

Admin 2.0

Science 2.0 + Admin 2.0 = successful European research

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Research globally has reached a level of size and complexity, calling for a paradigm shift referred to as Science 2.0. This development points out the need for a paradigm shift in the underlying support functions as well, enabling this transformation in science to happen in an effective, sustainable, reliable, and professional manner. European Research can only reach its full potential through professional research administration: We call this Admin 2.0.

Research support functions in Admin 2.0 cover the full range of administrative, financial and legal support during the entire project life cycle from the original idea of the researcher or team, to the successful closing out and audit of the projects, and the realization of the research endeavor in terms of publications, data, patents and other types of research output. A key characteristic of Admin 2.0 is linkage between the complex needs of science, with flexible and adaptable support functions. The close interaction between research support and science during a project life cycle is outlined in Figure 1.

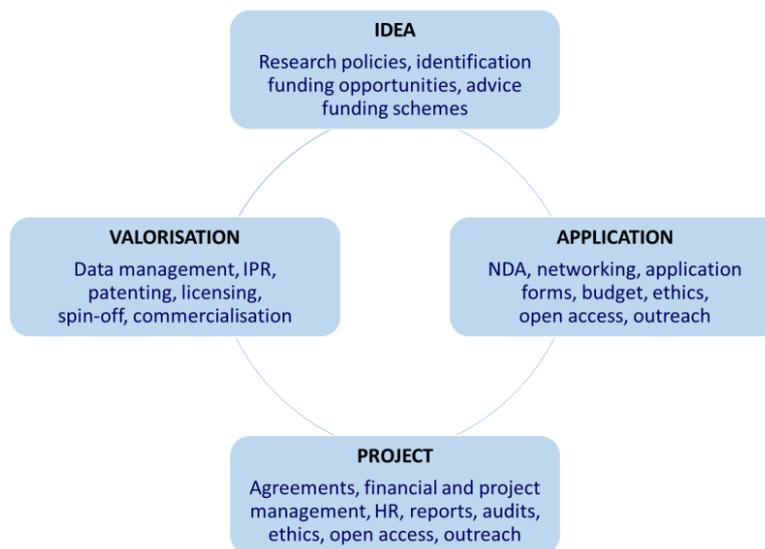


Fig 1. Project lifecycle from Idea through application and project to valorization.

The growing complexity of research demands a new way of looking at research support functions. The new qualifications and skills needed are closely linked to the new trends in research, as described below.

Furthermore, the interaction between research and funders of research, public or private, has seen an increased politicization of research, and hence the need for advice and monitoring on political and societal developments, new needs, and emerging policies. Scientists need professional support to oversee this arena and to decide on the optimal positioning of their research. In addition, scientists are now expected to

bring their research results not only to their peers but also to various other stakeholders from school pupils to the elderly, policy makers, support groups, patient organizations etc. Outreach is often not a core element in the training curriculum of a researcher, and therefore scientists should be advised and guided on it by their research support offices.

Change in funding of research

The move towards large international collaborative funding schemes has over the last 10-15 years created research support functions specialized in finding and communicating these new opportunities, establishing support for advising and writing these often very large and complex schemes, and finally specialized functions around their administrative, financial and legal management. From an ad-hoc approach, these functions have become more or less well-defined research support offices, with more or less well-defined skills and qualifications, and strong national and international networks to keep pace with developments in funding schemes and regulations.

Mobility and internationalization of research

Increasingly, mobility of researchers has become a prerequisite for funding. Mobility is often a requirement in PhD and postdoc programs, and mobility is often used as an indicator for excellence in research. Therefore, research support functions have to be able to handle language, and cross-cultural issues on a daily basis. This requires language skills and interpersonal competencies of research administrators. Also, international funding schemes have recently emerged and expanded. EU funding schemes have grown from specialized scientific programs to generic funding of excellent research, and an increasing numbers of national funds, public and private, have introduced international components, either through joint programming initiatives or bi- or multilateral research agreements. Furthermore, big research funds act on a global scale involving research teams from whatever country or institution needed. Thus, research has gone global and so has research administration.

Science for society

Growth in public spending on research has become a global parameter on how societies may sustain economic development, and in general countries are willing to set aside an increasing fraction of GDP to research. This process has increasingly interested politicians who look to science as a tool for solving societal challenges. Research is widely expected to generate knowledge that can be turned into jobs, solve health or environmental constraints, have an economic impact, or in other ways contribute to the development of the society. Often it can be a challenge in itself to put complex scientific endeavors into a meaningful societal context. Therefore different support functions, like technology transfer offices and patenting offices, have evolved. Lately, specialized functions to help define societal and economic impacts of research have sprung up. One of the research administrator's most important roles is to facilitate this process to maximize research quality and at the same time help researchers and teams to justify their research.

Research output

A key element of Science 2.0 is the increase in research data, both in terms of research results and scholarly articles documenting this research. There are several issues related to this growth including: *i.* access to data, *ii.* the ability to judge its quality, *iii.* use of this data in terms of ranking and quality measures, *iv.* management of the data, *v.* legal and ethical dimensions related to data use, and *vi.* the physical handling of the data in databases and networks worldwide. The current discussion on open access indicates that research output has become a core component in today's research environment. Specialized functions in research data analysis have been evolving mainly related to library functions, but the interaction and connection with research administrators in research data analysis has become still stronger. So there is not only growth in core research output, in terms of publications and research data, but also a corresponding growth in the meta-data that can be turned into performance indicators and be analyzed in other ways.

A changing research environment

Beside these main changes in the research environment, other factors contribute to the growing complexity of research underlining the need for a change in the support functions. Organizational frameworks are changing more rapidly than ever before, adapting the organization of research to emerging needs in the institutions or in society. Focus on the efficacy, accountability and evaluation of the research effort has increased. As a result, research support functions have moved from being solely administrative to also ensure the legality of research to a service function encompassing a large number of specialties from policy insight over communication to financial and legal competences.

Research support offices evolve from a number of different sources, among others:

- International offices positioned within institutions, with a focus on the European and international perspective of research.
- Legal offices focused on the legal and formal procedures around external funding of research and collaboration with external partners, including industry.
- Financial offices focused on managing and running external financed projects.
- Rectors or Deans offices focused on policy and strategy dimensions of research.

This has somehow shaped the philosophy and modus operandi in different offices around Europe, and globally forming units with dedicated project managers to support research, with a focus on funding opportunities, grant applications and management of projects.

In the United States, the legal requirements for national funding schemes has given a common framework for how universities and research organizations should structure their research support functions, with a major focus on the compliance process within the institution in applications for external funding and in the management of projects. As the US model has been in place more or less since the 1960's, it has become a role model for many countries. However, as the national funding schemes often are not shaped as the US ones, national models have emerged. With the growing role of European funding, some common trends can be seen in how EU funding support is structured across European countries. Attempts have been made to grasp the diversity and complexity of the research support offices, trying to quantify key performance indicators for research support [UK][Westensee][Oslo][BESTPRAC], with limited results. One of the lessons from this is that the organization of research support functions in itself is dynamic, diverse, flexible and adaptive. Furthermore, it is locally positioned, close to the research and research teams, and it is part of the

ability of Rectors, Deans and other research leaders to maneuver in a complex research policy environment that is regional, national and increasingly global.

Final remarks

Science 2.0 can only be successful if research support evolves in parallel. ADMIN 2.0 is a necessity derived from several steps in the development of professional research support functions in higher education institutions and research organizations being public, private or in industry. The core content of ADMIN 2.0 is the abilities to: *i.* maneuver and deliver high quality service in the complex and changing world of research, *ii.* handle the legal and cross-cultural constraints in a global environment, and *iii.* facilitate and interact with large international research consortia. This cannot be achieved by an ad-hoc approach, and therefore formalization and recognition of the skills and competences for research administrators is needed. These competences are built around a set of technical skills related to administrative, scientific, financial and legal project management and include also overall understanding of contexts to, both research policies and intrinsic issues such as methodology and ethics etc., wrapped in personal competences to interact with stakeholders. Adequate job profiles will not only lead to better recognition of research administrators as a key element of successful research, but will also strongly contribute to the career development perspectives of these professionals and to the design of a training program for individuals interested in positions as a research administrator.