

# Analyzing SPRU's research capabilities: A mixed survey-bibliometric method for mapping interdisciplinary organizations

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## Introduction

Many research institutions are undergoing major reforms in order to respond to changing intellectual environments and societal demands. As a result, the traditional structures and practices of science, built around disciplines, are being by-passed in various ways in order to pursue new types of differentiation. However, no clear alternative socio-cognitive structure has yet replaced the “old” disciplinary classification. Two apparently opposing developments are in place: on the one hand a perception of escalating fragmentation in science, on the other hand a flurry of interdisciplinary initiatives aiming to bridge divides (Weingart, 2000). In this fluid context, it has become increasingly important for organisations to understand and make strategic choices about their positions and directions in moving socio-cognitive spaces. Here we present a method for mapping research expertise that complements bibliometric approaches (Noyons, 2001) by means of a survey to an organisation's researchers. We have used this mixed survey-plus-bibliometrics method to investigate the areas of expertise of SPRU, a university department that is atypical in that is defined by its policy-driven study of science, technology and innovation.

## Method

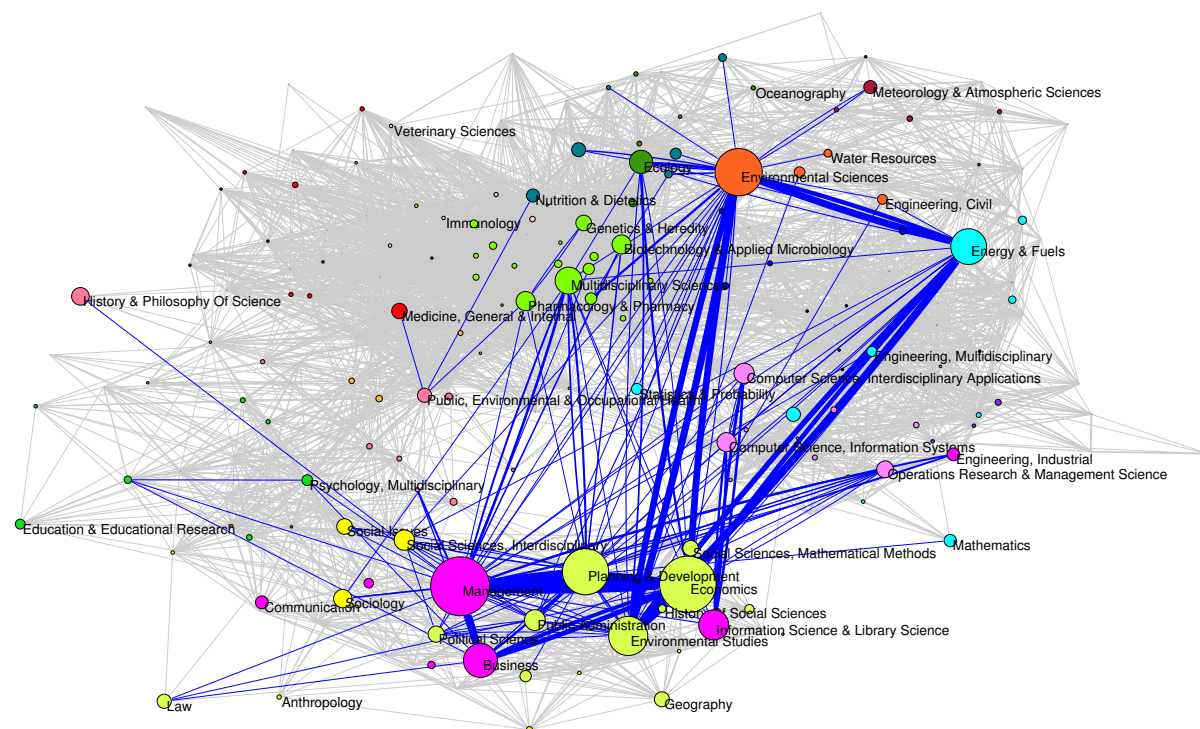
A survey was used to collect information from 50 SPRU researchers regarding their expertise according to a roster of categories along four category dimensions: empirical focus, disciplinary approaches, research themes and analytic tools. This cognitive profile was analysed using co-occurrence of researchers' assignment to conduct factor analysis and draw maps based on cosine similarity metrics. We also collected information on researchers' background, their journal preferences, organisational collaborations and perceptions on trends. The survey was complemented with bibliometric studies based on a list of 134 publications (in 68 journals, with 4,468 references) by current SPRU researchers for the period from 2006 to early 2010. Bibliometric analyses were carried out at two levels of analysis, ISI Subject Categories (disciplines) and Journals. Maps were generated using both citation patterns of the full Journal Citation Reports (JCR) for 2008 and SPRU's publication and citation data. Following Rafols and Meyer (2010), we investigated interdisciplinarity in terms of disciplinary/journal diversity (balanced spread over the maps), combined with coherence (cross-citations between those disciplines or journals).

## Results

The survey analysis showed that SPRU's capabilities are quite evenly distributed among economics, management, political science and social science. Empirical foci are spread between research and innovation policies, food and risk governance, pharma and health, and energy. The bibliometric analysis showed that SPRU has unique interdisciplinary publication behaviour, with publications and citations criss-crossing between its social science domains

and the natural sciences, where its empirical areas of study are located (See vertical linkages in Fig.1). Not only is SPRU portfolio very diverse, but it is coherent in that it integrates extremely disparate disciplines. The survey also reveals that expertise most shared within SPRU is neither disciplines nor empirical foci, but conceptual frameworks such as *Innovation Systems*, *Technological Transitions* or *Foresight*. This suggests that these interdisciplinary frameworks play a key role in facilitating internal interactions and the construction of a shared identity.

We propose that this mixed method can be used as a general tool for knowledge mapping in interdisciplinary organisations –with the crucial advantage of allowing triangulation and maps obtained from survey and bibliometric approaches and the use of different types and levels of knowledge domain categories, including some specific to the organisation under study.



**Figure 1. Citations between ISI Subject Categories (disciplines) in SPRU publications 2006-2010, overlaid in the map of science. Size of nodes and lines is proportional to number of citations.**

## References

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