Visualisation and isolation of DNA fragments.

CREA
NEST SUPPORT

Creativity capabilities in science and technology

Why do some individuals and institutions have exceptional track records in producing important and innovative research of the highest quality? In the CREA project, a team of German, British and US partners is setting out to find the most creative researchers in genetics and nanoscience and to learn from them what makes for excellence in research. Their findings are expected to hold important lessons for science and technology policy-makers, research managers and researchers themselves.

In research, we prize creativity and originality. Everyone who starts a research project hopes they will discover something new and exciting. Governments, industry and other funding bodies put money into research expecting to see original, important and perhaps profitable results. But what exactly is creativity in research, and how can we foster it?

There have been many academic studies of creativity in such diverse areas as psychology, management, history of science, sociology, economics, political science and science and technology policy. They all show that creativity is influenced not just by the personal characteristics of the researcher, but by the environment in which he or she works. Creativity, it seems, has many roots.

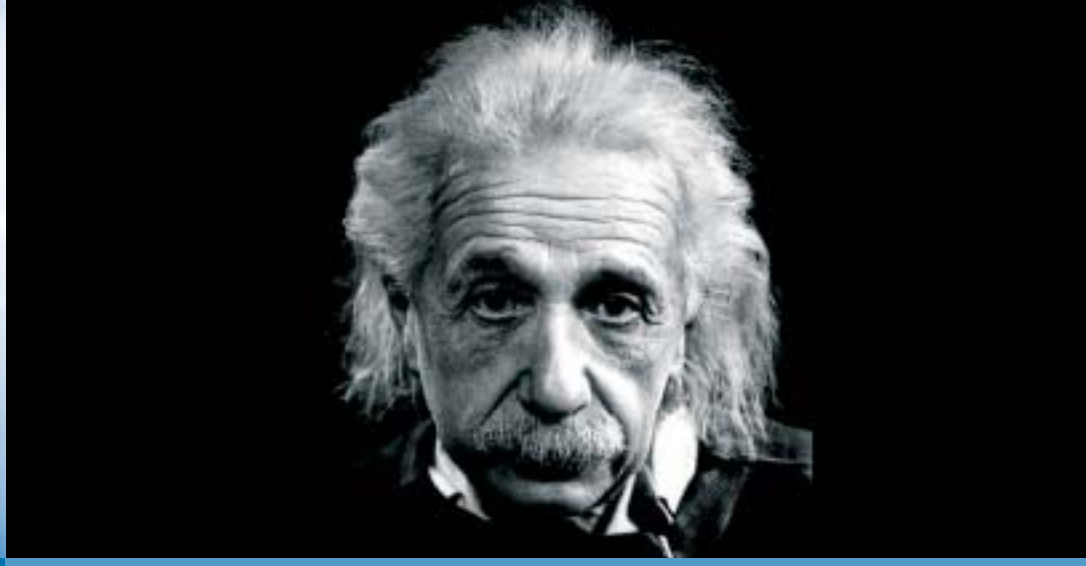
Different perspectives

The two European partners, the Fraunhofer Institute for Systems and Innovation Research and the University of Sussex, both have long experience in the study of science and technology policy. They are joined by the Georgia Institute of Technology which brings a US perspective to the project, as well as facilitating comparative studies on both sides of the Atlantic.

CREA has three objectives. The first is to identify individuals and institutions, both in Europe and the USA, which have a record of creative and unconventional research. Nanoscience and genetics have been singled out for attention because they are currently fruitful research areas where the most promising results can be expected and where the partners already have some experience. Genetics, invigorated by the human genome project, is a field that produces a constant stream of discoveries and applications, while nanoscience (including nanotechnology) is an emerging subject lying at the intersection of several disciplines, where cross-fertilisation is generating many new insights and technologies.

The second objective will be to understand the conditions and circumstances under which the researchers identified were able to work so effectively. This will be done both by in-depth interviews with the individuals themselves, and also by

➔



CREA
NEST SUPPORT

What exactly is creativity in research and how can we foster it?

AT A GLANCE

Official title
Creativity capabilities and the promotion of highly innovative research in Europe and the United States

Coordinator
Germany: Fraunhofer Institute for Systems and Innovation Research

Partners
- *United Kingdom: University of Sussex*
- *United States: Georgia Institute of Technology*

Further information
Professor Stefan Kuhlmann
Fraunhofer Institute for Systems and Innovation Research
Breslauerstraße 48
D-76139 Karlsruhe
Fax: +49 721 680 9260
E-mail: s.kuhlmann@isi.fraunhofer.de

Duration
18 months

Project Cost
€334 448

EU Funding
€248 170

Project reference
Contract No 511889 (NEST)

Web: http://www.cordis.lu/nest

systematic studies of the scientific productivity of their institutions, as measured by their output of research papers and patents.

Recommendations

The third objective is to use the knowledge gained from the studies of individuals and institutions to make recommendations about the design of science policy to support innovative research, and how research institutions themselves should be organised and managed.

So the project will begin with a systematic trawl through the literature, combined with a survey of leading scientists in the two areas, to identify some 20-50 pieces of work widely recognised by the research community as exceptional. From that list, and records of researchers publicly honoured by their peers, the partners will identify about 60 outstanding individuals divided equally between nanoscience and genetics, between the US and Europe, and between academia and industry.

> **...creativity is influenced not just by the personal characteristics of the researcher, but by the environment in which he or she works.**

CREA should help answer such questions as: what balance should be struck between supporting individuals and groups? Where is multidisciplinary research most appropriate? What is the best way to stimulate and reward creativity? How should research programmes be structured? How should research organisations be managed? When is it better to start a new research centre than develop an existing one?

Although aimed in the first instance at supporting NEST activities, CREA should ultimately help Europe's policy-makers design improved research environments both at national and EU levels.

SIXTH FRAMEWORK PROGRAMME