LUC E. WEBER

glion COLLOQUIUM
The Future of the Research University

THE UNIVERSITY IN THE 21st CENTURY

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LUC E. WEBER

THE UNIVERSITY IN THE 21st CENTURY

INNOVATIVE
INTERNATIONAL
PRO-ACTIVE

Translated from the original French edition
L'Université au XXI^e siècle: innovante, internationale, volontaire
by Lewis Purser

glion COLLOQUIUM
The Future of the Research University

Short biography

An economist and professor of public economics at the University of Geneva, Luc Weber served for more than 30 years in Higher Education and Research in Switzerland, Europe and the wider world. Vice-Rector and Rector of his University and President of the Swiss Rectors' Conference, he then served numerous international university organizations, governmental and non-governmental, European and worldwide: President of the Steering Committee for Higher Education and Research of the Council of Europe, Vice-President of the International Association of Universities and founding Board Member of the European University Association. This engagement led him to evaluate numerous universities in Europe and further afield, to advise many institutions and to address numerous conferences.

His excellent knowledge of the sector inspired him to create and conduct, from 1998 onwards, the "Glion Colloquium" a think tank bringing together the Presidents of the world's leading research-intensive universities to exchange and make recommendations on the role, responsibilities and future of research universities in the knowledge society.

Luc Weber is Dr. honoris causa of the Catholic University of Louvain-la-Neuve and Associate Member of the Belgian Royal Academy.

For

Marianne,

Nicolas, Christophe, Catherine and Caroline

The diversity of world Higher Education Systems: some vital statistics:

Number of public and not-for-profit private universities worldwide:

All types of institutions: 18,000
Research universities: 500

Number of universities per million young people

North America: 76 Europe: 41 Asia: 9 Africa: 6

Size of institutions

Number of students: Caltech: 2,000 The "Sapienza" in Rome: 150,000
Annual budgets: from a few thousand million to many billions (€, US$, CHF)

Sources of funding:

More than 90% from the public sector: Belgium and Scandinavian countries
More than 65% from the private sector: Chile, South Korea, UK, USA

Annual study fees

Continental Europe: from nil to 1,500 (€, US$, CHF)
USA: up to more than 50,000

National contribution to Higher Education, as a percentage of GNP

More than 2.5%: USA, South Korea, Chile and Canada
Less than 1.5%: France, Belgium, Austria, Switzerland, Germany, Italy, Spain, UK

The best universities worldwide

Three quarters of the world's 25 best institutions are in the USA, a quarter are located in Europe
Among the best 200 institutions, four fifths are shared equally by North America and Europe, and a fifth are in Asia and Oceania

SUMMARY

FORWARD

"In economics, a crisis takes a much longer time coming than you think, and then it happens much faster than you would have thought"
DORNBUSCH'S LAW

This book shines a spotlight on the challenges facing universities at the start of the 21st century. It is addressed to the leaders of universities, to the political authorities who support and control them, and to the companies, foundations and benefactors with whom they work. The book is also addressed to all those who would like to become better acquainted with the world of the university, its role, its responsibilities and the way it operates, whether they are already members of the university community or are planning to join it.

"Nothing endures but change"
HERACLITUS

The political, economic, demographic, social, scientific and technological changes which have transformed the world since the end of the Second World War, and in particular since the fall of the Berlin Wall in 1989, have been so profound and so rapid that no individual and no institution can avoid them, not even universities. It is true that history tells us that the world has always been in a state of flux but the speed of change has accelerated rapidly, and the number of different changes we are going through today is quite simply revolutionary. In today's world, individuals and institutions are expected to be innovative and flexible, in order to adapt to an environment which continues to evolve rapidly. Universities, however, are generally conservative institutions, even if they have shown over the centuries that they

can be incredibly resilient, and remain at the forefront of knowledge and the promotion of scientific and ethical values.

The nature, scope and speed of these changes, many of which are direct outcomes of university activity and research, pose a fundamental threat to those universities which are unable to innovate or to adapt their strategies, their practices and indeed their missions fast enough. As a result, those universities which cannot change lose ground rapidly in terms of relevance and/or quality, and some are even destined to disappear.

However, in an increasingly knowledge-based society, the need for new knowledge is such that obsolete institutions are inevitably replaced by others, either of a similar or different profile, and in particular by large, private, global, profit-seeking corporations. Such an evolution should not be taken lightly, given that these new institutions do not defend the same values of universal knowledge which traditional universities have upheld for centuries. The defence of these values has not only underpinned the universities' reputation and renown, it has also ensured that they are best placed to push back the frontiers of knowledge for the benefit of everyone and to help humanity, in its broadest sense, resolve the serious challenges which it faces today.

All universities worldwide, irrespective of their mission or quality, are influenced by these major changes. The extent of this influence may differ, depending on the demographic situation and local cultural, political, institutional, economic and financial conditions. Universities in countries with economic and financial difficulties are more affected, particularly in countries which can be considered to have reached an advanced stage of development some time ago, largely due to their long university tradition. The majority of European countries are in this situation, as is Japan, while North America is affected to a lesser extent. All these countries are facing financial difficulties and are also often suffering from institutional and political rigidities, which reduce their capacity for change.

This book is the result of my having spent more than thirty years as a university leader, and having held a number of roles in higher

"It's not that I'm so smart, it's just that I stay with problems longer"
ALBERT EINSTEIN

education and research policy in Switzerland, Europe and elsewhere across the world. The book's primary audience is university presidents or rectors (hereafter referred to as presidents), as well as vice-presidents, deans, directors, administrators and university managers, whether they are preparing to take up the role to which they have been elected or appointed, or whether they have been in the job for some time already. Unlike many persons in the private sector or even in the civil service, few of them have received any prior training to prepare them for leading a university or a faculty.

This book is also addressed to ministers and senior civil servants with responsibilities for higher education and research, as well as to the entire political class. The laws and regulations which they make, their decisions, particularly regarding budgetary allocations, and the policy positions they adopt, can just as easily hinder as help the university in its efforts to modernize and adapt to change.

Business and industry leaders are also directly addressed, not only because their companies employ many university graduates, but also because they are the beneficiaries of the new knowledge produced there. As a result, they often develop mutually beneficial collaboration with universities and may also provide financial support.

Last but not least, this book is addressed to all those who are simply interested. If the often lively discussions in my family or with my own friends and acquaintances are anything to go by, the public – while sometimes finding it difficult to understand the missions and functioning of the university – is often keen to know more.

The biggest challenge in writing a book which aims to examine "the university" from an international perspective is the huge institutional diversity this represents, from one continent and country to another, and even within the same country. The university is very far from being a "one size fits all" institution.

Possible alternatives for the author included concentrating on one country, or finding several co-authors and producing something much more comprehensive. While aware of the danger of remaining superficial, I believe however that it is possible to describe the role, responsibilities and above all functioning of universities in the 21st century, while relying on generic concepts and referring to one case, one function or one procedure, even if they are given different semantic terms from one country or university to another.

In this respect, "The University in the 21st Century" is an essay, in which I seek to present and to comment on the challenges which universities are facing today. In doing so, I seek to avoid referring to the institutional framework of each individual institution, and thus also to the precise terminology used in each of them. In my experience, the reader will be more than capable of translating these generic concepts into terms used in her or his own context. I have also observed that, leaving aside the diverse institutional solutions which have been found, university people share similar principles and universal values. This is notably so across the wide spectrum of public universities and private not-for-profit universities. While the share of resources coming from the public sector is certainly lower in the latter category, it remains significant because of research funding and student support systems, both of which are essentially paid for from the public purse. More importantly, both categories of university uphold the same values. This is not however the case for private, for-profit universities, which I do not cover in this book, although this sector is currently developing much faster than the public and not-for-profit sectors.

This similarity across universities and countries in terms of objectives, resources and values is also true where the system of higher education and research is different to the dominant "Humboldtian" model in Europe and the United States. This is particularly so in France, which for historical and political reasons has its own system. Although originally written in French, this book is not however more focused on France than any other country, as I believe that the principles which I have developed also

apply there, even if the vocabulary used to describe universities and actors may be different.

The book is structured along the following lines. The first chapter describes the university's evolution over the centuries, and how the transformations and changes which are shaping today's world present a double challenge which is taking the university in its grip. The book is then divided into two parts, each consisting of three chapters. The first part looks at the innovations the universities need to introduce in the way they undertake their fundamental missions of teaching, research and service to society. It argues for the internationalisation of human resources (teachers, researchers and students) and supports the development of a culture of quality. The second part examines the new challenges which arise as a result of the modernisation of universities. This means ensuring that the modernisation process can be financed, which is only possible if additional – often new – resources are found, or released by reducing or ceasing activities which have become less important over time. Such steps depend on the ability of the university's system of governance and leadership to enable this, which is an unlikely scenario in many universities. Finally, in order to underline but also to accompany my argument and to show that these challenges have existed for many years, I have used a number of citations throughout my text[1].

My gratitude *is expressed, above to all to thousands of colleagues, hundreds of senior civil servants and dozens of ministers, all devoted to the cause of their university or to higher education and research policy, with whom I have had the honour and pleasure of meeting and/or working, in Switzerland, Europe or elsewhere across the world. This is a community which is especially open in its outlook, steeped in knowledge and very attached to university values, and whose company is particularly friendly and stimulating, despite the climate of competition between institutions and individuals and healthy differences of opinion.*

My deep gratitude is equally addressed to ***my family****, especially to my wife Marianne who has accompanied me in my career and responsibilities, and who has supported my interests, ever since I caught the "university bug". I would particularly like to*

acknowledge the support of my two sons who have always showed an interest in my activities and have never hesitated to assist me when they could, especially in matters concerning computers and communications. It was they who persuaded me to write this book, in order to share with those who may be interested the experience which I have gathered over the many years that I have spent in the service of my university in particular and of The University in general.

***Last but not least**, I would like to extend my sincere thanks to Lewis Purser, with whom I have had the great pleasure of working on many occasions. He has translated the French edition in English with sensitivity and rigour. I also thank my colleague Victoria Curzon, who agreed to undertake a second reading of the translation, and Edmund Doogue, language editor of the Glion Colloquium's publications, who checked the proofs.*

LUC WEBER
Honorary professor and Rector Emeritus
University of Geneva

1 THE 21st CENTURY UNIVERSITY CHALLENGED

The University and Knowledge

The university is one of the major inventions of the second millennium. Europe can be particularly proud of this, given that the university is first and foremost a European institution which - while keeping its essential characteristics - has since spread worldwide[2]. The ancestral model of the European university, which developed over nine centuries ago in towns such as Bologna, Paris, Oxford and Cambridge, was consolidated at the start of the 19th century by Wilhelm von Humboldt, the Prussian Minister for Education, who founded the University of Berlin (today's Humboldt University) with the idea of combining teaching and research in a single institution. This model has been followed ever since in the majority of western countries.[3]

"The university... remains one of the glories of human aspiration and one of the triumphs of the power of imagination."
FRANK RHODES

**"He who knows that he knows not,
teach him.
He who knows that he knows,
listen to him.
He who knows not that he knows,
wake him.
He who knows not that he knows not,
shun him."**

BUDDHA

Whether from natural curiosity or from a desire to improve his condition, Man has always sought knowledge, in the same way as artists have permanently sought aesthetic beauty and meaning. Since Antiquity, society has organised places of exchange, where ideas can be debated. Nothing of this has changed fundamentally today. Thanks notably to economic progress, an ever-increasing proportion of the world's population is in a position to seek to understand their environment better, to understand each other and their past better, and to explain how the society in which they live functions. In doing so, the hopes of this same population to improve its condition are usually fulfilled, although these hopes can sometimes turn to domination by some and the repression of others.

From this perspective, knowledge is an essential - although not exclusive – key to the well-being of each person and the future of humanity. As Frank Rhodes, President Emeritus of Cornell University and former President of the American Philosophical Society, elegantly put it in the first Glion Declaration[4]: "Knowledge is the core business of the university".... Although universities share this mission – in particular with schools, other higher education institutions, research organisations, industry and business, they play a "unique and crucial role" in this regard, because "they are the chief agents of discovery". They are likewise "the major providers of basic research that underlies new technology and improved health care, they are the engines of economic growth, the custodians and transmitters of cultural heritage, the mentors of each new generation of entrants into

every profession, the accreditors of competency and skills, the agents of personal understanding and societal transformation. In them, on a daily basis, the young and the old seek to bring wisdom, insight and skills to bear in the daunting complexities of human affairs".

As Frank Rhodes also writes[5], the university is distinctively linked to society by "an unwritten social compact, by which, in exchange for the effective and responsible provision of those services, the public supports the university, contributes to its finance, accepts its professional judgment and scholarly certification, and grants it a unique degree of institutional autonomy and scholarly freedom. Within this compact, the university has a reciprocal obligation for impartial scholarship, the highest professional competence and integrity, the cultivation of advanced knowledge and a love of learning among its students, and a sensitivity towards the need for its services in society at large."

The university and change

Universities have to this day shown themselves to be particularly resilient organisations. This is the least one can say of a human institution which has existed for over nine hundred years and which continues to survive the many vagaries of history, of scholarship as

"About eighty-five institutions in the western world established by 1520 still exist in recognizable forms, with similar functions and with unbroken histories. [These include]... the Parliaments of the Isle of Man, of Iceland, and of Great Britain, several Swiss cantons, and seventy universities."

CLARK KERR

"We only have the choice between the changes we are forced to make and those we wanted and were able to achieve"

JEAN MONNET

"The belief that nothing changes is the result of either poor sight or poor faith. The first can be corrected, the second must be fought."

FRIEDRICH NIETZSCHE

well as of politics and economics. Even today the university's dynamic nature is clearly evident[6]. It has shown that it can adapt to the changes in its environment, and it has done so. If one compares the university to the world of industry, in which very few businesses have continued trading under the same name for more than one hundred years, we may well ask ourselves what is the secret of this extraordinary longevity. The process of university evolution has usually had its origins, until today at any rate, at the grassroots of the institution, that is to say with the professors, teachers, researchers and students, who are in principle all driven by the same desire to broaden and deepen their knowledge, to test this with others and to pass it on to those who are interested. We find here the very essence of the principal missions of the university, to teach and to conduct research.

The "genetic" character of the university teacher and researcher

"Intelligence is the ability to adapt"

ANDRÉ GIDE

This innate curiosity for the discovery and sharing of knowledge can be labelled the "genetic code" of the university teacher and researcher, which begins to develop during secondary school and which becomes more embedded as the student progresses to university and then into a career of teaching and research or as a professor. It is this attitude which leads university teachers to adapt continuously the content of their teaching, as a matter of normal practice, while keeping themselves regularly abreast of latest developments in their field, following the latest scientific publications and participating in colloquia and other conferences. Undertaking research as well as teaching, as most

of them do, can only further enrich this continuous learning process, in which all teachers should partake.

"Your task is not to foresee the future, but to enable it."
ANTOINE DE SAINT-EXUPÉRY

The majority of researchers in the exact sciences, along with a growing number in the social sciences and humanities, work in close collaboration with colleagues in their own or other universities, or in industrial, financial, governmental or other organisations, which all contribute to ensuring they keep up to date. The risk of becoming isolated from recent developments is greater for those who work alone, or for those who work in a university of medium quality and/or where there is a low level of research activity. Staying at the forefront of knowledge is a basic requirement in a good research university, without it being necessary for anyone to be told this.

Through their own individual behaviour and their student associations, students can also exert useful pressure, much more so now than fifty years ago. Although they may be studying a subject in which they still have much to learn, students – even at the start of their studies – are fluent users of information and communication technologies, which provide access to almost all available knowledge in any given field. University teachers thus find themselves working with students who are much better informed than in the past, although this information can be spread unevenly and often in a rather precarious manner across the study body. This obliges teachers to ensure that their teaching is up to date and well presented. However, university teachers and researchers are also required to undertake numerous other tasks, including administration, fund raising, and providing a range of services to society. Their determination to keep themselves regularly up to date in their field, to review their teaching, and to involve themselves in longer-term individual or collective research projects can naturally differ from one person to the next.

Shared leadership

The context has now changed. For centuries, universities had only a few, sometimes only one, professor in each discipline. The simultaneous broadening of knowledge fields across all disciplines, together with the massive increase in student numbers during the second half of the 20th century resulted in growing specialisation and a large increase in the numbers of university teachers and researchers. Departments and other subdivisions replaced individual professorial chairs, teaching and research became distinct functions, academic governance became collective. Furthermore, councils were created to ensure that the university administration and technical staff, non-tenured teaching and research staff (assistants, etc.), and also students could be involved in certain decision-making processes, notably in the organisation of teaching and learning. These necessary developments were shown to have a very positive effect, since they placed a large amount of responsibility with university teachers and researchers and with other stakeholders in the life of an academic faculty or department. The following four examples illustrate how university institutions have adapted today to new requirements and to new possibilities.

"In the long history of humankind (and animal kind, too) those who learned to collaborate and improvise most effectively have prevailed."

CHARLES DARWIN

1. **Revision of a study programme**, or development of a new programme. This work is initiated and undertaken at the level of the department or other academic subdivision, with the resulting revised or new programme usually submitted for approval at the level of the university. This allows for each programme and the teaching and learning associated with it to be adapted as needed according to new scientific knowledge and new education and training needs. This work requires a long process of collective preparation, which encourages the best ideas to surface while also taking

account of the different perspectives and interests within the department. This is then generally followed by a pilot process, often lengthy, at the level of the university, where not only the legality of the proposal is examined according to the university's statutes and regulations, but also – in many countries – the revised or new programme must then be accredited by a national agency before it can operate. In addition, setting up a completely new programme will usually require additional human and financial resources, which the subdivision does not control and which must therefore be requested and approved by the university authorities.

2. **Succession planning for professors**. Replacing professors who leave, especially those who may have been in place a long time, is an excellent and possibly the best opportunity for a university to respond to new needs which may have arisen during that time.

3. **Reform of the university's organisational structures**. Many universities would like to adapt their organisational structures to meet new needs. Such restructuring may take many forms, according to the characteristics of the university and to internal or external pressure and resistance. Internally, the most frequent restructuring involves merging or dividing faculties, and the creation of high-performance interdisciplinary research centres or groups. Some universities seek to go one step further, for example by removing faculties and departments entirely, in an effort to bring them together in an intermediary structure known sometimes as schools or colleges, or by bringing together departments into faculties where these did not exist beforehand. Externally, usually at a regional level, a growing tendency can be observed to create formal networks between two or more universities. The aim of such moves is to strengthen teaching, by linking together the teaching staff from several universities, or to increase the critical mass in a discipline by merging a number of activities spread across several universities and bringing these into a single place.

4. **Reform of institutional governance**. This is a currently fashionable objective, usually with governmental encouragement. The main elements of this reform are the division of responsibilities between the university president's office and the faculty deans, and how power is shared between these two levels. Public authorities are also particularly interested in the role of university advisory boards and governing boards. It is also possible that the university itself will seek to restructure its decision-making processes, although this is rarer because it implies a high level of autonomy to do so.

The university under pressure

The preceding paragraphs show clearly that universities have both the human and institutional resources to adapt to the challenges of a changing world, and that they are already doing this in a number of ways. Having said this, it should also be recognised that universities often react under pressure, without which they would be less inclined to change. While some of these changes are positive, others are less so, and some are frankly of dubious benefit. The following six examples demonstrate the diversity of such pressures, and show the impact these can have on university policies.

1. A number of **politicians** of all persuasions **are convinced** – or at least act as if they were convinced – **that they know what universities ought to be doing and how this should be done**. They are happy to exert public pressure on a regular basis and to propose a range of reforms which would push universities to conform to this ideal model of theirs. Some of this pressure is welcome, particularly if it encourages universities to become more pro-active, but some of it is of no particular value, and can even be unhelpful, as is the case when universities are

"Never tell people how to do things. Tell them what to do, and they will surprise you with their ingenuity."

GENERAL GEORGE PATTON

obliged to offer services or behave in ways which do not match their missions, values and methods. For example, we could refer to the teaching of natural medicines, whose effects have not been scientifically validated, or the theories of "creationism" and "intelligent design" which make a mockery of the entire work by Darwin and his successors in the field of evolution. This pressure can also seek to require professors to spend more contact hours teaching students, forgetting that sufficient time is also needed to undertake high-quality research. Such political micro-management not only overrides the traditional autonomy of universities, which centuries of experience have proved is the best institution for the advancement of knowledge, but also results in proposals which are neither workable nor adequately designed.

2. **Funding** is a very important area through which pressure can be applied. This is particularly so when the State decides to reduce its university allocation as part of an austerity programme. The result is that universities have little choice but to take a very short-term perspective and make cuts wherever possible. Bearing in mind however their medium- to long-term priorities, this is rarely where such cuts ought to be made. Conversely, while a large donation from a benefactor for a specific project is in principle a good thing, the university must ensure that any conditions imposed as part of this donation do not threaten its autonomy.

3. The **current trend** is for an increasing share of research, at both national and international levels and particularly in Europe, to be guided by ambitious research prioritisation programmes with large budgets. Such programmes respond to the needs of society and the increasing necessity to create research teams bringing together specialists from the various relevant disciplines. This approach has however also encouraged many researchers to work on questions which are not necessarily those where they could best contribute, thus in turn reducing the possibility of unexpected discoveries.

4. A **competitive environment** is in principle a positive driver of behaviour. The success of universities at home and abroad in international rankings is often credited with encouraging other similar or neighbouring universities to perform better. However, one can also find universities which are not influenced by what is happening elsewhere or are overconfident in their own ability and performance. Others again choose to serve their own local stakeholders and do not feel they need to emulate the success of other universities on the international stage. Internally, the success of a professor or an institute in obtaining significant research funding or receiving national or international recognition for their work can often stimulate the entire university and encourage the recruitment of excellent researchers and students. But sometimes colleagues can also be jealous, which leads to a poor working environment in that part of the university.

5. **Cooperation with other universities** should in principle be supported, since it encourages teamwork which in itself is usually rewarding and stimulating. However, if this collaboration is imposed by the university management or by the public authorities, against the will of those persons directly involved, such collaboration can also lead to negative effects.

6. The **media** also have a constant influence on universities through how they are portrayed in the news. Unfortunately, the media are also interested in things which are not going well; this means universities spend a lot of time defusing the consequences of bad news.

In conclusion, as a combined result of the bottom-up efforts of a large part of the university community, the reforms underway through the universities' consultative structures, and of the external pressures which are brought to bear, universities are adapting with greater or lesser enthusiasm to the changing context. The extraordinary resilience shown by universities, and highlighted at the start of this chapter, is therefore the result of neither chance nor miracle. It has been brought about by a combination of elements which have allowed a community of

particularly competent persons to work together, motivated by the shared ideals of developing and passing on their knowledge, while also wanting to retain a large degree of independence. For this reason, the university has developed over the centuries into an institution *sui generis*.

The university in a changing world

A changing world

This short reminder of the university's long history and its proven capacity to adapt to changes might give the impression that it can be affected by nothing and that it is guaranteed to continue to exist, in a very similar format, for several more centuries. The rather shorter history of business enterprises shows however that this cannot be guaranteed. Furthermore, the somewhat longer history of nations also shows that no civilisation or country is immune to change or indeed guaranteed perennial existence.

Two quotations are relevant here. The first is a forecast in 1997 by Peter Drucker, a well-known professor of management and business philosophy, according to whom "thirty years from now the big university campuses will be relics"[7]. The second is a prediction in 2012 by John Hennessy, the current President of Stanford, according to whom online teaching could be as revolutionary for education as digital downloading has been for music, when he announced "there's a tsunami coming".[8]

Experience shows that such catastrophic forecasts are for the most part exaggerated. It would nevertheless be irresponsible to believe that nothing could happen to the universities because, as the late Ruedi Dornbush – professor of economics at MIT[9] – said: "In economics, a crisis takes a much longer time coming than you think, and then it happens much faster than you would have thought". The world has changed profoundly during the last fifty years and will continue to change dramatically over the coming fifty years. It is clear that universities – which themselves contribute in important ways to these changes – will not be able to escape their consequences. They will therefore need to show

considerable agility, while at the same time remaining accountable to their stakeholders[10], in order to fulfil their part of the social contract which links them to society.

WHAT ALBERT EINSTEIN SAID OF LIFE COULD ALSO BE SAID OF THE UNIVERSITY:

"Life is like riding a bicycle. To keep your balance, you must keep moving."

The real question is to know whether universities will be able to adapt to this new world which is opening up, and whether they will be able to do this fast enough to preserve the quasi-monopoly which they enjoy in terms of higher education and basic research. Let us review some of the fundamental changes which have taken place recently, in particular those which are likely to have the most impact on society in general and on higher education and research in particular.

While quite different, today's world bears many similarities with the Renaissance, when many universities were born, and even with the world at the end of the 19th and start of the 20th centuries. That period also witnessed a large number of significant inventions, including electricity, the telephone, the train, the motorcar and the aeroplane. The 20th century which followed was overshadowed by other events, the first half being marked by two world wars and a long and deep economic crisis. Despite a cold war situation, the second half was characterised by a period of rapid growth in the western world and Japan, a number of oil crises and the reappearance of inflation.

The end of the 20th and the start of the 21st centuries have been marked by four developments which have given rise to profound changes, a number of which are in the process of creating a new world.

1. **Scientific and technical progress**. Revolutionary new technologies, in particular in the fields of computer science and telecommunications, are transforming the way people work and socialise. Many innovations in other sectors, notably life sciences and health, materials, agriculture and

the use of natural resources are likewise revolutionary. The way in which people live, work, communicate and consume has been changed utterly, as have the production of industrial goods and the provision of services. Furthermore, the enormous increase in the world population is having a growing impact on our planet. And last but not least, national and global governance systems are facing new challenges. These worldwide changes, to which can often be added an unfavourable local environment, challenge each university to respond to the needs of society and to honour the convention which binds it to this society. Without this, those universities will lose ground to other universities of the same type at home or abroad, or to other universities of a new type.

It would be a brave step to predict the forthcoming impact of this scientific and technical progress on the economy and on lifestyles, but it is highly likely that this will be profound, possibly transformative. The expected outcome is rapid development in two directions. On one hand, expanding the "internet of things"[11], i.e. the intelligent interaction between a series of objects (machines), notably different types of markers, captors, sensors and smart phones, which will allow you to mark, signpost, collect, send and process automatically all sorts of data referring to objects or people. These new possibilities will increasingly become the norm in areas such as stock control, security, payments and health. On the other hand, specialists[12] are likewise predicting massive advances in artificial intelligence and in automation, both of which are capable of carrying out very rapidly many routine tasks, which are currently done by people. Other scientists and industry specialists have recently expressed, in an open letter, their own fears of what the consequences of such developments might be on employment and in the longer term on humanity, if the intelligence and the possibilities of these machines were able to exceed the intelligence and possibilities of those who created them.[13]

2. **Knowledge society and economy**. There are various opinions regarding the consequences of these developments for the future overall level of employment. There is however general agreement that the demand for general administrative and routine work will diminish, while the demand for engineers and technicians will increase, as well as for all others capable of independently undertaking a varied set of tasks. This change is of direct relevance to universities and to all tertiary education, not only because these are the institutions which train scientists, engineers and technicians, but also because one of universities' major contributions is to educate and train people who have learned how to learn, who are capable of reflection and who can adapt to very different circumstances. These three qualities are essential in a society where all workers will be required to take on a completely new role several times during their careers.

3. **The arrival of new economic and political powers**. In Asia in particular, many countries have begun an extremely rapid development process, having understood that it was no longer sufficient to enjoy cheap labour and copy products designed elsewhere. Their increased investment in education and training, notably in engineers and technicians, has allowed them to develop a high tech industry with impressive results. In less than half a century, countries such as Singapore and South Korea have moved from third-world status to the same standard of living as the richest western countries. Furthermore, although it has not yet achieved the same living standards, China has become the world's foremost economic power, having overtaken the United States which had held that position for over one hundred years.

4. **The end of the Cold War**. The fall of the Berlin Wall in 1989 and the subsequent collapse of the USSR put an end (provisionally?) to the Cold War which had poisoned Europe and the world for over thirty years. This political event meant that large scale liberalisation of international exchanges

could take place, in fields such as trade, services, the labour markets and tourism. This in turn allowed the flourishing of scientific and technical progress and the economic development of the most densely populated regions of the world. This globalisation movement has led to higher average living standards across the planet, and to high levels of competition in Western countries and Japan. The 2008 financial crisis was however a brutal reminder to the world that this remarkable growth could not last forever, because it had led to huge imbalances and had fed large exaggerations which would need to be corrected, sooner or later. The banking and international finance sector suffered a brutal correction in 2008, followed in many countries by a correction in public finances, notably those which tried to rescue their banks and other financial institutions. As a consequence, public budgets have grown slowly, or have stagnated or declined, while the share spent on higher education and research is now under fierce competition from other State services. The world continues today to be threatened by other significant imbalances. The main areas of concern are demographics, with big differences between regions and uncontrolled growth in certain countries; the overexploitation of natural resources and damage to the environment, notably concerning climate change. To this list should also be added a large number of political and social problems, often less talked about but which are just as worrying such as, for example in many countries, public and/or private sector debt, religious fanaticism, linguistic and ethnic conflicts, hunger, political instability, as well as a number of dysfunctional democracies , etc. Two reports of the World Economic Forum on this topic, "Global Risks 2015" and "Outlook on the Global Agenda 2015" are both well worth reading.[14] [15]

As Frank Rhodes eloquently stated in the Second Glion Declaration[16], "Every generation has had its challenges, but those of the early 21st century are unique in the extent to which they will determine the future well-being of our species." "It becomes

clear that we are about to conduct a whole earth experiment in real time as we sharply escalate the already heavy demands that we are placing on our planet for food, energy, materials and water." "A casual continuation of our present patterns and current practices is not sustainable in the longer term". "Navigating our collective way towards some new equilibrium will instead require new approaches, new thinking, new partnerships and new technology. And this, in turn, will require a change in outlook and a degree of innovation whose very boldness will be disruptive of much conventional thinking and many established practices."

It is therefore hardly necessary to underline that these challenges concern first and foremost universities, since they are best placed, as the generators of ideas, to come up with solutions and possible implementation strategies.

Challenges facing universities

Universal challenges

From the universities' perspective, the global developments discussed above become apparent in four interdependent ways, all of which change the context in which they must operate:

1. **Internationalisation**. Globalisation means that universities have to think and act internationally, even globally, especially in terms of recruiting teachers, researchers and students, and in their research partnerships.

2. **Competition**. The increasing levels of competition are particularly significant for universities, since they must remain attractive to students and teaching and research staff, and must also obtain the core funding, capital investment and research funding which they need to develop.

IN THE SAME WAY AS JOSEPH SCHUMPETER OBSERVED REGARDING CAPITALISM:

Universities "are incessantly being revolutionised from within."

3. **Increasing pace of scientific and technical progress**. While to a large degree a result of universities' own efforts,

given their essential capacity to make new discoveries, scientific and technical progress is both a challenge and their very "raison d'être" which they abandon at their peril. This progress means that universities and their teaching staff need to keep their study programmes updated, including their content and teaching methods.

4. **Arrival of the knowledge economy**. In order to meet the development challenges of today, all countries – whether already well developed or still developing – now need more than ever before to innovate and to rely on educated citizens and a qualified workforce, capable of undertaking challenging tasks which change frequently and which become increasingly complex. Thanks to their long tradition, universities and the tertiary education sector generally are best placed to meet these needs. They must therefore adapt their teaching and research in order to remain attractive and to fulfil this responsibility.

***Specific and/or regional* challenges**

If all universities worldwide are influenced by the same forces as those discussed above, other important influences also exist, which vary widely across different regions. This is particularly true in terms of demographics, the higher education participation rate, and public funding.

1. **Demographics and the higher education participation rate**. The evolution of these two elements determines the numbers of students at university. In the western world, the university student population is in the process of stabilising at a high level. In some cases, however it has begun to drop, the combined outcome of stable or decreasing numbers of young people in the traditional student age range and an already very high participation rate. This rate varies between thirty and eighty per cent depending on the different higher education and training systems in place, and notably on the extent to which alternative professional training opportunities are available. In either case, the increasing average age of the population generates an increasing need

for continuous education and training opportunities, in a labour market which is likewise undergoing deep transformation. Universities have adapted to this situation, but are not finding it easy. This can partly be explained by the fact that teaching students who have already gained some professional experience is different to teaching traditional students. It can also be explained by the fact that universities are less flexible than other types of institutions when it comes to putting in place ad hoc programmes which respond to specific needs. This explains why other institutions are competing with universities, particularly in the market for lifelong learning.

"The universities today are not there where the students can be found"

J. DUDERSTADT

The situation is completely different in continents which have a much younger population, including in Africa and the Indian subcontinent where in both cases the population is still growing fast. In these continents however the university participation rate is comparatively low, or very low, for two reasons. The first is that the demand for higher education, which is strongly influenced by the parents' level of education, is still weak. The second is that the number of study places is restricted. The need for investment, public or private, in higher education is in strong competition with the need for investment in other essential areas of development, for example transport, or in areas required to improve the quality of life, such as health or simply private business investment.

Finally, the expansion of the university sector is also limited by a cruel lack of qualified teachers and researchers, i.e. those who have at least a masters' degree and if possible also a doctorate. In this situation also there are important differences between countries. For example, Singapore has caught up as a result of sending its best people to be trained at master or doctorate levels and to gain further experience

in North America and in the United Kingdom. The choice of English as the national language following independence in 1965 has also meant that Singapore can easily recruit teachers from elsewhere. Other countries such as China have been able to call on a vast pool of Chinese persons who were born in or had emigrated to the United States, and who could be persuaded to return and contribute to the economic growth of China. Furthermore, China, South Korea, the Indian subcontinent and Vietnam, to cite but a few, are all countries where the university participation rate is increasing rapidly, and the two most populated countries in the world are already producing more specialists, in particular engineers, than the United States. And finally, given that Africa's birth rate is now the highest, it is also under the greatest pressure to increase its number of students.

2. **Financial resources**. The situation regarding the financing of higher education and research is likewise very different from one region to another. This difference can be seen in three areas[17]:

   a. **The cost ratio for higher education (share of public and private expenditure of Gross National Product (GNP))**. While three countries (Chile, United States and Korea) spend more than 2% of GNP on tertiary education, there are many (including the United Kingdom and Switzerland) who spend less than 1%. This is also true for research. Israel, Korea, three Scandinavian countries and Switzerland all spend more than 3% of GNP on research and development, while other countries including South Africa, Turkey and Poland spend less than 1%.

   b. **Funding sources**. The sources of this funding often differ dramatically from one part of the world to another. For tertiary education, in Chile, South Korea, United Kingdom and Japan the private sector and households provide more than 65% of funding for higher education, while in the Scandinavian countries and Belgium it is the public sector which provides more than 90% of funding.

c. **Efficiency of resource allocation**. The cost ratio mentioned above does not take into account the efficiency with which the resources allocated to higher education and research are used. Although already somewhat dated, a study shows for example that Switzerland, three Scandinavian countries, Israel, the Netherlands and the United Kingdom get the best value out of their expenditure on research, easily outperforming the United States in this area[18].

3. **Recent trends in public funding**. Public funding in the Western world and in Japan is in serious difficulty, especially since the 2008 economic crisis. According to the European University Association's (EUA) Public Funding Observatory,[19] a number of countries experienced large or very large budgetary reductions (notably in Eastern and Southern Europe), while only a few countries increased their budgets, among them notably Germany and France thanks to their so-called "excellence initiatives", which aim to finance advanced innovative institutional projects in the fields of research and teaching. While important for those universities or consortia which have succeeded in obtaining these funds, the overall level of additional resources allocated in those countries remains modest.

   Public funding is also very tight in the United States where, even if the overall context is improving after five years of austerity, there are ongoing announcements of large budget cuts imposed mainly by individual States[20]. This situation has driven many universities to increase tuition fees much faster than the underlying increase in the cost of living, which in turn creates a number of problems, in particular regarding access to universities for talented applicants from low income families. The deteriorating financial situation for universities and for research in the United States has encouraged many higher education stakeholders to ring alarm bells, including recent such warnings from the National Research Council (2012)[21] and the American Academy of Arts and Sciences (2014)[22]. One of the aims of

these warnings is to press home the message that scientific and technical advances are absolutely fundamental for the prosperity, health and security of the United States.

As a result of the ongoing economic stagnation in Europe and Japan, and the increasing investment requirements in other areas where the State plays an important role, for example health, security and transport, it is difficult to see how public funding for higher education can increase in the short-term. The competition between the higher education and research sector and other public sectors boils down to a power play between political vision and economic interest. Universities are already at a disadvantage in these negotiations, since the results which they promise cannot be shown immediately, only at some time in the future. It is worth noting that the university sector in Europe has been relatively more affected by these financial difficulties, given that the State plays such an important role in Europe. At the same time, increasing the State's share in GNP is difficult without having negative consequences on the private sector. The size of the State has effectively already become a problem in itself.

The shifting university world

The international university stage today is dominated by American universities. According to the best known international rankings (Shanghai Jiao Tong Academic Ranking of World Universities[23], Times Higher Education World University Ranking[24], QS World University Ranking[25], CWTS Leiden Ranking[26]), at least 15 of the 20 best universities worldwide can be found in the United States. If we ignore Oxford, Cambridge and the Swiss Federal Institute of Technology in Zurich, since the Second World War the highly ranked places previously occupied by European universities have been taken by the best American universities. We know that this situation reflects the structural differences which exist between the American and European university systems. Given the size of the American system, there are relatively few elite universities; these however enjoy substantial budgets and relatively small

student numbers. These budgets usually exceed two billion dollars per annum, while there are few universities in Europe whose budgets exceed one billion dollars. This results in research being heavily concentrated in a relatively small number of universities. European universities however have relatively large numbers of students, mainly because many of them do not restrict entry. The budgets of European universities are also smaller for a number of reasons; they are mainly financed through public sources, if they can charge tuition fees at all these are modest (apart from in England), philanthropy is less developed than in the United States, as is the practice of government or private sector contract research.

What has changed in the last ten years is the progress of a number of Asian universities which are closing the gap on the University of Tokyo, the best Asian university in recent decades. This is particularly the case of the National University of Singapore, of Nanyang Technological University in Singapore, of the Korean Institute of Science and Technology (KAIST), of Pohang University of Science and Technology (POSTECH) and of the Hong Kong University of Science and Technology (HKUST). As a result of the huge efforts made by a large number of Asian countries, in particular Korea, Singapore, China (including Hong Kong), and India, European universities are now facing new competition which will grow stronger with time. While nothing may appear to change over a five-year period, it is important to realise that the situation can change dramatically over ten or fifteen years. All university leaders should realise that, in the same way that excellence is not necessarily permanent, it is perfectly feasible for a new and unknown university to become excellent, as many universities founded less than fifty years ago have shown[27]. Institutional highs and lows are highly dependent on the national context (financial supports, favourable regulatory environment, etc.) and on the specific context of each university, in particular concerning their human and financial resources and their leadership.

So now, what next?

This chapter has allowed us to set the scene. Universities, in particular research-intensive universities, have shown themselves to be especially resilient, able to adapt themselves to all sorts of favourable and less favourable environments. Previously reserved for the elite, research-intensive universities became accessible to a much wider public after the Second World War and have contributed significantly to the rapid growth of scientific and technical knowledge and to the supply of qualified persons for the labour market.

However, today's world is in a process of change, and the situation which the universities are now facing is much more difficult than twenty or thirty years ago.

- On the one hand, the increasingly rapid scientific advances, ground-breaking innovations and the competitive environment all **oblige universities to reform faster and deeper**, in order to maintain their quasi-monopoly on teaching and their dominance in terms of research. While many research-intensive universities have taken serious steps to address these challenges, there are still some which have not. A number of universities have slipped downwards or find themselves unable to advance in national or international rankings. This is mainly due to the following reasons: a governance system which does not encourage change, insufficiently pro-active leadership, and an academic staff not always sufficiently motivated by its main responsibilities or otherwise occupied by accessory ancillary activities, and in particular burdened by insufficient attempts to obtain alternative research funds.
- On the other hand, in the Western world and Japan, while governments provide an important share of university funding and a majority share of basic research funding, **most of these governments find themselves in serious financial difficulties** and are increasingly called upon to provide increased funding for other public priorities. The

situation has changed dramatically from the generous post-Second World War period when university budgets grew very rapidly while the scientific and technical progress then was not as rapid as it is today. This period of rapid expansion, driven mainly by an increase in student numbers, had almost no discernible benefits beyond the university. The increasing numbers of teaching and research staff required as a result of this student growth, also allowed for considerable growth in the numbers of disciplines covered, which in turn allowed universities to broaden their areas of expertise and research, and at the same time to provide more diverse and richer study programmes. As a result, this period allowed universities to ensure their own continuity by adding new disciplines or specialisations.

These (two) trends and challenges – technological change, the funding crisis and competition from emerging nations - now taking place almost simultaneously, **are threatening universities from all sides and require them to evolve much faster than they have traditionally been used to**. They also require each university to improve in order to continue to serve its local community and stakeholders. If it is unable to do this, it will lose ground to a greater or lesser extent to other more dynamic universities or to other types of institutions which can make better use of technology. This rapid evolution, or revolution, is taking place in two ways.

- On the one hand, **universities are obliged to innovate faster** than they have ever done before, in terms of their basic mission, i.e. teaching, research and service to society. In addition, they need to become international, even global, in particular through internationalising their human resources, their academic staff and their students. They also need to pay much more attention than they have traditionally done to the quality of their services and to their governance.

- On the other hand, **universities have to undertake this innovation in a context of extremely tight public funding**. The consequences of this are serious, and will determine the speed at which they will be able to innovate and the extent of this innovation. This leaves universities with a clear set of options:
    - Either, having failed to persuade the public to provide more funding, universities succeed in finding substantial new sources of funding from individuals and from the private sector;
    - Or otherwise, if this is not possible, universities undertake an in-depth review of their missions, objectives and priorities, in order to adapt to the new situation and their reduced circumstances. This should then lead to universities reallocating their resources, i.e. reducing or stopping certain activities, or passing them to other institutions, in order to develop new activities in line with their new missions, objectives and priorities.

These two strategies (new sources of funding and in-depth review) **are infinitely more complicated from a governance and leadership perspective than the distribution of additional financial resources**.

"A goal is a dream with a deadline."
NAPOLEON HILL

The rest of this essay is built around the observation that the world in which Western and Japanese universities operate at the start of the 21st century is very different to the one in which they operated at the end of the Second World War until approximately the fall of the Berlin wall. While the changes which have marked the world since this epoch-changing event have obliged universities to innovate faster and in greater depth (1st part), the relative stagnation of public resources, following decades of strong growth linked to healthy public finances and the massification of higher education during most of the second half of the 20th century,

now obliges university leaders to become much more assertive than they used to be in taking the decisions needed to respond to this changing environment (2nd part).

I

INNOVATE, INTERNATIONALIZE, IMPROVE

2 INNOVATING MISSIONS

The major changes described in Chapter 1 have a direct impact on how universities fulfil their three basic missions, i.e. teaching, research and service to society.

Teaching

The role of university teaching

The **goal** of higher education, now more than ever before, is to prepare students for a complex and constantly changing world, a world which in certain fields may be completely new. In areas where scientific and technical advances have been the fastest and had the most impact, it has become extremely difficult to predict the knowledge which a university graduate will need in ten years' time. In any case, the breadth of existing knowledge is now so vast that it would be completely unrealistic to try to teach it all in a few short years, and either way the best graduates are rarely those who are head of their class or who know everything – or almost everything – in a narrow field of knowledge. The best graduates are in fact those who know

"If you are planning for a year, sow rice;
if you are planning for twenty years, plant a tree;
if you are planning for a century, educate people"
CHINESE PROVERB

both how to think and to find and use rapidly the information and knowledge which they need, as well as those who show personal characteristics such as the willingness to learn and to get things done, a good sense of organisation, a sense of what is important and what is not, those who recognise the limits of their own knowledge, and those who can show empathy and communicate well with others, both in written and oral forms. For these reasons, more than ever before, students need to learn how to learn, remain flexible and willing to continue learning throughout their lives.

We are now witnessing profound changes in the labour market. Increasing numbers of graduates in professional disciplines, such as engineering and law, find themselves in positions of responsibility after five to ten years which require much broader and often very different sets of competencies. Furthermore, many positions of responsibility are filled by persons who have degrees in the arts or social sciences. This shows that even though their university studies may not have prepared them directly for a management role, their education and training have allowed them to develop practical intelligence, a good sense of analysis and synthesis, critical thinking and an ability to act which are indispensable in a changing world. It is therefore important to support broad cultural studies alongside the natural sciences, not only for what they bring as disciplines, but also because of their importance in developing highly adaptive, interactive and well educated individuals.

"Have the courage to follow your heart and your instinct. They already know what you really want to become. Everything else is secondary."
STEVE JOBS

University teaching methods must develop these traits by encouraging students to become active learners and discoverers, rather than treating them as empty heads to be "filled" by all-knowing professors. Today, less and less content is transmitted

during traditional lectures, but is discussed in classes and seminars using a variety of learning methods (text books, scientific articles, online content, case studies, practical experiments, videos, etc.). Students are expected to invest a lot of personal time and effort in reading, exercises, and written assignments and/or, according to the field of study, laboratory work. Universities can also build on the pedagogical changes which have taken place in upper secondary school (high school, *lycée*, etc.). Here the students have already been encouraged to begin learning independently, to search for information themselves, to ask questions and to express their opinions. Since students are increasingly prepared through their upper-secondary education to become independent citizens, it is clearly the role of universities to continue this mission.

This "intellectual" understanding of the goals of university education is often challenged by the business community, which would prefer a much more practical form of university training. Business usually demands "job ready" graduates who can rapidly become productive and preferably also profitable, i.e. "plug and play workers"[28]. A professional training approach obviously has the advantage of preparing for immediate insertion into a job. However, as this training will be less theoretical it will be less effective in preparing students to think, to consider a problem from several perspectives, to develop a considered response based on the research of unexpected ideas, and to master any change processes. The search for innovative solutions to known and new challenges requires a capacity for abstract thinking and reflection, precisely the sort of skill which is developed during the intellectual exercise of studying and later mastering abstract notions, i.e. theory. This being said, even if it is not always possible to develop both theoretical and practical training in equal measure

"Theory is when you know everything and nothing works. Practice is when everything works and nobody knows why."
ALBERT EINSTEIN

during a study programme, universities should at least ensure that students are made aware of the importance of both approaches.

Many people involved in education today refer to the dichotomy between theoretical and practical education and ask whether **knowledge** or **skills** should be prioritised. This is certainly a useful way to pose the question, since it has the obvious advantage of showing that theory, especially at primary and secondary levels, should not be completely disconnected from reality, and that those who are gifted in abstract thought should also have developed social and practical skills. However, insisting too heavily on the latter runs the risk of giving too much importance to practical knowledge in current use, with no guarantee that it will remain equally valid in five or ten years' time.

This distinction between an essentially abstract academic education offered by a research-intensive university, and professionally-focused training provided by another type of college or teaching-oriented university can also be considered through the concept of **employability**. In fact, the preparation of students for today's world is undertaken not only by universities, whether research-intensive or more professionally oriented, but also by employers from the public, private and non-profit sectors who all recruit in the labour market. Many university disciplines do not prepare students directly for a profession; university teaching and learning are principally about gaining a theoretical knowledge of the discipline. The transformation of this theoretical knowledge into the professional knowledge necessary to exercise a profession requires several further years of practice. This is what medical graduates do when they train in a university hospital, or law graduates seeking qualification from appropriate professional bodies before they can become practising solicitors or barristers, or other graduates before they are allowed to teach their discipline in a secondary school. In all these cases, employers recruit graduates as trainees and, under their guidance, provide them with the opportunity to develop practical skills of the profession.

The same is true for all those graduates of other disciplines which are not strongly linked to a profession. If one leaves aside those who remain in a university setting to undertake research and often also some teaching as part of their doctoral and post-doctoral studies, graduates are recruited to use their education in philosophy, history, law, economics, sociology, physics or biology for the benefit of their employer, by undertaking those tasks and assuming those responsibilities with which they are charged. Recent employees are expected to make a real effort to integrate into their new professional context and to continue to learn and develop skills. But this employability of university graduates also requires a real commitment by employers, who must ensure their effective integration and continuous training. While the university plays a determining role during the initial education and training phase, it is the employer who has the main role in integrating graduates into a professional setting and whose responsibility it is to provide continuing education.

The business community sometimes shows a utilitarian attitude towards university disciplines such as humanities, certain social sciences such as sociology and political science, and even towards certain natural sciences such as physics. It tends to prefer disciplines which it considers of more immediate benefit to themselves, or those which it sees as more useful in solving immediate problems, such as engineering, medicine, management sciences and occasionally also political economy and law. It is true that these disciplines often bring more precise answers than those offered by the "softer" disciplines, which can often only ask critical questions without bringing any concrete answers. This is obviously a serious weakness. The economy however, and society even more so, desperately needs the more critical perspective which the social sciences and humanities can bring. Had the relevant professionals adopted a more critical approach to the financial developments in the 2000s, it would certainly have helped avoid the 2008 financial crisis from which the world and Europe in particular have not yet recovered. Furthermore, societal challenges such as climate change and

energy raise many questions to which both the natural and social sciences must respond.

Diversity of university institutions

Higher education systems are organised very schematically into **two types of institutions**. The first can be called the **research university**, where education and training is to a large degree theoretical and underpinned by research. Research in these universities shares three characteristics: it occupies a place at least as important as teaching; it is essentially basic (i.e. abstract) in nature, while not excluding plenty of innovative practice in developing experimentation; and in principle it is inspired solely by the curiosity of the researchers themselves, although it is increasingly organised in groups and undertaken in the framework of public research bodies at national or international level. As cutting-edge research becomes increasingly concentrated in two to three hundred universities worldwide, it is useful to describe these "research universities" as **research-intensive**.

The other main institutional type is the **higher education college**, a generic term which covers teaching-oriented universities, universities of applied sciences and professional schools in many fields such as health, teaching, culture, art, design, music, tourism and so forth. The main mission of these institutions is to offer a solid professional education, relatively close to practice, and often also to undertake applied research. The majority of higher education systems have this binary structure although some, for example in England, have merged these two types of institutions to create a unitary system. In France meanwhile a distinction is made between the "Grandes Écoles" and the universities. The former mostly prepare students for the technical and management professions, and can be distinguished from the latter by a competitive admission procedure for which applicants prepare intensively by attending one or two years of special post-secondary school classes. French universities are also different in that they often also incorporate

schools of engineering and professional schools such as the technical university institutes.

The binary distinction between these two types of higher education are in reality not that clear. Irrespective of whether the system is binary or unitary, a broad continuum can be seen between research-intensive universities on the one side and professional schools on the other. Each institution has its own mission and strategy, based on its history, its environment, the qualifications of its teachers and researchers, its funding and its governance. International rankings show that there are less than one thousand universities which can be considered as research universities. This compares with the 18,000 institutions listed in 2013 in the World List of Universities and other Institutions of Higher Education,[29] there would be many more if all the private for-profit institutions were included. It is clear therefore that the vast majority of higher education institutions are essentially teaching universities, professional schools, or universities of applied science. The fact that they do little or no basic research is no reflection on their importance or quality. They can be excellent in their primary missions and, in this way, meet the demands which society, the economy and the public sector place on them.

Contemporary trends in university education

In recent years, **Europe** has introduced two successive large-scale revolutions in the organisation of transnational university education: the Erasmus programme and the Bologna process.

The **Erasmus programme**, launched by the European Commission in 1987, has encouraged universities in the European Union and several partner countries to negotiate bilateral agreements in order to facilitate student exchange across a range of chosen disciplines. Since its creation, more than three million students have benefited from this programme and received a modest grant to cover their additional costs. It should be noted that teachers and certain administrative staff can also participate in the programme. In 2004 this exchange programme was expanded to the rest of the world, through

Erasmus Mundus. In 2013 the European Commission launched an even broader and better funded programme, known as *Erasmus+*, which will continue to assist students who wish to undertake part of their studies in another university.

The Erasmus programme has without doubt been an enormous success. Not only has it been of direct benefit to those students who participated, it has also contributed significantly to enriching the university experience of millions of additional students. Having said this, the implementation of Erasmus has not been free of problems. For example, many universities have been reluctant to recognise fully the credits obtained by their students in another university. Moreover, the imbalance in student flows has caused difficulties. The numbers of students who wish to move from the east or south of Europe towards the northwest, notably to England, is much higher than the numbers of those who wish to move in the opposite direction. This imbalance is a challenge to the very design of the programme, which is based on the principle of parity of exchange between participating universities.

Inspired by the success of Erasmus, and with the encouragement of a number of countries, the European Commission, the Council of Europe, Europe's universities and student organisations launched a large-scale programme to create a single **European Higher Education Area**. Better known as the Bologna process, because it was at this university – almost one thousand years old – that most countries universities joined the process in 1999, it now spans the entire continent of Europe and has introduced a series of measures aimed at harmonising the organisation of study programmes into three cycles: the Bachelor (three to four years' length); the Master (one to two years); and the Doctorate (three years full-time, at least in principle). In order to achieve a harmonisation of university requirements, the process has been supported by a number of accompanying measures: the introduction of an agreed credit system to

"We travel to change, not our place, but our ideas."
HYPPOLYTE TAINE

measure student workload; the definition of qualification levels for each study cycle; and the assurance and enhancement of institutional quality. Initially planned for ten years, the Bologna process achieved its goal to create a single European Higher Education Area in 2010.

The Bologna process is without doubt an important achievement, given the enormous diversity which previously characterised the national higher education systems across Europe[30] [31]. It has certainly improved the transparency of these systems and encouraged the inter-institutional mobility of students, mostly at the point of progression from one-degree cycle to the next. The new system has however become structured in a more school-like way, with students now obliged to accumulate a certain number of credits each year, thus making it less flexible in terms of workload organisation, including for time spent abroad. It is paradoxical therefore that there is now less student mobility during degree programmes than before, and that the amount of work that each student must do on his or her own – an essential part of modern pedagogical methods – has increased as a result of a greater number of exams at the end of each semester.

Even though the initiators of the Bologna process remained modest in their ambitions, mainly in order to achieve buy-in from all partners, it should also be noted that a number of countries have interpreted the agreement strictly, leading to an increase in the average length of studies, or have made use of the implementation period to add in a number of additional national or regional requirements. This has been the case particularly in Germany, where not only the Federal government but also the respective Federal States introduced additional requirements, the result being that it is above all in Germany where opposition to Bologna can be heard[32].

Other initiatives have also been taken to support the internationalisation of university study programmes. Of these, the 1997 Council of Europe and UNESCO Lisbon Convention on the recognition of higher education qualifications is especially noteworthy.

The arrival of new teaching technologies

Higher education institutions have been examining for many years the questions discussed in the preceding paragraphs, and many universities implemented the main principles some time ago. However, now that new information and communication technologies are also making an impact on teaching, university leaders rapidly need to ask themselves two questions. Firstly, how can they make efficient use of these new technologies to modernise the teaching process and to increase the attractiveness of their universities to students, who have been accustomed to these technologies since they were children? Secondly, how far will these new technologies revolutionise traditional higher education and endanger the quasi-monopoly that universities have enjoyed until now?

"Dear Camille, as I said in my txt msg this morning, I prefer to rite you bcause I can't xplain properly by txt".
PAULE CALLIST

New technologies are in the process of revolutionising the collection, organisation and access to scientific and cultural information. In the not so distant past, one of the main difficulties facing students and researchers was access to information. The development of the internet and of search engines such as **Microsoft Edge, Google Chrome and Safari** now provide high performing search tools for information available on more than one billion websites. Although in most cases the information which can be found there must still be verified, these new tools provide immediate access to massive amounts of information which previously could only be obtained by meticulous searching through yearbooks, dictionaries, encyclopaedias, some of which also had to be requested by post or telephone.

"Technique is what children teach their parents. Culture is what parents teach their children."
MICHEL SERRES

In a few short years, **Wikipedia** has become the world's largest encyclopaedia, created and maintained on a voluntary basis, where those who contribute take responsibility for their contributions, which are open to verification by other members of the community. This "open source" project is a serious threat to traditional encyclopaedias[33] and continues to grow in size and visibility, with the ongoing addition of new "wikis", i.e. "websites allowing any user to add and edit content, thus encouraging collaborative writing and illustration of these pages". The development of related projects such as "wikibooks" or "wikiversity" will soon further expand the amount of information which can be accessed immediately and for free.

The most important information – both text and statistics – is now available online, usually at no cost, and generally in a format which facilitates its digital use. For example, with "**Google books**", Google has developed a very powerful tool which provides access to the main bibliographical information of tens of millions of books from the large university libraries in the United States and other countries, including short excerpts from these books or indeed the entire texts if no longer under copyright. Amazon has become the world leader in the distribution of books and hard consumable goods. Its online database is in itself a very useful source of information regarding the availability of publications, while its reader, Kindle, like other tablet devices, allows tens of thousands of books to be downloaded instantly and read in digital format.

In these and other ways, the internet, Google and other search engines, Wikipedia, **Amazon** and other recent applications are all taking significant steps towards the democratisation of knowledge, providing instant access for everyone (students, teachers and the general public) to a broad range of knowledge, much wider and more easily accessible than what was available to students and even researchers only twenty years ago. However, given that this information is usually unverified, a certain level of awareness is required in order to ensure that it is always viewed with the required critical perspective.

The way in which people communicate has been transformed by electronic mail, which dates from the 1980s, and also by more recent applications for smart phones such as text messaging or **WhatsApp**. These have led to considerable savings, not only in monetary terms, by allowing contacts to be made and maintained in ways which were not previously possible or which previously required an inordinate amount of time.

For decades, the main teaching supports for higher education consisted of blackboards and chalk. Overhead projectors and transparencies then appeared, with photocopies and course manuals for students. Student-teacher interaction, student participation in class, and student progression were all managed through face-to-face dialogue and hard copy written notes. With the development of information technology tools for student relationship management and course preparation, different options in these fields have also rapidly become possible. Students themselves no longer rely on paper for their notes from lectures and professors, as laptop computers and tablets are increasingly used, allowing notes to be organised and updated much more easily, as well as exchanged with colleagues. Furthermore, general information technology developments and smart phones now allow for far more intensive student-teacher interaction.

Massive Open Online Courses (MOOCs), the main pedagogical innovation of recent years, have the potential to revolutionise the transmission of knowledge by uncoupling it significantly from a given place and by opening it to a much broader public, while also enriching it. In many ways it is like a new type of textbook, although much richer than a traditional manual, because it uses all the opportunities available through the internet to construct and diffuse these texts and manuals, and all the opportunities of information technology and media to animate and moderate them. MOOCs now provide online teaching on all possible subjects at university and professional levels. They are normally prepared by teams of respected and qualified persons who pay particular attention to the pedagogic quality of the course. In the same way as a traditional course, a

MOOC must be designed specifically for its chosen target audience. Apart from the fact that MOOCs can be followed anywhere and at any time, there is no limit to the number of persons worldwide who can potentially participate. A MOOC can also be followed by registered university students as part of a regular teaching programme, or by any individual on their own. High numbers of registered students and real participants show that this format has the potential to become a great success. The success of MOOCs however depends more on the fact that ten years of smart phones and the internet have profoundly changed the perspectives and behaviour of potentially interested students, who are now familiar with this open and interactive environment, as well as with the new technologies on which it relies.

A number of universities have come together in consortia to develop MOOCs. The best known of these are **EdX** (supported notably by Harvard, MIT, Berkeley and the Texas university system), **Coursera** (launched in Stanford, with the support of a large number of partner universities), and **Udacity** (supported by Georgia Tech). In Europe, the Swiss Federal Institute of Technology in Lausanne (EPFL) has committed itself firmly to these developments, and has observed particularly strong demand from Africa, where the financial implications of expanding the university system sufficiently to meet rising demand are overwhelming. While it is clear that MOOCs provide a very attractive additional learning option, it is still too early to say whether they will really prove to be a tsunami for traditional higher education, as predicted by John Hennessy, the President of Stanford[34].

Two main weaknesses can be identified so far. The first is that even the best prepared course requires in principle some direct contact time to allow for student-teacher discussion. Whether the course is followed as part of a traditional university programme or by a single student, the organisation of contact hours means that the teachers involved must possess sufficient professional and pedagogical qualities, not only to master their subject but also to be able to maintain a spontaneous question

and answer dialogue with students on the topic being taught, without having been able to prepare for these questions in advance. This is obviously not cheap or easy to organise at an international level.

The second is that no satisfactory system of certification has yet been found which allows credits to be awarded towards a university degree for those who follow MOOCs outside an accredited institutional setting. Developments are however underway in this field: The Open University in the United Kingdom, one of the pioneers in distance education, was able to do this fifty years ago. The challenge is an organisational one. It is easy to imagine that universities might be interested not only in organising direct contact hours but possibly exams also for those persons who live in a particular region, or that a different company might be interested in developing the organisation of these exams worldwide. Alternatively, the rapidly falling costs of videoconferencing point to possible intermediary solutions.

Such technological developments are globally positive and will certainly be useful for universities in improving their teaching methods. However, greatly improved access to documentation as a result of the internet also gives rise to increased risk in two main areas. It facilitates plagiarism, and it encourages the fraudulent activity of "diploma mills", private "universities" which deliver diplomas without the students ever having to undergo the assessment required by a course worthy of the name, or which simply issue false diplomas.

From education system 1.0 to 3.0

Those who work in universities often use an analogy borrowed from software upgrades to say that **teaching in universities is now entering a third development phase**. From the origin of universities until well into the 20th century, lecturers were almost entirely responsible for teaching. In doing so they enjoyed near-complete academic freedom and largely taught what and how they wished, within the framework of the discipline for which they were responsible. This could be referred to as education system 1.0. As a result, important differences in

quality and in what was required of students arose between institutions and between academics.

Under the influence of the Bologna process and the increased pressures on universities, education system 2.0 was marked mainly by the increasing professionalization of university teaching. A particularly good example of this has been the development, discussed above, of the Bologna standardised system of learning outcomes to be reached by students at a particular level, i.e. Bachelor, Master and Doctorate.

The university world is now facing a **new education system 3.0**, in which learning will become more important than teaching, thanks notably to the use of the various knowledge transmission techniques mentioned in the preceding paragraphs. This revolution is based on the reality that today's students know how to search for information, long before they enter university. They also know how to interact between themselves and with their teachers as a result of new media technologies.

The good news for universities is that these new technological possibilities allow them to improve substantially the quality and depth of their teaching. The bad news for them is that they are slowly but surely losing their **monopoly on the transmission of higher knowledge**. This affects in particular those universities which continue to rely almost exclusively on traditional teaching methods. The many new sources of information described in the preceding paragraphs are freely accessible to all those who are interested enough to look for them, often independently of the university. Furthermore, MOOCs, often prepared by leading academics, will provide robust competition to the traditional university teachers since students will be able to choose among the best courses on the market those which suit them best. These new forms of teaching are also often more attractive for young people who have been accustomed to them from an early age. Universities have become less and less indispensable for accessing certain types of knowledge. All those with an active interest can now access an immense range of knowledge, which fifty years ago was still enclosed in books and other publications, which themselves were shut up in libraries and not easily

accessible. The rapid decline in the printed press and the erosion of the monopoly of national radio and television stations is likewise a sign which universities should heed.

Let us now consider the impact of these developments on the university world, which could well be as follows:

- **A small number of institutions**, in a category composed of leading universities with considerable financial means, will keep the coveted position which they already hold as the elite providers of teaching and research. Their leading role will be reinforced as they play a key part in the preparation and distribution of didactic material for the entire world. The experience of the last twenty years has shown that the internet only allows one, two or a maximum of three actors to develop a position of quasi-monopoly, as can be seen by the examples of Google, Facebook, Twitter, Amazon and Wikipedia. A similar scenario, although less exclusive, is likely to evolve regarding the provision of on-line university courses, at least in those disciplines which do not have a regional and/or linguistic basis.
- **A second category of institutions** will be able to play on the advantages of combining tradition and modernity. These universities will retain their characteristics as excellent national institutions in terms of research and teaching, and will thus be able to meet new demands in the area of teaching and make the most of new opportunities, including MOOCs. They will be well placed to contribute to the development of MOOCs, given that the main risk posed by an over-concentration in a small number of universities or groups of universities is that of excessive uniformity linked to the marginalisation of alternative voices, which would impoverish the academic knowledge base worldwide and over time.
- **A third category of institutions** will find themselves in a more difficult position, since these universities will be left to "pick up the crumbs" left by the others. If they are unable

to find niches for themselves, such as organising contact hours for students who are following a MOOC outside an institutional setting, offering specially adapted support for students with particular learning needs, or organising examinations for others, they will find themselves turning into modest institutions on the side-lines, capable only of attracting unambitious students.

As can be seen, charting one's way successfully through these inevitable changes in the universities' teaching mission will require a lot of foresight, determination and perseverance. It is to be hoped therefore that the enormous effort already spent in Europe in developing and applying the Bologna reforms has not already exhausted the universities' capacity to revisit this mission at the earliest opportunity.

Research

Place and type of research

"The light bulb was not invented by improving the candle"
ANONYMOUS

In today's knowledge society, **basic research** has become more necessary than ever before. It is this research alone which will enrich our knowledge base by constantly revisiting and updating existing knowledge and by adding new knowledge. This new knowledge is essential for humankind, and is as relevant for our societies and their political, economic and social functioning, as for our physical, chemical and biological needs. Furthermore, it enriches the understanding of our heritage, which provides the cohesion of our societies. And finally, new knowledge is the sole source which will allow, once the basic research findings have been taken up through applied research and innovation, the development of new processes and advances in all areas of human endeavour, including vast problems such as planetary environmental issues.

"The investigator must follow what he is searching for, but also see what he was not looking for."

CLAUDE BERNARD

It is true that new knowledge developed through research does not always result in positive outcomes. It can, for example, lead to sometimes dramatic changes to existing ways of doing things which may not benefit everyone, but which on the whole are beneficial because destruction can also be socially creative. It can often also result in negative side effects, for example the collateral effects of pollution on the climate, the environment and on health. It could even, if used for the wrong purposes, threaten human existence, for example through chemical, biological and nuclear weapons of mass destruction.

However, thanks to this new knowledge, and in spite of its dangers, large numbers of people now live in much better security, health and comfort than fifty, a hundred or a thousand years ago. There is no better example today than China, where no more than fifty years ago the overwhelming majority of its population lived mainly from farming, and who now enjoy considerable improvements in living standards as a result of the country's rapid industrial development. It should not however be forgotten that large populations, for the most part in the southern hemisphere, have still not benefited from these developments and continue to live in poverty.

"Great achievements are always preceded by great thoughts."

STEVE JOBS

It is well known that research has a number of different objectives. **Basic or fundamental research** seeks to push back the boundaries of knowledge and is driven by the scientific curiosity of researchers, either as individuals or in ad hoc groups. It is also the object of an increasing number of targeted programmes which seek to advance knowledge in a specific field considered by

national or international policy makers to be of particular importance.

Applied research aims more specifically to use this new knowledge to find new applications or solutions, especially new products or services and new modes of production or delivery. As a third and last phase of the innovation process, development takes place at industrial or commercial levels to exploit in various ways the innovations which have resulted from research. These two phases are no less important than basic research. A good example is the prodigious range of technologies contained within a smartphone, resulting from numerous scientific discoveries which have expanded the boundaries of our knowledge.

"It always seems impossible until it's done."
NELSON MANDELA

This differentiation between types of research objectives remains useful in order to focus the mind. In reality however these three phases of basic research, application and development leading to a steady flow of innovation are not easy to keep apart and can increasingly also be reversed. The boundaries between the three types of research are fluid, notably because the ambitions for basic research will differ from one institution and one researcher to the next. Research which pushes back the frontiers of human knowledge, which is published in the most prestigious scientific journals and whose authors receive high profile awards such as a Nobel Prize, carries a heavy weight in international university rankings.

However, research undertaken by many highly regarded investigators often takes these basic discoveries as starting points and then tries to refine or add to them. This explains why many universities say they are good research universities because the majority of their faculty undertake such work, without always realising that the research undertaken in the most highly regarded and best ranked universities is of a very different nature and scale.

Basic research and some types of applied research are conducted in a **wide variety of institutional settings**:

- There are the large-scale publicly funded laboratories focused on a highly specialised area of knowledge. Examples of these in Europe are CERN, the European organisation for nuclear research in Geneva and which straddles the French-Swiss border, ESO (the European Southern Observatory), ESA (the European Space Agency) and the worldwide ITER nuclear fusion research programme with its headquarters in France.
- Then we have research undertaken within the university system. This includes research-intensive universities, which mainly undertake advanced basic research requiring significant public and private funding. Other research universities and various types of higher education institutions do basic research of a complementary or regional nature, or applied research. In addition, in many developing countries, the development aspects of research are undertaken in the universities or other higher education institutions, since the qualification levels of those who work in industry and in small and medium enterprises are not sufficient.
- In some countries, in parallel to the universities, research takes place in national research centres such as the Max Planck, Helmholtz, Leibniz and Fraunhofer societies in Germany, the National Centre for Scientific Research (CNRS) and the Atomic Energy Commission in France, or the Academies in Russia and some other countries of the former Soviet Union.
- Research also takes place in the laboratories of multinational companies, notably in the pharmaceutical field, which often have very large research budgets to develop new medicines. Research can also be found in the context of small and medium enterprises where work is underway to develop new solutions.

The two main types of research organisations, i.e. public or private laboratories and universities, both present advantages and disadvantages. In brief, the laboratories usually enjoy very large budgets and tend to be focused on a limited number of important areas. Research-intensive universities offer however a particularly favourable environment for discovery thanks to the richness of disciplines which co-exist. While part of the research in the natural sciences is undertaken in large international, national or private laboratories, it is the universities which cover by far the most extensive range of research areas. As in the laboratories just mentioned, all the natural sciences are covered, but unlike other organisations the fields of human and social sciences are also covered, as well as the arts and culture.

Universities have another special advantage, since they bring teaching and research closely together. As a result, teaching is enriched by the curiosity and rigour of research, including by the results of the teacher's own research work, while this research also benefits from the curiosity of students, especially advanced students. Furthermore, the university contributes, in a much greater way than the laboratories, to the training of researchers, notably through the education of doctoral students. This practice of give and take is unique to the university community.

Finally, as a result of the responsible values which they uphold and by which they live, universities are less vulnerable to the frequent economic pressures for "useful research". They guarantee better diversity and a certain balance, thus avoiding over-dominance by medicine and the life sciences or by physics and leaving room for the human and social sciences. This is crucial given that these disciplines cover areas from which many of our challenges arise.

"What we need is not researchers who search but researchers who find!"
HEARD IN A PARLIAMENTARY COMMISSION

Research in complete transformation

The way research is undertaken is also in a complete state of transformation, maybe to an even greater extent than teaching. This is due to the rapid and profound advances in science and in investigative techniques themselves, within a climate of increasing competition due to globalisation, decreasing funding, and the increasingly explicit research policies being followed by national governments, the European Union and, to a large degree also, national research councils.

In the natural and experimental sciences especially, research is now most frequently undertaken in teams and in collaboration with researchers from several universities or private or public laboratories. Beyond those early examples of large international research facilities such as CERN and other similar organisations, for the last decade or two the national research councils, or those state agencies responsible for funding competitive research projects, now increasingly finance large or very large targeted projects involving a number of different teams, each of which brings complementary knowledge and specialisation to the project. For example, the "Human Brain Project" has received more than a billion euros over ten years from the European Union, and under the leadership of Swiss federal institute of technology in Lausanne (EPFL) is bringing together more than fifty laboratories with the objective of getting different brain specialists to work together in order to ensure the greatest complementarity possible.

One of the greatest weaknesses of individual or small group research is that it is not possible for researchers, even if they are excellent in their own chosen field, to be excellent in all aspects of research, including knowledge of previous work, methodology, access to bibliographic information, statistical and computer analysis, as well as the writing and diffusion of results. Although researchers are fundamentally in a competitive environment, for the most part they find it advantageous to come together in teams within their institution, and/or with researchers from other institutions in the same or other countries, in order to ensure this complementarity of expertise.

These same developments can now be observed – although with a lag – in the humanities and social sciences, and even in the arts. This is without doubt due to the different nature of these disciplines, which concern themselves with human behaviour, the political and economic organisation of society and social relations, as well as literary, musical and artistic achievement. The human being is certainly as complex as nature, although less predictable. For their part, literary, musical and artistic achievements have their own methods of evaluation, which while rigorous are also more open to interpretation. And while experimentation underpins increasingly close cooperation in the natural sciences, this is harder to achieve in the humanities and social sciences because it is rarely possible to create strict laboratory conditions in these fields.

Nevertheless, the enormous capacity to store, share, exchange and analyse the very large volumes of data now available will change this context significantly. Computer science and modern mathematical and statistical methods now allow unimagined research and discovery to be conducted in the humanities. "Big data" can be applied notably to history, ancient history and classical studies, literature, linguistics, geography, as well as to design, the arts and museum studies. In addition, very large quantities of different types of data are increasingly analysed by organisations which have the means to do this, in order to study macro- and micro-economic and commercial data. This has led to a new generation of sales and financial management models, and opens completely new fields of research in the humanities and social sciences.

Given that these new research tools provide completely new possibilities for discovery, they also call into question the working methods of the individual researcher who works alone. It is true that there is still much that can be done using traditional methods, but it is likely that these new possibilities to work rapidly on different source materials (texts, images, data) will also revolutionise research in these areas, possibly even more so than in the natural sciences, since the two paradigm shifts -

working in teams and working on very large volumes of data - will take place almost simultaneously.

As a result of growing societal and economic expectations that research will contribute to solving social problems and to help the economy innovate in order to become more competitive, public authorities and research councils have become more prescriptive and are increasingly setting the main research priorities, often for a period of four to five years. The research heavyweights such as the United States, Great Britain and the European Union have all set high level objectives, many of which are similar from country to country. Among these can be found health, energy, climate, nutrition and security[35]. These programmes do not conflict with the main research principles, insofar as they include a large part of basic research, and funding is allocated on a competitive basis based on project proposals. This form of high level targeted research leaves plenty of freedom to researchers to choose their fields of investigation, the most appropriate methodology and suitable partnerships with other researchers.

"Chance only favours those who are prepared."

LOUIS PASTEUR

"He who finds without seeking has long sought without finding."

GASTON BACHELARD

Nevertheless, while the importance of the topics it seeks to address is not questioned, this targeted research frequently encounters resistance of both a methodological and strategic nature. The reality is that many great discoveries have been made by accident! There is a greater chance of this happening in a context where researchers follow their intuition than where they are working as part of a carefully planned project. In addition, no matter how good the planning, research at the frontiers of knowledge does not allow discoveries to be planned with any certainty. It would therefore be dangerous for

authorities to accord too much support for such targeted research, to the detriment of "blue skies" research.

"The scientific mind does not so much provide the right answers as ask the right questions."
CLAUDE LEVI-STRAUSS

This new paradigm means that **researchers**, along with their departments and institutes, **must all adapt**. While it has become increasingly hard to find funding for "blue skies" research, it has also become much more important, if not essential, to build projects based on interdisciplinary and inter-organisational cooperation, in order to improve the chances of obtaining the necessary funding. Two important caveats should however be noted: the majority of research funding themes are for the natural sciences, and the resources set aside for these are often enormous. It is therefore essential to recreate a suitable balance between the various disciplines, and for the current bias in the large national and international research programmes towards the natural sciences to be at least partly compensated for by diverting traditional research funding streams or by the creation of new funding streams for the social sciences, humanities and arts.

Conditions for success in research today

The **research environment** itself has become much more competitive. The growing importance of research outputs, as measured by citation indices or impact factors, is leading to a number of demands on the universities:

- They must create conditions which encourage researchers to be pro-active in the development of new projects, the search for necessary funding, undertaking the research itself, and the communication of results;
- They must recruit highly regarded or high potential researchers, who will add lustre to the university's reputation and assist in obtaining large research grants. This is why the best universities, somewhat like the big football clubs, are now committed to the costly process of

attracting the best researchers, often through approaching them with attractive offers. A frequently used strategy when filling a position is to identify who are the most reputable three to five specialists in that field, and then to try to recruit one of these.

Modern research requires increasingly sophisticated equipment, which is usually also expensive. Many discoveries have indeed been made as a result of new equipment and research instruments; these allow new types of investigation to take place and for previously unknown information to be discovered. The capture and analysis of massive amounts of data has also become important, and has been made possible as a result of computers and increasingly powerful data storage capacities, even going as far as the networking of thousands of computers, such as the "Grid" system developed at CERN. The development of the internet and data storage capacity has allowed for the collection of "big data" and worldwide access to these, while the methods for using and analysing these data continue to evolve.

Modern research also requires teamwork, bringing together specialists from different disciplines. This helps avoid one of the main weaknesses of individual research, i.e. undertaking highly advanced research in one precise aspect of a question, while only superficially considering other related aspects, and/or not using the most suitable tools because this individual researcher does not master them well.

Pushing back the frontiers of knowledge often requires the development of research projects which exceed not only the capacity of one researcher or team, but also of one university, even the best. Bringing together different strengths has now become essential, not only between specialists from different universities or public and private research laboratories. The research goal can sometimes be so ambitious and the resources required to reach this so huge that an ad hoc organisation or a vast programme needs to be put in place, entirely dedicated to the research question. If the project has serious long-term commercial potential, large private laboratories will also invest

the necessary resources for the basic research to be undertaken, in the hope that they will one day be able to use this for their own competitive advantage. For example, in the sequencing of the human genome, there was a race between a consortium of international researchers and a private company "Celera Genomics".

The implications of these research developments are serious for the universities. Those which do not adapt and whose researchers continue to work mainly alone or in small groups, will lose their position as research universities. The same fate awaits those disciplines and departments which do not take this new situation into account. Not only will the researchers find it increasingly difficult to obtain the required funding in order to undertake their work (to pay for staff and other research costs), but the relevance of their results will decrease since other teams which benefit from greater diversity and better complementarity will obtain superior results. Only a few exceptionally gifted and clever individuals, mainly in the field of humanities, will be able to maintain a leading position through continuing to work more or less on their own. Even in humanities, the new digital possibilities now available to bring together, compare and analyse increasingly complex information now threaten the validity of conclusions obtained by individuals working in isolation. The risk is that these researchers, instead of engaging in collaborative work, will end up in low-visibility projects which are of interest to fewer and fewer people, thus also leading to lower visibility for the universities where they work.

Those universities which stay the course will be those which actively seek to attract the best academic staff, who become engaged in numerous collaborative projects, who make the necessary investments to improve their research infrastructure, irrespective of discipline, and who aggressively seek out the necessary financial resources.

Service to society

Nature and form of service to society

Service to society is part of the unwritten social contract which binds the university to its community, in the same way as teaching and research. This is an area where the university needs to be fully responsible and which can take very different forms depending on the university profile and the needs of the region and/or the country.

In essence, service to society involves the transfer of university knowledge and know-how, mostly through the university's academic staff, to the region or country. Governments often ask academics to advise them on legal, economic, transport, construction, organisational or international relations issues, to name but a few. They invite academics to sit on technical committees (as opposed to political committees) alongside representatives of the public authorities and from the business community. This is without doubt the best way for governments to work, using up-to-date and unbiased knowledge. In the case of a request for research to be undertaken, the government benefits from analysis by leading experts in the required field.

The private sector also frequently makes use of academic expertise. In many cases however this takes the form of a research contract through which a company asks a university laboratory to undertake a particularly precise piece of work or to develop a new solution to a problem.

Likewise, although in a somewhat different context, the public has always been interested in listening to the opinions of academic specialists. The opportunities for this are numerous, especially through substantive articles in the press, through interviews and commentary on the radio or television, conferences or lecture series organised by the university (for example adult education courses) or by community organisations, and through open days in laboratories and libraries. While the practice is not widespread, certain universities, especially those with a main focus on teaching, are

also engaged directly in helping local disadvantaged communities in areas such as basic education, health and community development.

It is not an accident that the university and its academic, administrative and technical staff are able to provide direct support to their region or country. Universities are particularly well placed to analyse problems, come up with answers and propose recommendations which are both well considered and impartial. They are the repositories of extensive up-to-date knowledge and they know how to go about researching additional knowledge when necessary. They have an extensive range of sophisticated measuring equipment, they are accustomed to using proven scientific methods and they attach great importance to trust and objectivity.

In many ways, **universities and academic community form** - together with the press - **a "fourth estate", alongside the executive, the legislative and the judicial powers**. While the competence and independence of university people should not be considered infallible, recommendations made by an expert on the basis of relevant and in-depth knowledge, sometimes having also undertaken additional analysis in conformity with best scientific practice, are made to the best of that expert's capabilities. It cannot however be guaranteed that the right questions have always been asked, that the expert was in possession of all the facts, or that the right methods have been used. While such caveats are inevitable, and there is always a risk of getting it wrong, it remains true that scientific advice is the most reliable, for the reasons already mentioned. However, it is clearly unacceptable if an expert's conclusions are influenced by political or economic pressures, or corruption of any kind. Hence the importance of maintaining a high level of ethical academic standards, the hall-mark of a reputable university.

Commitment of the university and its staff to service to society results in the **broadening of the university's portfolio of activities**. This can obviously lead to resistance in principle by some academics who consider that the university should limit itself to its basic teaching and research roles. Some may even

think that contract research with the private sector or even with the State will result in the universities selling their souls to the devil. Such a position is obviously difficult to defend, given the tacit convention which binds society and universities together. Universities educate and train those who work in the economy and in society, and enrich the knowledge of society, but these two missions, although essential, remain somewhat abstract, notably because the benefits which society and the economy derive are neither immediate nor direct. The university needs to be able to respond immediately to this demand for knowledge transfer, otherwise it will be seen as an ivory tower. In the same way that it would be difficult to accept that a doctor who was not on duty should refuse to treat somebody who was in urgent need of attention, society has difficulty accepting that a university, where so much knowledge is concentrated, should keep this exclusively for itself. The same could be said of firms: some are actively involved in supporting their local community, while others do very little.

The real problem lies elsewhere. The danger for universities and academics who engage in service to society is that the demand for this is practically endless. Such service to society also takes a lot of time and draws from the same pool of human resources which is in principle already fully employed. For an institution or an academic, investing time and energy in this activity invariably implies an additional workload and/or reduced involvement in teaching and research, which is neither desirable nor expected. This may explain why many members of the university community are hesitant to commit themselves to this new mission and say that they have neither the time nor the resources. The key issue is therefore the relative mix of these missions.

Recent developments

The setting of clear priorities for research and linking them to very large budgets should also be considered under the topic of service to society. These research programmes have two main goals: to find new solutions to grand societal challenges (climate,

energy, health, security, etc.) and to increase the competitive capacity of the country, on which the well-being of the entire population directly depends. It is true that research topics have traditionally been linked to these overall goals, even though the topics were chosen spontaneously by researchers without much apparent concern for their possible benefits to society or the economy. In the same way, many universities have had research policies - and teaching policies also - with these same goals in place for many years, with researchers across the university invited to pool their knowledge in order to work on such societal challenges. New teaching programmes have also been put in place as part of this same response.

However, the rapid increase in funding allocated to targeted research is in the process of changing this situation. While traditionally the topics of targeted programmes could mostly be found in the areas of applied research, and were of limited interest to the best researchers, today well-funded targeted research topics are of much greater scientific quality and provide real opportunities to make important advances as a result of pooling complementary resources. This is why growing numbers of excellent researchers now respond to these research calls. This can also clearly be seen as universities put increasing emphasis on their mission to provide service to society.

3 INTERNATIONALIZING HUMAN RESOURCES

The major changes described in Chapter 1 also have an impact on how universities manage their resources. In particular, they demand a pro-active approach to the internationalization of both main categories of human resources, i.e. students and staff, and academic staff in particular.

Internationalization of human resources

The **university** belongs to a category of institutions where the quality of human resources is paramount. These human resources must also be deployed where they can be of most benefit. A university may enjoy large, modern and well-equipped premises with generous budgets, but its reputation will not benefit unless it can attract high quality academic staff, effective leaders and efficient administrators, and well prepared, open and motivated students. In other words, it is mainly these human resources, whether academic staff, students, administrators or leaders which will ensure the quality and reputation of a university.

Many rapidly developing countries which are now prepared to invest considerable amounts in higher education and research have already discovered this the hard way. As a result of not having invested regularly in the sector in the past, they are usually obliged to assign most of the teaching to young graduates

or to relatively inexperienced holders of a masters degree. The teaching itself will be little more than average for as long as there are quantitative and qualitative shortcomings in the academic staff. It can take up to fifteen years to change this situation, even when applying very pro-active policies.

The goal of any university should be to ensure that its human resource profile corresponds to its mission and objectives. If these objectives are above all to serve the local community through providing professional education and through strong engagement in the life of that community, a large majority of students should come from that region or neighbouring regions, and the teaching staff should mainly be recruited at local and national levels. If, however, the university wishes to become a major player in teaching and research during a period of globalization, a national recruitment pool becomes completely insufficient. In order to achieve such a goal, the university needs to think and act at an international, even global, level. This means recruiting teachers and researchers exclusively on the basis of merit and how they fit the desired profile, irrespective of their current location or nationality. The university must also seek to attract excellent national and international students, particularly at masters and doctoral levels, since the quality of these programmes also depends on what students bring to them.

Internationalizing has therefore become an absolute necessity if a university is to establish and maintain a high quality reputation across its own continent and around the world. Important differences in attitude in this regard can nevertheless be observed from one country to another. While countries such as the USA, and in Europe notably the United Kingdom and Switzerland, recruit effectively at a global level, many large countries remain relatively protectionist in this field and continue to give strong preference to national candidates. This is notably the case in Germany regarding professors and students, and in France regarding professors. This may help explain why, despite the size and the economic power of these countries, their university rankings are not as good as one might imagine, compared to British or even Swiss universities.

Students

Admissions and recruitment policies are the main avenues for improving the quality and internationalization of the student body.

Admissions procedures

A standard set of admission rules and procedures normally exists across all universities in any one country. These are either prescribed through legislation or agreed by the universities. The key question is who decides these admission criteria. Are they based on an upper-secondary education qualification which gives automatic access to university? This is the situation in Switzerland where - with only a few exceptions - the holders of a *maturité* school-leaving certificate may register as a student in any Swiss university and in any subject. Alternatively, are these admission criteria put in place by the universities themselves, and do they evaluate students on the basis of standardized tests such as the Graduate Management Admission Test (GMAT), entrance exams, or other application processes, possibly accompanied by an interview? The procedure obviously varies according to level (bachelor, masters or doctorate). Some countries such as France have parallel and competing systems, where universities must admit all holders of a baccalaureate (school-leaving qualification, including professional baccalaureates), while the *Grandes Écoles* have a competitive admission process, for which candidates prepare during one or two years in special preparatory classes.

Whichever system is used, some form of selection needs to take place. If this does not happen at entry, then it takes place during the first years of study. Each system has its advantages and disadvantages. Selection at entry appears preferable from the universities' perspective, in that it allows them to define the profile of the desired student body and to set their admissions policies around this. For students, this also has the advantage of giving a better indication of their capacity to succeed than simply being the holder of a school-leaving qualification.

"Imagination is more important than knowledge. For knowledge is limited, whereas imagination embraces the entire world."

ALBERT EINSTEIN

There is an additional question which all universities need to ask. Can they really know the qualities that students ought to possess at the start of their studies, in order to become - within a few years - graduates of whom they can be proud and who will be successful in professional life? For scientific disciplines such as mathematics, and for certain specific careers such as teaching and research, this may well be the case. But it is not as obvious for most other university disciplines, in particular for the humanities and social sciences, including arts. Society today in fact needs graduates capable of addressing complex problems with freedom of thought and imagination, that is to say intelligent and cultivated people with a certain independence of spirit. These competences, which are as much the result of emotional as of rational intelligence, are much more difficult to measure than those in mathematics or science. This argues in favour of relatively flexible admission criteria, and suggests that universities should accord more importance than they currently do to personal qualities and to what psychologists call emotional intelligence[36]. They should be careful not to exclude too quickly those who do not meet a requirement considered as highly important, such as mathematics, but which may not be representative of all desired competences. A certain margin of error must therefore be accepted. It is also important to note that some young people reach personal and intellectual maturity later than others.

"Everyone says we need to leave a better planet for our children. Let's try to leave better children for our planet too!"

FOOZINE

The alternative is to select students during the early years of a full degree programme, on the basis of their capacity to complete that

programme. This reduces the risks associated with early selection, but also gives a false impression to the excessive number of students who have been admitted to the first year of a degree programme that they have the level required to succeed, when they might probably be better suited to a more professionally-oriented programme. In addition, this system is costly since the real number of students in the first (and second) years is inflated by those who will in all probability not survive to the end of the programme.

"Everyone is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing it is stupid."
ALBERT EINSTEIN

A rapid international comparison shows that the best universities worldwide are responsible for selecting their own students. The high-school leaving examination provides a reliable filter in this process, but can only partially show a student's aptitude for a university degree programme and for later becoming a graduate capable of reflection and action in a constantly changing world. There are therefore good reasons for universities to be responsible for setting admission standards at undergraduate level. For the masters and doctorate levels, selection is generally much easier, since it is based on the results a candidate has obtained during the bachelor degree, and is informed by the status of the institution which has awarded it.

Creating an international student body

A **highly internationalized student body** presents many advantages, which greatly outweigh the challenges which arise. The students' educational experience at university is mutually enriched through working with colleagues from different cultural and linguistic backgrounds, with different life experiences and different education and training pathways. University graduates are increasingly expected to work in an international environment, and it is therefore important that they be familiar with at least one foreign language. From the very beginning of their study programme they also need to encounter different ways of approaching a question and different cultural sensitivities, so that they do not fall into the trap of believing that

their own reference model is the only or best such model. It is true that internationalized classrooms also present a number of challenges, including greater variation in prior levels of education, communication and language difficulties, etc. Using such arguments to oppose greater internationalization would however find little support in today's world.

The international nature of the student cohort depends partly on the country's population, and can differ greatly depending on demographic trends, the attractiveness of the country and its immigration policies. It also depends on the policies of the university. Universities can behave neutrally in this area, accepting those foreign students who apply and meet the admission criteria. Alternatively, they can be pro-active and implement a determined, sometimes aggressive, policy to attract and admit foreign students. In order to do this, it is obviously an advantage to have a good reputation already. This encourages students from around the world to seek admission, not only in order to obtain a good education but also to hold a degree from a well-recognised, prestigious university. Less well-known universities must compensate for this disadvantage by taking steps to improve their marketing, including an attractive website, participating in student recruitment fairs around the world, using targeted advertising in the press and other media, providing information to the staff of other universities, etc. Masters and doctoral students are in principle the most sought after, the clear aim being to improve the average qualification levels of these student cohorts and to attract high potential early stage researchers who can form the next generation of academics. Some universities also seek to attract bachelor students, when there is a financial incentive to do so. However, these efforts all cost money, in terms of time and other expenses. In addition, in order to attract suitable applicants, it is often necessary to provide scholarships.

Finally, many universities, in particular those which are allowed to charge substantial student fees (often much higher for foreign than domestic students), organize very active recruitment campaigns. In

these cases, the main motivation may be financial rather than a multicultural student body.

An alternative to receiving international students at the university's home campus is to develop branch campuses in one or a number of foreign countries, where the population is young and the demand for university programmes is high. Cooperation or franchising agreements with foreign universities are also an alternative model, often used by universities from the English-speaking world, in particular American, English and Australian, sometimes through altruism but more often in order to increase income and facilitate the internationalization of the home campus. Not all such projects are successful however. Some universities have withdrawn from countries where they have failed to gain a foothold. It is worth noting that distance education, notably thanks to MOOCs, allows universities to provide quality education to disadvantaged regions, as practised for example by the Swiss Federal Institute of Technology in Lausanne.

Measuring the internationalization of a student body does not depend solely on those students who are registered for a full degree. The proportion of mobile students is also an important measure, i.e. welcoming students to spend one or two semesters away from their home university. The two European initiatives discussed in the preceding chapter - the Erasmus programme and the Bologna process - are both relevant here.

Appointing academic staff

The academic staff, composed of persons who both teach and undertake research, play a crucial role in the quality of a university. This is true not only because these staff members cover the three missions of the university, that is teaching, research and service to community, but also because they, in various ways, have a very large degree of freedom in their activities. The

"The recruitment of professors in leading universities resembles in many ways the recruitment of football players in the big clubs."
ANONYMOUS

quality of the university therefore depends directly on recruitment decisions made five, ten or even thirty years ago, and on the working conditions of these academic staff, which determine their commitment and their capacity to operate consistently at the highest level.

Thus the recruitment of academic staff, from the teaching or research assistant to the full time professor, always requires the greatest attention. Recruitment decisions have long-lasting effects, depending on the role being filled: several years for an assistant, and several decades for a professor. In general, the appointment of a professor will be valid until the end of her or his career. For the quality of the university, it is therefore essential to take the greatest possible care in the choice of each academic staff member. It is also important to be able to remove those who do not meet or who no longer meet expectations, while respecting the country's contractual and legal framework.

Defining the job description: a crucial step

The first important step in filling a vacant position is to define it carefully in advance. If it is a new position, this definition will already have taken place as part of preparing the project or the reform process, and will have been taken through a number of obligatory validation steps. In this situation, the process to identify the candidate who best meets the job description can begin, either through a competitive call for applications or by direct appointment.

Filling a position which becomes vacant following the departure of the previous holder is generally a more complex process. With due regard to the changes which have taken place since the position was previously filled, generally at least fifteen and possibly twenty-five years earlier, it is highly likely that the profile which corresponds best to the university's current requirements in term of missions and objectives is different to the profile of the outgoing staff member. The university is therefore likely to want to redefine the position.

Those who know the university world well also know however that any redefinition of a position is difficult enough in the

context of a department or an institute; it is even more difficult within a faculty or at university level since, in a system where positions are distributed between sub-units, as is usually the case, this redefinition implies the transfer of a budgeted position to another sub-unit. Changing the distribution of positions between departments and/or faculties is very difficult to achieve, and exceptional reasons are needed to justify this, such as mergers between faculties or universities, splitting a faculty into two, or the complete reorganization of the university's structure. Outside these rather extraordinary situations, changing the profile of a position and the budgetary reallocation this implies need to be prepared well in advance at both university and faculty levels, for example in the case of a strategic plan or, in the case of an unplanned departure, through a series of meetings and other personal contacts between the management levels of the university, the departments and/or institutes concerned.

While difficult, such steps are however vital in ensuring that the university is in a position to adapt to scientific developments and changing requirements. The decision-making procedures should therefore facilitate such change. One effective solution worth considering is to agree a rule whereby any position which becomes vacant is automatically added to a pool of vacant positions at the level of the university (or possibly faculty), and that a committee is created with the role of redefining the job profile of those positions most required at that particular moment.

Recruiting the "ideal" candidate: invitation to apply or open competition?

There are two very different methods which can be used to recruit for the vacant position: by **an invitation to appl**y or by **open competition**. Both of these have their advantages and disadvantages, and can favour the best as well as the most dubious intentions of interested members of the subdivision or the eventual appointee. An open competition is more transparent than an invitation to apply, but is not always as transparent as its supporters would like to believe. Its

transparency and efficiency in identifying the best candidate can be reduced in a number of ways: difficulty in describing the job profile and in the published job description; the risk that advertisements published in the press or specialized journals will not be seen by potentially interesting candidates, and the risk that the published job description, the choice of media used or the date and duration of the published announcement may be "manipulated" by those in charge, in order for example to attempt to favour an internal candidate by reducing possible external competition.

The invitation to apply, which is most often used for research staff, teaching assistants or junior teaching staff, as well as - in certain situations - for professors, is by definition less transparent since those responsible for recruiting to this position agree in advance which person they would like to recruit. This could just as well be an internal person whom they know well or an internationally-renowned academic whom the unit would like to attract in order to replace a highly respected professor or to develop a new field. The advantage of this sort of invitation is that it allows the targeted person - together with that person's knowledge and top-level competences - to be invited directly. Of course this method also means that the persons who issue this invitation need to be those who can best represent and put forward the arguments of the department or university.

"Mediocre departments tend to hire mediocre candidates, while highly-regarded departments seek to hire high-calibre candidates."

ANONYMOUS

In the case of an open competition, a large amount of work is required following the announcement of this competition, in order to identify the candidate who best meets the published job description. This work is in principle undertaken by a selection committee, which brings together representatives of the department that is recruiting and other experts, internal or external to the university. This is followed by a recommendation

from the relevant department and/or faculty, and then by appointment of the successful candidate by the university president or by the relevant government body. Experience shows however that this process can be somewhat chaotic, given strongly divergent opinions among the committee members or within the department regarding the preferred candidate. The discussion should be kept as scientific as possible, covering the scientific profiles of the different candidates when compared to what is needed for that unit's development. But the discussion can often by dominated by the hidden agendas of different players. One of the main battlegrounds is usually between those who wish to promote an internal candidate, and those who prefer an external appointment. A further reason can be a fear by certain members of that department that the newly-appointed person will draw attention away from them. A further strategy can be for a department member to promote a candidate likely to promote the visibility of that staff member's own work, in the hope that this will influence departmental discussions in favour of his or her own perspective. Such tensions can often lead to a poor working atmosphere in the recruitment process, or even bring it to a complete halt and weaken the academic unit.

Internationalizing recruitment

Whether the position is filled through an invitation to apply or an open competitive call, it is most important not to restrict the size of the potential recruitment pool, since the objective must really be to find one candidate from among the best and the most promising. As in the case of football players, this of necessity requires an international search when recruiting professors, which obviously does not rule out a national candidate also having a chance if she or he is very good. For more junior positions, the search is usually limited to local candidates, whatever their nationality, on condition that they have spent time in universities or research laboratories abroad. This also encourages the identification and training of the next generation of local academics, an additional important responsibility of the university.

It is not easy to find the right balance between local (national) and international recruitment. In the large countries of continental Europe, a relatively marked protectionist approach in favour of national candidates can be observed, while small countries, in particular those for which English has become the second university language, are much more inclined to recruit internationally. This trend can be so strong that the desire to internationalize sometimes appears to favour the selection of external candidates, with an unjust bias against the next generation of domestic academics. The strengths and weaknesses of local academics are well known, whereas in the case of external candidates there is sometimes a tendency only to focus on their strengths.

The importance of staff employment conditions

Another major factor in a university's capacity to change is the **nature of the staff employment contracts** it uses, and in particular their duration. As far as junior academics are concerned, the rule in general is that of fixed term contracts. For more senior academics, various forms of tenure are the most frequent practice in public universities. For example, in the same way as civil servants or other public sector employees, university employees may be assigned to positions for a certain number of years. This assignment may need to be renewed at the end of each term, however the renewal process is often little more than a formality. In other words, ceasing to employ somebody whose teaching quality or whose research quality and volume has been unsatisfactory is neither easy nor done frequently, unless a serious fault has been committed. This is a uniquely stable form of employment. It can be justified, but only partly, by the unusually long pathway which must be taken in order to develop the profile required for a senior academic position and the need to preserve academic independence. The biggest and most limiting inconvenience of this almost lifetime-employment practice is that it is nearly impossible for the university to replace academics whose performance is not satisfactory, until they reach retirement age. No private company could tolerate this type of situation. It is therefore hardly surprising that

business schools were the first to cease offering contracts of indefinite duration to their professors.

The next generation

As an institution of teaching and research, the university obviously has a priority interest in training the next generation of lecturers and researchers. This is possibly one of its most important responsibilities. It begins towards the end of the undergraduate degree, to encourage the best students to undertake a masters degree, in the same or another university, preferably abroad, and to try to track these promising graduates during their progression. The same is necessary towards the end of the masters cycle, to encourage the best students to undertake a doctorate; and for young PhD graduates, to encourage and guide them to continue their training, mainly through research but also, if possible, by teaching. Each university owes this effort to all its students, but also to science, and its responsibility in this respect is not limited to good guidance. The university must also ensure that its doctoral studies programmes are organized efficiently, to allow candidates to undertake research in good working conditions, and to show rapidly that they are capable of undertaking original research, either on their own or as part of a team. Particular care must be given to the supervision of doctoral students. Unfortunately, too many doctoral candidates are still left to themselves and waste a lot of time doing things which are of little benefit to their research, or get into a disagreement with their supervisor. These can have serious consequences for their work, and the time lost on such matters will put them at a considerable disadvantage when they compete with other PhD graduates who have been well supervised and supported.

The years which immediately follow the doctorate are often crucial. Beyond an understandable sense of fatigue, PhD graduates do not always find jobs or grants which allow them to continue their research, and need to cobble together a variety of solutions which allow them to survive while still following their main field of interest. This "traversing of the wilderness" can last many years, until they finally find a suitable job or abandon all hope of continuing with an academic career. The relative

stagnation of European universities today is the reason for the precarious situation of a growing number of young persons who would be well equipped to take up a teaching career, but who cannot do so because of the lack of any available position. In order to facilitate such people during this period, several countries have created a variety of systems of "next generation" bursaries which allow the beneficiaries to gain experience and enhance their résumés in acceptable financial circumstances or, for universities, to anticipate employing somebody who can then be confirmed once the position becomes vacant. These measures do not however solve the problem for many researchers who have a non-typical profile, for example those who finished their doctorate later because they also had other relevant responsibilities in parallel.

The international nature of the university

The work undertaken to attract overseas students and recruit foreign professors must also be accompanied by systematic internationalization efforts in all parts of the university. For example, the active use of English for teaching, especially at masters level, should become the norm in all disciplines where this makes sense, while at the same time ensuring that foreign students also learn the language of the country in which they are living, and domestic students are supportive of this approach. The option of writing a doctoral thesis in English, or in another language if the subject justifies this, should also be encouraged, notably in order to facilitate the participation of international experts in this process. Recommended readings and case studies to be discussed by the professors should also come from a range of different countries. University and faculty staff in contact with students should be able to communicate in English; likewise, the relevant websites and administrative forms should be available

"We don't like foreign professors because they have a different accent when they speak our language!"

ANONYMOUS

in English. A particular effort is required when welcoming foreign students, helping them to find somewhere to live, and to settle into their new environment and into the university. Finally, a sufficient number of scholarships and bursaries is also needed for excellent applicants who for financial reasons would otherwise be unable to come from abroad.

4 DEVELOPING A QUALITY CULTURE

Given that both financial and human resources are limited, it is most important that they be used as effectively as possible. Universities therefore need to develop a culture of working as well as they possibly can, in the best way possible, by establishing effective quality assurance systems.

Why develop a quality culture?

Public authorities, the business community and public opinion all expect universities to pay great attention to the quality of what they do. This is obviously in the best interest of the universities also. Surprisingly, the systematic use of specific university-wide quality assessment is relatively recent. This can perhaps be explained by the fact that for many years most universities considered that they did not need to be accountable to anyone, given their institutional autonomy and the academic freedom accorded to their staff.

Today however government authorities consider that they should have some oversight of university activities, in view of the considerable funding which they provide and students expect to have the right to evaluate their university and its teachers in view of the substantial opportunity cost of their

studies. Not to speak of university rectors and deans, who also appreciate modern management tools.

The change began a quarter of a century ago, first in North America, then in Europe where, in the middle of the 1990s, the former Association of European Universities (better known by its acronym, CRE) established an institutional evaluation programme to encourage and assist its members to pay greater attention to the quality of the services they provided. In Europe, the Bologna process added significant impetus to quality assurance developments following the 2003 ministerial conference in Berlin[37]. Encouraging student mobility means that each partner must be able to have confidence in the quality of its partner universities.

These initial quality assurance efforts mostly concerned teaching: are curricula up to date? Do they meet the needs of the labour market? Do they match the quality of their competitors? How is the quality of teaching evaluated by students?

The effectiveness of the university's governance and management was also evaluated, while the quality of research naturally received a lot of attention from the various research funding agencies. For university management, the success rate of research projects submitted by its staff is a good indicator of the quality of its researchers.

Given that the sudden growth in quality assurance initiatives came from many different types of actors, it is no surprise that the initiatives themselves came in many varied forms and were often revised, so much so that quality assurance could be characterized as having been in a period of adolescence[38]. The rest of the world and Europe are however fundamentally divided between two different types of quality assessment which, even though they have many points in common, differ importantly in their philosophy and in their potential to enhance the work of the university. These are **accreditation**, mainly the role of public authorities which require this of universities within their jurisdiction, and **evaluation**, which is mainly a process initiated

by the universities themselves because they themselves wish to improve.

Accreditation

Accreditation is a process by which an agency mandated by the public authorities agrees or not to the creation of a new university or teaching programme, or the continuation of an existing one. In principle, accreditation guarantees that new public or private teaching institutions satisfy minimum quality standards. In general, the accreditation agency itself sets the minimum standards which it will use to evaluate the universities and to reach its decision of "accredited", "accredited with conditions", or "not accredited". Universities need to engage actively with this process, given that they are obliged to prove that they meet these quality standards and as a result that they fulfil the accreditation requirements.

An accreditation process certainly encourages universities to make the necessary efforts to meet the required minimum standards. It can also be said however that this approach does not go far enough, since it does not really encourage universities to be rigorously self-critical, in order to encourage them to improve even further. It is however also possible that the accreditation process can lead the interested parties to demonstrate above all that what they are doing (or plan to do) works well, but to conceal possible weaknesses. Too much transparency in an accreditation process runs the risk of leading to a negative outcome.

This difficulty is at least partially alleviated when the accreditation process is designed to identify universities which satisfy higher standards or excellence criteria. The EQUIS39 accreditation process is an example of this, where the aim is to improve the overall quality of business schools. The requirements of the agency mean that obtaining EQUIS accreditation is very important for a business school. Likewise, a procedure very similar to accreditation, although not labelled as such, was begun some years ago in Germany and then in France, to identify excellent universities and research centres, with a

view to obtaining additional funding which would allow them to undertake new projects and to improve. These examples show that the accreditation process needs to allow excellence to be recognized (accreditation cum laude) in order to ensure that universities make a sustained and in-depth effort.

Evaluation

On the other hand, an evaluation process seeks directly to assist universities to improve. The institutional evaluation process begun twenty years ago by the CRE, which has since been developed further by the Institutional Evaluation Programme (IEP)[40] of the successor European University Association (EUA) is a good example. It is based on the use of university's own resources, by carefully examining how it functions and performs. It can therefore be seen as a supportive process, not a punitive one. The process is comprised of three steps.

In the first step, the university drafts a self-evaluation report, which should reflect in an honest manner how the university perceives itself. The university is invited implicitly to respond to four questions: 1) What are its mission and goals? 2) How is it trying to achieve them? 3) How does it know what is working well? and 4) how does the university change in order to improve? In addition, the university is invited to undertake a SWOT analysis, i.e. an analysis of its own strengths and weaknesses, as well as the opportunities and threats it is facing.

In step two, a peer evaluation team, composed mainly of university presidents or former presidents, visits the university for several days to meet a representative sample of all the groups which make up the university community (president's team, professors, researchers, students, administrators, etc.) and a number of university units. Based on its experience and knowledge of the university world, this team works hard to develop a shared opinion, by examining first and foremost if the university's policies are coherent with its mission and the goals it has set itself. There is no reference in this process to pre-determined criteria. The team then prepares a written

evaluation report, the main conclusions of which are presented verbally at the end of the on-site visit.

Unlike accreditation, there is no verdict at the end of the process, either in the form of accreditation or through the provision of additional financial support. This encourages universities themselves to be open about what they see as their weaknesses, which in turn facilitates the work of the expert peers who no longer need to seek out truths which the university is trying to hide, and allows the experts to go further in their recommendations. In principle, this process should be renewed every five to seven years. The serious nature of this process, managed by an association of universities, has been recognized by many ministries and national agencies, and several countries have used it to conduct evaluations of all their universities, and to prepare a report for each university and one overarching report for the national system. A number of national agencies have developed evaluation procedures for their own universities based on a similar methodology.

Furthermore, many universities have developed internal evaluation models for their faculties and even departments, either as early movers or by following this model. This has been undertaken at their own initiative, for example by the University of Geneva as long ago as in 1993, and by the University of Lausanne in the last seven years, or in particular by the Irish universities in order to meet national requirements. The methodology and the steps involved are essentially the same as for an institutional evaluation. The unit (faculty, etc.) is invited to draft a self-evaluation report which will serve as a baseline document for an expert team which visits for several days and prepares a report. The only noticeable difference is that it is the university leadership (university leadership plus national agency in the case of Ireland) who monitors the process to ensure that the necessary follow-up also takes place. This method involving internal units is probably the best way to raise awareness regarding the pursuit of quality, deep within each part of the university.

Given the real risk that many universities may neglect or delay such internal efforts to improve their quality, national agencies generally undertake audits of these internal evaluation processes, in order to assure themselves that such processes exist and are properly implemented. Experience shows that it is always useful to check whether such responsibilities are taken seriously.

In addition, it should be noted that universities can also seek to understand how they compare with their partners and competitors. This benchmarking is undertaken by comparing one's own university systematically with one or two others of a similar profile and whose performance is more or less at the same level. Such comparative exercises can examine objectives, strategies, resources, costs, results, strengths and weaknesses.

Follow-up

The various initiatives mentioned above would not be worth much if there were no results. This appears obvious, but experience shows that unfortunately this is often the case, or that quality assurance has been undertaken in a superficial way. This problem is more likely to occur when an agency undertakes an institutional evaluation of the entire university, even if the university itself requested the evaluation. This obviously appears somewhat paradoxical, but there are several reasons for such behaviour. The most serious of these are the absence of will on the part of the university leadership, opposition or resistance by certain interested parties to undertake the changes which have been recommended, or even the lack of time or resources. The follow-up to any evaluation, which is guaranteed to identify areas for improvement, is an important responsibility of the university leadership. Unless it insists on this follow-up, nothing will happen. This is why an institutional evaluation process usually includes a follow-up visit after a few years, with the objective of discussing with the university what it has done with the recommendations and/or why it has not followed all of them.

The risk of this is reduced when the university has its own internal monitoring process for its constituent units. The leadership, which oversees the entire process, generally ensures that follow-up has taken place. In addition, in many countries the national quality assurance agency undertakes a regular audit of the universities' internal evaluation processes, the primary goal being to verify whether they are active and rigorous.

A REAL EXAMPLE NOT TO FOLLOW!

That of a university president who, in order to justify an initiative, quotes from the recommendations of international experts who visited his university, but whose report he has never distributed to his colleagues within the university!

Independently of the existence of an evaluation process overseen by a national accreditation agency, universities which take the challenge of quality improvement seriously find it very useful to submit themselves on a regular basis to a critical yet supportive external perspective. There are three possibilities in this regard, none of which is exclusive: request an external agency to undertake an institutional evaluation from time to time; benchmark themselves against other universities; or develop an internal evaluation process for units within the university subject to external peer review. These processes are useful for all universities, whatever their level, as they are based on an enhancement-led philosophy, building on self-evaluation and external feedback from a team of critical friends.

II

FUNDING, GOVERNANCE AND LEADERSHIP

5 BROADENING THE SOURCES OF FUNDING

Universities today are caught between the need to change radically to meet new challenges while at the same time seeking new funding to meet unavoidably rising costs. The ideal solution would obviously be to find new sources of funding, or broaden existing ones. This fifth chapter is devoted to this topic. If however the search for additional funding does not succeed, universities will be faced with serious choices:

- do what they can with whatever additional resources they can raise, or
- reallocate existing financial resources from areas which have become less important or are no longer strategic, in order to finance new priorities.

Accelerated modernization, a broader range of funding sources and the reallocation of existing resources all require a rational and efficient system of governance and enhanced leadership. These topics will be discussed in Chapters 6 and 7.

Facing up to negative trends

In the current dominant climate of austerity in Europe, North America and Japan, securing the necessary funding for universities requires plenty of creativity, determination and

perseverance on the part of the entire university community. While it is true that this has never been an easy job, during the period following the Second World War it was, on the whole, significantly easier than today. Current difficulties are the result of certain trends in expenditure, the poor state of public finances and - in Europe in particular - of the difficulty finding alternative sources of funding.

Expenditure

Higher education and research are faced with simultaneous increases in expenditure and in their underlying costs. On the one hand, the competitive environment requires considerable investment in scientific equipment and new teaching systems. These often need new buildings as well as more academic and technical staff. Some universities have tried to focus on their fields of excellence, and abandoned or passed on to others those academic disciplines which have performed less well or have become less important. Nevertheless, if one looks beyond very specialized or highly ranked institutions, comprehensive universities are better placed regarding the use of contemporary research and teaching methods, as the greater critical mass of these universities guarantees significant intellectual richness. It is important to emphasise however that it is not the number of students which should be maximized, but the number of academics and the size of the university's budget!

In the meantime, the underlying **unit cost** of university activities continues to increase. The main reason for this is that universities are particularly labour intensive. It has not been possible, at least so far, to replace human labour in universities by machines, as has been done in industrial production and in certain services. In the area of research, advancing the frontiers of knowledge has become extremely expensive, requiring multidisciplinary teams, specific research equipment and advanced information technology systems. These obviously all add to the increasing cost base.

The general trend in costs is less clear on the teaching side. The development of MOOCs will in due course result in the

transmission of knowledge being increasingly done over the internet, which will in turn reduce the load on lecturers. However, the multiplication of MOOCs will bring downward pressure on the teaching staff, as a great part of the pure transmission of knowledge will be done through the internet. By contrast, there is a marked tendency in many countries to consider that university education is not complete until the masters level is achieved. This increases the average length of studies and obviously also their cost. In the same way, the emphasis on student learning requires the development of small group seminars and practical work, which is obviously more expensive than large lectures delivered to groups of 500 or 1000 students, as can still be found in some European universities.

Income

On the income side, State funding - by far the largest source of university income in Europe - has stalled, and has had difficulty keeping pace with the needs of universities, or has not kept pace at all. The reasons outlined in Chapter 1 are both contingent (the on-going banking and financial crisis of 2008) and structural, given the strong competition from other sectors which also need State support. Above all, political and even business leaders often show a lack of foresight and awareness of the extraordinary importance of knowledge in today's economy and society. The result is that universities in many countries are facing severe budget restrictions, which is obviously damaging for the country as a whole, at a time when knowledge has become a crucial factor of production, as important as labour and capital, if not more so and when we are faced with global competition and a growing number of challenges which threaten our well-being.

Considered analytically, university funding is really very simple. Funding can come from only two sources: the public sector, or the private sector (households, the business world and not-

"No snowflake in an avalanche ever feels responsible."
VOLTAIRE

for-profit organisations). The public sector can only fund itself from compulsory tax revenues or borrowings from the private sector. The possible sources of funding for universities are thus not very diverse.

The obvious strategy for a **public university** is therefore straightforward:

- **seek to obtain the largest possible share of State income** from household and private sector taxation, and
- supplement this public funding stream **by seeking extra revenue from those same households and the business sector**.

A **private university** however should ensure that it can sell its products (teaching and, where relevant, research) on the higher education and research market, while at the same time trying to obtain as many subsidies as possible from the public sector, as well as additional income from households and the business sector.

We will now examine the situation regarding **public universities** in greater detail.

Strategy for public financing

Public sector responsibility

Public sector contributions to higher education and research are a matter of public responsibility, for at least two reasons.

First, the improved well-being to which most people aspire is not simply material or linked to economic growth; it depends also on **intangible values** such as respect for fundamental human rights, liberty, tolerance, security and justice. It is especially important to remember this at a time when economic and financial issues in particular play such a prominent role in the short term. These intangible values must therefore be given an important place in the hierarchy of higher education and research goals. Although higher education is an excellent investment for those students who benefit from it, their

contribution to the development and transmission of these intangible values should be covered by society.

> **"If you think that education is expensive, you should try ignorance."**
> ABRAHAM LINCOLN

The **second** reason is that higher education and research are services of a very particular type, in that they have important **spillover effects** (positive externalities). By this, economists mean that all inhabitants benefit from university graduates, whether they have been to university or not, since it is preferable for everybody to live in a well-educated society. For this reason, it would be a mistake and also unfair if students had to pay the full cost of their university education themselves.

This spillover effect is even greater where basic research is concerned, since the results are published in scientific journals and are therefore accessible across the entire world. Given that researchers cannot keep the results of this basic research for themselves, it should therefore be funded through public or philanthropic sources. The case for applied research and development is obviously different, since the companies which finance it own any outputs which may result from it.

Reminding people frequently of this reality is therefore the responsibility of universities, collectively or individually, and of all organisations which understand the importance of knowledge in a modern society. A quick glance across different world regions shows wide variation in the importance attached to this public responsibility and to its spillover effects. Higher education is funded on a mainly private basis in the United States and in certain Asian countries such as South Korea, while the opposite is true in Europe. This means that students (and their families) bear the cost of higher education's contribution to the development of intangible societal values. In these countries, research - including basic research - also benefits from private financial support from foundations, private donors and partnerships. This reflects the high level of willingness on the part of households and private organisations to fund research,

even though they are aware they will not be able to own all the results. They nevertheless contribute funding, as they are aware of the intangible benefits which basic research can bring to society as a whole.

Public funding criteria

In addition to the quantum of funding, the way in which public funding is allocated, i.e. the criteria used to determine the funding needs of each university, also affects the efficiency of the system, since universities will naturally prioritise certain activities if it is in their interest to do so. The perspectives of the State and the universities obviously diverge on this matter. Universities prefer lump sum budget allocations, which are not linked to any outcome or performance criteria, while governments prefer precise criteria, in principle linked to services provided by universities, such as the number of students and/or the number of degrees awarded. A number of variants can also be used, for example where allocations are fixed from year to year for each university, or where the State decides on an overall funding envelope for a number of years, which is then shared among universities based on, for example, the number of students. In principle it is preferable if the criteria used are outcomes-based (production) rather than inputs-based (resources). This can link funding to the achievement of objectives within the framework of a performance contract signed off by both the university and the public authorities. Over and above the advantages of such a contract, which provides financial rewards for results, there are also some risks attached to this method of funding, notably the risk that for financial reasons a university will lower its standards in order to increase student numbers.

It should be noted that the public sector can also provide indirect funding for universities, by giving **study vouchers** to young persons of university age. These vouchers can then be used in any educational institution to pay tuition fees. This provides an alternative and novel source of funding for universities, putting them into a situation of direct competition with each other, since

their funding depends directly on the students' choice of university. While the principles of this alternative funding system are attractive, it has not developed to the extent expected.

"The surest way for a university to get into financial difficulty is for most of the research proposals made by its members to be accepted!"
HOWARD NEWBY

To speak of the State as if it were a single entity is misleading. Even in strongly centralised countries, regional authorities are keen to have good universities, as these are important for the development of their region. Regional or local authorities therefore often contribute funding, although usually only a modest amount. The responsibility of regional authorities is more in evidence in countries organised in a federal system, since the cantons or states which make up the federal State are in principle responsible for the entire education system in that region, and they therefore provide an important share of funding for the universities. However, given that part of the value created by a university flows to other regions, there is a significant risk that one canton or state will not contribute as much as it would be prepared to contribute if only its own population benefited from the university. This explains why the federal State also contributes to the funding of regional universities. In such a situation, universities need to make sure they work effectively with the authorities at each different level.

The situation is somewhat different as regards basic research. The results of such research are public, cannot be appropriated, and the spillover effect is maximised. Irrespective of whether the country is organised on a centralised or federal basis, this is why funding for basic research should be provided by the central State, by a supranational political organisation such as the European Union, or by philanthropic foundations or donors.

In reality however universities also contribute strongly to the funding of research, by providing the infrastructure and equipment and by making researchers available, notably those who initiate the research and those who are responsible for doing

it. This is why a proportion of research funding should be included as part of the university's core budget. However, a consequence of the important indirect role played by the universities is to conceal the real cost of research. The staff, equipment and other costs included in a research project represent the additional costs needed to successfully complete the project, but rarely include the resources made available by the university itself. As a consequence, the financial position of universities which are successful in obtaining such projects deteriorates further, since the general costs incurred by the university are not, or not sufficiently, taken into account in the project funding. This is a very disadvantageous situation for research-intensive universities, and explains why they are currently engaged in serious lobbying of research councils, foundations and other partners, seeking to include overhead costs of around fifty to sixty per cent to cover the additional cost of undertaking such research.

Lobbying is essential

Many players share the responsibility of ensuring that the importance of higher education and research for the economy and for a knowledge society is recognised. Universities are however best placed to raise this awareness, since they are directly concerned and especially aware of what is at stake. Universities and their associations (rectors' conferences, etc.) as well as other bodies which promote science (academies of arts and sciences) **need to be active in their communication and lobbying of stakeholders**, to convince them of the importance of science and universities in today's world.

The arguments used in these campaigns need to show that university teaching and research are indispensable to improving the quality of life and intangible well-being, as well as helping to confront great societal challenges. Not recognising this would be dangerously short-sighted, especially given that higher education and research are particularly vulnerable and that it can take some time for the negative consequences to become apparent.

In defence of the public authorities and the general public, it should be recognised that it is difficult to understand why higher education and research merit particular support. It is not always easy to understand the way a researcher works, especially since results can be inconclusive and in any case not immediate, since it takes time for a new discovery to be exploited, if indeed there has been a new discovery. In addition, it is not easy for universities to prove that no funds were wasted, given that the research process inevitably involves trial and error.

Universities must also take great care to avoid all signs of arrogance, give the impression that they are automatically entitled to support, or that they are unaccountable. At a time of enhanced transparency, this is more important than ever. Universities would also be mistaken if they believed that the institutional autonomy, which they so rightly claim, allows them to avoid reporting on their activities, notably what they do with the considerable sums they receive to fulfil their societal functions. A happy medium needs to be found between the State's temptation to interfere directly in the management of universities, and the universities' tendency to consider many of their activities as more or less confidential. The first step is to improve the dialogue between the political authorities and State funded universities. Another instrument which also works well is a contract or compact, in which both parties agree on the objectives to which the university will aim and the resources which the State will provide over a four or five year period.

Lastly, despite the universities' belief in their own utility and the importance of what they do, they would be badly mistaken if they did not see (or pretended not to see) that governments and parliaments have budgetary rules which they must respect and also balance the funding provided for a range of public functions. For this reason, universities must search for alternative sources from households and the private sector. Such steps require strong commitment by the university leadership and the entire hierarchy. This also means doing away with prejudices and sometimes dogmatic resistance.

Strategy for private funding

As already mentioned, **private funding** is the only alternative to public funding. Some sources, such as tuition fees, are specifically linked to teaching. Others, such as philanthropy and partnerships, can be linked to both research and some types of teaching.

Tuition fees

Attitudes to tuition fees differ hugely across different regions of the world. They represent a source of considerable income in the United States and many Asian countries. In Europe however, with the main exception of England, they are viewed in a very poor light or even forbidden, and as a consequence remain very low or non-existent. However, charging tuition fees is not only justified, but is potentially an important way to finance the necessary modernisation of universities, so that they can continue the crucial role they have played for centuries in providing higher education and basic research. The real problem is not whether charging fees is justified or otherwise; it is the level of these fees and the compensatory measures which are needed to ensure that they are not a barrier to higher learning for students from low-income families.

The recognised advantages of a system of tuition fees are the following:

- They represent a **non-negligible funding stream** since they can easily provide 5-10% or more of a university's income. However, introducing or increasing tuition fees can lead governments to reduce simultaneously their own direct contributions. This should obviously be avoided by coordinating the initiative with the relevant governments, for example via a contract or compact.
- They also encourage the **efficiency** of the higher education system, although only moderately. Students who pay high fees are motivated to progress through their studies more rapidly (or at any rate not waste time); paying high fees also gives the student voice greater weight in

demanding that the university should provide quality services.

- Contrary to strongly held views, it is not the existence of tuition fees but rather **their absence which is inequitable from the point of view of social justice**. There are three reasons for this:
    - Despite major efforts undertaken in most countries to democratise access to higher education, a majority of students continue to come from the middle, upper-middle and higher income population categories, who themselves are most likely to have benefited from higher education. The advantages which they gain from their studies will thus continue this societal divide although of course one should not make the mistake of believing that higher education is the only path to a successful professional career and to a prosperous and contented lifestyle.
    - For a very large majority of students, obtaining a higher education qualification is a **good investment**, since over the course of their lives their income differential and quality of employment will be higher than those who are not university graduates, and in particular those with no qualifications of any kind.
    - The **employability** of a graduate remains higher throughout his or her professional life, and even afterwards, and thus the risk of becoming long-term unemployed is lower.

These three reasons provide ample justification for future graduates to pay a direct contribution towards the service from which they benefit, as well as the indirect contribution which they (or their families) pay through taxation. This is all the more true, as those who have not benefited from years of higher education are not exempt from taxation, or at least not from indirect taxation such as VAT, even if they live in very modest circumstances. There is an obvious redistribution effect here

operating counter to the policy intention and to what is practised by the State in terms of distributive justice. It also runs counter to the wishes of those who defend the concept of free higher education for all.

The real problem with tuition fees is not their unfairness, but the risk that deserving students will not be able to access higher education because they cannot afford it. These costs are much higher than simply the tuition fees, and are comprised of three elements: subsistence and study costs; the opportunity cost of having to give up paid employment partially or completely; and tuition fees, where applicable.

As can be seen, although much argued over, tuition fees are only one of the three types of cost associated with studying and which students and/or their families must cover. For this reason, in order for access to higher education to be possible for all students, a generous and efficient system of financial aid, reserved for those who are unable to cover all the costs, must be put in place. This can include partial or full exemption from tuition fees, student grants and loans where repayment is income-contingent. Given the importance of higher education for both individuals and society, it is essential that there should be no barriers to university studies for those who have the potential to succeed but who might not have the means to cover the associated costs.

Regarding those students who take a course or even an entire university degree simply for the purpose of self-improvement, this can be compared to a leisure activity similar to going to the theatre or visiting an exhibition. It is therefore normal that such students should pay for this service.

Care is needed however. If tuition fees can be justified for reasons of both equity and efficiency, the use of these must not be abused. Charging fees of some $ 50,000 per annum, as is the case in several private American universities, is unreasonable on two counts:

- A university education does not only benefit the graduate, but also **contributes to the well-being of society as a whole**. It is therefore wrong to insist that the person who makes this

personal investment should also pay for the broader positive outcomes for society.

- If tuition fees are set at a level which covers all the costs, there is a much greater risk that whatever financial aid is available will not be sufficient, and that many deserving students will not be able to access the university. In this case, student income rather than competence would become the main admission criterion. This would be unacceptable from the perspective of social equity, and would be damaging for society whose level of well-being depends on the best use of all its human resources.

The alternative, of taking out a loan to finance one's studies at a good university, is also a possible short-term solution. However, it often has undesirable consequences in the longer term, since when students graduate they are highly indebted, at the very moment when they are starting their career and may have difficulty finding their first paid employment. A solution to this, used in New Zealand, in Australia and now also in England, is currently receiving a lot of attention. It removes any requirement for up-front payments for those students who cannot or do not wish to pay tuition fees during their studies, but obliges them to start repaying once their income has reached a certain level. This is however difficult to apply in a country which has a large foreign population, as there is a high risk that these students will work abroad once they have graduated.

In summary, not charging tuition fees can be seen as ignoring a supplementary and justifiable source of additional funding. This source is however limited, in the same way as are all funding streams. For this reason, universities would be well advised to put in place explicit strategies to raise funds from various philanthropic and business interests.

Philanthropy

For universities, the **search for donors must be planned strategically**. Philanthropy comes in different forms: foundations created by a donor or an enterprise, in principle to finance research in a precise field; donors giving all or part of

their wealth to finance a project (building, equipment, etc.); alumni prepared to make a financial commitment to their alma mater; or companies that contribute, without demanding anything in return, to the funding of a university project. Philanthropy can also contribute to an endowment or capital fund, the income from which is used to fund university projects.

Philanthropy is **extremely developed in the United States**. In 2014 no less than $37 billion in gifts were received by American universities from their alumni, companies and foundations, the record being held by Harvard University with $1.16 billion[41]. Given that nothing on this scale exists yet in Europe, fundraising from philanthropy offers huge potential.

One of the keys to developing philanthropy in its different facets is **by encouragement**. How does one motivate private individuals with significant wealth or income to give all or part of this, depending on whether they have heirs, while alive or as part of their will, directly to universities or research or other projects, or indirectly via foundations whose purpose is to support higher education and research? The same question applies to companies often in possession of significant liquidities, that can be used by universities without any restrictive conditions.

Encouraging such philanthropy is based on two main lines of action. **Firstly**, significant preparatory work is required to identify potential donors, to contact and then convince them. Not only does this imply a good knowledge of the country's "who's who", it also means that a senior leader of the university, in principle the president, or a dean or professor responsible for a particular project, must also be able to approach potential donors, to meet and convince them that their support is necessary for an important project to succeed, and that this support would be particularly valued.

The **second** line of action, beyond the potential donor's desire to make an essential contribution to a piece of research, is that the donor must also find it financially worthwhile and also receive some visibility for making a substantial gift to the university. The best incentive here is the possibility for donations - made to a non-

profit public-interest foundation or directly to a university - to be tax deductible from either income or profits, thus reducing the donor's overall tax bill. Some tax systems, such as in the United States, are very generous in this respect. This encourages donors to give to a specific university project rather than pay tax without knowing what their money will be used for. But many countries in Europe, apart from France, are very restrictive in this regard, and the State remains very sensitive to the loss of tax revenues which this implies, while universities already absorb significant public funds. The university sector must therefore develop convincing arguments to encourage governments and parliaments to ensure an advantageous tax regime for donors to higher education and research: i.e. the short-term loss for the State is more than compensated in the medium- and long-term by the positive impact on economic growth and national well-being.

In many cases, but not always, money from a donor comes via a **foundation**. Many well-off people, particularly if they do not have any heirs, have planned for a foundation to be created when they die. Others do this earlier because they are in a position to do so and because they consider the money can be disbursed usefully. The same is true for companies. One frequently observed problem is that the objectives of these foundations may be too narrowly defined, which several years or decades later can prevent the available funds from being spent. In addition, some universities create their own foundations, into which they channel fundraising income. In the best American universities, these endowment funds often reach astronomical dimensions, with several billion dollars under their management, while in Europe most universities are happy with a few dozen million euros at best.

While direct donations by wealthy individuals to a university are generally managed by that university to finance its projects, a foundation needs to have an organisational structure in place to manage its wealth and allocate the available funds. The size of this structure depends on the overall assets and the amounts available for disbursement each year. Beyond good financial management, which implies good investment policies, the main

issue is the choice of beneficiaries who will receive grants in line with the foundation's objectives.

Consultancy

Universities, usually through the direct involvement of their teaching and research staff, are also happy to provide consultancy services to a range of organisations, such as companies, government bodies and international organisations. The initiative generally comes from a body which wishes to engage a university or more precisely one of its better known staff members, to undertake a piece of work which the commissioning organisation itself cannot do. This often involves an expert report on a complex topic requiring a very high level of knowledge, for example in law, earth sciences, civil engineering, economics or finance. It can also come in the form of a request to undertake a piece of research in order to develop a new product or service, or a new procedure. The company or the commissioning organisation pays an agreed amount for this service, which should cover, at a minimum, the staff time involved and any consumables used. However, the general overhead costs which are not directly linked to the contract, such as the buildings and equipment, basic on-site services and supplies, legal and accounting services are often not taken sufficiently into account, usually because they are considered to be largely sunk costs which the university has already met anyway. But capacity is not infinite and such costs can spiral quickly. These are higher than generally thought. The consequence of this is that undertaking such consultancy work can prove costly for the university, which initially thought it would be able to generate some additional funds from this activity to cover other expenses.

Partnerships

Recent research developments or the need for a course on new or developing professional practices are good reasons for the creation of partnerships, by which companies and universities pool their resources in order to reach a common goal. This form of relationship is well established and can be found frequently in

the United States, but has developed more slowly in Europe. Conservative university groups fear that these partnerships detract from the basic research which should be the university's priority task, or worse that researchers will relax their ethical standards to produce results which please the commercial interests of their partners. While such risks do exist, they in no way justify the vilification of such collaboration with the private sector, as still happens in many countries and in many universities. Such attitudes show that the university does not trust its members to respect university values. Drawing up good practice guides and ensuring these are used will greatly reduce any inherent risks. Furthermore, partnership with an industry which is very advanced in a particular field of research, as is often the case in new technologies or in pharmaceuticals, will bring as many mutual benefits both to university staff and to people working in that particular industry. Teaching and research at the university are also brought closer to concrete needs of society.

Other resources

Another source of funding which is insufficiently developed in Europe is the **filing of patents** for innovations. The practice in those countries which do this systematically shows that, without necessarily bringing in large sums, it would be a mistake for universities not to try to exploit this source of income. It is normal practice for the inventor to share the financial fruits of his or her invention with the university and the respective faculty or department; this revenue also permits him or her to take on additional staff and to purchase new equipment.

A similar situation occurs when a researcher is **awarded a substantial prize** for research excellence. In the best scenario, such a prize must be explicitly invested in furthering and developing research. Even if the prize is awarded with no conditions attached, most researchers spontaneously invest it in furthering their own research.

In addition, some universities have chosen to place a strong emphasis on **continuing education**, which can be of significant financial benefit in areas where there is strong potential

demand. In this case, there is no discussion on the issue of charging fees - sometimes substantial ones - for such programmes, mainly because these are often paid for by employers. Furthermore, since these programmes must be closely linked to practice, it is normal to find a relatively high proportion of experienced practitioners (maybe half) among the teaching staff. These persons are often delighted to teach at the university and for this to appear on their CV, and in many cases are prepared to participate in return for modest financial compensation. These programmes are therefore a useful source of additional revenue for the academic units which organise them.

Some universities also seek to make the **best use of their buildings** and other properties, especially when these are not being used for regular activities, by renting rooms or whole buildings or complexes to companies for their conferences. It should be noted that part of a European university's buildings, in particular all the lecture rooms, are under-utilised during at least four months of the year.

Funding modernisation: an important leadership responsibility

In conclusion, it is important to realise that no additional funding will become available unless this is actively sought. It will certainly not drop from the sky in the same way that public funding did, once upon a time! Even more so than in the past, fundraising from both public and private sources requires a lot of creativity, determination and perseverance. This responsibility lies with a range of actors within the university, notably the leaders, the faculty deans and heads of departments, institutes, and professors responsible for research and study programmes. All these persons must take the time needed to seek out the money which they require to fund the university generally, or their specific development, research and teaching projects. The university leaders are best placed to convince governments and parliaments, and to encourage potential donors to fund a large project (building, expensive equipment), or to contribute to the endowment fund. The deans, heads of departments and institutes, and professors leading particular projects are generally best placed to seek out funding necessary for a development project such as setting up a new institute or laboratory, starting a new masters programme, or building a new telescope. They are particularly motivated to work towards implementation of their own initiatives.

In a world marked by public austerity in almost all Western countries and Japan, as well as by a climate of intense competition, only those universities which succeed in continuously increasing their budget will be able to modernise themselves in the way that is required, and thus become major players in the fields of teaching and research.

6 RATIONALISING GOVERNANCE

Contrary to what one might imagine, and despite academic staff being so highly educated, universities are known to be conservative institutions and thus difficult to change. In a rapidly changing world, modernising the university requires both university governance and leadership to be much more rational and efficient than during the post-Second World War period of rapid expansion, as discussed earlier. This chapter on governance focuses on this double challenge, while the following chapter focuses on leadership.

> **"The world hates change, yet it is the only thing that has brought progress."**
> ATTRIBUTED TO CHARLES F. KETTERING AND PETER DRUCKER

Strategic or important decisions

Like in other institutions and companies, **thousands of decisions** are taken each day in a university. These decisions are mostly about students, academic and administrative staff, teaching programmes and methods, research, etc. Other important decisions are made concerning the university in its social and economic environment, the profile and qualifications

of its graduates, the relevance and quality of its research, the university's contribution to regional and national development, its collaboration with other universities, etc.

Most decisions taken in universities are routine decisions, even if they are very important for those concerned, such as the grade given to a master's dissertation. They are taken directly by the academic or administrative staff as part of the various roles they play, or by the heads of departments and other units.

Other decisions are of much greater consequence or strategic importance, i.e. they are likely to affect the quality of a department or even the entire university. The following are examples of **strategic decisions**, usually taken at the highest level:

- defining the university's mission, strategic goals and the funds needed to achieve them,
- setting priorities and a strategic action plan,
- organizing the university in faculties, departments, institutes or along other lines such as a matrix model,
- defining the decision-making bodies and their competences,
- making agreements with other institutions, aimed at developing research partnerships, organizing joint programmes, sharing responsibility for different teaching duties, or even taking over parts of another institution and merging,
- defining financial strategy, notably how to convince the State to commit resources, and making active and continuous efforts to obtain additional income from individuals, foundations and the private business sector.

The **faculties or departments** also take strategic decisions, or in any case important ones, such as:

- reviewing existing teaching programmes and creating new ones, modernizing pedagogical methods,

- defining the profile of a professor's position when this is created, or redefining it when a position is vacated,
- recruiting a professor or senior academic staff member.

Who should decide?

There is a wide range of **disparate players** who would like to have the authority to take important decisions. At one extreme can be found **the relevant state agency or government**, which in many countries is convinced that it should take important decisions because it represents the highest level of authority, and because it considers itself best qualified to do so. At the other extreme **can be found the professors**, who invoke the principle of academic freedom which they rightly enjoy insofar as the content of their teaching, their methods and their research are concerned, but whose claims of absolute freedom can often conflict with the overall goals of the faculty or the university. There are also the **faculties**, which in certain countries enjoy substantial autonomy from the university to which they are attached.

None of these extreme solutions is satisfactory for the governance of a university, given its complex role and responsibilities and the nature of its activities. In order to be in a position to respond effectively to whatever challenges arise, the governance of a research-intensive university needs to be based on three pillars: broad institutional autonomy, an institutional structure which respects the principles of federalism, and strong leadership supported and informed by intelligent and constructive advice.

The advantages of institutional autonomy

One of the main reasons for the success of most of the world's best universities is the **broad autonomy which they enjoy** from political control, from economic and financial influence and from religions or religious movements. A fully autonomous university is an institution which is free to choose the programmes it teaches, its

"Nose in, fingers out!"
FRANK RHODES

research topics, its teaching and research methods, its faculty and students. It is likewise free to organize itself as it sees best, to define its structures and decision-making processes, to manage its human, financial and property resources without constraints, and to enter into cooperation with other universities and organisations[42].

Societies and nations throughout the centuries have evolved through **alternating periods of brilliance and darkness**. By respecting intellectuals, artists, academics and the exchange of ideas, the periods of brilliance have also been periods of societal flourishing and social progress. By restricting debate and the discussion of ideas, the periods of darkness have been characterised by stagnation or retreat. Society has therefore much to gain by making sure that universities (along with all thinkers and creative individuals) enjoy a broad measure of autonomy. While universities naturally contribute to the knowledge society across a full range of disciplines, academic freedom and the autonomy of management also allow them to play their role as critical observers of society and its developments.

"One resists the invasion of armies; one does not resist the invasion of ideas."

VICTOR HUGO

In Europe, and particularly in Western Europe where the vast majority of universities are public, i.e. under the legal authority of the State and highly dependent on the State for funding, the principle of autonomy is understood today almost exclusively with regard to the State.

It was not always so. For centuries the Catholic church maintained strict control over its universities, in particular regarding the appointment of professors, the choice of teaching programmes, and the content of courses. It is perhaps no accident that this period is known as

"I detest your ideas, but I am ready to die for your right to express them."

VOLTAIRE

"The Dark Ages". It was succeeded by the Enlightenment and the role given to reason and scientific method changed European universities into institutions that nowadays search for truth through recognized scientific methods (rigorous and repeatable investigations and experiments). There is no place in the modern university for institutions which are driven above all by faith or which submit to unprovable ideas such as "creationism" or "intelligent design", or which teach sacred texts as though they were scientific fact.

Neither should the world of business intervene in university decisions. Universities maintain increasingly close relations with the economic world through partnerships, contracts and philanthropy, which can give rise to the risk of unwelcome influence. The most frequent such risk is that private partners might use a donation or a cooperation agreement to influence the decisions of the university, or seek to influence the results of a research project so that they correspond more closely to their economic interests or expectations.

The history of science is littered with cases where researchers have biased or falsified their results so that they align with the economic interests of the company or organization which funded (partially or fully) the research, but this seldom goes unnoticed by the scientific community for very long, and both the sponsor and the university researcher generally suffer an irreparable loss of reputation.

Economic partners who co-fund a large project may also impose conditions which lead to the restriction of academic freedom and institutional autonomy, such as placing people on a board responsible for nominating or choosing research fields.

In addition, research sponsors can also seek to delay research publications for several months in order to have the time to work out whether their company is in a position to gain any competitive advantage from the results.

Universities must therefore anticipate these different situations, by applying framework conditions which fix the terms of a

partnership, so that this respects their ethical values and principles.

The very broad autonomy claimed by research-intensive universities does not per se mean that these universities can do whatever they please with no regard for accountability. The tacit convention which binds them to society means they are obliged to advance knowledge by means of rigorous scientific research, and to transmit this new and proven knowledge to students, so that these students are as well-equipped as possible for their future work and in their lives as engaged citizens. In addition, particularly in the field of research, there are some topics which should not be explored, notably because ethical issues prevent this and/or because the research risks leading to an uncontrollable situation, such as human cloning or a computer being programmed so that it spontaneously improves itself.

For sensitive questions such as these, universities have ethics committees whose role is precisely to examine all research projects from the point of view of their ethical content and context, and to refuse those that do not respect them. Nevertheless, in the same way as for other sectors requiring public regulation or finance, the State - in its role as supervisory authority for public universities and as regulator for private universities - has the power to examine whether universities respect national and international legislation, regulations and ethical principles, and to intervene if this is not the case. In the university context, as in the economic and social contexts, all organisations are expected to self-regulate; this does not however free the State from its ultimate responsibility to ensure that the law, regulations and good practice are respected.

Likewise, university autonomy does not prevent the State from actively implementing **higher education and research policies**. This is achieved through the establishment of general policy objectives, the use of financial incentives or disincentives, legal requirements to influence the policies of each university, and so forth. The State can in this way establish the main priorities of its national higher education and research policy, while leaving

universities free to make their operative choices depending on their own objectives, profiles and various sources of funding.

Although the advantages of university autonomy have been clearly established, it is interesting to note that the political authorities in many countries have a habit of restricting this autonomy in many ways, or even to involve themselves in political micro-management, which is damaging for the universities. Such interventions may be passive ones, manifesting themselves in the form of administrative rules which convey the State's authority. Three examples can be given here: if the State is the owner of the university campus and buildings, and therefore is responsible for the upkeep and development of these properties, it has an extremely effective form of control over the university; if the State imposes on the university the same budgetary rules as on all other State bodies, such as not carrying forward financial surpluses at the end of the accounting period, even if the university context is entirely different, the State is in effect using a lever of control; thirdly, if the State chooses and has the final say in nominating the university president and/or professors, it is in danger of micro-managing the institution. Politicians (usually ministers for higher education and research, their senior officials or members of parliament) often think nothing of interfering in university appointments, the starting or closing down of academic programmes, or even the choice of IT equipment and software, and can even resort to political blackmail by linking the vote of their political group in an important parliamentary decision affecting the university to a concession by the university to their demands.

The reasons for such behaviour can be very varied. Some are convinced that they know better what is good for the university and how the university should conduct its business. Some desire to achieve very rapid and spectacular change during their period in political office. Some simply have a poor understanding of the university, what it is and how it operates. For the university, these unjustified political pressures are simply additional constraints which must be taken into account in order to avoid or

work around them. But all of this has a cost and requires additional effort. It can be observed that universities in almost all places work hard to counter these obstacles, which are often difficult to understand. This struggle can also however turn to frustration or passive submission, illustrated perfectly by the phrase "we are waiting for the Minister's decision". A large-scale survey undertaken by the EUA across the whole of Europe shows that the degree of autonomy varies significantly from one country to another, and that the restrictions to this autonomy likewise differ[43].

To conclude, it should be noted that the principle of university autonomy, born in Europe and reinforced each time it has been called into question by the political system, and which has also served American universities so well in the 20th century, does not appear to be understood in the same way in many Asian countries, even by leading universities which are climbing very rapidly in international rankings. In China for example, there are very close links between the universities and the communist party (the university secretary general is in principle an active member). In South Korea, excellent universities have been created and are still directly supported by large companies, which naturally also set out their main strategic orientations. As far as can be seen, these universities do not enjoy the same broad autonomy which is sought in the West. They do however benefit from much larger and rapidly increasing financial support; Chinese university income increased by 530% during the first decade of this century![44] This cannot be said of European or American public universities at the moment. Furthermore, the political or economic influences under which Asian universities operate are aimed much more clearly and explicitly at high performing universities which will contribute directly to their countries' economies[45]. In Europe, the lack of funding, bureaucratic burdens and rigidities as well as political micro-management all serve to limit such developments.

The challenge of university decision-making structures

Although the terms used to designate different university structures and substructures vary from one country and one university to another, the supply-side of most universities is organized along much the same lines:

- At the top we find the **university management** (or presidium) composed of the president, the vice-presidents and a board.
- At the next level down the university is divided into **faculties or schools**, where faculties are groups of related academic disciplines, and schools are groups of professionally oriented disciplines (school of medicine, business school) or discipline levels (bachelor level studies).
- The faculties or schools are then divided into **departments**, disciplinary groupings generally responsible for one or more teaching programmes and often also for research, and **institutes or laboratories**, which are regrouping academic and technical research staff.
- Finally, we find the **faculty**, and in particular the professors. Depending on the country and/or the university, some professors are holders of a chair, which gives them greater power to take initiatives, make decisions and access to more resources, compared to other professors or members of academic staff.

The decision making process in a university has never been a simple matter, and can even be a source of conflict, since differences in scientific and other interests can be important. Tension is often found between the university management and faculties or schools, or between departments and professors. Faculties and schools traditionally enjoy a large degree of autonomy in decision making and implementation regarding matters as important as teaching programmes, the choice of

research topics, the recruitment of junior academic staff and the nomination of candidates for the position of professor. In addition, individual professors enjoy a broad degree of academic freedom all of which makes it difficult for university leadership to undertake necessary reforms.

This decentralized management system has worked in a satisfactory manner for many years, but today it is under pressure as a result of other changes in the environment. There is the additional tendency that, depending on their history, size and leaders, faculties can sometimes become egocentric and protectionist. This likewise has damaging consequences for the university as a whole.

"People only accept change when necessary, and they only realise this necessity when in a crisis."

JEAN MONNET

One negative consequence is that such protectionist faculties prevent spontaneous inter-faculty collaboration. Many matters, often simple ones, are rightly decided upon at faculty level, but this may lead to faculties becoming like silos, where the only way to gain entry is from the top down. Another consequence is that faculties may decide to oppose proposals or even university management decisions, simply in order to support other faculties which are opposing these same proposals or decisions. Many universities suffer in this way from relative paralysis, resulting from a breakdown in relations between the university presidium and the faculty deans. Relations become difficult when defence of faculty interests takes precedence over the overall good of the university. This being said, the faculty deans encounter the same difficulties at their own level with their departments and professors.

Many private sector leaders have suggested that this situation is simply a question of hierarchy and authority. Their understanding is that since the members of the university management team are hierarchically superior, they should be empowered to take whatever decisions need to be taken, and indeed that it is their duty to do so. While this position is

understandable, it is important to realise that the reality in a university is different. The one major difference between universities, companies and the State is that no other industrial, commercial or public organization exists where so much professional and human competence is concentrated at the bottom of the hierarchical ladder, i.e. at the level of staff, especially academic staff and graduate students. In the university there are several hundred or possibly thousands of people capable of meeting the university's objectives in their respective fields of competence, without receiving any instructions from their superiors. These same people are also capable, up to a certain point, of coordinating their activities with other staff. It thus becomes obvious that a manager who tries to give strict instructions to this academic community will encounter enormous resistance and possibly also cause considerable unhelpful frustration.

The real challenge is to ensure that the interests of the teaching and research staff, while enjoying academic freedom and often boosted by the autonomy of the departments and faculties to which they belong, is aligned with the university's missions, goals and strategies. In the case of conflict, however, in the same way as in a company or for the State, the interests of the university as a whole should come before the particular interests of any university units or professors. At a time when the external context is changing rapidly, the university cannot afford to be paralysed by rhetorical games or the defence of special interests.

A comparison of university organizations in different parts of the world shows that a variety of systems have been put in place to solve this considerable challenge, i.e. to allow as much autonomy as possible at the bottom of the hierarchy, while still allowing the leadership to plan and implement the best possible strategy for the university as a whole. The evidence shows that some systems are more successful in this respect than others, and are better at allowing the university to adapt to change.

It is useful to compare existing systems from two perspectives: their ability to allow the best decisions to be made for the university as a whole, and to ensure the necessary level of flexibility in the face of change. Care should however be taken not to draw conclusions which are too rigid, as systems do not account for everything. The people who occupy the various positions in an organizational structure often play a more important role than the formal position which they hold in that structure. Having observed a great many universities, one conclusion seems to emerge: those universities whose organization would not at first glance appear to support effective decision making can sometimes operate well on condition that the principal players have decided that reform is in the interests of the university.

"Nothing will ever be attempted if all possible objections must be first overcome."

SAMUEL JOHNSON

Inversely, one can also find universities which appear to be well organized, but which in reality do not function as well as expected, because conflict between key protagonists is such that the university has become paralyzed.

Institutional decision-making: the virtues of a federalist approach?

This may come as a surprise to some, but federalism as[46] practised in Australia, Canada, Germany, Switzerland and the United States not only allows complex societies to function as Nation States, but also provides a model which universities can use to manage themselves better. Federalism allows for balanced State management by encouraging a maximum of decentralisation compatible with efficiency and equity. It is based on two concepts, the **principle of subsidiarity** and the **spillover effect**.

The **principle of subsidiarity** has been at the core of American and Swiss federalism for more than two centuries, and was rediscovered by the European Union when embodied in the

Maastricht Treaty in 1992. This principle claims that decisions should be taken at the level where the greatest proportion of people can be found who are directly concerned by these decisions. For a university, this means at the level of professors or, in certain cases, of chairs or departments.

This rule is perfectly valid as long as there is no **spillover effect**. Spillover occurs when the benefits (advantages) or the costs (disadvantages) of a decision affect a larger body or group of persons. When the spillover effect is significant, the decision should be taken at a higher level, if possible with the support of the relevant persons or units.

For example, if the teaching and/or research undertaken by a department is of poor quality, the university as a whole could benefit by using those resources in another department. Alternatively, it could be in the interests of the university to support an entirely new department focused on a rapidly developing discipline, such as for example bio-engineering or digital humanities. In both these cases however, the unit concerned is unable to take such a decision itself. In the first case, one cannot expect the unit to commit suicide. In the second, the unit has yet to be created.

The spillover effect imagined above is a question of economic efficiency. However, federalism also raises the question of equity. Since the purpose of federalism is to allow diversity to flourish while maintaining unity, **it is up to the community to establish the areas where unity takes precedence over diversity**. Just as the citizens of a federal State, in equivalent circumstances, have a right to equal treatment in some specific areas so, in a University community, members in defined equivalent circumstances also have a right to equal treatment. It is up to the University leadership to define the areas where the right to equal treatment is to apply and establish the appropriate centralized norms. This is for example the case if the university considers it important for admissions criteria to be identical across the entire university, irrespective of discipline. In contrast however, if the number of weekly class hours and seminars is considered to be a subsidiary question, the decision

can easily be left to the faculties and departments, according to the specifics of each of their disciplines.

What lessons can the university learn from this? Fundamentally, universities need to respect the principle of subsidiarity. In practical terms, this means that they should, in as far as is feasible, allow as much liberty as possible to academic staff and to departments or institutes in which these staff are grouped. Having been recruited through a competitive process for their expert knowledge of a subject, and their proven capacity to lead independent research and to teach, these people are not only the best placed but also the most motivated to develop their fields through both teaching and research, and to seek part of the necessary funding. In contrast, if the university leadership is aware of important spillover effects or if it insists that in a given situation all persons should be treated in the same way, it is the management's role to establish the relevant policy at central university level while delegating the execution thereof to subsidiary units if appropriate.

These principles underpin the job description of professors, the competences of departments, faculties, schools and of university management itself. Traditionally, almost all decisions concerning teaching and research have been taken by professors and their departments and/or faculties. It is the professors who define the teaching programmes and the course content, as well as the research topics and priorities. This can be justified since they are the ones who have an intimate knowledge of their disciplines and who are best qualified to identify interesting topics for the future. This decentralization also mirrors the way in which research takes place, i.e. independently and/or in the framework of a small team clustered around a professor.

In **summary**, before the major changes of today's world had any impact on universities, priorities were fixed *de facto* by department members, based on their competences and interests. These priority choices were usually carried forward over many years, since departments often sought to replace a departing colleague with somebody of the same or at least similar profile, in order to ensure continuity. It should be noted that broadening the

portfolio of topics covered was achieved mainly by adding new staff. As a consequence, strategic considerations based on a vision of the future and the objective analysis of the university's strengths and weaknesses was only undertaken at times when the university was in a position to expand. This strongly decentralized model, although not ideal, served the university relatively well as long as scientific and technical knowledge was not changing too rapidly, and budgets continued to increase regularly.

The new context requires more centralization!

The rapidly changing environment is altering the optimal decision-making level which has been in place for decades, if not centuries. Greater levels of centralization have now become indispensable.

"By following the road called "later", we arrive at a place called "never"."
SENECA

In short, the acceleration of scientific and technical progress, globalization and increasingly competitive context are all forcing universities to modernize more rapidly and more deeply than before. This requires:

- **Supplementary financial resources** to cover the additional cost of this modernization, and
- **Sufficient flexibility** in order to be able to change more rapidly.

The search for additional funding and flexibility both need a system of rational, efficient governance and strengthened leadership. These become even more important if the university's financial targets have not been

"The greatest danger in times of turbulence is not the turbulence; it is to act with yesterday's logic."
PETER DRUCKER

reached. The more disappointing the search for additional funding, the more the university must make its own internal reallocations in order to free up the resources it needs to achieve modernization.

This is a real challenge for traditionally conservative institutions such as universities. In reality it requires them to reduce or cease certain activities which may have existed for many years. This is however the urgent situation faced today by a majority of universities, with negative developmental and reputational consequences for all those unable to meet the challenge.

The reallocation of resources towards new priority areas requires in-depth knowledge of the university, an efficient governance system and effective leadership. In order for this to be undertaken in a rigorous manner, the university should seek to understand better its current situation by undertaking a SWOT analysis and some form of institutional evaluation. This is the best way for it to review, if necessary, its missions, strategic goals and the way it seeks to attain them. In light of this revisited strategy, the university can then re-evaluate the standing of all its teaching programmes, all vacant and temporary positions, and all budget lines (computer and IT systems, library, student and staff services, etc.). The objective of this work, which can take the form of a five-to-ten year strategic plan, is to identify posteriorities, i.e. fields which have become relatively less important over time, and which can therefore be reduced or even eliminated, or possibly transferred to another university as part of a cooperation agreement. The resources freed up in this way can be used to modernize the university and develop new priority areas.

Entire bookshelves have been filled with writings about "change", and the specialist literature in this area shows that the changes needed to modernize an institution are sometimes difficult, very difficult and even impossible to achieve. This is true of many institutions, and not just universities. Federalism is however useful in identifying the most important issue confronting universities, namely that sub-units are, by themselves, not capable

of taking the necessary steps to allow this resource reallocation. The moment such a decision gives rise to a situation where there are winners and losers, which is practically inevitable in the reallocation of resources, collegial agreement is very unlikely to be reached between the individuals or units directly concerned.

"If you want to make enemies, try to change something."
WOODROW WILSON

This means that a certain number of decisions, which during the period of strong budgetary growth following World War II could be left to the most decentralized university units, must now be taken by faculties or even, in many cases, at the highest level of the university. It is indeed difficult to imagine how a chair-holding professor, a department or even a faculty could willingly accept to lose key resources or disappear entirely. However, since the entire institution becomes affected by the negative spillover effects from this one unit's incapacity to see that its resources would be more productively used elsewhere, centralization comes before subsidiarity.

This partial transfer of decision-making powers from professors, departments and faculties to the university management cannot be taken for granted. The units will have difficulty accepting that they no longer have full decision-making power in their fields of competence, unless of course the decisions made meet their own personal objectives. They will therefore come up with a variety of arguments as to how important the threatened discipline is, and why it would be catastrophic for it to be reduced or removed. They will also seek to show that the persons who are now taking these decisions know nothing about the subject.

"In the choice between changing one's mind and proving there's no need to do so, most people get busy on the proof."
JOHN KENNETH GALBRAITH

"People don't resist change, they resist being changed."

PETER SENGE

"The biggest risk is not to take any."

GEENA DAVID

Furthermore, if the validity of such decisions is examined five or ten years later, it can be seen that the members of these units were not always wrong. So what should be done, given that the opposing points of view both carry some merit? In principle, the response is obvious: it is logical and rational for each decision to be taken at the level relevant to the nature of that decision. Having said this, it is also important that the person or persons and units concerned be listened to, so that their arguments against the proposed change can be heard. Once this has been done, it is the dean's or university leaders' job to take the decision in the best interests of the university.

Division of power among the university leadership

A **good division of responsibilities** at the different levels of the organization is necessary, but not sufficient. It is also essential for the bodies at each of these different levels to be efficient. We shall concentrate on the university leadership and the interface between the university and its main components, usually the faculties.

"When a boat is in a storm and there are rocks close by, it would be unusual for the boat to be steered by a committee."

JOHN PAUL GETTY

As with political institutions, university governance structures are generally composed of a management team and a council. The council is designed as a board of management representative of the entire community. It has an important function to oversee the president, and to counterbalance the president's power. These governance structures are supported by different committees, mainly of a

technical nature, which prepare decisions and facilitate their implementation.

The president and the leadership team

Power is essentially represented by the president and/or by a team (a presidium). In a common model, power is conferred on a single person – the president – who designates a certain number of vice-presidents. The latter assume a number of different responsibilities on behalf and under the authority of the president, in particular in such domains as teaching, research, human resources, buildings and equipment, strategic planning, budget and administration. Other areas of responsibility have appeared in recent years, notably internationalization and quality assurance. Even if these areas are managed mainly by vice-presidents, decision-making remains under the authority and responsibility of the president.

In another model responsibility is spread across the entire leadership team, in which the president occupies the position of "first among equals". In this alternative system the leadership functions as a team. In principle, decisions of a collegial management team are taken by majority, but the team is obviously much stronger if these are taken unanimously.

A further variation consists of responsibility being **shared between key persons**, for example a president with responsibility for representing the university externally and to ensure that it is well managed, and a rector who is responsible for academic affairs. Other variations also exist.

It is difficult to state which of these is best, independent of any context. They can all function well enough, if the persons in place so wish. This being said, the university is such a complex institution that it is advisable to place its management in the hands of a team composed of complementary personalities, both in terms of their scientific culture, their interest in university affairs and their personalities. Nothing can beat the analytical and pro-active capacity of an academic team which shares the same university values and with the interests of the university at

heart, but where each member brings different competences and experience to the team.

The Council

As with any business, it is desirable that the power of the president or of the presidium be shared in a sensible manner with a council, in order to ensure support, oversight, and if necessary counterbalance. The most important decisions, such as adopting a strategic plan, the budget, the creation or removal of university units, or collaboration with other universities are therefore taken jointly by the council, having been proposed by the president or presidium. There are many different principles which may underpin the council and which may subsequently affect its role, its composition and the nomination of its members. The way the council operates will depend on the following three questions:

- Is the council a representative body, along the lines of a country's democratic institutions? In this case the power, i.e. vested in the president or the presidium, is balanced by a democratically elected counterweight. In the university context, a minimum representation involves the following four constitutive elements: students, administrative and technical staff, non-tenured academic staff, and professors. On the other hand, if the council is inspired by the model of a board of management from the world of business, its main function will be to advise and support the presidium. Both these models involve decision-making powers. What distinguishes them however is the manner in which these decisions are taken. The council as representative body will seek to ensure a compromise between different visions and interests while the council as board of management will help the president, define the strategies, projects and solutions which are in the best interests of the university.
- Is the council **composed mainly of members of the university community**, possibly also including some

external persons, or alternatively is it composed of a majority or even exclusively of external members?

- Is the council a body which brings together a **large number of people**, with the aim of ensuring a good representation of diverging trends and interests, or alternatively is it a body with limited membership, designed to facilitate discussion and decision-making?

Based on these three parameters, legislators or universities - through their statutes - have designed very different bodies, some of which play a clear counter-balancing role to the power of the president, while others are designed to provide a support structure. While the terms "university council" or "assembly" suggest that they are democratic representative counter-balancing bodies, the term "board of management" indicates that it should be seen more as a support structure. However, by their composition and functions, certain university boards appear identical to the assemblies mentioned above. For example, in France, the university board has ultimate responsibility for numerous decisions, but also enjoys all the prerogatives of counter-power. In many public universities in the United States, the board is likewise a combination of a board of management and a representative university body.

This wide range of solutions shows that there is no most effective agreed way to ensure support and/or oversight of the president or presidium. Those whose job it is to define such systems should however remember that universities are more like a company than a parliament, a particular type of company based on a set of non-negotiable values. Furthermore, they should be aware that universities operate in an increasingly competitive environment which threatens their traditional position and that they therefore need to be able to take important decisions rapidly. This can be difficult or even sometimes impossible if the council sees its role as only a counter-balancing power.

The main reason for having a council is to assist the leadership team by ensuring that different points of view are considered, support the decision-making process and further the implementation of these decisions. At the same time, the council

must ensure that decisions are taken on the basis of sound arguments and evidence, and that the leadership team does not abuse its position of power. A council composed of external members will pursue these goals more robustly, and will certainly be much less ambiguous in this respect than a council composed solely of members of the university community, where some members will inevitably seek to defend their own personal interests. While certain democratic practices are necessary in the university decision-making process, they should not seek to mirror a government-parliament type relationship. Indeed, while democracy is the best known method at national level to reduce the risk of a majority imposing its rule and exploiting minorities, the challenge in a university is different. In this case, the priority is for teaching and research not only to be the best possible, but also for them to correspond to the current needs of the economy and of society. These tasks cannot be accomplished by majority decision-taking.

Other bodies

In an effort to enhance the decision-making capacity of universities, over the last couple of decades we have seen the creation of strategic advisory groups. In principle, these are composed of very experienced observers of university affairs, well respected persons from the economic and political spheres. They usually meet with the president's team twice or three times a year, to offer their advice. This body plays no other role than to offer its views, experience, analysis and recommendations to the management team. It can however play an important role in encouraging the president's team not simply to limit itself to managing the university, but also to remain pro-active.

Furthermore, the presidium may delegate the task of preparing many decisions to **internal technical committees**. The main areas of competence of such committees are the strategic plan, the budget, internationalization, quality, libraries and information systems, student affairs, etc.

"There is more enlightenment and wisdom in an assembly of many than in the mind of one."

ALEXIS DE TOCQUEVILLE

Although membership will vary depending on the topic, these committees are usually composed of representatives of the different faculties, the technical and administrative staff, as well as students where the topic relates to them. These committees play an important role in ensuring dialogue and exchange, allowing information to circulate and proposals and recommendations to be formulated.

In a number of countries and universities, the academic or professorial staff still meet as a **senate**. This body, which has decreased in importance in recent years, has mainly become a channel for the distribution of information. It does however provide an opportunity for the university leadership to explain its policies and listen to opinions regarding these.

Lastly, but by no means least, the manner in which the **presidium-deans relationship** is managed is crucial for the harmonious development of the university, and is probably the most difficult institutional challenge it faces. The increasing number of strategic decisions which need to be taken by the presidium will only reinforce this tension, unless there are systems in place to facilitate collaboration and help guarantee a sensible sharing of responsibilities. Here are a number of possible options:

- The presidium and the deans should meet very regularly to discuss the evolving context in which the university operates, the opportunities and threats afforded by these changes, the strategic plan, the budget and accounts, the main institution-wide policies, and specific projects which concern the university in general and the faculties in particular. It would however be unwise to give decision-making powers to this presidium-deans group, as this could result in deans having a blocking role.
- Deans should be nominated by the presidium, after having been proposed by the faculty. The presidium should have the right to veto a choice of dean made by the faculty. The aim is to ensure a high level of cohesion between the presidium and the deans. However, neither is easy to

implement, as it is rather delicate for the presidium to nominate somebody as dean if the faculty does not approve of this person, or to decide not to nominate somebody proposed by the faculty. In addition, in a situation where the views of the presidium and a faculty differ strongly, the dean - who has either been chosen or at least approved by the presidium – is likely to find her- or himself in a most uncomfortable position.

- A more radical solution is to have no faculties at all, but only a large number of departments (or schools), and for the various presidium members to be directly responsible for a number of broadly defined academic fields.

Administrative management

The management of the university (mainly administration of human resources, students, buildings and real estate, computer and information services, technical international relations issues and financial management) is clearly separate from teaching and research, but is essential to both. The same is true for the implementation of university policies (international relations, communication, research administration and knowledge transfer, fundraising, etc.), but in these areas the administrators work in close collaboration with the relevant members of the presidium.

"Rules are made for the mediocre and those who don't know what to do: nothing great can be achieved without imagination."

NAPOLEON BONAPARTE

"A large part of what we call management consists of making people's work complicated."

LOUIS ARMSTRONG

Probably the most frequently heard demand in universities is that administrators must **serve** the university leaders and the members of the academic community, in order to lighten the administrative load. Surprisingly, academics almost everywhere

complain that they are overburdened with administrative tasks and that the university administrators make this much worse by insisting on complicated and strict rules. This is clearly a problem. It goes without saying that the world is now a more complex place, and that this has resulted in more complex procedures. It is less obvious however why academic staff should have increased administrative workloads. Three of the most frequently heard explanations for this are: the online or computer-based nature of most administrative tasks means that the end user needs to do at least part of the work which used to be done by assistants and secretaries; administrative procedures are not optimal in terms of the information which is really required (in other words, they often request unnecessary or unobtainable information); and the rules are generally designed to avoid people subverting them, which inevitably means they are much more complicated than necessary. It should also be noted that in some cases university presidents have had to deal with situations where the administrators were taking important initiatives without having discussed these with the presidium, leading sooner or later to conflict.

"All work tends to expand to fill the time available."
CYRIL NORTHCOTE PARKINSON

This discussion shows not only that university administration is important, but also that it must above all be of service to the university and ensure its procedures are as flexible and non-bureaucratic as possible. Having said this, the university also needs to ensure that the academic community respects the rules which exist, as good organization is also important.

7 STRENGTHENING LEADERSHIP

In order for universities to be able to take difficult and sensitive decisions in a rapidly changing world, they not only need a rational and effective governance system, but also strong leadership capable of identifying the problems and following through with appropriate decisions. While this appears obvious, it is worth examining more closely the role of the president, the president's team, and the context in which they operate.

Role and profile of the president

The environment in which universities operate today means that the role of all university leaders (including presidents, vice-presidents, deans, heads of department or institutes, board members and professors) has become more complex. This new environment now requires a capacity for leadership and management. Fifty years ago, a president could quite happily get away with spending a few half-days per week in his or her office; the job has now become particularly intense and as a result the president needs to be completely committed. While in

"The possibilities are numerous once we decide to act and not react."
GEORGE BERNARD SHAW

the past it was usually reserved for a professor with a distinguished research record, the role now requires additional qualities. In addition to an in-depth knowledge of the university's functions and responsibilities, the president must also be capable of mastering the complex legal, financial and political issues it is facing. She or he also needs a good understanding of the human and sociological dynamics of the university population, to be skilled in influencing opinions and debating, and able to cope with being contradicted or even openly opposed.

In reality, few presidents possess all these qualities. An academic career may have allowed them to acquire a deep knowledge of the university world and to develop their independence and determination, but it will not really have prepared them for exercising leadership and making hard decisions. In the private sector, those in positions of high responsibility have already held other important managerial positions and have had the opportunity to attend appropriate up-grading management courses. In comparison, promotion to a position of responsibility in a university often comes quite suddenly, and the opportunities for training are rare. A new president will certainly have previously had to take part in various faculty or university committees, and will probably also have led a department or a faculty, and possibly even been vice-president. Nevertheless, moving from this level of responsibility to becoming the head of an institution of between 10,000 and 100,000 people (including students), and with a budget somewhere between 500 million to several billion, represents a huge jump in complexity.

"Management is doing things right; leadership is doing the right things."

PETER DRUCKER

Given this situation, it is worth asking the question whether it would not be preferable to recruit somebody who has already had a career in business and who is an experienced manager. While this would doubtless bring a number of advantages, there is a significant risk that those who might be interested in this challenge would not know the university context well enough.

Academics are experienced in the art of decision-making in the academic world and have developed this particular skill incrementally during the decades spent training up to doctoral level and beyond, and then through their teaching and research. Like all things, this needs to be learned and takes time. The person who arrives from outside, without knowing the university context, will probably want to change things too fast, and in too authoritarian a way, with the serious risk of alienating part of the academic community. A number of cases, notably in the United Kingdom, have demonstrated the difficulties of top private sector managers trying to integrate into a university setting.

Presidents must assume a number of internal and external responsibilities as part of their functions. Internally, they need to invest heavily in ensuring that the entire university community - including both academics and administrators - should work together for the good of the institution. Externally, they must explain over and over again that universities play a crucial role in a knowledge society and for this reason need financial support. They also need to explain that universities have their own form of organization, and their own unique way of doing things, and that wanting to interfere in their management is counter-productive.

"Leaders need to be close enough to relate to others, and far enough ahead to motivate them."
JOHN MAXWELL

Selection and mandate of president and vice-presidents

The selection of university leaders is a matter of great importance. Since recruitment remains an inexact science generally, a wide variety of selection procedures can be found from one country to another, and even from university to university. A first distinction may be made between election and appointment of the university president.

Election of the president

As with other university procedures, there are a number of ways in which a president can be elected. The entire university community can be called on to choose a president from among several candidates. The main difference from a political election is that the principle of "one person, one vote" is only partially respected, given that the number of votes for each of the different university communities is weighted. An alternative procedure is for the president to be elected by the university board or the academic council.

The identification of candidates prior to the election can also take place in a variety of ways. There can be an open call for candidates, or a search process can be put in place by a board sub-committee or by a designated search committee. The ensuing procedure, between the identification of the candidates to the time of the election, usually depends on the type of election which takes place. The candidates may be interviewed by the board, whose role it is to establish a suitable list, or they may be invited to attend a number of meetings at the university during which they will present their proposed programmes. It is sometimes the case that the council members whose job it is to elect the president have themselves only been elected or appointed shortly beforehand. In other situations, it is not only the president who is being elected, but also the council members who will lead the university with the president over the next four or five years.

Appointment of the president

There are fewer possible variations in the procedures for an appointment. The body with responsibility for this appointment usually begins its work by acting as a search committee, designating a number of its members to form a search committee, or by asking a recruitment agency to seek candidates and present an initial list. The selection of suitable candidates who meet the job description can itself be done in a number of ways, by a recruitment agency, an open call or through personal contacts. Those candidates with the strongest profiles are interviewed, and following agreement, the successful candidate

is appointed by the board. Before and after this appointment, a sub-committee of the board negotiates with the candidate/s regarding the terms and conditions of employment.

Length of mandate

The length of the president's mandate is usually four or five years. In some countries it is limited to five years, non-renewable. In others there is no restriction on the length, to allow a long-term perspective, while some allow for the mandate to be renewed. It is not possible to set out the optimal approach which will suit all situations. The optimal length of a president's mandate depends closely in fact on the success of his or her activity, and on the circumstances. Given these unknowns, one option is to fix the length of the mandate to four or five years, renewable, and to ensure that the nomination procedures are sufficiently open to allow other candidates to replace an incumbent who is not performing satisfactorily.

Choice of vice-presidents

The procedures for the choice of vice-presidents can likewise be very varied. Where there is an executive president, vice-presidents are appointed by the newly elected president; sometimes the university president and the entire presidential team are elected at the same time; sometimes vice-presidents are elected or appointed on the proposal of the newly elected president.

"The art of success consists in knowing how to surround yourself with the best."
JOHN FITZGERALD KENNEDY

The first of these variations gives the president the opportunity to build the team she or he wishes. The legitimacy of the vice-presidents depends closely however on the

"In looking for people to hire, you look for three qualities: integrity, intelligence and energy. And if you don't have the first, the other two will kill you."
WARREN BUFFET

president's reputation, which can become a sensitive issue if the president is in difficulty. In the second case, vice-presidents can draw on the legitimacy of their election, but there is a risk that some of them will have been elected as a counter-balance to the president, which can lead to potential conflicts. The third case appears to be the best balanced.

The ideal president?

Notwithstanding this short commentary, it is surprising that the procedures for the selection of the president and vice-presidents are so different from one university to another. This shows a clear national or even local approach to such matters. It is not easy however to say, based on the method of selection, who were the good presidents and who were disappointing. Apart from a small number of outstanding personalities who transformed their universities, the achievements of the majority of presidents during their four, eight or more years in office depended largely on the overall functioning of the university. Most presidents have managed their university, handled crises, and taken a certain number of initiatives, and the university overall has continued to evolve as it had done up to then and as it will probably continue to do under the next presidents. Irrespective of the method of selection and whether they were elected or appointed, presidents generally do the work they are expected to do, without having a dramatic impact on their university. While some of them have had to resign before the end of their mandate, it is rarely through incompetence, and more often through having committed an error, sometimes only of communication, during the management of a crisis.

It is probably more useful and interesting to look to the future, and to reflect on the profile of the ideal university president. In today's context, it is indispensable for the head of the university to adopt a well-planned strategic approach, that is to say to take initiatives, successfully implement a number of key projects, and make executive decisions regarding changes

"History will be kind to me, for I intend to write it."

WINSTON CHURCHILL

which are needed, without being blocked internally by excessively powerful and conservative counter-powers, by the faculties or simply by a climate of passive resistance. Such decisive presidential action is possible in many countries, notably in North America and some Asian countries but appears difficult to achieve in continental Europe, even over a decade. Nevertheless, there are cases where this has been possible. The Times Higher Education rankings of universities less than fifty years old[47] shows that a number of universities, including in Europe, have succeeded in becoming among the best in the world, thanks to their well-targeted and successfully-implemented policies. This does not occur by accident, but as a result of a deliberate strategy, led by the president and by a determined and wily university leadership.

An important conclusion to be drawn from the process of selecting a president is that it is essential that those persons who are responsible for this process should be well aware of the strategic challenges facing the university. Meeting these challenges should be part of the published job description and should feature largely when candidates are interviewed. The future university president should be made aware of what is expected of him or her before accepting the post. It is not however clear that current selection processes respect these criteria. For example, it is possible that an academic council may be unable to put aside its own interests or ideological positions completely. At the other extreme, a university board composed solely of people from the world of business or politics risks underestimating how difficult it is to effect change in a university environment. After all, there is no point in appointing a great visionary and strategist if this person has neither the people skills nor the persuasive ability to bring the university community on board. A president can only change a university if the university itself is ready for change and is asking to be led.

Preparing a strategic decision

A good president, or a good president's team, knows that there is a much greater chance of getting reforms or new policies adopted

if they have been prepared and explained meticulously before allowing emotionally charged and dogmatic debate to develop within the university community. Academics are generally willing to let themselves be convinced by good arguments. University leaders therefore need to prepare these well. Initiatives such as a SWOT analysis, evaluations of academic units and of the university by external experts, and the preparation of a strategic plan can all contribute to this.

It is also a good idea for the president to engage actively in meetings of national and international associations of university leaders. In Europe, some of these are the League of European Research Universities (LERU), the Coimbra Group, the Santander Group, the Network of Universities from the Capitals of Europe (UNICA), Global Tech - the Global Alliance of Technological Universities -, or the International Alliance of Research Universities (IARU). It is also important that the university president should participate personally, or delegate a vice-president, in international conferences such as those organized by the EUA or the International Association of Universities (IAU). These are ideal opportunities to learn about latest developments, to hear what is happening in other universities, and to identify potential partners with whom partnership agreements or other forms of collaboration can be developed[48].

Finally, it is strongly recommended that a small institutional research unit be created within the university, in order to monitor changes in the university and its environment. It may appear surprising that this should be needed in a university. In fact, even in an institution where research is its *raison d'être*, people are not sufficiently aware that leading a university requires more than improvisation, and should be based on solid information and evidence. An institutional research unit is a good way to facilitate this reflection.

"The essential is constantly threatened by the insignificant."

RENÉ CHAR

A recently elected president should also attend a short

senior executive training programme, such as provided by Harvard University's Graduate School of Education[49]. A similar programme used to be offered in Europe but has closed for financial reasons.

The president's team also needs to come together for several days, once or twice a year, for some strategic reflection, in an external location far removed from the daily routine. This is an excellent opportunity at the start of the mandate or - even better - several months in advance, to allow the new leadership team to explore the strengths and weaknesses of the university they are leading, to develop a vision of what they would like the university to become, and to develop a strategy regarding how to achieve this. It is also a good idea for them to re-evaluate this during their mandate, to examine how the strategic plan is being implemented, and to discuss any other important issues. Beyond these professional aspects, such get-togethers are also excellent opportunities for team-building, which will certainly be needed when difficulties arise.

It is essential that all those involved in defining the university strategy, as well as others who may also have something to say, should be invited to contribute to this joint effort at each step of the process. This also applies during the implementation phase over the following years. Such an approach will help ensure that any review, analysis or set of recommendations will be as complete as possible. It will also mean that, once a plan of action has been clearly defined, as many people as possible will support it. In addition, any difficulties encountered during the planning phase are unlikely to disappear once a decision has been taken. Experience of how universities operate shows that the implementation phase can also be full of unexpected surprises. Some presidents tend to believe that once the plan has been agreed the job is done, and do not put in the effort required for successful implementation. Furthermore, implementing any plan can prove more difficult than anticipated, either because of its complexity, or because of delays or resistance encountered.

Communication

The president and the presidium also have an essential role to play in terms of communication.

Internal Communication

The purpose of internal communication is to provide information on the life of the university, especially its successes, and the efforts being made by the president and his team to improve the university's overall performance - important new research projects, new teaching programmes, the recruitment of well-known academics, important restructuring initiatives, outstanding research results, etc. The aim is to create a feeling of pride and belonging in the university community, including students and administrative and technical staff. The aim is also to show that efforts being made are bearing fruit and that positive results are being recognized.

"The single biggest problem in communication is the illusion that it has taken place."

GEORGE BERNARD SHAW

Communication is essential to keep the university community informed regarding the decisions taken by the leadership, and their implications. This is important because not all of these consequences will necessarily be positive for all. Communication should avoid the spreading of rumours, and help convince those who may be negatively affected by change, that considerable attention has been given by the leadership to identify alternative options or to compensate them in exchange. The issue of adequate compensation for those who lose out because of change is generally a requirement for legal and moral reasons, but it is also the best way of dealing with opposition to change.

There are many different ways of communicating. It is very important that the president should participate in faculty meetings, in various consultative committees, and where relevant in the senate, even if it takes a lot of time. This direct involvement by "the boss" follows the basic rule of leadership:

explain, explain and explain again. It is also a necessary price to pay for the president to be recognized within the university as somebody who wants to change the institution and who is prepared to commit actively to this objective. In contrast, a boss who is never seen, whether for reasons of shyness or misplaced considerations of rank, gives the impression that nobody is in charge.

If despite all efforts at communication, conflicts nevertheless occur, small group meetings led by a person respected by both opposing parties can help restore a sense of confidence, despite remaining differences. This process must also however be backed up by the different media available, in particular the university website, weekly newsletters, etc.

A JIBE OFTEN HEARD CONCERNING A PRESIDENT WHO OVER-COMMUNICATES:

"A university president spends 80% of his time talking and the rest of it not listening."

External communication

External communication is aimed at two different audiences, the regional or national community, and the other members of the university community, both competitors and/or potential partners. The former needs to be reminded and reassured that the university plays an essential role in that region and contributes significantly to its economic development and quality of life. The university should not be afraid of also stating that it does a good job in terms of what is expected of it, even if the way in which it does this may sometimes surprise those who are not familiar with higher education and research. Where possible, the university should also show that it is well positioned in the international league tables, in order to encourage pride and confidence in the university.

Other possible initiatives include organizing public lectures, courses for senior citizens, open days, and a range of events through which the university can respond to public demand for extra curricula services – in particular from the growing cohort of older people – for academics to talk to the broader public and to bring

them onto the university campus. It is also important for academics to accept invitations from the media, press, radio and television, and to contribute to debates and interviews. While it can generally be difficult to predict what the media may report on university-related matters, maintaining good relations with a number of reliable journalists can prove to be a good investment in times of difficulty.

Communication in a time of crisis is a specialist topic, but an extremely important element of any communications policy. If it transpires that a university employee has falsified or invented research results, plagiarized other authors or falsified accounts, there is no point in trying to suppress the facts, as these will emerge into the public domain sooner or later, usually sooner than expected. It is also important to avoid playing down the mistakes made. The best policy is always to explain the situation fully, without adding to it, and to show that all possible steps have been taken to ensure that the full facts are known and that the person at fault will be punished, and even lose his or her job if this is justified and the accusations prove to be correct. More than one president has had to resign as a result of not knowing how to communicate in a crisis.

Finally, communication which draws comparisons with other competing universities is a trickier task, since this can only be done indirectly, by ensuring that one's own university is talked about when the other universities are also present. An effective method is to publish research results regularly, particularly in the principal international scientific journals such as *Science* or *Nature*.

CONCLUSIONS

Innovate, internationalize, become more flexible, raise funds and reallocate!

Universities, especially research-intensive universities, have always played an important role in developed societies. Today they are an essential element in the knowledge society, which now dominates the global economy and is transforming the way both developed and developing societies live. The standard of living, the quality of life, even the security of countries all increasingly depend on universities.

"We must take change by the hand, or rest assuredly, change will take us by the throat."
WINSTON CHURCHILL

Universities have shown extraordinary resilience through the centuries, and willingly or not have been able to adapt their research and teaching regularly to the changing needs of society, integrating new knowledge into their curricula along the way. This is perhaps not surprising since universities themselves are where most new knowledge is created; this is what academics and researchers do, and the result of their hard work is to be found in the course work of their students and in the institution's governance and management structures.

The world has changed continuously since the first universities were founded. The pace of this change has grown considerably faster over the last quarter-century, as a result of political and economic globalization and the acceleration of scientific and

technical progress. These two inter-dependent developments have also led to a significant increase in competition between universities.

At the same time, economic growth has slowed considerably, or even come to a halt in the Western world and Japan. Since 2008, these countries have also been through a deep financial and economic crisis, from which only the United States had emerged by 2016. As a result, government budgets have at best grown slowly, or have stalled or even been cut, and higher education and research allocations now face serious competition from other State services.

In consequence, Western and Japanese universities face a much more difficult environment now than 20-30 years ago. In addition, they are caught between two serious new challenges.

The first of these, the acceleration of scientific and technical progress and the increasingly competitive climate, obliges universities to undertake rapid and in-depth changes in order to maintain their position of quasi-monopoly in the field of higher education, and their dominant position in the field of research. This concerns in particular the way in which universities fulfil their basic missions of leading-edge teaching, research and service to society, internationalizing their human resources and developing a quality culture. This modernization process requires them to be flexible enough to be able to change.

The second challenge is that universities must imperatively find the resources needed to meet the cost of these changes. This poses new challenges in terms of funding, governance and leadership. In terms of funding, university leaders should never give up on their attempts to convince public authorities, the business community and the broader public that, in a knowledge society and a very competitive world, higher education and research ought to be seen as policy and budgetary priorities. Furthermore, although this may be uncomfortable for some universities, in Europe it has become necessary to seek substantial funding from households (student fees) and/or from the private sector (philanthropy, etc.).

In addition, even when these fundraising efforts are successful, universities cannot escape the need to free up their own resources through re-allocation. Given the speed and the depth of current changes, universities must be able to fund new activities by reducing others which have over time become less important, either stopping them altogether or transferring them to another university, or even to senior high-schools. For universities to work out how best to proceed along these lines requires a significant effort of self-analysis. This can also lead to a revision of their missions, goals and strategies. Such reallocation efforts are even more important in situations where attempts to attract additional funding have been disappointing, because the internal resources freed up in this way will provide the main source of funding for any new activities. In order to change, universities need to become more flexible.

All will depend on the effectiveness of the university's governance system and on determined leaders who are willing to take initiatives.

While many research universities are well advanced in addressing this challenge, this is not the case for all of them. Some of them have not yet recognized the fundamental change of paradigm, or have downplayed its significance. Others still hope to obtain substantial additional public funds from their government, which would allow them to avoid taking difficult decisions, while others have not even begun to reimagine themselves. There may be many reasons for this: their governance system does not encourage change; their leadership is not determined enough to take brave decisions; alternatively, the academics are not sufficiently motivated or are otherwise too busy with management, administration and peripheral activities.

The situation for these universities is clear, and has potentially severe consequences. They will gradually lose their relevance in all important areas, in particular their ability to attract good academics and students, to win research funding and even more importantly to participate in collaborative research projects involving many universities.

In the meantime, other universities have been very strategic and pro-active, and are fully aware of the dangers presented by this change of paradigm. They have taken the lead in the modernization process, and have succeeded in overcoming the public funding freeze by substantially increasing their income from student fees, households and the private sector. At the same time, they have undertaken rigorous internal self-analysis in order to redefine their mission and goals where needed. They have drawn up a strategy which aligns with their strengths and weaknesses, taking account of the external threats which they may face and the opportunities which are available. Finally, they not only possess this foresight but also a governance system and leadership which encourage change and the internal reallocation of resources where needed. Transformations of this magnitude obviously cannot take place overnight, but must be planned over a five to ten-year period.

These conclusions are based on the observation of recent developments in many universities. International rankings show that while a number of Western universities have been slipping down the global lists - almost inevitable given the progression of Asian universities - and against their European competitors, others have advanced rapidly. Such change can only be deliberate, where university leaders have decided to make the right strategic choices, have succeeded in taking whatever decisions were necessary and have applied them. It should also be noted that a university's position in a ranking depends just as much on what other universities are doing as on what it does itself. Thus, given that many universities are getting better, a university has no choice but to improve also, simply to maintain its existing position.

In the next few years, while it is highly likely that the select group of 20 to 25 top universities in the world will remain more or less the same, there will be plenty of change in the group next on the list, and even more change in those much further down. Some will advance rapidly, while others will fall behind almost as fast. All university leaders should be aware that this does not occur by chance, but as a result of a long-term process over 25 to 50 years,

due in particular to the very important role played by academic staff. But leaders also need to realize that a lot can be achieved in ten years, and that conversely, the impact of not doing anything for a few years will likewise soon be felt.

This is why the motto of all university presidents in the Western world, whatever their university's particular mission, should be "innovate, internationalize, become more flexible, raise funds and reallocate"!

For the reader in a hurry....

For the reader who is pressed for time, as is the case now for most university leaders (or for those who, like my wife, have a tendency to begin a book at its end), here are the ten commandments for the leaders of research-intensive universities in the 21st century. I hope that they will encourage the reader to peruse the entire book.

- *Make sure you are fully aware of the consequences of the upheavals, almost revolutions, now taking place in the fields of science, technology, demography, politics, economics and finance.*
- *Together with the leadership team, examine your university with a cold and detached eye and compare it with your partner and competitor universities, in order to identify its strengths, weaknesses, opportunities and threats.*
- *Review and if necessary redefine the university's missions and goals, and draw up a strategic plan (or adapt the existing one).*
- *Tackle institutional reform (laws, statutes, governance) and/or structures (units, committees, etc.), in order to improve the university's flexibility and ability to take strategic decisions, and ensure this has a positive impact on the university's capacity for change.*
- *Make great efforts to convince the government to cover the full cost of this modernization process and of the growth required for the development of the knowledge economy. Failing this, or in addition, make intense efforts to obtain*

alternative funding from households and the private sector, using successful examples to support your arguments and ignoring unjustified negative prejudice.

- *If these steps are not successful enough, bravely reallocate resources within the university and reorganize portfolios with your partner universities, so that you can finance new priority projects.*
- *Commit unreservedly to internationalizing the university's human resources: academics, researchers and students.*
- *Encourage and incentivize academics to modernize their teaching methods, programmes and courses, and to become fully involved in new research trends and find the funding for them.*
- *Pay great attention to internal and external communication, in particular in times of crisis.*
- *Use the legitimacy conferred by your election or appointment as head of the university to lead it through change processes, while rapidly developing a skin thick enough to absorb as painlessly as possible the blows you will receive.*
- *And finally, as a personal message, the 11th commandment is the most important: Enjoy to the full the privilege and honour of leading one of the most exceptional institutions which exists!*

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PUBLICATIONS

This book is the fruit of more than thirty years of commitment to higher education and research in Switzerland, Europe and worldwide. Action and advice have dominated this commitment, and a number of publications have been inspired by this interface, along with my perspective as an economist. The creation, together with an American colleague, of the "Glion Colloquium" in 1998 as a think tank bringing together twenty-plus presidents every two years from major research universities around the world to reflect on their role, responsibilities and the future of their universities has been an additional and particularly enriching stimulus. The publications we edited resulting from these colloquia are listed at the start of this book, together with the publications resulting from the work of the Council of Europe's higher education and research committee.

The following two lists contain publications I have contributed in the fields covered by this book, as well as the publications of some colleagues, likewise university presidents, working with whom has provided a strong motivation.

The pdf versions of the Glion Colloquium publications can be downloaded for free from one of the following websites:

- the Glion Colloquium website www.glion.org and
- the Open Archives of the University of Geneva: https://archive-ouverte.unige.ch/documents/advanced_search

Main personal publications on the same topic:

1997: in collaboration with Thyss-Clément, F. and Balling, M., *Five ways to improve university financing*, CRE Doc, Association of European Universities (CRE) No. 2, February

1999: "Survey of the Main Challenges Facing Higher Education at the Millennium", Chapter 1 in Hirsch & Weber (eds) *Challenges Facing Higher Education at the Millennium*, American Council on Education/Oryx Press, Phoenix, and IAU Press/ Pergamon, Paris and Oxford

2000: with Grin, F. & Harayama, Y., *Responsiveness, responsibility and accountability: an evaluation of university governance in Switzerland,* Six Nations Education Research Project, Office fédéral de l'éducation et de la science, Dossiers 2000/4

2000: "Financial Management and Planning: or how to implement Changes more Smoothly", *Higher Education Forum for Quality Higher Education Management in the 21st Century, RIHE International Seminar Reports*, Research Institute for Higher Education, Hiroshima, No.11, March

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2004: with Zgaga, P. "Reinventing the European Higher Education and Research Sector: the Challenge for Research Universities", Chapter 3 in Weber & Duderstadt (eds) *Reinventing the Research University,* Economica, London, Paris, Geneva

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2008: "Cooperation and Competition: the Need for a Dual Approach", *Harvard International Review*, Fall, vol. XXX, No. 3

2010: "The Next decade, a Challenge for technological and society Innovations", Chapter 1 in Weber & Duderstadt (eds) *University Research for Innovation,* Economica, London, Paris, Geneva

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1990: Rosovsky, H., *The University, an Owner's Manual,* W. W. Norton&Company, New York

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2015: Crow, M.M. & Dabars, W.B., *Designing the new American University*, Johns Hopkins University Press, Baltimore

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