

KNOWLEDGE NETWORKS FOR MEETING THE SOCIETAL DEMANDS – THE UNIVERSITY ORGANIZATION IN TRANSITION

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Summary

During the last decades, research policy debates have emphasized the need to match academic research with societal demands. The result has been a proliferation of policy programs to connect university research with actors and organizations in society, and has been materialized in the form of spin-offs, science parks, incubators, industry-academy collaboration, liaison offices, and the like.

The attempts to improve the interaction between universities and society have not stopped at new interface organizations. Instead, universities themselves have, in collaboration with research funding agencies, begun to reorganize their internal structures. Traditional departmental and faculty demarcations are increasingly getting blurred through the establishment of multi-disciplinary research units, which better correspond to new knowledge demands. This trend reflects changes in knowledge production calling for integrative approaches, but it is also the result of changing strategies among funding agencies and other actors outside the academic system, which stress the importance of integrating academic research and social practice. This paper analyzes the background and outcome of multidisciplinary collaboration in medical research. The idea behind the collaborative arrangements is to enhance the integration of experimental and clinical research and to form new intellectual combinations in the fields of large social interest. It is concluded that the collaborative programs have resulted in a closer interaction between fundamental and clinical research and in a more stable organizational structure of research. The general argument of the paper is that changes in the direction and organization of academic research are the results of an interplay between policy and cognitive factors: the initiatives reinforce a tendency

towards disciplinary integration and problem-orientation, a process already begun before the initiatives were taken.

1. Introduction: Research Organization in Transition

Throughout the world, the targets of research policy have changed. The duality of research funding – with either a marked orientation towards scientific excellence or an emphasis on utility – is moving towards a convergence between the two stances. Academic research should, ideally, combine theoretical depth and practical utility; and research policies, and research organization, should be designed to make this combination of scientific and practical achievements possible.

This development has been conceptualized as “Triple Helix” by some researchers, or as “Mode 2” by other researchers. Both expressions, although not identical, point out the fact that knowledge to an increasing extent is produced and utilized simultaneously within the academic and the commercial fields and with multiple interactions in the knowledge-producing process. Knowledge production and utilization are marked by intertwined and interactive activities, involving a mix of organizational and cognitive settings and models. Hence, it would appear that the changes in knowledge production are being driven by new models for funding academic research, and for stimulating interaction and integration, rather than a linear transfer of resources.

The driving forces behind this orientation of research policy are heterogeneous. Some are related to new ideals of public sector organization. Others come from changes in the interaction between science and society, such as the growing demands from patient groups and other representatives of societal knowledge interests, such as companies and public agencies.

Collaboration in general, whether between disciplines or between organizational settings, is not only driven by new models of funding (a “collaboration-push” perspective). It is a ubiquitous phenomenon of academic work that can be explained by the search for complementary competencies in the research process, the need for sharing equipment etc. (a “collaboration-pull”-perspective). Hence, new models of research steering should also be integrated with spontaneous – researcher-initiated – collaboration.

This paper investigates a number of issues in relation to these changes in academic collaboration: the emergence and organization of focused programs, the creation of collaborative programs, and the organization of work. The general argument is that organized research collaboration is an important impetus to change. Changes in the forms of knowledge production can be seen not only in emerging new fields, but also in the reconfiguration of old fields and disciplines. Changes in knowledge production arguably emerge more often as the result of new combinations of existing fields, rather than transformations of disciplines into transdisciplinary and transinstitutional epistemic fields.

The main objective is to analyze the increasing role of multidisciplinary collaboration in research policy, by examining the motives for research collaboration among researchers

and funding agencies, the economic, political and social context of collaboration, the management of collaboration, the effects of research collaboration upon research practice and on the academy-industry interaction.

This argument is illustrated by reorganizations of research on diabetes and fertility in the Swedish university system, as exemplified by the emergence of two interdisciplinary research centers.

Both of these centers have emerged in areas of great social interest, and reflect the general orientation of research policymakers at different levels to increase the interaction between academic research and social practice. Type II-diabetes – the focus of the research center under study – affects about 100 million people worldwide, and the complications that follow diabetes include blindness, and kidney and cardiovascular problems. The interdisciplinary center under study has a special orientation towards the genetic basis of diabetes, although it also incorporates physiological, metabolic and biochemical approaches to diabetes. It has well-developed connections to the biotechnology industry, and was at an early stage almost entirely dependent on industry funding. The center is currently running several collaborative programs with industry.

Fertility research has received less public attention than diabetes research, partly because infertility is not classified as a disease. Nevertheless, a number of factors have contributed to an increasing interest in male fertility and infertility. One is a sharp decline in the concentration and quality of sperm cells in the last few decades, and another is the social consequences of involuntary childlessness. With the background of the demographic changes that most advanced countries face, fertility decline is becoming an important political and social issue, and could also potentially be in the interest of the pharmaceutical industry. The fertility research center, used as the case study, combines clinical studies of male infertility, conducted by urologists, andrologists, and pathologists, with research on the biochemical sources of infertility.

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Biographical Sketch

Mats Benner is a Docent in sociology. He is presently an Associate Professor at the Research Policy Institute, Lund University, Sweden. His main research interests are in research organization and management, as well as science and technology policy. Among his recent publications are "Institutionalizing the triple helix: research funding and norms in the academic system" (2000) *Research Policy* **2**, 291-301 (with Ulf Sandström), and "Inertia and Change in the Scandinavian Public Sector Research Systems: the Case of Biotechnology " (2000) *Science and Public Policy* **27** (6), 443-454 (with Ulf Sandström).