

## INTRODUCTION



It was, in fact, twelve years – one cycle – ago, that I was invited for the first time to think and speak about the University in the 21st Century. The invitation came from a high-level panel/committee in the United Kingdom, bringing academia and industry together. My lecture was one of a series of six held at the Royal Society in London. I was invited to deal with our topic from a ‘continental’ European perspective.

To be on the safe side, I chose as my title: ‘University 2050: The Organization of Creativity and Innovation’.<sup>1</sup> This title was deliberately ambiguous. We could see it as no more than a question: how will creativity and innovation be organized in the 21st century? But there is another meaning: Will universities in this 21st century continue to be the organizations ‘par excellence’ of creativity and innovation?

This question, of course, implies the assumption that universities on the basis of their meaningful combination of teaching and research, as well as with their sound use of academic freedom in all their scientific activities, indeed are, now, such prestigious centres of creativity and innovation. This question implies also that such a position is not a ‘given’, and does not come naturally. It must be deserved and comes only with excellent performance. A culture of (high) quality in all its activities is, therefore, a must for any university.

Part and parcel of this concept of quality is relevance: relevance of the activities of the university to the society that supports it and grants it its academic freedom as well as its institutional autonomy. After all, university autonomy and academic freedom have been granted to universities to be able to contribute in truly innovative ways to the future of society, to the best benefit and interest of society. Societies that have forgotten this crucial truth about universities have ultimately suffered decline. And so have universities that have forgotten their part of the deal!

In 1994, I focused my observations on two closely interlinked processes, namely, the ‘up-scaling’ of society on one side and the development of *knowledge-intensive society* on the other. The effects and consequences of these intense and intensifying processes, I still consider crucial for the future of universities and university systems. Today, however, we would most likely subsume the ‘up-scaling’ of society under the broad umbrella of *globalization*, which needs some explanation that I will give later. Today, it also has become very clear that knowledge-intensive society means much more than knowledge-economy to which the second process is narrowed down by too many, too often.

The most important remark to be made, however, is that over the past decade the growing importance of ethics and values, commitment and engagement, has become clearly visible as the third process that will shape the future of universities and university systems. *Core concepts* in the work of the more individualized, entrepreneurial universities that are taking shape under the influence of these three processes mentioned will most likely be: *complexity (and nuance)*, *diversity* and *sustainability (and continuity)*.

Our world gets ever more wired, interconnected and complex. People are characterized by increasingly complex multiple identities. Together we are set on an unsustainable course, using so much of our planet’s natural resources, that the future of younger generations is jeopardized. Responsible universities keep such developments fully in mind, while trying to find meaningful answers and solutions for the crucial questions of our times; to prepare our common future. This has consequences for the activities, governance and financing of the universities.

## RESPONSIBILITIES

We are living in a time of profound change in an increasingly interlinked world. The rapid development of improved systems of communication and transport has changed our world from a complex and sometimes chaotic blanket

## RESPONSIBILITIES, CHALLENGES, OPPORTUNITIES AND GOVERNANCE – RETHINKING THE UNIVERSITY FOR THE 21ST CENTURY

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of territories and borders to a hierarchical system of nodes and channels. The frequency and volume of the exchange of goods and the mobility of people, money and ideas have created a situation in which no one can allow him or herself, anymore, to live in isolation.

These changes are for both better and worse. The positives can also be negatives and the negatives positives. When international terrorism can strike from a great distance, good can also be done over great distance. Together, we can make the choice to contribute to a better life and a safer world for all ... now, and for our grandchildren and their children. When we ourselves live in an affluent society we cannot ignore poverty, either in our own society or in poverty-stricken countries. We can no longer ignore the interlinkages between globalization, trade, poverty, development and environment: the five highly interlinked topics on which the World Summit on Sustainable Development in Johannesburg rightfully focused (WSSD 2002). This is what complexity, diversity and sustainability are all about: to understand the whole, diverse, complex reality and to act in adequate, informed ways. That is where education comes in; also to be aware of our individual responsibilities to contribute, to make responsible choices, to respect other people, nature and diversity.<sup>2</sup> Research, the continuous development of new knowledge, has to inform the transformative education process that is crucial for an adequate preparation for an uncertain future, full of challenges and opportunities.

It is from this perspective that the World Summit on Sustainable Development (WSSD, Johannesburg, 2002) has recommended to declare the year 2005 and the decade 2005–2014, the Year and the Decade for Education for Sustainable Development. With support of Japan and Sweden in particular, the UN General Assembly decided to do so in its session in the autumn of 2002. Equally, UN Secretary-General Kofi Annan has made strong appeals for seeking ways to make ‘globalization benefit all’, and UNESCO has designated the year 2002 as its year for *Globalization with a Human Face*. Since then, UNESCO and UNU have engaged themselves in a long-term programme on this issue. Also the ILO took the initiative, which led to the recently published report *A Fair Globalization – Creating Opportunities for All*. It is clear that all education, but in particular higher education has to play a major role in these issues. Higher education, in particular, because it plays a major role in the training and education of the teachers and developing and regularly updating school curricula. Also, because of its role in the training and education of medical doctors and the organization and provision of healthcare, and its role in providing the experts and support for the legal system, the administration, business and industry. Beyond this, higher education

has a crucial role to play in sustaining and further developing the intellectual and cultural base of society, helping to preserve cultural identity and give inspiration and justified pride to citizens in the achievements over time of their own society; be it in developed or developing countries (see Table A: Roles of higher education).

TABLE A  
Roles of higher education

<b>In general:</b>
Development, transfer and preservation of knowledge
<b>In particular:</b>
Training teachers/developing curricula
Training doctors and so on/provision of healthcare
Training experts/support of: the legal system/the administration, business, industry and so on
<b>Crucial role:</b>
Sustaining and developing the intellectual and cultural base of society
Promoting human development and helping to preserve cultural identity
Giving inspiration and justified pride to citizens in the achievements over time of their own society
Promoting dialogue to appreciate and respect cultural diversity

## CHALLENGES AND OPPORTUNITIES

However: how is higher education itself impacted by globalization? How can higher education optimize its performance in serving society in our age of globalization? What does globalization really mean for higher education? What strategies can higher education follow to contribute to sustainable development of all humankind in our age of globalization? Here, I would like to first clarify some major aspects of globalization before focusing on the opportunities and challenges for higher education resulting from globalization and some possible strategies for higher education to better achieve its aims under conditions of globalization and the developing knowledge society.

Globalization has increasingly become a complex concept. It is important, however, to realize that it is not a new process. Sometimes it appears as if many are completely surprised and as though globalization has only been around for the past ten years or so, and this of course is not the case. In the painting by Vincent van Gogh, for instance, known in French as *La courtesane*, it is quite clear that it represents a geisha. *La courtesane* dates from 1887, which indicates that there were already at that time many influences from around the world making themselves felt in Europe. Indeed, it is not difficult to illustrate as well – even much earlier – European influences in the rest of the world. Or: the other way around, as a consequence of large-scale migrations of peoples such as the

Huns coming to Hungary or often through trade, for example along the Silk Road.

Despite these early influences, the question is, however, whether or not the globalization we experience now, represents something different. It would seem that there is a tremendous difference both in the *scale* and the *pace* of the globalization process. The principle difference being that the impacts of globalization are being felt simultaneously at places across the entire globe. It is this simultaneity – combined with the speed – which differentiates globalization, as we know it from the foreign influences of earlier periods. Modern information and communications technology is the key to the present state of rapid and profound change. In the past, the exchange of ideas required our actual physical displacement, and this could only be achieved at a single place and a single time. Instead, we can now interact with many different people in many different places around the world at the same time. Obviously this has direct impact both on knowledge generation, knowledge sharing and knowledge transfer and therefore on the functioning of all universities. Proximity and distance get a very different meaning under these conditions.

The major element in the geographical dimension of globalization is in fact the *shrinking of distances*. The whole concept of distance has changed in character over time, as has been clearly explained by F. Braudel, a major exponent of the French school of historians and social and economic scientists, the *Annales*. In his magnificent book on the Mediterranean world in the time of Philip II, he focused on the pace and scale of that age. He demonstrated that, over time, the concepts of space have changed in value, making the comparison between the time needed for a letter mailed in Venice to arrive in London: at least two weeks in those days as opposed to a few hours now with an express service. Today, using electronic mail we send our messages simultaneously and instantaneously to many places around the globe. Thanks to modern technology, we may maintain continuous and simultaneous contact with many places and people, and as a result of this shrinking of distances, the frequency and the volume of our contacts have in many respects increased tremendously, as has the frequency and volume of trade. How this works out in concrete terms depends, however, very much on the rules and regulations of the sector in society that is being considered: trade, development, education, health, and so on.

One of the most important effects of the shrinking of distance is that *we increasingly function at different levels of geographical scale at the same time*. One of the earlier scientific leaders of the *Annales*, the founder of the French school in human geography, P. Vidal de la Blache,

had already in the 1870's introduced the dual concepts of the *vie régionale* and the *vie nationale*. In those days, life at these two different levels at the same time was in fact completely separate. However, in our time, the number of geographical scales has increased dramatically and many live at different levels, concurrently. We can now live and act at a local, provincial, regional, national, international or global level in the same day. What is more, there are networks at each of these levels and, as opposed to other periods in history, people now jump on a daily basis from one scale to the next regularly.

This leads to a third element of the geographical dimension, and that is our manner of *perceiving the world*. In fact, our perception of the world has changed from one involving areas, territories and regions, to another one involving interlinked networks on different levels of geographical scale; of nodes and channels, nested in different hierarchies like Russian dolls. This is illustrated very clearly by pictures from space of the earth by night. The density of artificial light during the night gives a clear indication of the distribution of the world's population in combination with its different levels of living. Of course, there are no borders to be seen. The picture from space is rather dominated by people and their activities as indicated by the strength of the light generated; nodes and channels of different size and intensity that ignore political boundaries.

It is for this type of world that we are educating our children and our students. This requires our serious thought, as we have to prepare the next generations *for a different world, a largely borderless world*, or at least a world in which many borders have lost much of their meaning. A world in which *regional integration* of countries is on the increase as was again clearly demonstrated on the 1st of May 2004, when the EU welcomed ten new member countries. Also national governments are ever more decentralizing power and sometimes substantive tasks and responsibilities to the lower administrative levels in their respective countries in a process that has become known as *glocalization*: as the strengthening of the global and local levels seems to go hand in hand. The notion of national borders as we have come to understand them, is not valid anymore. The traditional concept of nation-states needs to be reconsidered, as many states – certainly for example within the European Union – have become to a large extent less relevant in our daily lives or have acquired a different role. This does not mean, however, the end of the nation-state, but only a transformation thereof. Many decisions, at present, tend to be taken at other levels, both higher and lower in an intricate system based on the principle of *subsidiarity*.

This is particularly important when discussions turn

to the commodification of higher education. In view of the crucial role of higher education in strengthening and developing cultural identities and, for instance, in promoting good governance and democracy, it is equally important to see how through international cooperation universities can support each other. After all: *universities, too, have to operate effectively and simultaneously in networks at different levels of geographical scale*: the local, the regional, the national, the international and, ultimately, the global. The national frameworks become less and less important for the functioning of universities, the macro-regional (for example European, Southeast Asian or African) and even global frameworks and networks become at the same time ever more important.<sup>3</sup>

## KNOWLEDGE-INTENSIVE SOCIETY

The second process dominant in the long term, shaping our society and its universities, is the increasing knowledge intensiveness of society and science. This does not require great elucidation. Roughly speaking, it rests on three basic assumptions:

1. That *more and more knowledge will be produced*: estimates say the amount of knowledge now doubles in less than every five years.
2. That the *shelf-life* of knowledge is *declining rapidly*: it is indicative, here, that American publications cited in the patent rolls in 1975 were eight years old on average, but only six and a half years old on average ten years later; this process has even accelerated since.
3. That *average levels of education are rising*: the whole concept of education is shifting as a result of this knowledge intensification. This will have a fundamental influence on universities. *Multiple careers* and learning throughout the course of one's working life will play an important role. As a consequence the profile of the student population, as well as the learning styles and study programmes of universities must change fundamentally. The internal organization and external presentation will have to follow.

The *knowledge-intensive economy* is replacing the work-intensive economy and the capital-intensive economy. The government of the Netherlands was one of those to have already – very early! – stressed the increasing importance of academia to our future society: 'Today we are witnessing waves of important discoveries. These are so significant that some people even compare them to those of the first industrial revolution'. Science and technology in

fact do not have a profound impact on the economy only; in fact they continuously contribute to bringing about a knowledge society with unprecedented opportunities.

For the universities it is important that what has also increasingly become knowledge intensive, is the duo of science and scholarship itself. The knowledge intensification of scholarship pervades all stages of the academic process. Managing knowledge, processing other people's research, and staying abreast of development elsewhere are all becoming increasingly important. The profession of *knowledge-broker* stands in the wings. Whole infrastructures will change. Polytechnics and, indeed, increasing numbers of universities, will in their regions and countries focus on this function rather than on pursuing fundamental research.

Discussion has also started on how to transform a university library from functioning as a storehouse of memory or a memory bank to functioning as an interactive partner in the learning process. In fact, in quite a number of places this process is already well underway. *Knowledge engineering* is rapidly emerging. The knowledge intensity in economy, as well as society as a whole, at the world level is enormous. Universities might, here, be compared to the various stock exchanges, where traders deal with the whole world, using many telephones at the same time. Science and scholarship too, function at the world level. Email, television, radio, fax machines and aviation, caused the world to shrink. As mentioned before, the weeks that were required, only a century and a half ago, to pass a message between Venice and London, have been replaced by split seconds; and the number of messages has multiplied beyond all recognition. This has also fundamentally changed the *pace and space of scientific and technological development*. There is little time available and innovations can, indeed, come from everywhere.

Good academics have always pushed back frontiers, not only in the sense that the limits of human knowledge and ability are expanded, but also in the sense that political and geographical borders are continuously bridged. As increases in scale and globalization progress further, so universities and research institutes are working together on an increasingly broad range of activities. This naturally leads to further fine-tuning and profiling of separate, individual, universities. The high and rapidly increasing costs of pioneering research naturally encourage this tendency. *Networking*, *strategic alliances* and *outsourcing* will become regular tools to enhance the performance of universities and university-systems in the 21st century.<sup>4</sup>

It is clear that with this increasing knowledge intensiveness of society, 'knowledge' becomes increasingly an attractive field for other 'new' providers to enter. I do not

have to go into detail, here, as the list is already very long. Thinking about the future, however, *I am deeply convinced that no society can afford to let itself lose the central, coordinating role of the research-university* in the organization and promotion of creativity and innovation. There are two arguments for this. First: an umbrella organization will always be necessary to guide and combine flows of knowledge, a requirement which no company training scheme could fulfill. Second: it is vital that knowledge retains its broad basis and that the generation of theory and preservation of scholarship are guaranteed a permanent place. Science and scholarship will not be able to develop much further without them. Knowledge is so crucial for the future of knowledge-intensive societies, that these cannot afford themselves to leave the development and preservation just to haphazard so-called ‘market-driven’ processes.

Nevertheless, great changes will come to pass. The matters I dealt with earlier make this inevitable. The most important features of these changes are:

- The tasks of a university will concentrate very heavily on guiding and combining flows of knowledge.
- In contrast, universities will develop their own (fundamental/basic) research to a lesser extent.
- A new concept of education will emerge: content in the initial formation period will be more general and *learning* will be conducted *throughout one’s entire life*, mostly in relation with the *multiple career-path* followed and diverse financial arrangements.

For the universities this implies shifts in the area of research, education and knowledge management. The diminished importance of research is a much older phenomenon than might appear. Scientific discoveries and research have often come to fruition beyond the bounds of the university. Newton had his *annus mirabilis* before he was appointed professor in Cambridge in 1669. It was not until the late 19th century that Von Humboldt’s philosophy led to attempts to bring research within the bounds of the university. This was what Etzkowitz calls ‘the first academic revolution’. In France, to mention another example, this only happened to a limited extent, and a great deal of research work was conducted outside universities.

Nevertheless, universities have always played and will continue to play a crucial role in the organization of scholarship and the training of scientists and scholars. They encompass a broad range of independent scientific developments and they educate new generations of scholars and scientists to make breakthroughs in research within, but often outside, the universities. The classical and future role of the university is to bring *cohesion to scholarship* and to *stimulate creativity* by preserving existing knowledge and passing it on within a broad interpretation of

academia’s role: testing and improving the quality of knowledge; developing knowledge further; using *combination* and *confrontation* as tools.

## A COPERNICAN REVOLUTION

Globalization, and the rise of the knowledge society do present universities with a number of challenges and opportunities.<sup>5</sup> We must try to see what these are and what strategies universities might deploy in order to cope with these issues. What can be said immediately is that these two processes are occurring concomitantly with the gradual decline in the relevance of borders and with the emergence of the ‘network society’ as analysed by – in particular – Manuel Castells.<sup>6</sup> This has led to a Copernican change in the positioning of individual universities. No longer can universities see themselves as only part of a national system, protected by the state which had set rules – often in the framework of their higher education laws – on the programmes of studies to be provided and research to be done. In Europe, the Bologna Process illustrates very much this new reality.

Increasingly, universities must rely on their own performance in order to secure sufficient funding for high-quality programmes of teaching and research. Increasingly, they will find themselves unprotected and in a highly competitive world. Even within largely state-run university systems the individual universities must ever more compete for students, research and adequate funding. They do have to strengthen and diversify their external relations with stakeholders, as well as their sources of financing. Consequently, universities must rethink their modes of governance, their financing, their internal structures and external relations, as well as their modes of operation. Their internal organization must change in order to allow universities to operate in more entrepreneurial ways.

Clearly, this statement is especially true for countries possessing predominantly public university systems, where governments set the framework within which universities must operate. The statement holds true even for private universities, for though they have been left more or less alone to look after their own affairs, they operate within national frameworks and these will not continue to exist in the same way in the future. On the other hand, however, no society can afford itself to completely lose control over the activities and development of their higher education. The performance of the higher education sector is too important for the future of state and society to let that happen. Society will, therefore, continue to have a keen interest and a direct stake in providing an *adequate*



*supply of, and access to, quality teaching and research programmes* in universities. Some kind of solution must be found to guarantee these.

With regard to the opportunities and the challenges globalization creates, it is important to also look at how these affect universities in their *actual functioning*. Internationalization, for instance, was seen for a long time after the Second World War as crucial for peace and progress and many people thought that *studying abroad* was the key. In the meantime, however, it has become clear that studying abroad is in itself far from being enough. This is not to say that it is not important, but it does not in itself constitute internationalization; it is simply part of it. It is, however, at least as important for teachers to travel and work abroad, and it would be well to ask to what point the host institutions, not only the visiting teachers, benefit from this experience. It is rare that this issue is considered from both points of view. Each party must benefit from the experience to ensure its sustainability on the longer term. Furthermore, one might also ask to what extent this experience abroad really impacts on the teaching and research programmes of an institution. Or to what extent does it truly lead to joint research and/or learning projects? Any discussion about internationalization must take into consideration these different aspects of the question.

The same is true of *access*. In terms of access, it is very important that everyone with the talent to study, regardless of his or her socioeconomic background, must have the possibility of entering university. This has been achieved, over time, in a number of countries, but is by no means guaranteed everywhere. However, the discussion around access to higher education changes character the moment entrance levels are entered into the equation. Few realize that there are one to two years' difference in age – and development or maturing – between students at the entrance level in different countries around the world. The quality leap between secondary and higher education is not the same everywhere around the world. What happens during these two years? They either form part of secondary education, or part of tertiary education, and this is decisive. Thus, when a country indicates that it wishes 80 per cent of its young people of an age cohort to become student and enter 'higher' education, two questions must be asked. The first is whether or not the system will have sufficient capacity. But the most important question is whether or not 80 per cent of the population is, indeed, talented enough and is capable of undertaking higher education; and what quality levels should be attained in higher education?

A further area of discussion revolves around the *relevance* of university programmes. UNESCO, in its World

Conference on Higher Education (Paris, 1998) focused on four major aspects to better prepare universities and higher education in general for this age of globalization: (1) relevance of the programmes (*pertinence*); (2) access for all those having the capabilities to finish successfully the study programme chosen; (3) internationalization; and (4) finance. Other issues discussed included the role of modern information and communications technology, the role of higher education for sustainable human development, the preparation for the world of work and the relations with other levels and types of education. All of these, however, can easily be subsumed under this heading of *pertinence* (relevance). In a globalized world characterized by an ever-greater competition for funding – in particular public, but certainly also private – the question arises as to what universities are really contributing. And as soon as quality is taken into consideration, and accreditation is at stake, there is a whole new series of questions: Accreditation for what? For which qualities? What kind of qualities do we really want? Who will be the gatekeepers of the system? What will be their criteria? This type of question must be specified and answered before any serious decision can be made. It is in this type of question that international university organizations, like the European University Association (CRE/EUA) and the International Association of Universities (IAU, Paris), can play, and have already played, an important and supportive role, in the preparation of credible systems of accreditation and the preparation of individual universities for being accredited.

When trying to cope with all these challenges and opportunities, it will be highly important to consider which changes in the fields of governance, internal structure and organization and modes of operation might be possible and adequate. For example, when demanding state-run systems of largely public universities during budget preparations to provide complete staffing tables for the following year, and/or to apply for new buildings five years in advance to secure funding, you are not really challenging the leadership of a university to be very entrepreneurial. In other terms: *each government gets the university leadership it deserves*, more traditional risk-avoiding and bureaucratic or more innovative and entrepreneurial. The more governments limit university autonomy and take over managerial and administrative tasks the lesser the entrepreneurial and innovative capabilities of the university leadership will be.

The reality in the universities has become far too complex for detailed government involvement in the regular management and administration of universities. Indeed, over the past ten years, even in state universities, the tendency to become both more independent and more entrepreneurial has become more marked. Recent experience

in Japan, where public universities have been taken out of the state system and will in the future be financed on something approaching a subsidy basis, indicates already that the traditional, internal structures come under pressure, and an intention to adapt, including merging of activities and even institutions, develops. In many European countries this has already happened. When an individual university must look at the world around it and learn how to survive, a complete change in thinking takes place, which leads to changes in finances, structure and modes of operation.

Under such circumstances, when attempting to address real-world problems, a structure with faculties defined along disciplinary lines does not represent the optimal solution, and simply using a multidisciplinary field as an extra pillar in the edifice is no solution either. The challenge is therefore how to create a *matrix organisation*, which reunites disciplines and problem orientations. In this situation, a time limit must be provided in the internal organization which brings these elements together for limited periods only, in order to prevent the cells of the matrix from developing into new pillars. Such adaptability in organization will help universities to interact more efficiently – in an age of globalization – with other institutions, the world of work, major stakeholders; in fact with the society they aim to serve.

## IMPROVING THE GOVERNANCE OF UNIVERSITIES

So: rethinking the University for the 21st Century, what then can the universities, university leaders do to be better prepared for the fundamental changes that are taking place? Given the talent, energy and commitment that is concentrated in our universities, how can these valuable human resources be applied in the most optimal manner? In short: how can universities strengthen their own innovative capacity from within? Which after all is the ultimate goal of GUNI? Universities have proved throughout their long history their ability to change and adapt to cope with new situations, new challenges. Universities have always been able to profit from the availability of people, who have the capacity to make almost any system work. The variety of university structures, regulations, financing systems and university governance systems around the world is accordingly surprisingly large, reflecting the specific historical, cultural and geographical conditions and developments. Some differences, however, are of the utmost importance for successful policies and strategies, as well as for any effective management of universities in this new era.<sup>7</sup> So: what is important when we want to improve the governance and modes of operations of universities?

1. The watershed decision is to grant universities the status of autonomous, semi-independent, individual legal entities. Only if this is the case does it become possible to award them full responsibility for their long-term commitments in finance, housing, equipment and personnel.
2. In connection with this, it is important to create an adequate distance between the ministry and the university, for instance by introducing a board of trustees, with highly qualified, and dedicated representatives of society not holding political positions. Such boards of trustees should, however, keep distance from the internal affairs of the university and should focus instead on issues like sound management, quality and access, and they should not be politicized.
3. Universities are increasingly in competition with each other, but this should not let them forget their inherent complementarity and joint responsibility for high-level study programmes, research and service to society. They should not forget their joint responsibility, in particular, for younger generations. To regulate competition and to improve their joint performance, it is important to work together in a strong intermediary organization, which can perform important tasks in shared responsibility.
4. Responsibility strengthens the quality of governance as well as of the people prepared to play a role in that governance, and vice versa. For the university to operate in a more mature and entrepreneurial way, it is necessary to have a clear picture of the medium-term financial framework in which the university has to operate. It has to be clear how large the contribution of the government will be by approximation over the next years and for what functions. It has also to be clear what sources of additional income the university may tap within its own responsibility, in particular in cooperation with the private sector.
5. This implies the right to shift funding from one year to the next and to create financial provisions for specific purposes in the medium term, as well as the right to use money freely within the framework of the properly approved budget, without being restricted by governmental financial rules related to the variables in the formula on which the lump-sum contribution to the university is decided. This also includes the right to develop profitable contract activities and to use the income freely without any consequence for the lump sum granted to the university on the basis of its primary activities (research and teaching).
6. A more entrepreneurial behaviour of universities is impossible under conditions where the staffing table as well as the major appointments of personnel must

be approved by government and the labour conditions are negotiated by government with the trade unions. Universities need a very flexible personnel policy, which promotes and rewards commitment and quality, not just seniority. The strict personnel policy rules of the traditional civil service do not contribute to the best results. Inputs in the financial formula for deciding the lump-sum budget of the university can also be based on *ideal-type* personnel formations in different disciplinary areas.

7. It is clear that in the name of such modern, flexible, personnel management, academic freedom may not be threatened. It may also be clear, however, that ill-conceived interpretations of academic freedom should not make the proper organization of the university and its programmes impossible. The balance needed in truly academic personnel management, promoting commitment and quality as well as originality and creativity, requires tailor-made regulations for which universities themselves must take responsibility. For more entrepreneurial and responsible university governance systems, more control over labour conditions and personnel management is absolutely essential.
8. In order to induce a more efficient use of buildings and equipment, the university itself must be responsible for investment, maintenance and renewal, and have full ownership of their physical facilities, as has been the case in the Netherlands since 1995. The lump sum made available by the government to the university must therefore include an investment and maintenance component. This implies the right of the university to buy and sell buildings, as well as to construct new buildings and to take mortgages, as appropriate within the approved budget and taking account of the reservations of funds already made available.
9. A major trend in higher education is the trend towards *diversification*. This includes the development of more non-university (or non-academic), vocationally oriented higher education programmes, such as previously provided by the polytechnics in England, and still nowadays by the German *Fachhochschulen* and the *hogescholen* in the Netherlands. This includes as well programmes for open and distance learning, as well as programmes for non-traditional students from different age groups, combining working and studying. Universities must move away from classroom teaching to consolidated groups of students, which has become the most common type of university teaching in a time of democratization and rapidly growing numbers of students. Instead, the universities must create a learning environment that challenges and optimizes the opportunities for individual

study paths. This not only suggests the addition of some student counsellors; it asks for a complete rethinking of the internal organization of the university. The old model of faculties and departments is no longer appropriate to cope with these new challenges. There is a need for a clear matrix structure of disciplines on the one side and study and research programmes on the other, with clear assignment of tasks and responsibilities. These multidisciplinary study and research programmes, however, must be established for limited time-periods of, for example, five years. Every five years, these must be established, again, on the basis of an explicit decision and adapted to the conditions that will exist at that time.

10. It is, in particular, important to strengthen research management in universities. The traditional structure of faculties and departments is no longer adequate in a time in which the investments in top research have become so high, and partnerships with other research institutes and strategic alliances with industry so important. Just to separate research from universities, however, is not the best solution: research groups need a continuous influx of young, creative researchers, whereas faculties need the motivating impulses of the best researchers in their study programmes. The matrix structure mentioned in the previous point seems an adequate solution to contribute both to flexibility in the use of human resources and to continuous change in internal structures.
11. For the functioning of any governance system in universities, talent scouting among the academic staff is essential. It is also crucial that preparing young staff for administrative positions in the university should become a regular part of staff development programmes. This should include internationalization, in the sense of learning from good practice in other countries. Systematic talent scouting, staff development and internationalization may, after all, matter most when it comes to improving governance.

## NOTES

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