Taking stock and looking ahead

National Centres of Competence in Research: a new generation takes over

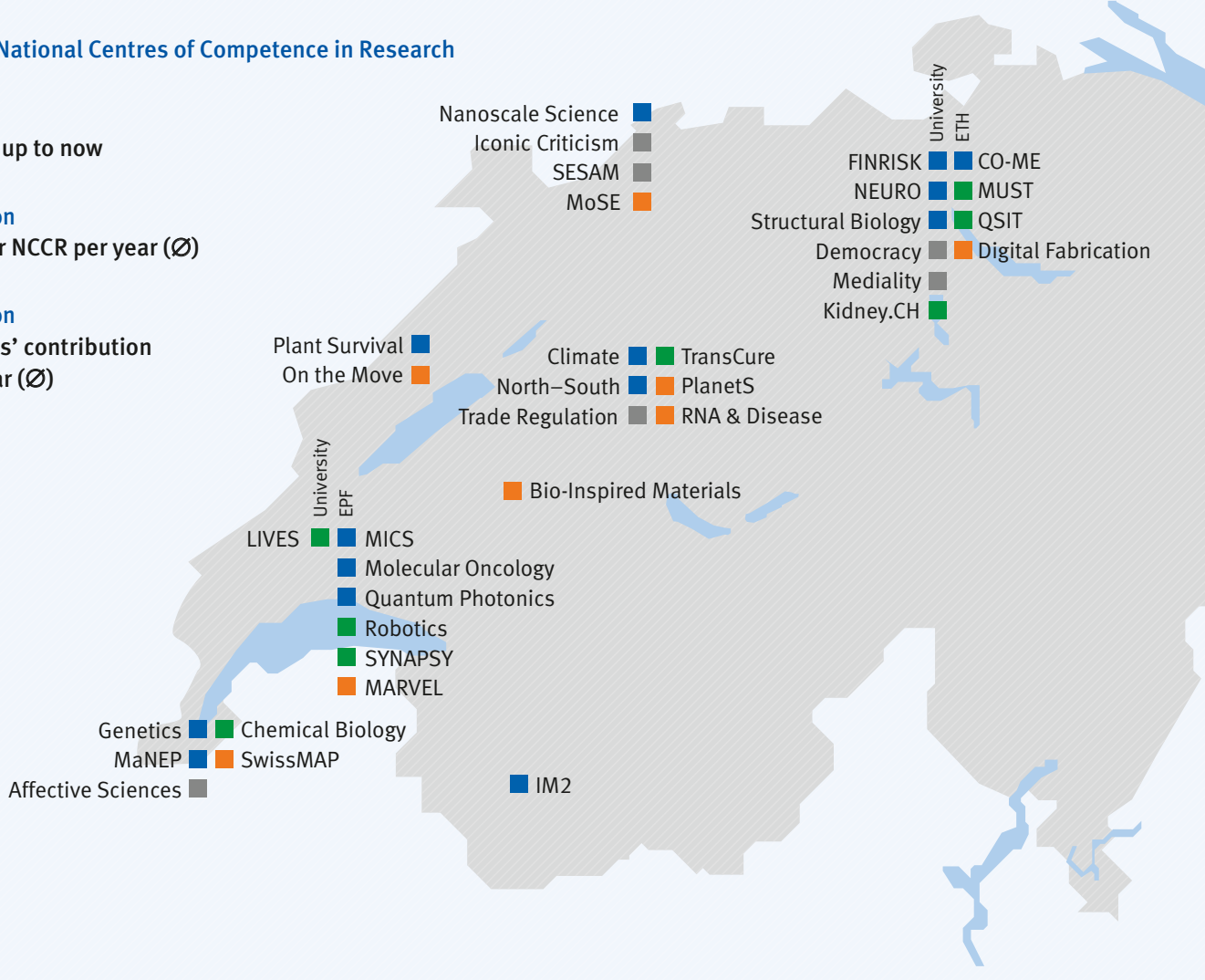
The year under review represented a period of transition for the National Centres of Competence in Research (NCCRs): on the one hand, 14 NCCRs of the first series completed their research work after twelve years of operation. On the other hand, eight new NCCRs were selected and are expected to get under way in spring 2014. A good time to take stock.

Overview of the National Centres of Competence in Research

36
NCCRs launched up to now

CHF 3.5 million
SNSF funding per NCCR per year (∅)

CHF 1.5 million
Home institutions' contribution per NCCR per year (∅)



Output 2001 series

18,100
Peer review publications

1,778
Completed doctorates

79
Start-up companies

127
CTI projects

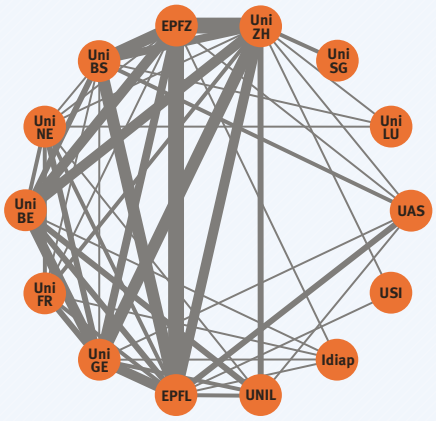
2001 series
2005 series
2010 series
2014 series

Long-term, autonomous and dynamic

The report year saw the conclusion of the first 14 NCCRs after a running time of twelve years – reason enough to take stock of this first series of centres of competence in research. The international reviewers who assessed the projects gave most of the NCCRs very good marks. According to their statements, Switzerland was able to strengthen its position in the research areas addressed by the NCCRs. They also stressed the benefits of a long running time and a high degree of autonomy. These features allow researchers to take more risks when fleshing out projects and to respond more rapidly to new insights and developments. As a result, most of the NCCRs were dynamic programmes in terms of project development and the research groups involved.

NCCRs interconnect Swiss research

2001/2005/2010/2014 series

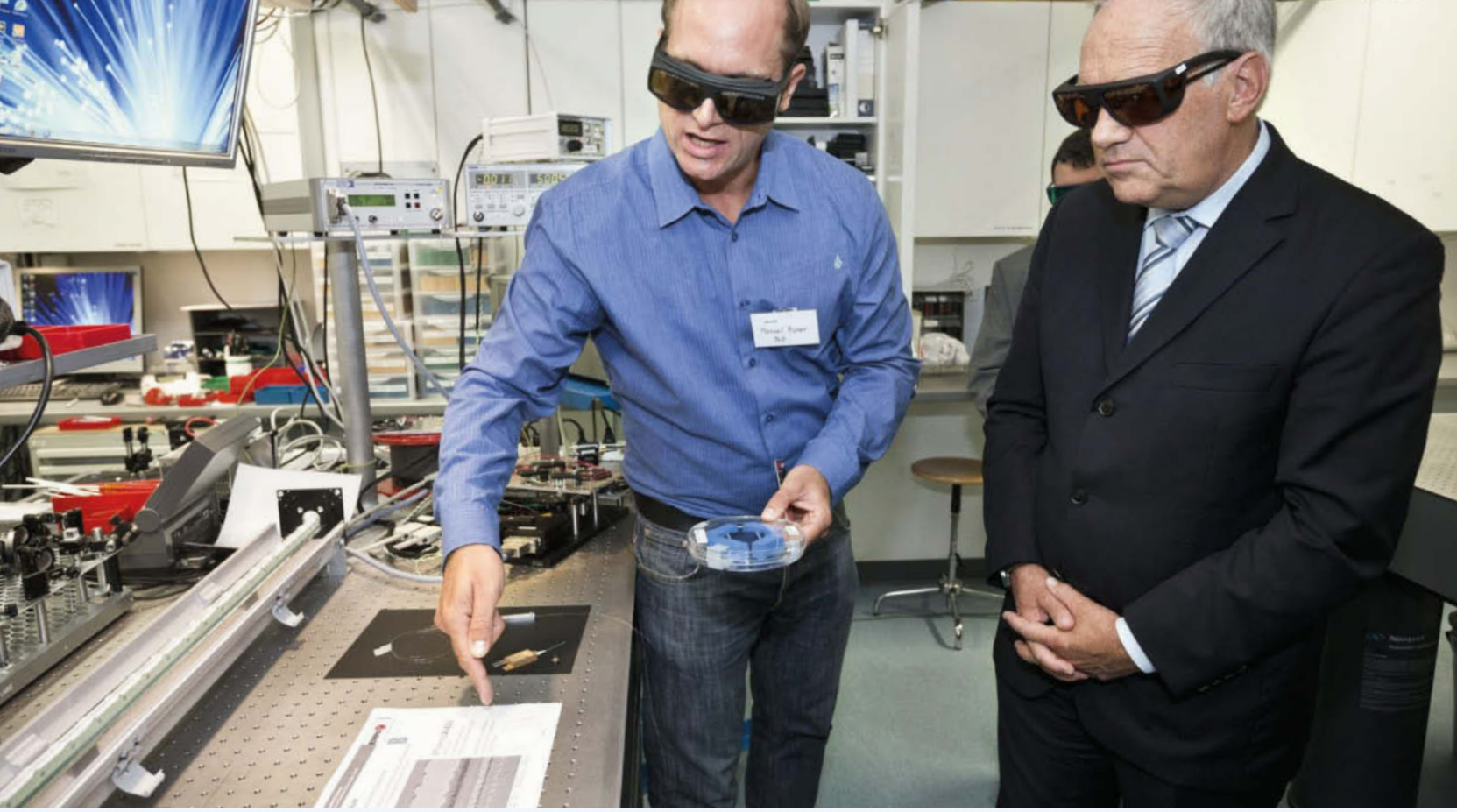


Attractive new structures

NCCRs are expected to sustainably renew and optimise research structures. This is achieved primarily by involving the higher education institutions, which need to make funds available in their role as home institution. They commit themselves to strengthening the relevant research field through internal structural changes and additional (assistant) professorships so that it can compete with the best in the global arena. In the context of the first 14 NCCRs, 237 professorships were either newly created or existing chairs thematically redefined. The drive for renewal and the stimulating intellectual environment of the NCCRs hold great appeal for researchers in Switzerland and abroad.

Stimuli for young researchers and innovation

The NCCRs make an important contribution towards the education of young scientists. The over 3,000 doctoral students and 1,800 postdocs involved in the first NCCR series reaped the benefits of an interdisciplinary environment and regular exchanges with researchers from other institutions. Many NCCRs set up local or inter-institutional doctoral schools, most of which will be continued after the completion of the relevant projects. In addition, the NCCRs played a key role in the setup and further devel- >



opment of bachelor and master programmes. In order to promote knowledge and technology transfer, the NCCRs initiated over 700 collaborations with companies and gave rise to 127 follow-up projects of the market-oriented Commission for Technology and Innovation (CTI). Furthermore, 341 patents were applied for and 79 start-up companies founded or given substantial support.

Centres ensure sustainability

Institutional measures have contributed to the long-term impact of many NCCRs. Of the 14 concluded NCCRs, ten have led to the establishment of centres where the research questions will be pursued further. In addition, eight NCCRs have optimised structures at their higher education institutions by extending or overhauling existing institutes or departments. The new infrastructures and technical platforms will also play a role in ensuring the long-term impact of the NCCRs. The future of the nationwide networks set up by some NCCRs is, however, open. In several cases, associations or foundations were established to keep them operational.

In spite of these successes, it makes sense to limit the number of concurrent NCCRs as the higher education institutions are not in a position to co-finance countless research projects involving structural change. These structural effects are an important element in evaluating the effectiveness of the first series of NCCRs, which is precisely what the Swiss Science and Technology Council is doing on behalf of the State Secretariat for Education, Research and Innovation. Results are expected in 2014.

New NCCRs get under way

In December 2013, Federal Councillor Johann Schneider-Ammann presented eight new NCCRs, which will get under way in the first half of 2014. The thematically open call generated a lot of interest: 63 project outlines for new centres of competence were submitted. After an initial evaluation by the SNSF, which included reviews from over 200 foreign experts, their number shrank to 23. This was followed by an in-depth evaluation by five international panels, on the basis of which the SNSF submitted a list of the ten scientifically most promising NCCRs to the Federal Department of Economic Affairs, Education and Research (EAER). The EAER made the final selection based on research policy criteria.

The selected NCCRs address the following topics (see also p. 43): planetary research (director: Willy Benz), migration and mobility (Gianni D'Amato), digital fabrication (Matthias Daniel Kohler), computer-assisted development of new materials (Nicola Marzari), molecular systems engineering (Wolfgang Meier), RNA and disease (Oliver Mühlemann), bio-inspired materials (Christoph Weder) and mathematics of physics (Alexander Smirnov). <

“The world is envious of our NCCRs. The running time of twelve years is a major competitive advantage.”

Thomas Feurer, co-director of NCCR MUST

Federal Councillor visits National Centres of Competence in Research

Before making his decisions on the new NCCRs, Federal Councillor Schneider-Ammann visited the NCCRs “Trade Regulation” and “MUST” at the University of Bern in August 2013. The NCCR “Trade Regulation” examines the basic conditions of international trade, whereas “MUST” deals with ultrafast processes in molecular building blocks. The visit enabled the head of the EAER to gain an insight into the research work and talk to the researchers, the heads of the university and those responsible at the SNSF.

Innovative stimuli for the Swiss economy

As part of a package of measures to stabilise the economy, parliament allocated CHF 10 million to the SNSF for the promotion of innovation. This money was used to finance 28 technology transfer projects within the scope of the NCCRs. Industry partners (CHF 7 million) and higher education institutions (CHF 5 million) participated in these projects. The results were deemed to be positive in the final assessment made in 2013: the transfer projects have provided a number of stimuli for the companies involved, numerous SMEs were able to strengthen their market position as a result. In total, 43 prototypes and 34 new processes or products were developed.

In brief

Commission and software to thwart scientific misconduct

Since October 2013, the newly appointed Commission on Research Integrity has been responsible for investigating suspected cases of academic misconduct in connection with SNSF applications and grants. Kurt Seelmann, professor of criminal law and philosophy of law at the University of Basel, chairs the new commission. The SNSF began using a special software in the fight against plagiarism two years ago. An initial evaluation has shown that the software is good at detecting suspected cases of plagiarism, which is why the SNSF has decided to continue using it in the future.

Funding of precompetitive research

The goal of the precoR initiative (funding of Precompetitive Research) is to support the basic scientific research of projects that are focused on a commercial application but are not yet sufficiently mature to be of interest to partners in industry. This thematically limited pilot call for proposals worth CHF 2 million was launched by the Mathematics, Natural and Engineering Sciences division of the SNSF in 2013.

Research infrastructures 2017–2020

In October 2013, the State Secretariat for Education, Research and Innovation (SERI) and the SNSF linked up to launch a joint call for proposals in the field of new research infrastructures. The SERI is updating the Swiss Roadmap for Research Infrastructures. This document identifies prospective research infrastructures of national importance and provides an inventory of existing research infrastructures. The requirement to produce a Swiss Research Infrastructure Roadmap periodically was recently set down in the revised Research and Innovation Promotion Act RIPA (enacted on 1 January 2014). The definitive funding decisions will be made in the framework of the 2017–2020 ERI Dispatch.