

Legitimizing ESS: Big Science as collaboration across boundaries

The ESS theme at the Pufendorf Institute

The purpose of this theme is to study the European Spallation Source (ESS) to be inaugurated in Lund 2019. We will apply perspectives from economics, the social sciences and the humanities to analyze ESS as a contemporary Big-Science facility focusing on processes of legitimation, the building and management of reliable collaborations, common understandings of scientific problems, data and (future) results.

The primary objective of this theme is to deepen the understanding of Big Science— often defined as projects demanding big budgets, big staffs and big machines. A central perspective in the context of legitimization applied here concerns its materiality, especially instrumentation. Since the instruments used in Big-Science facilities are extremely expensive, it is important to make them relevant for as many stakeholders as possible for as long time as possible. In order to solve this basic dilemma, safeguarding the flexibility of instruments is crucial and achieved for instance through open-ended constructions as well as constant reconstruction. In the end, the design of instruments and their use is the result of constant negotiations among scientists, policymakers, financiers, users and other interest groups.

The second objective of this theme is to study the key processes leading up to the realization of ESS planned to be running on full scale in 2025. Today, organizations have been set up, strategies worked out, designs negotiated, financial plans made and discussions and debates held that will influence the future performance of ESS. We will focus our efforts on those discourses and practices that have already surfaced in the work of conceptualizing and building ESS, i.e. political, economic, legal, scientific, communicative and cultural.

In this theme, we will also analyze a wide range of processes forming ESS, from the early 1990s to the present, taking place in different arenas involving various groups extending from the public and scientists to policymakers and politicians.

Research in this proposed theme shall also employ cultural, managerial and social science perspectives to examine how archival routines, and the dissemination of research information, have been organized in other Big Science facilities. Beyond this, it shall study the archival practices at work around the ESS facility and help mitigate the organizational challenges facing archival and PR personnel working there.

Background

Our interest in these issues is primarily motivated by the differences between earlier corresponding Cold-War facilities, e.g. CERN in Geneva and Superconducting Super Collider (SSC) in Dallas-Fort Worth, and the present efforts to establish ESS. In this joint European research project, military considerations so characteristic for previous Big-Science projects have been of lesser interest, much of course due to the termination of the Cold War. Instead, ESS, with its focus on materials rather than particles highlighting collaboration between nations, professions, research specialties, political ideologies, markets, universities, research councils and users, in many ways reflects a novel approach to Big Science manifesting knowledge society with interdisciplinary efforts rather than a military-industrial complex with resources funneled to sub-atomic physics.

One fundamental insight to be drawn from international collaboration projects similar to ESS, is the benefit of broad and early involvement of researchers from a wide range of social, cultural and managerial sciences. Many comparable sites house departments for research and infrastructure such as libraries and information and communication technologies as well as public relations and visitors' centers with exhibitions and multimedia presentations. In addition, they attract well renowned social scientists to make sure that the work pursued is

properly documented for future analysis. The managements of these sites simply view their work too important to be left solely to public relations officers due to their lack of archival routines.

As the ESS moves from the planning stages to completed construction, it becomes important to ask for lessons learned at other Big-Science projects already realized, or currently being realized, e.g. the European X-Ray Free Electron Laser Project (XFEL) in Hamburg and the Spallation Neutron Source (SNS) at Oak Ridge National Laboratory, U.S.A. What can studies of these projects tell us about what may (or may not) be to come in relation to ESS? The issues this theme intends to investigate through comparisons include: the synchronization of observations, data collection and representation, not the least by visual technologies, information management of actors involved, career opportunities for participating research personnel, especially women and minorities and outreach activities aimed at the public.

Open Lecture:

Invited speaker Thomas Brante, professor in sociology of science at LU, is giving a talk based on his article:

“Perspectival Realism, Representational Models and the Social Sciences”

Time: Tuesday January 31, 15.00-17.00

Venue: The Pufendorf Institute seminar room, 1st floor.

The lecture was presented by the theme "Legitimizing ESS" at the Pufendorf IAS

Tuesday 16th

The European Spallation Source and MaxIV in Lund: Promises and realities of large scale science facilities

Introduction

Vice chancellor **Per Eriksson**

ESS/MAX-IV in a regional context

Lars Börjesson, professor in Condensed Matter Physics, Chalmers, Gothenburg and chairperson of MaxIV

Glocal facets of big science

Sharon Traweek, professor in History and Women's Studies, UCLA

Challenging tempor(e)alities of large-scale research facilities

Ulrike Felt, professor in Social Studies of Science, Vienna University

Panel discussion

Thomas Kaiserfeld, professor History of ideas, Lund University, **Tom O'Dell**, professor Ethnology, Lund University, **Josephine Rekers**, researcher CIRCLE, Lund University, **BG Svensson**, CEO Lundamark AB

Moderator: Kerstin Sandell, associate professor Gender Studies, Lund University

The seminar is organized by the interdisciplinary theme 'Legitimizing ESS' at Pufendorf Institute for Advanced Studies.

Time: 17.30-19.45

Place: Main Lecture Hall, Pufendorf Institute

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