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Time and Space for Creativity

Already now, but in particular during the next decade, Europe's economic paradigm will change fundamentally. While the manufacturing base will continuously shrink, future growth and social welfare will rely increasingly on knowledge-intensive products and services. Though the EU is the world's largest "producer" of graduates, PhDs, and scientific publications, it has been loosing ground in the field of basic breakthroughs. Fifty years ago, European scientists dominated the lists of the Nobel Prize awardees and of other prestigious prizes as well. Today, Nobel Prizes and similarly renowned awards are mainly won by scientists working in the US.

The message for European higher education and research in an environment of global competition seems pretty clear: If we want to achieve more breakthroughs, we will have to make a great effort to establish new creative milieus, not only in our research institutions but also in our research funding and research policy making organisations. Europe can only be successful in establishing and maintaining a globally competitive knowledge-based society if it continuously strives to enhance the quality of its research base, to strengthen the structural dynamics of the various research and innovation systems, and to support frontier research in carefully selected areas.

Not only researchers, but also the institutional leadership and funders must be both courageous and adventurous. You can only encourage people to leave the beaten track and to enter new fields if you are prepared to share the risks involved. The readiness to take risks must be complemented by a high degree of error tolerance. To forge new paths in a barely known territory often takes longer than two or three years, the usual lengths of project funding. Mistakes must be allowed as well as changes of direction. To put it in the words of Albert Einstein: "Two things are indispensable for our research work: untiring persistence and the readiness to dispose of something in which we have invested a lot of time and hard work."

It is impossible to plan the precise moment at which a radically new idea emerges or a major scientific discovery occurs. The philosopher Ludwig Wittgenstein once said: “Sometimes we do not know what we are looking for, until we finally found it.” But there are numerous examples in the history of research which prove that it is possible to establish a particularly stimulating environment more conducive to breakthroughs in research than others. Although there is no one-size-fits-all kind of recipe we can apply, it is certainly worthwhile to try, fail, and try again.

Trying to achieve and maintain such a culture of creativity is not at all straightforward, but full of paradoxes and contradictions. Whilst every institution, not least for securing its own survival, has to insist that its members adhere to its rules, quality standards, etc. the creation of new ideas ultimately is about seeing things differently, about breaking the rules, and about being tolerant to errors made. Epistemogically speaking, radically new ideas can often not be phrased in terms of the initial question, and the openness for "fresh thinking" is not only required by those who produce new ideas, but also by those who are expected to pick them up. The readiness to listen to independent voices inside and outside of one's own institutional network, to encourage risk-taking in "off the beaten track" areas, and to foster a climate of mutual learning are prerequisites for successfully establishing true cultures of creativity.

Research funding organizations can play a crucial role in helping to establish such cultures. However, current modes of research funding are rather adverse to fostering risk-taking and to encouraging researchers to set sail into the great unknown. If we assess the prevalent research funding policy, we see too much agenda-setting, not by researchers but by politicians and research funding organizations, too much trust in the viability of ever larger clusters, programmes, and research units, and distrust in the ability and creativity of the individual researcher. However, it is the specific combination of intelligence and imagination inherent in the most talented individual researcher and his or her collaborators which is the key to innovation and progress in research.

In many ways, the current mode of research funding is exactly the opposite of what it should be. We currently pursue a “We don’t trust you – we know better – and – we want results now”-approach which extinguishes small flames of creativity and certainly prevents them from turning into a strong fire of transformative research and scientific innovation. The results of research on successful research tell us that it is important to focus not on large clusters but on small teams of five to seven researchers embedded in an adequately enriched environment, and supported by modes of funding which provide medium-, to long-term financing of some seven to ten years. Such time and space for some thorough rethinking of common wisdom is urgently needed and has to be expanded. To establish a culture of creativity takes a joint effort by researchers, their institutions and research funding organisations. The latter should support talented people, innovative projects, and research-friendly structures in order to create an environment conducive to creativity.

Today’s knowledge-based society needs to foster and fund transformative research. Without major breakthroughs in basic research many of our problems – current and future – cannot be solved. To enable transformative research we need to foster cultures of creativity – of communication, cooperation, and courage – in our research institutions. These cultures of creativity need to be supported by adequate funding instruments. Three of the most important ingredients for successful high risk research funding are a climate of high trust, medium to long-term funding, and relatively small-size groups.

If Europe wants to meet the challenges involved in the increasing processes of globalisation, it must act swiftly and at the same time take a long view. It must also be prepared to make long-term commitments whilst maintaining the flexibility to respond to new challenges. The most important prerequisites for performing successfully at the global level clearly are new, Europe-wide arenas of competition for some of the most prestigious grants, more coherent approaches to higher education and research policy-making at the national level, and at the institutional level an innovation-friendly governance and decision-making structure. Universities and research funding institutions have to constantly tap their resources and realize their potential, ensure efficiency in their spending practices, accelerate and simplify their processes, and

intensify communication within the organisation and beyond it. Ultimately, we should not feel overwhelmed by the complex and sometimes quite complicated issues involved. Rather we should take an optimistic view, just like Albert Einstein who once said: "Amidst all the difficulties, there is room for opportunities."