

Call for papers



Big Facilities of Science and Technology: Organization and Policies of Large Infrastructures

Proposed Special Issue of *Science, Technology and Society* (An International Journal) Sage Publication
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Science and Technology Studies have proposed numerous analyses of large research instruments or big and complex modes of organisation of science (*Big Science* [Galison & Helvy 1992 ; Krige, Pestre, 1985 ; Graham, 1992]). It is true that the scarcity and cost of certain instruments are both the origin and the result of ever-increasing international cooperation, of which CERN is an ideal-type. However, taking into account the technical aspects, the cost imperatives or the logic of project-based management covers only part of the historical and sociological situations of big science institutions. The aims of this issue are to understand how the large size of these facilities: 1) Induces various characteristics of instruments, networking among large research personnel and groups and organisational constraints; 2) Leads to specific scientific policies explicitly dedicated to these infrastructures; and 3) Gradually transforms scientific research and knowledge production.

These are some of the questions which have come into sharp focus in launching this issue. We propose to study "big facilities" as technical, scientific, organisational and political assemblages. They may be observatories (Lamy, 2007), plant gardens (Sperry, 2000), particle accelerators (Simoulin, 2017), space activity structures (Zabusky, 1995), genomic platforms (Paradeise et al. (2010); Bellivier, Noiville, 2009), massive instrumental complex (Shinn, 1993)... Large scientific and technical facilities enlist singular institutional arrangements (in terms of construction, access, operation, maintenance). The notion of global assemblage articulates both local structural constraints and global connections (Ong, Collier, 2008).

The special issue intends to explore the sociology of infrastructures in order to grasp the maintenance work required by these large facilities (Bowker, Star, 1999). Their study also requires the sociology and history of organisations (particularly scientific and technical [Whitley, 1981]): analysis of the modes of large-scale coordination (Button, Sharrock, 1998), of the articulation of skills, of the management of task areas (Abbott 1988) and of the synchronisation of actions (Stinchcombe, 2001). Large-scale facilities are thus the

assemblages of organisational innovation in the control of flows of people, materials and data (Lamy, 2011). This special issue papers will therefore examine the sociological and historical methods of structuring and settling people and things within large facilities. The large scientific and technical infrastructures call upon revisiting the history of the great instruments. Studies of large-scale instrumental complexes have revealed powerful epistemological structuring capacities. The gathering of a large number of scientists around an instrument produces both opportunities for certain researches and at the same time a polarisation on the specialities involved (Galison, 2001; Lamy, Davoust, 2009).

But facilities are more than instruments. Around them, an entire organisation has the aim of conducting experiments, training and socialising neophyte scientists, preparing, developing and maintaining often very sophisticated components, and enhancing the value of the publications resulting from these experiments. And such facilities work according to a generation logic. Researchers and Technicians are trained on a mature facility and then contribute to build a new one (Simoulin, 2018). It is therefore necessary to explore the conditions of access to these big facilities: what are the qualities required to use the technical devices? To what extent do differential access signal socio-epistemic stratifications (Gingras, 2006)? The links with the "spatial" turn of the STS will make it possible to appreciate the architectural and symbolic conditions for the siting of major facilities.

Large scientific and technical facilities are linked to particularly acute power issues. Because they represent and symbolise the commitment of public policy (whether that of a single country or a group of nations), these infrastructures are caught up in political investment regimes that should be explored (Jacob, Hallonsten, 2012; Barry, 2001; Mangematin-Peerbaye, 2004). What is the place of international alliances in the establishment of a large facility? Specific climatic or geographical conditions may explain remote location from the investing countries - this is the case, for example, of the European Southern Observatory. What is more broadly the place of North-South relations in the distribution of these large infrastructures? The capital for large facilities requires consideration of their specific economy. The scientific and financial consortia that preside over large facilities are evidence of major economic reconfigurations. The special issue will also aim to explore this economy of large infrastructures.

As they are specific objects, the study of large scientific and technical equipment implies a crossover of approaches, methods and specialities. This is why the issue, which focuses on the major themes of the sociology of science and technology, will give due attention to approaches from the sociology of work, the sociology of organisations, the political sociology of research, the sociology of North-South relations and the economic sociology of science. The studies as a whole should make it possible to clearly specify theoretically what seems to us to be a new object of research; they will cover a wide range of objects in order to illustrate the contemporary importance of these large facilities; they will also question the modes of investigation in order to specify the logics of constitution, deployment and operation of large facilities.

This special issue of *Science, Technology and Society* will contribute to bringing a fresh look at these massive objects that are big facilities. The contributions will be based on local, national or transnational empirical case studies. It will address, for example, issues such as

- (i) political, economic and scientific alignments to build big facilities
- (ii) the appropriation, development and maintenance operations necessary for the continuity of big facilities
- (iii) organisational methods based on the diversity of skills and the distribution of workstations
- (iv) the logic of global assemblage associating local arrangements and global connections (the scientific equipment policies of the South will be particularly studied)

Schedule:

o Submission of abstracts (500 words): **september 1st 2021**

o Answer: **october 1st 2021**

Submission of first drafts (7500 – 8000 words): January 1st 2022

o Final submission: March 2022

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Science, Technology and Society is an international journal devoted to the study of science and technology in a social context. It focuses on the way in which advances in science and technology influence society and vice versa. It is a peer-reviewed journal that takes an interdisciplinary perspective, encouraging analyses whose approaches are drawn from a variety of disciplines such as history, sociology, philosophy, economics, political science and international relations, science policy involving innovation, foresight studies involving science and technology, technology management, environmental studies, energy studies and gender studies. The journal consciously endeavors to combine scholarly perspectives relevant to academic research and policy issues relating to development. Besides research articles the journal encourages research-based country reports, commentaries and book reviews. *Science, technology and Society* is published in association with the Society for the Promotion of Science and Technology Studies.

Further information and instruction for authors: <http://journals.sagepub.com/home/sts>

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