FP7) of the theme "Science in Society" (SiS) in the Specific Programme "Capacities", endowed with a specific budget (330 million €) and specific objectives.

Its contribution to the construction of the European Research Area is expected to be of pivotal importance, since Europe urgently needs a scientific and technological research more and more embedded in society, in tune with societal changes and sensitive to Europeans' expectations.

From this perspective, the theoretical and practical horizon of science and technology (S&T) socialisation discussed in this issue of JCOM fits well with the SiS strategy. In fact, S&T socialisation refers, on the one hand, to the process of the adaptation of science to a changing society and, on the other hand, to the capacity of identifying and managing the social dynamics increasingly involved with scientific and technological research. As I will show below, both the aspects are at the core of SiS activities.

Moreover, the notion of socialisation illustrates well the added value which can be derived from a strong cooperation between the key players in European research and social scientists. It is expected that a stronger synergy between SiS activities addressing global challenges will develop, as well as social research.

In order to better understand the SiS strategy, I will dwell upon on three issues: its *motivation*, its wished *destination* and the possible *future ways* to get there. Needless to say, the road ahead is not easy, the direction to take is not unique and the way might not be linear.

Motivation

As for the motivation at the basis of the programme, we can start by noticing the remarkable change affecting the social position of science and technology that has occurred between the previous and the present century.

The rate of progress in science and technology in the past 60 years has been breathtaking. The progress has made many lives so much easier, healthier and more productive. And that progress will continue. However, if in historical terms, the 20th century witnessed enthusiasm about the capacity of scientific progress to improve the future of all citizens, there is nowadays a growing feeling of mistrust and detachment.

Previously, science development was viewed as a continuous linear process of improvement, without diversions or significant drawbacks.

In contrast, this century is marked by a set of global challenges (such as the preservation of our planet, cleaner energy, improved health and food production) which are being translated into specific public concerns. Science is asked to give reliable answers to these concerns, by developing solutions which, however, necessarily trigger conflicts among the different communities involved, in terms of produced impact and threatened interests.

This profound transformation has made the previous linear approach to science and scientific evolution no longer valid, at least in that it has become clear how scientific applications can produce benefits for some groups and challenges/barriers for other groups (and this is a typical non-linear situation). Moreover, global issues make it necessary to overcome the still dominant scientific culture where science is too often seen as being separated from society and, at the same time, organised in rigidly separate disciplines.

In this framework, any socio-technical solution is increasingly required to be integrated, in the double sense of integrating different disciplines and integrating the many actors and stakeholders (including civil society organisations) directly or indirectly involved with scientific and technological research. This passage is producing a modification of the very context in which scientific and technological research is thought, designed, produced and exploited.

Unfortunately, in our travel from the 20th to the 21st century, we are still suffering from a sort of jet lag that impedes us in clearly understanding and absorbing this complex set of changes. This is demonstrated by different facts: the societal dimension of research is still weakly perceived while the ethical implications of S&T are often merely seen as potentially threatening, resulting in a growing and widespread feeling of mistrust and detachment. In addition, a large part of scientists are still barely open to society and societal expectations.

Destination

As mentioned, under the 7th Community Framework Programme for Research and Technological Development, the Science in Society programme is placed within the Capacities Specific Programme, as a set of activities designed to close the distance between the scientific community and citizens, enriched by a new initiative aimed at new ways of doing research.

In this regard, from FP6 to FP7, a significant change has taken place. We have moved from a programme – Science *and* Society - focusing on the relationship between scientific research and society to a programme – Science *in* Society - which is based on the assumption that this relationship is not only a matter of “distance” between science and society, but it is about a broader set of variables, including culture backgrounds, interests, social mechanisms and processes as well as diverging directions inside society; let’s say, it is about embedding science in society and favouring their harmonious co-evolution.

This broadening of the scope of the programme had several implications and led to radical changes, in terms of the contents of the financed projects, the way in which the programme is implemented, the type and size of action supported, the disciplines involved, the stakeholders concerned and the impact attained.

In FP7, we implemented not only a *refocus of our actions* in order to promote fewer and more structured actions that would result in a stronger impact and maximise the European added value. On the other hand we are now placing a stronger emphasis on the *mobilisation of main actors* around the development of a democratic and prosperous knowledge society. After years of successful initiatives undertaken at the local level, the European Commission now encourages all actors involved in the production and dissemination of knowledge to maximise synergies and pool resources.

In contrast to past European programmes, SiS is pivoted on the awareness that *enhancing scientific culture* requires promoting the use of an integrative, interdisciplinary approach and a *full participation* of citizens and civil society organisations in research activities. However, people’s participation, in order to make sense, requires that the potential actors develop their capacity and capability to play a role in the research process. Hence, the necessity to enlarge the boundaries of the action promoted by the European Commission, directly addressing also the issues related to the actors’ involvement in research.

To this end, some preparatory actions have already been initiated, aimed overall at mobilising and developing the capacity of the so-called “agents of S&T socialisation” - that is, players whose involvement could be particularly important in accelerating a process of S&T embeddedness in society.

However, there are still limitations to overcome in order to have an European Research Area 'firmly rooted and responsive to its needs and ambitions in pursuit of sustainable development' (2020 vision for the European Research Area)

Future ways

The SiS will continue to promote societal engagement around the so-called "Knowledge triangle" (Research, Education and Innovation) and will also act as an incubator and a testing field in terms of social actors and actions relevant for European science, research and innovation.

In this perspective, SiS specific programme activities will further deepen the approach pursued up till now, essentially based on three interconnected levels:

First, to support the creation of "science in society communities", such as via the Mobilisation and Mutual Learning (MML) actions as well as in the science education sector, where there will be an established community of best practice in Inquiry-Based Science Education (IBSE) and, in addition, through the creation of a large cohort of research organisations tackling structural barriers to women in research. The Mobilisation and Mutual Learning Actions, launched in 2010 under the Science in Society (SiS) programme, will bring together research bodies and actors from civil society to jointly implement action plans to address a chosen societal challenge through the involvement of a wide range of stakeholders in setting research agendas and by using research results.

Secondly, to promote "capacity building" in support of the EU2020 strategy on selected issues. For example, increasing the number of researchers and scientists through better information on careers open to young people with science/maths/technology qualifications or improving gender mainstreaming in Community research policy and programmes, in particular on topics related to ERA 2020 Vision.

Finally, further supporting a number of "tools" that will enable a better embedding of Science in Society, its assessment and monitoring, such as best practices, guidelines, platforms, codes, statistics, mapping, etc that address specific SIS issues relevant to the ERA and which underpin the knowledge triangle (education-innovation-research) as a whole - for example, on Open Access; actions to engage the universities, the nanotechnologies code of conduct, or science education, careers and creativity; complete and expand the analysis of women in research data collection (She Figures) including the Western Balkans.

Conclusions

As can be easily observed, the challenges we are facing are major and complex and rely on decisions and choices that go beyond scientific knowledge. There is the risk to underestimate the size of the tasks to be accomplished, i.e. that of reconciling the expectations and working modes of a large array of actors and organisations of very different nature which are usually not asked to cooperate with each other.

In this context, social scientists can provide valuable contributions as analysts, advisors and facilitators of changes.

Author

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