

# CHAPTER 15

## Higher Education in the Twenty-first Century

### A European View

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#### THE SOCIETAL ENVIRONMENT

We are presently living in the midst of the kind of transformation described by Peter F. Drucker in his book *Post-Capitalist Society* (1993): “Within a few short decades, society rearranges itself—its world view; its basic values; its social and political structure; its arts; its key institutions.” We all believe that on our way into the twenty-first century we are developing a post-capitalist society—often defined as the “knowledge society”—that will be characterized and shaped by two major elements—life sciences and communication technologies. This transformation process has obviously been going on since the end of the Second World War, but the collapse of the communist system was a most profound milestone in our recent development. The onset of a far-reaching globalization and trade liberalization process has not made the world more harmonious. Although some believe the world will become better, others fear the dominance of an inhuman neoliberalism as taught by the Chicago School of Economics. The world is indeed in a transitory state with all the inherent risks and chances.

The current world situation is characterized by the following discrepancies and asymmetries:

- demographic growth in the southern hemisphere and economic growth in the northern hemisphere

- great disparities in wealth and quality of life between the northern and southern hemispheres
- exponential growth of knowledge and know-how, in particular in the northern hemisphere
- separation between financial flows and trade in manufacturing and services
- shift in power from the strictly vertical hierarchical state organizations to non-governmental organization-like networks without a center but with multiple nodes where groups of individuals or collectives interact for different purposes
- scarcity of work opportunities due to new and continuously changing technologies
- a continuous race for ever-increasing quantitative growth
- incongruity between the hope of the poor to consume and devour resources at the same pace as the rich societies and the limited global potential of our planet
- no society on earth yet lives in a sustainable way
- human society is plagued by a multitude of increasingly intra-national or regional conflicts
- human rights and, even more, humanitarian rights are less and less respected

However, despite these problems, the potential to adapt and to improve is huge; as Paul M. Kennedy wrote in his book *Preparing for the Twenty-First Century* (1994): “Global society is in a race between education and catastrophe.”

## THE ROLE OF RESEARCH AND HIGHER EDUCATION IN THE NEXT CENTURY

Today, basic research and higher education are more and more brought into question. This questioning cannot be explained by financial reasons alone; there are additional factors arising from the rapidly changing globalized world. The two following statements by influential Americans illustrate this situation most impressively:

Progress in the war against disease depends upon a flow of new scientific knowledge. New products, new industries, and more jobs require continuous additions to knowledge of the laws of nature, and the application of that knowledge to practical purposes. Similarly our defense against aggression demands new knowledge, so that we can develop new and sophisticated weapons. This essential new knowledge

can be obtained only through basic scientific research. (Vannevar Bush 1945)

Yet advances in science and technology have not translated into leadership in rates of literacy or equality of opportunity. Neither have they overcome failing education systems, decaying cities, environmental degradation, unaffordable health care, and the largest national debt in history. (George Brown, chairman of the U.S. Science, Space, and Technology Committee, 1992)

In our economy-driven time, the return on investment in science and higher education in its current form is indeed questioned. Particularly in Europe, the demand for a more utilitarian approach is widely heard. It is also true that universities on their side were reluctant to get into close contact with industry, since they believe that by doing so their basic mission to create fundamental knowledge and to play the guardian of our cultural heritage would be endangered.

Research-supported higher education will unquestionably play a major role on our way towards the "knowledge society." The university will undoubtedly contribute to the change of society; however, by doing so, it will also have to transform itself. First, it has to become more flexible and more entrepreneurial. In spite of the importance of autonomy, it has to see itself as partner of the other constituents of society, e.g., industry and government. The university has to become aware of the scarcity of financial resources, thus setting priorities without jeopardizing its own creative potential. It is also important that the university accepts the fact that there will be other players, and that it can no longer expect to enjoy a kind of monopoly in research and higher education. Nevertheless, its competitive edge will always remain the research-driven education. From a managerial point of view, the future university needs leadership and participation, networking and focussing as well as a long-term output-oriented culture.

Looking at the university's mission, several major changes have to be envisaged. If the university intends to contribute to the development of society, it has to deal with and to anticipate major societal issues. It does not suffice to produce, maintain, and distribute knowledge; there are additional, equally important tasks. The very successful monodisciplinary, deterministic concept of research has apparently also created many problems, and is unable to answer many of the burning questions of a modern society. New concepts permitting the asking of new and differently structured questions have to be developed. New concepts must be developed in interdisciplinarity, system orientation, and contextual research and education. Such concepts and a general guiding principle, such as sustainable development, are new requirements that may well reshape higher education. Lifelong learning as well as the

serious problem of how to reconcile an ever-rising number of students with the need for high quality and originality (i.e., mass university versus elite university) will become a major challenge. Finally, the ever-increasing complexity of society with its inherent nonpredictability, and the continuously growing power of humans to exploit and even destroy nature will have to be counteracted by a greater awareness of responsibility, accountability, and ethics. These ideas are certainly not new; the famous French writer, physician, and eminent humanist François Rabelais wrote in the sixteenth century that "*Science sans conscience n'est que ruine de l'âme*" ("Science without conscience is no more than ruin of the soul").

## UNIVERSITY'S RESPONSE TO THE CHALLENGE OF THE NEW CENTURY

To fulfil its role as a future-oriented institution, the university must not only develop a vision and set goals and objectives, it must also transform itself. This transformation is a prerequisite for the accomplishment of its new mission. A whole array of key elements has to be taken into account.

- culture
- governance (structure, management, etc.)
- funding
- concepts of research, education, and services
- inter- and intra-university communication and relations
- selection criteria for admission of students
- planning and quality control (peer reviews, assessment of teaching, etc.)

Although the research-based European university will to a great extent remain a state university, it still has to adapt and change. European universities are rather conservative. Also, they traditionally lack a high degree of corporate identity. Autonomy and freedom are major traits. Even at the level of a single institution, the links between faculties representing different disciplines, and also between different chairs, are often weak. In continental Europe, the vice-chancellor or rector often has a purely representative role. The administration is often in the hands of civil servants, and the allocation of resources is determined by the public administration. To transform itself, the traditional process- or input-oriented university has to adapt to an output, result, and target-oriented culture—a major change indeed. The university is in search of leadership and a structure that allows for an output-orientation, and management keywords (e.g., allocation of competence and resources, delegation, etc.) often suddenly appear. The university's relationship with the

political system and its position therein have to be rethought. There are, of course, risks and pitfalls. The cultural change might lead to a hierarchical structure with inherent risks, such as the dominance of a major decision maker, thus threatening the overall creative potential of the institution, or the so-called new public management might lead to a new, but equally inefficient, bureaucracy.

However, experience has shown that without a change in culture and governance, the university is not able to adapt to new needs arising from either society or science. Yet, the university always has to bear in mind that it is not identical with an industrial organization, and that its major targets remain society and human beings. Moreover, its constituency is enormously complex. Students cannot be considered exclusively as one of the most important "products" of the university. They are learning with the assistance of teachers; however, teachers are also learning from their students. This development shows the importance of a well-thought-out decision-making process. The new university's potential and success will heavily depend on its capability to take advantage of the creativity of all its members by means of an adequate participation and decision-sharing culture.

The university of tomorrow will impart to its students the highest standards of knowledge and practical skills. It will seek to enable young people to find their orientation in a complex and rapidly changing world, and to stimulate an understanding of ethical and cultural values so that, upon completion of their studies, they will not only be highly qualified professional people, but also responsible members of society.

The university will not be content with mere participation in solving already known problems. In the context of global civilization, it must respond to changing conditions and identify new problems as a kind of early warning system. It must also assume a leading role in seeking solutions. In doing so, it will depend on the spirit of discovery, the innovative force and flexibility of its members.

One of the major weaknesses of European universities lies in the transfer of knowledge and technology from the academic institution to its partners in industry and the economy. It is of paramount importance for Europe as a whole to remedy this situation. Therefore, a multitude of measures has to be taken, not only with regard to educational programs, but also concerning co-operation with industry. As a consequence, changes in governance, e.g., the establishment of a council or of ties with personalities from industry, the economy, and other important domains of society, have to be carried out, and sponsoring by industrial partners should no longer be considered as a threat to autonomy, but as a means of creating mutually beneficial interactions.

In conclusion, the European university's response to the challenge and the needs of the twenty-first century lies in its capability to transform itself. For

many of the traditional institutions of research and higher education, the necessary change will have an impact on teaching, research, services, and governance. Even if the search for new knowledge, the search for a better understanding of ourselves, or the search for improved technical solutions continues, the threat to our very existence due to the spread of human civilization, as well as humankind's most urgent problems—poverty, hunger, diseases—demand that we find new approaches to knowledge and skills. It is my firm belief that a network of knowledge and skills acquired in an interdisciplinary environment best responds to the natural and cultural interdependencies of life. By integrating the natural sciences, technology, the humanities, and the social sciences, we can devise innovative concepts of education and research that will allow us to tackle the enormous challenges facing humankind, and that will help us blaze the way for a meaningful and sustainable development of present and future civilizations.

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