Horizon 2031
The University of Granada in Light of its V Centenary.
“Reflections on the Future of the University”
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Coordinator: Teodoro Luque Martínez

Design and layout: Luis Doña Toledo

DL. GR./476-2015

Granada, 2015
Horizon 2031. The University of Granada in light of its V centenary
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Presentation
Horizon 2031.
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The 500th anniversary of any institution is obviously a special occasion. When the University of Granada was founded in 1531 there were only some fifty universities in the world, not all of which still exist today. At that time approximately 80% of the universities were in what are now France, the United Kingdom, Germany, Spain, and particularly, Italy. Universities, as such, could not be found outside the European continent until the first universities were founded by the Spanish in America (the National University of San Marcos in 1552, in Lima, Peru) and in Asia (the University of Santo Tomas in 1611 in Manila, the Philippines). In 2015 the situation is very different.

This publication has seen the light in 2015, a year which marks a turning point between the end of the Campus of International Excellence (CIE) initiative in Spain and the special celebration of the 500th anniversary of the founding of the University of Granada in 2031. The CIE initiative, involving the development of strategic projects in Spanish universities, marked 2015 as its horizon. Thus, this process of reflecting on the development of universities, on our strategic priorities and the medium term future of higher education in the world commenced. We have invited the top universities in world rankings, international experts in higher education and Spanish universities to participate in this venture. Their contributions encompass the thoughts of diverse representatives of countries and universities who have identified the medium term challenges and priorities for universities and higher education.

Rectors and experts from the five continents, from sixteen different countries and from some fifty universities have collaborated by sharing their knowledge and experience in this publication. Their valuable contributions have materialised as a mosaic of diverse perspectives which adopt a variety of forms, from a list of priorities to articles, a treatise or one example of storytelling, all of which enrich and enhance the overall value of this collection of reflections. The authors touch upon a series of topics ranging from the first Sumerian and Mesopotamian schools, the Greek academies, the madrasas and other educational institutions to their most recent embodiment derived from the irruption of new information and communication technologies. Their contributions emanate from the perspectives of one country or university to other more
international or even global viewpoints, all of which address the essential issues facing universities: teaching, research, evaluation, funding, governance, connecting to our environment or internationalisation, all tempered by their experience and their research.

This publication, however, is merely a seed for further reflection which hopes to make a small contribution to improving universities in a better world.

This publication would not have seen the light without the generosity and participation of many people, to whom we owe a debt of gratitude. Firstly, we must thank the Rector of the University of Granada, Professor González Lodeiro, for his favourable response to this initiative and for his commitment; we would also like to thank all the Rectors and international experts who have so generously dedicated their time and efforts to this project by sharing their experience, their research and their thoughts.

I would like to take this opportunity to thank the coordinators of the strategic areas of the Campus for International Excellence (CIE): the CIE BioTic professors José Luis Verdegay (Information and Communication Technologies), Luis Cruz (Earth System), Emilia Quesada (Bio-health) and María Elena Martín-Vivaldi (Culture and Heritage), and likewise, our gratitude to their predecessors María José Gálvez, Víctor J. Medina and Margarita Orfila. I would also like to extend my gratitude to the governing team of the University of Granada, and in particular to Dorothy Kelly, Vice-Rector for International Relations and Development Cooperation; thanks also go to the Board of the CIE BioTic and those partners who have collaborated with the CIE project.

This publication would not have been possible without the enormous amount of work and stimulating commitment of the CIE BioTic Granada team: Luis Doña, Slava López, Noelia Terrón, Amanda Dale, Eva Mañas, Manuel Pedro Rodríguez, María Galán and, a recent member, Manuel González. On this occasion we must also extend our gratitude to the efficient team of translators Victoria Kennedy, the lecturers of the University of Granada, Anne Martin and Catherine Way (also the reviser), who have translated most of the texts from Spanish to English so professionally.

My heartfelt gratitude to you all.

Teodoro Luque Martínez
Coordinador of the CIE BioTic
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"Reflections on the Future of the University"
This publication attempts to congregate varied opinions on the future of universities arising from an analysis of our current situation. This collection of opinions includes excellent contributions from heads of the most prestigious and widely varying international higher education institutions, leading scientists and experts, and the rectors of Spanish universities who have been kind enough to offer us their reflections on this matter.

History, the best yardstick of collective experience, is the key to success in the ideal construction of the future. With this in mind we have focused our attention on 2031, the key year in which our University will celebrate its foundation five centuries ago. This occasion is an excellent pretext to allow us to prompt this collective reflection on the role and mission of universities.

Today’s reality is the fruit of the past and the University of Granada, due to its historic origin at the start of the 16th century, coincided with the foundation of several higher education centres in Renaissance Europe, from which the Humanist ideal was to extend across borders.

The founding of our University by Charles V in 1531 motivated the dissemination of universal thinking, a sign of those times, within and beyond our confines. Today, after nearly five hundred years, we can be proud to have fulfilled this mission, as witnessed by the enormous weight of our past; this accumulated experience enables us to outline the challenges to be faced in the future. Universities have existed for hundreds of years and always will, as they will have a raison d’être. Times, however, change, structures are modified, and, therefore, we must be capable of responding efficiently to the possible new demands and needs of society in order to fulfil our essential mission.

We live in an increasingly globalised world where education has adopted a transnational dimension. Clear examples have taught us that instead of sterile isolation we must forge alliances that allow knowledge transfer, fluid relations and cooperation between universities in this new global dimension.
Mobility and internationalisation are key to breaking the remaining glass ceilings, not necessarily by relinquishing our own personality, but we must adapt our structures to a new knowledge society in which the information flow grows at an exponential rate.

Increasing globalisation is relentless and, for education, this will imply wider, far-reaching partnerships; including the participation of new businesses and institutions that contribute to higher education in our universities.

“Higher education policy makers must perceive the universities’ mission as essential to the public good.”

Quality and the availability of resources are already necessary parameters. The foreseeable increase of academia and scientific operational requirements, in order to be truly competitive, must entail increased funding to provide universities which can function without being subject to economic and financial pressure; including the decreasing support of governments and consequent increase in internal costs in times of regression.

The main problem faced by higher education in Spain is deemed to be inadequate funding due to its excessive centralisation and scarce diversification, but it is time for universities to leave this particular battlefield. We lack objective reference frameworks which would allow us to establish university objectives beyond the short term premises that still subject the development of the education model to social, political, ideological, cultural and sometimes even religious pressures.

Our firm commitment must be to social progress, safeguarding the role that universities must play with a political model of non-exclusive funding, in which the business fabric and private initiatives can participate in order to develop education which is accessible to all on the basis of merit.

Higher education policy makers must perceive the universities’ mission as essential to the public good, as benefiting society as a whole, supporting, through their actions, the different resources which can be implemented to generate a financial stability implicating all the agents involved in research, development and innovation.

The extraordinary volatility of education strategies, manifested in the changing curricula, must be eradicated once and for all. We need a consolidated pact that clearly defines the curricular path, which on no account can be local, to insert and evaluate the capacity of our students within an international reference framework, that is accredited and compatible, which allows evaluation of our competitiveness and the degree of professionalism achieved by universities.

Essential university actions cannot fall prey to crude mercantilism in the consumer society, selling our wares in the ferocious competition of the market. Our real, more meaningful role, must be understood to stem the growing proliferation of “pseudouniversities” which do not comply with the traditional university role: those which purport to offer training capacity, when the vast majority are no more than for-profit entities, oblivious to educational values, teaching quality, which are merely out to make a profit. The proliferation of these types of establishments, and the permissiveness of some governments, makes it
imperative to have accreditation agencies which, after a rigorous, independent evaluation process, should banish them from the system.

The universities of the future will be the best ally for new technologies, as their increasing proliferation affects how we teach:

- Vanquishing the confined physical space of classrooms
- Vanquishing the time frame of inflexible class timetables
- With virtual teaching allowing us to reach spheres where universities have had little effect to date
- Encouraging interest in studying in certain sectors of the population

Adapting to the future, on the basis of competitiveness required, implies relinquishing the rigid structures that are part of academic routine. Concepts which are firmly established today, such as classes, faculties or departments, are subject to changes related to the governance and the very structure of universities. Only the need to create and transmit knowledge from pedagogical dialectics, associated with the teacher-student relation (although this will necessarily adapt to new rubrics), will remain unaltered.

Universities, distancing themselves from theory, must unquestionably focus more on preparing students for real life, developing their competences and skills if we want to achieve more effective training of our graduates. This change in horizon must shift the emphasis to practical preparation, to enable graduates to access the labour market with the required preparation and the levels of competence that society demands.

The universities of the future will be the best ally for new technologies, as their increasing proliferation affects how we teach: vanquishing the confined physical space of classrooms, the time frame of inflexible class timetables, with virtual teaching allowing us to reach spheres where universities have had little effect to date, thereby encouraging interest in studying in certain sectors of the population.

The extension of knowledge must play an important role in the further democratisation of education to achieve increased access, reducing restrictions due to the resources available, thus guaranteeing equity and improved education by making university education an increasingly widely available, universal resource. To this end, and to consequently streamline knowledge transfer, we must develop virtual libraries, electronic book and journal exchanges, the extension of the culture of the image and any technological development which allows us to expand the frontiers of science by breaking down barriers.

"Mobility and internationalisation are key to breaking the remaining glass ceilings, not necessarily by relinquishing our own personality"
Universities are in the midst of a process of far-reaching change, the heterogeneity between countries and universities does not necessarily exclude sharing common features and, whichever the strategic option adopted may be, we must make an effort to imagine the future of higher education in the different possible scenarios on the solid basis of awareness of the present and the experience of the past.
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International Rectors
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"Reflections on the Future of the University"
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Technical University of Denmark

Elmer Sterken  
University of Groningen

Thomas Wilhelmsson  
University of Helsinki

Peter Mathieson  
University of Hong Kong

Menahem Ben-Sasson  
The Hebrew University of Jerusalem

Dominique Arlettaz  
University of Lausanne

Carel Stolker  
Leiden University

Edward Byrne  
King’s College London

Guy Breton  
University of Montréal

Jean-Pierre Gesson  
University of Poitiers

Louise O. Fresco  
University of Wageningen
Horizon 2031. The University of Granada in Light of its V Centenary. “Reflections on the Future of the University”
The main resource of Europe in today’s society is its human and cultural capital and the European universities play a very important role in maintaining and building this resource. That role however, is changing rapidly as the demands on the European higher education sector become increasingly complex and challenging. This brief paper attempts to highlight some of the issues and outlines a few of the trends facing European universities today.

The answer to solving the challenges and thus adapting to a new reality does not lie in the classical (Humboldtian) university model which was based on an educational reality long gone. The comprehensive universities of the future will have to accommodate a changing and diverse student population and many countries are already looking at their educational systems to make the necessary changes. New ways of tackling the demands will be developed and the nations that manage these changes the best way will more attractive in terms of competition in education and research alike.

Listed below are some of the questions that need addressing within the next 10-15 years:

- Will tertiary education be universal?
- Will on campus programs become fully integrated with virtual (global) programs?
- Will the profile of academic institutions change?
- Will stakeholder organizations such as EUA accommodate to meet the demands of their stakeholders?

In addition, will we see a sector dominated by the following trends:
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A university for the mass and elite?

The European University will be looking at the challenge of accommodating an increasing number of students as well as a small number of elite students. The comprehensive universities of the future will have to accommodate elite students as well as a growing mass of highly diverse HE-students.

- Massification of higher education will be a sustained trend for many years, especially in developing regions

- Universities will have to differentiate provision of higher education and include programmes for elite students

- Most universities will have to consider their position in the higher education landscape

Labor markets will become more flexible

Employees will change job functions and social and professional demands on them will change much more frequently in the future. Therefore graduates will be expected to become more adaptable in the future. The first degree will be relevant for the first job, but for the second job it will become the individual’s capacity to acquire higher level skills which will be decisive for success or failure.

Employers will also be looking for graduates that have experience from outside their university. An international experience certainly helps, but the real employability comes from concrete labor market experience from internships or work-study programmes or similar. There is a need to allow such activities when designing courses and new curricula. There has to be room in the course load, especially at masters-level, for students to test their acumen in a practical setting. As such
Graduates are increasingly requested to demonstrate their employability when looking for their first job. Employees will be expected to continue their education throughout their work-life. Universities must adapt to this by developing flexible education that allows for people with varying backgrounds to enroll in courses or for example masters programmes.

Individuals are likely to seek further education throughout their life. A formal period of university studies of 4-7 years will not be the norm in the future. Employers will also be looking for graduates that have experience from outside their university.

Changing student population and competition for global talent

A familiar challenge to most universities is the changing composition of the student body. Foreign students, received through the Erasmus programmes and increased efforts in recruiting students from abroad, has increased the demand for courses taught in English and forced universities to invest in infrastructure to improve services for international students.

Students will be looking for an international element in their education, be it a summer school, a semester or a full degree at an institution abroad. The age of an average student will increase as universities start to offer advanced courses to employees seeking a specialization to their first degree.

International students will play an increasingly important addition to the student body at any given university. In Europe, Erasmus + is already active and as more and more students realize the opportunity to study in another country. Individuals increasingly seek a second academic education.

University outreach programmes and demands for lifelong learning and study elements for adult learners and individuals already in the labor market in addition to populations with longer life expectancy and increasing demands for changing life perspectives all add to the challenge for universities. These challenges require universities to adjust their ability to handle students in many age groups as well as accommodating many cultural backgrounds.
An open European market for advanced human capital

The Bologna process has been a great success. It has played a large role in the increased mobility of students in the EU (also facilitated by the Erasmus Programmes). If we look a little closer at mobility, it is obvious that there is a corresponding need for a unified open market for ‘advanced human capital’. In such a market, well trained people will behave like other types of capital. For example they will move towards innovation centres much in the same way as investment capital and risk capital concentrates in innovative regions. Because it is very difficult in Europe to transfer pension rights, social benefits, medical insurances, and so on. In addition, Europe has very uneven career systems and traditions for researchers and scientists.

There is a corresponding need for a unified open market for ‘advanced human capital’

In other regions, for example North America, there are innovation regions where you find an accumulation of human capital, for example Massachusetts, some areas in California, the research triangle of North Carolina, and so forth. That is also the case for China and India. If we look globally, these innovation centres exist in a rather small number probably less than 50 in the world. Several of these are in Europe, but our human capital is not moving as quickly in Europe as it is in the other regions. We must acknowledge that some of the European advanced human capital moves to other regions because our own “market” is too slow, with many bottlenecks, and too compartmentalized.

- There are obstacles to the free flow of advanced human capital, and it makes Europe less attractive and less competitive
- Demand for new programmes to stimulate European brain circulation

This challenge is only not for universities alone to solve. It needs action from political layers, but the European universities certainly should play a role in drawing attention to this issue.

How are countries responding to developing demands: the case of Denmark

Reformation the higher education and research sector in Denmark began 25 years ago with a reform of post graduate education and research training. Ph.D. programs were established and the country invested in increasing the capacity of doctoral training and ensuring international quality standards. This reform was integrated with changes in the career pathways into early research and academic careers, post doc programs etc.

When the second reform wave was introduced 20 years ago, the advanced human capital capacity of the country was sufficient to benefit from output oriented and competitive funding systems and increasing diversity of public and private funding. The reforms of the financial compact for the sector involved sections of the budget law pertinent to most line ministries and the legal framework for private foundations and charities.
15 years ago a White Paper commission advised the Government to complete these two first reform waves, and to complement those with three more. A third to restructure the institutional landscape in order to consolidate the existing structure into fewer larger, efficient and sustainable institutions, a fourth to change the governance system from a traditional collegial academic system towards a more managerial system commensurate with the much more complex reality of modern institutions. It was also envisioned that a change was necessary in order for the Government and parliament (Folketing) to entrust institutions to manage increasing autonomy, much larger budgets, and increasing enrolments.

At this time all of these reforms are introduced and effective and the system undergoes a fifth and so far final reform wave of structure and coherence of study programs and innovation of curricula. These sets of reform are followed by a change of the national accreditation system from program towards institutional accreditation.

**Figure 1:** An overview of the Danish reforms including relevant Danish and European policy changes.
The quadruple helix: a combination of mass and elite university

One of Denmark’s universities, Aarhus University (AU), has undergone significant changes during this period of reforms and consolidation of Denmark’s higher education system. The university has integrated Aarhus School of Dentistry, Herning School of Engineering Commerce, Aarhus School of Business, the Danish School of Education, Aarhus University School of Engineering, as well as the two large national government research institutions, one for environment and the other for agriculture. With these mergers, Aarhus University doubled its enrolment to more than 43,000 students in just over a year and was transformed from a one-campus institution to a university with several locations nationwide and a wide range of research and degree programmes. The annual budget more than doubled, from EUR 350 million in 2006 to EUR 850 million in 2014.

As a consequence of the mergers, Aarhus University has since undergone an internal change process which has resulted in a modernized and more integrated institution, and just as importantly, an institution that is aligned with the demands of the global society. This new way of prioritizing university activities accommodates the need for paying equal attention to education, research, talent development and knowledge exchange, which follows from the quadruple helix logic, see figure 2. The model has since been modified, but the essence is the same.

Figure 2: The quadruple helix is AU’s response to the needs of a modern knowledge economy. It is a combination of classical humboldtian university activities, the third mission (Klein 2002, Soeiro 2012), and the triple helix university (Etzkowitz, 1993). It combines four core activities: education, research and knowledge exchange, and talent development whereby AU ensures equal focus on mass and elite students.
Literature

Premise:

Universities are one of the few inherently transboundary social institutions by mission, and we work across these boundaries organically; however, the convergence and acceleration of human mobility, connectivity through information technology, and the awareness of common challenges such as climate change, require us to be more creative and agile. As institutions operationalized in tradition, universities must organize to meet our original and evolving missions in a rapidly changing world.

Adaptation, an innovative spirit, and a focus on integrating with our communities and the world are keys to meet original and evolving missions in a rapidly changing environment. Some examples:

Even the oldest universities are in a process of constant redevelopment and adaptation

The University of Granada and the University of Arizona were founded with very specific missions. The University of Granada was founded by papal bull in 1531 in order to teach logic, philosophy, theology, and canon law. The University of Arizona was founded in 1885 to teach agriculture, mining, and the mechanical arts.

Today, the University of Granada is a public university with 80,000 enrolled students and schools specializing in building engineering, engineering, architecture, civil engineering, and information technology and telecommunications. Today, the University of Arizona educates 40,000 students across 21 different colleges. Far from the stereotype of an ossified and out-of-touch institution, these universities have, in fact, responded to ever-accelerating changes in the demands placed upon the societies and economies in which they operate.
Indeed, this adaptability is fundamental to the very nature of the strongest universities. A university is, in essence, an ecosystem that continues to succeed through knowledge creation, innovation and adaptation. Despite what may appear to be subtly differing missions at their founding, these institutions are developed specifically to empower individuals and communities to learn, to create and to adapt. To do so, universities must be attuned to the issues and challenges confronting the societies that created these institutions, and must empower those societies to meet those challenges.

Hence the emergence of new disciplines, such as dendrochronology, climate modeling and machine language, none of which could have been imagined before the turn of the last century. In each of these instances, universities charged with empowering individuals and creating knowledge evolved these disciplines in response to knowledge gaps, creating not only new knowledge, but new ways of learning and new ways of seeing the world.

The university of 2031 must be able to respond with the speed, creativity, and agility demanded of the middle 21st century

Components of the modern university need to be continuously rewired, not discarded, for the future that lies ahead. That rewiring begins with changing how the modern university educates students, conducts research, and enters into mutually-beneficial partnerships that invite new resources and perspectives that amplify impact.

The analogy of an ecosystem is relevant here as well, and universities reflect what ecologists describe as edge effects. The central concept is that changes occur most rapidly and most frequently at the intersection of habitats. More species are found at the soft boundary between the forest and meadow, between transitions in elevation, or as we see along watercourses in our own Sonoran Desert.

All but the most isolated and narrowly focused universities create convergences of people and viewpoints from multiple cultures and economic backgrounds. We engage in many communities, as our faculty work with youth or our students work with elderly patients in the clinics of thousands of universities throughout the world. Within our campuses disciplines collide, merge, and take new shapes as new thinking evolves from this constant blending and meeting of ideas and concepts, of theory and reality, and of research and its application.

Universities are in fact wired for change, for adaptability. Arguably, as innovation enterprises, there is perhaps no social institution better equipped to face such rapid change. But as successful ecosystems we are also inherently stable. The challenge for this century will come in recognizing the appropriate balance between stability and dynamic responsiveness that will be required in the face of accelerating change.

Beyond the ecological analogy, the impact and power of intersections, or of aggregating creative people in particular environments, has been noted for centuries and studied exhaustively. Perhaps one of the more compelling popular analyses arises in Frans Johansson’s 2004 book, The Medici Effect,
wherein Johannson notes three extraordinary forces at work in accelerating the rate at which we see what he calls “intersectional innovations”: the mobility of individuals and ideas, the convergence of scientific fields, and the rise of computational and information capability. Universities, if we allow ourselves to embrace the opportunities before us, are living examples of the very innovation hubs so essential to the success of our societies in the coming century. Part of our own success will depend on exposing our students to a wider range of learning environments and challenges than we ourselves may have experienced.

For the university of 2031, student engagement will be critical

The graduate of 2031 will encounter business environments more globally connected, technologically advanced, and fast-paced than today. Over the last decade, employers have increasingly expected graduates to possess well-developed interpersonal competencies, technological fluency, and pragmatic experience. Those expectations will only become more pronounced in the decades ahead, and the modern university must adjust the way it aligns its educational mission in order to ensure that graduates are ready for these emerging career environments.

In addition, the learning styles of our students are evolving. They are exposed to massive volumes of information, in 300 channels rather than three and in soundbites rather than soundtracks. Because of these shifts, they may discern relevance and relationships of facts differently. We must recognize this both as a challenge and as an opportunity in designing the most impactful and empowering learning environments possible.

A principal mechanism for universities to provide these students with learning environments and opportunities for both likely and unpredictable futures is engaging them in the translation and application of learning beyond the classroom. This cognitive process of applying knowledge to real problems is critical to learning, and only by emphasizing it will universities graduate future leaders who have the skills to address and solve the world’s grand challenges.

Our thinking about the evaluation of a student’s learning outcomes in real-world environments may have to evolve as well. We are historically comfortable evaluating a student’s subject matter knowledge though exams and projects. How do we evaluate fully and effectively the base of knowledge acquired in these activities? How do we assure the continued academic mobility of our students to advanced degrees through appropriate and commonly described and understood competencies or learning outcomes? Most institutions admit that they struggle with these issues, these shifting paradigms of analysis around issues such as intercultural competency, teamwork, leadership or application of knowledge. But as we have innovated the creation of new disciplines, we must address these pedagogical and evaluation challenges as well.
The university of 2031 will work collaboratively to forge new ways of doing research

In addition to engaged learning, the university of 2031 will be committed to research, but not just new knowledge: it will be active in discovering new venues for innovative scholarship. We must invest in more deeply understanding -- at an institutional level -- the measureable impact of the convergence we create. We have tended in the past to rely on the anecdotal, our common knowledge as academics that our shared experience in these institutions has value. But in times of tightening resources and increased competition, we must turn our sights to more objectively quantifying the impact and relevance of the work done by faculty, students, and staff.

The research institution will be uniquely equipped to explore these issues, and also to create the partnerships that will create measurable and quantifiable impact. Thus, the role of research universities and the expansive opportunities they create place them in a unique role among learning institutions. Accordingly, the scope of measureable research impact will continue to evolve. Our increasing knowledge of deeper interrelationships between systems, whether social or environmental, will also drive a new set of questions to which our institutions must be prepared to respond. Our emerging familiarity and comfort with our own ability to evolve will invariably result in more fluid boundaries between our universities and our communities and between disciplines themselves, with increased emphasis on and reward for interdisciplinary exchange to address grand, global challenges.
It may be, for all these reasons and more, that despite so many fundamental challenges the best days are ahead for the world’s engaged research universities.

**Infrastructure (virtual and brick-and-mortar) must be adaptive and robust to enable a nimble and innovative university culture**

The modern university must continue to invest in physical, virtual, and process infrastructure that encourages students and educators to be more creative, flexible and entrepreneurial. For instance, though more classes will no doubt be conducted online, most universities in 2031 will not be solely online, and strong research universities will be distinguished by their level of student engagement, personal mentorship and human interaction. The university of 2031 will complement its traditional strengths of physical classroom environments and educational process with online classes and modules designed to enhance and accelerate student academic and professional goals.

And what is the role of alternative learning environments like Massive Online Open Courses (MOOCs) in the future of brick-and-mortar universities? Undoubtedly some credentialing of the best courses will occur, and several efforts are underway on that front. Educational technology innovations are neither good or bad – what matters is how they are used to create new opportunities for students and educators. Thus, one point of focus should be the study of these learning environments themselves, the pedagogy of the most effective courses, the evolution of technology and engagement practices so they can be adapted for other courses and other settings. This kind of analysis will enable the coming together of learning communities around particular subjects or courses as we arrive at better understandings of how learners work together in a digital environment, how team projects are formulated and executed, and how the evaluation of digital portfolios is most effective. At their best, these practices give us new tools for engaged learning, particularly in giving our faculty who elect to do so the opportunity to lecture less and mentor more. But this is simply one factor to consider in our possible evolution, and infrastructural innovation is driving the evolution of research and partnership as well. Thus, beyond these phenomena that change how individuals connect to the university, the university itself will uniquely foster interdisciplinary exchanges that serve as large centers for inter-professional scholarship, education, innovation and impact. Within these institutions, community- and industry-engaged centers encourage faculty to develop public-private partnerships that amplify the effectiveness and impact of research. Through investments in informatics, shared equipment, and spaces with multiple laboratory and research support functions, future universities will expand opportunities for faculty collaboration and improve expenditure efficiency.

The university of 2031 will also be complemented by affiliated institutions such as technology parks and incubators. Technology parks encourage and assist researchers as they develop their discoveries from concept to deliverable. Start-up incubators provide valuable tools that support new entrepreneurs as they seek to commercialize discoveries made in research. Each of these types of affiliated institution can provide additional opportunities for engaged learning for students and community entrepreneurs alike.
Universities will measure success in ways that reflect their integral and integrated role as thought-leaders, research hubs, and economic engines

Retention rates will remain critical markers of success in 2031, as more and more institutions of higher learning adopt retention as a benchmark of educational effectiveness. Aside from honoring our ethical commitment to our students’ success, retention is also a core measure of efficiency. Because advanced economies will require more of their workforce to have a post-secondary education, retention assures a higher institutional contribution relative to enrollment to those workforce needs. From a broader consideration of social ethics consistent with our mission we are also assuring broader access to economic opportunity through this focus on retention.

First year retention, time to graduation, and 6-year graduation rates are criteria that measure distinct but related stages of an academic career. Each of these measurements can be improved through individually-tailored degree paths, experiential initiatives, and infrastructure investments. Community college transfer rates and retention will become increasingly important over the next two decades, especially in the United States, where community colleges serve as important transitional and professional development institutions.

Similarly, research success will become increasingly measured by criteria that reflect the economic impact of research in addition to the more traditional criteria of PhDs awarded and articles published. Research expenditures, invention disclosures, intellectual property, and corporate grants are measurements that reflect this commitment to community and industry partnership, as well as interdisciplinary activities that translate research into tangible impacts upon the economy and the world.

Universities will be a reflection of the world we hope to create

As these commitments to developing engaged students and dynamic research communities suggests, the university of 2031 will have a more active and diverse relationship with the many communities it serves. International collaborations—whether conducted across shared borders or across time zones, are in many cases generating some of the most profound discoveries of the modern academic era. These intentional engagements across cultures, leveraging different approaches to solving problems as well as complementary
resources, are a source of unforeseen promise and impact for higher education.

The future university must intentionally leverage these opportunities and complementary assets, seeking deeper, structurally integrated collaborations. Only through these creative and sustained efforts can we reach our potential in connecting our faculty and students to communities in the unique way that only universities can, not just locally, but globally, as indispensable hubs in a global knowledge network.

“The future university must intentionally leverage these opportunities and complementary assets, seeking deeper, structurally integrated collaborations”
What thoughts can I offer you concerning this historical moment that lies between the University of Bologna’s Ninth Centenary and the University of Granada’s Fifth Centenary? Which links bind these two events?

Above and beyond the celebratory events themselves, the commemoration of centenaries becomes above all an opportunity for communities to both look back and forward.

For a scientific community like the university, the commemoration of the foundation offers the chance to reread and rethink the heritage of their own memory and, together, redefine new identities: the global sense of their own scientific and learning action.

The case of Bologna, in its Ninth centenary celebrated in 1988, is emblematic of how such commemoration is an opportunity to rethink the past and the sense of history, offering it as an open memory, displayed to all, the heritage not only of the scientific community but the broader community at large.

On its nine hundredth anniversary, Bologna looked back to Europe of the Middle Ages and saw a community of knowledge whose task was not to obsessively assure its identification – as a nation, a difference, a conflict – but to act as a network of people, a place which has seen the inheritance of knowledge passed down through the generations not as an inert heritage to be guarded but rather as a capital to be exploited. It also saw a local and global network both of teachers and students and university, inscribing in their very name the destruction of all divisions, limits, fractures, and which built the common heritage that we call University.

The deepest and most constant element which identifies and unifies all the universities of the world is that they all are of the world, and not of this or that country, and not of this or that nationality.
The same Latin word *universitas* means *wholeness*, wholeness of culture and knowledge; so we can say that university represents the first model of cultural globalization. Old or young, humanists or scientists, we are all members of the same unique community.

From the very beginning, in the XI century when the University of Bologna was founded, the first universities knew how to situate themselves *inter nationes*, amongst nations, and above the borders of nations and countries. And we must remember that the university first put forth the principle that is clearly stated in the Universal Declaration of Human Rights: “Everyone has the right to education. Education shall promote understanding, tolerance and friendship among all nations”.

I would say, with Walter Benjamin (thesis on the concept of history XV), that our centenaries, more than commemorations, are remembrances (*Eingedenken*), rediscoveries, occasions to gain experience of memory: because the inaugural day of a calendar is the day which returns as the face of holidays, because calendars do not measure time like clocks but are rather the effective monument of an historical conscience. It is a question of shifting attention not so much onto the past, the sand slipping through an hourglass or the rotation of mechanical hands, but rather onto the memories of calendars, with a qualitative rather than quantitative difference, as holidays differ from normal days. For this reason remembrance forces us to regain possession of the past, it reopens the sense of history which is not closed and over, but rather open and renewed and which can therefore be spoken of again and rethought. Being in harmony with history educates us and forces us to distinguish the durable from the ephemeral, the valuable from the invaluable, and demands us to respect and protect that autonomy by virtue of which we have been and can still be recognised as individuals and as *universitas*.

The 18th September 1988, for the 900th anniversary of the University of Bologna, 388 rectors and heads of universities from all over Europe gathered in the heart of the city to sign the Magna Charta Universitatum. A document that contains the principles of academic freedom and institutional autonomy as a guideline for good governance and self-understanding of universities in the future. Academic freedom is the foundation for the independent search for truth and a barrier against undue intervention for both government and interest groups. The Magna Charta – especially today – wants to connect more strongly with these visions and values, putting education at the center of any global development, as the answer to the most dramatic questions the world is asking us to address. In 1988 the Magna Charta opened a window on the world of Universities and the world responded promptly: aiming at speaking across space and time to say aloud that we need Universities as a free and independent meeting ground for generations, disciplines, cultures. We need Universities and their unique patrimony of youth, energy and future as a free space of dialogue, trying to make sense together of a world every day more interconnected and every day more fragmented.
While today universities appear as "agencies" of a global market, where what counts is the renewal of knowledge which will become "innovation" (which is the displayed and most highly sought-after asset of our work today) we need to remember an aspect that is perhaps no less evident but which today is certainly increasingly neglected. While before modernity Universities created a shared and open, plural and public ante litteram place of knowledge, this was because they were built as critical places, places of the unity and alliance of knowledge, of plural thought adverse to all limiting and anachronistic monocultures. Places in which crises were handled through critical movements of thought, which moved away from the present and from restricted contexts in order to imagine and connect to other worlds, other knowledge, other languages.

For this reason the Universities are not just, as the market teaches us, the matrices of innovation, but if they are this, then it is because they fuel critical thought on the crisis. Which in turn represents the drive to overcome it.

What are the enduring traits that allow the University to be responsive to its historical and natural destiny?

1. We need to be in synch with and in harmony with history, whose continuum teaches to distinguish the valuable from the invaluable
2. We need to have the sense of the future
3. We need solidarity amongst knowledges

Let me dare to offer a plan of at least 3 points that characterize this uniqueness: 1) we need to be in synch with and in harmony with history, whose continuum teaches to distinguish the valuable from the invaluable. To be in harmony, above all, with our history, that calls upon us to respect and take care of our autonomy. On this point ancient universities have a great role; 2) we need to have the sense of the future. Until a few decades ago, the University was asked to carry out two duties: excellent research and excellent teaching. Now we are also being asked to be a guide for our students: to be a guide in an ever less secure and less stable world. This means to furnish them with the analytical and practical instruments to build their own future. As you are just doing well; 3) we need solidarity amongst knowledges. Your university, like mine, strives to keep the fields of Letters, the Sciences, and the Arts united and mutually supporting. And while the University must...
always be a place of specialization, it must also be, above all, the place of the unity and alliance of different knowledges. The present world demands new professions and people who have been educated in the plurality of languages.

Steve Jobs said that what we need today is returning to the ideal of the “renaissance engineer,” of the intellectual who is both a person of technical know-how and culture. Humanists cannot think to be superior to scientists and technologists. Technologists and scientists, on their side, need more than ever to know their own history and to examine both the errors and successes of the past, in order to avoid errors and prepare for the successes of the future. Scientists will always be called upon, and all the more often, to provide right answers. But humanists will likewise be called upon all the more to help the scientists to formulate right questions.

Universities must educate students about the historicity and the progress of knowledges, of all knowledges, in their mutually supporting and reciprocal integration.

In the current panorama of radical crisis in Europe, which puts at stake not only the debate of its idea but its very survival, I like to ideally link – and remembrance makes this possible as it destroys all false linearity – the birth of the University in the Middle Ages as a joint community of knowledge and the invention of the Americas as a frontier (denying the term all its geopolitical or colonial power) in movement from Europe.

It is not by chance that both these events triggered that first modernity which, with all its asymmetries and injustices, continues to develop and characterise the world. What remains of the centenaries celebrated in the past decades: from 1492 with the Americas to 1500 with Brazil is not an artificial timeline (marked more by fractures, voids, silences than by continuity), but it is the heritage of experiences of great communities which were deployed and which created networks of universities beyond Europe, changing not only the geography of the world but transforming, from the bottom upwards and from the outside, the sense of the history of the Western world. The South Atlantic which remains after expansions, conquests, occupations is above all, for peninsular, southern Europe, the extreme projection of communities, languages, cultures and knowledge. But it is also a new continent, where recent history and demography present today’s universities with an ethical and social task for the future, mirroring the agenda of
Europe in an innovative and provocative manner, towards the approaching horizon of 2020: from food safety to the environment, from human rights to inclusive societies, to sustainable development.

So in this perspective, the universities, that primordial public communities of open heritages of ideas, are called to their main and most delicate mission, and the celebrations of the Fifth Hundred Years of the University of Granada is an important step for all of us along this road: thinking also in a radical manner about the crisis which unites us and using this thought as the foundation for another world, which shares fundamental resources and assets for the benefit of all. While the current landscape is pained with crisis, we may think that the time is ripe for starting from the universities, from the strength of our heritage of memory and foresight that demands care of our future, and we may rethink, with the responsibility that lies rooted in our autonomy, to Europe, the Americas, the Far East and the world.
In our knowledge-based society, knowledge creation and dissemination is both led and shared by many. More than ever, innovation and entrepreneurship, and solutions to complex societal problems are not generated only from within the labs of academia, and learning is not confined to our classrooms.

To best use our assets and remain relevant, universities must break down our traditional disciplinary and institutional boundaries and foster genuine collaboration both within and outside of academia.

**Building community-university knowledge partners**

Research universities are very good at the “push” model of research where the university devises new algorithms, technologies and ideas then shops the ideas outside of the university. It is time to strengthen and balance the other side of the equation – the “pull” model – where society’s challenges and needs are heard.

We must always be ready to partner with and together address the challenges facing society. We must listen well, to ensure that our research reflects societal priorities. And we must integrate them into our teaching mandate, through continuing and professional education tuned to the needs of learners at every age.

Universities and society together should increasingly value all types of research, from ‘basic’ to ‘community-based’ research, as central to making long-term societal change and pushing the boundaries of knowledge discovery.
Collaboration – A formula for creativity and innovation

In keeping with our academic mission and values, universities must be pro-active in reaching out to potential partners across industry and civil society, creating a robust two-way flow of ideas, and integrating the most pressing issues facing communities into our academic mandate. We need to be more pro-active in collaboratively transferring new knowledge to the industries and meeting places of our communities.

It is time, together with our community partners, to open up opportunities for students and faculty to study, travel and practice innovation and entrepreneurship, locally and internationally – and likewise to bring fresh perspectives into our classrooms and labs.

Strong virtual and physical connectivity with our local and regional communities is needed to understand their challenges, create relevant knowledge and address major societal problems; to energize our economies and enrich our social and cultural life. There is a synergistic relationship between building great communities and great universities; they exist in symbiosis, feeding, inspiring, and energizing one another.

Also important is leveraging the entrepreneurial forces coming from our global networks of partnerships. It is clear that no single university can match the productive capacity of multi-institutional, multi-national teams, where all entities embody the principles of collaboration. Such alliances tap into the full spectrum of university’s strengths: from the historically and ethically informed critical thinking skills of the Humanities, to the transformative capabilities of modern science.

Student learning in and with the “real world”

Our current generation of students is entering a rapidly evolving job market where many of the jobs today did not exist 10 or 15 years ago. To best prepare our students, we need to partner with society to identify the currents of change and to co-educate our students – our future leaders.

Community-based student experiences should enrich student learning as well as meet the goals of off-campus partners. Together with our community partners, we need to think broadly, be creative and proactive to ensure these models are maximized, mutually beneficial and relevant.

If we collaborate with employers, organizations, industries and others, we will work to support real societal needs and our students will benefit from a rich set of experiences; they will come out much stronger and much more ready for the changing global market place and be leaders in society. Respecting community partners as co-educators with universities will result in different experiences for students going forward, becoming a tool of change in itself.
Community Engagement - Strategic Response to Changes in Knowledge Creation and Dissemination

In a knowledge-based society, the principles and practices of community engagement provide a framework to support the university as a partner, as lead and as a key player in knowledge production and dissemination. We have an opportunity and an imperative to enmesh our academic mission of research, teaching and learning with the broader societal agenda, only possible through building mutually beneficial and collaborative university-community relationships. It is clear that we need to back away from a culture of individual, decentralized structures and work more collaboratively within and outside of the university.

It is citizens, cities, regions and global communities that give universities the social license to achieve success. We need to earn that license every day. To do so we must connect and reconnect with community and industry partners thoughtfully. By listening and understanding their goals and aspirations, we ensure that our teaching, learning and research reflects societal imperatives.

And it is a two-way street so that we also learn, as communities hold expertise and assets that further what universities can do. We must act in community by engaging in knowledgeable, honest and respectful relationships. By embedding principles and practices of engagement into the work of the university, higher education will strengthen its connections with society, from local to global, so we can create the knowledge platforms that are key to charting a more sustainable future together.

Key factors for the future of universities:
- Building Community-University Knowledge Partners
- Collaboration – A Formula for Creativity and Innovation
- Student Learning In and With the “Real World”
- Community Engagement - Strategic Response to Changes in Knowledge Creation and Dissemination
Denmark is a leading knowledge society, and we are dedicated to keep it that way in the future. However, it is no secret that the landscape of R&D is changing and that this development has accelerated in the past years with rising nations on the R&D scene like China and South Korea.

The question then is how a small country like Denmark as well as other European countries can compete on R&D in this changing landscape? In my view, it demands that we invest more in research and education. It demands that the quality of research and education is of the highest international standard. It demands that we cooperate with other leading R&D players around the world. And it demands that our activities are sustainable and creates value.

Excellence: Research of highest international quality

High quality research and education is the trademark of an international elite university. Without excellent research universities, our societies would stand at a great loss as we will miss out on new ground breaking inventions, technologies and breakthrough knowledge that may change our everyday lives and solve some of the societal challenges. Without excellent educational universities, we could not educate innovative and high quality business leaders, engineers etc. that can make a difference in private companies and organisations.

Many universities strive to be among the international elite universities – both in term of research and education. This also includes my own university, DTU. But global competition on R&D is fierce, and it demands significant resources to stay in the lead in terms of both financial and human resources.
Ambition: How to be among the five leading technical universities in Europe?

At DTU, one of our strategic objectives is to be among the five leading technical universities in Europe before 2019. To fulfil this ambition, we will take a series of actions to strengthen our activities with a focus on, among other things, the following:

- Facilitate international research excellence and world class research environments within chosen fields of interest
- Attract high profile researchers
- Promote interaction with adjacent sciences and fields of research
- Offer high quality research-based education for all students
- Offer research-based advisory services to public and private authorities and organisations
- Build alliances with leading international universities
- Promote innovation and sustainability
- Increase public and private research funding
- Invest in state of the art research infrastructure

Challenge: New landscape of R&D – an opportunity or a threat?

China is now a major driver of global R&D, doubling its spending on R&D over 2008-2012 (OECD Science, Technology and Industry Outlook 2014). The evolving landscape of R&D is something we need to take very seriously. As European universities, we cannot turn the blind eye to the global competition in R&D and just proceed as usual. However, instead of being scared of new global competitors, we are better off if we adjust to this new reality and exploit the possibilities that it offers.

One strategy is to develop strong alliances and strategic partnerships with leading universities both in Europe and in the rest of the world. In this manner, universities can tap into new rising research environments in for example China and South Korea and be part of the development of new discoveries and new knowledge in selected areas of common interest.

At present, DTU has entered into formal alliances with leading Nordic and European technical universities as well as with the leading technical university in South Korea. In these alliances, we work together on joint research projects and publications; we develop joint educational programmes as well as study and research exchanges for both students and researchers.

“Building international alliances
Two important lessons I have learned are:

1. It is important that the collaboration is prioritised at the top management level at universities
2. It needs to lead to concrete results”

Critics might say that it is too time-consuming to engage in alliance building and that it does not lead to high impact research results in the short term. However, in my view, the benefits of collaborating with international universities far exceed the sometimes hard work it is to build trust and engage in new cultural settings seen from both an educational and research perspective.

Thus, my commitment is clear. At DTU we will in the coming years invest time and resources in closer cooperation in our existing alliances as well as develop new strategic partnerships.
around the world. It is not only rewarding both culturally and personally to work and study with different nationalities – this mix of seeing and doing things differently may also lead to whole new insights and perspectives on how to solve some of the societal challenges, we are witnessing across the globe.

High quality research and education is the trademark of an international elite university

Another strategy is to attract high profile researcher from other universities. At DTU, we offer attractive working conditions and research possibilities. But is does not end there. We also help foreign researchers set up their families in Denmark and try to help their spouses with getting a job. We do this because it matters to the people we want to recruit. And we do it because it prolongs the time that high profile researchers stay in Denmark. At the same time, we know that we cannot attract the right people, if we cannot offer them access to state of the art research infrastructure and research environments.

It is no secret that one of the competitive advantages that make leading universities stand out in the global landscape is access to state of the art research infrastructure. In my field, i.e. technical sciences, research infrastructure is a continuously and costly expenditure as technologies are changing faster than ever. However, we cannot conduct excellent research without access to advanced equipment, laboratories and experimental plants and pilot plants. Thus, in order for a university – and especially for a technical university - to attract students, researchers and businesses, state of the art research facilities are not nice to have – they are need to have.

Relevance of universities

There are many opinions on the role of universities and how closely they should be linked to the surrounding society. In my opinion the link is clear: Universities need to create value that benefits society. Of course it differs how different universities are able to create value and their attractiveness for external collaborators.

As president for the Technical University of Denmark, we have as our stated mission to develop and create value using the natural sciences and the technical sciences to benefit society. Thus, my focus is to build strong research bases in selected fields and to educate high-quality engineers and researchers with an active participation and close contact with businesses, organisations and other relevant partners. I believe that this close interaction and exchange with the surrounding society is vital for universities and their ability to innovate and adapt to changes. At DTU, some even say that innovation is part of our university’s DNA.

In my opinion, universities have an obligation to interact with businesses, organisations and other relevant partners and to give back to society in terms of new discoveries, technologies and insights. For me it is essential that new knowledge and technologies do not stay in the labs or offices. Research must be transferred and shared with relevant partners that hopefully can find a use for the research results to create value. This does not mean that there is no room to basic research. We need basic research, and I fully acknowledge that not all research findings are directly applicable in the short term – and that is fine. But we must ensure that the vast majority of research results find its uses, one way or another.
As part of society, universities are not static. As all other institutions, we must adapt to changing demands and needs – both from within the university but also from outside in terms of political and societal changes. This ever changing environment presents both new challenges and new opportunities.

One of the greatest challenges that DTU is facing is a lack of political will to prioritise more public R&D funding to the area of technical sciences. At present, technical sciences in Denmark is ranked at the absolute bottom of the list when comparing to other OECD countries. This means that Denmark’s and DTU’s position as one of the leading countries and universities in this area can be severely challenged.

The low prioritisation of technical sciences in Denmark is not only damaging the possibilities to do more excellent research in fields like biotech, health, energy, transport and climate. In my best belief, it is also damaging both growth and job creation in Denmark. For instance, a study has shown that private companies that collaborate with DTU create a statistically significant positive increase in productivity on an average 10 percent per year over a 6-year period. If all R&D active companies in Denmark were to achieve the same productivity effect as the collaborating companies, it would raise the Danish GDP with nearly 2 percent. However, it goes without saying, that DTU cannot expand its activities profusely without a significant inflow of financial resources.

Hence, my hope for the coming years is to see an increase in the public and private R&D spending on technical sciences. For my part, I can promise to spend them wisely and with the intention to contribute to the creation of sustainable growth and more jobs. So far our track record is good. DTU is the leading Danish university to commercialise its research and knowledge measured in patents, licenses and new start-up companies. Additionally, we educate high quality engineers to the private sector. Our graduates not only bring with them strong professional competencies, including insight into the newest knowledge and technologies, but also direct links into the university’s network.

**Sustainability**

The scientific development enables solutions today that were prior inaccessible – and even unthinkable. Universities are often the driver for positive developments in for instance areas of climate and energy challenges by creating new technologies to reduce the consumption of the often scarce resources that the world has at its disposal. I think that we—as universities—need to take a more proactive role upon ourselves and see it as our responsibility to promote research on sustainable development.

As a technical university, I believe we have a special role to play. Our aim and way of work is to understand, optimise and tie different solutions together. And if you couple this with technological insight and knowhow, you have the platform for creating new sustainable solutions to the societal challenges in areas of climate, transport and energy. At DTU, this has among others things led to the creation of a new science based approach to sustainability, risk and decision support called **Global Decision Support Initiative (GDSI)** targeted towards decision makers.

Overall, DTU’s approach to sustainability is a wide, scientific based and operational approach. It is my aim that DTU will become a centre of excellence for research and education within sustainable technologies and systems, and that the university will be a showcase for university collaboration on green technological solution for the future.
For instance, in the area of wind energy, Denmark and DTU has a stronghold both scientifically and industry wise. This have among other things resulted in the establishment of a test facility for giant windmills up to 250 metres high in a close cooperation between DTU and the wind industry. The University also promotes sustainability across the university by engaging students and researchers in a range of different innovative activities and international competitions. One example is DTU Roadrunners where a group of students construct an eco-car that can run as far on a litre of fuel as possible.

However, research on sustainability cannot be isolated from other research agendas. In the case of wind energy, it is crucial that renewable energy can be stored for later use as the wind does not always blow at the exact time same time as we as consumers demand energy. Thus, the value and application of renewable energy sources is contingent on researchers’ ability to convert and store it in the existing electricity system. Therefore, we need to work together to solve these challenges in a sustainable way. In the coming years, we stand with the possibility to change the entire energy system and be less depending on fossil fuels.
The challenge of making any forecast under a high degree of uncertainty is enormous on the one hand but of course highly attractive on the other. And indeed the world of higher education is faced by a large degree of uncertainty. In any respect the public demand for innovation in many dimensions is increasing. Worldwide there is also a boom in the demand for higher education. We need more people who are able to innovate societies, production processes, and not in the last place, academic research. So it is indeed interesting to think about the future development of education.

The main reason why so many people will like to study in academic programs is the increasing complexity of basically everything. Societal challenges are complex in nature and require both curiosity-driven field-specific and cross-disciplinary research. The societal acceptance of investment in research will increase if more people understand the need for the quest for more knowledge. Due to further specialization in research individual academics will feel more need to collaborate. This can imply collaboration between academics, but also collaboration between universities and companies or governmental organizations. Innovation in research will continue to be the main driver of the selection of academic topics in higher education.

International labour markets will change in the next decades. Due to computerization the nature of many jobs will change. Knowledge in itself will be easy to store and accessible for anyone interested. So the ability to evaluate different sources of information will become more and more important. This has important implications for learning. Future students will have different abilities and competencies. The ability to use knowledge to be able to innovate will be key in 2031.

Universities will also be more open to the outside world. Research results will resort under open access policies, academic journals will be open, and also education will be open. ICT-tools will change the nature of the ownership of courses in university programs. It will be easy for students to get access to remote course offerings. To some extent the traditional geographic role of universities will
change. A diploma in 2031 can consist of different local courses completed with on-line components. But still, ICT will also improve On Campus education.

Student mobility will be high in 2031. Despite the boom in online education, it will remain attractive for young academics to go and study in typical student towns. It is most likely that this will not be a single city, but students will prefer the traveling model. Universities will offer more intercultural training and try to benefit from the backgrounds of different nationalities on campus.

Face-to-face interaction will remain an important element of learning. Teacher-student interaction will be at the core of the training. Students will be more the ‘owners’ of their learning project within the university. They will prepare class before class starts: the flipped classroom. Discussions in class are more important than one-sided lecturing.

Higher education will be different in 2031. New fields will by then emerge. Learning will be more student-centered and project-driven. Universities will be partially virtual institutions but for sure still have their campus. Hopefully universities can safeguard some of the traditional habits that academic life is known for. And for sure human behaviour will be similar to today: young people not only need to learn academic topics, but also to develop themselves into responsible adults. There is a bright future ahead, now in 2015, but also in 2031!

The world of higher education is faced by a large degree of uncertainty

Higher education will be different in 2031:
- New fields will by then emerge
- Learning will be more student-centered and project-driven
- Universities will be partially virtual institutions but for sure still have their campus.
Digitalization and globalization are rapidly changing many aspects of our societies and our economies. Huge processes of adaptation are proceeding all over the globe that have a deep impact on our lives and future.

The problem of digital distribution outrunning traditional modes of delivery, which at first seemed like a problem only for the music business and similar areas, has spread into many other branches of business as well. Traditional media struggle to survive, and even well-branded department stores have difficulty in coping with net-based distribution channels. And this is only just the beginning of the digital revolution.

Universities are increasingly facing the same pressures. In order to survive, universities have to understand and adapt to the profound changes taking place in the surrounding society. I have no doubts of their ability to do so, as universities have been able to adapt to radically changing societal demands for more than a thousand years.

My contribution looks at the educational challenges posed by digitalization. Although research is deeply affected by the digital revolution - open science and big data are catchwords familiar to all university people - these issues require a separate analysis. Even though I mention them here in passing, I do not in any way want to belittle their importance with regard to the future of universities.

It is easy to predict that profound changes must and will be carried out in universities. It is more difficult, however, to foresee what the changes will look like. In 2031 we know that universities will look radically different from the present ones, but we are not certain in what ways.

All revolutions have their victims. Doomsayers tell us that universities might be found among the victims of the digital revolution:

- "If universities fail to rethink their strategic situations and business models, they may well fall to the coming educational "tsunami"." (Gary King & Maya Sen, The Troubled Future of Colleges and Universities, PS January 2013).

Thomas Wilhelmsson
Chancellor
University of Helsinki
• "In fifty years, if not much sooner, half of the roughly 4,500 colleges and universities now operating in the United States will have ceased to exist." ... "it will end a system of higher education that, for all of its history, has been steeped in a culture of exclusivity... The college classroom is about to go virtual." (Nathan Harden, The End of the University as We Know It, The American Interest 2014).

• Many similar citations are easy to find.

So what is the buzz all about? Many of the prophecies of a bad future for (traditional) universities emphasize the advent of new kinds of competitors:

• The MOOCs and the discussion surrounding them was the first warning signal. “I’ve seen wonderland” said Sebastian Thrun. Why would anyone bother to study at a local university, when they could use the MOOCs of Harvard and others for free? However, so far this is just a signal; the threat has not yet materialized in any measurable way.

• A more realistic scenario is the advent of “low touch” universities offering low fee competition with the traditional “high touch” universities (many examples given by King & Sen, op.cit.). The most radical competition models, which are already in operation, include the “professor-less university”, administered only by low-paid “course mentors”, or the “university-less” community of academics earning the tuition fees (course fees) themselves (Steven Ward, The professor-less university, Times Higher Education 29.8.2014).

However, the concern about budget competitors is obviously more acute in high fee education societies, such as the US. The examples are usually taken from that context. In a society in which a commercial logic is lacking in the educational sector, the opportunities for budget actors are much narrower. In countries in which higher education is largely tuition-free (at least for its own citizens, including EU citizens), such as the Nordic countries, the concern regarding price competition is not at the forefront.

However, this does not immunize the system against the effects of the digital revolution. The needs and the wants of the “customers” have to be taken into account:

• The advent of the “touchpad generation” to the universities clearly challenges traditional ways of teaching and learning. For a person used to navigating on a touchpad already before being able to read, and consulting Google and Wikipedia whenever new information is needed, a pedagogics that still to a considerable extent is based on the idea of transferring existing knowledge and information is not appealing.

"The advent of the “touchpad generation” to the universities clearly challenges traditional ways of teaching and learning.

• For the new generation concepts such as time and place have a very different meaning and are much less important than for older generations. A university must be able to cope with this.
For the rapidly changing society in the digital era the amount of (quickly outdated) information possessed by an individual is not what is decisive, but rather it is his or her ability to find, process and create new knowledge over a broad field of issues.

So what has to be done? The global virtual world, in which students are just as at home as in the local world, should be able to be integrated into a concept in which localization to the world of the particular university retains its attractiveness. The students of a university should receive some added value from it. This may mean, among many other things:

- All virtually available educational content must be taken into use in an active manner. Open access to publications, data and educational materials is the foundation of an education that builds on a high level of openness in all directions. “Blended learning” is a fashionable concept in contemporary higher education discourse for good reason.

- The pedagogics has to focus on what cannot easily be learned by using available sources of information. The goal of university education is to enhance the capacity to find, process and create new knowledge. As problem-solving is in the foreground, multidisciplinarity is important. This may mean curricula and degrees with a broader disciplinary scope, but also – and this is probably still more important – the creation of environments and incentives for joint educational as well as scientific projects across disciplinary boundaries. Only when philosophers, lawyers, economists, natural scientists and medical doctors have learned to communicate with each other and cooperate in a self-evident and natural way will we be equipped to face the contemporary challenges of society and mankind.

- The strength of the contemporary university system lies in its Humboldtian ethos. The university is a place where research and teaching are connected and intertwined. The Humboldtian starting points should be taken much more seriously than is the case in many universities today. Students should be integrated into research in a way that actually offers them added value. The value of joining real and professional processes of research and knowledge formation is something only universities can offer the student. And more generally, the meeting of generations in creative processes – young, bold and critical students meeting insightful and experienced researchers – is probably the most important explanation of the success of universities as drivers of knowledge formation.

Many of the prophecies of a bad future for (traditional) universities emphasize the advent of new kinds of competitors:

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2. A more realistic scenario is the advent of “low touch” universities offering low fee competition with the traditional “high touch” universities

Horizon 2031. The University of Granada in Light of its V Centenary. “Reflections on the Future of the University”
The university is not only a place for studying and acquiring competences. It is also, and to a considerable degree, a place for acquiring a quality label and a life-long network of academic colleagues. A Harvard alumnus (or a University of Helsinki alumnus) is not just any person with an academic degree; he or she has a particular brand, derived from the branding of the university. For the universities at the absolute top, their brand is well established. For other universities, the issue of branding is becoming increasingly important. A university with a well-recognized brand offers its students obvious added value on the labour market. And, of course, the brand not only signals the quality of the student, it also indicates the value of the networks the student had the opportunity to build during the years at the university. In other words: even though the university should have a global commitment and focus, it also needs a branded locality, focusing on interaction and networks.

The social responsibility of universities has been in the foreground of much contemporary debate on the role and future of universities. For good reasons, universities have been seen as the engines of both regional and national competitiveness, and solutions to global challenges have been sought in these quarters as well. Ethical, economic and social reasons make the demand for more social interaction from universities compelling. But this is clearly in the self-interest of universities as well. A multitude of mutually benefitting ties with the surrounding society, as well as services made for mankind, help the university in building its branded locality.

As the virtual world redefines our relations to time and place, this necessarily must change the modus operandi of universities as well. We have to cope with a continuous tension between structured timeliness and timelessness, between doing something in a place and being in a state where place is irrelevant. This requires a new level of flexibility in the ways universities teach and operate more generally. Virtual technology makes it possible to customize the study paths of individual students in a more radical way than before. Both students and the labour market demand more flexible approaches: “flexibility is an essential part of a modern higher education system” (Kim Thomas, Is flexible study the future for universities? The Guardian 10.6.2014). The question is how to meet the needs of flexibility-oriented students without endangering the pedagogical firmness of the education (see Ron Barnett, Conditions of Flexibility, 2014).

Flexibility is a key word. In order to achieve this, the university must be able and willing to break many boundaries. A university that wants to be successful in a world of fluid conceptions of time and place, with a multitude of opportunities for the young and talented, has to be brave enough to break down the silos in which academia so easily finds itself entrenched, to break boundaries in many directions. It should accept and promote:
· Working across the boundaries of disciplines, educating real problem-solvers and contributing to the solving of societal challenges.

· Working together with schools and other institutions of secondary education to provide new and flexible learning paths.

· Interacting closely with societal institutions and the labour market, accepting a flexible oscillation between work and study.

· Accepting the relativization of locality and temporality by including the virtual and the global in the local.

A university that breaks such boundaries is a university that is deeply connected to society, both locally and globally. In other words, it is a university that fulfils its task in the best possible way.
Some Observations on Issues Facing Higher Education and the Areas with the Greatest Potential for Development

**Top down and bottom up: strategic leadership**

To have superb activity in teaching, research and knowledge exchange at a university doesn’t mean there isn’t room for greater strategic coordination as well. HKU prides itself on a ‘bottom-up’ approach, allowing researchers and teachers to organically develop the areas that interest them. I do not advocate stopping this or imposing central top-down controls, but I do advocate strategic planning, coordination and alignment. This allows sharing of best practice, interdisciplinarity and making the whole greater than the sum of the parts. The best universities in the world have perfected this: we can all learn from them. This is not about micro-management, it is about strategic leadership, which is needed in every part of a university’s work.

**What’s in a name? Communications, branding & public relations**

Branding and public relations campaigns can help ensure greater control over what staff, students, stakeholders and others think about the university. I do not consider it undignified for a university to undertake such activities, I consider it essential. An institution’s dealings with the media cannot be allowed to be too reactive; it needs to find a more proactive approach that reflects its confidence in its qualities.

**Hands around the world: international partnerships at every level**

At HKU, we will collaborate internationally with highly selected partners: I believe we are good enough to collaborate with the best. We will extend our influence in Mainland China, we will strive to make successes of our work in Shenzhen, Shanghai and Zhejiang and we will seek new meaningful partnerships, especially with Mainland China’s top nine universities.
(the C9). We must ensure that the focus on stronger relationships with the Mainland is not at the expense of our existing and future links with the rest of the world: we can and must have both. We will improve our capacity for technology transfer and commercial exploitation of our research. We will expand our experiential learning across all ten Faculties and ensure that all HKU students undertake meaningful attachments outside Hong Kong during their time here. We have an obligation to equip our graduates to be global citizens: improving their language skills, broadening their international experience, and promoting their ‘whole person development’ will all contribute to this goal.

Access all levels: campus diversity, inclusiveness & empowerment

The Hong Kong higher education sector has only a tiny number of women at Dean level or above in any of the universities: as a sector, we need to address this. I have just signed up to make HKU a lead academic institution of HeForShe, a United Nations campaign for gender equality and the empowerment of women. Contributing to the success of this and similar initiatives is a moral responsibility. On this and many other issues, I believe that the higher education sector in Hong Kong should behave as one. Although we are of course rivals with other local universities for funding, for staff and for students, our main competitors in global terms are not here in Hong Kong, they are elsewhere in Asia, in the US and in the UK. I will continue to work with other university presidents in Hong Kong to co-exist in an atmosphere of friendly rivalry coupled with joined-up thinking and close collaboration where they are in the best interests of HKU and of Hong Kong in general. I firmly believe that it is in all of our interests for the higher education sector here to be seen globally as one that is mature and constructive and not beset by petty local competition or parochialism.

Areas with the greatest potential for development in Higher Education:

- Strategic leadership
- Communications, branding & public relations
- International partnerships at every level
- Campus diversity, inclusiveness & empowerment
- People power
- Rankings and what they mean
- Politics and academia

People power

A university’s greatest assets have always been, and will always be, its staff, students, alumni and friends. Within HKU, I believe that we have to genuinely value our students and staff, demonstrate the ways in which we value them and ensure that in engaging with them the University has a human face. For example, we need to develop better ways of encouraging, quantifying and rewarding excellence in research, teaching, knowledge exchange and social responsibility. The yardsticks of teaching excellence are the most difficult to objectively quantify, but this should not stop us from aspiring to do so. Our criteria for appointments, promotions, tenure decisions and extension beyond the current retirement age must be transparent, objective and fair. We must have a modern and agile staff review and development process that allows both the employee and the employer to understand one another’s expectations, assess whether they are being achieved or not and if not, why not? We need to celebrate achievements by our students and staff; we
also need to understand difficulties and provide support where it is required.

In Hong Kong, the limitation on our ability to provide affordable accommodation for all students and staff that wish to have it is a major impediment to our development. In order to maximize our potential, we need to be able to recruit and retain the best staff from all over the world. We have already made progress on tackling this issue and we will continue to look proactively at ways of deploying our resources to ensure that shortage of accommodation is no longer a barrier. A related issue is the education of the children of staff: we will develop imaginative ways of addressing this issue.

**Politics and academia**

The final few months of 2014 were of great significance in Hong Kong. The class boycott, the street protests and the resulting divisions of society have raised fundamental issues for Hong Kong and for the University. Recently, the very principles of the University have been challenged. I am proud of the fact that we have had the strength to maintain a consistent position on fundamental issues: we have stood
up for the sanctity of academic freedom, freedom of speech & expression and institutional autonomy and we will continue to do so. We have repeatedly emphasized that freedoms come with responsibilities and that we expect all of our staff and students to anticipate, understand and accept responsibility for the consequences of their actions. We have condemned violence by all parties and we have played our part in the work, both publicly and behind the scenes, to achieve reconciliation and promote dialogue.

Now we must all learn from the recent events. We must make absolutely sure that the best interests of the future of the University are not damaged or restricted by short-term political considerations. I was taught to turn every negative into a positive, to treat every day as a learning experience, and to regard every threat as an opportunity. The recent events in Hong Kong will go down in history: as participants in that history we all have responsibilities, we must all strive to focus on the positives, and learn and develop as citizens. I consider it absolutely essential that we do not allow parochial attitudes to impede the development of the University. This is possibly the biggest single challenge to the University of Hong Kong today: to define its place in the world and its relationship with the rest of China uncluttered by distractions of politics. Events of the last few months may have changed Hong Kong forever but they have not changed my view of the priorities for this University.

“We must make absolutely sure that the best interests of the future of the University are not damaged or restricted by short-term political considerations”
1. Character and purpose

- Universities generate new knowledge through critical research based on the analysis of facts. These institutions are the growth engine of civil society and the breeding ground for its leadership. They function as a meeting place for the serving elites in education, teaching and study; multidisciplinary scientific research; and a social encounter giving rise to boundless academic-social networking unrestricted by geography, religion, ethnicity, nationality or politics.

- Nowadays, universities are having trouble communicating these messages to the public, since many people make the mistake of perceiving universities merely as teaching institutions. Members of the academic community are obliged to clarify this misconception. Lack of continuous contact between universities and the public is liable to undermine the essential roles fulfilled by these institutions.

2. Teaching and educational policy

- In every society, teachers, communications authorities, publishers and producers comprise channels for disseminating information. Universities retain the role of initially creating knowledge, as well as distributing it to the next immediate circle – students and agents of social and educational change. Not only the next generation of scientists but also the future distributors of knowledge will derive from students and fellows.

- Every research university must strive to publish research results and teach research methods to specific circles in the university community. Modern teaching methods using online courses and virtual meetings make it possible to convey researchers’ research results to a very broad public, to implement the use of the most modern and updated technological tools. Yet this does not apply to all subjects of research, nor do all students and teachers have access to the appropriate online tools, and so we must incorporate the work tools in the teaching. For example, online instruction should be
introduced with the presence of a TA in the classroom.

- Teaching policy must be updated with regard to the level of approval of courses studied outside the university class framework and the attendance requirements at certain seminars and labs. A system must also be found in the online methods for interfacing between researchers and their students.

- In recent decades, research has become characterized by international cooperation, mainly among senior researchers. Just as the language of research knows no geographical boundaries, neither should it be constrained by age. In the near future, a network of advanced research students will join that of established researchers, initially in multi-age research groups that will cooperate with one another. But the time is fast approaching when young researchers will form networks of their own. These networks will justify the young researchers’ confidence that they are on the right path, and will support the breakthroughs of the research they are interested in pioneering and perhaps are prevented from doing out of apprehension about the attitudes of senior researchers. This is also one of the overall concepts for innovation in research: young researchers breaking free of the “burdens of heritage” from the generation of veteran researchers and feeling encouraged to be bold.

- Innovation needs to be recognized, encouraged and supported from the earliest stages of academic education, and certainly in study and university advancement.

3. Research and creativity

- Innovation needs to be recognized, encouraged and supported from the earliest stages of academic education, and certainly in study and university advancement. The proper mix of test questions and student assignments can be oriented toward thinking creatively and outside the box. It is imperative to promote applied research as being relevant for academic advancement. The necessary assistance for strengthening research and encouraging creativity will come from combining academic studies with activity at high-tech centers and even by inviting high-tech factories to areas near campuses, in order to bring students and researchers closer to the cradle of innovative creativity.

4. Campus and infrastructure

- Campuses will not become virtual, despite the many changes taking place in teaching methods. The campus will continue to be a human-academic meeting place for scientists and students from all over the world, and connected virtually with research fields and research partners alike. It must therefore be equipped with the most updated and reliable communications equipment, to realize the most essential element of science – ties between various people working on similar questions, and optimal communication with research subjects, just as, in the current space age, satellites are sent to provide images and samples while their processing is conducted at research centers on earth. Data on diseases, patients, seismic activity centers, or manuscripts and archeological objects may similarly be shared.
Firsthand testing and face-to-face encounters are vital for maximizing scientific understanding, despite today’s sophisticated technology and progress. The campus can therefore reduce its classroom areas but be more expansive, progressive and valuable in the interrelated areas in the laboratories, research equipment and research tools.

5. International relations and internationalism

Performing good science, advanced research and high-quality teaching is difficult in isolation from the rest of the world. International relations are a prerequisite for keeping scientific inquiry and thought updated, and making research subjects accessible to researchers and students. Decreased prices in land, air and naval transportation, as well as the sophistication of electronic communications channels, make it possible to boost international scientific “encounters.” Campuses throughout the world already excel in the variety of their populations, and with the proliferation of cultures and religions, the teaching classrooms and languages of instruction will enable cooperative work among the finest students and researchers.

Life in the “international education market” will be more competitive, since excellence will be evident and known to everyone. Consequently, the threshold of achievement by the best in the institutions will be revealed to all those interested in superior science.

Internationalism is not a luxury in the higher education of the near future, but a necessity, along with its manifestations at every level of academic activity: international students disseminating their knowledge and study tradition from one country to another; and field research findings in one location becoming available to researchers and students in another place, whether through academic meetings or sent by electronic means. Researchers’ publications appear on the international stage and must be in research languages that are familiar to all. I will not be so naive, but I will at least be so optimistic, as to expect such steps to comprise a platform for humanity to become less combative and more cooperative, for the sake of reaching better achievements.

6. Finances, foundations and support

Advanced science is getting increasingly expensive for various reasons. Research tools are becoming more costly due to extremely complex developments; travel, which is mandatory for scientific ties and scientists reaching the stage of integrating teaching and training after years of specialization, incurs high costs. Financial systems will be automated and interconnected in the institutions in a manner similar to that of international banks. The financial databases will be subject to auditing by experts including economists and business administrators on university staffs. The heavy costs will be primarily the responsibility of governments, as they are the main benefactors of outstanding higher education and as such must provide the principal financing for the institutions. This investment must be imposed on governments because the educational,
research and financial gains benefit the countries’ citizens.

- Yet the nature of the activities and future costs will inevitably make it necessary to continue raising funds from the private sectors, whether industrial, semi-public or philanthropic. Donations will be increasingly specific in nature, targeting projects in subjects of interest, with donor involvement in the academic work itself. In this context, we must exercise caution against interference with academic freedom and must expand the space available for creative discourse and the depth of researchers’ inquiries.

7. Alumni

- We must aspire to build an academic community that is as broad and inclusive as possible, unlike earlier times when education and knowledge belonged to the elite few. The strength of our higher education lies in its egalitarianism, openness to all, and encouragement of partnerships.

- Graduates are the first immediate circle of the academic community, by virtue of their both “speaking” the language of science and continuing to build on scientific achievements. The financial requirements of the institution of higher learning rely on every resource of its alumni who thrived thanks to what they received at university. Recognizing the university’s contribution to its graduates’ development justifies including them in the circle of partners in university activity who see to their wellbeing.

8. Social accountability

- Universities that have the privilege of receiving public or philanthropic funding may not ignore the public space in which they operate. The universities’ knowledge and capabilities for analysis and research are begotten in society and can assist in solving problems. This is not a benefit reserved solely for its owners; rather, university educators belong to diverse communities. The campus environment is international and pluralistic, and therefore can serve as an excellent example for all of society and a role model for many.

- Past experiences teach us that universities’ ways of getting involved lie not only in the research sphere but also in helping groups and individuals in need of legal, medical and financial assistance. Aid clinics are an important basis for training students and researchers, while furthermore performing a true service to society.
9. International communication technology (ICT)

- The knowledge amassed in institutions relates to new insights about the worlds we encounter, including the practical and technological world. To build academic work aids in teaching and research, scientists require technological knowledge but also further its development, through their endless search for better scientific understanding. The universities’ main involvement with technological information is finding solutions to the individual’s and world’s problems through patents relying on a profound understanding of our surroundings.

- The progress of civilization depends on basic, methodical research studies to understand our surroundings, giving rise to inventions that resolve problems and propel the world forward.

- Technological research institutions that are disconnected from basic research pose a limited model, with results that are goal-oriented and usually unsurprising. The world of creative, universal knowledge is found in universities, due to their multiplicity of disciplines. ICT is an essential part of academic activity. In the near future we shall see promotion of academic tracks also taking the achievements of applied-technological research into account. The distinction between basic research and applied research is insufficient in this day and age. The quality of research determines the extent of appreciation for it.

“Life in the “international education market” will be more competitive, since excellence will be evident and known to everyone. Consequently, the threshold of achievement by the best in the institutions will be revealed to all those interested in superior science”
The Difficult Questions Facing Higher Education

Topic 1: Quality of education: an absolute priority, but which must rise to an important challenge

Since their origins, often in the Middle Ages, all higher education establishments have sought to provide a quality education to those who attend them; an objective facilitated by the fact that in the past, students were relatively few in number and often highly motivated. Over recent decades the situation has changed considerably, as a result of higher education becoming accessible to the masses, cuts to the financing of universities, competition arising between institutions, the media presence of universities, and the appearance of the famous rankings: these different factors have encouraged universities to showcase the successes of their researchers and, unfortunately, to favour visibility over the quality of their activities, often to the detriment of their basic missions.

Today we have no option but to accept that this trend no longer makes sense, and that it is essential to rethink the missions of the university and to give absolute priority to the quality of education, since all concerns of universities must be focused on their students.

But what do students today want, and what do society and the economic fabric expect from the education offered to young people who have the desire and the ability to learn? To answer this question, we must refer to the great academic values: a university education must firstly give the young people who choose it the tools they need to develop their curiosity, their personality and their critical judgment. However it is clear that students must also make the most of their university careers to show awareness of the very many skills they have acquired during their studies, which go well beyond subject knowledge per se. Such awareness is crucial at a time when graduates leaving university are looking to find a place for themselves on the job market.

However there is another step to be taken, since today – and this will be even truer tomorrow – no one any longer does the same
job throughout their working life. People start with a position, then move to a different field, change their career path several times, and often take steps into the unknown, etc. Therefore they must be prepared to be flexible and find the sometimes tortuous path which identifies the challenges they wish to embrace, and in this way make an optimal contribution to the future of the planet and the society in which they live.

If universities have one value to pass on above all others, it is indeed innovation in this sense. Universitites must therefore constantly keep this in mind when designing their courses, perhaps giving slightly less importance to highly specialised subject knowledge in order to encourage cross-disciplinary skills and adaptability among those who will shape the society of tomorrow. This can be done by introducing interdisciplinarity where relevant in courses (i.e. more coherently than simply juxtaposing different disciplines), but probably by going even further and innovating pedagogically in order to offer “global” studies to highly motivated students, helping them to develop a vision that will allow them to understand the problems they will face in their careers – and their lives – in a very broad way, yet no less rigorous for all that.

This is what universities must do if they are to fulfil the missions assigned to them by society!

**Topic 2: The dangers of private financing of public universities**

In many countries, particularly in Europe, universities are public, which means they are placed under the responsibility of political authorities and financed essentially by public funds. This is fully justified insofar as higher education, based on evolving research, is a task of government, perhaps even its primary responsibility.

For a number of years however, public funds have no longer always sufficed to meet the needs of universities, because the latter must accept ever greater numbers of students and must excel in research, which requires very large teams of researchers and highly sophisticated scientific equipment which unfortunately becomes obsolete all too quickly. At the same time there are very many private companies or wealthy intermediaries with an interest in contributing financially to research (rarely to education) and in becoming instrumental in academic decision-making.

This coincidence seems perfect therefore! The interest of one side makes up for shortcomings on the other, and as luck would have it this convergence creates links between teachers and researchers on the one hand, and the economic fabric on the other. It is therefore a largely favourable coincidence, but one which poses a twofold threat to universities.

Firstly, private financing is entirely legitimate, provided however it does not govern the strategic priorities of universities, and leaves teachers and researchers fully at liberty to choose their study disciplines (in fact we must not delude ourselves: it always does have a degree of influence on the choice of study and research topics; it falls to academic authorities to ensure that this remains within reasonable limits). If this condition is not satisfied, the quality of education and the originality of
research will suffer very quickly, leading the university ineluctably into a downward spiral! In addition, I wish to highlight what is in my opinion a far more serious risk: the emergence of private financing as an appreciable addition to university budgets, which sends a signal to public authorities that they need not increase the resources they allocate to universities to ensure their development. This disengagement on the part of political authorities is very damaging in the long term, since it removes all stability from universities. Indeed, while private money sometimes allows the financing of large-scale projects for which public funds are lacking, and can do so quickly, the financing of regular tasks must without fail remain the responsibility of public authorities. Public money is sometimes not flamboyantly generous, but it is stable, reliable and enduring.

I am convinced that steps must be taken to ensure a sufficiently large base of public funding for universities.

Nonetheless, it seems to me essential that universities should remind politicians and the public that they are capable of innovating in all areas of their expertise. People who have completed a university education often create businesses and jobs in very many fields of activity, particularly in the service sector. At a time when unemployment among young people is the major problem facing much of Europe, we must remember this and inculcate in students the spirit of enterprise and the spirit of innovation, regardless of their study discipline. These are the people who will create jobs for the long term!

More generally innovation is a state of mind which leads people to avoid "simply" reproducing what others have already done, to accept change and the unknown, to continually ask new questions, to tackle life and difficulties with a new approach, confidently, and a touch boldly. If universities have one value to pass on above all others, it is indeed innovation in this sense.

And this dimension, which consists in not being afraid to think differently, is what will bring the most benefits in the near future. It has nothing to do with technology, and thinking in this way is a duty for all those interested in knowledge and understanding. A testimony to this is the satirical essay entitled "In Praise of Folly" published in 1509 by Erasmus of Rotterdam, which states in chapter 29: "Two main obstacles hinder success in business: hesitation, which darkens clarity of thought, and fear, which reveals peril and deters from action. Folly is the perfect antidote; however few people understand the immense advantage to be had in never hesitating and in daring everything."

**Topic 3: The future will depend on our ability to innovate**

People in charge of universities are often questioned as to the "immediate usefulness" of university research, since while all politicians affirm that they support higher education and research, they also like to know the concrete, short-term fruits of research in terms of the wellbeing of citizens and the success of their country’s economy. This is understandable, however the long-term view of research must never be neglected.

For some time, this recurring question has found an answer in the magical word "innovation". In general, this term designates technological innovation, and the young firms it allows to be set up relatively quickly. This is all well and good, even though attention is rarely paid to the sustainability of products made by such firms, or the jobs they create.
The primary role of universities is indeed that of learning never to hesitate and of daring everything.

**Topic 4: Openness as the basis of any university**

European universities have since time immemorial built their success on the mobility of researchers and students, who moved from place to place to share and compare ideas in order to create new knowledge. Such openness is the cornerstone of all living knowledge, of all knowledge that is created and constructed, which invites comparison, asks questions of itself, can be dissected and, above all, passed on. An open approach is therefore in my view the idea which must serve as the basis of any university policy.

However Switzerland, the host country of the University of Lausanne, regularly asks itself questions about its immigration policy and the openness of its borders to the free movement of people. It cannot be denied that immigration policy is a central problem in the policy of any nation, since it has repercussions on the job market, on social policy and on security. All debates on this subject are therefore entirely legitimate in any democratic country. Since Switzerland is based on a political system of direct democracy, this question has been put before the population many times. While in the past it has always confirmed the choice of a Switzerland open to the world, on 9 February 2014, the Swiss people voted in favour of a restriction to immigration. The direct consequence was the decision by the European Commission to exclude Switzerland from the Erasmus+ and Horizon 2020 European programmes, with immediate effect.

Without entering into the details of Swiss policy, and leaving aside the negotiations which have taken place since 9 February 2014 between Switzerland and Europe and which will continue over the next two years, this example illustrates that when a country’s doors are closed even partially, for whatever reasons, there are immediate and very tangible repercussions on the way universities are run. Indeed, I can attest to the fact that the difficulties affecting Switzerland in relation to the free movement of people have had a direct effect on students, who justifiably fear curbs to mobility; on researchers who cannot imagine – again, rightly so – a world in which research is hemmed in by political boundaries; and on the professors and researchers who have hesitated to join Swiss universities in this less than encouraging environment.

Science has no boundaries, ideas must circulate freely: it is with this hope that I urge all universities to build their future.
The Universidad de Granada is celebrating its 500th anniversary. Not just yet, but soon – in 2031. With this ‘reflection project’ Granada is looking to the past and at the same time booking a ticket to the future. This is exactly what really old universities should do.

Clark Kerr, former President of Berkeley, once envisaged the time-honoured tradition of the university as follows, comparing some of the oldest universities with other longstanding institutions. About eighty-five institutions in the Western world established by 1520 still exist in recognisable forms. They still have similar functions and unbroken histories, including the Catholic Church, the Parliaments of the Isle of Man, of Iceland, and of Great Britain, several Swiss cantons, the water boards (‘waterschappen’) in the Netherlands, and seventy universities. Granada is one of them. Kings that rule, feudal lords with vassals and guilds with monopolies are all gone:

“These seventy universities, however, are still in the same locations with some of the same buildings, with professors and students doing much the same things, and with governance carried on in much the same ways. There have been many intervening variations on the ancient themes, it is true, but the eternal themes of teaching, scholarship, and service, in one combination or another, continue.”

Kerr’s intriguing observation does not mean, however, that nothing has changed. The University of Bologna, almost twice as old as that of Granada, at the end of the eleventh century was hardly the university as we know it today. If a stranger in thirteenth-century Bologna had asked the way to the university, no one would have understood him: there was no specific university building. The wealthier teachers taught in their own houses; the great majority of them were left to rent classrooms from private landlords. How different things are today!

Today, we have the portal of the University of Granada at our very fingertips (‘un portal ágil’), where Rector Francisco González

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Lodeiro addresses his visitors in web language that would have confused the medieval visitor:

“The Universidad de Granada warmly welcomes you to its website. The purpose of this tool is to serve as a flexible, efficient and participatory portal for users of the network, and to answer the questions and queries of people accessing an open University. This website offers all the information you require in relation to the structure of the institution and the range of services offered to the University Community and the general public.”

These differences are not just confined to buildings or communication: a lot has also changed in what universities do. Until the late eighteenth century, little research was carried out at universities. With some exceptions – such as Newton in Cambridge and Boerhaave in Leiden – the early universities were primarily centres of teaching and learning, focusing on specific professions: religion, law and medicine. It was not until 1809, with the foundation of the Universität zu Berlin that there was any interaction between teaching and research. The modern concept of a university was developed by Von Humboldt. No longer was it a matter of ‘Brotstudien’, but of the ‘Einheit von Lehre und Forschung’ in which researchers and students could become part of a true community (‘eine Gemeinschaft der Lehrenden und Lernenden’).

So, although they may be venerable institutions, today’s universities are by no means replicas of their counterparts from the eleventh or fifteenth century. Everyone in the university should read the marvelous History of the University of Europe, a series of four tomes that tell the story of the European university. It is a story of stability, but also of continuous adaptation, survival and downfall. The series’ final volume, from 2011, shows how much has changed since WWII alone, both within the university and outside.

Universities and their strategic challenges

As a former law dean, I have recently reviewed some of the major strategic issues confronting law faculties today. I was amazed by the speed of the changes in my own field over the past decades, changes affecting research, education, governance, international student mobility and the international competition of which research universities are a part. The request by the Rector of the University of Granada to say something about the key issues in the run-up to 2031 is therefore both

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3 Professionsfakultäten as the Germans call it.
challenging and risky. Just take the Internet as an example, that has totally transformed the world of higher education and research in only a few years.\(^7\)

For most universities, I see a number of strategic challenges: their funding; the development of so-called widening participation policies leading to increased massification, diversification, marketisation and even privatisation; digitisation; specialisation and diversification in research; the ongoing debate about institutional autonomy and state regulation on the one hand, and the role of academics and the virtue of collegiality in the university on the other; globalisation and internationalisation of higher education and research; and the increasing importance of scientific integrity and the league tables.\(^8\)

Let us start with funding.

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\(^7\) The First Email, The First Tweet, And 13 Other Famous Internet Firsts (www.businessinsider.com/every-first-on-the-internet-2013-2?op=1&IR=T (last accessed 3 January 2015)).

\(^8\) I borrow from the second Chapter of my book.

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Funding

Rectors and Presidents across the world consider the level of funding of higher education and research as the most pressing challenge faced by today’s universities. In Europe, total investment in higher education is generally low, particularly in those countries that have been severely hit by the worldwide economic downturn. Spain is definitely one of these countries where research funding must come increasingly from the EU, rather than from national funding agencies.

Funding is also an issue for university education, with important questions such as: how much should students themselves contribute to their education? In my book I looked at the extreme situations where American law graduates find themselves saddled with debts almost for the rest of their lives due to having pursued a law degree. An intriguing question is whether the ‘Americanisation’ of higher education in general, will also lead to the export of this particular socio-economic problem. This question is especially relevant in times of massive unemployment, as is currently the situation in Spain.

Many research-intensive universities have discovered in overseas students an attractive source of income, and these are by no means only the MBAs or the law schools that dare to charge tuition fees in the order of magnitude of 25,000 euros or even more. Another important question is whether we can then expect a division between national students whose studies are funded by national government subsidies, and international students who mostly have to fund themselves.

And yet another question: does all this mean that we will no longer be dealing with students, but with customers or even consumers?\(^9\) Students who pay such tuition fees demand value for their money – and they are undoubtedly not prepared to accept a dropout scenario after their first year or bankruptcy after graduation.

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\(^9\) Carel Stolker, Rethinking the Law School - Education, Research, Outreach & Governance, 2014.
Globalisation and internationalisation

Certainly one of the most prominent recent developments in higher education is its ongoing globalisation and the internationalisation of teaching and learning. However, at times we seem to forget how international the world of the university once was. ‘Medieval men loved travel’, is Hilde de Ridder-Symons’ lovely opening sentence in an elegant chapter on the mobility of university professors and students in the Middle Ages:

“It mattered little that roads were few and that they could only go on foot or on horseback, by cart or by boat. The twentieth century thinks of the travellers thronging the roads of Europe in the Middle Ages as the ubiquitous armies, merchants going from town to town, and pilgrims [Yet] until the end of the eighteenth century pilgrims ... of another kind were also a familiar sight on the roads of Europe. These were the university students and professors. Their pilgrimage was not to Christ’s or a saint’s tomb, but to a university’s city where they hoped to find learning, friends and leisure”.10

Since WWII, the world of higher education has entered a new phase of increasing mobility of students and academics. And if we realise that by 2031 we will be looking at 10 to 15 million students every year, and that Spain and Granada, for example, are highly attractive destinations for international students, we can expect that they, too, will be flooded with students from abroad.

And here again important questions arise: which students does a university want to have, and how many? And what should the ideal mix of national and foreign students be (the so-called ‘international classroom’)? All this calls for a well-thought-out strategy. As I have said before, student numbers alone do not say very much, certainly not for universities that also have research ambitions.

Education: massification and diversification

An important development is the ambition by most countries to widen participation in their higher education. In many instances, university education has developed – or is developing – from an activity engaged in by the elite, to a system of open/mass post-secondary education.11 Take Europe, where the target is that, by 2020, almost 40% of its young people should successfully complete higher education. But although attainment levels have risen significantly across much of Europe in the last decade, they are still largely

insufficient to meet the expected growth in knowledge-intensive jobs.\textsuperscript{12}

In an in-depth volume about globalisation and internationalisation, Nick Foskett and Felix Maringe, from the UK and South Africa respectively, conclude that for those universities in national systems where student participation rates have already reached high levels, the only response to the market is to compete for students internationally or to adopt a niche strategy of specialisation. Increased internationalisation, they argue, is the inevitable path for universities to enable them to operate in the global markets to which they will be exposed.\textsuperscript{13}

Strategies of widening participation mean that the student influx to higher education becomes more diverse than it was, say, twenty or thirty years ago – let alone a century ago. In many countries, the number of female students is continually rising, as are the numbers of students from deprived backgrounds, and from ethnic minority groups, as well as students from elsewhere in Europe and from overseas. Equally important is the increased diversity in pre-university education and in students’ motivation.

New questions therefore arise. How are we going to deal with such massification and diversification in the coming years at a university like Granada, with upwards of 80,000 undergraduate and graduate students? How much attention will we be able to pay to individual students? Will we be able to cater for the differences between all these students? New business models and pedagogies are already emerging. For instance, what will be the role of the rapid advance of online education, such as Massive Open Online Courses – the MOOCs?\textsuperscript{14} We are already seeing an increasing acceptance of non-degree credentials that do not rely on traditional universities.\textsuperscript{15} ‘Unbundling’ the customary curriculums and courses is considered to be one of the great disruptors in higher education. Students seem to prefer blended to 100% face-to-face or online learning. The future may well be blended and unbundled.\textsuperscript{16}

Research: choosing more focus

For all comprehensive universities, it is the quality of their research that determines their international reputation. No matter how important education is, reputation is always derived from research.

But scientific research is very expensive, and to conduct research a university has to recruit and retain the best researchers. It has to make major investments in scientific and technical infrastructure; and it has to make choices: what are the areas where my university can become a national or a world leader? After all, with increasing specialisation and a growing tendency towards a multidisciplinary approach, for most universities it is impossible to excel in a broad spectrum of fields.

The pressure of increased internationalisation will therefore manifest itself not only in the

\textsuperscript{14} See, e.g., Jonathan Haber, MOOCs, MIT Press Essential Knowledge, 2014.
educational domain we mentioned before. Foskett and Maringe foresee that the funding that is available for research will be increasingly channelled to those with very large research capacity, strong track records in research quality, and robust and international networks. Networks have indeed become highly important in today’s world. It is not without reason that the university of the future is seen as a networked university. Moreover they expect that the relationship between universities and business will see a strong engagement between global corporations and global universities. Global corporations provide a strong outlet for the innovations of universities, while global universities provide the knowledge and research resource to enable large corporations to optimise their own business development.  

The question arises of how universities that want to become world players in certain fields, en route to 2031, will be able to meet all these conditions, particularly as they themselves have only a limited influence on external circumstances. Whether or not there is a network with businesses, such as a local science park, is in many cases not a matter of choice. Funding and legislation are issues for regional and national governments. For many governments in mainland Europe the question will be whether they will be prepared to put extra money into one or two universities in particular, so that these universities will be able to excel on a world scale.

Foskett and Maringe expect a future in more or less four tiers: the first comprises a relatively small number of global universities whose reputation and markets are global and that operate with limited constraint from domestic policies and markets. A second tier of internationalised universities will also operate in the global arena, but from a base which is strongly rooted in their own national system. The third tier will be those that operate principally at national level, drawing students and resources largely from their own national context, but providing some opportunities for international engagement. And the final tier will be those that operate entirely within sub-national and regional contexts – they engage comparatively little with global markets, but demonstrate internationalisation in terms of curriculum design and content or through links with regional employers operating in international markets.  

Of course, it is difficult to say what the future will look like, yet such scenarios should be on the strategic agenda of every university and every national government.

**Digitisation**

Internet affects everything that we do: such as the way we carry out research, our teaching, and how we recruit new students. Internet also has an effect on the bond that we are so keen to preserve with our alumni. I would just like to say a few words about these last two: digitisation for recruiting students and the relationship with our alumni. The opportunities and threats of digitisation are not just an issue for universities. Private companies have been dealing with this for much longer. Some CEOs in banking, retail and in other business sectors have even been too late in adapting to so-called ‘rapidly changing consumer decision journeys’, and, as a result, have already lost their traditional markets.

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17 p. 314.

University rectors, however, are at the head of institutions that may be less sensitive to such changing ‘consumer’ decision behaviour. The widening participation policies in most countries guarantee adequate growth for just about all universities. And if the expectation proves true that by around 2025-2030 some 10-15 million students will be studying outside their native countries, then research-intensive universities with established positions in the world league tables need have few worries about their clientele.

**Autonomy and professional responsibility**

We have known for a long time that universities flourish best, and serve society most effectively, when they have strong academic direction and autonomy – in an atmosphere of freedom and collegiality. Academic freedom is the core value of the university, in combination with the confidence in the professionals’ own sense of responsibility. Yet we see that in many places both this professional autonomy and this confidence are under pressure from increasing intrusiveness and activism on the part of governments.

One of the results is a growing level of tension within universities. It puts collegiality, the time-honoured unity of university governance by academics and university management together, under pressure. Andrew McGettigan, a British writer with a background in philosophy, concludes that today’s academics seem about to be squeezed by the demands of new student-consumers and the pressures from management to become more efficient, productive and therefore profitable. This is, he says, exacerbated by the failure of academics to properly defend their profession:

“... pressed by workloads and atomised through research assessment, yes, but too willing to cede difficult chores to bureaucrats. The ‘self-critical community of scholars’, which is meant to safeguard degree standards, has been eroded to a large extent by an expansionist executive and managerial class, who will now have a new range of performance metrics with which to discipline more and more pliable academics.”

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I feel that this is one of the biggest challenges for the years leading up to 2031: how should we shape our university governance and management so that academic freedom in teaching and research can be combined with the also increasing line responsibility for more and more administrative, accounting and managerial needs?²⁰

**Integrity and the role of the league tables**

If a high degree of autonomy has for centuries been a vital ingredient for quality, this autonomy brings with it high expectations from society: expectations of quality, impact and service, and integrity. Of all those traditional institutions mentioned at the start of this essay, the Church, politics, government and in some cases the judiciary have lost much of their reputation. Universities, on the other hand, still enjoy a high level of societal confidence, even though their teaching and research take place in a less than simple environment: increasing pressure on students about study performance and tempo, students who may start behaving as consumers, with the attendant consumer rights, research that is carried out on behalf of commercial parties, and research careers that are determined by quantity rather than quality. With rankings and league tables that increasingly resemble stock market ratings, the question arises of whether our universities will be able to withstand all the scientific, societal and financial temptations. These are things we have to be alert to.²¹

**Universities as bastions of freedom**

A study published by The World Bank covering eleven universities in nine countries shows what is needed for an institution aspiring to become a research-driven university on the global scene.²² In short the answer is: (i) the ability to attract, recruit and retain leading academics and high-quality students, (ii) abundant funding, as well as (iii) an appropriate regulatory framework, adequate management, and a strong and inspiring leadership. However, much of the future of European universities depends on other factors, on governments and their financial capabilities in particular.

But one thing is certain. Over the centuries, universities have been centres of freedom. And freedom is not just a nice feature to have on our website – it is a responsibility. Hundreds of millions of people live in a world that is the absolute opposite of freedom, and this world seems to be growing unstoppably. There are so many places in the world where universities, with their assumed freedom of education and research, are much less free than one would imagine; many are struggling to survive while others are engaged in tough and sometimes even dangerous uphill battles for survival, trying to map out their development to accommodate local, national and international interests and values. What can they do?

Actually, they can do a lot. We can do a lot. A university does what it is: as part of a superb and centuries-old academic network it spans the entire globe with its fine web of academics, lecturers and students who seek one another out, read one another’s works and have a dialogue with one another. We challenge one another’s opinions, we cherish academic freedom and we have contacts across the

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borders of all the world’s conflicts and troubles. Where national and international politics have often run into difficulties and even ended up in a state of war, universities worldwide are still among the few networks that continue to connect people, from country to country and from region to region. Networks, in short, of many, many ‘bastions of freedom’. Every single day, our universities give shape to their responsibility to contribute to a fairer, healthier, more just, safer and more sustainable world. We hope that, in carrying out this responsibility, we can act as agents of freedom.

I wish the University of Granada, with its wonderful past and its inspiring future, every success on its journey to 2031.

“Over the centuries, universities have been centres of freedom.”
Universities are one of a small number of institutions that have a central role in civic life. This central role is to prepare young people for a full and productive life, both in terms of a specific career or careers, personal emotional and intellectual development and the capacity to make a full contribution as educated citizens. It follows that universities contribute to both the public and the private good. In addition, universities have always been generators of new ideas. With the great acceleration in the development in science that occurred during and after the Northern European Enlightenment, the German University through the University of Berlin expanded its role to take in new knowledge creation as a more central theme, the freedom to teach and the freedom to learn wherever knowledge takes you. This ideal spread to the United States and underpins our concept of a modern university. Inevitably, the role of universities as key drivers of research in society has led to wealth creation through technology transfer and the commercialisation of new discovery. It has also led to positive impacts on many aspects of society at a local, national and international level, through the constant improvement of ideas addressing almost every aspect of life. Universities have also long been repositories of national and international culture that defines broadly the human condition. Without addressing cart and horse issues, it appears to even a superficial inspection that there is a close link between the strength and affluence of individual societies and the vitality of their University system. It is not possible to identify a successful modern state that does not have a university system fulfilling all of the functions alluded to above.

Great universities are about the generation of new knowledge and the education of young people in an environment where this is created and by people involved in this generation. They have evolved from a self-governing community of scholars to institutions, often very large, where academic freedom continues to be a core principle but structures must be in place to ensure appropriate governance and reporting on the expenditure of public and private monies. There is also a clear expectation that universities will contribute to the good of society at large in all the ways that they have the capacity to do so.
Given these core drivers, two areas stand out that underpin the most successful institutions. Firstly, it is essential to have a reasonable degree of autonomy. Sensible reporting of expenditure to funding bodies and national regulators is essential but a reasonable degree of academic autonomy characterises all great universities. This involves quality self-regulation in academic issues, the ability to decide areas of academic activity, to develop one’s own curricula, run assessment processes, often with external input, and award one’s own degrees. Areas such as promotion of existing staff and appointment of new staff also fall into this area. The areas of research the University enters and how it organises its internal structure in education and research are also areas of considerable autonomy. Independent universities, whether regarded as public or private institutions, are typically governed by a council or board of trustees which has a broadly similar degree of authority to a commercial board. Academic affairs are supervised by a University academic board or Senate which in effect acts as a subcommittee of the University Council, reporting to Council on all issues of academic quality assurance. It is difficult to identify a leading world University defined by any of the reputable tables which does not have a governance structure of this type.

Universities have also long been repositories of national and international culture that defines broadly the human condition

The second underpinning aspect of significant institutions is that they have sufficient funding to deliver their academic mission. This does not mean that they should not be run efficiently with full attention to the optimum utilisation of funds whether publicly contributed, obtained through private student contribution or through research funding agencies. It does mean that the level of funding from all sources should be sufficient to support high-level teaching with personal engagement of tutors with relatively small numbers of students and that a significant innovation and research enterprise should be supported as part of the core operation. Even in countries with a long tradition of public university funding, it is increasingly difficult for the costs of running research intensive universities to be fully borne through the public purse. This has led to the model of university funding prevalent in a number of Western countries including the United Kingdom and Australia where the principle of public and private benefit is mirrored by a public and private contribution to university funding. The rationale for the public component of funding is straightforward given the huge contribution that universities make to society on many levels. The rationale for the private component relates to the private benefit in terms of career advancement and income that students obtain from a university education. Where the balance is set between public and private funding has seen differences in some countries. In Australia and in the UK, a key principle is the presence of a government underpinned loan pool with student repayment not occurring until the income passes a predetermined threshold as a form of additional tax. This is the key equity measure which ensures that young people from lower socio-economic backgrounds are not prevented by economic factors from attending university. In terms of equity, the devil is in the detail, including the total quantum of private contribution, the interest rate and how it is determined, the income level to be reached before repayment begins and whether repayments escalate as affluence increases. An important difference between Australia and the United Kingdom is that in Australia less remunerative professions,
notably in areas of great national need, such as nursing and education have lower university fees than more highly paid professional disciplines, where as in the UK a common fee is set for all University courses in individual institutions with relatively minor variations between institutions.

The issue of university funding and the maintenance of sufficient funding to enable great research intensive universities to thrive is one of the key issues now being faced in many Western countries, with increasing pressure on both public funding capacity and private individual ability to contribute. This has seen universities look to new sources of income generation including a greater range of educational offerings, better developed international footprints both domestically and internationally, more work with business and industry, support of emerging institutions in other countries; licensing of curricular content and major dependence on the advancement area. Financial issues have forced universities to become increasingly efficient in how they are administered and organised and they have become increasingly aware of the need for academic activity to cover their own costs. The different capacity of different types of academic activity to make a contribution to both central costs and strategic initiatives in large research universities has been increasingly recognised. Universities take generations to reach a level of international academic excellence and relatively short periods of systematic underfunding can undo the achievement of many decades. This is recognised in most countries and national governments give a high priority to maintaining vital and creative universities as part of national infrastructure. As part of nation building in the developing world, the creation of a high-class university sector is typically a leading priority. The issue of university funding and its adequacy or otherwise, will be with us for many years to come. It will be an issue in national elections and increasingly a matter for public debate and concern as costs are transferred to students and their families. This is a new situation, not seen for at least half a century and university communities are struggling to understand and synchronise with the funding environment in which they find themselves. Decades of growth in both academic productivity and funding have been followed by a time of much lower increase in productivity and flat or declining funding in real terms. As a result a new equilibrium has been or is being established in most institutions.
One result of the more challenging times in which universities find themselves is that they must become increasingly clear about their core mission. It is not possible for even the greatest institutions to do everything. Not every institution will or should have the same balance of education and research activity in every discipline. Some universities are and will continue as world-class educational and research intensive institutions, others will flourish with an educational focus, some will continue to be technology focused institutions, most will be multidisciplinary but some will thrive around a single discipline, some will continue to be based in large cities and others will have a regional base and responsibility. The important thing is that each institution is clear about its own mission and place and is planning its strategic resource allocation around that mission. It is crucial that in a given country or geographic area, the totality of the University system comes together to effectively meet national need. This concept of a successful national university ecosystem is far from new and underpinned the thinking that led the late Dr Clark Kerr to establish the University of California system many years ago. In a world of unconnected or loosely connected autonomous and semi-autonomous institutions it is sometimes difficult to develop the most effective complementarity. The traditional approach of combining reliance on market forces with relatively loosely defined national drivers has been effective to varying extents.

We are currently in the most challenging times that universities have seen in the modern era. The societal changes referred to above are dwarfed by the changes imposed by the evolving information revolution with its effect on philosophy of education, pedagogy and methods of educational delivery as well as student mindset and expectations. The university world is a very different one to the world of 20 years ago and the amount of change coming down the turnpike over the next decade is considerable. MOOCS saw the start of this process, as the first cab off the rank in the development of disruptive technologies. Incredibly bright people in many places are now working on the next generation of disruptive technology in education which will inevitably lead to major changes in how universities are structured and organised. A vibrant confident and flexible sector will be able not only to accommodate this changing environment but to thrive within it. Change and opportunity go hand in hand and they are countless examples in recent times of how universities have taken advantage of new opportunities and developed new ways of thinking. A key underpinning proposition is that universities exist to contribute to the good of society at large and support healthy and productive lives for citizens generally. An increasing focus on impact is one of a number of ways in which this is reflected.
What will universities look like in 2031? Short of having a crystal ball, it is almost impossible to predict, especially when you consider that the new millennium is barely underway and already technology has transformed the way we communicate with students. Also, greater student and educator mobility has profoundly changed the face of our campuses. Last but not least, there are the incredible advances in such scientific disciplines as biology, physics and information technology, bringing with them the need for major laboratory upgrades.

At the same time, however, institutions of higher learning are facing growing pressure as governments cut funding in an effort to balance their budgets. Universities have to do more with less to serve an increasingly demanding public. Not only must our doors be open to everyone, we have to deliver the highest standards of education as well as lead the way in technological and social innovations. To draw an analogy, we’re dreaming of going to Mars while decimating the space program.

I won’t attempt to predict what our universities will look like 16 years down the road but I do have some thoughts on the direction they should take, starting now.

For too long, universities have given the impression of being ivory towers – keenly aware of society’s issues but for the most part ensconced in a world of their own. I believe that in order to fully play its role in the 21st century, academia will have to engage more at the social level. In our knowledge societies, where literature, technology, innovation and critical thinking are fundamental to prosperity, universities must play the role of a plaza mayor, a main square where students and employers, researchers and business leaders mingle and come together to find answers to their questions.

Although this convergence is already underway, we need to see more of it. But how can we make this happen when public funding is dwindling? Here are some ideas.
Rethink the relationship with our alumni

If there is one sentence an alumni should never say, it’s “I have finished my studies.” No one ever finishes their studies because we never stop learning.

Continuing education is today part and parcel of a person’s career. Alumni must be made to view their alma mater as more than just a distant memory from their youth but rather as a home port, a place to which they will return several times during their lives to expand their knowledge without necessarily enrolling in a full-time program. Examples include a dentist who wants to take a management course, an engineer assigned to work in Africa who wishes to learn more about its history, or a cultural journalist looking to understand the basics of architecture.

What I see in the years ahead is a university that is more flexible and accessible to working professionals, in other words, a university that remains part of the alumni’s life.

Whether in the public sector or private industry, employers can only stand to gain by forging closer ties with academia, because in so doing, they get to know the graduating cohort, giving them an edge in a market beset with recruitment challenges.

However, the best reason for collaborating with academia is that it allows employers to remain abreast of advances in their field. It is certainly easier to stay ahead of the game when you know what’s around the corner.

For their part, universities always have something to gain, provided the values of academic and intellectual freedom are never compromised.

A good example is the partnership formed between the Université de Montréal and CAE, a company that offers pilot simulation training the world over.

A few years ago CAE ventured into the field of medical simulation. This coincided with the university’s opening of a simulation centre where its medical students train on high-fidelity electronic mannequins that can even simulate many situations such as cardiac arrest. We therefore made a trade. CAE provides the expertise we need to train our students on advanced simulators and in return gets to observe thousands of students at work in order to develop its new health education programs.

Universities that become more involved in their communities will become agents of change. Maintaining close ties with employed graduates and employers creates a virtuous circle in which the parties understand each other’s needs and in which opportunities naturally arise.

Rethink the relationship with society

Employers also benefit directly from universities, but all too often they are not involved in what these institutions do when they should be playing a front and centre role considering that we are educating their future employees.

In order to fully play its role in the 21st century, academia will have to engage more at the social level.
Education and research are powerful tools that universities can leverage to meet their respective community’s needs in a wide variety of areas.

Take, for instance, two universities in Pittsburgh – Carnegie Mellon and the University of Pittsburgh. Both were instrumental in reviving the city’s economy after the collapse of the steel industry in the 1980s. Working together with the business community to find new high-tech sectors, they ultimately focused on robotics research, leading to the reopening of many plants.

In an interview with the Globe and Mail newspaper, former Pittsburgh mayor Tom Murphy said that half the city’s jobs are owed to the spinoffs created by these two universities.

It takes time to see the effects of such initiatives, usually 10 or 20 years, which makes universities ideal leaders, because unlike almost every other sector of the economy, our horizon is measured in decades given that our mission is to educate future generations.

Every society has its own challenges. Israel is a case in point. In this country, Ben Gurion University is helping to tame the Negev Desert by developing knowledge on reforestation and desert agriculture, and transferring it to industry.

In the Université de Montréal’s case, we have an opportunity to position the Montreal economy as a creative high-tech hub. To this end, we are actively involved in R&D as it pertains to the video gaming industry, more specifically by conducting research and offering programs in game design and artificial intelligence.

By forging ties with high-tech development firms, we learned that they need more than just programmers, designers and engineers.

When Moment Factory, a highly successful Montreal multimedia company, was invited to light up the façade of the Sagrada Familia in 2012, it had to call on the services of art historians and experts on Catalan culture. As a result of our relationship with this firm, our humanities and social sciences students now have access to internships at this company, whose services are in demand all over the world.

Some thoughts on the direction universities should take, starting now:

- Rethink the relationship with our alumni
- Rethink the relationship with society
- Develop local leadership
- Tearing down barriers

**Tearing down barriers**

Building this type of relationship with employers is easier than one might think. All it takes is a genuine smile, a couple of handshakes and a touch of boldness. Internal resistance to such initiatives is inevitable, but that’s okay. I think resistance is just a way of making sure that projects remain in line with our scientific ethics and academic freedom.

We had better get used to it. Academia and employers may be very different but the fact is they both need each other and would both greatly benefit from a change in the status quo. I believe that once they realize what the other has to offer, the barriers will come tumbling down on their own.
The era of the ivory tower has long since passed and given way to a time of sharing and collaboration.

I am a radiologist by profession. When I look at an organ on an X-ray, I see how it forms part of a whole, in other words, the human body. I see the university system in the same way: a part of a bigger whole that includes graduates and employers in all spheres of activity.

All of us together make up this “body.” If we want it to stay healthy, we need to have a strong university system. Making it strong is everyone’s responsibility, not just the government’s.

Today more than ever, we need society to rally around academia, and it’s up to us to make it happen.
Teaching and Training Students in a 2030 University: Flipped Classrooms and Student Self Assessment?

What will a university look like in 2030?

This question encompasses many interrelated topics (undergraduate and graduate education, research, organization and governance, human resources, internationalization, ...). There is no “one size fits all” university model. Universities can be public or private, comprehensive or specialized, more or less autonomous, small or large. Shaped by their own history, universities are diverse even when they are subject to the same state or regional regulations.

What about education in 2030?

The ultimate mission of universities is teaching and training students at all levels via research and in a research environment. An institution with no research environment should not be considered a university. Since participation to the socio-economic development is today one of the main objectives of universities in a knowledge society, it's been then indispensable for them to develop and put forward their research potential. Given the ever increasing worldwide competition, universities are now deeply concerned by the strengthening of their research capacities (financial support, human resources, equipment and facilities, transfer, start-ups, ...). Thus, students are attracted to universities according to their rankings and as we all know university rankings are mostly research based (this is true at the master level is mainly the case at the master and the doctorate levels but less the case at the undergraduate level).

Even though research is the main concern of universities, they should not overlook/undermine education of the majority of students since it remains the core mission and more precisely in public universities. This is an important question since public universities are torn between two missions which may seem incompatible: improve their research capacity in an increasingly competitive world and educate with success a large, diverse youth.

Public universities are meant to educate all students who are allowed to enroll for an
undergraduate degree. In many cases this means large groups of students (up to thousands in first year medical school, several hundreds in other areas) with limited success rates. These large groups coexist along with rather small groups of selected students usually at the master level and in some cases already at the bachelor level. The situation is different for schools and private universities. Schools (engineering, business) are often under different regulations, they have small, selected groups of students and hence high success and employability rates. Private universities, usually of small size, often concentrate on a limited number of attractive fields without strong emphasis on research.

Nowadays, in many countries, there is a clear trend towards larger autonomy of public universities. This may be seen negatively as public funding (partial) is decreasing but also, in a more positive way, since autonomy allows more flexibility. More flexibility in university strategy and policy means that each university has to find its own way to reach the best possible state of development in a given environment.

During the 1990’s, a greater emphasis was put on professional degrees to ensure employability for a growing population of students at the undergraduate and graduate levels. The answer has been to link curricula with the market demand for specific profiles, to develop internships in private and public companies and to hire professionals from the private sector to teach. This pedagogical approach helps students integrate the job market at a given time but is it efficient enough in a very volatile job market subject to dramatic changes?

At first overlooked by many academics, the use of ICTs in teaching has been rapidly developing in the past decades (the same might be happening today with the MOOCs). It was expected that their use in education will disseminate rapidly and that it will change the learning skills of students. Undoubtedly ICTs have been thoroughly used but the question remains as to the teaching methods used. Often times, ICTs were used to convey the same traditional teaching material and methods. The only advantage was gaining time and providing more attractive supports. Electronic documentation has become the rule (although textbooks are still indispensable) being more accessible, allowing faster research in ever-bigger data bases and this has deeply modified the means used in research. But not really the aims and goals.

The use of ICTs in teaching has also offered more opportunities to give students what should be called a visual knowledge of their discipline: this means essentially pictures, videos, which are important to better perceive some aspects (such as 3D objects) and even serious games (edutainment). The real added value has been to offer learners access to online lectures within an institution (i.e. podcast) and outside the institution (i.e. the so-called « digital university »).

Despite the tremendous changes and the development of digital universities, dissemination in universities is still more limited than expected. Nowadays people are betting on the very innovative x-MOOCs (Education 4.0) with an ever increasing catalog offered by universities on different platforms. It is widely seen as a must-be-present area but the future of MOOCs is still on debate although
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one can guess the opportunities they might offer. How will we perceive the MOOCs in the future? As an advertising tool for the best world universities? As a useful tool for lifelong learning or specialization? As a supplementary or central part of a student learning? As a tool for blended mobility?

The quantity, and perhaps quality, of digital content, as well as its faster and wider dissemination will undoubtedly have an impact on education but we should not overestimate its consequences. And the real breakthrough in teaching and learning, for the benefit of students, should come from new ways of interaction between students and the academic staff. Based on ICTs, the new methods and ways of interacting, are well known. They must be now disseminated in the context of renewed curricula. Needless to say that the work of the academic staff and the mission of the home institution will have to undergo a tremendous change.

Public universities are torn between two missions which may seem incompatible:

1. Improve their research capacity in an increasingly competitive world
2. Educate with success a large, diverse youth

Teaching and learning by 2030?

At least at the master level, we need to train students to adapt to innovation and to non-linear career path in a globalized world. This means knowledge of a disciplinary field (the core courses) but also the good command of a set of additional cross-disciplinary competences (language, communication, management, computer use, ...) and the understanding of the international context. All these competences are included in the syllabus of many master (and bachelor) degrees. But the question is not the goal: the question is the way to convey or transmit these competences to learners?

The answer may be flipped classrooms and self-assessment of students.

First of all, let's start with the obvious:

- lectures in lecture rooms are inefficient for the majority of students (but not costly for the institution!)
- written exams are needed to assess the academic knowledge of the students but they do not really prepare a student for his/her future career. On the other hand, oral exams are time consuming for the academic staff but useful for each individual student
- practical training is compulsory in many disciplines but its financial cost (human resources and equipments) is high
- a huge gap may exist between practical training (indeed necessary at the early stages) and the actual situation in a future job. Internships offer this opportunity and are thus needed
- knowledge or practice of team work is barely considered
- cross-disciplinary competences are often not seen as a priority by the students
- students are not aware and don't know how to identify their competences
- the link between research and training is usually not considered before the end of the bachelor degree or even later at the master level.
To address these issues, the student must become consciously and actively involved in his/her education. No more lectures with passive students. In a flipped classroom students get involved upstream, they have all the material needed for their course through ICT available beforehand and interactive scheduled classes are used to questioning teachers and debating. This implies a greater amount of personal work for the student upstream. It also means great changes in teachers' missions and duties since he/she must make himself/herself available to answer questions outside regular classes, including via IT. This offers a wide opportunity for a given student to express interrogations and doubts that need an individual monitoring of the student. It also gives time to the student to find other sources which may help to complete his (or her) training (the Wikepedia or Google approach!). Knowledge is more and more disseminated and available, the teacher is no more the sole provider of knowledge.

Secondly the student should be encouraged in his personal work through project–based approach which also means a team-work approach. Trans-disciplinary aspects should not be undermined at this stage. This implies for the teacher to suggest project's subjects and to follow this up to the final written and oral presentation. Practical training should use both IT applications (to reduce the cost and to provide access to simulation of complex and expansive experiments) and lab work. Training by graduates or doctorate students should be widely used.

There is nothing new in this. Most of it is already implemented by some universities but this should be widely disseminated.

This said, flipped classes must be accompanied by student self-assessment in order to really improve the learning process. This concept was developed 20 years ago and references are available on the theory and implementation. Why self-assessment? The student becomes the prime player in his (or her) own learning process and the relationship with the instructor is deeply modified. Switching to a collaborative learning environment needs first to give the student a better and clear understanding of the assessment criteria (grades) and of the transferable, cross-disciplinary skills expected by future employers. Student motivation and autonomy are increased and timely feedback allows to better understand both the individual and group strengths and weaknesses (for example via the use of clickers in the classroom). This promotes self-learning for which the use of digital resources either provided by the institution or by other organisations.

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(universities, networks, national and international agencies, ...) plays a key role. Self-assessment should be carried out in small groups and feedback discussed.

The main obstacle to the implementation of this strategy lies both in the involvement of students and of academic staff. Both should be convinced that this approach brings an added value to their learning process. Self-assessment, if not carried out in high school, should thus be introduced progressively in universities with small groups of advanced students. The academic staff teaching duties need to be redefined and this more flexible environment will lead to individual definition of tasks. In some countries, like France, where a national university framework includes only lectures, tutorials and practical work sessions (indeed with some flexibility) faculty members are sometimes resistant to such tremendous change.

This change of training and learning processes also impacts the student environment which should be adapted. More personal work of the student requires facilities such as a Learning Center which offers large and easy access to documentation but also collaborative spaces for teamwork and communication. This is also the place to relax and meet other students from different faculties as well as researchers. Open labs (Fab labs) accessible for students (at the master level) to carry out practical experiments related to their project are also needed, preferably close to the research labs.

In 2031, a modern university should be a place where high quality research is carried out, where students are deeply involved in their training, supervised by a staff of on-site instructors (experts) needed for courses design, follow-up and assessment. The best student will not be the one able to answer all questions in a written exam but the one able to use a strong scientific knowledge (the core knowledge) in an innovative, multidisciplinary, global environment. This means that the acquired skill level in areas other than the main disciplines should be highly valued.

In 2030, a modern university will consider international awareness of its student as an essential skill, looked for by employers (not only for language skills). Again self-assessment may greatly help to promote this via an outgoing mobility, often recommended, sometimes compulsory. Much more opportunities are provided through a permanent process of exchange between students and instructors to breakdown the well known cultural barrier.

In conclusion, the ongoing change in teaching and training methodologies is a great challenge for universities and will remain so in the next 15 years (a relatively short period of time). Many experiences do exist, they just need to be disseminated in all areas for the great benefit of the students and of society. Is it a dream or an imminent reality?
Our most valuable attribute as human beings – the attribute that lies at the heart of every society – is our ability to absorb and transfer knowledge, to ask questions and draw analogies. Ever since the University of Bologna was founded in 1088 the universities of Europe have been physical and spiritual bastions for the exchange and development of scholarship and knowledge. In the course of almost one thousand years, not a lot has changed in the way knowledge is transferred: Students still file into lecture theatres to listen to their lecturers. Depending on the prevailing culture, the lecturer may be interrupted now and then by a student seeking further clarification or an answer to a critical question. Very occasionally, knowledge is transferred through dialogue. This is how it worked in the past and how it works today.

This observation is all the more intriguing, given that in the past two hundred years, science and scientific insights have been the impetus of major societal changes. It is thanks to knowledge garnered from the domain of biology that agricultural techniques have improved by leaps and bounds and urban populations all over the world are more assured of food security. The same biological insights have delivered huge health benefits – both preventive and therapeutic. And still we have barely scratched the surface. The revolutionary power of chemistry and physics is having an even deeper impact and resonating even further. The time and money we spend on securing basic necessities have halved in the past hundred years – and not only in the Western world.

We can never grasp the true import of these changes unless we pause and remind ourselves that two hundred years ago, before the modernisation of agriculture, two out of every three people did not live beyond the age of forty and nine out of ten were manual workers. A century ago more than half of the world’s population was seriously malnourished. Today twenty per cent of the population do not get enough to eat and eleven per cent go hungry.
The past twenty years have been exceptional in the history of the world: For the first time ever, population growth has kept pace with economic growth – not just in the Western world, but everywhere. In the past twenty years, one billion people have risen the poverty line of 1.25 dollars a day, three-quarters of them in China. More than half of the world's population lives in cities. There is no country in the world where earnings have not increased. Many farmers who used to be self-subsistent are now players in the global market. The population of the world has doubled in fifty years and the number of calories consumed per person has risen by more than a quarter.

This is a hard fact that universities of the future needs to take on board. We can no longer afford to shut ourselves off in ivory laboratories, surrounded by the best brains and state-of-the-art equipment. We need to throw open the doors and windows and engage with society.

And this society can – again thanks to the technological and scientific revolution – access knowledge and information anywhere in the world at any time. It can communicate continuously with anyone and everyone and share ideas and opinions with thousands and thousands of people. Strangely enough, this practice is not generating a deeper knowledge and understanding of science or the mission of universities. Countless false assurances and unsubstantiated ‘facts’ are being cherished and may well be responsible for propagating irrational fears of radiation supposedly emanated by mobile phones and totally unfounded conspiracy theories about vaccinations and health recommendations. And these are just a few examples.

This is the world in which the modern university must carve a place for itself. This is the debate, the discussion, the dialogue that it must take on. Needless to say, demands will be made on the organisation, the study programmes and the academics themselves. The universities will have to venture more into the arena of public dialogue, engage in the debate and accept that knowledge is no longer the exclusive preserve of academics and scientific institutes. Knowledge has been democratised, but that does not necessarily go hand in hand with deeper insight into complex questions. It is as if Ockham’s razor is being indiscriminately wielded and oversimplified explanations are being hungrily snatched up. Here, too, the universities will have to assume their responsibility and separate the spurious from the scientific.
I remarked earlier that European universities have undergone hardly any fundamental changes since 1088. That applies primarily to the way in which knowledge is transferred. Towards the end of the Middle Ages scientists and scholars shook off the constraints of religious dogma and started exploring phenomena for themselves. In the process, research became an inextricable part of university life. But the knowledge generated by that research is still transferred and tested in a traditional manner.

Can we really believe that modern communication media, the music industry, the newspapers, television and photography have been shaken to their foundations while the world of education has simply carried on as before? Ten years ago the average age of newspaper readers in the Netherlands was forty-two. Now it is fifty-two. The newspaper is dying out as a bearer of news. Upcoming generations retrieve news with devices that we archaically refer to as mobile phones.

Academics are wary of new developments – especially outside their own field of interest. And the universities cling to the traditional approach. In the past ten years my own university, Wageningen, has invested hundreds of millions in new buildings, architectural gems, modern and sustainable.

What you now see in these buildings are students bustling around 24/7 and countless network-linked computers doing overtime; small clusters of students are hard at work in corners and recesses, while the lecture theatres remain empty most of the day. The modern campus is fast becoming a hub, a meeting place for a young, talented and creative generation which is assimilating knowledge and educating itself. Nothing could have been further from our thoughts when we designed these buildings. Our educational system was still defined by timetables and – above all – physical presence in class.

This is set to change, of course. When we decided in the middle of 2014 – albeit hesitantly – to develop a free Massive Open Online Course, never in our wildest dreams did we expect more than 40,000 registrations, from 197 countries, extending from the Maldives to the US. Students engaged with one another from the moment they could communicate on the platforms. A worldwide community emerged along with superb educational material with which the basics of nutritional science could be taught and tested in eight weeks. But at the same time, here on campus our own students attended lectures.

The introduction of the free MOOC heralded a completely new educational system. Students could choose from the crème de la crème and go anywhere on the global campus. A subject in Harvard, a course in Granada, a conference in Shanghai…and all of it costing nothing! It was evident upon the launch of our first MOOC that we had also captured the interest of the international business community. They had spotted an opportunity to equalise the knowledge of personnel scattered across the world. Also, MOOCs could be made mandatory for job applications: Only candidates who gained the qualification could go through to the next round.
The European universities must join in and develop a business model for this modern and innovative form of education. Otherwise we’ll end up in deep trouble, like the music, film and television industry.

Will on-campus education disappear in that model? I doubt it. But it will certainly change. People will continue to be energised by personal encounters, and the big names in the science world will still fill the lecture theatres and inspire new generations at summer schools. On the campus of the future the dividing lines between the disciplines will fade, because there is no formal or sharp division between faculties in online education. On the campus of the future art and science will meet and inspire each other and cross-pollinate to create mysterious hybrids.

The traditional educational model with its one-way traffic will not endure for another one thousand years. More than ever before the individual student and personal development and choice will take centre stage. The physical campus will be the meeting place, the centre for conversation, for the global virtual campus. The knowledge developers and the researchers will engage in an ongoing dialogue with society and dispel the distrust in what has so far brought so much good. With this knowledge we will be able to feed, house and employ the nine billion people that will populate our planet in thirty years’ time. And the same nine billion will have access to the very best knowledge whenever and wherever they need it.
Horizon 2031. The University of Granada in Light of its V Centenary. "Reflections on the Future of the University"
Spanish Rectors
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Spanish Rectors

Fernando Galván Reula
University of Alcalá

José Carlos Gómez Sal
University of Cantabria

Daniel Peña Sánchez de Rivera
Charles III University of Madrid

José Alfredo Peris Canio
Catholic University San Vicente Mártir

José Carlos Gómez Villamandos
University of Córdoba

José M. Guibert
University of Deusto

Manuel Parras Rosa
University of Jaén

José Regidor García
University of Las Palmas de Gran Canaria

César Nombela Cano
Menéndez Pelayo International University

Alejandro Tiana Ferrer
National University of Distance Education

Vicente Gotor Santamaría
University of Oviedo

José Antonio Franco Leemhuis
Technical University of Cartagena

Carlos Conde Lázaro
Polytechnic University of Madrid

Francisco J. Mora Mas
Polytechnic University of Valencia

Jaume Casals Pons
Pompeu Fabra University

Daniel Hernández Ruipérez
University of Salamanca

Juan M. Viaño Rey
University of Santiago de Compostela

Esteban Morcillo Sánchez
University of Valencia
Spanish Rectors

Daniel Miguel San José
University of Valladolid

Jordi Montaña
Vic - Central University of Catalonia

Salustiano Mato de la Iglesia
University of Vigo
Horizon 2031. The University of Granada in Light of its V Centenary. "Reflections on the Future of the University"
Over the next fifteen years Spanish and Ibero-American universities will face numerous challenges in training, mobility, scientific development, international presence, visibility and dissemination which may have an enormous impact. In my opinion, these challenges hinge on the Spanish language as an extremely powerful instrument of communication given its numerical potential and geographical scope.

Many universities around the world have recently begun to incorporate training their students in English, particularly at postgraduate level, although also at undergraduate level. Thus, European universities located in non-English speaking countries have begun to compete with, for example, British, North American, Canadian and Australian universities in attracting international students and faculty from other parts of the world such as Asia and Africa particularly. This is due to the fact that courses taught in English enable students to integrate more easily, avoiding the time required to adapt by learning languages such as German, French, or Dutch to name but a few.

This tendency is obviously related to the importance that the international rankings of universities have acquired for relevance, prestige, and even for university funding and survival. It is an irrefutable fact that the top positions in the rankings are occupied by universities where English is the language of communication, of teaching and of research.

Nevertheless, I believe that we should reflect on the singular nature of the universities that use Spanish and on the large sectors of the world population that use this language for everyday communication. Should such an important asset be ignored, and should Spanish and Latin American universities be judged as if they were Norwegian, Dutch, German or Polish universities?

Let us consider that Spanish is spoken currently by more than 500 million people
around the world (at least approximately 430 million of them as their mother tongue), in
more than twenty countries. Undoubtedly English is still much more widely spoken than
Spanish, both in terms of population and geographical scope, as it is estimated that
between 1,500 and 1,700 million people speak English (although only some 400 million, or
even less, as their mother tongue). These are the two truly international languages in the
world today. Although there are other languages (such as Chinese) spoken by more
people, it is evident that none of them can come even close to the geographical and
cultural scope of English and Spanish.

Therefore, universities in Spanish-speaking
countries should seriously consider meeting
the challenges described below. The United
States of America, where the population of
Hispanic origin is now over fifty million
people, and will quite probably (if the statistics
are correct) easily reach a hundred million by
mid-century, is also to be included among
these countries, as it has hundreds of
universities where an important number of
students and faculty use Spanish on a daily
basis. Evidence of this is the influential
“Hispanic Association of Colleges and
Universities” (HACU).

In consequence, I believe that we (universities,
governments and supra-national
organisations) must all address the following
issues:

1. **Student mobility in the first stage of university training**

   Mobility and academic recognition programmes
   must be developed between Ibero-American
   universities, to facilitate and promote the
   training of undergraduate students.
   Considering that the ERASMUS mobility

2. **Postgraduate training: masters and doctoral courses**

   This is undoubtedly a major challenge for the
   social and economic development of many
   Latin American countries, that, as the most
recent studies have shown, need highly qualified professionals in all the productive sectors and in education. Training these highly qualified professionals in the main Spanish and Latin American Universities is an objective that may be more easily achieved, in a relatively short time, if academic recognition programmes are implemented for their undergraduate studies and if we promote mobility towards the most competitive postgraduate schools, all within the Spanish-speaking world. There are universities in Spain, Mexico, Colombia, Chile, Argentina, and other countries, that, without a shadow of doubt, could make a significant contribution to this mission.

Mobility and academic recognition programmes must be developed between Ibero-American universities, to facilitate and promote the training of undergraduate students.

3. Integrating students in work placements and internships in companies and international and supranational organisations

The economic development and spread of many large multinational companies throughout Spain and Latin America provide a rare opportunity for universities, and governments, to reach agreements with these supranational companies and organisations to offer undergraduate and postgraduate students professional work placements and internships. This would allow students to maximize and complete their university training, whilst giving also the opportunity to companies and organisations to benefit from highly qualified human assets, students who speak the language of the country and would have no particular difficulties adapting to the culture. Clearly, the advantages for companies are quite evident; but also for university students, who would acquire professional experience in international centres and organisations, and, of course, for universities, that would extend their educational and intellectual leadership to the productive sector, thereby enriching their graduates’ knowledge and future employability.

4. Student mobility for development cooperation

Given the very diverse socio-economic, labour, health and cultural circumstances in the Ibero-American geographical area, promoting international development cooperation programmes for university students could substantially improve the lives of over four hundred million people. This would not only benefit many groups living in extreme poverty and precarious conditions, but also many institutions and whole regions where the presence of millions of university students from the whole continent and Spain would enhance the educational, social, health and cultural well-being of these populations, whilst contributing, at the same time, to training more conscious and ethical future graduates.

5. Faculty exchanges

The European Erasmus programme has shown that faculty mobility and exchanges within the same discipline between universities in different countries has had positive effects on international integration, training and academic cooperation between departments, the optimization of both human and material resources, as well as on the constant renovation of content, the development of competences and methodology in curricula. If this has been achieved in a multilingual context,
overcoming the difficulties posed by adapting to not only linguistic (faculty have to teach in a foreign language), but also cultural differences in a wide range of academic and professional contexts, extending this practice to the whole Spanish-speaking university context would, without a doubt, be successful much more quickly and more effectively.

6. Inter-university research and innovation

Research and innovation are developed mainly at the university in most Spanish-speaking countries, although a few countries do also have important public organisations which promote research. Whilst Latin American and Spanish universities have agreements which allow researchers to cooperate and participate in exchanges, these agreements could surely be extended, if the respective governments so wish, to other public research organisations. This would facilitate the Ibero-American Knowledge Space (EIC) by allowing and encouraging the best research groups to cooperate, the co-authoring of scientific works, the publication of scientific periodicals in Spanish, cooperation in business and technical development... All of the above, evidently, would contribute to the socio-economic development of these countries and boost greater wealth and prosperity for their citizens.

7. Mobility and cooperation programmes for administrative and services staff

We are all aware of the fact that one of the most relevant shortcomings in most Ibero-American universities is the low level of qualification of a large part of their
administrative staff. These members of staff, however, are one of the main pillars of higher education and teaching centres. Our universities cannot improve their efficiency without well-trained technicians and administrators. One of the greatest advantages of creating a wide web of inter-university cooperation between Latin America and Spain would be that these technical and administrative university staff could also participate in mobility programmes, in the same way as students, researchers and faculty, thus allowing them to visit the centres with the best professional management practices. This, in turn, would pave the way to other possibilities such as the progressive implementation of distance (on line) or blended learning programmes to promote training in a variety of skills and techniques: human resources management, accounting and economic management, use of bibliographical and bibliometric resources, attracting international students, etc.

8. Promoting and disseminating the Spanish language

National bodies already exist to promote our common language in Spain and other countries, such as the Cervantes Institute or the Spanish Language Academies. It is obvious, nevertheless, that compared to the thousand of Ibero-American universities which share the language of Cervantes, a couple of dozen bodies with the legal mandate to support and encourage the Spanish language can do little. Some of our universities already have proven experience in attracting thousands of international students to our campuses to learn Spanish every year. Three such clear examples in Spain are the universities of Alcalá, Granada and Salamanca. Intensive work has been performed in this vein, although probably less than required, in other countries. Universities are well equipped to undertake this task and, by cooperating in a network, some universities could learn from the experience and good practices of others. Moreover, it would also be possible to offer, between all the universities, an ideal instrument to teach Spanish, with the variety and richness of its multiple manifestations in the countries where it is an official or co-official language, to the millions of potential students throughout the world (particularly from Asia).

9. Improving the Ibero-American Knowledge Space

Spanish-speaking universities, like all those which do not work in English, have an important deficit in indexed journals in JCR (Journal Citation Reports), to the extent that much research which is not published in English does not receive due attention, owing to the low impact of the journals in which it is published. This is immediately apparent if we consult the data: in 2011 97% of the journals in JCR were published in English compared to the modest 1.18% in Spanish. It would clearly be unrealistic to think that this data could be changed in the next fifteen years; however, measures can be implemented to improve the situation in specific fields such as the Social Sciences and Humanities journals, where the percentages are slightly higher. A coherent policy, then, to encourage synergies in these areas in the Ibero-American context could increase the number of Social Sciences journals, for example, which appear in JCR: 81 journals in 2010 (47 in Spain, 10 in Mexico, 9 in Chile, 6 in Colombia, 4 in Argentina, 3 in Venezuela, and one in Brazil and another in the USA), representing 2.97% of the indexed journals in this field (of a total of 2,731 journals, 2,384 were published in English, in other words 87.29%). Spanish is the second language in which most Social Sciences
journals appear in JCR, despite the enormous gap compared to English. Boosting studies in this field in Spanish through Ibero-American university coordination and cooperation, would undoubtedly bolster these publications, thereby contributing to expanding and foregrounding the Ibero-American Knowledge Space internationally more effectively.

10. **Foregrounding Humanities and Social Sciences in Spanish**

One of the most powerful mechanisms we have to strengthen and foreground Humanities and Social Sciences in the Ibero-American context is precisely the Spanish language. Institutions and initiatives dedicated to doing so are, for example, the Miguel de Cervantes Literary Awards in Spain, or the international publishing fairs in Spanish, such as the important Book Fair in Guadalajara (Mexico). Ideally, governments, in conjunction with universities both in Spain and Latin America, could join forces (forces which sometimes exist, but are not coordinated) to foreground the research potential in these fields.
Society and academia seem to agree that the presumed values of universities are grounded on the premise of University Autonomy, which implies the exercise and responsibility of a certain amount of freedom. Since the distant times of the creation of the first universities, “as human communities of faculty and students, a true social body dedicated to cultivating knowledge” autonomy has been the basis of the real creation of knowledge, and it seems to persist as such even today.

Not unsurprisingly, however, different agents understand this “autonomy” differently in these first years of the 21st century, as has been the case throughout history. If we start with the idea of universities as non-profit-making communities, as a fundamental agent in the creation and transmission of knowledge, as well as being a key instrument for social cohesion, most of these universities (that is, public universities and some important private universities in the world), depend financially on governments, on various administrative bodies, on religious denominations or on groups of “patrons” which, to a greater or lesser degree, try to influence some academic matters. Therefore, university autonomy will depend both on the university authorities upholding this principle and on the funding bodies accepting, respecting and valuing it, renouncing the temptation to simply apply the premise of “he who pays the piper calls the tune”.

There is a delightful passage in Umberto Eco’s book “Baudolino” which cleverly illustrates this balance of powers, when the protagonist converses with the Emperor Frederick I, Copper Beard at the turn of the millennium:

- “It would be the case if you made a law by which you acknowledge that the masters of Bologna are truly independent of every other power, whether yours or the pope’s, or any other sovereign’s, and they are in the service only of the Law. Once they are invested with this dignity, unique in the world, they will affirm that — in accord with true reason, natural enlightenment, and tradition — the only law is the Roman and the only person representing it is
the holy Roman emperor—and that naturally, as Master Rainald has said so well—quod principi plaquit legis habet vigorem.”

- “And why would they say that?”
- “Because, in exchange, you give them the right to say it, and that is no small thing. So you are content, they are content, and, as my father Gagliaudo used to say, you are both in an iron-clad barrel.”

University autonomy must be understood as a delicate balancing act between the fundamental concept and its practical implementation for each instance and each case, independently of enthusiastic, gracious declarations and homage to its fundamental principles.

When the ninth centenary of the oldest university in Europe, the University of Bologna, was celebrated, the Magna Charta Universitatum was passed in this Italian city and subscribed by 776 universities from 81 universities all over the world. In it, the universities proclaim “to all States and to the conscience of all nations”, the fundamental principles which must support the vocation of universities.

Allow me to summarise these fundamental principles which respond to an almost millenarian cultural reality and which reaffirm the value of initiatives of joint reflection, such as this volume prompted by the University of Granada as it approaches its Fifth Centenary.

1. The university is an autonomous institution at the heart of societies differently organised because of geography and historical heritage; it produces, examines, appraises and hands down culture by research and teaching.

2. Teaching and research in universities in universities must be inseparable, if their tuition is not to lag behind changing needs, the demands of society, and advances in scientific knowledge.

3. Freedom in research and training is the fundamental principle of university life, and governments and universities, each as far as in them lies, must ensure respect for this fundamental requirement.

4. A university is the trustee of the European humanist tradition; its constant concern is to attain universal knowledge; to fulfil its vocation it transcends geographical and political frontiers, and affirms the vital need for different cultures to know and influence each other through the interaction of cultures.

There is little to add to understand the enormous magnitude of these principles, but it is advisable to argue and try to convince, not to the converted, about the vital significance of our values and mission, especially in times of a long economic crisis, in a traumatised society with immediate, vital, daily concerns. A society that, for these same reasons, may be more sensitive to comments and attacks on our university system.

Let us analyse, then, in the light of our social and university reality, some of the matters discussed above.

Let us take a closer look at University Autonomy. Article 27.10 of the Spanish Constitution, as the Constitutional Court has
reminded us on numerous occasions, recognises the autonomy of universities as a fundamental right in defence of our freedom against possible interference.

An important study by the European University Association (EUA), UNIVERSITY AUTONOMY IN EUROPE II The Scoreboard (Nov 2011; EUA Warwick March 2012), establishes a series of indicators to determine the degree of autonomy in different European university systems. To this end, it defines four areas “Organisational autonomy”, “Financial autonomy”, “Staffing autonomy” and “Academic autonomy”. These are some of the indicators used in each of these areas:

- Organisational autonomy: Selection procedures and criteria for executive posts. Capacity to decide on academic structures or on legal entities, among others.
- Financial autonomy: length and type of public funding. Ability to charge tuition fees for national/EU or non-EU students.
- Staffing autonomy: Capacity to decide on recruitment procedures and salaries.
- Academic autonomy: Capacity to decide on the overall number of students and on recruitment procedures, to select quality assurance mechanisms and to design the content of degree programmes.

Without going into the intrinsic value of studies of this type, it is to be expected that the Spanish system is not amongst the systems with the greatest degree of autonomy. In effect, in a classification of 32 European countries, Spain can be found between the 16th and 19th positions for organisational, financial and academic autonomy, dropping to 26th position in staffing autonomy. These results, obviously, indicate that we are not role models when using autonomy, the Nordic and Anglo-Saxon systems have the best results. Interestingly, the French system has only slightly better results than the Spanish system.

In Spain universities depend on the regional governments, thereby complicating matters further, as they control academic matters, but not research, with the exception of the Basque Regional Government. Furthermore, universities and research are controlled by different ministries, hence, the overlapping interests of the universities, regional governments, and the national Government, convert autonomy into a difficult juggling act which is not always successful.

University autonomy must be understood as a delicate balancing act between the fundamental concept and its practical implementation

University managers are caught between the urgent need to denounce the excessive bureaucratisation of structures and processes, both for academic matters (such as the ANECA and other evaluation agencies) and for research (how this is justified) and the need for clear rules to strengthen the cohesion of our university system, guaranteeing quality criteria which allow logical, transparent competition without fostering imbalances.

Autonomy does not imply the freedom to do whatever we please, nor irresponsibility. Nor does autonomy imply a lack of accountability or evading implication in the real problems of society or our surroundings. In the case of public universities, particularly, the connection between our objectives and the
general interests of society and our principal sources of funding make us assume an important responsibility towards society and its political institutions. The Social Councils of the universities must exercise this responsibility continuously in their relations with the national, regional and local administrations, where our campuses, cultural and educational activities, and activities with social agents, businesses, foundations and business associations are situated physically.

Reaffirming university autonomy implies a local willingness to act upon and even defend a strategic vision defined for each university. Does this strategic capacity exist? The International Campus of Excellence programmes are an important attempt to create a general university strategy. We believe that this was a good path to follow, although it has faltered due to a lack of specific funding. In accordance with this belief the University of Cantabria, in conjunction with the Universidad Internacional Menendez Pelayo and the social, political and business agents participating in this project, has defined and defended the “Cantabria Campus Internacional” as a proposal for the future and our model for action to develop our region. We have recently been awarded the final seal of Excellence and must soon convene the whole “Cantabria Campus Internacional” to, particularly in the exercise of our autonomy, report on and analyse the achievements and problems of each of our strategic courses of action, redefine objectives and re-launch this project which transcends our universities and is no more than our contribution to creating an active region of knowledge and progress.

The Spanish Law 14/2011, of the 1st of June, on Science, Technology and Innovation refers, in Article 32, to the Commitment of the teaching and research staff for each of the functions of universities established in the Spanish Organic Law 6/2001, of the 21st of December, in accordance with the provisions of this Law and with any subsequent related legislative implementation”.

This is critical for the definition of university autonomy. Each university will be able to establish its teaching staff based upon its own definition of its objectives, within funding rules. Some believe that universities should only train professionals, but this tandem of teaching and research, within a community that knows how to combine what we already know with the search for what is yet to be discovered and then place it at the disposal of society, promoting innovative processes, is the sign of excellence of the best universities.

Evidently teaching and research must be useful for society and, when public resources are in play, we must be aware of the costs of opportunity and the obligation to justify the social value of what we propose. Nevertheless, designing universities on the basis of simple utilitarianism is contrary to those virtues which have made the great world universities what they are today. Some look to the efficacy of the American university system as a model, however, they should not forget that North America has some of the best universities in the world, and some of the worst. Let us not fall into the trap of trying to copy their system by beginning with the worst.

Autonomy is responsibility; we must be free, but also understand that this freedom implies diligence in our self-evaluation and the constant efforts to deliver quality. We also believe that, according to the strategy for the future of each university, an analysis of capacities must be performed in order to
guarantee the future of our universities and to map out an effective and efficient range of degrees, bearing in mind the regional, national and European context. We believe that the processes of research design and transfer of results to the productive fabric in Spain must be improved.

Exercising autonomy, however, is linked to a fundamental element: the necessary continuity of the programmes and objectives of our university system. We cannot undergo continual changes in legislation and regulations which disrupt the daily work of the university community intentionally making it the subject of gratuitous controversy. I am convinced that higher education, research and innovation are fundamental areas that transcend legislative terms of office and, therefore, we need a State Pact so that university autonomy can achieve real meaning in the world of today.

"We need a State Pact so that university autonomy can achieve real meaning in the world of today.

Concept of autonomy:

- Autonomy does not imply the freedom to do whatever we please
- Nor irresponsibility
- Nor does autonomy imply a lack of accountability or evading implication in the real problems of society or our surroundings
- Reaffirming university autonomy implies a local willingness to act upon and even defend a strategic vision defined for each university
- Exercising autonomy, however, is linked to a fundamental element: the necessary continuity of the programmes and objectives of our university system
Higher Education in Spain and Europe in 2031

Introduction

We have been asked to look at the situation of universities in 2031, when the University of Granada will celebrate its 500th anniversary. I have decided to concentrate this short article on the future situation in Spain and Europe, although it is quite probable that most changes will come from America and Asia, where many innovations in their universities are taking place. Thus, we will analyze the impact on European higher education institutions of changes to be expected in this period. The starting point for our analysis will be to look back on the transformations of European Universities in a similar 15 year period, so we will review the evolution of the university system since 2000. We have also studied the changes in the previous 15 year period, from 1984 to 1999, but these years were special for Spain due to the profound transformations, not only in universities, but also in the whole of society. In 1983 the Law to reform universities (LRU) was approved, to adapt universities to the new political and social situation created by the recent introduction of a democratic system in Spain.

This Law, promoted by the Minister Maravall, opened the path to many other key initiatives, such as the Research Law (Ley de Investigación Científica y Tecnológica) in 1986, or the introduction of the evaluation of the research activities of professors, in six year periods, approved by the Minister Solana in 1992. As we will see in the next section, the changes over the last 15 years have been much less profound.

The changes from 1999 to 2015

In the year 2000 the Conference of Rectors of Spanish Universities (CRUE) published the report Informe Universidad 2000, which was directed by Josep M. Bricall, the former rector of the University of Barcelona and former president of the European Universities Association. This important document presents a complete analysis of the situation of Spanish universities at that time, and proposed several changes for the future. Among the problems considered in this report, some of the most relevant are the following:
1. Low number of graduates with relation to the number of students admitted every year.

2. Mismatch between academic curricula and the labour market.

3. Need to adjust Spanish studies to the European higher education system.

4. Localism in the recruitment of students and faculty.

5. Poor system of hiring, paying and promoting faculty.

6. Low allocation of resources to universities, and poor distribution method unrelated to results.

7. Few resources available for student grants.

8. Low public resources for research and very few private resources for R&D.

9. Need for a more professionally oriented system of governance and decision-making

10. More mobility and international benchmarking

11. Quality programmes based on external evaluations.

12. Uniformity and lack of diversification and specialization

After these 15 years most of these problems remain unsolved. Some actions have been carried out with respect to the first three: Spain entered the European Higher Education Area (EHEA) and the implementation of new degree courses had a positive effect on the graduation rate. Also, some universities have made an effort to modify their curricula to take into account market demands. However, no important advances have occurred with relation to problems 4, 5 and 6, which, over recent years have worsened since 2000. With regards to student grants, the last modification introduced by the Government has gone in the opposite direction of the recommendation of the Bricall Report: the importance of academic criteria has not decreased to reinforce the role of grants as a tool for equal opportunities, but has been increased. Furthermore, the resources allocated to research have decreased widening our gap with the most developed European countries.

The main positive step in this period has been the adaptation to the Bologna System (EHEA), although due to its late implementation, when the economic crisis had already begun, no new resources were allocated to improve the system. Also, the Bologna transformation was made without changing the decision-making system in universities and, as a result, the modified curricula have suffered from the same traditional problems as their predecessors: the interests of faculty and Departments in increasing their power and influence were more important than the match between academic curricula and the labour market. The opportunity to introduce a more general education, more interdisciplinary and internationally oriented, was partially lost. On the other hand, the emphasis on continuous evaluation and the need for greater coordination between disciplines implied by the Bologna system has improved the graduation rate. The recent opening up of the admission procedures in Spanish universities will increase the number of foreign students in our system and encourage greater mobility.
Another good step, in the direction of linking university funding to results, was the Campus of International Excellence initiative. However, the lack of resources allocated to this programme and its loss of prestige due to the weakening of the initial excellence criteria, have made of this initiative, that could have been very important, as in France or Germany, a relative failure.

The recent opening up of the admission procedures in Spanish universities may increase the number of foreign students in our system and encourage greater mobility.

However, although the legal changes for universities have been minor, the international visibility of the university system has clearly improved. For instance, in 2003 only five Spanish universities appeared in the first 400 positions of the three most well-known international rankings (ARWU-Shanghai, Times and QS), whereas in 2014 this number had risen to nine. Spain is also the European country with the greatest number of universities in the QS top 50 under 50 (years of age) and also has the largest group of universities (U. Autónoma de Barcelona, U. Autónoma de Madrid, U. Carlos III de Madrid and U. Pompeu Fabra) in the recent Network of Young European Research Universities (YERUN). These successes show the important efforts made by many Spanish universities to improve their international presence in spite of the difficult economic situation and the lack of resources available for universities over the last six years.

Globally, important changes have occurred in the higher education system in the world in this period. Many countries in Europe have transformed the structure of their universities introducing external evaluations, which affect the public resources allocated to them. In the North of Europe more flexibility and autonomy has been introduced, linked to more accountability. Germany and France started their own Excellence programmes to improve their universities with an important allocation of resources that are having excellent results. In Britain the evaluation of universities through the research assessment exercise has been operating since 1986. In most European countries output-related criteria play an important role in funding. In the rest of the world, Australia has followed a very clever and successful policy of attracting foreign students, and now the income generated by this policy is its second largest import industry. China established the 985 programme in 1998 to transform nine of its more than 2000 universities into world-class universities, providing important funding for this. One result of this process was the birth of the most well known university ranking: The Shanghai Classification of Universities (ARWU), which has shown the success of this programme: in 2003 there were no Chinese universities among the top 200 in the ARWU, whereas in 2014 it included five. Brazil, Chile, Colombia and Mexico have also established programmes to improve their universities with good results.

Since 2000 some important innovations in education have taken place. In 2001 MIT started the OpenCourseWare (OCW) initiative, where the materials of many of its courses were offered free and openly on the web for anyone to use. The follow-up of this idea led to open platforms such as EDX, Cursera, Udacity, or MiriadaX in Spain, that offer free on line massive courses (MOOCs). In 2004 Salman Khan, an MIT graduate, put short videos on Youtube taking the perspective of the student and showing what a student with a private tutor by his/her side were explaining mathematics on a piece of paper. He also developed exercises that the student can use...
to test his/her understanding of the subject. The success of this idea led him to found the Khan Academy, a non-profit institution for free on-line education in the world. Some leading universities are now changing how they teach and are blending on-line and classroom education, as in the flipped classroom initiative: instead of lecturing a group of students in the classroom who then go home to do their homework, students listen to videos on the lecture at home, do exercises to check that they have understood them and then go to the classroom for discussion and application of the materials, as well as to relate the new concepts to other parts of the course or other disciplines. An important output of on-line education is that it is possible to monitor the activities that each student performs in the process of learning and obtain a huge amount of data from which we can discover the difficulties found by the students and therefore improve teaching. From the point of view of research, many universities have moved towards more flexible and interdisciplinary structures to motivate research which is more oriented towards solving real problems in society. Innovation and research collaboration with private companies have also increased in the leading world universities.

The possible changes for 2015 to 2030

Three main driving forces for change are going to exert a strong influence on universities in the next 15 years: (1) Stronger competition for students and resources in an open education space; (2) Blended teaching with the integration of TIC (technologies of information and communication) in education; and (3) a new relationship between research and innovation based on close cooperation between public research institutions and private organizations. We will analyze the changes that these trends are going to produce in European universities.

The European Higher Education Area (EHEA) will make it very easy for students to move from one country to another and will increase competition to attract students and resources. Good Spanish students will be attracted by the best European universities Europe and the job opportunities open to graduates from these universities all over Europe. This will increase the pressure on Spanish universities to compete in an open market. Universities will be forced to specialize to survive and find niches in which they have a competitive advantage. There will be a trend to separate funding for teaching and for research, the latter under the auspices of national scientific councils and, increasingly, of the European Union.
The integration of TIC and new learning approaches on-line will modify the structure and the organization of universities in Spain and Europe. The role of the professor will be more public and more open to critical analysis and evaluation. It will be more difficult to hide repetitive education inside a classroom when students can compare it to other courses all around the world. Instead of a person who transmits knowledge which cannot be obtained otherwise, universities will need staff that provide the students with good tools to learn how to learn autonomously. The role of students will also change, because they will be more responsible for their own learning. In fact, more and more students will follow on-line courses taught by faculty members of other institutions, in the same way as today they learn from books written elsewhere. These changes may lead to more flexible curricula for students based on modularity. The traditional class concept will evolve towards learning modules with clear objectives and measurable outcomes. Modularity facilitates the fast delivery of instruction as well as project-based learning for in-campus students and worldwide. In addition, the massive use of Moocs will give universities an enormous pool of extra students who will provide new challenges. Digital technology will allow us to teach many more people than previously possible for the traditional capacity of a university, but will also be useful for obtaining vital information about how these people learn. The on-line monitoring of their learning process will provide a large set of valuable data to verify what works and what does not, to experiment with it and, in fact, improve teaching.

Research and the resources to carry it out are also going to change. Most of the funding will come from Europe to create the European Research Area in which researchers, scientific knowledge and technology will circulate freely. We will see an open labour market for researchers with open recruitment access, portability of grants, innovative doctoral training and more mobility between industry and academia. Resources for basic research for outstanding individuals will be available through the European Research Council (ERC), but most of the resources for group projects will support multidisciplinary teams working on important problems for society. These changes will encourage new ways of organizing research in universities and traditional departments will lose their leading role in research, and will be replaced by research centres supported either by large grants from public resources and, more frequently, for joint projects with industry and private organizations. Frontline research will also be more connected to teaching, and undergraduate students in the best universities will be expected to collaborate in real research projects as part of their education.

"Most of the public or private universities in each country will be undergraduate teaching universities"

These trends will lead to several different types of universities. There will be a few research universities in each country in Europe which provide undergraduate, graduate and Ph. D. education for students from all parts of the world and are intensively dedicated to research. In Spain these universities will be mostly public universities which will receive special funds from Spain as well as from the EU. In these institutions research and innovation will be the core...
activities and teaching will be closely connected to research and innovation.

Most of the public or private universities in each country will be undergraduate teaching universities, some of them with a few research areas in which graduate studies will be offered.

A third type of higher education institution that will have growing importance in the future are private professional schools that will provide certificates of competence in a specific field, mostly from using online education. Several of the platforms such as EDx, Coursera or Udacity will evolve in this direction and some leading companies, such as Google, may enter into the higher education arena. These centres will be strong competition for the teaching universities, using on-line and blended courses, but they will not affect residential research universities.

In conclusion, we foresee many important changes in universities in Spain and in Europe that will be driven by the profound transformations that are also expected to occur in the world over the next fifteen years.
The 2031 horizon forces us to reflect on the mission of universities today with a broad enough outlook to avoid the risk of thinking only in the short-term, and highlighting those fundamental issues that no member of a university should ignore. I propose a reflection hinging around four questions and one conclusion.

1. Which development model should universities consider?

Universities have been one of the most accurate expressions of the exercise of human dignity. Those of us who have the honour of belonging to a university find ourselves in a privileged situation within society to realise the best potential of human beings, what in classical language was formulated around the so-called transcendentals: Seek the Truth, Aspire to Goodness, Enjoy Beauty, Integrate it all into Unity.

The 20th Century, and what has elapsed of the 21st, has allowed an ideal of this nature to be restricted not only to a few in society, but for it to be accessible to the highest number of beneficiaries possible. Where has this drive originated from? With no intention of even beginning a genetic analysis of the multiple causes leading up to this, we can point towards a cultural milestone with very broad consensus: the Declaration of Human Rights of 1948 as the recognition of the dignity of every human being on this Earth, with no restrictions due to race, culture, sex, religion...

Many analysts perceive a contradiction between these two dynamics. In various university for a, and particularly from those who defend university rankings, we are continuously being reminded of the need to make universities competitive, which recruit the best, with profitable scientific output, contributing to the productive fabric... which would seem to describe a place only for the few, who will eventually become the drivers of development. They also consider the efforts to make universities accessible to all, an effort particularly apparent in countries such as Spain in the last few decades, to be the cause of a weakening of energies that should be devoted to excellence and competitiveness,
especially with relation to research, transfer of knowledge and development.

This objection cannot be easily ignored; therefore a lot is at stake when addressing it properly. This requires elevating the debate and alluding to the development model: are we contributing more to the creation of knowledge with the metaphor of the engine and the carriages, that is, an elite body that drives a mass more or less removed from the elite of science and culture? Or is there room for other images?

Before answering this question, let us return to the regulatory ideal for all States represented by the Universal Declaration of Human Rights. On this basis: can we guarantee equal dignity of all human beings unless we encourage their active participation in the creation of cultural, scientific, intellectual and aesthetic goods?

I believe it is essential in universities to revisit reflection on these two questions. The greater the extent to which we achieve a harmonious response for each, the better assured the future of the mission of universities will be.

Returning to our models of representation, we could say that rather than the image of "engine/carriages", the most appropriate simile for universities is that of "immigration caravans". This model requires guides, but guides who are fully involved in the course of the expedition, and completely aware that one is not advancing towards a perfectly outlined, prefigured future (as is the case of railways and carriages), but rather towards an open future, in which we all have a lot at stake, and in which the most lucid are not exempt from the different vulnerabilities which human beings as individuals, family members, nations or international society (human family) never cease to experience.

It is imperative to consider to what extent the latest economic crisis suffered by developed humanity (in which we are still immersed) can be presented as such, as a crisis of the technocrats of economic progress who took on the role of "drivers of all engines", and when their formulae began to fail, devised shielding mechanisms against the rest of society who was suffering the worst consequences of their errors, in the form of unemployment, poverty, lack of housing... Perhaps it is more pressing for universities to assume their role, clarifying that this unique human community has a profile of greater solidarity, is more accustomed to bearing uncertainty, more accustomed to constantly indicating where the true life certainties that are to accompany us lie, including both ethical and diaonoetic virtues.

Compared to other places of knowledge creation, universities, as they originated in Europe, should be a place where proposals for human development strive for this development to be truly harmonious and universal, following the well-known expression "all rights" (harmonious, without restrictions) "for all" (universal, without exclusions).

It is time now to return to the objection: does this weaken universities? Or in other words: does it make them unfeasible or unsustainable? The image must now explain its fundamental conviction: there is no knowledge creation that does not originate in human individuality, that is not born from people. You only invest in the future if you invest in the development of people, in their education, in their growth, in the removal of obstacles and barriers hindering this process.

Vulnerable beings need communities that favour, without being ashamed of their vulnerability, knowing that among the human
faces that can represent us as a species, the privileged are not the pretentious, but rather the orphans, the widows, the sick, the foreigners, the needy... Only the intellectual freedom of a university member, these expressions are taken freely from Emmanuel Levinas, can translate these human experiences into a discourse that enables humanity to prevail over the threat of war. Can universities facing the 2031 horizon ignore that a model of inharmonious and exclusive development could be the prelude to a war, or one of its most surreptitious anticipatory expressions?

Who has not thought about the caravans in films, according to Stanley Cavell, everyday philosophy which accompanies so many of us, through the mastery of John Ford, Raoul Walsh or Henry Hathaway?—The image of the caravan is appropriate to distinguish what we should preserve and what we should surrender in order for the expedition to continue onwards. It is just as appropriate to reveal that the general process is made up of multiple adventures of solidarity among families and friends, who may be asked for sacrifices only equal to what one is willing to sacrifice for them, to share their pace and process.

A development model with these characteristics compels us to reconsider the three guiding functions of universities: teaching, research and transfer of knowledge.

2. What do we mean when we classify curricula as student contracts?

The scope of knowledge within universities is not very different from the scope of the mission of universities. In every faculty or centre organising courses, this very debate is reproduced at the corresponding level, with the distinguishing characteristics of the different fields of knowledge: Arts and Humanities, Social Sciences, Sciences, Health Sciences, Engineering and Architecture.
The challenge is for each one of them to cultivate and enhance the human good which each university activity has been entrusted with through knowledge and critical confrontation of the same with the new generations. This is the meaning of the contract: "You the student are going to receive the most appropriate training to enter an intellectual, scientific or professional practice, where, from the start, you will have opportunities to participate and improve it".

Universities have been one of the most accurate expressions of the exercise of human dignity

This intellectual or professional practice is no longer conceived as the exclusive property of the universities, but rather as a mission, a custodial task, convening those responsibly committed to its improvement. Universities, the actual university community in the specific centre or faculty, will ensure the intellectual rigour, educational consistency, standardisation of theoretical and practical content, professional ethics ... in conjunction with the players conducting these tasks in society, and open to the expectations their students have, through which they realise their own vocational project.

Teaching methodology should be in consonance with this process. Teachers no longer necessarily consider they are mere examiners controlling whether students have attained the right level of knowledge, their task is much broader and comprehensive: they must verify and assess how, through this acquisition of knowledge/competences, students develop their vocation and attainment of the intellectual, scientific or professional praxis they have chosen, in a way that responds both to what society expects of them, and to what students themselves conceive as their personal projects, their university vocation.

The question usually arising from this approach is the following: is a learning methodology based on knowledge/competences compatible with universities with a wide social base? Or more precisely, is it a methodology imported from masters or postgraduate studies, more befitting of business schools and, therefore, prone to selecting candidates and small groups? The usual answers to these questions mainly agree with their assumptions, but then diverge in two directions: those admitting and considering that the universities of the future are destined to be smaller and elitist; those admitting it and asking for more public funding to accomplish it.

Neither one of these responses completely guarantees the success of changing methodology, for we are referring to a much more radical idea: the transformation of universities as learning environments, where committed university communities confirm the appropriateness of processes with dynamics that require abandoning the teacher/student, or even, teacher/academic group binomial, in order to function with another variable: engaged faculty/serving students/through good group dynamics. Environments of this nature notably increase the multiplying effect of their practice, and, therefore, welcome numbers of students that are not limited, without the fear of sacrificing academic standards or rigour.

Indeed, acquiring competences, knowledge, personally I prefer the more humanist term
abilities, is no less demanding than the evaluation of knowledge, a prejudice we still need to eradicate. Furthermore, it allows proper discernment of what is basic in the learning process, whether related to ethics or knowledge, that is, comprehensively. No university action can ignore the common project of building the city of human rights.

There are middle paths to ease this drift: universities could be considered the trainers of the researchers who will supply businesses with innovation and transfer of knowledge, or universities must become the designers of these parks, of their strategic options.

I believe universities can and must do much more for research, and do what only they can do: nurture the proper culture and ethics of science. Universities are the right place for science not become scientificism, and for the agenda for the advancement of human rights to penetrate into the agenda for discoveries and innovation. There is only social debate on the objectives of science, with a possibility of having a real impact, in the university context. Outside of this the risk is clear: either follow the dictates of the market, or become immersed in the blind-following of the political ideology promoted by those in power. The freedom of researchers to be guided by good judgement and ethics is the main contribution of universities to scientific progress.

### 3. What do universities contribute to research?

The second guiding mission of universities, which is increasingly important, is starting to become a growing problem for the identity of the university mission itself. If teaching, traditionally the primary mission of academics, becomes increasingly demanding and the time devoted to it detracts from the time dedicated to research, it appears that universities are heading towards an insurmountable paralogism: in order to be better recognised, universities must choose to change and become a new type of institution, namely, a science park, a conglomerate of research-based companies or institutes. Without this strategic option, the weight of universities and their position in rankings will diminish.

### 4. What other contributions should universities make to society?

The third mission of universities, with fuzzier boundaries, has been enhanced over the last decades due to the conviction that, as it is a community that receives so much from society, it must make every effort to give something in return. In particular, there is a debt with all those who help support it and do not benefit directly from its traditional services.

The Catholic University of Valencia San Vicente Mártir has ensured that the third mission interacts with teaching and research, so that through the Enabling Campus attention for the disabled and inclusive education are
“Universities are the right place for science not become scientificism, and for the agenda for the advancement of human rights to penetrate into the agenda for discoveries and innovation”

not supererogatory, but rather they are an integral part of the strategic mission of all teachers, faculties and centres, committed to removing any obstacles preventing accessibility for the disabled, including the design of curricula that allow them to progress in their human development.

The third mission somehow confirms that universities and the horizon of human dignity and rights are converging. It would be improper to contribute to the productive fabric whilst ignoring the people who make it possible: we must ensure the dignity of human endeavour in all areas of knowledge transfer in categories of productivity.

5. Conclusion

A horizon such as 2031 compels universities to reflect on themselves, on their existence and their mission, and for the commitment to create knowledge to clarify the human development model upon which it is based. Development that is harmonious (all the rights) and universal (for all) is not an unattainable utopia. It is the practice endorsed by many university communities, which see themselves as the caravans of progress, willing to accept an open future with the guarantee provided by the very dignity of their university being.
Asking ourselves what the university of the future should be like is effectively asking what
the society of the future should be like, because it is only by responding to the needs of society and
serving as an engine for social change that universities can fulfil their very raison d’être: to be places of learning, training and research that transcend their walls to embrace the general public.

There can be no doubt that the panorama has changed substantially in recent decades, and universities must be aware of this situation if they are to contribute to the modifications needed to preserve the essential values of our civilisation, which are non-negotiable if we want to retain the principles of fairness, solidarity, competence and competitiveness, to train our students appropriately and undertake research that is both competitive and transferable.

One crucial change that needs to be made over the coming years, gradually in order to avoid destabilising the system, is the establishment of a new funding model that reflects policies and strategies of both the central government and the governments of the autonomous regions; a model in which funding is almost not entirely dependent on the number of students and credits in which they enroll. It needs to be a model that encourages research, knowledge transfer, internationalisation, the integrated training of our students and management within a competitive framework; a funding model that adapts itself to each university’s policies, budgets and student numbers.

Currently, more and more universities are steering their budgets towards initiatives of a strategic character, diverging from the universities’ own funding criteria based on the number of registered students or credits, and linking the sustainability of the university and its different facilities and structures to long-term plans and programmes that underpin those aspects which each university deems essential for its own continuous improvement. In this sense their budgets are a reflection of their strategic commitments, transcending all empty promises and posturing.
We need to tackle the all-round education of students, complementing the training provided for each course with activities that foster and enable the development of teamwork, a critical approach, solidarity, competitiveness, as well as values of democracy and European citizenship. These activities, which additionally foster the sense of belonging to the university itself, must not be thought of as secondary, but rather should be built into the very essence of university education and be a hallmark of academic excellence in our student body.

"Asking ourselves what the university of the future should be like is effectively asking what the society of the future should be like"

The formal teaching that awaits our students should not limit itself solely to the practical knowledge that will successfully enable them to enter the labour market. It ought to include, and we should redeem, the concept of knowledge as a value in its own right: a cross-disciplinary knowledge that gives our students versatility and the capacity to adapt that goes beyond their technical training. All of this is within a context of teaching competences, blending knowledge and practice, the measure of which is determined by our students’ capacity to improve their surroundings, once they embark upon their working lives; they can do this through entrepreneurship (not understood simply as the ability to create businesses, but also as the ability to respond to their companies’ and institutions’ needs for improvement) and innovation, always in accordance with ethical criteria.

High-quality, internationally-recognised research ought to be a priority of the twenty-first century university; research that in its turn should be recognised as a key element in the internationalisation of the university itself, as a strategic approach to attract talent that should ultimately render the university itself more attractive.

We need universities that are linked to and reach out to their local environment. A university’s social responsibility must extend to fostering the social and economic development of the environments in which they are located, in the search for solutions to genuine problems on their own doorsteps. An investigative and competitive university can act as a veritable magnet for investment and economic development; but synergies with economic and social agents are required if this is to be achieved. First-rate universities may be found in regions that are not especially competitive, contradictory though this may seem. What is it that prevents these universities from being one of the economic driving forces in their environments?

To preserve the essential values of our civilisation we have to retain these principles:

- Fairness
- Solidarity
- Competence and competitiveness,
- To train our students appropriately
- Undertake research that is both competitive and transferable
The internationalisation of universities ought to be approached in terms that are more qualitative than quantitative. The ERASMUS mobility programme has fulfilled, and continues to fulfil, the important mission of creating a feeling for, and a concept of, Europe in the younger generation. But we should not measure our success in internationalisation by computing the comings and goings of students or the number of agreements signed. Well-founded internationalisation is one that leads us to establish connections and networks of teaching and research collaboration, in order to share knowledge. To this end, alongside the strategic vision that sees research as a key tool in internationalisation, master’s and doctoral degrees should be the focus of our efforts, so as to establish bilingual qualifications and to underpin the mobility that enables the acquisition of double degrees and doctoral theses with international scope and joint supervision. The latter have the added value of offering new training and job possibilities and prospects for our PhD students. Together with the universities’ strategic commitment, we need legislation that enables progress to be made in a hitherto bleak climate with the establishment of indicators that measure, as a fundamental factor, the quality and solidity of internationalisation.

Knowledge transfer, in all respects, remains an issue that the Spanish university system has not yet tackled with any great success; although there has been considerable progress in this area over recent years, knowledge transfer is still failing to translate into a more competitive economy. Several factors help to maintain this distance between universities and businesses and undoubtedly both sides need to embark on a path leading them towards each other. The underlying culture that has triggered changes in the business mind-set, and the generational renewal that has taken place in companies, need to be accompanied by a strategy that encourages transfer on the part of universities, as well as changes in the way teaching and research staff are promoted, rewarding those who apply themselves to transferring knowledge as a driver of innovation in the productive sector. The Campus of International Excellence Programme, already a reality, provides a vital melting pot for forging relationships between the university and businesses and, just as importantly, between universities and society. Here universities ought to be capable of shaping change on our doorsteps, developing a relationship with the fourth helix, in other words the public, via a range of instruments, responding to social demands in a way that helps to make society more sustainable.
The key to addressing the challenges of an imminent future is our policy vis-à-vis staff, the people who drive development at universities. When the only criterion for recruiting teaching and research staff is their teaching activity, we run the risk of becoming what we would rather not be. Universities are increasingly being distinguished on the basis of their attention to research criteria, on their ability to maintain and increase productivity in knowledge creation. We need to ensure, and the new funding model mentioned earlier will be key to this, that it permeates through all university structures: a joint responsibility correctly embraced, with a commitment to the future that offers young people joining the university the tools, the means and the working atmosphere that enables them to compete in their field of knowledge, both in terms of teaching and in terms of research and knowledge transfer; offering them a well-defined professional path, in which each milestone is clearly outlined. We need a university system that encourages and enables mobility, on both the international and national stage, in which such mobility, and the productivity that stems from it, are properly appreciated.

Furthermore, this personnel policy should not overlook the staff working in administration and services. In addition to well-deserved acknowledgement of their efforts, this group requires increasingly specialised training, with specifically-designed components responding to the challenges that universities now face, which are more dynamic than those currently offered and with clearly-defined and measurable competences.

In conclusion, with a proper funding model that includes the evaluation of outcomes and stable, well-managed policies, the university community will be capable of providing a response to what society expects it to be: a knowledge-based driver of social change and economic prosperity. There will be no need to introduce new models of governance whose chances of success are limited; small adjustments to internal governance, enabling us to manage our affairs with a greater degree of flexibility, will suffice. It would have been difficult to assimilate the dizzying changes of the last few years without a system of governance that places every member of the university community, and their sense of belonging to the institution, at the very heart of what we do.
The university as an institution dates back over hundreds of years. In Spain, we will soon celebrate the 800th anniversary of the creation of the first university. Reflection on the meaning of the university remains essential to improve the service it offers.

The question about the social function of the university, the question about its role or about the service it offers, is important in many ways. It is relevant in times of crisis, of change or simply in times of appraisal. It is essential when a strategy must be designed, anticipating a vision for the future in twenty years time. Moreover, it is an ethical question. If we understand ethics as being the question about what ought to be done or about what makes something meaningful and complete, being aware of the social function of an organisation and fulfilling this function is also an ethical commitment.

In this brief analysis of the key points behind the meaning of the university’s activities, we can focus on its three classical functions: teaching, research and the social dimension.

**Humanitas**

To analyse the first of the three functions, teaching and learning processes, let us start with the aims of the Collegio Romano (now the Gregorian University), as defined by the Spanish Jesuit Fernando Ledesma when this institution was established in the mid-sixteenth century. The Rector at that time, Ledesma wrote that the four aims of the university could be summarised in four concepts: *humanitas, utilitas, iustitia, fides*.

The first concept within this four-fold aim, “humanitas”, refers to the shaping of the whole person, and particularly to education in rationalism. A university is not a sports club, although it does have formative elements, neither is it a business or a mere social institution, where work is the priority. What does a university do that secondary schools, companies or associations do not? It makes
people think, learn to reason, to develop critical, systemic thought.

Speaking of “humanitas”, we can also refer to one of the first theories of the university, sometimes referred to as the classical liberal theory of higher education, associated with people such as W. Humboldt, the founding of Berlin University (1810) and which considers universities to be institutions that promote the development of the whole person.

This theory underlines the education of people and their self-realisation as a contribution made by universities to society and its transformation. At university we do not solve social problems. We train people who, with the proper training, will then solve social problems.

The German term for education (“Bildung”) reflects a process of acquiring the world and of connecting it with a person, thus interacting with the world. “Bild” is the German word for “drawing”: each person must develop their own personality as if it were a work of art. This is an individual task which involves personal motivation and a non-utilitarian view. Thus, shaping one’s personality acquires an aesthetic dimension and a spirit of beauty. This is the aim of education since it seeks to form the inner being in a cultural context. It is a path to development.

Science and academic life are an ongoing quest, not the quest for something which is finite, but rather for something which is still ongoing and which must be permanently sought. It does not consist of discovering and repeating things to be learned from books, but rather it is an approach to learning, a mindset, a skill in thinking and the capacity to do so, rather than specialised knowledge.

Utilitas

By proposing “utilitas” as the second aim of the university, Fernando Ledesma was referring to how knowledge enables us to survive and function effectively in life, and the many advantages for practical matters in life that the student derives from his/her studies.

This concern also reflects another classical model of the university, which brings it closer to the theory of professional training. Universities contribute expertise and vocational identity.

This is similar to what sometimes occurs in business when internal training is highly practical and targeted without much intellectual analysis: “in situation A, learn to apply method B with tool C”. There are
procedures and processes to be learned and, as such, they must be applied exactly as taught and cannot be questioned.

This debate also existed in W. Humboldt’s era, when the University of Berlin was founded. At that time, Napoleon was winning wars and his position on universities was utilitarian: he had transformed his country’s universities into technical schools to train the specialists he needed. Germany, with other traditions and wishing to distinguish itself from the enemy, did not support the utilitarian view of the French, also shared by the enlightened British. Thus the student with a “philosophic mind” was distinguished from the “bread and butter” student. The ultimate aim for the university is to cultivate the personality, not to seek out the truth.

This practical dimension is overrated today and is the least questioned. The search for employment and professional outlets is perhaps an aspect that is given more value nowadays than self-realisation or personal growth.

Knowledge in itself does not constitute innovation, as it must be translated into processes or products that can be made and sold

Jusstitia

The third feature of classical Jesuit education refers to justice, understood as the honourable governance of public affairs. The university should be attentive to global affairs and not only concerned about the immediate wellbeing of its members, whether they be students, lecturers, or staff.

Training in ethics, values and virtue are also part of academic life and are not restricted to the private or subjective life of each individual. Each institution has a social purpose, and that purpose is not merely to survive or, even less, to take advantage of the system, becoming an extractive elite which, instead of fulfilling its function, simply uses the favourable aspects of the system to generate personal wealth or profit.

Social and global problems should form the framework within which academic approaches are conceived, from course syllabuses to research policies.

Fides

The fourth feature, “fides”, is related to the promotion of the faith to the general public. In the context of a Catholic confessional university, it takes the form of training and critical thought on the Christian faith. It consists of being able to reason and explain the faith and values which one has freely chosen, and to do so in an appropriate way, in line with contemporary culture.

In a non-confessional or multi-faith setting, the “fides” dimension involves deeper study of meaning, together with work on intercultural competence. Understanding other ways of thinking, learning to respect them, creating channels for inter-faith and intercultural dialogue are new challenges for the future.

Research

Thus far, the Jesuit paradigm dating back almost 500 years has served to analyse part of the university’s function, especially the part that is related to teaching and learning. We
can see that the challenges of the past are still valid today. However, the university as an institution has subsequently added two further challenges which mark its social function: research and the social dimension.

Knowledge and research, which were not necessarily born in the university, have subsequently marked the way in which universities have conceived of themselves. Thus, some two hundred years ago, the theory of the university as a research machine was born.

New knowledge is one of the sources of innovation. Knowledge in itself does not constitute innovation, as it must be translated into processes or products that can be made and sold. There is a high level of correlation between investment rates in R&D, a region or country’s economic development and the level of employment.

Universities have a role to play here. Over recent decades we have come to see universities as institutions involved in regional or national economic development, and higher education institutions have even been considered a source of services for business.

Social dimension

The third function of the university goes beyond specific students or scientific publications. Many university activities are not directly or exclusively related to what happens in the classroom or what is published but, rather, are linked to the university’s relations with its surroundings. During the closing years of last century, there was a realisation that this, too, was one of the university’s functions and that it is referred to in different ways: social engagement, community engagement, civic service, social responsibility, etc.

This function is related to the link between universities and the business world, associations and other institutions. The research we undertake, mentioned in the previous section, should not only aim at publication for publication’s sake, or at demonstrating that we are fully accepted by academic publishing groups. Research must also seek to make an impact on the surrounding area, institutions or nearby businesses. The term “valley of death” is occasionally used to illustrate the yawning gap between what is produced by certain technological centres or universities and the real use of those products for business. The needs of surrounding institutions should mark the issues to which universities turn their attention.

In addition to internship agreements with local companies, universities can also seek agreements with social institutions to promote “service-learning” experiences, in which students are immersed in a context of social injustice and direct contact with those who most suffer in society.

New challenges

Part of what has been discussed so far is not new, but stems from ideas formulated centuries ago in some cases. At the same time, it is valid today and must be borne in mind and reformulated for the new challenges we are facing.
Science and academic life are an ongoing quest, not the quest for something which is finite, but rather for something which is still ongoing and which must be permanently sought.

The above considerations have direct implications for the systems of innovation which will mark the future of our societies. The education of the individual, “humanitas”, is understood today as training in competences, which involves knowledge, skills, abilities, capacity, etc. The “utilitas” dimension materialises through applicability, which is one of the features of innovation. “Iustitia” can be directly observed in some of the problems that have a negative effect on innovation: corruption or the growth of inequalities. “Fides” can also contribute to inter-faith and intercultural dialogue. For its part, “research”, as has been pointed out, is a key element for a society which seeks to specialise in specific, innovative areas. Finally, the “social dimension” obliges universities to be grounded in their surrounding area as one more agent with the role of promoting certain values and experiences necessary to encourage innovation. Social systems of innovation can benefit significantly if universities update their functions in these aspects that have been mentioned.

Linked to this, as a challenge for the future, we find the issue of universities’ economic resources and administrative regulations. Universities are increasingly expensive, as we seek to offer a growing range of services and improved, personalised attention to students. At the same time, public resources are shrinking as a result of the deficits and debts acquired by public administrations over recent decades. Moreover, new non-university sources are offering training which interferes or competes with the courses offered at universities. Consequently, legal and economic matters require renewed approaches on the part of universities.

Internet is one of the forces which is precipitating a change of model in many institutions, organisations and businesses. Distance learning is experiencing a period of renewal thanks to Internet and the new facilities for communication. Increasingly, electronic resources such as repositories, chats etc., are being used for teaching and teacher-student communication is taking new forms. Not only is face-to-face teaching changing, nowadays entire courses are given on-line. The challenge is for the University’s traditional values to be preserved in the new forms of distance learning or distributed learning. In other words, the challenge is to ensure that the new on-line courses are not just mere commodities aimed at making money but rather that attention to the students and their education is provided with the utmost care.

Internationalisation is another aspect which will increasingly affect our universities. In the future the local and international dimensions will merge. Currently, international relations and institutional affairs are usually dealt with separately by two different departments. However, the international dimension is becoming increasingly local and the local dimension is gradually becoming more international. Each university will become a hub in which we will have to learn to manage and blend what comes from outside the institution with what exists inside. And in a shrinking world, it will not matter whether what comes from outside is one, ten, one
hundred, one thousand or ten thousand miles away.

In short, universities are facing many challenges. University life, for the professionals involved, is becoming increasingly demanding. Jobs are difficult and, as in other professions, there is uncertainty at the beginning, with enormous competition and long career paths. Difficulties are manifold. Resources, the legal framework and Internet may help. However, the difficulties will be worth it as, in return, those of us who work at universities will renew our interest and personal commitment to values such as those mentioned in these pages and become aware of the aims and social function of the university. This will be our motivation and, over the coming years, it will lead us to renew our universities and the service we offer.
The excessive number of regulatory changes affecting Spanish universities and the damaging effects this has had on their funding in the past few years are impeding or, at least, constraining the much-needed debate on the role of universities in a new social context.

It is my opinion, and this will be the main argumentative thread of this contribution, that the crucial issue is to determine whether the university must assume new missions or even whether these new responsibilities are really necessary or are to be thought of as missions. I believe that the University, even more so at times like this, of economic crisis and upheaval for values, must embrace a whole set of new responsibilities that ought to be considered as missions. From this perspective, it is possible to envisage different "university models", according to the degree of commitment of universities to these new missions as manifested in their strategic plans or found in the decisions made by their individual or collective authorities.

Ortega y Gasset, in his 1930 book Misión de la Universidad ("Mission of the University"), assigned three unrenounceable missions to universities: the transmission of culture, the teaching of professions and the education of new "men of science". That the role of science in the university is essential and critical is an undisputable fact, for what can be taught without science? What science can be taught without scientific research?

There is no doubt that these three missions are paramount to the university. However, over the years, universities have assumed, to a greater or lesser extent, a number of new missions required by the society they serve, namely, transfer of knowledge to the productive sector, labour insertion and promotion of the entrepreneurial spirit, international mobility, scientific dissemination, life-long learning and social leadership. I will briefly examine a few of these new missions given their direct relevance to the contribution of universities to regional development. This is a fundamental objective
for some universities which, while preserving their character of universality, do have great responsibility towards the development of their immediate environment, as happens to be the case of the University of Jaén.

In this respect, when we think about universities and regional development, we tend to circumscribe the debate and the analysis to the university's so-called "third mission", that is, to the transfer of knowledge to the productive sector with the purpose of promoting and encouraging innovation. Incidentally, this mission was also mentioned by Ortega y Gasset in another book, *La rebelión de las masas* ("The Revolt of the Masses"): “The university must include among its missions a commitment to society and to the times, and for that purpose it must create a new type of talent capable of applying science and living up to the new times” (Ortega y Gasset, 1930).

Therefore, the performance of universities as regards the so-called third mission (actually, the fourth one, if it is placed after Ortega y Gasset's three essential missions —education, research and culture) is crucial to the two-sided reality of University-Regional Development. It is obvious that, in order for knowledge to be transferred to the productive sector, it must have been generated previously, and it must be of a high quality. In fact, the issue is not questioned, since Spain ranks very high in science production indexes (no. 9 in the world) and in research relevance indexes (no. 10). However, something must be wrong, for Spain's ranks only 18 in innovation (UE-27), according to the *Innovation Union Scoreboard 2011* report of the European Union (European Commission, 2011). It is therefore imperative that we should develop strategies aimed at encouraging knowledge-transfer awareness and activities among university managers and teachers, with the final goal of increasing their contribution to technical development, innovation and entrepreneurship. The question is certainly a complex one and requires taking a whole range of measures, ranging from taxation issues to motivation of teachers in their professional career, which appears to be disproportionately oriented towards writing academic papers (more on this in García Quero, 2014). What is more, precisely because this is an issue of prime importance for regional development, universities must make their own decisions. For this reason, I am firmly convinced that universities must design and implement research policies that, independent of funding, allow researchers to combine the freedom to choose the object of their research with the institutional criteria and priorities as regards research lines that will result in an improvement of the region's productive sector and employment figures.
To close the discussion on this topic, Senén Barro’s words seem to be pertinent: In my opinion, an entrepreneurial university must ensure that this third mission becomes a sort of responsible comprehensive undertaking, precisely to emphasize two questions of the utmost relevance: first, to ensure that entrepreneurial attitudes and activities permeate all the university’s responsibilities, particularly teaching and research; second, to do so with a sense of ethical, social and environmental responsibility (Barro Ameneiro, 2012).

However, when we highlight the importance or knowledge transfer, we are thinking of university and regional development as a concept, as a broad multi-faceted construct. These facets are congruent with a harmonious and well-balanced development of both the traditional and new missions, the final aim being a greater commitment of universities to the improvement of living standards in their immediate social context. Admittedly, universities are already contributing to the community’s well-being through education and knowledge-generation. However, what is required of them now is that they should contribute more directly to regional development, through new ways of doing things or simply by doing new things. This implies a more thorough engagement of universities in their immediate environment, so that regional development should become a core component of the university’s development. This contribution to regional development will thus grow to be a transversal issue agglutinating, within the Strategic Plan, a number of different strategic projects.

Apart from their mission of transferring knowledge, another increasingly important responsibility of universities, one that we must never tire of insisting upon, is that of cultural dynamization. Indeed, the university must not relinquish its obligation to produce men and women of culture and to help create an intellectually robust society. Mention must also be made of university cooperation and of its engagement with the most committed stakeholders in socio-economic progress: technological parks, technological centres, firms, etc. At the same time, the manner in which universities treat their suppliers must also change: we cannot claim to be a university connected to its region and concerned with the development of the community, while at the same time we fail to prioritize payments to suppliers. Suppliers must be paid promptly, even at the cost of having to reduce expenditure in other areas. Other crucial elements are life-long learning, the promotion of entrepreneurial spirit, the creation of technology-based firms and, last but not least, scientific dissemination. All these elements must become the building blocks on which the two-sided University-Regional Development relationship is to rest.

I will now refer briefly to some of the other new university missions mentioned earlier. It is my firm conviction that universities must do much more than they are currently doing in the area of social leadership. There is an increasing demand for the university to offer a critical analysis, founded on intellectual and scientific rigour, of the society in which it is enclaved and, for that purpose, the university must denounce injustice and contribute to shaping citizens capable of standing up against an increasingly unequal society. Vivanco
Díaz’s very apt words are worth quoting in full: Universities will find themselves immersed in a crisis not when they stop receiving sufficient funding for their survival, but when they fail to react to the pressing new demands from society. Evidently, the solution to the economic crisis requires a restructuring of the current productive model, but it also calls for a remodelling of the prevailing university system. A new system is needed that will effectively address the most urgent needs of society and, particularly, those of the least favoured social groups.

We must, therefore, clearly re-invent ourselves day by day and reformulate our role as universities, lest we simply become paralysed, unresponsive institutions.

Another essential component of the University-Regional Development relationship is the promotion of entrepreneurial spirit among all members of the university, particularly among students and faculty. We cannot forget that jobs are created by firms and entrepreneurs and, for this reason, university teachers must be ready to promote this entrepreneurial spirit. Yet, the initiatives taken in this respect so far have been geared towards students, not teachers. This is an error that must be corrected, as has actually been done in the University of Jaén through the implementation of teaching innovation measures for teachers. It has now become more necessary than ever that faculty members pledge themselves to the holistic education of their students, notwithstanding the current unpropitious circumstances, because research has recently become fossilized, to the detriment of teaching. This is a problem that both the administration and the universities must really improve. Students must surely be taught to be critical, build and defend their own opinions, and act in accordance with ethical principles, but we must also instil in them an entrepreneurial attitude, not necessarily so that they become entrepreneurs themselves, but in order that they be able to face the obstacle race of life.

One final activity that proves essential to achieve regional development, however indirectly, is scientific dissemination. It is expedient, necessary even, that the surrounding community should feel that their universities are close to them and have pledged to improve their well-being. We must bring science to society and awaken among the young a sense of curiosity for research and science, a desire to contribute to knowledge. In my opinion, scientific dissemination should be a fundamental duty of university teachers and, for that purpose, they have to become “bilingual”, that is, use a different type of language when addressing society, a form of expression which, while preserving rigour, is more understandable than the language they use to communicate with their academic peers. This was very suitably put by Dr. Fernando Carrasco, of the Research Centre in Molecular Biology “Severo Ochoa” in Madrid: We must take advantage of all available opportunities to convince the public that scientific research is vital for a developed country. All our efforts at dissemination will
be largely rewarded: when citizens become aware that quality research is being done in their country and feel proud of it, when they realise that our laboratories are making discoveries that will contribute to the development of their society, when important scientists are regarded with the same kind of admiration as sportsmen/women or artists,..., only then will the public demand that our national authorities give science the place it deserves (Carrasco Ramiro, 2007).

By way of conclusion

The duty of universities is not to passively accommodate to their environment, but to transform it. We must be the architects of social change and transformation, in particular that of our immediate environment. To use Juan Vázquez’s words, we must live "in a permanent state of transformation" because "universities are institutions that cannot survive unless they renovate themselves" and are indeed "made up of an enduring blend of tradition and innovation that has allowed them to survive over the centuries". For this reason, "they are called to play a central role in today's society of knowledge (Vázquez García, 2008). Therefore, the traditional missions of a university, higher professional education, scientific research and transmission of culture, have to be enhanced through these new missions. This does not mean that all the missions should be developed to the same degree and extent, as there is no monolithic model to which universities can be obliged to conform. Indeed, it is precisely the unequal development of these missions, the peculiar combination and weight that each university decides to give to each of them, according to its strengths and organizational capacity, that will give rise to different "University models".

It is here that university autonomy lies: in order to develop autonomy to the full, each institution must constantly be able to create and offer the community its peculiar and distinctive, albeit dynamic and creative, model of the university, as Marcellán proposed. To this end, it is essential that a Strategic Plan be designed that clearly spells out what the university wants to become and, therefore, what it wants to achieve in the medium and long term (Marcellán Español, 2011).
References


Ortega y Gasset, José: Misión de la Universidad, 1930, Madrid.

Ortega y Gasset, José: La Rebelión de las Masas, 1930, Madrid.

Spanish Public Universities Looking to the Future

During these initial years of the 21st century, Spanish public universities are facing complex situations which will radically transform higher education in Spain. Such challenges should not be considered as threats but rather as opportunities to redefine priorities and main fields of action.

This redefinition does not imply that public universities should stop paying attention to one of their fundamental missions, namely, training those young people who will lead society in the new era in which we live. On the contrary, our responsibility with the society upon which we depend obliges us to strive to ensure that we offer quality teaching so that we train the best possible professionals for that society. In this sense, we will have to design strategies which allow us to offer quality programmes. We will have to use instruments such as external evaluation of our degrees, successful external quality appraisals and constant contact with groups of stakeholders in order to guarantee that we offer quality training and, at the same time, enhance the employability of our graduates.

However, continuing our mission of training young people cannot be used as an excuse to elude the very necessary analysis we are obliged to carry out to reappraise our role in this new era. Such an analysis should include aspects we consider to be vital such as specialisation, attracting talent, promoting knowledge transfer and innovation, and internationalisation.

Specialisation involves detecting those areas in which we excel at an international level and those in which we can aspire to reach that level if we apply a strategic plan. This analysis involves taking difficult decisions about budget allocation and about our policy for attracting talent. Such decisions will not only be difficult to apply by the fact of having to prioritize some areas over others, but also because they will be conditioned by the demands of the university community and by those of society, which will often not understand the need to take such decisions. However, in a globally connected world, only by differentiation in teaching, research, knowledge transfer and innovation can we guarantee that public universities become...
benchmarks, attracting students and researchers alike.

Challenges should not be considered as threats but rather as opportunities to redefine priorities and main fields of action.

One of the priorities that universities should have is to attract talent both amongst researchers and students at all three levels of education. We will have to offer high quality internationally recognised training programmes to students, especially at Master’s and doctoral level, promoting bilingual and inter-university degrees. As for researchers, there are two problems which require a solution if we are to implement an effective recruitment policy and, indeed, both of them lie outside the remit of the universities. I am referring to the need for more funding and greater flexibility in recruitment conditions, aspects which are in the hands of regional and central government. It will be impossible to implement a real policy of incorporating top level researchers into our research groups unless there is a substantial budget increase and the possibility of being able to offer contracts linked to specific objectives, with salaries similar to those offered in other countries.

Internationalisation is an essential factor for the future of our universities and should be the pillar which serves to support and coordinate their strategies and policies across the board. Several essential aspects must be taken into account for this to occur. Firstly, it is essential that universities analyse their geostrategic position since that will determine the immediate field of action. This does not mean that we are limited to our immediate environment and should not go beyond, but our priority objective should be to become a benchmark for training, research, transfer and innovation in our geographical location. Moreover, our internationalisation policy should be accompanied by an effective alliance with different sectors of the Spanish economy, to contribute to transforming the model and encouraging the move towards a knowledge-based economy. Secondly, a policy of incentives must be established, leading to internal convergence, thus enabling pooling of resources and efforts in the university’s areas of excellence and in those areas which aspire to excellence. At the same time, coordination with institutions and entities in our immediate environment must be fostered, as a way of establishing influential working groups that are completely integrated into the society.

As for researchers, there are two problems which require a solution if we are to implement an effective recruitment policy:

1. The need for more funding
2. Greater flexibility in recruitment conditions

It is essential to foment transfer and innovation if we are to change Spain’s productive model, with the aim of moving towards a sustainable, knowledge-based economy. In order to do this, it is not only necessary to create teams that include specialists in all fields of research, development and innovation. The only way to offer society the right instruments for future development is to bring together researchers and experts in knowledge transfer and innovation.
where the university is located. A clear example of the effectiveness of such a policy is offered by the International Campus of Excellence programme. They have demonstrated that, by detecting areas of excellence in our universities, initiating joint projects involving different universities located in the same geographical region and coordinating with local institutions and bodies, synergies have been created, which have lead to a substantial increase in the capacity to obtain funding, harness talent, increase scientific production, develop channels for knowledge transfer and innovation, and to increase the visibility of public universities in Spain.

"It is essential to foment transfer and innovation if we are to change Spain’s productive model"
I cannot conceive of analysing the university of 2031 either as an exercise in guesswork or as a proposal of preventive measures to stop the university from developing in a way we would rather avoid. I hope this serves to illustrate that I am not nostalgic for what some consider the university’s splendorous past, and neither do I believe that any change introduced, or which arises in a university system, should automatically be welcomed. On the contrary, I believe we are witnessing a shift in the paradigms which underlie our concept and vision of the university, but at the same time I also believe there is something intrinsic, inherent to the very essence of the university’s function, which will doubtless be preserved in our higher education institutions.

The university, to be considered such, must preserve its aspiration to move forward through the development of knowledge, the cultivation of study and intellectual analysis and, of course, with a universal spirit. The university cannot exist as such without enlightened debate and critique, a permanent quest to push back the frontiers of knowledge.

Neither can the university exist without a clear mandate to train professionals, schooled in the fulfilment of their tasks, based on the most recent and updated knowledge. It is not my intention to contradict what has been said about the shift of paradigms. What is more, I have no doubt that progress will bring us new university projects capable of integrating, in an original way, the new demands that society will undoubtedly place on the university. Likewise, I believe that the fate of different universities, within the time scale we are referring to, will be unequal. Those who do not confront the future competently will be doomed to disappear.

That is the reason for my constant criticism of what I consider to be the least positive feature of the Spanish university system. It is no doubt the case that our system has many sectors, departments and faculties that are truly competent, active and first rate. However, the system is frequently held back by powerful sectors (be they political or academic) who seek equalisation or levelling down for all, preventing the existence of the pressure...
needed to spur progress, improvement, or competition. Such pressure provides the motivation for self-improvement, which has been an integral part of the advancement of all university projects worthy of that name. In an era of scientific interdisciplinarity and multidisciplinarity and at times like the present, the university in classical terms must reinvent itself in many ways, as the best response for the progress of society.

**Shifting paradigms**

The concept of a shift in paradigms is applicable to three of the “traditional” aspects that define universities: teaching, research and knowledge transfer.

**Teaching:** the traditional concept of university teaching is constantly under review. However, factors which may be temporary, so to speak, are shaping new approaches which, in turn, become demands that society places on the university system. Employment crises, which have arisen in different circumstances, lead to universities being required to tackle the employment problems of many graduates. When the route to employment and professional practice begin to diverge from traditional patterns and when the need to train the new professionals required by society becomes apparent, universities come under greater scrutiny and the issue of costs and return on investment become more obvious.

Moreover, new suppliers of education have now appeared, such as business schools, whose contribution is decisive for the improvement of employment prospects. In any event, the fundamental change is to be seen in the way information is managed. The times when the teacher was the person who had access to specialised libraries and then made that knowledge available to the students have given way to an era in which everything is on the net, accessible to the students as it is to everybody. Does this mean that teachers are less necessary? In my opinion, quite the contrary. It is increasingly necessary to find the way to transform information into knowledge. The university teacher is still a vital figure and now has the essential task of being fully conversant with all the data bases and sources of information to guide his or her students. The appearance of distance courses, epitomised by the acronym MOOC, clearly illustrates this important question. Bearing this in mind, these new elements offer much scope for creativity. We need an efficient way of turning these new resources to full advantage and on-line teaching is not suitable in every situation. On-line courses can have
remarkable value, but we must not forget that reliable data show that access to employment is more difficult for those graduates who have received an exclusively on-line education. Universities should be a hub of creativity in this sense, offering new degrees which guarantee quality of content and the efficient use of time and resources.

The university cannot exist as such without enlightened debate and critique, a permanent quest to push back the frontiers of knowledge

The best university teachers, those that make their institutions more competitive, will have to develop new teaching procedures. Each institution will be identified according to parameters such as the evaluation of results, that is to say quality in training, defined by the level of skills and qualifications attained by the students at all levels. The support given to each university and the treatment they receive will be diversified in accordance with the results obtained and the way in which they function. As I have already stated, society is demanding more quality at university level and, in the light of this, certain institutions will be favoured over others. Those who do not wish to acknowledge this trend, those who promote the idea of blanket equality and uniformity of the system, are not facing up to what the future will inexorably hold.

Research and knowledge transfer. The university continues to be the leading institution for the creation of knowledge. However, a new institution has recently appeared, namely, based on a partnership between industry and academia. Thus, in knowledge creation, the transfer of such knowledge to the productive system must increasingly be borne in mind. It is essential to envisage cooperation with businesses, as agents for the development and management of knowledge that is produced in academic institutions. Indeed, the expression “entrepreneurial university” has been coined. In October 2002, a ruling was issued which possibly sets a trend in this sense. A U.S. federal court, following an appeal against another sentence issued by a state court, annulled the sentence which established that Duke University (Durham, North Carolina) had the right to tax exemption on the profits obtained from licensing of patents. The federal court held that the university’s research activities were “in furtherance of […] its legitimate business” and that it should not be treated any differently from a company seeking to make a profit.

The consolidation of what we could call a post-academic institution requires both new forms of management and special attention with regard to the policies that society applies to the organisation and management of higher education. Some analyses and initiatives in North America, which leads the world in scientific development, are an illustration of how imbalances can be corrected. When there is a problem with access to degrees in Science, Technology, Engineering and Mathematics, universities strive to compete in attracting the best students to their postgraduate research groups in these fields. In recent years, the proportion of students from China has increased considerably, but the trend has now been reversed as there are more opportunities in China itself. Some law-makers propose a relaxation in immigration requirements for all those students who can contribute to innovation and increased productivity. In the U.S.A. the private sector employs two million
foreign experts in Science and Engineering, whilst every year ten thousand foreign nationals obtain a doctoral degree in American universities. Canada is also at the forefront in offering incentives to entrepreneurs in science and technology, whatever their country of origin may be.

**Governance.** The university of the future should be able to respond to these requirements, no doubt involving new forms of organisation which will only be viable if governance and management of universities is appropriate. University autonomy cannot be understood as self-management aimed at satisfying internal interests. Rather, it should reflect the capacity to structure and organise one’s academic field, in which excellence in teaching and research is the main objective, all obviously based on accountability by those responsible for governance.

It is clear that we are moving towards very different models of management and governance and that the same structure may not be suitable in each case. The university model that I propose here should lead to specialisation. Once again, I believe that we must continue to criticise the trends towards uniformity within our university system. Diversification is also fundamental, based on size, orientation, and the intensity of research activities or targeted teaching in which specialisation may be the key to success.

**Final considerations**

The university, as an age-old institution, has written many success stories which have been vital for the progress of humanity. The different models of university which have established trends in the past are benchmarks in this sense. German universities created the (Humboldtian) model of the university as a research hub based on knowledge creation. The British model, with medieval traditions, focused on the transmission of knowledge and values and on tutored learning. Mediterranean universities, based on the French Napoleonic model, are renowned for the education of the leading elites.

Currently, it is not appropriate to reminisce with nostalgia, but rather to face the transformation I have mentioned, precisely with the aim of maintaining the essence, adapting to the demands of the times. In present-day society there may be, indeed there are, other suppliers of teaching and research, both in the private and public sectors, which, in turn, can attract more investment than universities, even for basic research. The university, and certainly public universities, must compete with other public and private institutions as a source of knowledge creation, in a scenario which was unprecedented until very recently. We must not lose sight of this fact when reforms are proposed. The university must be capable of adapting to this competition.

I do not wish to close without expressing my confidence that the university in the Spain of 2031 will be up to the challenge posed. Those of us who consistently advocate a self-demanding reform, base this proposal on the
idea that such reform should only affect that which can and should be improved. I do not share the pessimism of those who believe that there is no solution for our universities and neither do I agree with those who continually propose a deferral of the reforms, alleging that a more in-depth analysis is needed. The university that I believe in, and which I trust will be a model in fifteen years time, will continue to respond to the best university values, the creation and transmission of knowledge and responsibility in the delivery of a service to its immediate environment and also for the benefit of that universal society to which all humanity belongs.
Allow me to begin these lines on a personal note. I started work at the National University for Distance Education (UNED) almost thirty-five years ago and, at that time, I was not altogether sure what distance learning actually consisted of. My first post was at the Institute of Education Sciences (ICE), soon to become what is currently the University Institute for Distance Education (IUED). It was there that I learned the rudiments of distance education and where I first published on the subject. I have now been invited to reflect here on the future of higher education over the coming decades, and I shall focus on a middle term horizon, drawing on the professional experience I have accumulated over the years in this field. My contribution is based on five theses that I shall now proceed to present and defend, albeit briefly.

**Thesis 1: Distance education has broadened the perspective of higher education**

Universities are institutions with a long history, whose origins can be traced back to the European Middle Ages. There is no doubt that such institutions have changed considerably since that time. The circumstances that have driven their development are diverse and are related both to social and cultural changes and to educational and scientific advances. Although it may appear to be a collateral effect, the transformations that have taken place in the modalities and channels of communication have affected education in general and universities in particular. Thus, in the mid-nineteenth century, the invention of railway transport, the rise of newspapers and the expansion of postal services, paved the way for different experiments in correspondence courses, although still in their infancy. Over the years,
such initiatives became more consolidated and increasingly institutionalised, finally being offered at university level. During the 1970s the first exclusively distance universities were set up, such as the British Open University, the UNED in Spain or FernUniversität in Germany (García Aretio, 2015).

Universities will undergo significant transformations over the coming years with regard to the combination of face-to-face and distance learning modalities

Although such universities were regarded with a certain degree of suspicion by many academics, these novel institutions introduced elements which broadened the field of higher education:

- Firstly, they enabled educational links to be established between people who were distant from each other in time and space, thus extending the reach of education.

- Secondly, they facilitated access to higher education for new types of students, for example adults who had not previously been involved in formal study but who had the ability to begin a university course, people who did not live close to traditional university towns and those with professional or family responsibilities.

- Thirdly, they inspired the development of teaching materials in new formats: printed matter intended for independent study, audiovisual and multimedia material, channels and mechanisms for distance communication, self-assessment and distance assessment.

In all, we can state that distance universities in the closing decades of the 20th century broadened the horizons of higher education and university education. Perhaps their groundbreaking nature provoked certain suspicion and resistance, but there is no doubt that distance universities were the first to tread the path along which all university systems have now followed.

**Thesis 2: Digitalisation of universities is only just beginning**

Over recent decades, progress in information and communication technology has made a considerable impact on university life, much more so than other, previous technologies. The explanation is simple: ICTs have profoundly affected production systems, social and economic organisation, cultural norms, international relations and many other fields. The incorporation of ICTs is an ongoing process and no doubt always will be. This process is now well-established although, at the same time, it is open to the unexpected and affects all aspects of our lives.

Logically, universities could not remain on the sidelines of this general trend. Consequently, university management systems have been computerised, courses and research work are presented on the Internet, on-line campuses have been set up, distance support systems for students have been created, and interactive teaching material produced.

Given such changes, there are voices that question whether universities have fully understood the implications and demands of the digital society and, indeed, doubt whether this has been the case. It could even be considered that on-line campuses may have hindered real digitalisation of universities, a process which should affect aspects such as the type of courses offered, the approach to connectivity, society-based learning and ways
to take full advantage of the globalisation of knowledge (Pedreño, 2013).

From this perspective, the challenge that universities should currently consider is, not so much how to use ICTs whilst attempting to maintain the traditional features of the institution unaltered, but rather how to adapt to the demands of the digital society. In other words, the aim is to incorporate universities into the digital society, which would help to respond appropriately to today’s challenges.

**Thesis 3: The development of ICTs has blurred the distinction between face-to-face learning and distance learning**

As a result of the incorporation of ICTs into university life, the boundaries which have traditionally existed between traditional universities and distance universities have become blurred. For some years now, an increasing number of traditional universities have begun to offer on-line courses, blended learning programmes, self-tuition courses, and other similar activities. Although most university activities are still performed in classrooms and on campuses, new initiatives have arisen in which the physical presence of the students is not an indispensable prerequisite to follow a course of higher education.

The changes that have occurred are significant and perhaps MOOCs are the clearest illustration of this. Over recent years elite universities such as Harvard, MIT and Stanford have launched a range of courses that would probably not have been acceptable to their teaching and academic authorities just a decade ago. MOOCs have clearly disrupted the world of universities, provoking hopes of change yet generating criticism and raising questions (Tiana, 2015).

Although it cannot be categorically stated that the distinction between traditional campus-based education and distance learning has disappeared, there is no doubt that boundaries have become more permeable and less rigid than they were just ten years ago. This opens new prospects for the future which we should take advantage of.

**Thesis 4: Distance learning has made important contributions to the digital transformation of universities**

Distance universities have actively contributed to generating the situation described above. Many of them have been at the forefront of advances which today benefit all universities. To a large extent, this leading position is due to the fact that, since its inception, distance education has developed because it has taken full advantage of the technological resources available in each situation at each point in time. This close link with technological resources has led some authors to refer to distance education as an industrialised learning modality or as an educational model based on different media which enable temporal and spatial differences to be overcome.

It is precisely the incorporation of successive technological resources that has obliged us to broaden the term used to refer to this modality, and now the terms virtual, on-line or digital learning are preferred to distance learning. Nonetheless, however much the terminology and the specific features have changed, there are two key elements which require attention in one way or another: the provision of appropriate materials for study and for student guidance and support. It is in these two fields that the contribution of distance universities has been most outstanding.
This contribution can be clearly identified in the following ways:

- A systematic and meticulous teaching methodology has been designed and disseminated, and today serves as a basis for the creation of courses which can support independent study and autonomous and cooperative learning. The main rules of such a methodological structure are well known and are currently applied by distance and on-line universities, although their characteristics are not identical in all cases.

- A significant number of digital and hypertextual teaching materials, which are based on a combination of media and are interactive, have been produced and disseminated. They are enabling content to be shared and not only distributed. In many cases such material is available in open repositories of educational material. The material that serves as a basis for MOOCs is a good example of this kind of contribution by distance universities to traditional campus based institutions.

- New, diversified channels to offer support to students have been designed, based on tools such as on-line forums, often connected to different social networks (either general or specific) enabling smooth and rapid communication to be established between students and between students and teachers.

- A wide range of both distance and face-to-face support mechanisms for study has been developed, facilitating a personalised learning experience. The co-existence of support centres, physical and on-line libraries, face-to-face and on-line tutorials, videoconferences and chats, allows each student to find the combination of resources and channels best suited to his or her characteristics, learning style and practical needs.

These contributions have coincided with other changes affecting our conception of teaching and learning processes, the appearance and development of a new concept of life-long learning, the demand for new non-formal training models or the need for access to
globally distributed knowledge. That is not to suggest that distance and on-line universities have been the only active agents involved in this process of change, but there is no doubt that their contribution has been significant.

5. The university of the future will combine face-to-face learning with distance learning, although we do not yet know in which proportion

Given the current situation, everything would suggest that universities will undergo significant transformations over the coming years with regard to the combination of face-to-face and distance learning modalities. This idea is reinforced by some who favour the convergence of both, which is not at all unrealistic. Indeed, we are already seeing developments that would support this idea. Such is the case of the expansion of on-line and e-learning models in traditional universities, the development of blended learning which combines varying proportions of face-to-face and on-line learning, or the appearance of flipped classrooms in which part of the learning activities take place outside the classroom.

This trend, involving either combination or convergence of both modalities, stems from the need felt by universities to respond to the new challenges they are facing:

- On the one hand, the continuous increase in the number of people seeking higher education means that solutions will inevitably be sought to meet the demand at a reasonable cost. Distance and on-line learning have proved capable of offering a quality learning experience whilst at the same time applying an economy of scale, making such a solution both viable and sustainable. Likewise, traditional universities have proved they are capable of integrating new teaching and learning approaches. In such circumstances, the option of mixed modality study programmes is undoubtedly very attractive.

- Together with the above, it is possible to imagine combinations which go beyond national borders. Although this is as yet only in an initial phase, there are indications that groups of universities from several countries are working together to offer joint courses with various combinations of material and student support services. It is therefore quite legitimate to wonder whether a phase of development has been reached in which some initiatives should move beyond institutional or even national boundaries.

- Moreover, changes are occurring in the field of higher education which may lead to a reappraisal of the university’s traditional functions. Such include the increasing overlap between university education and
vocational training, the demand for accreditation and certification of competences acquired in non-formal and informal education, or the gradual dismantling of traditional teaching functions into different components. The appearance of initiatives aiming to respond to such challenges favours the use of new combinations capable of tapping into the best aspects of each modality.

- Finally, the new advances in technology occurring at present favour innovation and the search for new methodologies. Such is the case of learning through mobile devices, which is currently revolutionising training and education.

Currently it is difficult to predict exactly how this combination of modalities will develop, which modality will be used in which proportion, and even whether total convergence will occur at some time in the future. However, there is no doubt that the days are numbered for the rigid division between campus-based universities and distance and on-line universities. The future is open, but the process of change has passed the point of no return.

References


“Universities could not remain on the sidelines of this general trend”
The new university model

Universities have undergone profound changes over the last century, not so much with regard to training and research, but in what Ortega y Gasset defined as their third mission, which is knowledge transfer. Nowadays, that transfer of knowledge is no longer limited to technology or the university-business relation, but it also extends to society.

Which university model do we want? We shall obviously aim for a globally competitive model, which provides our graduates with quality training to be able to develop their professional careers in any part of the world; a model that can attract and retain talent, encouraging at the same time the mobility of our researchers and students, a model that extends international collaboration and breaks language and geographical boundaries.

This new model, oriented towards the international presence of the university, must be in line with an innovative university, committed to its environment, able to attract external funding, encourage patronage, and be the driving force to change the productive fabric of Asturias, in addition to being an example of corporate social responsibility. Finally, we shall look ahead to a model that, far from generating inequality, breaks down barriers.

A space for universal knowledge

The strong commitment to education both in the present and the future implies internationalization as a major cross-cutting element in the fields of both teaching and research. Only through active policies aimed at training skilled graduates, capable of entering a globalized, competitive labour market, policies that encourage mobility, and include grants and subsidies to guarantee equal opportunities, can we achieve a high-quality, modern university adapted to the demands of society.

Two of the main pillars in this internationalization process are language learning and double degrees. Bilingualism is undoubtedly one of the major challenges in the short term. Spanish universities still have a long way to go in this field, but we have
begun to take enormous steps, in the case of
the University of Oviedo through its Campus of
International Excellence. The increase of
bilingual graduate programmes and masters’
degrees is a significant asset to attract
international students, especially in
postgraduate training. In the future, the best-
case scenario includes a complete educational
offer consisting of bilingual itineraries and
degrees taught entirely in English. This is
surely one of the main challenges for Spanish
public universities.

The real revolution in the university
community in the last decades has been the
commitment to its environment

This commitment to provide teaching in
another language must be compatible with a
market that, for the Spanish universities, is
becoming more and more important, that is
Ibero-America. Spanish speaking countries
have become aware of the importance of
developing an Ibero-American Knowledge
Space, as reflected in the International
Meeting of Rectors sponsored by Universia in
Río de Janeiro in 2014.

Spanish universities are a strategic meeting
point. On the one hand, we are a gateway to
enter Europe for Latin American students, and,
on the other hand, we serve as a bridge to
Latin America for Asian countries. We must
definitely take advantage of our potential to
attract international students.

In order to do so, it is essential to present an
attractive offer of graduate programmes, and
competitive postgraduate degrees; an
international and versatile educational range
of courses. The University of Oviedo, for
instance, has totally renewed its provision of
masters’ degrees, thanks to the collaboration
of the International Graduate Centre, thus
improving collaboration with the business
sector and promoting joint programmes with
international universities, in addition to
increasing the number of Erasmus Mundus
Master programmes. This change of direction
has led attracting foreign students,
encouraging short stays by international
lecturers and improving the employability of
our graduates.

Similar actions have been taken with our PhD
programmes. One of the challenges for the
future is to increase the number of agreements
for international co-supervision of PhD theses,
improving the opportunities of our young
researchers to go abroad. We should, however,
also emphasize the added value of the PhD
programmes as one of the key elements for
innovation in the business sector. Industrial
PhD programmes are still emerging in Spain,
although the first results have been positive.
Now it is our turn to make the productive
sector aware of the importance of the
incorporation of PhD graduates into their
workforce or research departments.

New technologies for education
without borders

Technological innovation has facilitated the
process of achieving education without
borders which is open and accessible to
everyone. We are certainly facing the ICTs
boom, and we should take advantage of the
tools within our reach and adapt them to new
social demands. Our students are already
“digital natives” and they master a language
that is far from that used at universities over
the last 25 years.
Traditional virtual campuses have been incorporating different, successful initiatives which are accessible to everyone such as MOOC (Massive Online Open Courses) increasingly. They are a great tool for knowledge dissemination and are becoming an indispensable part of the offer available at universities. It is not about replacing direct contact between students and lecturers, but about extending the information channels and bringing knowledge closer to society. Virtual education facilitates the combination of education and work, and it is definitely a supporting tool for one of the present and future goals of the university: lifelong learning. One of our responsibilities is to provide training for adults without university studies, and improve their chance of entering the labour market or improve their working conditions.

Improving the employability of our graduates

University teaching goes far beyond the traditional idea of learning content; it actually has to be part of a strategy that contributes to improving employability, thus meeting one of the major challenges for Europe in the current economic scenario: work placements. It is, all in all, a matter of improving the competitiveness of graduates, facilitating their entry to the labour market and opening new lines of action.

In addition to our responsibility as a higher education centre to provide excellent training, we must also be aware of our role in the improvement of the employability of our graduates. In the same vein, it is essential to promote an entrepreneurial culture among students, encouraged from different perspectives, even including courses devoted to business creation.

There is no doubt that one of the best options we shall encourage, in the medium and long term, is collaboration with the business sector. External internships are one of the main alternatives our students have to access the labour market, although we will work to achieve a better institutional relation with the business sector. Thanks to closer contact with businesses, international companies are increasingly turning to university campuses to recruit skilled professionals.

Challenges for Universities in the 21st Century:

- The new university model
- A space for universal knowledge
- New technologies for education without borders
- Improving the employability of our graduates
- Investing in R+D+I to guarantee a better future
- Patronage
- Universities committed to their environment
- National pact for higher education

Investing in R+D+I to guarantee a better future

Knowledge is the most profitable investment for a country, as it generates a greater critical mass of human resources, it promotes research and innovation and, consequently, increases the competitiveness of our productive sector and generates economic growth. In this process, it is essential for public institutions to consider universities as a key factor for regional development. We, as universities, have the necessary knowledge to promote both basic and applied research, which guarantees the progress of a country, as
well as the technological innovation that can reactivate the productive sector.

Perhaps one of the most devastating consequences of this global economic crisis is, undoubtedly, the gradual paralysis of research activity, with negative consequences for emerging groups, and researchers that must abandon their scientific vocation due to the lack of opportunities. The expenditure on R+D has fallen dramatically over the last few years, and science has suffered an almost insurmountable setback.

Nonetheless, universities still play a key role in scientific production, and we have shown our strong commitment to research as a way forward, which is often directly linked to the Campus of International Excellence.

Throughout this process, areas of expertise and the establishment of new alternatives to improve knowledge transfer have been essential.

In our case for example, we do not choose an area of expertise by chance. We take into account the research potential of the University of Oviedo, and the productive sector of a region such as Asturias, with an urgent need to change its productive pattern, and promote the innovation and internationalization of companies, which are mostly SMEs. The specialization in two scientific fields through the grouping of: Energy, Environment and Climate Change and Biomedicine and Health has been the starting point to promote competitive and effectively managed university research, which is more international, involved in the region, and also related to technological centres, institutions and companies.
The groups exert a very positive, dynamic, institutional force, actively participating in the elaboration of the Regional Strategy of Intelligent Specialization (RIS3), and in the preparation of proposals for highly competitive projects, especially at the European level. In addition to the necessary resources, we also need to strengthen networking, international collaboration with other institutions and we shall also guarantee the essential generational shift. All these actions result in attracting and retaining talent, as it is impossible to have science or progress, without qualified experts.

The concept of the knowledge-based economy reinforces the role of universities as key elements in the innovation system. The competitive advantage of companies often depends on intangible assets, that is, knowledge and learning capacity. The Campus of International Excellence, for example, has led to a change in the perception that the productive sector had of universities. Today, it is the company that turns to universities to meet their demands for innovation. We are starting to see universities as a provider of knowledge and scientific technical services, a positive element that provides proposals that can improve their productivity. We are facing the enormous challenge of the Strategy of Intelligent Specialisation (RIS3). In this framework, we, as universities, must assume our active role when making decisions about priorities with regard to investment in research and innovation, and we must make sure we choose the right lines of action in order to guarantee this process.

Patronage

Funding is one of the most relevant aspects of university policies. In the last few years, Spanish universities have undergone a serious setback in the funds coming from public bodies. For example, the University of Oviedo has faced a budgetary cut of almost five million euros in five years. In spite of this complex economic situation, the university has remained fully committed to society and it has even developed innovative programmes to expand the expectations of our young students. To this end, the university has turned to external funding.

"It is not the right moment to make universities implement substantial changes, and confuse our young students even more"

The new aforementioned university-business relationship has led to the implementation of patronage and funding policies that, although still scarce, should increase in the future. Agreements and sponsorships in the fields of teaching, research, social action and culture have allowed funding of scholarships and grants for postgraduate tuition aimed at students with the best academic records, bilingualism programmes, international mobility and talent attraction and retention, to mention but a few examples.

It is only a first step, but it is imperative to promote patronage and sponsorship from large companies and institutions. To this end, we must establish new formulae to make companies aware that their role as sponsors can lead to social benefits and also boost this type of funding.
Univ

Universities committed to their environment

The real revolution in the university community in the last decades has been the commitment to its environment. In the last few years, we have come to apply a new approach of the University-City-Region relationship, establishing local, regional, national and international alliances that follow the model of the quadruple helix: university, local government, business sector and civil society, with the ultimate goal of generating socio-economic impact in our immediate surroundings.

This commitment to society is clearly shown in our Corporate Social Responsibility. Services for people with specific needs, development of equality measures, international cooperation and measures aimed at improving sustainability are some of the guidelines for the new university model, with accessible campuses that are open to society.

In parallel, the university has strengthened its relationship with public institutions, civil entities and bodies to become a provider of scientific and cultural knowledge. The university is no longer just an education and research centre, but it must also contribute to territorial cohesion.

A good example is the University of Oviedo, the only higher education public institution in a community with a population of one million inhabitants, and an aging population, which in recent decades has undergone a restructuring process in the agricultural, mining and metallurgical sectors in a shift towards a new sustainable model of market economy. This university, with four centuries of history, has realized that its future must be directed towards regional leadership in research and knowledge transfer, investing in innovation and internationalization as elements that will make the Asturian productive fabric more competitive, and will help generate employment and contribute to economic growth. This is its main challenge for the 21st century.

National pact for higher education

The implementation of the European Higher Education Area (EEES) has been a great challenge for Spanish universities. The adaptation to the new Bologna Plan has required significant effort, implying a reorganization of courses and the elimination of some of them. The University of Oviedo for instance, has developed a process of center mergers, which has been set as an example of good practices in the framework of the University Strategy 2015.

When dealing with the challenges and the future of higher education we must, undoubtedly, refer to the educational policies established by governments. Universities, at least in Spain, have undergone several education reforms in recent decades, which have made us re-design teaching structures and learning methodologies. Now that the EHEA has just been implemented, and it is still too soon to evaluate the results, political authorities are suggesting a new change that would imply restructuring all academic programmes yet again. It is not the right moment to make universities implement substantial changes, and confuse our young students even more.

If we think of the 2031 horizon, the main goal would be to have achieved by then a National Pact for Higher Education in Spain, which would imply safeguarding higher education from political changes. Only in this way will we be able to have a globally competitive university system.
Towards the University of 2031: The Priority is to Lead the Way

We have been asked to reflect upon the challenges that Spanish universities will face in the near future, taking the year 2031 as our horizon. Until now, different documents have analysed the development strategies of universities, to determine the best way they can contribute to the intelligent, sustained and inclusive growth of society but with a shorter timeline such as, for example, the Spanish government’s Estrategia Universidad 2015 strategy, or the Europe 2020 strategy.

In the current publication we have a new, slightly more distant, horizon but I believe it is still close in university terms. Speaking of “new horizons”, as we write, the New Horizons space mission is beginning scientific observations around Pluto, with its closest approach set to take place in July 2015. There were many questions on 19th January 2006, when NASA launched this probe into space to carry out the closest ever flyby of Pluto. Indeed, seven months later, given Pluto’s specific characteristics, the scientific community decided not to consider it one of the eight planets of the Solar System, its status subsequently becoming that of a dwarf planet.

At that time, it was not known that, in addition to Charon, the large moon with which it forms a double system, Pluto has at least four more other interesting satellites. Neither had it been realised just how important it is today to study some of the thousands of bodies in the Kuiper belt, close to Pluto, where numerous comets originate.

When the programme began, the Applied Physics laboratory at John Hopkins University, which is managing this mission for NASA, lacked exact information about the situation and the points of interest that would exist nine years later at a distance of 5,000 million kilometres. However, from the outset, it was clear that utmost attention must be given to ensuring that the project included the cutting-edge technologies and knowledge available at that time, in addition to all the elements that would enable the New Horizons interplanetary probe mission to adapt in order to deal with the numerous challenges that would arise.
during the exploration of these unknown new horizons and thus guarantee success. In the same way, a university which aspires to excellence and seeks to respond optimally to whatever society will demand of it in 2031 must begin today and work year by year if those demands are to be appropriately met. The priority is to lead the way down that path, breaking new ground in both the generation and transmission of knowledge and in the development and application of learning methods and technologies. It is also essential to consistently pursue excellence, mainly in those fundamental aspects which are at the heart of a university’s mission and which should therefore be maintained over time.

We are 16 years away from 2031, which is exactly the same amount of time that has elapsed since 1999, when the Universidad 2000 document, later known as the Bricall Report, was drafted by a group of experts after a series of seminars attended by a hundred or so participants, including Rectors, Heads of Social Councils, experts and university lecturers, together with members of different social and economic organisations. This report indicated that the most relevant question for the university at that time was “its adaptation to the changes demanded of it by society, both in relation to the courses offered and the research carried out”.

Sufficient funding is not everything, but it is indispensible if we are to move towards the future

More recently, at the end of November 2014, an international conference on the Bologna process and the future of higher education was held in Bucharest. During the conference, more than 60 papers analysed how the different objectives behind the establishment of the EHEA could affect, or indeed are already affecting, the future of universities. The fundamental issues remain essentially unchanged 16 years later: funding, governance, excellence, quality, internationalisation, diversification of mission, teaching/learning, the impact of information and communication technologies (ICTs), the social dimension, research and innovation, distance learning and the impact on the future.

At the Bucharest conference, the future of universities was still regarded in a very similar way to that which characterised the Bricall report in the year 2000, namely as an institution devoted to “increasing the moral, intellectual and material wealth of society through the education of its citizens, the performing of research, and the application of latter’s results”. Likewise, it is still considered vital for universities to respond to the demands made on them by society. The terminology has changed, the framework is different, the focal points of social concern have shifted, the teaching/learning tools have evolved over the 16 years that have elapsed, but the essence remains the same.

Spain has a public university system which is good but should be better and I stress that this is exactly what it aspires to. It requires sufficient funding to allow it to become consolidated as a university system of excellence with an international spirit, capable of evolving year after year until 2031 or whenever, adapting to the needs of society but without losing sight of those fundamental missions that should be maintained because society, at least implicitly, considers the university to be the main guarantor of its preservation.
If this is to be achieved, it is essential to obtain access to the necessary resources and a favourable legal framework, for which society’s constant support is vital. However, unlike the situation in other countries, mainly the most prosperous ones, Spanish society is far from understanding and appreciating just how important the knowledge generated and transmitted in our universities is for development and competitiveness strategies in a country such as ours that considers itself to be advanced.

Sufficient funding is not everything, but it is indispensable if we are to move towards the future with the guarantee that universities can respond with the level of efficiency required for society to progress, whatever the scenario may be and whatever society demands of us. Public universities’ budgets have been slashed by 25% over the last five years, with a loss of over 1,500 million euros in funding and, in the short term, there would not seem to be any firm and credible intention to reverse this trend. Evidently, such a situation does not offer the best scenario for exploring the future with optimism and discussing how to move forward in the coming years.

Perhaps the deep economic and social crisis that Spain has experienced over recent years has put universities, amongst other institutions, in the spotlight and their quality and functions have been questioned. The Spanish public university system, in many respects, is better than ever before, however it does require certain reforms and greater permeability to society’s demands. The universities themselves, which are, after all, part of society, have not been attentive enough to some of these demands, and have not dealt with them in sufficient detail in the most appropriate way. Others, as I shall argue below, are totally logical and beyond question.

“...What is important is not so much the path as the attitude with which we tread that path...”

Currently, and this will probably continue over the coming years, society perceives that it is of the utmost urgency for universities to offer the kind of advanced quality training that will increase the competence and capacity of their students in entrepreneurial skills and
innovation. This, in turn, will boost their employability and willingness to create new businesses. Consequently, through the promotion of research activities, technological development and innovation specially geared to respond to the priority needs of society and the different economic sectors, new knowledge and scientific and technological advances will be generated. These, in turn, will contribute to creating, strengthening and consolidating quality businesses and employment and will result in an increase in wellbeing for all citizens. The public university system holds a similar view and indeed has reacted to, and even anticipated, this by intensifying such actions although the authorities and the media do not seem to appreciate this.

Possibly, within five, ten, or fifteen years our universities will have other priorities and other functions which require consolidation. Moreover, it is obvious that the meteoric rise in ICTs and other technologies will lead to a substantial shift in the way knowledge is created and transmitted in universities. Something similar will no doubt occur with the tools and methods used for learning and the accreditation of the competences acquired by students. However, even though the attention of universities may be focussed on solving urgent issues of the moment, there is no doubt that society will always need them to be institutions that are fully committed to sustainable development, contributing to prosperity and social cohesion, and which ensure the maintenance and consolidation of moral values and ethical attitudes. Such attitudes mould the individual character of scholars and the collective nature of the university as an institution offering an inclusive public service, based on excellence, capable of instilling these values in generations of students, shaping them as committed citizens and professionals, aware that they have a goal that lends meaning and social legitimacy to their profession.

What is important is not so much the path as the attitude with which we tread that path. Therefore, at each point in time, universities must anticipate and adapt to the urgent needs which may arise, adjusting the courses offered to bring them in line with society’s real requirements, and giving them an international and increasingly specialised dimension. Universities will need to promote new teaching modalities and closer links with the world of business, positioning themselves favourably vis-à-vis the sectors of the future, but without relinquishing their leadership role as a driving force for thought, the generation of new and relevant knowledge, innovation, proposals for social cohesion and safeguarding and disseminating ethical attitudes and behaviour. There is no question that this is the way forward for universities between now and 2031, and they must lead the way.

The fundamental EHEA issues remain essentially unchanged 16 years later:

- Funding
- Governance
- Excellence
- Quality
- Internationalisation
- Diversification of mission
- Teaching/learning
- The impact of information and communication technologies (ICTs)
- The social dimension
- Research and innovation
- Distance learning and the impact on the future
Many reports have been written on the future development of universities suggesting the changes that should be introduced. Although only on very few occasions have they completely been achieved, it is no less certain that they have been clearly present when prompting those changes that have been taking place in Spanish universities. For this reason, I would like to congratulate the University of Granada, not only for its five hundredth anniversary in sixteen years time, but also especially for this reflection on the evolution of universities that this ‘horizonte 2031’ represents.

In order to be able to speak of the future, it is necessary to know the present well. In this sense, Spanish universities are currently the institutions in which the greatest number of graduates ever have been educated becoming what we call ‘modern society’ have been educated. From this point of view we can only congratulate ourselves for the work which, on occasions with very limited means, they have been able to perform. However the social advances themselves have given rise to changes of all kinds (technological, legal, sociological, medical, etc.) which make it necessary for the universities to continuously adapt to new scenarios. With the time lag that separates us from the “2031 horizon” it would be wise to reflect on the changes that have taken place in universities since the beginning of this century in order to reflect intelligently on the university of the future, the university we expect for the five hundredth anniversary of the University of Granada.

Computer networks already existed at the beginning of this millennium; however few of them had any resemblance to the capacities that we have today. At that time the need to computerise universities was spoken of, without suspecting that rapid technological advances would make all of these efforts obsolete in just a few years, thus giving rise to a process of constant modernisation. The ‘distance learning’ that took place at that time, such as on line and blended learning had very little to do with modern methods through different platforms such as MOODLE, for example, through different consortia, such as the Open Course Ware Consortium, and more
recently the MOOC (Massive Open Online Courses) platforms such as Coursera, edX or MiriadaX to name but a few. These advances not only facilitate the traditional tasks of the teachers, but also, on occasion modify the essence of the teaching process itself.

Fifteen years ago we were already reflecting on the need for change in universities, and the need to move towards supranational university systems, such as the European Higher Education Area (EHEA) was put into effect. However, this profound reflection on the changes in the structures of university degrees, which the different member countries of the EHEA have implemented, has hardly commenced. Other aspects such as university governance, the structure of each institution and access to teaching and research were also the subject of reflection in the year 2000. The latter were aspects which, even fifteen years later, have not been resolved in many university systems such as the Spanish system. Since, in spite of the undeniable advances made, they still remain a reality in the European Space for Research and Innovation.

With this information on the past in mind, I believe that universities in general, and Spanish universities in particular, are facing a future replete with profound changes in which the following points will be some of the keys that will guide us: 1) less rigidity in the learning processes; 2) a massive use of technological devices which will bring education to any place in the world; 3) an increase in the training of innovative and creative graduates; 4) a simplification of university structures; 5) greater internationalization and 6) an intensification of research activities and technological innovation, with much closer links to the business sector. With the prudence that the necessary limitation in space demands, I would like to refer briefly to each of these aspects.

1. Less rigidity in the learning process

As regards more flexible learning processes, it is a fact that we are heading towards a world in which there are more and more degrees, be they bachelor, masters, or PhDs and this will continue. Even the degrees themselves are less important, as it is the skills and abilities acquired to obtain them that are valued. There are already experiences from non-university institutions that award certificates on the mastery of certain skills which are highly valued in the market. We also know of successful training experiences in “individual courses” from different institutions who are establishing very interesting curricula. The double diplomas or joint degrees are already considered a first step which, despite their success, must excel themselves with a much more ‘a la carte’ training. That being said, this must occur in those institutions that can accredit the ability to offer such quality training. The MOOC platforms, which I referred to before, are heading in this direction, and this contributes, without a doubt, to new professional profiles which will appear continuously in the labour market.

But it is not only flexibility in the repertoire of subjects that make up the degrees, there are also the learning methods. The traditional teaching processes of the teachers against the learning methods of the students lose importance. A few days ago I read an interview in a Spanish newspaper with Paul Saffo, a Professor at Stanford University and the Singularity University. In it Professor Saffo said two things of interest to mention here. The first is that at Stanford they no longer have enough time at the lectern to give their classes, and that the teaching had become less important in the learning process of the student in comparison to the teachers’ tutelage and assessment tasks. I will refer to
Indeed, some time ago “learning portfolios” appeared in many university lecture rooms, in conjunction with learning methods such as “problem based learning”, “case study methods”, “direct projects”, etc, in which the students become the centre of the training process. I am convinced that these processes will be adopted increasingly in the next few years.

In many of our Schools and Faculties, the EHEA put an end to the School and Faculty – Degree - Profession. Now many degree courses are offered, leading to different professions. We now have degree courses taught by teachers from different centres. The greater mobility between courses contemplated in the reform of degree courses as an essential part in their design is now a reality. I believe that this is just the beginning of an increase in ‘a la carte’ learning in the next few years”.

Spanish universities are currently the institutions in which the greatest number of graduates ever have been educated becoming what we call ‘modern society’ have been educated

2. Massive use of technological devices which will deliver education to any place in the world

This “a la carte” training and a greater variety of methods will be accompanied with the instruments and devices that technology puts at our disposal and that even if in some cases we can imagine, many are still to be discovered and developed. From the computer networks at the beginning of the century, we have moved on to the “Internet of things” in which many different devices are connected to the network to such a degree that we now speak of the “Internet of people” in which it is people that will be connected to the network.

Well used technological advances, will allow learning in varied ways, at more convenient times, and wherever we are on the planet at any given time.

However, this technological progress has two facets. Not only does it make learning more flexible, but also gives rise to the need to be competent in new skills, which imply new forms of social conduct and of interpersonal communication.

However, I think it is now pertinent to mention the second question posed by Professor Saffo in the aforementioned interview. In it he stated that while it is hoped that any innovation will eliminate those that precede it, this is rarely the case. He stated that “the ballpoint pen did not put an end to the pencil, nor the television to the radio”. To this end, I believe that in 2031 it will be too soon to eliminate “blackboards”, we simply have to learn to use them in new ways, leaving a significant space for new technologies which, undoubtedly, will facilitate access to networks, the handling of large amounts of data and 3D digital reality. We must learn to use, not just the new tools, but also what we currently use in a different way throughout our lives.

3. Innovative and creative training

The criticism that the implementation of education systems when likened to processes that kill the creativity that we have when we are children has always seemed clear to me, and thus painful. In this sense, I believe that at present we also insist excessively on showing
the students the right path, making them afraid to make a mistake if they take another route and making them see how comfortable it is to take the safest avenues. This is how we may be eliminating a large part of the creativity of young people, and losing, together with numerous paths which lead to nowhere, their chance to become familiar with socially rewarding pathways.

Together with this perception, in recent years we have seen a growing demand for innovators and entrepreneurs. Many examples of success, who began as garage entrepreneurs on the west coast of America, feed this social demand for creative professionals. Some time ago, the universities themselves put into effect incubation programmes for start-up and spin-off business. In the Spanish case, we have also introduced subjects related to entrepreneurship in our curricula, albeit very feebly.

I am of the opinion that these processes need to be encouraged, especially in the future, both to respond to social demands and for the strategy of the university itself, to facilitate the transfer of our research results to the business production sector. We need, and we shall need, to train more and more young people who with the appropriate knowledge will be capable of assuming risks, entrepreneurship, creating new applications, new processes, new methods, and with all of this research, know how to implement business plans for the adventures that they will embark on in order to avoid their creativity becoming a simple leap in the dark. Universities must remain close to these entrepreneurs, minimising, as much as possible, the risks that may arise from their efforts.

But universities also need qualified professionals to be incorporated into the business fabric, capable of dealing with the research environment of R&D Centres, at universities or otherwise, also to facilitate the transfer of research results from the business world. Experiences such as those that are currently appearing timidly in our panorama of Industrial PhD holders will be a powerful reality in this 2031 horizon. I will return to this below.

4. Simplification of university structures

Universities are frequently accused of being inefficient, that we duplicate excessively, that our decision-making is tremendously slow and bureaucratic, etc. Whilst sharing these reflections, I disagree in part with the exaggerations on which absurd solutions are frequently implemented, which only serve to increase this inefficiency. Above all, due to one of the first reflections above: Spanish university institutions have, over the past forty years, trained the architects, engineers, degree holders, technical architects, technical engineers and qualified people who have provided us with the social progress that we now enjoy.

With the prudence and respect that it deserves, I also believe that Spanish universities, as institutions, are clearly susceptible to improvement by means of profound structural changes. Not all Spanish universities are the same. There are public universities and there are private universities. We have new universities and very old ones. Some are very generalist in their academic range, whilst others focus on very specific areas. There are large, that is, with more than 35,000 students, medium (between 15,000 and 35,000) and small universities.
This diversity, I believe, could lead to very different structures, rather than maintain a common structure such as that which we now have, derived from national legislation and the statutes that we observe.

And if this diversity between universities exists, the difference between our centres is even wider: Schools or Faculties that award graduate, Masters and, in some cases, PhD degrees, linked to a very specific professional environment, compared to others with a wide range of qualifications. Schools and Faculties with a very low demand for new students, on occasion with fewer than the faculty teaching there, and others which are overcrowded and on occasion have almost as many students as some of the small universities. Centres in which the presence of students from all four corners of the globe is a reality and with centres in which foreign students are the exception.

We still find differences if we compare departments, very often with only the minimum number of teachers established in framework legislation.

Therefore, in the belief that legislation must make the legal framework flexible, it is envisaged that universities will perform profound reflection on the university structures that exist. The result of this will probably be a reduction in the number of Schools and Faculties as well as Departments. However all of this should be accompanied by new forms of decision-making in the resulting structures, linked to their size and characteristics. Some universities have initiated this path within the limitations of the current legal framework.

5. Internationalisation

If one aspect of change has been maintained for decades within the Spanish university panorama, it is without doubt internationalisation. Spanish universities have progressed considerably in this area, currently sending large numbers of students annually to study beyond our borders. It is also relatively frequent for international scientific meetings to be held at different Spanish centres.

However, despite this progress there is still a long way to go, as being international is not just ‘going to centres abroad’ but also “they see us from foreign Centres and want to visit us”. Of course, the latter is a question in which size is important. In general, and recognising that there may be exceptions, the same internationalisation strategy cannot be designed for a large university as for a smaller one.

We must also find the way to incorporate teachers and researchers trained outside our borders into our Spanish universities. This, among other things, is closely related to financing possibilities. Let us be candid, without competitive salaries on an international scale we will be very limited in whowe can attract. This fact currently puts our country at a great disadvantage.
I think that if I had to choose a single word to define the changing times that are converging upon Spanish universities it would be “alliances”. In effect, both in the national environment and especially in the international field, the time has come to participate with allies: in student and staff exchanges, in the design of double degrees, of joint degrees or in the development of R&D projects. This will allow university activity to take on an international dimension.

6. Intensification of research activities and technological innovation, with much closer links to the business sector

Many advances took place in research from the 1980s to 2010, placing our country in ninth position in the world on the table of scientific productivity indicators. In spite of the recession that the past five years of crisis has caused in R&D, if one looks at periods of several decades, the effort made is undeniable and it is clear that we shall continue very shortly.

However in the future we must correct some of the things that differentiate us from other advanced countries. I want to refer especially, although it is not the only factor, to the role that the transfer of R&D results plays in our research system and the little or nothing that it has to do with that of the societies that precede us in this classification of research activity in different university systems in the world.

We must truly commit ourselves in universities to everything that implies reassessing the results of university research: patents and joint development with industries, the involvement of businesses in the development of R&D projects, a greater presence and an improvement in the indices of success in the calls within European framework projects which, very frequently, are linked to the development interests of industry or European business entities, and increasing the number of PhD Degree holders. Predictably this will multiply the existence of university structures specialised in the support of this type of activity, such as those that have recently been created by some universities with a greater presence in this collaboration with the business sector.

Undoubted advantages for society and the university itself can be expected from this cooperation. The orientation of numerous development projects springing up from basic lines of research and the incorporation of new sources of revenue are just two of them.
Challenges and Areas for Development in Higher Education. A Vision of 2031

1. Introduction

On the occasion of the celebration of the five hundredth anniversary of the University of Granada we have been asked to consider the major challenges facing higher education in the next 15 years and the main areas in need of development. In the light of this, let us consider some key points.

2. Topics for development

The letter sent by the University of Granada suggests developing the following topics:

- The nature and purpose of universities
- Education, educational offer and education policy
- Research, development and innovation
- The physical campus: infrastructures
- Internationalisation and international relations
- Financing, funds and patronage
- Alumni
- University Social Responsibility (USR)
- Information and Communication Technology

3. Steps towards university specialisation: autonomy in strategic decision-making

- Current legislation leaves universities limited room for manoeuvre regarding their specialisation
- A common legal framework is necessary, but, how far should regulations specify the detailed running of a university?
- The current system creates a set of excessively homogenous universities with little margin for differentiation
- Legislation should broaden the scope of action of universities
- Autonomy in funding and strategic decision-making
- This new autonomy should be based on how the best international universities proceed
- Specialisation will give meaning to the mobility of researchers and students between the various campuses, as well as attracting international students

Francisco J. Mora Mas
Rector
Polytechnic University of Valencia
Universities should be able to have their own mechanisms to recruit and hire teachers and researchers

Autonomy should also be reflected in how universities are organised

Greater autonomy should be accompanied by implementation of more accountability mechanisms

Legislation should broaden the scope of action of universities

4. Financial sustainability

- Higher education is a public good that benefits society
- A society with a higher level of education implies greater development
- Governments should guarantee sustained investment in higher education and research programmes that allows the planning of medium and long-term strategies
- A Finance Plan based on objectives

5. A new “campus experience” for students

- Online distance learning is an opportunity to improve the experience students have when attending a university campus
- The coming years will see the establishment of new ways of organising teaching
- Universities should have the necessary autonomy to organise their teaching processes around these new technologies
- Attending class becomes an added value for students
- Campus infrastructures will focus on generating added value for students, rather than resolving the need for physical attendance
- Spaces will be redesigned, especially those related to printed materials, which will gradually make way for digital resource centres where students will have the means to organise their activities differently
- Spaces should be made available for “intra-entrepreneurial students”, those capable of setting-up initiatives, which until now have been centralised, within the university
- Universities will redefine the services they provide for students in order to showcase the infrastructures and material means that universities offer
- Students will create learning communities on campus
- The use of information and communication technologies will leave more time in the curriculum to make the most of students’ time on campus and encourage interaction

6. New student role: intra-entrepreneurial students

- Universities must create the necessary mechanisms for students to be able to implement previously centralised initiatives within the university
- Entrepreneurship begins from within
- Intra-entrepreneurial students generate services for the university community with the university’s support
7. Teachers as facilitators in the learning process

- New ways of making the most of educational resources
- Teachers take on a new role as counsellors in students’ careers
- This new role helps teachers adapt to students’ different styles of learning
- Learning is based on learning communities with an interesting mix of local and international students
- Teachers facilitate interaction in these communities

8. Reinforcing the role of alumni in university life

- The main relationship of students with universities is established when they enrol in a degree
- Completion of the degree leads to a new type of relationship with students, accompanying them in their subsequent career development
- Alumni will play a predominant role in universities, acting as the main ambassadors of higher education institutions
- These bonds will be established with the people and companies or organisations with whom or where they work

9. Lifelong learning

- Education must be seen as a lifelong learning process with different stages
- All stages of the learning process should be contemplated from the standpoint of lifelong learning
- Lifelong learning contributes to socioeconomic development and social cohesion
- Universities play an important role in both improving people’s competitiveness and in creating a more cohesive society
- Lifelong learning establishes a way to relate to society beyond the official stages of higher education
- The role of universities in lifelong learning will be reinforced

10. Synergies with other research organisations

- The coming years will require universities to establish strategic alliances with various research and education organisations/institutions
- The design of this synergy should be based on the university model with most recognition at an international level
- The possibility of merging certain research centres will be considered in order to improve interaction between teaching, research and transfer of knowledge
- These mergers will help better position universities globally
- Universities are the institutions that best combine three core elements of the well known “triangle of knowledge”: research, education and innovation
- Universities are the only institutions that can ensure greater interaction between education, research and innovation
- Alliances should be established with other research bodies
11. **Industrial doctorates will be consolidated**

- The best way to transfer knowledge is through people
- Showcasing doctorates in the business world is a way of improving R&D activities in industries
- Increase the number of PhD holders hired by businesses
- Industrial doctorates generate strong links between business R&D departments and universities

12. **Strategic international bilateral alliances**

- In a global world we must find partners facing similar challenges from different contexts
- Exchange or mobility agreements will be replaced by new types of alliances which will mean developing a common strategy with another institution
- A strategic alliance implies sharing objectives stemming from joint projects
- Internationalisation is consistently integrated in the learning and research processes by establishing strategic alliances with higher education institutions from other countries
- Alliances should combine a traditional bottom-up approach, based on collaboration initiated by academics, and on establishing these alliances institutionally.
- These alliances will help focus on other policies such as mobility of teachers, researchers and students
13. International and regional

- Universities and university policies have been strongly impacted by the publication of international rankings.
- Universities have clearly emphasised their wish to become “international benchmarks”, often to the detriment of the significant role they play in their more immediate environment.
- The combination of international and regional presence would help universities act as an effective bridge between the two environments: attracting international knowledge and exporting their own.

15. Universities as generators of social well-being

- Universities should play a key role in the creation of knowledge-based companies.
- The regulatory framework should facilitate and encourage the creation of university spin-offs.
- Universities should be the main agents for channelling all efforts to create technology-based companies, because they are where the necessary human capital can be found: researchers, students and alumni.
- This will generate the productive fabric already born directly from strong interrelations between universities and businesses, providing natural flows of knowledge between the two environments.
- Some of the start-ups that have emerged with the support of universities in the last ten years are becoming established and require more staff with higher levels of education.

Universities are the institutions that best combine three core elements of the well known “triangle of knowledge”:
- Research
- Education
- Innovation
16. Generating trust in the business-university system

- Relationships between businesses and universities are based on mutual trust concerning the value each party provides.
- This relationship should be reinforced in order for society to benefit even more from the results provided by universities.
- Mechanisms for businesses to connect with universities and vice versa should be provided.
- All of this should be accompanied by increased R&D investment in the private sector together with a significant increase in public R&D investments focused on those areas of greater importance for the country.

17. More entrepreneurial students

- The wave of entrepreneurship we are currently experiencing is becoming more consolidated.
- Entrepreneurship pervades all university levels.
- Students complete their education with clear ideas on possible businesses they can develop.

"Alumni will play a predominant role in universities"
Reflecting on the university system and the challenges and opportunities to be faced in the current situation, is a vital exercise for all institutions of higher education.

The universities of the 21st century are at a turning point. The local, familiar setting in which we have traditionally competed is now of a global scale and constantly changing. In the case of Spanish universities, this setting is even more complex. We are competing for the same talent, for the same funding and for the same resources with the best universities in the world; however we must do so with a much smaller budget. Furthermore, we have to work in an environment that is inflexible, highly regulated, and with a single funding system, with no incentives, based on size, which does not sufficiently take into account decisive aspects such as performance, competitiveness or the contribution of universities to society.

In order to ignore the unmistakable Hispanic grumbling about universities, my position has always been the same, quite simply: autonomy plus accountability. Autonomy for a university means non-interference in its activities; although naturally, autonomy accompanied by an evaluation of results and accountability.

At this point, I should point out that I believe in the coming of age of universities and, although most certainly all rectors hold this same view, some institutions do not behave accordingly. Universities must also assume their responsibility in this respect. Indeed, we are immersed in regulatory environments that are rigid but, do universities not show this same inflexibility in their own organisation? The legislation which we must abide by is extremely detailed, much of it required by the universities themselves, and burdened by an organisational architecture that increases our bureaucracy and slows us down, preventing us from improving and making decisions more efficiently. This is why, in some universities we are asking for changes in legislation from and for the system, changes that provide us with greater decision-making capacity in our teaching staff policies or the design of our courses, changes that allow us to incorporate new forms of collaboration with the business sector. We must grasp this moment, because if
universities in the 21st century are at a turning point, only those that are modern, agile and efficient, and capable of transforming this major challenge into an opportunity, will hold their ground in this new scenario.

In the case of the Pompeu Fabra University, where I have held the position of Rector for the last two years, we have started moving in this direction. Coinciding with our 25th anniversary, in the next academic year 2015-16, we will be publicly presenting our Strategic Plan 2015-2025, an opportunity to reflect on all aspects of the activities of our university and to jointly outline the path to follow in the coming years. Therefore, reflecting on the medium and the long term is essential. Nonetheless, it is also necessary to start acting within the university itself, to the extent allowed by our regulatory framework, fostering new strategic projects to position and differentiate our university.

The starting point: an unfeasible model

The dawn of any change is always the result of observation and analysis of the current situation. In my case, my first diagnosis as Rector surprised some: public universities in Catalonia are destined to relinquish quality and even disappear from quality rankings if they continue to depend on public funding, which is evidently insufficient, and if we do not begin to innovate in all our fields of action.

My perception was that the Pompeu Fabra University was a young institution which was modern, research-oriented and with good education indicators. The problem was that, after a few years, this university model would no longer be feasible with only standard funding, student fees or overhead percentages from other activities (despite the fact that in our university, results in some fields such as research are particularly significant). This was insufficient. If we maintained that model, we could fund another university, one that could not devote itself to research and which would focus on basic, simple teaching, with no social applications.

At UPF we are asking for changes in legislation that provide us with greater decision-making capacity

Hence, a change was necessary to maintain and improve the quality standards at the UPF, making it a more “sophisticated” university that could do a better job of providing a public service; a university that could continue to focus on research; a university with prestige, visible in Europe and which could thrive in all social and intellectual areas.

Once I shared this diagnosis with the rest of the university community, we saw the need to implement reforms covering all dimensions of the university. We needed to incorporate significant changes in its organisation and make a major effort to achieve differentiation.

Organisational reform to move towards simplification

The creation of Academic Coordination Units (UCA), approved by the Governing Council on the 11th December 2014, was the first step towards organisational simplification at the UPF.

Setting up the eight UCA, one for each field of knowledge in our university, did not imply creating any new structures, but rather
integrating all the tasks already being performed in different departments and faculties in a single unit. I should point out that, in our case, given our limited size and with a structure made up of only eight departments, seven faculties and one polytechnic school, the change was relatively easier to implement than in other universities. Even so, the proposal had to be presented and agreed upon by the university community, again with a simple argument: in a context requiring flexible, dynamic and highly adaptable universities, creating these units would allow us to streamline and simplify decision-making.

During the 2014-2015 academic year, we hope to complete deployment of the UCA. The idea is that each UCA, besides coordinating the teaching in their field and their staffing policies in accordance with their research and teaching, will prepare their own project for strategic policies for the future of the university, including, for example, internationalisation, attracting new students, promotion, evaluation or quality. By avoiding functional duplicities, this model also opens the door to the reassignment of tasks based on these priorities and new demands in our environment. For, in short, since the staff at the UPF will remain stable over the next few years, the fact that the university is going to undertake new institutional challenges will also mean new professional challenges and opportunities for our teachers, researchers and administration and services staff.

In turn, the added value of creating UCA is that reducing the number of agents not only facilitates communication between university management and the eight disciplines, but also between the university and external players. Therefore, in the medium term, the creation of the UCA must be accompanied by greater direct responsibility for these disciplines in the governance of the university. That is, a management team should be established with a limited number of vice-rectors and representatives from each discipline. In short, the aim is to try to ensure that decisions are made as close as possible to the context they affect and for each discipline to assume clearer responsibilities, in line with institutional strategy, by sharing initiatives, results and road maps with university management.

Evaluation of research activities

I have referred briefly to the good research results attained by our university. This is due to the quality and productivity of our teachers, and the policy of talent recruitment and attraction fostered since the foundation of the UPF. Nonetheless, in order to become established as a research-intensive university, we must endow ourselves with a degree of consciousness that we currently lack. At the UPF, to a greater or lesser degree, all teachers perform research; however this is not perceptible in all fields because there is no system of indicators to detect all the activities that teachers undertake in research. In this regard, the UPF is rich in avenues of research and we must be able to detect them.

For this very reason, during this academic year 2014-2015, we shall conduct an external evaluation in which an international committee will assess all the fields of knowledge at the university. The model, designed in collaboration with the Agency for University System Quality of Catalonia (AQU), will take into account the peculiarities of each field because, obviously, the same patterns cannot be used to evaluate different scientific fields. In other words, a university cannot only be evaluated based on the papers published in high impact journals. It is true that universities are also evaluated in this way, but
An educational model based on personal attention

Teaching at our university, is increasingly oriented towards personalisation and individualisation of studies. Here, we are developing several initiatives, although at different speeds.

Firstly, the Open Degree, an innovative university admission approach in which students enroll at the UPF without choosing a specific degree at that time. This choice is made during the fourth term of studies. In this way, during those first few months and with the support of a tutor, students may explore different disciplines according to their academic and professional interests, taking subjects from different degrees and thus designing their own itinerary. Later, during the fourth term, they must apply for admission to one of the degrees offered by the UPF (excluding inter-university degrees and those from affiliated centres), which will be the degree that they will obtain upon completion of their studies.

This degree, which our university will be offering as a pilot project to twenty students in the 2015-2016 academic year, is the result of the UPF’s wish to offer an innovative, personalised teaching-learning model, in which the university, through the figure of the academic tutor, accompanies and counsels students through the process of choosing the degree to be attained at the end of their education.

Similarly, our university is working on a unique educational model, with an innovative focus based on personal attention and the idea of accompanying students in their own projects. This is a model which, for now, is linked to postgraduate studies and through which students arrive at the university with a personal goal they wish to achieve. With the guidance of a tutor, they choose the paths that best suit their needs.

Again, this is a model conceived by the university, as an institution, that does not restrict people to a curriculum, but rather one that offers students far more flexible attention, adapted to their preferences.
Conclusion: the value of differentiation

My primary commitment with the Pompeu Fabra University is to ensure that it is recognised as a world-class player in society; a university renowned for its teaching and scientific production with the priority of providing an original and effective response to social needs.

The proposals presented entail an effort to differentiate our university and bring us closer to that objective. Progress towards organisational simplification, research evaluation or an educational model based on personal attention, are the plans that aim to launch us worldwide as a university that wants to and can do things differently. Some may think these initiatives will affect the foundations of the university and, so it may be. However, sometimes it is necessary to shake the foundations in order to build a more solid structure.

Major challenges require bold proposals.

Open Degree Initiative:

- An innovative university admission approach in which students enroll at the UPF without choosing a specific degree at that time
- Students may explore different disciplines according to their academic and professional interests, taking subjects from different degrees and thus designing their own itinerary
- Later, with the support of a tutor, they must apply for admission to one of the degrees offered by the UPF, which will be the degree that they will obtain upon completion of their studies

The proposals aim to launch us worldwide as a university that wants to and can do things differently
In 2018, the Latin-American education system will witness the eighth century of its history, coinciding with the founding, in 2018, of the University of Salamanca, the forebearer of Latin-America universities, and considered the alma mater of nearly 70% of the universities created in Spanish-speaking Latin-America since the 15th century.

The 800 years of scholarship of the University of Salamanca and the current situation of vertiginous change, all times are seen as vertiginous by those living in them but almost static from the perspective of those looking back through history, offer an incomparable framework in which to reappraise certain institutions that have conformed the profile of the world and its different societies as we know them today. Without universities and without their intellectuals, researchers and teachers, economic and social development would have undoubtedly been very different. Looking at things from a different point of view, one could surmise that the drive of human beings to understand the unknown, to know, to learn, to communicate and to teach has found no other channels for such pursuits than to generate institutions, veritable beacons of culture and science, that have been called universities almost ever since their creation. Were I to eulogize my own institution, I would dare say that the Studium of Salamanca was the first institution in the western world to be called a university; that what we are is a paradigmatic university. However, since this is not my intention, I shall merely continue where I began, leaving open the issue of whether the way society wishes to channel this striving towards progress is beginning to change, whether universities are slowly losing supremacy as the only vehicles for the creation of culture and knowledge, or whether they should change in order to continue being what they are today. Basically, I feel that some reflection about the effect of universities on the daily lives of people is in order.

In the case of Spain, focusing on the issue as seen over the last few decades, one could suggest that Spanish public universities may possibly be representative of the government...
project that has most contributed to the equality and welfare of the Spanish people. The possibility of almost universal access to public universities has been decisive in the expectations of many generations regarding employment and earnings. According to a recent report entitled “Basic Data on the Spanish University System” elaborated by the Ministry of Education, Culture and Sports, in Spain approximately one and a half million students register at university each year and of these more than 200,000 finish a licentiate degree (now an undergraduate degree) and begin to seek employment opportunities. When they have completed their studies, some of them (in fact more than 100,000) decide to continue their academic paths at postgraduate level in a search of some kind of specialization that will better prepare them for the job market. Currently their unemployment rate is 25%.

According to the data for 2010, and as we shall see below this year is important, in Spain the unemployment figures for university students was almost 10 percentage points below those referring to the whole population, whereas the mean of the OECD was 2.5 points. This means that having a university education in Spain implies greater benefit for individuals seeking work than in other OECD countries.

Let us now look at the expectations regarding the economic perspectives of university degree holders. According to the OECD report entitled “Education at a Glance” (2014), the earnings of a HE degree holder are 41% higher than those of people who have only passed the second phase of Secondary Education, and far higher than those who have only managed to obtain minimum educational requirements. This report points out that in Spain the differences between earnings according to educational level are less pronounced than in the average of all OECD countries, and to explain this the report points out that the Spanish job market accords less value to investment in human capital. This contrasts with countries such as the United States, where the difference in salary between an adult with an HE degree and someone who has only completed the second phase of Secondary Education may be as high as 75%.

In short, in Spain HE has reduced the risk of unemployment more than in other countries (although the unemployment rate is higher); however, it does not improve earning possibilities as much as in other OECD countries.

It should also be noted that in Spain only one out of every two university students works in a job appropriate to his or her qualifications, which contributes to a reduction in average salary levels. Several reasons can be found to explain this. Undoubtedly, one of them is the persistence of the economic crisis that continues to burden the country; the crisis is still very much in play, despite the fairly promising macroeconomic forecasts for this year. Another reason is the structure of the economic fabric of Spain, with very little industrialization, which essentially offers employment for professions related to the services sector and tourism (in these, one could include law, economics and company administration and management) and, until the beginning of the crisis, to construction, the health services and education. It is not surprising that the degrees most related to these professions, together with some
engineering studies, are those that are offered most frequently by private universities. This means, as made explicit in a report drafted by the Conference of University Social Councils, that graduates from private universities have better employability, although it should be acknowledged that there may well be other causes. By contrast, public universities take a less monetary-based stance and reflect a greater presence of what has been termed “social responsibility”, strengthening the importance of maintaining less popular degree courses that are essential for the creation of culture and knowledge and a balanced job market. Here, it is important to take into consideration the type of academic offer that public universities must provide. Offering only degree courses leading, apparently, to easy access to the job market paradoxically produces a certain mismatch between the academic offer and the needs of the market since the latter change much faster. Moreover, as well as leaving society devoid of culture and humanist and scientific knowledge, hence vulnerable to manipulation, the possibilities of changing the production model are thereby limited. If we merely train people to work in areas with which we are already familiar there will be nobody left to invent new things, because new ideas for transforming society in general, and the production model in particular, can only arise if people are trained in this type of intellectual expertise. Training people exclusively for already existing professions is tantamount to preventing the possibility of society being able to progress.

Despite the foregoing, the perspectives of many generations of Spaniards have improved thanks to the public university. If one takes into account that 50% of Spanish university students have parents who never received a
university education, one may conclude once again, that their academic training constitutes the most important “social ladder” that this country has ever had, and for years this has been spelling out the route to be followed to achieve better and higher levels of welfare in society.

For the university to continue to be able to provide all these benefits to society, we must update ourselves and adapt to new horizons; we must decide whether the university, with its current structure, will continue to exercise its role as a service to society. As in all profound changes, this approach requires an in-depth, comprehensive debate that must take into account, issues such as models of academic offers and their relationship with our current and future needs, university governance, and models for universities’ goal-linked funding. Again, as in all profound changes we also need the tenacity to perform these new activities and patience whilst awaiting their results.

Overall, attention must be directed towards the following issues:

- The design of a stable and sufficient funding system for public universities
- More flexible teaching staff profiles
- A University degree system that will take into account society’s needs
- A change in the governance systems of universities

The Bologna Process was an important advance in this sense, since it encouraged public centres to work in the same direction towards European convergence. The results of this great European project are now beginning to be assessed and although some benefits are explicit, e.g., broadening the possibilities for international mobility or credit recognition, there are other aspects whose results remain to be seen, such as the issue of adaptation to the job market or training quality. In Spain, we are still awaiting significant results concerning the employability of graduate students from the new degrees and Master’s degrees created under the Bologna system. This is because, as I mentioned before, the available data are for 2010, and hence refer to degree holders from “pre-Bologna” times.

Nevertheless, we must be wary of overlooking one element that is crucial to the success of the project and that might allow Spain to rise to the levels of other European countries, i.e., university funding. According to a recent report by Comisiones Obreras (a Trade Union Confederation) the funding of Spanish universities has fallen by 1.5% over the last four years, implying a decrease of nearly €1,500 million. However, revenues from registrations rose from €1,626 million in 2010 to €1,964 million in 2014; this clearly reveals a transfer in university funding from the public sector to the private sector, represented by family economies. Considering that there have not been any substantial changes in the other sources of university funding, such as competitive research projects, contracts with companies or revenue from patents, or transfers (in most cases these revenues have also disappeared), simple calculation unveils a clear net decrease of some €1,200 million over four years. If we continue along this tightrope the deterioration that may eventually pummel the quality of university training will emerge very soon.

At a global level, the difference in funding is appreciable. The data gathered by the OECD referring to 2011 show that with respect to GDP Spain dedicated 1.3% to public
expenditure on HE institutions, as compared to the average of OECD countries, at 1.6%, and very distant from the 2.7% of the United States and the 2.8% of Canada. Bearing in mind the loss of revenue to which I have just referred, the data for 2015 will be even more unfavourable for the Spanish university system. In scientific production, however, we are among the top 10 countries in the world, admittedly far from the USA, but still ahead of Canada. The evidence that we have a system that, despite its deficits, continues to be among the most efficient ones in the world, must be scrutinized very carefully before attempting to introduce changes that may affect those parts that do function well. Spain has 30 universities among the first 200 in some disciplines and in some of the 4 main rankings (QS, Shanghai, THE and Taiwan). Of these, 19 are among the first 100 and 6 among the first 50, again in certain specialisations. Nevertheless, none are amongst the first 100 in the global rankings.

The Spanish university system needs a clear strategy to be able to compete with other systems and to be in the best conditions to serve society. This strategy must necessarily be global and coordinated, with the identification of the pertinent problems, their possible solutions and the agents to implement these. In many cases, it will fall upon the universities themselves, but in many other instances it will be the Government of the nation, and the Governments of the Regional Communities, who will have to assume such responsibilities, above all concerning legislation and other norms and funding systems.

Overall, attention must be directed towards the following issues:

1. The design of a stable and sufficient funding system for public universities based on targets, with appropriate accountability and the acknowledgement of responsibility by all agents involved.

2. More flexible teaching staff profiles, which will allow talent to be attracted or retained via more competitive salaries and working conditions (among others, the possibility of such staff being able to create their own teams and choose collaborators) and that will ensure continuity in the production of results. This will allow the creation, with guarantees, of an ambitious policy for the inclusion of young people and the replacement of aging staff, these aspects having been seriously endangered by budget cuts in recent years and further hindered by legislation that has hampered, if not terminated, both issues.

3. A University degree system that will take into account society’s needs. Accordingly, such a system would have to train a cultural élite (in the best sense of the term) with humanist and scientific thinking. It will also have to meet the needs of the current job market and forecasts for the future, and also the generation of an intellectually well-prepared society that is able to design new social and economic models and able to bear the standard of such changes across the world. It must also be internationally attractive to allow teachers and students to develop in multicultural environments.

4. A change in the governance systems of universities that will allow managers to make difficult decisions regarding improvements and progress and, as a result, will afford society control of the results and the right to demand accountability.
Anybody with a minimum of experience in the Spanish university system knows that if these issues are addressed separately, or if attempts are made to develop only one of them without taking into account the others, then failure is guaranteed, and the energy and economic resources spent will be wasted.

Achieving the creation of a Euro-Latin-American Higher Education Area would generate a potential of almost incalculable dimensions for the education of our future generations.

Regarding funding, a stable funding system must bear in mind the model of the public university that we need in Spain. We must be able to maintain a model of a quality public university system that citizens want, at least while there is no other structure able to maintain the same benefits and improve the system’s efficiency. The Spanish model has its defects; it does not reach the subsidy levels of other countries such as Scotland or France, where the private costs of studying at a public university are much lower. Nevertheless, it is very different from systems such as those prevailing, for example, in the United Kingdom, where high costs mean that students must take on loans that they will eventually be responsible for throughout their first years in the job market.

Regarding the academic offer, it is clear that we shall have to face to important changes in the way we deliver and understand higher education. The truly global market within which this educational stage now operates, together with the appearance of new technologies and open formats, such as MOOCs and on-line courses, requires a greater capacity for action in order to allow traditional universities to be more agile, but without losing their identity and plurality. These new challenges are now tending to shape a context in which the offer needs to become more flexible and better adapted to the needs of life-long education.

Student and researcher mobility is another characteristic that will be crucial in the future and is an essential requirement for the requisite levels of excellence to be attained. In the case of Spain, this mobility still has low ratios. In the aforementioned report “Education at a Glance”, the United Kingdom stood out with the highest percentage of international students (18.3%), whereas in Spain only 2% of university students are from abroad. The situation of research is similar. This very marked difference has been exacerbated by the crisis and hence future policies must pay special attention to these figures in order to be able to reverse them and attain the ratios reached in other European countries. In this sense, the Ministry of Education, Culture and Sports has recently issued a “Strategy for the Internationalisation of Spanish Universities”, drawn up with the collaboration of the various agents involved in the matter, among them several ministerial departments, and with representation from the universities. This is the first time that our country has attempted anything like this and it is indeed important that it has chosen to do so.

In conclusion, there are many challenges to be met within a scenario that is expected to change very rapidly in the coming years. The university must be able to change in keeping with such modifications and must champion the new socioeconomic models that will be
elaborated for the “global village” in which we now live. Europe did understand this some years ago and set in motion initiatives such as the European Higher Education Area (EHEA). In Spain, the traditions and cultures shared with Latin-American countries mean that diverse initiatives have been undertaken to create areas where exchange and mobility will be much easier. Achieving the creation of a Euro-Latin-American Higher Education Area would generate a potential of almost incalculable dimensions for the education of our future generations, for research in the next few centuries, and for the welfare of the citizens within its sphere of influence.

2018 may be a milestone for the Latin-American university system, whose prospective Charter will shape a Euro-Latin-American Higher Education Area.
Norman Ernest Borlaug could not sleep soundly. He could not bear to see how thousands and thousands of people from India and Pakistan died every year because of the monsoons that destroyed their wheat fields, eliminating any possibility of even being able to just feed themselves. He decided to dedicate all his wisdom and knowledge to finding a solution to this dramatic problem, which did not appear on the front pages of newspapers in the nineteen sixties, but did fill the funeral pyres with dead bodies. That is how he came to dedicate all his talent to planning the Indian and Pakistani crops with a variety of dwarf wheat, capable of surviving the onslaught of cyclones and storms. The world recognised his work in 1970, when he was awarded the Nobel Peace Prize.

Universities must be aware of the fact that knowledge is the most powerful tool for the evolution of humanity, of its societies and of its regions. Both public and private universities must unquestionably include social responsibility towards citizens in their mission. This is undoubtedly the raison d’être of educational institutions, particularly those dedicated to higher education. Universities in 2031 may be very different from the universities we know today, they cannot, however, lose their main social function based on the generation and transmission of knowledge.

The current panorama is uncertain, even restless and agitated, which undoubtedly stimulates those of us who want to know what higher education will be like at the dawn of the third millennium. Many criticise well established concepts such as strategic planning, especially in the world of economics and business, heralding the arrival of complete flexibility of time, spaces, topics and solutions. Actually, these recent ideas are well reflected in the works of Napoleon Bonaparte, who, even at the end of the 18th century, stated that “Amateurs study strategy, professionals study logistics”, one of the mottos most frequently used by perhaps the greatest capitalist magnate, John D. Rockefeller.

We must, however, think about universities in the 21st century. Whenever cycles change, we usually have to spend the first years
experimenting with, and testing, new formulae. Some will perdure and will become the backbone of the most advanced training in society. Others will be forgotten, however much we may defend their importance and worth today.

The dawn of the 21st century in Europe heralded an important paradigm shift in university teaching. The European Higher Education Area understands learning as a process in which students must assume their professionalism. Thus, calculating total hours was born, equivalent to a working day in any profession, and determining the need to improve their autonomous work mechanisms. Long gone were the methods based on lectures, the *ipsum verum sit*, or measuring results exclusively with rigid examinations.

This model dreams of greater effectiveness stemming from more adequate planning, a much more proactive teacher and a more active role for learners. Fifteen years after the adoption of the Bologna Declaration, this process has still not come of age. Clear evidence of this is the changing Spanish legislation, which does not hesitate to implement important, far-reaching reforms with each government, creating an uncertain scenario which is incompatible with the life plan to which our younger population have a right.

Nevertheless, universities were in need of the transformation outlined in the European Higher Education Area. Whilst the pedagogical models originating in Ancient Greece are still valid to a certain degree, it is imperative that we understand the demands of the society in which we live. These accelerated times, globalisation, the decentralisation of work, the elimination of limits on space and time, compel us to transform educational methods.

New technologies have clearly accelerated this transformation, both for teaching and, above all, for research. We are finally aware of the need for networks, stemming from concepts such as collective intelligence, so well defined by authors such as Pierre Lévy. Collaboration between those who possess knowledge is one of the greatest guarantees of evolution, of innovation and, therefore, of improving our quality of life.

It is true, however, that we understood technology as the best strategy to avoid becoming extinct. It was around 1999 when we first thought that technology had surpassed all our expectations of the potential offered by artificial intelligence and we feared the collapse of the Western world due to the formidable “year 2000 effect”. Today, technological strategies must be studied in conjunction with the economic strategies which are under review. Technological
advances astound us on a daily basis, but we must not forget that the final objective of technological innovation is to become the best instrument to achieve goals directly related to human beings, such as in health, mobility or relationships themselves between people.

Consequently, universities must take the initiative in developing these technologies, in conjunction with the industrial and financial sectors. We should not, however, be content with having an amazing gadget in our pocket, but should create whatever is necessary to make that intelligent telephone improve our daily lives.

Thus, a new approach to the debate on infrastructures has appeared. Long gone are the days when impressive buildings were constructed to harbour all the wisdom of a given field of study. The most impressive building does not make a faculty or school the best; it is being the best at connecting to the world that awards this status. To this end, a variety of models have appeared, based on total decentralisation, with different facilities for research and teaching, without relinquishing the universities' mission.

The connectivity and movement of information knows no limitations of time or space. Many of us have had to adapt our schedules to our European, Asian or American partners. Many of us have also opted for clear strategies of internationalisation in search of the best allies to successfully address the challenges we face.

Local institutions are the main stakeholders in this transnational model. Spain, once again, is a good example of a clearly falling funding model for science over the last five years, constantly encouraging us to participate in European or intercontinental projects.

This model seems unavoidable, however, this is when we should remember the main mission of any university: to be the primary driving force for knowledge in society. Internationalisation is no mirage, more or less compulsory and ephemeral. It is a model for work processes, meant to improve results and the transfer knowledge to those in need of it.

Collaboration between those who possess knowledge is one of the greatest guarantees of evolution

In 1977, one of the greatest sociologists of the 20th century, Elisabeth Noelle-Neumann, published “Spiral of Silence. A Theory of Public Opinion: Our Social Skin”. In this work she clearly described the influence on the perception of reality and the assumption of trends, be they founded or mere illusions, of the collective majority on an individual. As Noelle-Neumann warned us, we should not succumb, without reflection or discussion, and certainly without comparison and research, to processes that point in only one direction. Therefore, when faced with the funding debate we must hold a clear stance, always in accordance with the social function of public service that any university in the world must perform.

The advent of new education paradigms mentioned above has not been accompanied by changes in funding processes of the whole model. Public universities are still funded by public spending and private universities by private contributions, which may be more or less self serving.
The economy of the 21st century, however, has definitely changed. Investment models have been modernised and mechanisms have been put in place to allow a much more democratic funding of projects of special general interest. Gone are the days of convincing a handful of important investors in order to see a patent become a reality in our lives, when micro contributions from hundreds of people can achieve the same objective.

University mechanisms, however, are still so rigid that it is extremely difficult to introduce any other form of funding other than the model that has prevailed for the last fifty years. Funding has been modernised thanks to the commitment of many researchers and students, who have generated situations that would have been inconceivable just ten years ago, such as crowdfunding campaigns to ensure the survival of whole laboratories.

And so, the debate on general interest arises. President Kennedy put it in a nutshell perfectly in his famous inaugural speech on January 20th, 1961: “ask not what your country can do for you--ask what you can do for your country”. Scientific innovation and training young people should concern the whole of society, from its representatives to the agents involved. In the public models the greatest responsibility clearly lies with the different governments which, at all times, must evaluate the global impact of a university’s existence, which involves so much more than just greater or lesser constricted funding.

Nevertheless, this is not an excuse for the rest of society to lay all the responsibility on the incumbent government. The most successful models require the commitment of private entities: be they investors or philanthropists, be they companies or families who want the best for their children. The lack of models that foster this active participation in countries such as Spain often lead to inadequate solutions, even when they are in keeping with the times in which we live.

It is undeniably interesting for a public university to seek funding other than public resources and it is imperative to implement clear, robust mechanisms of accountability to our citizens. We should not, however, confuse this with models that seek the absolute impact of costs on those in pursuit of a better future for themselves, but which necessarily also implies improving collective well-being.

Necessary factors that make a transformation of educational methods:

- Accelerated times
- Globalisation
- The decentralisation of work
- The elimination of limits on space and time

We must embark upon new models of funding and economic sustainability and not allow ourselves to be engulfed by the spiral of silence developed almost fifty years ago. Now is the time to question university models, their costs, their benefits and, above all, the role that all the agents in the education process should play, from policy-makers to the young man or woman who has decided to embark their future on a university degree.

The key to the future is unpredictable. The university of 2031 will inevitably differ from the university of today, just as the classrooms of 2014 have little in common with those of the nineteen seventies. There is evidently general concern, but this is essential to any shift in a cycle of the magnitude such as the one we
face. Be that as it may, we must never relinquish our social commitment, the general interests of society, the production of science, the transmission of knowledge nor, indeed, the education of the next generation that will succeed us.

“Horizon 2031. The University of Granada in Light of its V Centenary. “Reflections on the Future of the University”

“The university of 2031 will inevitably differ from the university of today, just as the classrooms of 2014 have little in common with those of the nineteen seventies”
The University as a Public Service in a Global Knowledge Society

Universities are one of the oldest institutions in Europe. Over time they have evolved and adapted to the demands of society through the ages, contributing to its social, cultural and economic progress.

Over recent decades the Spanish public university system has made a significant effort to adapt to the needs of human capital and training of committed citizens; it has developed an international research scope and has also transferred to productive sectors, based on business innovation processes; it has democratised governance structures, encouraged participation in decision making, implemented programme quality assessment and incorporated information and communication (ICT) technologies into management processes and into its teaching and research activities. It has also developed an important role in dissemination of knowledge, promotion of culture and internationalisation, turning the Spanish public universities into a leading destination for Erasmus and other foreign students, well-positioned in the major international rankings with placing several university faculties and schools among the top 150 in the world in different fields of knowledge.

In the times we live in, characterised by changes in industrial processes, with ever increasing use of new information technology and communication (ICT) processes and with a serious economic, financial and budgetary crisis, which translates into profound social impact, the public university must persist as an essential public social service that contributes to the progress and development of a country and its people in a global world in the era of the knowledge society.

These are some of the major challenges faced by the Spanish public university system in the coming years.
The ‘glocal’, a dimension

In an increasingly globalised world, widely interconnected through information and communication technologies, public universities must position themselves as global players through their international dimension, engaging their strengths as a university system, due to the global spread of Spanish and the geostrategic position of the Iberian peninsula as a crossroad between continents.

This global dimension of the university should be combined with a local perspective: the university as a public service that should contribute to the development of a country, training its people and protecting and promoting its own cultural heritage.

Similarly, the global public university must map out its own national global characteristics promoting the internationalisation of its staff, curricula, students and university partners.

University cooperation, a source of synergies

Recent decades have been characterised by the growth of universities (new faculties and schools in existing universities and the creation of new universities) to meet the increasing need for higher education in modern society and to absorb the demand for studies of large cohorts of students. More recently, public universities have made significant efforts in collaboration and cooperation. The systemic 'Campus of International Excellence' project has been a starting point for a new era of partnership between public higher education institutions.

A medium-term goal should be to increase cooperation between universities and public and private bodies, not only in the field of research and transfer, but also in teaching, with initiatives already underway, such as joint degree programmes and the sharing of infrastructures and technological platforms, with the aim of achieving an international dimension.

This is the only way to reach a sufficient scale, in a restrictive economic context, to exploit the positive synergies that arise from this extensive public-private cooperation between public universities and social bodies.

Training dynamic world citizens and professionals

Today's society has been characterised as a knowledge society of continuous dynamism. In the current global environment where borders are blurred, increased mobility of people and goods, internationalised productive sectors and cultural industries, the public university should contribute to the development of society by training global citizens and dynamic professionals.

World citizens who must be able to meet the challenges of global governance and to participate in the public sphere exercising their rights as citizens. People who must be able to manage themselves in an interconnected world whose dynamics expedite the internationalisation of curricula and mobility of workers.

Training skilled professionals has been one of the main functions of public universities. Nowadays, in the current economic situation, we must train professionals to face constantly changing technological developments. In short, graduates who are capable of adapting to different job profiles, able to understand and participate in production process changes: in other words, dynamic professionals.
Lifelong learning

Recognised by international agencies and governments, Lifelong Learning (3L) has become vital for the development of people in contemporary society: a way to improve their theoretical and practical knowledge and abilities, and improve their skills throughout their life cycle.

The public university, as a higher education institution, has incorporated different programmes over the years that contribute to the training of people throughout their lives.

Proper identification of the needs of individuals and the requirements of the local productive networks in a changing scenario are needed to provide Lifelong learning which is useful and responsive to the needs of society as a whole, contributing therefore to creating a more cohesive and better educated society.

Academic research for scientific progress and translational research for innovation in productive sectors and public administration

Research has been one of the priorities of the public university over the last decades of the twentieth century, fostering its development, internationalisation and transfer. This major effort by the public university system has resulted in universities becoming the main generators of national research activities, participating in major competitive Research and Development and Innovation (R & D & i) programmes at European and national levels, as well as worldwide.

In pursuing the objectives of effectiveness, efficiency and excellence, university research has also been actively involved in both the evaluation of its projects and researchers. Within a society characterised by the omnipresence of knowledge, public universities should focus on developing both their academic research and translational nature.

Basic research should contribute to scientific progress, responding to questions formulated by humankind, accumulating knowledge to nurture collective knowledge and future research developments. This type of research does not allow an immediate quantification of its returns in financial terms, nor its immediate uses, but it is essential for the development of science and society.

Applied research should respond to the demands of the industrial and service sectors, as well as government and public services. The volume of accumulated knowledge in public universities allows translational research to develop as a source of innovation in production processes and public services management.
Over recent decades public universities have been the driving force behind both dimensions of research activity. The reduction of public research budgets, the increasing demands for applied research, and pressures for immediate and measurable short-term results of research activity returns are some of the factors that will determine university research in the coming years.

Meeting this challenge is one of the main objectives for public universities, that is, making our public university system able to respond effectively and efficiently to the current and future demands of a global knowledge society.

**Increasing cooperation between universities and both the public and private sectors in the field of research and knowledge transfer is a tremendous challenge**

**The contribution to economic growth through the development of productive sectors**

Triple helix innovation models for national development highlight the nuclear role of the university, along with government and industry, as the basis for economic growth. Quadruple helix models include community users, whilst quintuple helix models include the context of the natural environment for society.

In this framework, the public university is not only an actor which is capable of offering its potential research. Professors, researchers, technicians and staff belonging to the university community are essential in generating support for a wide range of economic and technological activities, as well as training and services required by its local community. Therefore, these are some of the areas in which public universities contribute to economic and social growth.

**Attracting people and talent**

In spite of serious difficulties due to the rigid regulatory framework to which public state universities are subjected and restrictive budgetary and economic policies, the challenge of attracting talent for teaching and research by contracting the best international professors and researchers, as well as enrolling the best students, is viewed as key factor for success.

**Positioning the city on the international playing field**

The potential of the university to attract people to a specific geographical area, such as the cities and towns where its campuses are located, will be vital for the development of economic activities locally, thus benefiting the university and the needs of people and society.

Positioning the university on the international playing field also contributes to the international renown of the city and boosts its development as an attractive tourist destination for students’ relatives and friends, also converting its national and international graduates into potential tourists who may return with their families and/or friends.

**Developing the international presence of local businesses**

Public universities, through the transfer of knowledge, should contribute to the development of local businesses at the international level, as the nucleus of the Local Innovation System, facilitating the survival of
existing traditional productive networks, sustaining the levels of employment and contributing to generating wealth locally which contributes to supporting the welfare state.

**Encouraging production model changes**

Besides the contribution to the modernisation and internationalisation of current productive organisations, one of the main challenges for public universities over the coming years is to contribute to the necessary change in production models.

A new production model should allow activities to move from a labour-intensive model to other knowledge and innovation intensive models. The University of Valencia and the Valencian Institute of Economic Research (IVIE), through the International Excellence Campus “VLC/CAMPUS”, has contributed to this change with its ABACO Observatory. These high value-added activities establish a new vector of intensive growth in highly skilled employment, thus contributing to accomplishing the European Union commitment to smart, sustainable and inclusive growth.

**Promoting new industries: Science Parks**

One way to promote the abovementioned change in production models is to encourage the development of new industries. Over recent years, public universities have made progress in strengthening university-enterprise and industry relationships by establishing science parks. These parks are designed as centres for the transfer of knowledge. Among their activities is the creation of business incubators and providing spaces for knowledge-intensive companies created by the entrepreneurship drive of university researchers.

The university science parks have been built upon the relationship between universities, business organizations, trade-unions and public administrations and governments. In recent years these parks have created a wide network of research-based businesses, sharing objectives and their accumulated know-how.

So far the results of these initiatives have led to the creation of new companies from research and new technologies that represent an increase in skilled employment and the concentration of activities related to new industries.

The challenge facing public universities in the future is to continue along this path, contributing to the commercial application of research activities in the form of spin-off and start-up businesses.

**Promoting entrepreneurship and the industrial application of research**

Public universities are promoting entrepreneurship through numerous unprecedented, innovative programmes that seek and promote the valorisation of talent. Promoting the entrepreneurship culture among students is important to make their projects viable and successful as a company or as other forms of social and cooperative activities in the economy. This is also relevant in promoting the industrial application of the research generated in universities.

This important challenge is not only the responsibility of universities, but requires legal government frameworks in order to shorten the period between the development of ideas and the establishment of the legal formats on the basis of which companies can operate in the market.
Public-private partnerships in research

Collaboration between universities and private organisations, mainly companies, has increased over recent decades. Increasing cooperation between universities and both the public and private sectors in the field of research and knowledge transfer is a tremendous challenge: sharing experiences, spaces and resources to develop research projects on a larger scale and global reach.

Effectiveness, efficiency and accountability

As public sector organisation, universities must be effective, efficient and accountable for the resources that society provides through public budgets.

Initiatives such as the implementation of analytical accounting, the application of laws affecting the public sector, such as those related to public contracts and transparency, are some of the measures that have been introduced in public universities recently to progress along this path.

Studies such as the analysis of the social and economic contribution of the public university system, pioneered in our region by the Valencian Institute of Economic Research (IVIE), contribute to informing citizens and raising their awareness about the social value of public universities and their contribution to the wealth and welfare of our society.

The challenge for universities here is how to adequately convey to society the consequences of their activities, to value their contribution to the progress of society and to improve the quality of public services to maintain quality and achieve excellence.

In short, it is clear that the main challenge facing the public university system in the postmodern global knowledge society is to continue contributing to progress and welfare, as an essential public service in society, as it has done over the past centuries.

Promoting the entrepreneurship culture among students is important to make their projects viable and successful as a company or as other forms of social and cooperative activities in the economy.
According to a Chinese proverb “it is difficult to make predictions... especially about the future”. The difficulty involved in foreseeing what universities will be like in twenty or fifty years time depends to a great extent on how we anticipate what the world will be like at that point in time. Some of the things that we use today or that we suffer today were unimaginable twenty years ago. Others that we were struggling with then, remain a scourge that challenges our faith in progress. However, the priority is to ensure that the future is not a threat but, rather, an endless range of opportunities.

I would therefore like to express my confidence in the future of universities, in their ability to adapt to a new era, in their mission to consistently seek the best for their students and for society in general, in their permanent quest to invent a better future that will help us create a better society.

I do have faith in the university’s capacity to adapt and progress, and if some of what follows seems excessively pessimistic or critical, it stems from my full confidence in the strength of the university as an institution that generates and transmits knowledge, open to the world and the future, permanently seeking to improve the services it offers to society.

I shall first attempt to sketch an overview applicable to universities in general and subsequently I shall focus on certain specific problems affecting Spanish universities.

**Globalisation and new technologies**

In a changing, increasingly globalised society, there are many challenges that universities face in this second decade of the 21st century. The spread of internet has placed enormous amounts of information and knowledge at the disposal of ordinary citizens. It may seem that this offers everyone access to self-acquired and *à la carte* education, providing they are sure of their aims and have a certain amount of self-discipline. However, the mission of the university as an institution which grants degrees that guarantee the training of graduates is beyond question, at least in the
near future. Nevertheless, the mission of the university is not limited to the mere granting of degrees. Its vocation, and indeed the mission with which society entrusts it, is to generate knowledge and critical thought, to inspire innovation, to lead social transformation, amongst other functions. All these functions are essential for society’s development and the health of our universities will depend on the extent to which they are capable of fulfilling such functions.

Moreover, new technologies offer universities the means to reach a global audience, on a world scale. The Massive Open On-Line Courses set up over recent years are a fascinating example which open the door to a new way of sharing knowledge.

Traditionally, universities offer face-to-face teaching and learning experiences. Universities are physical locations where people go to receive an education. Although there are still degrees which require a high level of class attendance, the possibilities of on-line education have radically changed the way in which many disciplines work, and new methodologies have been developed which combine face-to-face classes and activities with on-line back up. It is difficult to imagine what teaching will be like in several decades, but it is clear that universities must strive to adapt to new methodologies. Here, as in other fields, adopting a position which is resistant to change may result in universities becoming obsolete and even disappearing.

*Wherever it may be in the world, the more dynamic and flexible a university is in dealing with new challenges, the brighter its future will be.*

In this general context, Spanish universities and especially public sector universities suffer from a series of problems which need to be overcome if they are to face the future successfully. Some of these problems are discussed below, grouped into six wide areas.

*The mission of universities is to generate knowledge and critical thought, to inspire innovation, to lead social transformation*

**Governance**

The debate on possible changes in the governance of Spanish universities has been ongoing for more than a decade now, with differing degrees of intensity.

There is general agreement on the need for change but not on the nature of the solution. Perhaps the current model has worn itself out, but given the circumstances of recent years, the issue has been sidelined by the appearance of much more serious problems resulting from the economic crisis.

As elsewhere, solutions imposed from above or wrenched from below will be neither efficient nor lasting. We must resume the debate and reach consensus so that efficient solutions that lead to a stable framework may be put in place. We cannot design strategies in the long or even the medium term under the threat of constant legislative changes, and that is the situation we have endured. The law regulating universities has been reformed practically every time there has been a new party in government. Many voices call for a wide consensus and a stable framework for education, but such aspirations seem increasingly beyond reach.
Parallel to the governance debate there has been a debate on the funding model for public universities which, at the current time, is linked almost exclusively to student numbers and tuition fees, to cover teaching costs in the fairest way and practically on a yearly basis. There has been repeated talk of the need for a new model which includes long-term programmes and budget allocations linked to the fulfilment of quality objectives in teaching, research and knowledge transfer. Naturally, this should go hand in hand with a change in governance, but there seem to be no positive signs of this on the immediate horizon. In fact, the constant legislative reforms alluded to in the previous section, and which, incidentally, have changed very little, if anything at all, in the governance of our universities, were criticised for not including the necessary funding to implement the changes mandated by law. It is a well known fact that, in practice, all these policies seeking to effect change but with no budget allocation, have indeed had a cost in real terms, even though the positive effects sought have not been forthcoming.

**Funding**

Problems which need to be overcome if they are to face the future successfully:
- Governance
- Funding
- Teaching
- Teaching staff
- Research
- Transfer
- Internationalisation

**Teaching**

At the time of writing (February 2015) it is inevitable that any opinion about teaching in Spanish universities is totally coloured by the current debate on the length of degree courses and, therefore, it is difficult to discuss the issue without bearing in mind the pressures of the here and now. It would seem clear that Spanish universities must find their place in the world, and that each university should find its own place. After decades, or perhaps even centuries, of a non-specialised model, it seems the winds are now blowing in the direction of specialisation. Each university must therefore make a strategic decision to bolster its strong points or those fields in which it may excel in the future, depending on its circumstances, its environment or its vocation. There are no easy solutions, especially for the oldest, most traditional and non-specialised universities. All the university structures and governance systems favour distribution measures which benefit everyone a little and in an equal measure, rather than those measures which seek to offer some universities a strategic advantage over others. Needless to say, any attempt at proposing the closure of a university or withdrawal of a degree provokes riots in the university in question or the city where it is located.

Furthermore, it is also necessary to take strategic decisions about the methods used. Part of the specialisation and positioning of each university involves differentiating not only the content of degrees but also the way in which training is offered. Distance courses or blended learning for undergraduate and Master’s programmes could play an important role in the studies offered. This movement has already started, although it is not easy to foresee just how successful the degrees offered at present will be in the future. It would seem logical to think that on-line
training can at least serve as a significant back-up to face-to-face learning, offering the opportunity to use new methodologies such as the shift classroom.

Teaching staff

Another significant problem of the Spanish university system, which has been a topic of debate for the last twenty years, is the process for selecting tenured teaching staff. We have moved from competitive examinations in each university to a system of national selection, and we now have an accreditation system, but far from being solved, the enormous problem of endogamy and lack of mobility has become increasingly worse. Currently, as a result of the economic crisis and budget cutbacks, no new vacancies are available at universities. Furthermore there is also a huge collapse of the system, leading to unease and discouragement on the part of teachers and the despair of young graduates who take it for granted that they do not have the slightest chance of pursuing a career in university teaching.

After a few years during which the most widely-discussed issue was endogamy, and trying solutions such as national competitive examinations, not linked to individual universities, we now find that the problem is not even discussed and it would seem that we are resigned to continuing as we are. The situation worsens if we take into account that the average age of university teaching staff is quite advanced, especially in the more classical fields (Medicine, Experimental Sciences, Law, Philology) where staff largely attained tenure in the eighties and nineties. The movement of students to new degrees has meant that no new lecturers have been taken on for the last fifteen or twenty years. Some disciplines could even lose all their teaching staff within the next five or ten years as they gradually retire. A rescue plan is necessary, with new teaching staff being taken on and trained so they can take the helm when the time comes. Something similar occurred in British universities during the eighties, which was also a time of economic crisis with substantial cutbacks.

Research

Over the past forty years, research in Spanish universities has gone from being non-existent to placing Spain on the map of scientific production. However, there are some threats to our research system in addition to problems derived from the idiosyncrasies of the Spanish university system.

Universities and their teachers are obliged to perform research in addition to fulfilling their teaching duties. However, with very few
exceptions, it is impossible to **consolidate full-time permanent research positions.** In general, recruitment in universities has been limited to teaching posts, even in times when there were no restrictions due to the economic crisis. Practically the only way to incorporate trained researchers is through the Ramon y Cajal Programme and lately there have been difficulties offering permanent posts to such researchers after they successfully complete their initial five-year period with a positive appraisal. This has even more perverse consequences as some departments refuse to recruit Ramon y Cajal researchers in the first place, as they know beforehand that it will be impossible to offer them a permanent post.

**Transfer**

Transfer is the third pillar of the university, together with teaching and research. During the first years of this century knowledge transfer support policies led, amongst other things, to the setting up of science parks either in universities or attached to them. Such parks, along with Technology Parks, Technology Centres or companies, were eligible to participate in bidding processes designed to strengthen targeted projects and the facilities that would house such projects, at the same time as support policies for entrepreneurs were promoted. As with other programmes, the economic crisis and the resulting budget cuts have seriously hampered transfer policies. Looking to the future, **universities will only be able to become significantly involved in knowledge transfer if their research groups are able to efficiently connect with the productive sector.** Naturally, this connection is easier for fields related to Engineering, but much less so for basic Science, Arts, Social Science and Law. In the field of legal science the culture of consultancy has not been developed, and in most universities is neither properly regulated nor receives any incentives. Although the map of universities shows that they are equally distributed throughout the country, with a university or at least a campus in each of the provincial capital cities, opportunities are not equally distributed and there are greater facilities for universities located in large urban areas surrounded by important industrial areas. All the same, this situation may be offset by modern communication facilities which mean that physical proximity is not essential for certain work, since globalisation offers opportunities to those who have something innovative to offer, regardless of their geographical location.

**Internationalisation**

Internationalisation is proving to be one of the great challenges for Spanish universities. In a society of global knowledge it makes no sense to conceive of the university from a strictly regional or national perspective. Universities should form part of international networks, promoting connections between research groups and facilitating student and staff exchanges. The latest figures on international student mobility point to a significant increase in the immediate future, especially from emerging countries which need to reinforce the education of their citizens. Although it is clear that a large part of the flow will be channelled towards countries who have traditionally attracted students, such as the U.S.A., U.K., France, Germany and, more recently, Australia and New Zealand, Spanish universities will also be an attractive destination. In this sense, we must take full advantage of the experience gained and the contacts established over recent years, as in this field it is quite clear that we are not starting from scratch. Spanish universities have been particularly active in the different
European programmes and they have consolidated links with Latin America. It is vital to implement measures to facilitate mobility and exchanges for students, staff and research personnel; to simplify and streamline admission procedures and regulations, and make requirements for joint or double degrees more flexible. Internationalisation enriches the university community and contributes specific benefits to training, research and the employability of graduates, which is noticeably improved through international experience.

**Conclusion**

In short, universities in general and Spanish public sector universities in particular are facing considerable challenges, derived from globalisation, the spread of new technologies and a huge increase in student mobility. We have the experience and potential to rise to these challenges, but we must be dynamic, reject inertia and increase the flexibility of our structures.

“We have the experience and potential to rise to these challenges, but we must be dynamic, reject inertia and increase the flexibility of our structures”
1. Degrees on offer. Universities face an important challenge when deciding which degree courses to offer. This is no mean task: on the one hand student demands must be taken into account, while on the other we encounter the medium and long term demands of society, both flanking the universities’ human resources in qualitative and quantitative terms. The long term objective must be to take all these elements on board to differentiate universities by finding their specific identity.

2. Research and the transfer of knowledge. The relationship between each university’s own research fields and the areas of knowledge of their degree courses is interesting and positive for training. An important challenge is to find ways to ensure that this research is transformed into innovation and transfer of knowledge to avoid becoming a “death valley”.

3. Governance and human resources. The university of the future requires a system which includes attracting talent and training, evaluating and promoting people. The governance system must represent the whole university community and the administration and services staff, with clearly defined functions, participatory bodies, transparency and accountability.

4. A distinctive student-centred pedagogical mission. The objectives must be teaching students how to learn, prioritising innovation and sharing knowledge. The university of the future must educate people with attitudes and values which are useful for the society that they serve.

5. Addressing lifelong learning. The university plays a relevant role in training citizens of any age. It should accompany them by providing knowledge in a changing environment which will anticipate and comprehensively satisfy training requirements.
6. Vocational training at universities. Higher vocational training is included in university education in the European Higher Education Area. This allows the university to converge with the workplace, businesses and other organisations.

7. A long-term model of economic sustainability. Regardless of whether the university is privately or publicly funded, the university of the future must make effective and efficient use of resources. It must do more with less and do the right things to ultimately benefit society.

8. The university in context. The university, society and its institutions should constitute a joint venture. The university community should not be perceived as an ivory tower which is isolated from the surrounding world.

9. The local and global university. The university community must be capable of fostering internationalisation and yet still be rooted in its immediate surroundings.

10. The universal, transparent university. Students must be aware of what to expect from each university, evaluate the courses on offer... and above all, no student should be excluded from the university system on economic or social grounds. The sole mission of the university of 2031 must be to serve students and society.
A country will only progress if its economy is based on knowledge. Those countries which fail to adapt their economies to the knowledge society are doomed to lose the welfare state, or never attain it. Societies which have lagged behind in the transition from the agriculture-based economy of the 18\textsuperscript{th} century to the industrial economy of the 19\textsuperscript{th} century or which have failed to make such a transition at all have suffered much unemployment, plummeting productivity and competitiveness and, consequently, a serious economic crisis. The same symptoms are being suffered by those countries which are not carrying out the transition from an industrial economy to a knowledge-based economy.

The knowledge society is based on the belief that education, research and innovation are sources of competitiveness for our economies, presupposing that highly educated human capital will exert a positive influence on the generation of new knowledge through research and that such knowledge will reach the market thanks to a process of entrepreneurial innovation. For that to occur, researchers must generate knowledge in the relevant fields for business and the business community must know how to develop the process of innovation.

At the current time, in the globalised world we live in, it is quite clear that we are facing an economic model that uses knowledge as the most important factor of production, in comparison with previous models in which factors such as the land or physical effort were decisive for the system (García Manjón, 2010). Until the 18\textsuperscript{th} century, society followed a model which was largely based on agriculture, in the widest sense of the term, and in which the system depended on land use, combined with physical effort, whilst knowledge and even capital were not so important.

With the industrial revolution in the 19\textsuperscript{th} century we entered the industrial society, which provoked a progressive shift from agricultural activities and led to large concentrations of population in industrial areas and in cities considered to be centres of power. In this model, physical effort acquired utmost importance, but capital was also highly relevant and, although there was a greater
need for knowledge than in agricultural societies, it played a secondary role. This model created many jobs based on physical effort and manpower, yielding greater profits at a faster pace for the entrepreneurs and the workers themselves than under the previous model, but with an increasing dependence on capital.

Those countries which fail to adapt their economies to the knowledge society are doomed to lose the welfare state, or never attain it.

This situation reached it maximum level in the capitalist economic model, especially the liberal and ultraliberal capitalist model, in which speculative economic activities gradually began to acquire more importance than productive activities. If, during the initial phases of industrial societies, the main factories based their profits on the physical efforts of their workers, in the second phase an increase in profits was sought through reducing labour costs. Subsequently, during the third phase, the increase in productivity and profits was primarily due to the incorporation of capital goods, which initially increased the efficiency of the workers involved in the process and, subsequently, progressively replaced those workers.

In this way, capital gradually took over from the human factor and, in a fourth phase, the importance of capital reached its maximum level in the context of an economy based on speculation, which led to the gradual destruction of industrial societies. It was at that point that models of knowledge-based societies began to appear and those nations which could foresee this managed, during the latter half of the 20th century, to move successfully from an industrial society model to a knowledge-based society. Those countries that failed to make this transition inexorably experienced an increase in unemployment, gradual during the boom and spiralling out of control in times of recession such as the present. In a short period of time, such a process seriously jeopardises the level of social welfare attained during the previous transition from an agricultural society to an industrial society.

Paradoxically, those societies which had still not undergone the first transition are becoming emerging economies, as they cease to be fundamentally agriculture-based societies and understand that they need to move directly to a knowledge-based model. In the knowledge society, physical work and land use are of little importance and are subordinate to knowledge as a factor of production. However, the most outstanding and crucial aspect is that, despite having similar importance to that which it obtained in industrial societies, capital is now subordinated to the intellect.

Therefore, in this new model, knowledge is clearly superior to capital as a factor of production and, indeed, capital is dependent on knowledge. Let us imagine for example an operating theatre, with its extensive and complex medical equipment (capital) which is of no use whatsoever if there is no surgeon with the necessary experience and training (knowledge) to perform surgery (Drucker, 1994). To a great extent, all this explains the developments in the labour market in terms of how we act within the model of society in which we live. In a knowledge-based society, even though the economy may be liberal, profits are dependent on knowledge and therefore on people, and people with knowledge are an inexhaustible resource.
Researchers who use their knowledge to make new discoveries do not exhaust that knowledge in their endeavour, but rather generate new knowledge which increases their own wisdom. Likewise, an engineer who tackles the resolution of a complex technical problem does not use up his or her knowledge of the subject but, rather, through the effective application of that knowledge, increases his or her tacit knowledge and experience in that field (García Manjón, 2010). For all these reasons, investment in knowledge, as the new capital of the social and economic system, would seem to be the most profitable investment ever made. Whilst the useful life of machines is limited, knowledge can be used by individuals throughout their lives.

It is therefore clear that the knowledge society will lead to an enormous increase in knowledge-based employment and a marked reduction in industrial-type employment. If we stop to analyse this idea, we may come closer to understanding our present situation. Rifkin (1995) argues that the knowledge society involves a division of the working population into two groups: those who know, and those who do not know, alerting us about the growth of unemployment in industrial and service sectors due to the advance of technologies in all fields.

The drama of unemployment in Spain was perfectly foreseeable, although it has been notably increased by the economic recession we are experiencing, which has simply accelerated the inevitable and made the process more intense, thus undermining the capacity to plan ahead in order to mitigate the problem. Spain failed to carry out an appropriate transition from an agricultural model to an industrial model in the 20th century. Proof of that is the lack of industrial policy planning, except for the case of the Basque Country. We became a society that based its economic model on the services sector, and particularly on two fields: firstly, the building and construction industry, which is temporary and entails high risks and, secondly, tourism, more stable and structural.

In this century, we have not taken decisive steps in the transition to the knowledge economy and therefore there are no job opportunities in Spain for those who have been trained here. However, they are easily absorbed by markets in other countries which have already made this transition or who are in the process of making it. I am not necessarily referring to countries of the so-called first world such as Germany or the U.K., but to countries such as Brazil or India which, until recently, were considered to be part of the third world, or countries that are still considered third world countries, such as Peru or Colombia.

So, what can we do to create the knowledge society? In Spain and particularly in Galicia we must make a decisive commitment which involves continuing the transition from an agricultural and industrial model to a knowledge-based society and accelerating the pace of that transition. In Galicia we still have elements of these two models coexisting side by side, which offers certain advantages. However, we must do this without trying to take shortcuts or being trapped by the illusion of a service-based society. Services should always be a consequence, a complement or multiplying factor, but not an end in themselves.

In our opinion, universities can make an important contribution in this sense. If we accept that universities are traditionally a source of knowledge creation and transmission, a firm commitment to the university system will help create wealth for
society. Germany has certainly understood the situation in these terms, and has reached a multi-party national agreement to increase the flow of public resources to the university system and for research and development.

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2. Tourism, more stable and structural

However, if we accept that part of the mission of universities, at least public universities, involves creating value for society, the creation and transmission of knowledge should take account of the times in which we live. Research and teaching should be focused on innovation. We should train professionals who, in all fields of knowledge, are perfectly at ease in a digital and multilingual environment (in keeping with a digital and globalised era like the present) and who are capable of using their knowledge to facilitate innovation in different sectors linked to training and particularly linked to the productive structure of the areas in which their universities are located.

Eurostat, the statistical office of the European Union, offers an in-depth analysis of the situation regarding innovation in Europe. Of the many indicators it uses, the percentage of employment in high technology sectors in Galicia is at 2.2%, in Spain is at 3.5% and the European average is 3.9% (27 EU member states), with wide variations between different countries and also between regions, with Madrid standing at 8% and the Canary Islands at 0.8%.

Clearly, the more people a country employs in these sectors, the more competitive its economy will become. Precisely for all these reasons it is necessary to give more decisive support to knowledge and therefore to investment in R&D and education. Doing the opposite will strengthen the causes that led us to the recession over recent years, and above all, it will destroy our future.

The drama of unemployment in Spain was perfectly foreseeable, although it has been notably increased by the economic recession we are experiencing.

References


Garcia Manjón, J.V. *Innovar en la era del conocimiento*. Colección transfiere UDC. Netbiblo, 2010


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1 According to Eurostat this definition includes IT, telecommunications, R&D and high-technology industrial sectors. Official figures from 2012.
Horizon 2031.
The University of Granada in Light of its V Centenary.
"Reflections on the Future of the University"

International Experts in Higher Education
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"Reflections on the Future of the University"
International Experts

Ural Akbulut
URAP (University Ranking by Academic Performance)

Ronald Barnett
University College London

Tim Cook
University of Oxford

Domingo Docampo
University of Vigo

Barbara M. Kehm
University of Glasgow

V. Lynn Meek
University of Melbourne

David Palfreyman
University of Oxford

Jan Sadlak
IREG, Observatory on Academic Ranking and Excellence

Jamil Salmi
University Diego Portales

Elías Sanz Casado
Carlos III University of Madrid

Hanne Smidt
European University Association

Ulrich Teichler
University of Kassel

Frans van Vught
University of Twente

Akiyoshi Yonezawa
Nagoya University

Teodoro Luque Martínez
University of Granada
1. Introduction

In order to forecast the future of higher education properly it may be appropriate to recall the evolution of schools to universities. It is known that the first schools were founded 5000 years ago by Sumerians. When we talk about the universities we should bear in mind that the Sumerian scribal schools were the first giant step for the foundation of higher education institutions. Sumerians created the numerals and then around 3000 B.C. developed the alphabet. The kings and the priests needed clerks to keep records for them. The number of clerks was not enough to meet the demand. The Sumerians were the first innovative civilization who designed the formal schools. The Sumerian scribal schools became a model for schools of all civilizations afterwards. The kings in Mesopotamia did not know how to read or write. The clerks wrote all messages of the kings, and read the arriving messages to them. The clerks made copies of medicinal, technological and religious documents and had knowledge about those subjects which made them the first polymaths. Since some of them taught in scribal schools, they may be considered as the ancient academicians. The scribal schools being the highest education institutions of their time can be considered as the ancestors of universities. Hittites, Egyptians and Chinese opened their own schools later. The schools of Athens appeared around 450 B.C. Few centuries after early Greek schools, the first schools in Europe were established which later inspired the idea of founding Bologna and Oxford universities.

2. ICT and MOOCs will cause significant changes in universities

Since the establishment of Sumerian schools, the basic principles of teaching have not change significantly. Sumerian classrooms were special rooms dedicated for teaching, a teacher lectured in the classroom, the students had to pass the exams and graduate from the school after completing all courses, like today.
Of course the infrastructure of universities, the quality and the number of teaching staff now is incomparable to Sumerian schools (or even to the universities of 1980’s). The widespread availability of desktop computers and internet in 90’s created significant changes in our methods of teaching. Information and Communication Technology (ICT) created a new world for the academicians as well as the students. Universities must prepare themselves to use ICT as a significant platform in teaching. They must also be prepared for delivering most of the courses using blended learning methodologies. All high school graduates entering the universities will be highly digitally literate; they will prefer the universities which are best equipped with ICT infrastructure. If some universities do not have proper infrastructure, their students may prefer to follow on line lectures of top lecturers in the world. Then they may start to criticize the quality of lectures given in their own universities on social media, which may harm the reputation of their universities. The universities must use simulators and 3D technologies in some classrooms and laboratories as soon as possible. Reducing cost of sensor technologies will make it possible to measure gaze of computer users by interactive sensors. In future, personalized learning interfaces, such as MOOCs will employ those technologies. This will allow universities to make inferences about learners’ interest by following their gaze patterns in online learning sessions. Learners’ personal experience during the course of learning, such as difficulties in learning a specific topic may also be analyzed. Adaptable learning environments will incorporate technological development to fulfill the requirements of developing individualized learning systems of the future. Even though some experts suggest that MOOCs will replace traditional teaching in 15 to 20 years, this may not happen so quickly. Presently there are some problems with MOOCs, such as not giving credits or a diploma to the students. The other one is that only about 10% of the students complete those courses. Universities should offer online degree oriented programs for adults to help them to find better jobs. Universities should motivate their best lecturers to prepare on line courses. They will need talented lecturers to deliver MOOCs in English to attract international students.

**International students will be of great importance to higher education institutions in future**

**3. International students will be in high demand in near future**

International students will be of great importance to higher education institutions in future. They will globalize the academic environment more than other factors. The number of international students between 2000 and 2012, increased from 2.0 million up to more than 4.0 million. The increase is expected to grow faster in the next 20 years which will intensify competition between universities. Internationalization in universities creates opportunities for global partnerships. In about 20 years, significant population increases are expected to occur in developing countries. This will increase the demand for higher education which will be a great opportunity for universities worldwide, to attract high quality international students. The international students will be more technologically literate than today. Their higher expectations will increase international competition. All universities must develop new strategies to attract a higher share of top international students. In 2012 highest numbers of international students were in: USA (18%), UK (11%), France (7%), Australia (6%) and Germany (5%).
4. Cross-border higher education activities will enhance globalization

Mobility of students as well as faculty members in and out of the countries must be increased considerably by all universities. Increasing the number of mobile students and exchange of faculty members will enhance international profile of universities. The top universities in the world employ a large number of international faculties. The universities in future will compete with each other to employ the top academicians of other countries. Increasing the number of international students and employing the best postdocs will increase the number of international faculty. The students sent abroad for 2-3 semesters act as catalysts to enhance future student exchanges. There will be significant advantages of sending academicians abroad too. Top academicians, sent to developing countries will help their universities to modernize their teaching models and to initiate new research projects. This will improve the reputation of the university in the host countries and will attract students and post-doctoral researchers from those countries. Academicians, who are sent to top universities, will have a chance to work with the leading scientists of the world which will enhance future international research collaborations with top universities.

5. Double major or minor degree diplomas will make a difference

Fast development of computers, mechatronics and artificial intelligence will direct the robots to enter our everyday life. Service robots are expected to be one of the major industries in future. By 2030, robots are expected to replace a significant percentage of the labor force in developed countries. It is not easy to forecast which professions will diminish or disappear in future. To cope with this, the universities must educate the students with flexible curricula to equip them with a broader knowledge in several fields. The universities must design cross disciplinary curricula and design new courses to be partly taught by professionals from the industry. They should encourage the students to graduate with double major or two minor degree diplomas. All students must take part in cultural activities, arts and sports. These measures will give them a chance to find a new job through their second major or one of their minor degrees in case they lose their jobs. They may even find a new job related to one of the student clubs in which they were active. The universities must be prepared to open new departments and perhaps close some others due to new technological advances.

6. Entrepreneurship courses are essential elements for high technology

In near future all countries will need a large number of entrepreneurs for developing high technology products. The students and alumni need to be exposed to culture of innovation and entrepreneurship at universities to be successful entrepreneurs. The development of countries enhances as they increase the number of niche technologies that they create. The entrepreneurship courses must be used as an essential tool to enhance university industry collaboration. These courses teach the students to differentiate between an idea and a real business opportunity. They learn how to build business models and how to adapt them to the needs of the market. These courses will help the students to learn about technology transfer system and global entrepreneurial networks through the
Entrepreneur universities will be well prepared for future cuts of government support on research budgets.

7. Technology Incubators for young faculty and students

The fast growth of technology is expected to cause the developed countries to be even more developed. The technological gap between highly developed countries and the rest of the world is expected to increase further more. Therefore the universities must guide the regional economic initiatives through new technologies. Universities must promote the development of high technology businesses as well as spin-off companies by their faculty and the students. The universities must support and guide the technology entrepreneurship and emerging technologies in their countries. Only the universities can bring together the university based and the private technology entrepreneurs for the growth of niche technologies. The most productive way for universities to guide the development of niche technologies is to establish technology incubators. If they cannot establish incubators by themselves they must take part in the present ones. If there is no local technology incubator, they should convince the authorities to establish one. They should share the incubators with other universities to create synergy. The universities should integrate the young faculty and students in incubators for the emergence of high technology products. Universities must facilitate technology transfer, licensing and joint venture opportunities for the entrepreneurs in incubators. Success of technology incubators will help universities to create higher research funds in the long run.

8. Science parks of universities enhance collaboration with industry

In 2012, IASP International Board defined science parks as: “An organization managed by specialized professionals, whose main aim is to increase the wealth of its community by promoting the culture of innovation and the competitiveness of its associated businesses and knowledge-based institutions. To enable these goals to be met, a Science Park stimulates and manages the flow of knowledge and technology amongst universities, R&D institutions, companies and markets; it facilitates the creation and growth of innovation-based companies through incubation and spin-off processes; and provides other value-added services together with high quality space and facilities”. In near future the importance of science parks (technology park) owned by universities will be more important than ever. Collaborating with industry will reinforce the role of universities as leaders of innovation for the growth of their countries. One of the best tools for universities for fruitful collaboration with the industry is to own or be part of a science park. Possibly 15 years from now, the main indicators to rate the research performance of
a university will not be the number of articles published or citations received alone. Number of patents received, number of spin-off companies and intellectual properties owned by the universities will be just as important. The universities will need to increase the number of product oriented collaborative research projects with industry. A significant number of academics, graduate and some of the undergraduate students should be part of innovative projects developed in science parks. The companies in science parks need the scientific back up of faculty members and graduate students to develop niche technologies. Silicon Valley is the first science park of the world which was founded in late 1950’s in California. Silicon Valley, Research Triangle and the other science parks in USA played important roles in increasing the level of high technology products of USA.

9. State universities must be prepared for performance based budget

As the demand for higher education increases, the enrolment and the number of state universities will also increase. The students will demand better infrastructure on campuses, cheaper room and board as well as scholarships. As the technology develops, the cost of basic research in universities will also become more costly. The governments will not be able to meet the ever increasing cost of state universities. Presently in many countries the budget allocated by governments to state universities is mainly based on enrolment. In some countries certain part of the budget is based on performance. In future most of the governments are expected to slowly shift to performance based budget allocation. Since governments cannot cut the budget of basic needs, their financial support on research will be based on performance. If the universities spend a certain portion of their research budget on applied research, they can have some return from royalties, patents, copyrights and trademarks. Therefore they can generate more funds for research and have a chance to increase their research performance. The annual research budgets of Harvard, Stanford or MIT are more than 800 million US dollars. The percentage of federal support of their research budgets is about 70 percent. They earn millions of dollars from royalties, patents, copyrights and trademarks. In future, only the entrepreneur universities will have high enough research budgets. Entrepreneur universities will be well prepared for future cuts of government support on research budgets. High research budgets will help universities to create funds to spend more on research and produce more patents and scientific articles. As a result they can step up in world rankings and receive more funds from national and international
sources. Some governments may start to use ranking results for performance based budget allocations. Therefore the universities must do their best to step up in rankings.

10. Major problematic developments should be solved by universities

Some problematic developments are expected to take place in future which will require solutions from universities. The followings are just a few of those: a) water shortage b) aging population c) petroleum, coal and natural gas shortage d) genetically modified foods etc.

CONCLUSION

Technological developments will enforce universities to restructure their teaching platforms. They must follow the rapid developments of ICT and MOOCs and start using blended teaching methodologies. They must plan to start using simulators and 3D technologies in some teaching laboratories and classrooms. They must develop flexible curricula to educate the students with broader knowledge in several fields. They should exchange a significant number of international students and academics to enhance cross-border higher education activities. In future, entrepreneur universities will have more chance to adopt themselves to technological developments and to performance based budget allocations. Universities which have access to technology incubators and science parks will be better equipped towards 2030’s. They will step up in rankings and receive higher shares of research funds from national and international sources.

References:


The University: A Matter of Interest

Introduction

The university has become a matter of interest around the globe. Every nation wants its own thriving higher education system and every town wants its own university. There is much debate, both within countries and between nations, as to how higher education should develop. There is concern as to where the resources for a high quality system are to be secured and there is widespread attention given to the international performance of universities, both in research and in teaching.

As stated, then, higher education is now a subject of considerable interest, worldwide. But this observation raises a number of questions concerning the matter of interest. What does it mean for the university to be a topic of interest? Why might this interest, ubiquitous across the world, have arisen? Is there a single large interest at work or are there several interests at work? When it is said that the university is a matter of interest, is that the same as to say that it is interesting? And what precisely is it that is interesting? For example, is there a significant difference between ‘the university’ and ‘universities’, as topics of interest? And is there a particular difference between the university and higher education?

To my knowledge, this matter – of the university as a matter of interest - has not been seriously examined and yet, I shall hope to show in this brief article, it is of the profoundest importance.

Not very interesting?

There is a significant difference between saying that a matter is of interest and that it is interesting. To say of the university that it is of interest is to observe that, as a matter of fact, the university has attracted much interest. And this is surely the case.

Governments, all kinds of organizations and sectors in the world of work, students, parents of students, universities themselves, academics and commentators reflect an interest in universities. They become
concerned with universities, and they may even become anxious about universities. They may, for example, express concerns over universities’ funding or their quality or their relationship with the economy. Different groups will characteristically have different interests in universities, some being concerned say with universities’ fit – or lack of it – with the world of work, and some being concerned with their quality. As a result of all this interest, public debate over higher education grows.

To say, on the other hand, that the university is interesting is, perhaps, at first sight, a bit odd. ‘Of course it is interesting’, might come the reader’s reaction. Or, alternatively, ‘I don’t find it so, it’s not interesting to me’, might come the response. Here, ‘interesting’ registers a personal interest, whereas being ‘of interest’ registers a disinterested observation about a general state of affairs.

But why, then, might this matter – as to whether and in what way the university might be of interesting – be of any interest? Isn’t it at best an uninteresting matter and at worst an entirely trivial matter? I believe entirely to the contrary.

Governments, all kinds of organizations and sectors in the world of work, students, parents of students, universities themselves, academics and commentators reflect an interest in universities.

Which interests?

The idea of interest has a connotation of bearing interest, especially that of a financial interest. This dimension of interest is particularly pertinent in a capitalist society and in an age of the entrepreneurial university and the student-as-customer. In managing a university, senior financial managers may be concerned about the level of interest being earned on the university’s investments.

Students may have a pecuniary interest in their likely salary opportunities following their graduation. When faced with meeting a high level of fees, students may engage in cost-benefit calculations as to the comparative merits of different providers. They may even judge that it is not in their interests to become a full-time student and choose instead to go directly into the labour market (perhaps studying alongside their work).

While at university, students may be asked in surveys about their interests, including their interests in becoming a student. They may even be asked, in a questionnaire, to judge the relative strength of different interests that lead them to study their particular subject at their university. They may be invited to judge the pull of their chosen subject, their interests in securing a good job, and other interests, such as remaining close to home and so forth. In responding to such a questionnaire, a student may begin seriously to reflect just how interesting their chosen subject is to them.

In reflections such as these, a typology of interests is beginning to emerge as between market interests, academic interests and identity interests. All three kinds of interests play at the levels both of universities as institutions and of their individual members (both staff and students). Management decisions may be made to further the market position of a university (including propelling it up a league table), or in its academic interests (it may choose to cross-subsidise a programme which it feels it has a responsibility to maintain) or in maintaining its identity (it may give particular backing to a research centre with which it is particularly associated).

Correspondingly, all three sets of interests – market, academic and identity – can be seen at work not only among students but also the
staff of a university. Individuals – both students and staff – may be thinking about their position in the labour market, their academic interests and how they understand themselves (and, indeed, project themselves to others).

Conflicts of interest

Once we begin to accept that there are different kinds of interest at work, it is but a short jump to recognise, too, that there are conflicts of interest in the university setting. This is far from new. Kant recognized this, over two hundred years ago, in his book on The Conflict of the Faculties. And academics develop profound interests in their academic work not only across disciplines but within disciplines. Occasionally, disputes erupt so violently within a discipline or even within a department as to cause schisms. Such intellectual conflict shows just how deeply interested in their discipline individuals can be: their whole lives and identities are formed out of such interests. And so, in our triple-fold schema, market, academic and identity interests interweave each other.

But conflicts of interest may also be present in ideas of the university. Managers and academics have profoundly different interests which cut across each other. The managers are interested in organizational change and across the university at that. The academics, on the other hand, are largely trying to understand the world beyond the university, albeit in a slice of the world pertaining to their field of study. On occasions, such profoundly different sets of interest – in university change and disciplinary understanding – can come into naked non-comprehension. A university may expect loyalty to itself from its members; an academic may be an outspoken critic of the direction of travel of universities. Tension is bound to result: such rival sets of interests do not live easily together.

Ideologies at work

We should not assume either that such conflicts can be avoided. For now, these rival sets of interests are deep within the university. They are constitutive of the contemporary university. Another way of putting the point is to observe that the university is shot through with conflicting ideologies. And a hallmark of ideologies is precisely that they are partial but structured readings of the world that spring from particular sets of collective interests. Marketisation, managerialism, academicism, and consumerism are perhaps the largest of these ideologies in the university.

But there are several others these days, for example, springing from interests in the internet age. Here, we find fervent advocates swept along by the opportunities that it seems to open out to students and greater access,
such that they can be oblivious to concerns over high non-completion rates or the limited access that students may have both to other students and to tutors and to all the facilities of campus life. This is a full-blown ideology in that it is backed by powerful interests in the corporate world, who see here opportunities for financial reward and market share.

**Whose interests?**

What might have seemed to be at the outset an arcane matter – the university as a matter of interest – is turning out to have profound implications in understanding the university. Different kinds of interests are present – and we have distinguished those of the market, the academy (in its intellectual life) and identity. Cutting across this triple-fold schema are all manner of ideologies, many of which are intersecting the university with their origins in the wider world. Accordingly, when we sense that particular sets of interests are at work in a situation – say, in the setting up of a new campus overseas – we are entitled to ask ‘Whose interests are present here?’

At one level, the question is easy to answer: it is the interests of the person (or persons) who are putting forward the proposal. But it is evident that there may well be, and usually are, more deep-seated interests at stake. (The very phrase ‘at stake’ is apt here, for it originally has pecuniary if not a market connotation, referring to a stake in a venture being invested financially, in the hope of securing an interest on the capital.) With the modern university across the world now being much more connected with the wider economy, universities find themselves having to duck and dive with the interests of powerful sectors.

Employers, particular industries and services (for example, the military, health services and pharmaceutical and petro-chemical industries) and the political spheres all drive their interests forward. At an even deeper level, the question ‘Whose interests?’ prompts reference to large global forces, such as the global economy, ‘cognitive capitalism’ (as it has been termed), the digital revolution and neoliberalism. Understanding a decision, therefore, by a university to open an overseas campus has ultimately to go into the deep global structures and interests that are influencing universities worldwide. A full understanding has to go much further than simply identifying the speakers or the proposers or even the particular university involved.

**Invisible interests**

These reflections prompt the consideration that there may be interests at work that are largely invisible. Such invisibility is of two kinds. Firstly, invisibility is part of the character of the large global interests at work that are shaping universities worldwide. If we walk onto a campus, we cannot see immediately features such as the global knowledge economy or neoliberalism but they are exerting their influence nevertheless. It is true that we can see some of their consequences if we look, for example, for signs of university competition or the students acting as customers; but still, we cannot actually see the global knowledge economy or neoliberalism.

With ideas such as these, we can be alert for their manifestations, and in turn, spotting such phenomena on the ground, we may even want to modify our thinking about the knowledge economy or neoliberalism. But, in themselves, they remain invisible. They are
like gravity: we cannot see them but they have profound effects. And these hidden global movements spring out of correspondingly very powerful global interests.

The other kind of invisibility is that in which interests are at work in actions and in words but are invisible even to their adherents. Vice-chancellors may proclaim their allegiance to both teaching and research. In their degree ceremony speeches, they may even convey a picture of the equality, complementarity and interwovenness of these two vital university functions. And they may seriously believe all that they are saying. In practice, however, all the policies and practices in his/her university may be tending entirely the other way, with research and teaching both pulling apart and becoming antagonistic towards each other. The largest salaries and most senior positions are awarded to those with research profiles, sabbatical leave is awarded for research, and those on ‘teaching-only’ contracts have less good conditions of employment.

Here is another ideology at work, albeit an academic ideology, in which positions are taken up that reflect the real interests of those involved but which are invisible even to those who are the major actors involved. And so emerges a fundamental distinction between espoused interests and real interests. The vice-chancellor may espouse an interest in the unity of teaching and research but the real interests at work are precisely to the opposite, of teaching and research being opposed to each other.

Conclusions: Unifying interests, missing interests

A picture has developed, then, of interests in the university being multiple, advanced by different parties and often both hidden and antagonistic. The significance of all this is twofold. Firstly, this topic has significance for understanding the university. In this one matter, we have observed that the university is shot through with rivalries and even outright antagonisms. In turn, it follows that identifying the university with any kind of unity or universality – as is implied in the very term ‘university’ – is highly problematic. The interests at work in the university are polarised. The university is now an antagonistic institution.

Secondly, hugely powerful global mechanisms are at work that harbour particular interests – in the market, in corporate power and in the use of knowledge for instrumental ends – that are largely invisible and of which many in universities may be unaware. As a result, both universities and individuals within universities may feel that they are acting in their own interests and may be fastening onto activities that are personally interesting but which may actually be furthering the cause of the large underlying global structures. Neither universities nor individuals within them may have quite the freedom they think to follow their own interests.

More tellingly, what is of institutional and personal interest (what is interesting) may not be in the (best) interests of a university or individuals within it. A university or an
individual academic may be very happy to be active in competitive research and see the university or department near the top of the research league table. All this may, however, lead to undue competition between universities and an overtight managerial attitude to those not performing well on this measure, so that otherwise good departments or good teachers are threatened with dismissal (and important departments may be closed and good staff required to leave). This is not in the interests of the higher education sector and not even in the interests of the university concerned.

How then move forward? One way forward is to identify missing interests, and of a particular kind, namely those that might not only unify a university but link it more with interests of the wider society. For instance, concepts such as wellbeing or ecology or wisdom could serve (i) to identify common interests across a university, (ii) to open a space in which a university can counter the large global forces at work, and (iii) to unify the university with the interests of the world. Of course, working out all of this is both fraught and difficult; but it could be exceedingly interesting.

“A university or an individual academic may be very happy to be active in competitive research and see the university or department near the top of the research league table”
Overview

Universities currently perform two vital functions in society; teaching and research. Teaching transfers knowledge and ways of thinking to the next generation. Research creates and preserves new knowledge, as well as referencing and indexing existing knowledge.

University teaching

University teaching, characterised as a dialogue between practitioners experienced in a subject and small numbers of students, differs from many other forms of teaching in that it is two way rather than unidirectional as would be the case with a book, a lecture, or any other form of presentation. It “draws out” thinking from students (“educar” from Latin “educo” “I draw out”) and without the feedback from the student it would be a very different process. The other significant characteristic of university teachers is that they are very often individuals involved in current research and this can confer a unique point of view (whilst recognising that this is not always accompanied by teaching competence!).

University research

University research, as opposed to commercial, or contract, research can be characterised as “curiosity-led”. It can be described as research where the expected, or even the required, outcome is not known at the beginning of the process, merely the initial direction of travel.

Now a by-product of university, curiosity-led, research is the generation of commercially valuable inventions that can be of benefit to society. I describe such inventions as a by-product because they were not the primary

* The views expressed are those of the author and not necessarily those of Oxford University.
objective of the research, which is the creation of new knowledge.

Such research is more expensive in terms of immediate commercial impact, than “outcome-focussed” commercial research so, if commercial impact is chosen as a measure of a university’s value, it will have a negative impact on the university’s perceived performance. However I suggest university research is one, or even the main, source of society-changing inventions. For example the laser, now ubiquitous in digital communications, came from curiosity-led research rather than any application-based requirement. In fact when the first working laser was reported in 1960, it was described as "a solution looking for a problem."

Charlie Townes, who was both Nobel and Templeton Laureate, invented the maser, which led to the laser because he wanted an intense source of highly monochromatic radiation for some spectroscopy which he was undertaking. The way to do it occurred to him while he was sitting on a park bench. Thus while he did not foresee the vast range of applications of lasers, nor the mass production technologies which would eventually enable them to be made cheaply, his invention was driven by the curiosity to solve a very well defined problem, to meet a practical need for his spectroscopy experiments.¹

**Commercialisation of inventions**

It is an error to design a production plant to maximise the output of the by-products if this prejudices the primary outputs and it would be a serious mistake to address the high costs of university research by focussing our most creative researchers on commercial opportunities if this prejudices the potential benefits to society from wider, curiosity-led, thinking.

Now a by-product of university, curiosity-led, research is the generation of commercially valuable inventions that can be of benefit to society.

**The challenge of management accountability**

However if we just pay academics to do whatever they like for as long as they like, how do we convince the taxpayer that this is a responsible use for their money? It requires a level of trust which is unlikely to be achievable. So we will need to devise a hybrid system with enough accountability to satisfy the taxpayer that their money is not being wasted, whilst at the same time not unnecessarily constraining the creativity of researchers.

It may be possible to evolve such a scheme but only if those leading and managing our universities and our economy can jointly develop and describe a politically acceptable vision.

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¹ Private Communication: Professor Andrew Briggs, University of Oxford, January 2015
University funding

The funding of Higher Education will be an ongoing challenge for any society as student aspirations grow, and health-care and the support of old age produce increasing demands on national finances. Unless the Higher Education Institutions can demonstrate their value to society, in terms society can both understand and accept, they will not be able to justify the required budget. They will be driven into short term, financially advantageous contract research to the detriment of the long term benefits of curiosity-driven research, with a consequent reduction in the number of researcher/teachers and the detriment of undergraduate education.

What does society want from its universities?

As societies develop over the next 20 years I have no doubt that what they want from universities, and what they are prepared to pay for it, will change and that such changes will be different in different places. One caricature could be the earnest, hardworking society where children are made to study for 12 hours a day until they are 20 then work in carefully planned and regulated corporations. Another extreme would be a society, with significant natural resources that just have to be extracted and sold, where there is little financial incentive for a teenager ever to complete a study assignment because they already have an income and a sports car. So a challenge for the political strategists in any country is to answer the question at the head of this paragraph.

However it might be argued that the political strategists are so remote from the potential
societal benefits that could accrue from universities, that they are not able to make an informed judgement. So those in universities need to help formulate the vision and the opportunities that a suitably educated sector of the population could bring, for example the added value of educated graduates over school leavers or the added value of post graduates over graduates. It is currently unusual to ever see this publicly expressed, probably because it is so difficult to calculate.

University leaders and politicians, speaking from their disparate knowledge bases, have a responsibility to maximise the benefits to their society of its investment in this resource.

How many universities and how big?

There is a question of how big a sector of the population needs to receive a university education, who decides, and who pays.

In the UK, overall participation in higher education increased from 3.4% in 1950, to 8.4% in 1970, 19.3% in 1990 and 33% in 2000. However students are charged increasingly large tuition fees, capped in 1990 at £1000, raised in 2004 to £3000 and in 2010 to £9000. It seems likely that fewer students will consider it a worthwhile investment as fees increase and the benefits of higher education become less apparent in the jobs market.

The sequence of events from 1990 to 2010 could be seen as a political aspiration, that the public purse then found it could not fund, so asked for students to pay and then some students decided it was not worth the investment. So there is a serious debate to be held over the right to equality of education (how many students can go into Higher Education i.e. the size of the Higher Education sector) and the right to equality of opportunity (how many students have the opportunity to apply, whatever the number of available places).

Conclusions

Universities are both a potential asset and a drain on society’s resources. University leaders and politicians, speaking from their disparate knowledge bases, have a responsibility to maximise the benefits to their society of its investment in this resource.

I believe these benefits are more likely to come from education and curiosity-led research than individual short-term inventions made in universities.

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**ABSTRACT**

- University teaching and university research are both unique and precious.
- Commercial inventions from universities are a valuable by-product which must not be allowed for funding reasons to overwhelm the teaching and research.
- University leaders must demonstrate the societal benefits of their universities if they are to receive adequate public funding.
- A society needs to be clear on what it wants from its universities and what it is prepared to pay for it.

Since “Universities” and “Institutes of Higher Education” each have a multiplicity of meanings in different jurisdictions I have used them indiscriminately.

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\(^2\) UK House of Commons Library Standard Note: SN/SG/4252 November 2012
1. Abstract

The quality of university research is a guarantee of development for countries and the future well-being of their citizens. Measuring said quality is no minor issue, judging by the number of university classifications using the provision of research as the main, or even the only, variable. This paper, born from an inaugural lecture delivered at the International University of Andalusia in 2014, is a reflection on university research in Spain and the position it affords us at an international level, from the perspective of the ranking published annually by Shanghai Jiao Tong University since 2003, using data related to the quantity and quality of research output and academic excellence based on prestigious awards or a high number of citations.

2. Rankings

The spectrum of academic views regarding rankings is very broad. While some feel uneasy with evaluations of academic superiority of any kind, others consider that competition and its results are drivers of academic excellence. Given this state of affairs, we can either focus our debate on the strengths and weaknesses of rankings, or take the opportunity to make the most of them to the extent that they do not only clearly reflect which are the elite universities, but that they can also help mark the way for other academic institutions aspiring to follow in the footsteps of the best.

We are not oblivious to the complexity of social consensus on any measurement of university quality. It is not surprising; therefore, that a ranking which aspires to be representative should choose between being simple and homogeneous or one-dimensional, in order to be able to compare highly heterogeneous institutions, or potentially confusing, such as the European attempts to establish a credible multi-rank process.
The Academic Ranking of World Universities (ARWU), known as the Shanghai ranking, claims to have created a simple measurement of university research quality, for which it has received countless criticism attacking its methodology and questioning its value. Nonetheless, in spite of its known methodological weaknesses, ARWU has become the catalyst for reform initiatives to reward and recognize scientific excellence, illustrating the power of benchmarking (Aghion et al., 2008).

ARWU uses a peculiar procedure of non-linear compression of scores in the six sub-scales it comprises, therefore representing de facto a one-dimensional regressive measurement, that is, a measurement that rewards relative improvements of universities placed at the top less (Docampo y Cram, 2014). The validity of the measurements is guaranteed, since based on our previous work, results can be reproduced with great accuracy (Docampo, 2013).

One of the aspects repeatedly criticized about the ranking is the effect of the size of the institutions on their results (Zitt and Filliatreau, 2007), as acknowledged by its authors (Liu and Cheng, 2005). However, it is not easy to quantify the precise effects of size on the institutional score for each indicator, especially because, until now, the discussion on the effect of the size of the institutions had not taken into account the regressive nature of the measurement. This is why criticism based on the purported benefits derived from institutional aggregation to gain weight, should be formulated with caution, as we stated in a paper with colleagues from the University of Granada in 2012 (Docampo et al., 2012).

Recently, we analyzed ARWU’s list of 500 universities, and therein, the over 400 institutions whose size has been calculated according to their full-time academic staff. We also reproduced the results of many other universities which have not been included in the official list (respecting the weight ratios for different countries) and we analyzed the total sample again, with over 900 institutions. In both cases we found that size explained approximately 30% of the variance in the sample, whilst quality/excellence was responsible for 60% of the variance (Docampo and Cram, 2015). Hence, the fact that the Shanghai ranking uses research as the only measurement, and that size does not actually explain more than a third of performance, makes ARWU an adequate instrument to measure research quality in universities and higher education systems as a whole.

While some feel uneasy with evaluations of academic superiority of any kind, others consider that competition and its results are drivers of academic excellence.

3. Spanish university research

The most important characteristic of Spanish university research over the last thirty years is its professionalism; it has ceased to be an activity performed by a minority to become an essential part of the work of our university teachers. The dawn of this transformation can be found in the first national R&D plan which set the bases upon which competition for obtaining public funds for research would lie, leading to two important incentives for group and individual research activities. First, the plan was an efficient mechanism for universities to acquire necessary infrastructures and services consistent with the interest in advancing research quality, which would be reinforced with the application to this type of investment of a rather considerable part of the European Union cohesion funds. From an individual standpoint, establishing a supplementary payment for research
productivity was a qualitative leap in the recognition of the research as a source of prestige, promotion and, to a lesser extent, financial stimulus for individual efforts.

The transformation initiated in 1988 was not lacking in contradictions. Although research today is vital to consolidate the prestige of a university professor, it has not yet become the yardstick for academic promotion, which has managed to bypass the mechanisms established in all university laws since 1977. Nonetheless, merit promotion in research received a breath of fresh air when researchers were included in the university system through the Ramón y Cajal programme, and, later, through the regional initiatives supporting it, which opened the doors of our universities to many scientists with good postdoctoral training.

4. The position of Spain in the international context

Twenty-five years later, the time has come to look back on what we have achieved, but also towards the future challenges of comparing Spanish universities with other university systems with a longer standing scientific tradition. As mentioned above, the Shanghai ranking is an instrument that can be used for academic benchmarking, and, given that we understand the non-linear mechanism for assigning scores, it is possible to break it down and correctly add data by country. Since combining information from different universities irons out any possible differences of emphasis in the diverse scientific or humanistic fields, we can say that the overall position of a country according to the ranking criteria is not a bad substitute for its scientific performance, if the data are weighted inversely to wealth.

The vertical axis of Figure 1 shows the number of research universities in relation to the proportion of world GDP (PPP). We have considered research universities as those with a score of more than 4 on the Shanghai ranking. We find that Spain has a more extensive university system than what would correspond to its GDP, with the number of universities conducting research, to a greater or lesser degree, similar to those of France or Italy, countries with a higher share of world GDP (PPP) (one and a half times the size of Spain).
The vertical axis of Figure 2 shows scientific output in Social Sciences compared to total scientific output of all research universities. The comparison to similar-sized or larger countries is very favourable for Spain, in terms of total output. The figure for output in the Social Sciences is striking, placing us closer to the Anglo-Saxon universities than those in Continental Europe.

Finally, Figure 3 illustrates Spanish universities in the context of higher education systems worldwide. The criterion followed to prepare this chart was the average final score on ARWU of a number of universities according to the GDP of each country (Docampo, 2011). The horizontal axis measures the quality of the best universities, and the vertical one the impact each country has in the ranking (number and position of all universities present in relation to GDP). We used figures from 2013, which had barely changed in 2014. The chart identifies clusters of university systems with similar performance in research.
The chart identifies four major groups: first the one with the highest research quality (United States, United Kingdom, Switzerland, Israel and Sweden), followed by a small noteworthy group, which includes Australia, Canada, Denmark and the Netherlands. Next, the essentially European cluster with Germany, Austria, France, Norway, Finland and, at some distance, Italy, together with Japan and Taiwan. Spain appears on the regression line, which indicates the great homogeneity of our university system. We are in the middle of the bottom group with Korea, Singapore and Ireland ahead of us, and Brazil, China, Greece and Portugal behind us, some distance away from the group of the large countries in Continental Europe.

5. Discussion and conclusions

The importance of rankings for the motivation of teaching and research staff is still limited, in spite of containing updated information that allows comparisons and benchmarking. The only shared analysis is the one that underlines funding. It is usually linked to the analysis of quality/investment return results in universities, with the implicit intention of revealing that the root of all evils is the lack of funding, that more investment would lead to better results. Without questioning the assertion that adequate funding is the key ingredient for any recipe for improvement, we must point out that what matters is not only how much, but how it is spent.
The information provided by ARWU on the research quality of university systems helps us to have a deeper understanding of our position in the international context. A dispassionate look at this information should be sufficient to understand that our problem is no longer that expressed by the well-known aphorism: publish or perish. Rather, what we need to do now is assess the opportuneness of providing stronger incentives (individually) to non-gregarious research, which produces results of unquestionable quality. With this aim of fostering scientific leadership in mind, the talent attraction programmes ICREA and IKERBASQUE, have been particularly successful, bringing prestigious scientists to universities and research centres in Catalonia and the Basque Country. The results of these programmes are beginning to be perceived very clearly and some universities have benefited considerably. Nothing prevents their example spreading to other Autonomous Communities.

The empirical evidence available indicates a positive correlation between output and impact of research efforts (Feist, 1997), therefore, in the light of the scientific output data of the research universities in the education systems worldwide, it is clear that we have already come a long way; it could be said, without a shadow of a doubt, that we have passed the test of quantity. Moreover, the information provided by the comparative analysis tells us that in the Spanish university system there is far more homogeneity than diversity. Therefore, even whilst acknowledging the great efforts of the last thirty years, it is obvious that we can aspire to a position more in keeping with our level of wealth and development, for which we need the capacity to generate individual and collective science and talent to become a priority objective in our universities.

The challenges facing our university system could be summarised in a simple precept: prioritise relevance, without neglecting quantity. Recognise and foster the capacity for scientific leadership, particularly at an individual level, without diminishing the collective efforts which have given our research output figures international recognition.
"It is obvious that we can aspire to a position more in keeping with our level of wealth and development"

References


In Europe, “the University” is considered to be one of altogether two societal institutions that have survived the centuries, the other institution being the church. This long term survival could not have happened without change. Despite the fact that universities have often been characterised by an unwillingness to reform, they have continuously adapted to new circumstances and societal change. And we know that the University of the middle ages is different from the universities of the 21st century. The formerly elite institution with its academic guild, the ivory tower both have transformed into a mass institution with close relationships to society and economy. The importance of universities in and for the knowledge society and economy has been emphasized again and again, and possibly universities have become more important than ever before. However, there is currently no unifying “idea of the university” any more and this is a problem.

In 1977, the American sociologist, Joseph Ben-David, offered the view that the German university, i.e. the Humboldtian idea of it, with its emphasis on the individual scholar and scientist was the best model for the 19th century and that the American university, i.e. the American idea of the research university, with its emphasis on the institution was the best for the 20th century. This, of course, begs the question which “idea” of the university might be the best or most appropriate for the 21st century.

2. Current transitions

The current transition to new ideas of the university was set in motion with higher education expansion and the emergence of mass higher education systems in the 1960s and 1970s. In addition to that the increasing costs for cutting edge research led to the fact that many governments were no longer able to exclusively support and finance their higher education and research systems. Thus,
universities were challenged to diversify their funding base, to do more with less, to modernise their curricula and generally professionalise their management in order to become actors on markets. The acquisition of actorhood by higher education institutions was accompanied by three developments. First, the national governments withdrew from detailed control, i.e. steering from a distance, thus giving universities more autonomy but in return making them more accountable to the general public. Guy Neave (1988 and 1998) has characterised these developments as “the rise of the evaluative state”. Second, the performance of universities was increasingly monitored and more competitive pressure was exercised. Third, external stakeholders became involved in strategic decision-making providing legitimacy and accountability. Wissema (2010) sees the University of Cambridge as the role model for this new generation of entrepreneurial universities characterised by a combination of high tech enterprises, modernisation of management and technostarter facilities. And thus we have arrived in the brave new world of the entrepreneurial university which, of course is exactly the kind of neoliberal organisation against which I want to argue here.

There is currently no unifying “idea of the university” any more and this is a problem

But let us have a closer look at the “entrepreneurial university” as well as a couple of other conceptualisations that have been offered as characteristics of the 21st century University. I will start with the concept of the multi-versity.

3. Different new ideas

3.1 The multi-versity

Derek Bok and Clark Kerr both having been presidents of American universities have written extensively about the idea of the multi-versity (Kerr 1963/2001; Bok 1982). Of course the prefix ‘uni-’ in university means ‘one’ or ‘whole’. This indicates that a university is the one and unified location where all subjects and disciplines, all knowledge if you want, can be found. The prefix ‘multi-’ refers to phenomena like universities without a fixed location or with various locations and to the large variety of activities inside and outside the institution, e.g. student housing, research and development, community outreach, employment counselling, teaching hospitals, alumni services, student recruitment, enrolment and orientation, international student affairs, placement testing, and so on. Kerr in his book outlines the historical development of the American higher education system taking over more and more responsibilities and tasks, thus diverting from the idea of a unified space for science and scholarship. Bok refers to Kerr but embeds the concept of the multi-versity in a more societal context and in terms of how the university should function.

The concept of the multiversity originally referred to the big American research university which tends to be a massive conglomerate “riding off in all directions and still staying in the same place” (Kerr 2001:14). This of course makes it all the more difficult to manage. Kerr jokingly described it as follows: “A university can aim no higher than to be as British as possible for the sake of the undergraduates, as German as possible for the sake of the research personnel, as American as possible for the sake of the public at large – and as confused as possible for the sake of the
preservation of the whole uneasy balance” (Kerr 2001: 14). And due to the increasing challenges and demands from society at large with which European universities are confronted as well and which have led to mission overload in many cases, the phenomenon of the multiversity can be observed in Europe as well by now. But while Kerr still thought that with creativity and flexibility of deans, administrators and staff the multiversity could be governed by leaders willing to mediate for a “workable compromise” (Kerr 2001: 27f.), Bok presented a less optimistic view.

According to Bok the multiversity tends to do too much too fast and to have its hands in too many cookie jars. Students are suffering because the campus is too “cluttered” (Bok 1982: 68) with so many services, activities and research projects that professors are not doing enough teaching and students are not doing enough learning. University management turns into a “huge insensitive bureaucracy” (ibid., p. 65) and impedes the basic mission which is to educate students. Given the fact that due to reduced funding universities today are forced even more to do more with less and look for funding elsewhere adding outreach, continuing education, consulting and collaboration with industry, the phenomenon of a multiversity tends to result in more entrepreneurialism. Interestingly the concept of the multiversity lost its popularity in the 1990s and was replaced by the concept of the entrepreneurial university.

So let’s have a look at that.

### 3.2 The entrepreneurial university

The concept of the “entrepreneurial university” was developed by Burton Clark (1998) who saw it as a response to increasing demands from an increasing number of stakeholders. These demands could no longer be satisfied by the “traditional university infrastructure” (Clark 1998: 131) and the “demand overload” (ibid.) to meet the needs of society led to an “entrepreneurial response” (ibid., p. 137). Clark developed five common elements of the entrepreneurial university. These are:

- a strengthened steering core
- an expanded developmental periphery
- a diversified funding base
- a stimulated academic heartland
- and an integrated entrepreneurial culture.

Unlike U.S. American universities, “traditional European universities have long exhibited a notoriously weak capacity to steer themselves” (Clark 1998: 5). Strong state control and the power of the academic oligarchy in intra-institutional decision-making plus the lack of market mechanisms led to weak institutional leadership and no involvement of stakeholders. With the advent of new public management in many European countries this situation has been reversed: Less state control, a weakening of collegial academic decision-making plus the introduction of competition increased market mechanisms, required a more professional management, and the involvement of stakeholders in strategic decision-making. A strengthened steering core is the result of these developments. In quite a number of European countries, the vice-chancellors are no longer elected from among the group of professors but are appointed, often from outside and often by the board. A number of European organisations have by now established
training courses for newly appointed members of institutional leadership (down to the level of deans) to provide them with skills and competences necessary for professional management.

Some elements of a diversified funding base are represented in outreach activities which promise to generate institutional income. This might eventually lead to an expanded developmental periphery. This can be applied research in cooperation with industry or the establishment of science and technology parks to provide opportunities for spin-offs and start-ups but also a heightened emphasis on continuing education provisions. Newly established transfer offices have paid increasing attention to opportunities for commercialisation of research results in forms of patents and licenses or royalty income. These activities may start on a small scale but are then supported to develop further by locating new sources of funding, becoming larger scale forms of collaborative research and eventually leading to major long-term returns (Clark 1998: 71).

The lack of state funding which many European higher education systems have experienced in the course of expansion from elite to mass higher education systems has led to the development of new ideas to generate institutional income and acquiring a diversified funding base. Not all European countries have decided to introduce or increase tuition fees (e.g. Austria, Germany, the Scandinavian countries), but the American practice of fostering alumni relationships in order to acquire private donations and endowments has taken hold. Furthermore collaboration with industry in research has contributed to additional research income. But also professors were asked to attract more third party funding for their research and become more active in competitive bidding. Frequently large-scale interdisciplinary research centres have been established outside the traditional department or faculty structure. In addition, many European countries have introduced full economic cost calculation for external research funds. That means that third party research funding has to include all relevant overheads which the university used to cover itself when sufficient state funding was still the rule.

The fourth element of an entrepreneurial university is a stimulated academic heartland. Clark defines this as the departments and teaching units in which traditional academic values are rooted (Clark 1998: 7). Here the greatest level of resistance to the introduction of an entrepreneurial culture might be encountered. However, budgetary autonomy of the basic units achieved through decentralised lump-sum allocations can enable forms of self-regulation which lead to distinctly entrepreneurial directions. Through budgetary and investment management the basic units can pursue the acquisition of research grants and other forms of income from a variety of funding organisations and through a variety of activities.

The final element, an integrated entrepreneurial culture, implies that an entrepreneurial spirit and a sense of forging ahead are pervading the whole institution. Clark’s example is the University of Warwick in the 1980s. It implies a reorganization of departmental and administrative activities, creating new units in cooperation with business and industry and expanding the developmental periphery.

However, Clark takes care to stress that “entrepreneurialism in universities is not synonymous with commercialization” (2004: 502). Entrepreneurial universities are flexible and creative regarding sources of funding. Any one of the five crucial elements may become a catalyst and require further reorganization before any progress can be made. The
important issue is that entrepreneurial universities are in a state of continuous change in order to adapt effectively to changes in society (Clark 2004: 501). But a functioning entrepreneurial university also requires the ideas, cooperation and efficacy of the people involved at all levels in order to maintain its entrepreneurial momentum.

The concept of the entrepreneurial university has been criticised as well for its tendency to focus on market-like behaviour and on relationships with industry and business. Subotzky (1998), reminding us of the idea of education as a public good, proposes to focus more strongly on community partnership programmes and universities being publicly funded should do something in return for the public good.

Let’s leave it with this and turn to the last concept I want to introduce here, the concept of the network university.

3.3 The network university

The concept of the network university implies that the idea of the university “as a single concept has diminished in the face of multiple missions and visions of higher education and research” (Enders et al. 2005:75). In particular in the face of growing competition universities are seeking for strategic partnerships and alliances, research is being carried out increasingly in larger and more interdisciplinary groups, and exchange of students is organised among carefully selected partners. Both internationalisation and globalization have contributed to a growing sense of interconnectedness and networks have become a mode of coordination of multiple actors in multi-level governance arrangements. Activities do no longer take place within the individual institution but are shared among and part of larger networks of partners cooperating with each other, including public-private partnerships.

Westerheijden et al. (2005: 100) described the student experience in such network universities as a “cross-national journey with diversified, modular programmes”.

According to Ferlie, Musselin and Andresani (2008: 336f.), network governance has developed as a reaction to two problems: the high transaction costs of new public management approaches and the inability of these approaches to deal with the complexity of the ongoing processes of transformation. Network governance includes a larger number of actors, it emphasizes lateral instead of vertical forms of management, and it requires a decentralisation of power from the top to the bottom. Networks develop the ability for self-organisation and self-steering through interdependence and interaction of the network partners and can produce complex goods, e.g. knowledge, cognition, or education. Finally, networks are instruments for the coordination of collaborations, consortia, and
strategic alliances. European examples are the “League of European Research Universities” (LERU), “Universitas 21” or the “Coimbra Group”. However, there are also individual universities promoting an image of being a network university. New York University has launched its image of being a “Global Network University” and the Free University of Berlin became one of the winners of the German Excellence Initiative with its concept of becoming an “international network university”. Both these examples are based on the belief that ideas have no boundaries and that the world is increasingly integrated. In their research on networks Olmeda-Gomez et al. (2008: 17) came to the conclusion that universities play a “pivotal role in the establishment of cooperative networks”. Combined with the growth of networks that could be observed in recent years this indicates a development towards the network university.

However, the concept of the network university has also not remained without criticism. One of the main issues is how national state control can be exercised over state institutions being increasingly involved in transnational network collaborations. Should universities as dominantly state funded public sector institutions be given free reign? Can they still guarantee then that they are working for the common public good?

**4. About trust**

In many European countries there used to be a shared societal consensus that higher education institutions where doing a good job and were best left in peace more or less. This was based on a normative form of trust which in turn was based on a relatively stable set of norms, values and beliefs. For sure different higher education institutions had a different reputation but a common identity, history and shared beliefs formed the backbone of a social contract between higher education institutions and society which has been replaced in recent years by forms of control, supervision, and accountability replacing the normative forms of trust with an instrumental form (cf. Stensaker & Gornitzka 2009). Procedures, standards, rules and regulations have been established to provide evidence that higher education institutions could be trusted. Quality was doubted as long as it was not proven by metrics and compliance to standards. If asked what triggered this change I would probably say that it was a combination of funding crisis intertwined with a crisis of legitimation in quite a number of European countries. I think it is time to work on re-establishing at least some amount of the normative form of trust together with a new social contract between higher education institutions and its stakeholders. Communication, interaction and dialogue are essential ingredients in this undertaking. Or, as Stensaker and Gornitzka (2009: 138) so aptly stated: “What is needed is to find a more proper balance between the instruments available to create trust and opportunities for developing stronger normative trust in the system. […] A key and remaining condition for trust in higher education … is that the academic community and the institutions that house them adhere to professional academic standards.”
5. Conclusions

It would be relatively easy to say that the majority of ongoing trends point into the direction of the neo-liberal entrepreneurial university. But of course this would be too easy. I hope that I made it clear that further research as well as public debate is needed. Furthermore, the open questions can not be answered if we base our arguments on only one of the approaches. Structures, systems, and ideologies have to be taken into focus at the same time and on different levels (national, regional, institutional).

All concepts that I have introduced here are based on the question what could be unifying idea for the University of the 21st century. Going even further we could ask whether we still need a unifying idea. In recent years new governance theories have promoted the shift of the university from being an institution to becoming an organisation in order to acquire actorhood. But then again: what would be an appropriate organisational model for the university of the 21st century? New Public Management approaches have tended to rely on the organisational model of private enterprises and businesses. But research has shown that the instruments do not have the same effects everywhere and that adaptation is frequently only superficial while traditional academic values, norms, and beliefs continue to exist on the micro level and determine the activities of the actors. Researchers have frequently emphasized that universities have to be considered as “specific organizations” (Musselin 2007). Becoming an organization does not only require membership and close coupling but also shared goals, i.e. an identity. And a good part of that identity was lost once the societal consensus about the idea of the university and with it the forms of normative trust had broken up. However, identity is not only constructed by the profile or image of an organization. It is also necessary that the members of the organization identify with it. For universities to become organizations and with that more autonomous actors it is most important to focus on the relationships between the organization and its members. But the academic profession in Europe continues to identify more strongly with their respective disciplines and scientific communities than with their university. Which form of management is required to develop a higher degree of organizational identification of the academic profession is still an open question and an issue for future debates and research.

Note: I gratefully acknowledge the contribution of Amanda Schimunek to part 3 of this presentation.
Literature


Charging into the future towards the year 2031, vice-chancellors and rectors everywhere must dodge shots fired from all sides: from students and their parents protesting rising fees, employers criticising relevancy of the curriculum, governments lamenting cost blowout, faculty protesting salary levels and conditions, and populist commentators predicting the end of the university as we know it. One could not be blamed to think that by the year 2031 higher education generally and the university specifically will be obsolete. But in my opinion, the reality is far different.

Higher education has not become irrelevant to modern society. In fact, many of the challenges higher education faces today and into the future are due to its very success, not failure. With the rise of the global knowledge economy and massification of student participation, higher education has become the key social institution driving innovation for social development and economic prosperity. Higher education produces both the knowledge workers/human capital necessary for nations to successfully compete in the global knowledge economy and
the fundamental intellectual capital driving innovation itself. Once serving only a small elite segment of society, higher education has become a social institution too important to be left alone by government, policy-makers, politicians and society generally.

Most governments and politicians acknowledge the importance of the relationship between research and innovation leading to economic productivity – frequently based on an overly simplistic understanding of the dynamism of this relationship I might add. The impact on innovation of much of the scientific research coming from the academe often takes years to become apparent, whereas politicians have a three-to four-year time horizon at best. But witnessed by the emphasis placed on global university rankings and the rhetoric concerning building world-class universities, the political importance of the role of the research university to economic and social development is likely to increase substantially in the coming decades.
The danger is that too much emphasis (and funding) is placed on short-term applied research considered to have the potential for immediate and significant economic return. Applied research is of course important, but the enduring contribution of higher education to innovation for development and economic growth is based on long-term, fundamental/blue sky research the significance and impact of which may not become apparent for years if not decades into the future. Moreover, short-sighted policies based on linear notions of research leading to innovation often ignore the importance of “public good” research (such as some areas of cancer research) that have little or no scope for yielding profits. Social science research too suffers from overzealous notions of research for wealth production and the overall commodification of knowledge as funding is directed into the “hard” sciences and technologies. But the big questions facing society globally, such as climate change and the spread of infectious diseases, require a multidisciplinary approach from scientists and social scientists alike.

Science itself has become a global activity. Scholars have always been mobile from around the 12th century onwards. But scientific mobility is being institutionalised on a global scale. Increasingly, scientific collaborations cross national borders and continental boundaries. Moreover, citations and other measures of impact are greater when researchers collaborate internationally. Sole authorship or authors from a single institution now constitute only about one-quarter of scientific papers currently published, with the trend toward significant increase in the number of international collaborations. Not only is the trend towards a greater number of international collaborations in the production of scientific papers, but also participation in international knowledge networks is fundamental to national ability to successfully compete in the global knowledge economy.

Higher education institutions – research universities in particular – are key institutions in promoting and sustaining scientific mobility and international knowledge networks. Despite the growing heterogeneity of knowledge producers, universities remain the key resource for scientific human capital accumulation and serve as hubs for international research networks, in addition to being research dynamos in their own right. The increased importance given to knowledge as the key factor of production and economic growth has led to increased policy interest in issues related to availability and access to knowledge.

International student mobility also has increased substantially over the last decade or two and is likely to expand further. Many of the highly mobile scientists of today were previously international students, particularly international PhD students. As knowledge production as the key driver of economic growth becomes further entrenched, competition amongst nations for the best and brightest students and academic staff will surely increase in coming decades – what has been termed by some as an academic arms race. The competition will be exacerbated in many countries which have a large number of aging academics reaching retirement age.

In the future, the development of higher education will largely be led by those at the apex of a higher educational hierarchy – that is, the well-resourced research universities. One needs to keep in mind that competition amongst
higher education institutions is all about prestige – competition for other resources are secondary matters. And the well-endowed research universities have and always will win the prestige game. That said, every nation cannot afford to fund all of its higher education institutions at the level of research universities – a division of labour amongst higher education institutions is required. No nation can afford not to invest in its research-intensive institutions; but neither can a nation ignore support of other types of higher education institutions, many with a more specific focus on professional and vocational education. So far, however, few countries have been successful in constructing and sustaining effective and rational diversified higher education systems. But in the future the question of how best to create and sustain diversified, world-class higher education systems will become just as important as issues concerning standalone world-class universities.

Impact of technology:

- Advances in information technology will have an impact on how societies shape the institutional diversity of their higher education systems. Already, many countries have well-established higher education institutions devoted to delivering education at a distance through various forms of information technology. But what we are witnessing today is a blurring of on-campus, face-to-face educational delivery with that of distance education.

Advances in information technology will have an impact on how societies shape the institutional diversity of their higher education systems. Already, many countries have well-established higher education institutions devoted to delivering education at a distance through various forms of information technology. But what we are witnessing today is a blurring of on-campus, face-to-face educational delivery with that of distance education.

While I see a more positive future for higher education than some commentators, higher education is not without its problems and shortcomings. Prominent amongst these is the issue of management. Nearly everywhere, notions of market-competition, neo-liberalisms and New Public Management have informed how higher education institutions are led and administrated. Unarguably, large research universities with billion dollar budgets require strong management, and the professionalisation of university administration in most if not all jurisdictions is a highly observable phenomenon. Moreover, possibly universities are better managed today than say two or three decades ago. However, there is now an observable rift between management prerogatives and academic norms and values in many institutions. Orthodoxy had it that university administration was the servant of the academic enterprise. While probably this was never entirely true in practice, universities may have gone too far in the direction of reversing the situation by making the academic enterprise the servant of management, threatening the life of the academic goose that lays the intellectual golden eggs. Higher education institutions cannot be successfully managed like other organisations. They remain professional bureaucracies, and managers and leaders violate basic academic norms and values at their peril. The challenge for the future will be to ensure sound leadership and management of higher education institutions that simultaneously
nourish the norms and values of the academic enterprise.

Other challenges higher education must face as it moves into the future include maintaining a global presence and reputation while responding to local needs and demands. Increasingly, universities are expected to play a role in regional development. This involves economic, social and cultural development in the area around the university. It also draws on the idea of the university as a leading organisation in a civil society. Somewhat paradoxically, it seems that institutions with strong global connections make more substantial local contributions. This is because more globally integrated organisations are more dynamic, have more resources and are open to new ideas.

As the trend towards mass to universal participation in higher education continues in most countries, institutions will need to further develop strategies to deal with students coming from increasingly diverse backgrounds and experiences. One area requiring substantial reform is doctoral education, where in many jurisdictions the majority of PhD graduates will not pursue a research career in academe. These students need a broader education then the apprenticeship model on which many PhD programmes are currently based. With universal participation, higher education qualifications lose their scarcity value – nonetheless, such qualifications will be a prerequisite for meaningful employment in the knowledge economy. Thus, a political significance equivalent to that which pertains to secondary education will be attached to higher education.

Many more challenges with which higher education institutions must cope now and into the future could be listed. But if we take a historical view of the development of the university (and other higher education organisations) over the last 800 years we see an institution that has quite successfully evolved and adapted to dramatic and often rapidly changing environmental circumstances, while preserving many of its traditional academic values. There is no reason to seriously question that such adaptation will not continue into the future. Nonetheless, these institutions must be adequately resourced and protected from undue political interference if they are to flourish.

The global dimension to higher education is here to stay, and will increase further in importance to the year 2031. Nonetheless, higher education institutions are and will remain national institutions, subject to national values and culture. Those nations that regard expenditure on higher education as an investment in their future prosperity – economic and social – are likely to thrive; those that regard it as a cost are likely to be disenfranchised.

"The global dimension to higher education is here to stay, and will increase further in importance to the year 2031"
The University by 2031?

Let’s think about the shape and structure of the university and of the delivery of higher education some fifteen years from now, and let’s do so using three sets of inter-locking and overlapping words/concepts, nine in all: massification, managerialism, marketization; commercialisation, competition, corporatism; deficits, departmentalism, distance/digital-learning...

**MASSIFICATION**

There will be continuing global growth in student numbers; and ever-increasing international flows of students – with English as the lingua franca of teaching. There will also be in almost all countries a national growth of student numbers as the age-participation rates top 50% - except in some countries with adversely ageing demographics. But a major issue will be how to finance this growth and continued MASSIFICATION? Will States facing continued austerity in the context of global s/low economic growth, even perhaps deflation, be able to fund expanding HE as a public good/service; or will the taxpayer retreat and HE be increasingly funded by students/families via tuition fees? Will public money be reinforced by private investment via fees, or will HE in some nations just decline into be an over-crowded, under-funded mediocre public-squalor activity?

**MANAGERIALISM**

The likely organisational pressures in managing the university in the context of expanding student numbers but declining Government funding will put a premium on efficient and effective institutional management. The idea and ideal that the faculty lunatics can be in charge of the academic asylum will retreat yet further. Collegiality and shared-values/governance will give more ground to MANAGERIALISM and to Corporatism.
MARKETIZATION

As the public good concept of the university and delivery of HE as a public service fades and is replaced by HE being seen more as a private consumption and positional good, the reality of universities operating within a market-place will become dominant in any economic analysis of HE. Universities will need to embrace this process of MARKETIZATION and all that it involves: notably, students-qua-consumers as fee-paying customers, and also Commercialisation and Competition. In many ways this future will be a return to the past, when once universities were funded by a mix of tuition fees, charitable donations, and government aid – the last component being negligible until the 1920s or so, but crowding out the other two by the 1960s in post-War Welfare State countries (and even to an extent in the USA); the leaner State of the C21 will not necessarily see HE as needing to be within its remit, just as there have been varying degrees across nations of the privatisation of activities previously assumed to be absolutely the function of the State – gas, water, electricity supplies; telecommunications; trains or buses, and airlines or ferries; health-care and social-care; schools. Is there really a magic and optimum balance of public-private funding of and delivery of HE in public policy terms? – 90/10, 75/25, 50/50, 25/75, 10/90? Already different nations are at very different points on that spectrum, yet seemingly without discernable difference in whatever may or may not be the effective contribution of HE to economic progress and growth by way of supplying human capital via the teaching function of HE and/or by way of the creation of intellectual property via the research function of HE – leaving aside the assumed but fuzzy contribution of the university to culture, civilisation, social well-being.

COMMERICALISATION

The university operates in the HE market (see Competition below); or rather in multiple markets – markets in undergraduates, in taught-masters graduates, in research graduates, in winning research funding from Government, in undertaking consultancy and training for businesses, in carrying out research for businesses. In some countries this process of the COMMERICALISATION of the groves of academe has long been evolving. Notably, in most countries there is the financing of the university’s business/management school via high-fee MBA courses or by selling expensive consultancy and executive-training. In many countries, however, the idea of a specific new market in fee-paying local undergraduates will be scary and probably politically unpalatable (compared to the usual willingness among universities to enthusiastically embrace a lucrative market in international high-fees undergraduates as a means of compensating for meagre public funding). Commercialisation needs and involves sharper management of the university.

Universities will need to embrace the process of MARKETIZATION

COMPETITION

Markets involve more explicit COMPETITION between universities and also the segmentation into a more overt and acknowledged hierarchy of institutions where once it was alleged and assumed that all universities were the same in terms of status and brand-value. Competition in the context of Commercialisation and Marketization puts an emphasis on the university having new skills and competences within its Senior Management/Leadership Team, and this will be an expanding Team as
such posts as these are added to such as the existing Director of Finance, Director of Estates, Director of HE, all already reporting to the Rector/Vice-Chancellor as now explicitly a CEO: we see now the arrival of the Director of Press & Media, the Director of Marketing, the Director of Research, the Director of Teaching Quality & Learning Enhancement – and perhaps before long even a Director of Compliance as State regulation of the HE market stresses the consumer protection laws applicable as the student pays significant tuition fees and becomes an assertive customer seeking value-for-money. In all this, Competition may grow and be fierce from the for-profit, more customer-responsive traders in HE who compete on price unencumbered by old public-sector, vested-interest, producer-focussed practices in the traditional sector of HE and also that might emerge as global brands for the efficient delivery of vocational HE with which traditional institutions are unable to compete in terms of cost-structure, fees/prices, innovation, flexibility. And, in fact, the organisational differences between the new for-profits and the historic ‘public’ providers of HE will merge as the latter sharpen their delivery in the context of a competitive market-place and reduced Government funding: State-funded/owned/controlled becomes State-aided becomes merely State-located.

**CORPORATISM**

The modern public or quasi-public university has over recent decades in most countries slid towards becoming much less an entity imbued with traditional collegiate ideals or shared-values in its governance and management, and much closer to being top-down and corporatist in its style and tone. Such CORPORATISM goes along with Managerialism and the steady shifting of power and authority from the faculty as the medieval academic guild to a Senior Management/Leadership Team led by a highly-paid CEO VC/Rector and to an organisational model familiar within the commercial world, a process some see as justified on the basis that the institution must become speedier and more focussed in its decision-making so as to operate effectively in the context of Commercialisation, Competition, and Marketisation. Yet in some respects this is often simply a retreat from a Golden Age of Donnish Dominion where academics were the dominant force within the university in the immediate post-War decades (and especially in the newly-created universities of the 1960s) - and so back to an era where either the local lay community in the UK context or the representatives of the State in the wider European and of the States in the USA context were firmly in charge of the new institutions created from the middle of the C19 and on into the early-C20. And all as compared to a still pure and idealised collegial/guild model of governance in the Oxford & Cambridge autonomous colleges where there is no lay input at all, and to an (albeit decreasing) extent in the two Universities of Oxford and Cambridge (where Corporatism and Managerialism are now threatening the status of dondom).

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**Nine key concepts of Higher Education in the next fifteen years:**

- Massification
- Managerialism
- Marketization
- Corporatism
- Commercialization
- Competition
- Deficits
- Departmentalism
- Distance/digital-learning...
**DEFICITS**

Inadequate management in the competitive market-place(s) of big-business massified HE will lead to unsustainable DEFICITS that may well trigger the merger of institutions and even the take-over of traditional ‘public’ universities by the for-profit providers, some backed by aggressive and expansionist international private equity investors. The financial pressure, even if destructive deficits are avoided, will result in worsening conditions for the employment of faculty – in their continued deprofessionalisation and always more teaching being delivered by casual/adjunct academic staff, and hence also a reduction in the shared-governance power of faculty compared with university managers and the Senior Management/Leadership Team. Universities will become steadily more corporatist and less collegial. And less congenial for faculty as the Age of Donnish Dominion draws to a close, its Golden Days having been the State-funded expansion of HE in the 1960s - except that perhaps for some 50 or so global-elite, world-class, research-focussed universities competitively exchanging staff and students within a fairly closed system of similarly attractive employment arrangements, salary structures, and working-conditions, where life will remain sweet (if pressured, stressful, and competitive) for the successful research-productive professor.

**DEPARTMENTALISM**

The university at the micro-level, as with the HE sector’s hierarchical segmentation at the macro-level, will become more organisationally fragmented. Faculty will be teaching-only or research-only, sometimes both – with new employment contracts created; university units will be T-focussed or R-focussed, finding it difficult to balance both; some, indeed most, institutions will have to come to terms with being T-only, or at least not being funded as R-active. In short, there will be DEPARTMENTALISM within HE activities and institutional missions, compared with the idealised university happily balancing its supposedly crucially inter-linked knowledge-creation and knowledge-dissemination objectives, and sparing resources for a bit of effort to support the local economy, to being a friendly critic of and conscience for society, to generally contributing to culture and civilisation.

**DISTANCE/DIGITAL-LEARNING**

One way for the university to control or even reduce costs and hence fee/prices, besides greater administrative efficiency and the casualization of the academic labour force, is innovation in the delivery of HE. Can C21 HE achieve a productivity break-through last seen with the invention of printing in the early-C16? Could three and four year first degrees be compressed by a year or more to save students’ living-costs and opportunity-costs in not being employed? Might teaching happen all year around instead of infrastructure lying idle for the summer months? – as needed and justified long-ago while students at medieval Oxford or Bologna slowly travelled home to help with the harvest! Will we see at last the DISTANCE/DIGITAL-LEARNING productivity breakthrough talked of in HE for decades? Will MOOCs achieve what the video and then the university intra-web of lecture notes have not yet achieved? Might never again a dull professor have to teach Calculus for Engineers to a collection of bored undergraduates in a stuffy lecture-theatre at 9am on a wet Thursday morning because the latter can be in bed with the Calculus MOOC on their laptops or ipads while the former has been replaced by a photogenic sun-tanned enthusiastic Engineer.
from Stanford? Or will faculty Luddites ensure the new technology by way of MOOCs does not lead to the sort of disruptive innovation seen in other industries to the then benefit of consumers? And, even if academics can’t stop such progress, will HE management pass on any cost savings as reduced fee/prices, or will the money be used to fund administrative-bloat by way of higher salaries and an expanded SMT of fat-cat Directors of This & That?

……………………………………..

Or will there be by 2031 a new Golden Age for the university in Europe at least as the EU decides it has a ‘competence’ in HE and duly harmonises HE delivery and the university model across all the Member States – as well as miraculously finding funds through ever-more taxation (or borrowing) to finance the university as universities and all those working within them believe to be their right as uniquely special and valuable contributors to Civilisation?

“Hoizon 2031. The University of Granada in Light of its V Centenary. “Reflections on the Future of the University”

The university at the micro-level, as with the HE sector’s hierarchical segmentation at the macro-level, will become more organisationally fragmented
History of higher education and representing it institutions – principal one being the university, has demonstrated that it is indispensible factor for economic, social and cultural development of society. Not to mention the benefits for an individual. At the same time an existentialist question is being asked: “what are universities for?” and probing traditional ways of operating. While searching of concrete answer to this question will depend on the national and local conditions, it is nevertheless important to have a broader perspective about development of higher education and challenges determining its role in society. This text has been written with such scope.

It is a common understanding that at present time but even more in the years to come, higher education will continue to assert the central importance of universities. It is a consequence of a whole series of reasons out of which the most prevalent being: emergence of “knowledge-based economies”, globalization and new wave of information technology and digital communication.

There is sufficient evidence about renewed attention to higher education as no country can afford to neglect its higher education, as higher education institutions are the largest and unique contributors to the development of human capital and innovative products. In other words, the university is seen as both a powerhouse and a nursery essential for economic development and social advancement. Not less important, and very likely even more than till now, is that universities, by teaching and research, are also conserving and extending the intellectual, scientific and cultural heritage of society and transmitting it on to future generations.

The following are five milestones of a “new landscape” in which universities are defining its mission.

* Text of this essay is based on keynote speech at the Segundo Congreso Universidad y Cooperación IESALC - UNESCO y 6a Reunión de Redes y Consejos de Rectores de America Latina y el Caribe, 15-17 October 2014, Bogota, Colombia.
1. Massification of higher education

World average of student enrollment is today around 20-25% of young population [cohort 18-24 years old]. In a growing number of countries it has already reached 40-50% of the young population. Some countries envisage further increase of student enrollment. It should also keep in mind about imperatives of life-long learning, which generates new type of educational demand. To this should be added a growing concern with regard to level of student debt, particularly in countries with high tuition fees. Questioning of mass-access to higher education, which does not lead to better positioning if its graduates on the labor market is growingly brought to the policy debate.

2. Number of higher education providers

It has never been easy to provide internationally comparative data on student numbers but it has been even more difficult to give the exact number of higher education institutions. The most reliable and comprehensive global database on institutions of higher education, which is produced by the International Association of Universities (IAU), covers almost 17,000 degree-awarding institutions. Whatever the actual number is, it is quite evident that it is impressive one.

All this creates the need for information, which can facilitate decisions concerning a place of study, or indicates a relative value of a diploma awarded by the given establishment. The steadily increasing number of students studying abroad also contributes to a demand for such information.

3. Impact of new information technology and Internet on teaching and learning

The days of teaching based on use of what symbolically could be described as “chalk and blackboard” belongs to history. Use of on-screen projection systems, video streaming, visualizers and electronic blackboards are now common classroom aids. Not to mention a pragmatic change, which in an osmotic way has changed the way students take notes, learn, take test, write papers, communicate with teachers, etc. We are all working more and more in an "on-line/virtual" environment.

But apparently there are big changes on horizon, which might bring about major modifications in a historical model of the way higher education has been done. Some go even so far as foreseeing the need for “reinventing the university” [see the recent cover story of The Economist]. This new attention has been sparked by a new developments in online teaching - offering courses to a large number of interested learners worldwide via the Internet or tablet applications, known as MOOCs (Massive Open Online Courses).

The excitement reached high when in 2012 three MOOCs start up were launched: edX, a non-profit provider run by Harvard and MIT, Coursera, partnered by Stanford University, and Udacity which is for profit founded by professor of computing Sebastian Thurn.

Proponents of MOOCs foresee that impact of potent “disruptive technology” will kill off
“cost inefficient” middle-tier universities. Proponents of MOOCs see those opposing MOOCs as a kind of “Learned Luddites.

There is no doubt that MOOCs brought “new blood” to online courses. Not only detractors but also an overwhelming majority of faculty and academic leaders are quite skeptical about the lasting systemic impact of MOOCs on higher education. And the list of problems with MOOCs is quite long one:

- academic and cultural value of a class taught face-to-face;
- college experience as creator of social capital;
- examination and credit-recognition of the on-line course;
- high dropout rate;
- teaching in front of camera; and
- real cost and its recovery.

Those with representing a more balanced view about on-line delivered course see above mentioned problems but also point out to advantages of such mode of teaching [labeled as adoptive teaching and learning platform]: reaching new category of potential and former students, diversification of courses and “force multiplier” for modernization of curricula and teaching by development of hybrid courses that contain both face-to-face and online components will have a positive impact on higher education.

4. Higher education increasingly transcends national boarders

According to OECD estimates approximately 3.7 million tertiary level students studied outside their home country in 2009. This number may reach 7.3 million by 2025.

From an academic point, the internationalization of higher education is an important and positive influence on learning environment of students. Besides the immense personal value for international students who have the means to pay for their education abroad, the presence of greater cultural diversity on campus benefits the broader student population, helping to broaden democratic values, ethics, broaden dialogue, and mutual understanding.

A significant number of universities are actually directly involved international relations by entering into relationship with partners in other countries [dual degrees, joint study programs, collaborative research projects, creation of branch campuses, etc.].

In Europe, a political agenda has emerged that has made higher education more international in its scope, with scholarships for international students, and the acceptance of disciplines and courses taken in another country (the Bologna Process, Erasmus Mundi).

Number of governments is actually seeing extensive international engagement of universities and colleges as part of public
5. Scientific research: a global, highly competitive, costly and economically relevant enterprise

According to a study which was done in 2011 by The UK Royal Society entitled “Knowledge, Networks and Nations: Global scientific collaboration in the 21st century”, today there are over 7 million researchers around the world, reading and publishing in around 25,000 scientific journals (1).

There is no doubt that most of the scientists and research work is done in higher education institutions. Building and maintaining world-class research capacity requires very substantial financial resources. In addition, processes linked to or deriving from globalization, made research, not only a curiosity-driven and organic part of the university’s mission, but a highly competitive activity. Increasingly, only works that meets international criteria of excellence is gaining recognition, generates funding and contributes to reputation of the given university or research team. Therefore, international presence is a key dimension of research-oriented university. In this environment information about the research performance that help university leaders and science policy makers to set strategic goals, allocate budgets, and select collaboration partners is crucial. And preferably, without spending too much time wrestling with questions about data interpretation. This is one of reasons behind present attention given to academic rankings.

Importance of university research has been reinforcing due to the fact that “knowledge”, “innovations” and “intellectual creativity” is the most effective “renewable energy” of the 21st century economic growth. This is why a growing number of countries are investing in higher education in order to have their own globally competitive research-intensive institutions as foremost they are able to make contribution to development of new technologies, products and services. Attitudes among academic scientists are changing, as collaboration with industrial partners is no longer perceived as depreciating their academic standing. There is evidence that the level of contribution made by academic scientists in this context is significant.

The demand for highly qualified and talented students and researchers is a global phenomenon and universities are making great effort to attract such people. The earlier cited report of The Royal Society also points out about increasingly “multipolar scientific world” in which the traditional “centers of excellence”, located foremost in universities in the North America, Japan and Western Europe, compete and collaborate with new players such as China, India, Brazil. Progress is also noted in some countries in the Middle East, South-East Asia and North Africa.
“Importance of university research has been reinforcing due to the fact that “knowledge”, “innovations” and “intellectual creativity” is the most effective “renewable energy” of the 21st century economic growth”

Concluding remarks

The above-presented developments have profoundly altered the role and functioning of higher education. What is also significant is that these developments can be observed practically in all parts of the world, evidently in a varying degree for different type of institutions, level of economic development and specificity of a given country or region.

One area in which we observe important changes concerns relations between the state and higher education. As higher education becomes increasingly important to a growing number of stakeholders, the state, which by its very nature represents an array of stakeholders, has opted in steering its relations with the university based on “accountability” encompassing a variety of objectives and parameters of performance and efficiency (2). We can speak about a shift from self-declaration and self-established standards to external verification of quality based on a multiplicity of criteria.

The consequence of this shift is a need of shared basis for evaluation as well as readable information by diversified stakeholders about quality of higher education institutions and their activities. No less important is that most of the stakeholders do not have a sufficient capacity to undertake a fully-fledged analysis of the complexity of internal workings of a particular university. The need for straightforward information, even if not comprehensive, is quite evident. And in a broad-brush way it is what academic rankings are doing and why in a relatively short period of time they become an entrenched phenomenon in evaluation of quality and performance of higher education.

Emergence of mass higher education on the global scale is one of few good things, which has been accomplished at the beginning of 21st century. But it should be noted that an important consequence of this development is that it creates enormous pressure on the infrastructure of the university and brings new dimensions in management and administration of staff and students. Nowadays, even a mid-size university is a complex organization, which necessitate professional governance and management. For the time being a dominant model of governance in European universities, in which “running the university” is an integral part of academic corporatism. But it is also a highly dependent on public funding. A latter one
One of the key characteristics of modern higher education is presence of research. This presence originates from a model of the university introduced in mid-19th century by Alexander von Humboldt, in his reform of the University of Berlin. The main argument of this model is existence of a mutually reinforcing link between “research” and “teaching”. The so-called Humboldtian model is not an altogether obsolete but it does reflect only a certain type of higher education institution which is referred to as the "research university" and due to place of research has to be international and preferably meeting characteristics associated with the so-called “world-class university” model. This is the model that the academics prefers and provides many arguments for retaining it. But is this the only type of higher education institution that is needed in modern system of higher education? Taking into consideration the importance of research in present and future society comes an obvious answer – at least ONE. But can we afford, and even more important do we need all institutions to be "research intensive". The answer is NO. Consequently, most of higher education institutions have to diversify their missions. This does not mean that they should be entirely divorced from any research or scholarship activities even if it is not a cutting-edge endeavour. In fact, higher education, or should we say the society, needs various types of institutions of higher learning. In other words “there is room for everyone”.

Higher education made tremendous progress in expanding access and increased its educational offer. But many challenges remain. Especially as we witness cultural, demographic and technological shifts that are occurring outside higher education. Higher education does not merely benefit individuals or contribute to countries' economies but is a 'global public good' with the potential to solve major global problems and lift people out of poverty. In this context, the university is indispensable partner to deal with major problems of current and future society.

References


Knowledge has become a fundamental component of economic and social development. In this context, tertiary education plays an essential role in building a strong human capital base and contributing to an efficient national innovation system. Tertiary education institutions help countries build globally competitive economies by developing a skilled, productive and flexible labor force and by creating, applying and disseminating new ideas and technologies.

High-performing tertiary education systems encompass a wide range of institutional models—not only research universities but also polytechnics, liberal arts colleges, short-duration technical institutes, community colleges, open universities, and so forth—that together produce the variety of skilled workers and employees sought by the labor market. Research universities play a critical role in training the professionals, high-level specialists, scientists, and researchers needed by the economy and in generating new knowledge in support of the national innovation system. In this context, policymakers are keen to see their top universities operating at the cutting edge of intellectual and scientific development.

With the 2003 publication of the first international ranking of universities by Shanghai Jiao Tong University and the subsequent emergence of competing global league tables, more systematic ways of identifying and classifying world-class universities have appeared. As a result, often for reasons of national prestige, a major concern of governments in a growing number of countries has been to find the most effective method for inducing substantial and rapid progress in their country’s top universities. While a few nations—Kazakhstan and Saudi Arabia for example—have opted for
Knowledge has become a fundamental component of economic and social development.

Establishing new universities from scratch, most countries have adopted a strategy combining mergers and upgrading of existing institutions. In order to accelerate the transformation process, a few governments have launched so-called “excellence initiatives”, consisting of large injections of additional funding to boost their university sector.

The purpose of this article is to explore the impact of excellence initiatives on the universities involved as well as on the tertiary education system overall. The first section analyzes the main features of excellence initiatives while the second part examines their achievements and limitations.

Characteristics of excellence initiatives

As epitomized by the German case, an “excellence initiative” in tertiary education can be described as a large injection of additional funding by a national government, aimed at upgrading existing universities in an accelerated fashion. Table 1 gives the detailed list of countries having launched some form of excellence initiatives, divided into two periods, first the 15 years between 1989 and 2004 when the expression “excellence initiative” was not used as such, and second the last decade up to 2014. The comparison between the two periods reveals a dramatic increase in excellence initiatives since the publication of the Shanghai and Times Higher Education global rankings in 2003 and 2004 respectively, reflecting the growing interest of national governments in the development of world-class universities.

Table 1 – Geographical Distribution of Excellence Initiatives

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<td>Asia &amp; Pacific</td>
<td>Australia, China, Hong Kong, Japan, New Zealand</td>
<td>China, India, Japan, Malaysia, Singapore, South Korea, Taiwan, Thailand</td>
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<td>Europe</td>
<td>Denmark, Finland, Ireland, Norway</td>
<td>Denmark, France, Germany, Luxembourg, Norway, Poland, Russian Federation, Spain, Sweden</td>
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<td>North America</td>
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Source: Elaborated by the author
These tables show that only a few countries had an early vision of the importance of upgrading their university system in the 1990s, including the Nordic nations, Canada, China, Japan and South Korea. The recent excellence initiatives come mainly from East Asia and Western Europe. Latin America is surprisingly absent from this movement, considering the population size and economic strength of that region. The United States and the United Kingdom, whose universities have been consistently at the top of the global league tables, have not considered the need for additional financing, given their already high levels of research funding. The same applies to Switzerland, where the successful upgrading efforts at the two polytechnic universities, E.T.H Zurich and E.T.H. Lausanne, have taken place within the existing generous resource envelope.

In all cases, the additional funding mobilized through the excellence initiative comes exclusively from the public purse, with some innovative features in a few countries. In Germany, for example, the excellence initiative represented a partnership between the federal government and the state governments. Similarly, in the case of the Chinese initiatives (211 and 985 projects), the local governments were involved in co-financing with the national government on a fifty/fifty basis. The now-defunct Spanish excellence program was to transfer resources to the beneficiary universities in the form of a concessionary loan. Perhaps the most original financing feature comes from the recent French excellence initiative, where the funding is provided through a large endowment (9.5 billion US$) whose yearly yield will constitute the resources allocated to the beneficiary institutions. This financial setup offers an element of long-term financial sustainability that is absent from all the other initiatives.

Most of the times, these dedicated programs are very selective in terms of the limited number of beneficiary universities and the research focus of the transformation efforts. In their great majority, excellence initiatives have concentrated almost exclusively on upgrading the research capacity of universities. The main exception was Taiwan, which established a specific program to improve excellence in teaching alongside its research-focused initiative. The Teaching Excellence Development Program was launched in 2005 with an overall budget equivalent to about 650 million dollars to stimulate the modernization of curricular and pedagogical practices in both public and private universities. Each of the 31 selected universities received a total amount of 21.5 million dollars over five years. A few other excellence initiatives primarily dedicated to research promotion, for example in Ireland, Germany, Spain and South Korea, also contained a funding line for improvements in teaching practices.

With respect to the stimulation of research excellence, the actual focus and locus of intervention has varied considerably from one excellence initiative to the other. In some cases, the unit of intervention is the entire university, which receives a block grant to finance its overall improvement plan. In other cases, governments put the emphasis on developing new centers of excellence and/or strengthening existing ones. The German Initiative combines both approaches with three lines of financing, one for the institutional development plan of the selected universities, one for new multi-disciplinary research clusters, and one for the establishment of new graduate schools. In the Korean case, while Phase I of the Brain 21 program supported universities as a whole, Phase II offered support to individual departments directly.
Without any exception, all excellence initiatives have been launched by Ministries of Education / Higher Education. In most cases, the Ministry partnered with the main national research agency for the actual implementation part of the initiative. This was especially important when a competitive selection process was followed, because of the detailed technical evaluation work involved. In most cases, the implementing agency relied on the technical work of specialized expert groups to assess the validity of proposals in various disciplines. During the evaluation phase of the second round of the German Excellence Initiative, for example, 37 panels composed of 457 experts worked diligently to assess the 127 submissions for new graduate schools and research clusters. The principal advantage of this approach has been to reduce political interference and to provide a more flexible management framework to carry out the initiative.

The amounts allocated in the various excellence initiatives reflect a large range of funding levels, as presented in Table 2. China, France, Singapore and Taiwan stand out as the most generous contributors as countries that have financed universities as a whole. Israel and Japan have the highest level of funding per center of excellence. The Scandinavian countries have the lowest level of financing, due to the fact that the base funding of their universities is already significantly higher than most other European countries.

Table 2 – Range of Amounts by Category of Support for Most Recent Excellence Initiative

<table>
<thead>
<tr>
<th>Whole Universities</th>
<th>Centers of Excellence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Support</td>
<td>Countries</td>
</tr>
<tr>
<td>20 million $ ≤</td>
<td>Denmark, Germany</td>
</tr>
<tr>
<td>20 – 100 million $</td>
<td>Russian Federation, Spain, Thailand</td>
</tr>
<tr>
<td>≥ 100 million $</td>
<td>China, France, Singapore, Taiwan</td>
</tr>
</tbody>
</table>

Source: Elaborated by the author
The selection process used to choose the beneficiary universities and/or centers of excellence to be supported is perhaps the most noteworthy element of excellence initiatives. In the majority of cases the government's approach has involved a competition among eligible universities with a thorough peer review process to select the best proposals, reflecting international experience that shows that a competitive funding process can greatly stimulate the performance of tertiary education institutions and can be a powerful vehicle for transformation and innovation. The peer review process involves the work of expert evaluation teams that may include only national experts, or a mix of national and international experts. In some cases, the international experts represent the majority, and for the French Excellence Initiative even the head of the international jury was a foreign specialist (former rector of a major Swiss university). The participation of international experts in the selection process tends to give an additional dimension of objectivity and credibility. In the latest round of the German Excellence Initiative, for instance, 87 percent of the experts involved in the assessment of the proposals were from outside Germany.

In the logic of this competitive process, the field is wide open at the beginning of the competition and the winners are not known beforehand, except in a few cases where the government preferred to “cherry pick” the future beneficiaries of the excellence initiative. This was the case, for example, in Thailand, where the Government identified nine universities as beneficiaries of additional funding. The Chinese experience is somewhere in the middle, combining a Ministry decision about organizing the 985 program into three categories of universities and distributing potential beneficiaries along these lines. In the Russian case, the National Research Universities program followed an open competitive approach, whereas for the Federal Universities program the Government decided unilaterally which mergers would take place and which universities would be supported, based on regional development considerations.

To conclude this overview of the main characteristics of excellence initiatives, two observations are in order. First, while the first excellence initiatives had more of an endogenous character, reflecting a long-term policy of strengthening the contribution of tertiary education to national economic development, the most recent wave seems to have been primarily induced by external considerations linked to the perception of a competitive disadvantage relative to the more stellar performance of foreign universities, as measured by the global rankings.
Second, many of these excellence initiatives mark a significant philosophical shift in the funding policies of the participating countries, notably in Western Europe. In France, Germany and Spain, for instance, where all public universities have traditionally been considered to be equally good in terms of performance, the excellence initiative represents a move away from the principle of uniform budget entitlements towards a substantial element of competitive, performance-based funding.

**Impact of excellence initiatives**

Measuring the effectiveness and impact of excellence initiatives is not an easy task for at least two reasons: time and attribution. First, upgrading a university takes many years, eight to ten at the very minimum. Since many excellence initiatives are fairly recent, attempts at measuring success would be premature in most cases. It is indeed unlikely that the scientific production of beneficiary universities would increase significantly within the first few years immediately after the beginning of an excellence initiative. A thorough analysis would therefore require looking at a reasonably large sample of institutions for comparison purposes, either within a given country or across countries, over many years. The second challenge is related to attribution. Even if a correlation could be identified on the basis of a large sample of institutions, establishing elements of causality would require an in-depth analysis of relevant case studies.

In the absence of impact analyses of the recent excellence initiatives, comparing the results of the top 200 universities in the Shanghai Ranking over the past decade (2004-2014) offers a few insights. Looking first at the country ranking based on the position of the highest ranked university of that country, few significant differences can be seen over the past ten years. At the top, the only countries with noteworthy increases (at least 8 places) are Denmark (+20), Australia (+9) and Switzerland (+8). At the bottom, China had the strongest jump, from 201-300 to 101-150. Three countries that were not present in 2004 have joined the top 200: Hong Kong, Ireland and Taiwan. Three countries saw their position decrease markedly: Austria, Israel and Italy. However, in as far as these data reflect only what happened to the highest ranked university in each country, it is hard to infer any causal relationship with the existence of an excellence initiative in the respective countries, except perhaps in the case of Beijing University and the University of Copenhagen, which both had a significant jump.

A second way of analyzing the data is to follow the evolution of the number of universities by country between 2004 and 2014. The four countries that have made considerable progress are China (26 additional universities in the top 500), Australia (5 additional universities), Saudi Arabia and Taiwan (4 additional universities each), which could be safely attributed to the sustained investment linked to their excellence initiatives.

At the bottom of the list, the main “losers” are Japan and the US, which have respectively 15 and 24 universities less among the top 500 in 2014 compared to ten years earlier. Considering that, by definition, the league tables operate on a zero-sum basis, it is inevitable that progress in some countries will have forced the exit of universities from other countries. But the evolution of these two countries calls for some speculative comments. In the case of the United States, it would be interesting to establish whether the universities that dropped out of the ranking are public in their majority, which would confirm the adverse impact of the significant
reduction in public subsidies since the 2007 financial crisis. Japan’s decline may be linked also to the financial crisis, which prevented the university sector from receiving the additional funding expected in the context of the excellence initiative, and the difficulties of most Japanese universities to make significant progress with respect to internationalization.

Conclusion

The realization that tertiary education is part and parcel of a country’s competitive advantage, together with the impetus given by the global rankings, have provoked a radical change in the way governments consider the role and importance of universities. There is growing recognition that, with proper leadership and focused investment, existing universities that have not been seen in the upper tiers of the global university hierarchy can be transformed into world-class institutions over a relatively short period. The determination of governments to enhance the performance and visibility of their leading universities has translated in excellence initiatives in many corners of the planet.

While the findings analyzed in this article can be only tentative, considering that most excellence initiatives are fairly recent, a number of risks and challenges associated with the ongoing race to establish world-class universities can be identified. First, the over-emphasis on research sends the wrong signal that the quality of teaching and learning is not important. Indeed, international rankings clearly favor research-intensive universities at the cost of excluding first-rate institutions that primarily enroll undergraduate students. In the United States, for instance, liberal arts or science colleges such as Carleton, Harvey Muddy, Olin, Pomona, Wellesley and Williams Colleges are recognized as outstanding undergraduate teaching institutions.

Second, the focus on world-class universities is likely to further promote elitism and increase inequalities in tertiary education. In the search for academic excellence, top universities tend to be very selective, which bears the risk of keeping talented students from low-income / low cultural capital families away. With a 1in100 success ratio, the Indian Institutes of Technology are the most selective institutions in the world. Similarly, the Ivy League universities are the most selective universities in the United States.

A number of risks and challenges associated with the ongoing race to establish world-class universities can be identified:

1. The over-emphasis on research sends the wrong signal that the quality of teaching and learning is not important.
2. The focus on world-class universities is likely to further promote elitism and increase inequalities in tertiary education.
3. The search for academic excellence is in danger of being thwarted by the restrictions on academic freedom that non-democratic countries impose on their universities.

Third, the search for academic excellence is in danger of being thwarted by the restrictions on academic freedom that non-democratic countries impose on their universities. While it may be a lesser constraint in the hard sciences—although government control of the Internet affects all scholars alike—it certainly
hinders the ability of social scientists to conduct scientific inquiries on issues that are politically sensitive in China, Russia and Saudi Arabia, for example.

At the end of the day, instead of focusing exclusively on building world-class universities, governments should worry more about developing well-balanced tertiary education systems that encompass the whole range of institutions necessary to address the variety of learning needs of a diverse student population.
The Weight of Databases in World University Rankings: Spanish Universities in ARWU

Introduction

With their appearance in 2003 and 2004 respectively, the most prestigious world university rankings (ARWU, THE-QS) revolutionised the landscape of higher education. Proof of this are the many technical and methodological transformations that have taken place, as well as the onset of new and diverse systems to evaluate and classify higher education institutions.

Since then, the interest aroused by university rankings has increased remarkably, especially in the case of the league tables (ARWU, THE, QS). These rankings assess different aspects of universities with several indicators which are assigned a relative weight in order to calculate a final score, according to which institutions are then ranked. The popularity of the league tables is due to the fact that they provide information that is comprehensible, simple and synthetic, facilitating comparison of Higher Education Institutions (HEI), making them an outstanding decision-making tool.

Although the purpose of these rankings is to evaluate universities at an international level, the European University Association (EUA) has pointed out two limitations in this regard: on the one hand, they only include a very small percentage of universities, from 1% to 3% of the approximately 18,000 in existence (Rauhvargers, 2011). On the other, they focus primarily on indicators related to the research function of universities, with very significant weight given to bibliometrics in the final results (20% in the QS ranking, almost 40% in THE and 60% in ARWU), which shows limited sensitivity to other university missions such as teaching or transfer of knowledge.

The design of the rankings has evident conceptual and methodological problems. Certain authors (Van Raan, 2005) consider that the use of bibliometric indicators can significantly support research evaluations only under conditions that allow us to address the technical and methodological problems sharing the common denominator of bibliographic databases (Van Raan, 2005).
One of the technical issues is the difficulty when assigning citations to the articles. Although the process used to identify references by the creators of the databases is a good one, we must not forget that the original purpose of these databases was to find information, not conduct an evaluation. These types of errors occur with an estimated frequency of 7% but can be as high as 30% (Moed, 2002).

Another technical issue is the one related to the attribution of publications to specific institutions. The loss of documents due to errors in the standardisation of institution names or their addresses is quite high.

Among the methodological problems, is the fact that the databases of the Thomson Reuters Web of Science (WOS) are particularly problematic for certain fields such as Engineering, Social Sciences or Humanities, so that specialisation of a university in any of these fields will penalise its position in the ranking. The types of documents and language bias are other controversial points (Sanz-Casado et al., 2013).

Until a few years ago, the only source of information used to prepare these indicators was the Web of Science database. This multidisciplinary citation index maintained its hegemonic rule for over 30 years as a tool and source for preparing scientometric studies (Adam, 2002; Weingart, 2005; Torres-Salinas et al., 2009). The appearance in 2004 of the Scopus database (Elsevier) brought about many changes, however, in spite of the significant improvements generated by competition between the existing citation databases, the situation of the technical and methodological problems affecting university rankings remains practically unchanged.

The appearance of new databases generated a cascade of studies highlighting the advantages of one over the other (Goodman and Deis, 2005; Deis and Goodman, 2007; La Guardia, 2005), or comparing the various aspects of the two tools (Fingerman, 2006; Jacso, 2005; Archambault, E., et al., 2009). These comparisons, far from providing a definite solution, have shown that the virtues of either are relative and depend only on what is analysed (Goodman and Deis, 2007, Escalona et al., 2010). Notably, the two databases have different coverage policies, while Scopus works in favour of a higher number of peer-reviewed journals (approximately 21,000), Web of Science conducts a more rigorous selection.

However, the use of one database rather than the other can provide different results for the number of university publications (Vieraand Gomes, 2009), departments or authors (Torres-Salinas et al., 2009). This number of publications has a significant influence on world university rankings and the database used can affect the final classification of the institutions.

Given the weight of the bibliometric indicators related to research in the score obtained by universities and which determines their position, our main objective is to examine whether the use of one database or the other (Web of Science or Scopus) had an impact on the final position of Spanish universities in one of the world university rankings, namely, the Shanghai ranking (ARWU).
In ARWU, every institution is positioned according to the results attained in the above indicators. Each indicator is assigned a maximum value of 100 and scores are gauged according to the weight assigned to obtain the final score for each institution. Finally, the institution with the highest points is given a score of 100 and the percentage values of all the rest are recalculated accordingly.

The points of Spanish universities for each indicator and the final score in the 2014 ARWU ranking were obtained from the official ranking website (ARWU 2014) for the universities included in the classification. All other Spanish universities were obtained from the estimate conducted by Docampo (2014). The new calculation of indicator points with Scopus and WOS data was performed according to the method proposed by Docampo (Docampo et al., 2014; Docampo 2013) with the caveat that to calculate the indicators, the total number of articles was used, not fragmented (we did not consider the position or the number of authors).

We consulted the WOS (SSCI and SCI-Expanded) and Scopus databases, obtaining the publications of 36 universities (35 Spanish ones plus Harvard University) in 2014, as well as the number of papers signed by each one of these universities in Nature and Science in the five-year period.

To calculate the final score of the universities, we maintained the points that ARWU assigned to these institutions in the 2014 ranking for all indicators except Publications (PUB) and Articles in Nature and Science (N&S), which is what we recalculated for this study.

**Results**

Table 2 shows the total number of peer-reviewed papers and articles in Scopus. The grey-shaded rows indicate the differences between the two databases. The total number both of peer-reviewed articles and papers is greater in Scopus, containing 44.3% more papers and 30.9% more articles than WOS in the five-year period 2009-2013.

Table 3 shows the total papers in the journals Nature and Science included in Scopus and WOS. The number of works differs between the databases. WOS includes 26,041 publications, while Scopus has 23,708. This means a difference in favour of WOS of 2,333 papers. When we limited the number to articles, with which the PUB indicator in ARWU ranking is prepared, WOS includes 796 fewer articles than Scopus. This is due to the fact that both databases use different classifications and definitions for the types of documents (Table 3).

Figure 1 shows the number of Nature and Science articles that WOS and Scopus included each year during the period 2009-2013. The number of papers from the two journals included in the databases is different. Throughout this period, WOS collected 796 fewer articles than Scopus.
Table 1: ARWU ranking indicators

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Code</th>
<th>Indicator</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of Education</td>
<td>Alumni</td>
<td>Alumni of an institution winning Nobel Prizes and Fields Medals</td>
<td>10%</td>
</tr>
<tr>
<td>Quality of Faculty</td>
<td>Award</td>
<td>Staff of an institution winning Nobel Prizes and Fields Medals</td>
<td>20%</td>
</tr>
<tr>
<td>Research Output</td>
<td>HiCi</td>
<td>Highly cited researchers in 21 broad subject categories</td>
<td>20%</td>
</tr>
<tr>
<td>Research Output</td>
<td>N&amp;S</td>
<td>Articles published in <em>Nature</em> and <em>Science</em></td>
<td>20%</td>
</tr>
<tr>
<td>University Size</td>
<td>Size</td>
<td>Above indicators weighted by the number of teachers</td>
<td>10%</td>
</tr>
</tbody>
</table>

Table 2. Total number of papers and articles in Scopus and WOS

<table>
<thead>
<tr>
<th>Year</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Doc Scopus</td>
<td>2262389</td>
<td>2396149</td>
<td>2546967</td>
<td>2631052</td>
<td>2694017</td>
<td>12530574</td>
</tr>
<tr>
<td>N Doc WoS</td>
<td>1612423</td>
<td>1648511</td>
<td>1734300</td>
<td>1809664</td>
<td>1877829</td>
<td>8682727</td>
</tr>
<tr>
<td>Doc SC-WoS</td>
<td>-649966 (-40,3%)</td>
<td>-747638 (-45,4%)</td>
<td>-812667 (-46,9%)</td>
<td>-821388 (-45,4%)</td>
<td>-816188 (-43,5%)</td>
<td>-3847847 (-44,3%)</td>
</tr>
<tr>
<td>Art Scopus</td>
<td>1453296</td>
<td>1495302</td>
<td>1604799</td>
<td>1670817</td>
<td>1787695</td>
<td>8011909</td>
</tr>
<tr>
<td>Art WoS</td>
<td>1107377</td>
<td>1153635</td>
<td>1226715</td>
<td>1283876</td>
<td>1348892</td>
<td>6120495</td>
</tr>
<tr>
<td>Art SC-WoS</td>
<td>-345919 (-31,2%)</td>
<td>-341667 (-29,6%)</td>
<td>-378084 (-30,8%)</td>
<td>-386941 (-30,1%)</td>
<td>-438803 (-32,5%)</td>
<td>-1891414 (-30,9%)</td>
</tr>
</tbody>
</table>

Table 3. Number of *Nature* and *Science* publications in Scopus and WOS

<table>
<thead>
<tr>
<th>Type of Publication</th>
<th>No. Doc Scopus</th>
<th>No. Doc WoS</th>
<th>Scopus-WoS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Article</td>
<td>8896 ↑</td>
<td>8100</td>
<td>796</td>
</tr>
<tr>
<td>Letter</td>
<td>2348 ↓</td>
<td>2483</td>
<td>-135</td>
</tr>
<tr>
<td>Editorial (Editorial Material)</td>
<td>1230 ↓</td>
<td>6805</td>
<td>-5575</td>
</tr>
<tr>
<td>Review</td>
<td>1076 ↑</td>
<td>502</td>
<td>574</td>
</tr>
<tr>
<td>Erratum (Correction)</td>
<td>903 ↓</td>
<td>953</td>
<td>-50</td>
</tr>
<tr>
<td>Note</td>
<td>4716</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Short Survey</td>
<td>4406</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Conference Paper</td>
<td>96</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Article in Press</td>
<td>36</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Abstract Report</td>
<td>1</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>News Item</td>
<td>--</td>
<td>5742</td>
<td>--</td>
</tr>
<tr>
<td>Book Review</td>
<td>--</td>
<td>1268</td>
<td>--</td>
</tr>
<tr>
<td>Biographical Item</td>
<td>--</td>
<td>186</td>
<td>--</td>
</tr>
<tr>
<td>Bibliography</td>
<td>--</td>
<td>1</td>
<td>-1</td>
</tr>
<tr>
<td>Reprint</td>
<td>--</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>23708</td>
<td>26041</td>
<td>-2333</td>
</tr>
</tbody>
</table>
Table 4 shows the number of articles from Spanish universities in Scopus and WOS, as well as the difference between the two databases. It shows that UPV, UB, UPF, UNAVARA and UIB have higher negative percentage differences (more articles in WOS than in Scopus). At the other end of the spectrum, are UAM, UCM, UHA, UMA and UJA, with higher positive percentage differences (more articles in Scopus than in WOS).

The number of articles published in *Nature* and *Science* by Spanish universities and covered by WOS and Scopus is shown in Table 5. It illustrates that if the ARWU ranking were to change its source of information, the Spanish universities negatively affected by this indicator would be UB with 33 fewer articles, UPF with 26 fewer articles, and UG with 4 fewer articles. While those affected in a positive sense would be UAM with 7 more articles, UCM with 5 more articles, and UPC and UNIZAR with three more articles each.

The calculation of the final scores of universities in ARWU is shown in Table 6. The “SC” column shows the university scores based on the Scopus results, the “WOS” column is based on WOS data, and the ARWU column shows the actual score obtained by the universities in the 2014 ranking.

Firstly, we found a difference between the points obtained with the calculation based on Scopus and those based on WOS (SC-WOS). The results indicate that all universities would be positively affected if the information compiled were based on Scopus, except for UPF, which would obtain 2.88 points less.
**Table 4. Comparison of the number of articles published in WOS and Scopus (2013)**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Articles Pub</th>
<th>Difference from Scopus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WoS</td>
<td>Scopus</td>
</tr>
<tr>
<td>Autonomous University of Barcelona (UAB)</td>
<td>3131</td>
<td>3161</td>
</tr>
<tr>
<td>Autonomous University of Madrid (UAM)</td>
<td>1989</td>
<td>2381</td>
</tr>
<tr>
<td>Complutense University of Madrid (UCM)</td>
<td>2562</td>
<td>2923</td>
</tr>
<tr>
<td>Polytechnic University of Catalonia (UPC)</td>
<td>1536</td>
<td>1552</td>
</tr>
<tr>
<td>Polytechnic University of Valencia (UPV)</td>
<td>2373</td>
<td>1699</td>
</tr>
<tr>
<td>University of Barcelona (UB)</td>
<td>4805</td>
<td>3828</td>
</tr>
<tr>
<td>University of Granada (UG)</td>
<td>2155</td>
<td>2466</td>
</tr>
<tr>
<td>Pompeu Fabra University (UPF)</td>
<td>1210</td>
<td>822</td>
</tr>
<tr>
<td>University of Santiago Compostela (USC)</td>
<td>1359</td>
<td>1508</td>
</tr>
<tr>
<td>University of the Basque Country (EHU)</td>
<td>1772</td>
<td>1994</td>
</tr>
<tr>
<td>University of Valencia (UV)</td>
<td>2373</td>
<td>2194</td>
</tr>
<tr>
<td>University of Zaragoza (UNIZAR)</td>
<td>1599</td>
<td>1730</td>
</tr>
<tr>
<td>University of Jaén (UJAEN)</td>
<td>479</td>
<td>541</td>
</tr>
<tr>
<td>University of Navarre (UNAVARRA)</td>
<td>758</td>
<td>388</td>
</tr>
<tr>
<td>Carlos III University of Madrid (UC3M)</td>
<td>712</td>
<td>783</td>
</tr>
<tr>
<td>University of Alcalá (UAH)</td>
<td>558</td>
<td>644</td>
</tr>
<tr>
<td>University of Alicante (UA)</td>
<td>697</td>
<td>787</td>
</tr>
<tr>
<td>University of Cádiz (UCA)</td>
<td>387</td>
<td>434</td>
</tr>
<tr>
<td>University of Cantabria (UNICAN)</td>
<td>679</td>
<td>577</td>
</tr>
<tr>
<td>University of Castilla la Mancha (UCLM)</td>
<td>786</td>
<td>943</td>
</tr>
<tr>
<td>University of La Laguna (ULL)</td>
<td>897</td>
<td>840</td>
</tr>
<tr>
<td>University of Les Illes Balleares (UIB)</td>
<td>620</td>
<td>502</td>
</tr>
<tr>
<td>University of Málaga (UMA)</td>
<td>743</td>
<td>881</td>
</tr>
<tr>
<td>University of Murcia (UM)</td>
<td>988</td>
<td>1092</td>
</tr>
<tr>
<td>University of Oviedo (UNIOVI)</td>
<td>1166</td>
<td>1199</td>
</tr>
<tr>
<td>University of Salamanca (USAL)</td>
<td>820</td>
<td>861</td>
</tr>
<tr>
<td>University of Seville (US)</td>
<td>1693</td>
<td>1837</td>
</tr>
<tr>
<td>University of Valladolid (UVA)</td>
<td>695</td>
<td>771</td>
</tr>
<tr>
<td>University Jaume I of Castellón (UJI)</td>
<td>481</td>
<td>583</td>
</tr>
<tr>
<td>University Miguel Hernández of Elche (UMH)</td>
<td>516</td>
<td>521</td>
</tr>
<tr>
<td>Pablo Olavide University (UPO)</td>
<td>341</td>
<td>383</td>
</tr>
<tr>
<td>Technical University of Madrid (UPM)</td>
<td>1375</td>
<td>1246</td>
</tr>
<tr>
<td>University of Girona (UDG)</td>
<td>704</td>
<td>630</td>
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<tr>
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### Table 5. Comparison of number of Nature and Science articles in WOS and Scopus (2013)

<table>
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<tr>
<th>Institution</th>
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<th>Difference from Scopus</th>
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<tr>
<td>Pompeu Fabra University (UPF)</td>
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<tr>
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<tr>
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<td>14</td>
</tr>
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<td>5</td>
</tr>
<tr>
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<td>3</td>
</tr>
<tr>
<td>University of Navarre (UNAVARRA)</td>
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</tr>
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<tr>
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<td>3</td>
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### Table 6. Calculation of final university scores in ARWU

<table>
<thead>
<tr>
<th>Institution*</th>
<th>Points in Ranking</th>
<th>Difference of points between rankings</th>
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<tr>
<td></td>
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<td>Harvard University</td>
<td>100.00</td>
<td>100.00</td>
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<td>16.65</td>
<td>9.51</td>
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<td>University of Vigo (UVIGO)</td>
<td>6.08</td>
<td>4.58</td>
</tr>
</tbody>
</table>
Conclusions

- This study has found that Scopus includes a significantly higher number of publications than WOS. When only articles are considered, although with a lower percentage, we also found that their number is higher in Scopus.

- When analysing the total number of publications in the journals *Nature* and *Science* covered by both databases, we found it is higher in the case of WOS, however, with respect to the number of articles, Scopus is more thorough.

- Spanish universities are affected differently by the two databases, both with regard to the total number of articles and those in *Nature* and *Science*.

- Our final conclusion is that this study has confirmed that if the creators of the Shanghai ranking (ARWU) were to change their information source (Scopus instead of WOS), all Spanish universities would be positively impacted, except for UPF, on which it would have a negative effect, although with a minimal difference.
References


“the quality of higher education has proven to be at the heart of the setting up of a European Higher Education Area” (Berlin Communiqué, 2003)

European universities consider quality assurance, internationalisation and cooperation important strategic reforms

There was early agreement within the Bologna Process that European higher education institutions are responsible for the quality of European higher education as stated in the Berlin Communiqué (2003). The EUA Trends 2010 report that tracked the first decade of implementation of the European Higher Education Area found that European higher education institutions regarded quality assurance and internationalisation as the most important reforms. European higher education institutions (HEIs) and European national rectors’ conferences both considered that alongside the Bologna structural reforms, quality assurance and internationalisation reforms/policies were the key policy changes in the first Bologna decade. Sixty per cent of the responding higher education institutions in 2010 found that over the past decade enhanced internal quality assurance processes had been the most important change followed by enhanced cooperation with other HEIs (53%) (Sursock & Smidt, 2010, 18). Furthermore, the HEIs answered that after strategic institutional development (78%) quality assurance (63%) was considered the most important expected future development followed closely by internationalisation (61%). The forthcoming Trends 2015 report suggests that the importance of quality assurance, internationalisation and institutional cooperation seen from a strategic institutional point of view has increased (as expected) even further over the past five years. The overall European results, however, cover large differences between countries, and countries that felt that internal quality assurance was not important in 2010 have made great progress by 2015.

The evolving nature of the EHEA policy agenda has meant that the association or the relationship between the different Bologna action lines not necessarily have been clear to institutional actors (Sursock & Smidt, 2010).
The understanding of the interrelationship between the different stands of the policy agenda is key to the transformative European change agenda, and when successfully developed has a clear impact on the “European dimension” of European higher education institutions. Institutional implementation of reforms is often inward looking, and not all perceive a clear difference between external and internal developments and drivers e.g. when developing quality assurance and internationalisation. While transformation takes time (Smidt in Curaj & al.) it is important to note as Sursock does in relation to QA:

“Too often, changes to external quality assurance are made with little consideration of other higher education policy developments or requirements or by focusing on a narrow set of education policy developments or requirements or by focusing on a narrow set of changes(…).(Sursock in Curaj & al. 263).

Thus adapting to political change processes like the post-communist era, the Bologna Process - and for the member states of the European Union - the Modernisation Agenda has meant that European higher education institutions have had to navigate between tradition and renewal, and increasingly to respond to increasing demands for accountability and transparency in an ever more difficult funding environment. These pressures have in turn led to a need to diversify the student population (traditional students, international students, LLL students, non-traditional students etc.) and to develop a quality culture, while addressing the challenges of globalised higher education. A pressure that has meant that the development of internationalisation and quality assurance must be considered to be permanent work in progress, and also a need to be able to benchmark results which in turn requires cooperation.

Enhanced cooperation between universities support the development of QA and internationalisation

In both Trends 2010 and in Trends 2015 more than half of the responding higher education institutions found that enhanced cooperation with other institutions was a major change over the first “Bologna decade”. Other external change drivers that link internationalisation and QA include the expanding group of international students (short-term mobility and full-degree students), transnational education and “internationalisation at home”. In many European countries, the growth of international students have created a more utilitarian view of higher education than in previously, and has also created a greater demand for accountability and transparency. Another example of enhanced cooperation is joint programmes. All relatively recent developments that often have been perceived as separate from the traditional provision of full time education to national students. These are now becoming mainstream activities and it is therefore essential that QA is developed to include these and that this is done in cooperation so that it is possible to benchmark results. Transparency and accountability is both necessary to enhance the study programmes and for students to make informed study choices.

An example of institutional cooperation, quality assurance and the development of internationalisation

The Bologna Process have created a common European language or terminology – albeit with national or institutional interpretations (Trends 2010), and considerable diversity remains in European higher education, “between systems, which retain their own characteristics, between institutions, which vary in
size, mission and profile and even, within institutions.” (Reichert 2009). The European language for quality assurance is the ESG. The proposal for the revised ESG can be seen as addressing the growing diversity by creating, on the one hand, a joint understanding and, on the other hand, supporting a diversity of approach to quality assurance in European higher education. It is difficult to consider the quality and the quality assurance of European higher education without reflecting on not only the changing global reality for higher education systems, but also the complexity of its three missions: education, research and service to society. For quality assurance to support the continuous development of higher education institutions and the higher education systems in an ever changing global higher education landscape, it seems essential that it is built on trust, flexibility, and adaptability, and that the ESG form the common “language”.

The ESG were used as a common language in the triangulation between institutional cooperation, quality assurance and internationalisation in the collaboration between Gothenburg, Lund and Uppsala universities, called the GUL cooperation. Sweden introduced the Bologna reform structures rather late in 2008 and introduced an advanced level (one- and two year master degrees) that did not formally exist before. One of the main national drivers behind the introduction was a perceived need to internationalise Sweden higher education by introducing master degrees in English to attract international students. The three universities decided already in 2009 to cooperate in order to understand better, how the new level worked and be able to benchmark the implications of the introduction of the new degree level. One part of the project was to track the progression part of Swedish and international students. Key performance indicators were collected and compared by collecting the information from the Swedish joint student database: LADOK, thus making the results directly comparable.

In 2013, Lund and Uppsala universities decided to carry out a joint graduate survey. This survey is the first joint survey that included both Swedish and international students. The universities were able to do a rare comparison between the two student groups regarding e.g. perception of their study experience, if the studied programme responded to the need of the labour market and the transition to employment work. By comparing the results the universities and the programmes and degrees get a much better impression of successes and challenges.

The collected key performance indicators were based on three simple questions, who are your students, how do they progress and where do they go? Table 1 indicate that over time institutional trends become visible and that they respond to institutional policies. The drop in number of international students is due to the introduction of tuition fees in 2011 for non-EU students.

---

1 Reichert, S (2009) Institutional diversity in European higher education: Tensions and challenges for policy makers and institutional leaders, EUA
3 Björnermark, Maria, Maandi, Camilla and Smidt, Hanne: Först ut, En aluminstudie av de första årskullarna från de nya magister/masterutbildningarna vid Lunds och Uppsala universitet (2014)
4 The reports are at the moment only in Swedish, but an article on the first phase of the project has been published in English in the Raabe Internationalisation Handbook Smidt. H., Dalmäs, U., Josefson, K., and Sjölund, M.: The two-year master degree – combining Bologna reforms and internationalisation in Sweden. (D 2.1), In Internationalisation of Higher Education, Raabe 2010
Table 1 Enrollment at the master level autumn 2007 - autumn 2012

<table>
<thead>
<tr>
<th></th>
<th>GU</th>
<th>LU</th>
<th>UU</th>
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</tr>
<tr>
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</tr>
<tr>
<td>ht 12</td>
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<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Annat lärosäte = national recruitment, Utländsk = international recruitment, Egna lärosätet = own recruitment

GU = Gothenburg University, LU = Lund University, UU = Uppsala University

Table 2 How challenging did you find the demands of your one-or two year master degree compared to your first degree (answers divided between Swedish and international students, %)

<table>
<thead>
<tr>
<th></th>
<th>Svenska alunner LU (n=410)</th>
<th>Internationella alunner LU (n=654)</th>
<th>Svenska alunner UU (n=503)</th>
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<tr>
<td>I stort sett samma krav</td>
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<td>10</td>
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<td>10</td>
</tr>
<tr>
<td>Högre krav</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Lägre krav = less demanding
I stort sett samma krav = equally demanding
Högre krav = More demanding

Svenska alunner = Swedish alumni
Internationella alunner = international alumni

---


Lund and Uppsala graduate survey published in 2014 indicate that there are marked differences in the perception of the demands of their programmes (table 2) between Swedish and international students. A difference that is interesting in itself, but even more so in comparison between the two universities.

Another example from the questionnaire (table 2) is the question on employability that is an important part of the European debate. The result (that for both universities covers differences between faculties) are remarkably similar, except for the fact that 50% more of the international alumni at Uppsala University progress into doctoral education than at Lund University.

Table 3 What is your current occupation (graduates from the two universities divided into Swedish and international graduates)

<table>
<thead>
<tr>
<th></th>
<th>Totalt LU (n=1119)</th>
<th>Totalt UU (n=859)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Svenska alumner (n=417)</td>
<td>Svenska alumner (n=491)</td>
</tr>
<tr>
<td></td>
<td>Internationella alumner (n=670)</td>
<td>Internationella alumner (n=351)</td>
</tr>
</tbody>
</table>

Förvärvsarbete, heltid = full-time employment, Förvärvsarbete, deltid = part-time employment, Egen företagare = self-employed, forskarstuderande = doctoral candidate, studerande = student, arbetssökande = unemployed, annat = other
Svenska alumner = Swedish alumni Internationella alumner = international alumni

The results can be broken down to faculty and programme level.

Björnermark, Maria, Maandi, Camilla and Smidt, Hanne: Först ut, En aluminstudie av de första årskullarna från de nya magister/masterutbildningarna vid Lunds och Uppsala universitet (2014)
The reports are an interesting example of an initiative that has led to cooperation in other areas and that has supported the development of a quality culture within the universities, while the three universities remain competitive both nationally and internationally.

**Conclusion**

European higher education is in the middle of a paradigm shift, and looking back at fifteen years of higher education reforms, it is clear that much has been done at European, national and institutional level to address and support Bologna inspired changes in both internationalisation and quality assurance.

Behind the European higher education area success story a much more complex picture of the provision of higher education is emerging. An image emerges that points to both convergence and divergence in approach and to remaining challenges – and this is perhaps not surprising given the diversity of the European Higher Education Area and the global challenges.

Other developments are in the area of transnational education, where the three policy areas of quality assurance, cooperation and internationalisation intersect. The increased focus on learning and teaching and student-centred learning raise a key question on the potential cooperation and if it is a requirement to develop specific quality assurance for specific higher education offers such as open and distance learning, provision of international or transnational education (joint programmes and degrees), continuing education including LLL provision, bridging courses, etc. Do new forms of learning and teaching delivery to a diversified student population (full-time, part-time, national/international or non-traditional students) in the mode of traditional on-campus education, distance or e-learning, MOOCs, SPOCs or in a flipped classroom together with many new transnational/joint/cross-border initiatives pose challenges for quality assurance. It raises the issue if a diversified European higher education landscape also demands diverse and targeted quality assurance processes, thus making it very complex to develop a common understanding of quality assurance, and how can HEIs manage a great number of different practices? Are modes of teaching or types of students more important?

Transnational quality assurance has both benefits and challenges for higher education institutions, and its use is often related to the implementation of an internationalisation strategy, thus linking two important parts of the Bologna Process.

The Future of Higher Education Conference 2012 Conference recommended a revision of the ESG, a revision that will be presented at the Yerevan Ministerial meeting. The revision is an example of how the Bologna Process is “work in progress” that requires the continuous development and evaluation of established policies and practices in order to make it an integral part of the higher education framework. The revised ESG indicate a shift towards addressing the need to have a diversity of higher education provision. Regardless whether it is provided for traditional full-time or part-time students, or for national or international students at the bachelor- master or doctoral level or the provision of lifelong learning or continuing education; whether the teaching mode is campus or non-campus based or jointly provided at institutional level or transnationally. Quality assurance is therefore an integrated part of the dialogue on the progress of creating a European Higher Education Area that other continents will continue to look at with interest. The Bologna Process is an on-going process.

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**Note:**

10 European University Association (EUA) (2014) *A Twenty-Year Contribution to Institutional Change*
where the interaction between the internal and external processes is essential and where a multifaceted and transparent approach seems essential and where the constant dialogue ensures that the stakes do not encourage a compliance culture. Nevertheless, it can be expected that both external and internal, national and institutional quality assurance also in the coming decade will continue on a winding road “full of twists and turns” (Sursock, 2011).

It can be hoped that the engagement of the European higher education communities will continue to grow and that in the next decade focus will move from form to content and that a continuous dialogue will continue on how best to achieve that. This discussion should engage ever-larger numbers of academics and students in quality enhancing discussions on such aspects as learning and teaching, student-centred learning, curriculum development, learning outcomes, recognition, ECTS and the Diploma Supplement. It is to be hoped that the dialogue will engage or re-engage growing circles of higher education stakeholders and that the positive organisational cooperation experiences from the European quality assurance community can contribute to the next phase of development of the European Higher Education Area.

**References**

Björnermark, Maria, Maandi, Camilla and Smidt, Hanne: Först ut, En alumnstudie av de första årskullarna från de nya magister/masterutbildningarna vid Lunds och Uppsala universitet, (2014)


European Association for Quality Assurance (ENQA), (2014) TRANSPARENCY OF EUROPEAN HIGHER EDUCATION THROUGH PUBLIC QUALITY ASSURANCE REPORTS (EQArep) Final report of the project


Reichert, S: Institutional diversity in European higher education: Tensions and challenges for policy makers and institutional leaders, EUA 2009


Scenarios of the future of the universities often look very boring. We too often take for granted that the universities, which have survived – at least in the name and in some core elements – for centuries, are likely to remain in a somewhat similar fashion in the foreseeable future. Future scenarios often assume that humans are at the ‘end of history’: Recent reforms have healed the diseases of the past and that we can expect an extrapolation of the desirable improvements of the recent past. Accordingly, we might assume that student enrolment is growing further, that research plays a growing role on the way towards a ‘knowledge society’, that university government becomes wiser, that academics will be even more productive and that competition for becoming or remaining the ‘world-class university’ will go on.

A more careful look at future scenarios shows that all of them are based on ‘continuity of trends’ and ‘consolidation of recent policies and measures’ beliefs. We also note a variety of alternatives which might be characterized as ‘new break-throughs’, ‘back to the better past’, ‘circular fashions’, ‘the endemic crisis of the university’, or the ‘repeated great expectations and mixed performance’ scenarios.

Both, the unavoidable uncertainty about the future and the heterogeneity of future scenarios might discourage us from embarking on serious considerations as regards the future of the universities. However, changes in higher education take a long time from the discussion of reform needs to the full implementation, and they eventually have a long-lasting impact. For example, the Bologna Declaration was promulgated in 1999. Around the year 2015, we have for the first time all over Europe graduates of the new bachelor and master programmes, and those graduating around 2015 will work the next 30 and more years, i.e. possibly up to the year 2050, on the basis of competences which we aimed to foster in the wake of these past reforms.

Reflection of the future of higher education certainly has no other promising way than looking back at the recent past and assessing the results of recent reform efforts. But care should be taken not to be confined in the dominant ideological undercurrent of the current ‘Zeitgeist’ of the reforms by critically asking: What are the possibly questionable under currents of the current dominant discourse about the strengths and weaknesses and of the presumed demands?
Expansion and increasing functions of higher education

Expansion of higher education mostly has been measured in terms of new entrant students, overall students, and graduates of the corresponding age groups. Entry rates, for example, have increased on average of the economically advanced countries from less than 5% shortly after World War II to more than 50% in the early years of 21st century. Predictions seem to be appropriate that soon a rate of 75% might be reached and that almost everybody, who is engaged in productive work of any kind, will have a pre-career educational background of about 15 years and will further embark of what is often called ‘life-long education’.

At present, most actors responsible for higher education tend to disregard this dramatic change. They are aware of the arguments put forward constantly over the years that expansion of higher education calls for further diversification. But at the beginning of the 21st century, the diversification discourse tended to concentrate on the top end of the diversity, and was focused on the vertical dimension of diversity, i.e. ‘levels’ of quality. Many of those responsible for universities tried to find ways of moving up the ladder of prestige hierarchy of universities. This corresponds to the widespread notion among university professors that a bachelor programme might be too short to foster a well-educated and competent person and should be supplemented as a rule by study on master level. Both inclinations tend to ignore the most salient challenge of expansion of higher education: namely the fact that universities even have to provide meaningful learning opportunities for students who will end up in the lower half of the occupational hierarchy.

Two terms have played a substantial role in discourses about the functions of higher education in recent years: As regards teaching and learning, the term ‘employability’ gained momentum, and as regards research, some talk about the ‘knowledge society’ and others about the ‘knowledge economy’. These terms clearly suggest that expansion of higher education – irrespective, how and for what purposes it might have been caused - is based on the assumption that higher education has the potential of being more ‘relevant’ to society. There is a clear expectation that the ‘relevance’ of the university is more obvious and more visible than in the past. The irony of the relevance discourse, however, is the contradiction between the expectation of visibility and the actual visibility of ‘relevance’. The more enrolment increases and the wider the range of research becomes, the more often the ‘relevance’ of higher education is not so clearly and so immediately visible as it has been in the past. How can universities embark on a meaningful discourse with society on their relevance without falling into the trap of a ‘utilitarian drift’, i.e. concentrating on easily visible, short-term results and of subordinating themselves to the current political mainstreams and the most powerful ‘stakeholders’?

Universities, as a rule, traditionally describe their functions with the terms ‘teaching and learning’ as well as ‘research’. In recent years, the concentration of training young people often has been supplemented by facilitating
admission to ‘mature students’ as well as providing ‘adult education’ and ‘continuing professional education’. Similarly, universities are not only expected to do research, but also to be active in a broad range of dissemination activities, to be involved in the ‘transfer’ of knowledge and to become explicit innovation agents.

Moreover, we note a widespread call for the strengthening of the ‘third mission’ of the university. Thereby, the meaning varies of what is called for: the extension of the teaching and research functions just mentioned, or a strong involvement of the university in the active shaping of society. The latter might be realized by taking care of ‘civic engagement’ of students, consulting the world how to care for ‘sustainable development’ and other ideas are popular how higher education could contribute in a more direct way to the betterment of society. There is an irony, though, in such efforts similarly to the above named efforts to be more ‘relevant’ in teaching and research: The more the university directly engages in the betterment of society, the less it has a specific legitimacy to do so due to its specific character of systematic knowledge production.

Which diversity?

There is a widespread consensus that higher education has to be diverse these days. In the process of expansion, higher education has to take into account a growing diversity of the students’ motives, abilities and career prospects. And on the way towards a ‘knowledge society’, the demand for systematic knowledge is likely to become more multi-facetted. But, ironically, the increasing pressures for reflecting the diversity of possible demands and of possible functions of higher education have not led in recent years to a comprehensive discourse about the variety of modes and possible functions of diversity, but rather to an obsessive preoccupation with a ‘ranking’ of ‘world-class universities’.

Those advocating such rankings or subordinating their strategies according to the logic of such rankings share – consciously
or unconsciously – quite a number of questionable assumptions. For example, they tend to believe that production at the upper end of a quality hierarchy is most important, while the rest is unavoidable mediocrity – this could be viewed as the opposite to a genuine ‘knowledge society’, where knowledge transcends all areas of society. They concentrate on the vertical dimension of diversity and often encourage the imitation of the top – rather than caring for horizontal diversity, i.e. diversity of substantial profiles of universities serving varied functions in society.

The advocates of ‘world-class university’ rankings also assume that quality of teaching and research is closely associated, although most of available research challenges that assumption. They believe that a steep vertical hierarchy of universities is desirable, even though universities in the countries with highest ‘academic productivity’ of researchers are less hierarchically structured than systems often named in association with rankings (e.g. the U.S. among the economically advanced countries and China among the developing countries). And they believe that a strong local concentration of the best academic talents is important for the quality of academic work, even though the communication and cooperation among academics is less determined today by local peers than ever before and even though students have more chances today than ever to learn from other places (through mobility, MOOCs, etc.).

Clearly, the ranking discourse supports sadistic and masochistic feelings of being winners and losers to such an extent that it will not vanish easily. Yet, if reflection of the needs and functions ever become more rational, it is likely to lead to the insight that moderate diversity is more valuable and sustainable than extreme diversity, that horizontal diversity has to be taken care for in a more targeted way than vertical diversity, and that most universities in the world have to pay attention to intra-institutional diversity and, thus, to serve a broad range of functions, more strongly than inter-institutional diversity. Moreover, one has to pay attention, in looking at the future of higher education, to the growing importance of mobility, of access of learning opportunities provided from other institutions through ICT, of networks of scholars scattered all over the world, etc.; possibly, we will come to the conclusion in the future that the individual university should not be anymore the degree-granting institution, but rather a national or international body will assess students’ achievements collected at different universities, and that the reputation of successful research is not anymore associated to an individual university, but rather to global consortia of scholars.
Governance and professionalism

Among the key issues of higher education, a prediction about future developments might be most risky regarding the steering and governance of the higher education system as a whole as well as the management and administration within the individual institutions of higher education. Looking back to various decades, we note substantial changes in those respects in many countries. For some periods each, one trusted the wise decision-making of the professoriate, the government, and the collective participatory decisions by all groups within the university. Currently, one hopes that a strong university management would be the best option, combined with strong mechanisms of incentives and sanctions to motivate the academics, a multitude of evaluation mechanisms, indirect government steering through either indicator-based funding or contractual relationships to universities, and finally with a say of ‘stakeholders’ through various means.

Many advocates of the current fashions of steering and governance believe that strong management and strong incentive and sanction mechanisms vis-à-vis academics are more modern and by far more efficient than prior modes of steering and governance. But there are obvious weaknesses. First, many university leaders nowadays are too excited by the race for being well placed in international rankings. Often, they put prime emphasis on raising the quality of top research, thereby overlooking that top research has many other channels of support, while other functions of the university, notably teaching and learning, are more strongly dependent on the decisions taken within the university.

Second, the strong emphasis on competition, incentives and sanctions (e.g. shorter periods of employment contracts and shorter periods of guaranteeing resources for research) are – consciously or unconsciously – based on questionable assumptions about the values and the behaviour of academics which might be called the ‘sleeping giants assumption’: accordingly, academics are viewed as having enormous potentials for higher achievement, but as being extrinsically motivated and, thus, being likely to be lazy, unless they are stimulated by incentives and sanctions.

We should not be surprised, if the trust in strong university management and in the power of short-term stimulation as well as in a top-heavy and research-biased promotion of higher education will end up in a trust crisis in the same way as prior models of government have ended up in the past. But there is one trend which might be more long-lasting: a trend towards professionalization in higher education.
Professionalization of higher education is visible in three respects. First, as regards the university leadership: We do not trust anymore university leaders who just had been well respected academics in the past and subsequently take over positions of rectors or presidents for a short while, thereby drawing from their excellent academic wisdom and their managerial trial-and-error experience. We do not believe anymore that professors are good teachers and good researchers just on the basis of their disciplinary expertise. And we increase the number of positions in universities for a group of experts, which might be called ‘higher education professionals’: highly qualified persons in charge of service functions and/or management-support functions, who understand the logics of teaching and learning as well as of research in order to care for a good university environment: as guidance counsellors, curriculum developers, quality managers, international officers, research transfer managers, etc. Looking at the future of universities certainly has to address the question how university life under more professional conditions will change.

Conclusion

A university can be proud to approach its 500th anniversary. The University of Granada belongs to those institutions which have shown that the academia has a persistent value for knowledge, culture and society. The University of Granada made a wise decision to start a process of reflecting the possible futures of its institutions many years before the actual date of the anniversary, i.e. 2031. This decision obviously is based on the assumption that the reflection of the future should not be done in a rush. The current public discourses on the past, present and future of higher education, in contrast, are often based on currently fashionable views which are unlikely to persist. Preoccupations with rankings primarily according to research ‘performance’ and ‘reputation’ as well as the trust in strong university management combined with a strong steering of academics’ behaviours through incentives and sanctions are the most popular fashions these days. We might not be able to predict the development of higher education over a period of a century, but more systematic and critical reviews of our current situation might help to develop realistic scenarios of the future. The author of this contribution suggests that universities cannot pay attention only to cutting-edge research and elite education, but have to consider the ‘wisdom of the many’ as well. Also, professionalization of universities in various respects might be more promising than mere trust regarding the more automatically growing wisdom of the academic or managerial practitioners. The reader might share such views or might identify other shortcomings of the current preoccupations.

The University of Granada belongs to those institutions which have shown that the academia has a persistent value for knowledge, culture and society.
1. Higher education in the knowledge economy

Given the effects of globalisation, national governments are increasingly developing innovation policies in order to remain economically strong and socially stable.

In many countries there is growing awareness that, in order for our societies to remain economically strong and socially stable, we need to promote innovation and technological change. We have understood that natural resources are no longer the dominant factor in economic growth. Goods, services, capital, labour, and knowledge move around the world with increasing speed and markets become increasingly interconnected and globalised. Generally speaking, it appears that globalisation leads to increasing national specialisation. This process of specialisation, which is amplified by scale and learning effects, creates a reallocation of production processes between countries and forces nations to look for their international comparative advantages. Given this situation, national governments try to identify and develop their specific strengths. They try to increase their location attractiveness for business firms; they try to attract mobile production factors; they develop their socio-cultural profiles; and they try to increase their innovation capacity. Many nations now seek to promote innovation as a key driver of economic growth. In particular Western industrialised nations try to find their comparative advantages in the production of knowledge-intensive goods and services. To better compete in a globalised economy they increasingly focus on knowledge, creativity and innovation, and on the role that higher education and research organisations could play as major contributors to the knowledge economy. National innovation policies have begun to shape and supersede traditional higher education and research policies (Balzat, 2006; Nelson, 1993; OECD, 2005). This trend may be expected to continue and even intensify in the future. National governments and even whole continents (like the EU) may be expected to keep on focussing on innovation as the major source for economic growth.
National innovation policies appear to take various forms. Dill and Van Vught (2010) identified two broad categories of national innovation policy strategies. The first and largest category comprises what could be called prioritisation strategies. These policies are characterised by features such as foresight analyses in the science and technology sectors, priority allocation and concentration of resources, and quality assessments of research outputs. They reflect the notion of national planning (see for example Australia’s research priority setting initiatives, Finland’s technology and innovation policy with a key role for TEKES, and the Dutch Innovation Platform policy). The other category of innovation policies places an emphasis on market forces and competition. The policy characteristics of these competition strategies include an emphasis on competitive allocation of resources, encouraging entrepreneurial university behaviour, deregulating the higher education sector, and encouraging multiple sources of funding. The pre-eminent example of this strategy is the US federal science policy with its emphasis on a national marketplace of competing private and state universities, limited federal control, and the competitive allocation of funding by research funding agencies. But aspects of this type of competition strategy can also be found — to a greater or lesser degree — in e.g. Canada, Germany, Japan and the United Kingdom.

2. Increasing institutional autonomy

During the last decades governments generally have granted more autonomy to higher education institutions. Now they want higher education institutions to play their crucial roles with respect to national innovation.

Higher education institutions increasingly have been granted more autonomy by their national governments. In the older days, governments largely decided on what higher education institutions should do. There were often detailed regulations regarding which programmes higher education institutions could offer and how these should be structured, detailed financial regulations determined how governmental budgets were to be spent, and the infrastructure of the higher education institutions (buildings, estate) were often owned by the government (see e.g. Goedegebuure et al., 1994).

Programmatic freedom has increased in many countries. Nowadays, governments often use lump sum funding with significant discretion for institutions to decide how and where to allocate the budgets. Human resource management policies have been devolved to higher education institutions, sometimes going hand in hand with a change of status of academic personnel from civil servant to employee. And, many higher education institutions are now responsible for their real estate (Van Vught, 1989).

This may look like a rosy picture of increasingly more scope for institutional strategies and profiling, but it is fair to state that governments have sometimes been hesitant to grant institutional autonomy in all areas (Estermann & Nokkola, 2009; Gornitzka & Maassen, 2000; Neave & Van Vught, 1991). Moreover, governments have often exchanged a priori evaluation (through regulations) with
ex post evaluations (Neave, 2012). That said, comparing the current levels of institutional autonomy with the situation a few decades ago, there is arguably much more scope for strategic choice by higher education institutions.

However, it is clear that governments and other stakeholders want something back in return for this increased autonomy. The crucial roles higher institutions can play with respect to national innovation policies are turning them into an object of policy attention. In addition, external stakeholders (including potential new students and business & industry) ask for more transparency and accountability, and increasingly confront higher education institutions with questions about their relevance and effectiveness in terms of national innovation.

3. Challenges for higher education institutions

As a result of the growing policy focus on innovation, higher education institutions are confronted with major challenges. Three major challenges are:

- mission overload
- global research competition
- positioning in a diversifying teaching and learning landscape.

Obviously the changing context described above will have major impacts on higher education institutions. In this contribution some of these challenges will be presented under three headings: mission overload, global research competition, and system diversity. The overarching theme of these challenges is the imperative for higher education institutions to rethink their role in the higher education landscape and to consider and develop what I term ‘institutional profiles’. Institutional profiles are to be understood as key characteristics of the mission, activities and performances of higher education institutions. Institutional profiles can be divided into ‘activity profiles’ and ‘performance profiles’. Activity profiles describe what higher education institutions do, illustrating their activities. Performance profiles are about how good higher education institutions are in performing their activities.

3.1. Mission overload

Higher education institutions are increasingly facing rising expectations and an expanding set of challenges. They are expected to address the world’s major problems – e.g. those related to our natural environment; the settlement and movement of people; pandemics; poverty; terrorism etc. Worldwide there is widespread expectation that universities and other institutions should research an increasingly broad range of problems in an ever-growing holistic fashion and at an accelerated pace (see e.g. the European Commission’s Horizon 2020 programme). As our societies become more knowledgeable, universities and research institutions come under increasing pressure to expand transfer of knowledge and apply new knowledge in order to solve the problems confronting the world.

In addition, these expectations are becoming increasingly diversified. Higher education institutions are expected to produce the knowledge and human capital that meet the needs of the modern knowledge society, play a central role in innovation processes, contribute to regional development, increase social inclusion and contribute to the resolution of global problems. Governments tend to translate these multiple expectations into roles and responsibilities, often backed by
earmarked funding or with conditions attached to general budgets. Higher education institutions themselves tend to take on a wider set of activities, partly through political and social pressure and partly in response to market opportunities.

The result is an accumulation of mission elements, leading to the risk of mission overload. Higher education institutions will increasingly be faced with the challenge to strategically consider their basic focus and portfolios.

3.2. Global research competition

On a worldwide scale, company labs are increasingly putting an end to their basic research activities. Companies are concentrating on short-term results, while adopting a strategic global approach to more basic research increasingly reliant on offshore partnerships, academic collaboration and outsourcing to established networks of scientific expertise.

National innovation policies, with their emphasis on the application of new knowledge, serve to encourage universities and other research organisations to participate in these new global research networks. There appears to be increasing competition between nations to make themselves attractive to footloose corporate R&D investments. In their innovation policies nations aim to prioritise and concentrate their own research expenditures to achieve competitive scale and quality. In addition, nations increasingly show a willingness to coordinate their own research investments with large international research budgets, like those of the European Union.

As a result, universities and research institutions will increasingly be confronted with the challenge of selecting and investing in those research fields in which they can compete on a global scale. This often requires risky investments in research teams, major facilities and equipment. The current global
research competition drives universities towards new forms of strategic management forcing them to make major strategic choices regarding their research portfolios and to marshal their resources effectively and efficiently.

3.3. Positioning in a diversifying teaching and learning landscape

In the context of innovation, higher education institutions are not only stimulated to focus on relevant knowledge production. They are also urged to increase participation rates and particularly the supply of well-trained ‘knowledge workers’ in prioritised sectors in order to support the creation of effective human capital, needed for a successful implementation of the national innovation policy.

Globalisation and the focus on innovation in many countries appear to trigger diversification policies in higher education. The urge to diversify – both in terms of programmes offered and in terms of institutional profiles – appears to be a key knock-on effect of national innovation strategies in many higher education systems. The literature suggests two key factors assumed to have an impact on the level of diversity: governmental regulation and market competition (Van Vught, 2008; Huisman & Van Vught, 2009), both affecting diversity in different ways. Governmental regulation (for instance the creation or maintenance of a binary system) is thought to limit the scope for higher education institutions to develop their own profiles and so can be expected to limit diversity. At the same time, regulation is sometimes deemed a ‘necessary evil’ to forestall academic drift (and consequently homogenisation). Market competition is thought to offer leeway for institutional profiling and therefore is assumed to lead to higher levels of diversity. But markets also lure organisations into mimicking successful players and hence also foster homogenisation.

It can be expected that governments will increasingly focus their policy initiatives on the further diversification of their higher education systems in terms of widening the range of teaching and learning programmes. They will either develop specific diversification policies or stimulate more market competition (or opt for a combination of the two). In any case, the strategic teaching and learning positioning of individual higher education institutions, and particularly their ability to occupy favourable niche positions, will continue to be a major future challenge for higher education institutions.

4. Institutional profiles

The major future challenge for higher education institutions is to find, analyse and communicate their specific institutional profiles.

Bringing these consequences together, the need for institutional profiling becomes evident. First, because of the increasing expectations and challenges, higher education institutions need to reassess and clarify their missions, goals and priorities, carefully defining their institutional profiles. In
addition, the increasing global competitiveness strengthens the need for profiling. Particularly strategic research management – including a deliberation with whom to compete AND with whom to collaborate – is therefore one of the most important aspects of modern higher education leadership. Modern research management implies a clear view of an institution’s research strengths and weaknesses in a competitive global research market and the courage to select and develop a set of research field priorities as a major defining part of the institutional profile. Finally, the need for profiling furthermore stems from governments’ imperatives regarding their national higher education systems. Governments often seek an increasing diversity of the overall sets of higher education programmes and urge higher education institutions to contribute to this diversification.

All these factors force higher education institutions to carefully consider their strategic choices regarding their activities and performances. In other words, they are incentives for higher education institutions to sharpen their institutional profiles and to develop them as key strategic tools in positioning their institution in both their national higher education system and international context.

But what exactly are ‘institutional profiles’? I argue that institutional profiles display what the institution does, how good they are at it, and how they compare to other institutions. As was suggested earlier, institutional profiles can be divided into activity profiles and performance profiles. Activity profiles describe the actual activities of an institution in terms of focus, volume, priorities, etc. Activity profiles are descriptive and map the set of activities that defines the various tasks that an institution sets for itself. Performance profiles are evaluative, they show how well an institution performs these tasks, and hence imply a judgement in terms of the output and impact of an institution’s activities.

Generally speaking, an institution’s profile reflects the dimensions of its mission. These can be the well-known basic dimensions of teaching & learning, research and knowledge exchange or transfer. But an institution may wish to emphasise other dimensions as equally important aspects of its mission, such as international orientation or regional engagement.

By providing information about the activities and/or performance of a higher education institution in terms of the dimensions of its mission, institutional profiles serve as transparency instruments allowing both internal and external actors (including students, funders, governments) to get to know the institution and to assess it as a potential fit with their needs and priorities.

Institutional profiles are the result of the (explicit or implicit) choices that higher education institutions make. The current and future developments described above increasingly force these institutions to carefully consider these choices. For higher education institutions it is of utmost importance to carefully think through which position they want to take in the national and global higher education landscapes and to consider whether these positions are sustainable. Finding, analysing and communicating their profiles will become THE major strategic challenge for any higher education institution during the decades to come.
References


The Future of the University from an East Asian Perspective

Introduction

I would like to congratulate the University of Granada on many great achievements through its 500-year history. For East Asians, the period of the University of Granada’s establishment was the epoch of their first encounter with Western civilization. Except for the Philippines, the history of modern universities began in the late 19th century. In this article, I discuss the future of universities from East Asian perspectives through the following avenues: 1) reflection on the history of universities in relation to knowledge transfer through translation; 2) identification of the knowledge environments surrounding universities in the global age that differ from traditional patterns; 3) examination of ongoing changes in the competition to achieve world-class status by the observed evolution in university rankings; and 4) speculation on the upcoming challenges and future prospects of the idea of universities, especially in reference to the role of studies on translation and interpretation.

The history of universities and knowledge transfer

Prior to European domination in the world after the 15th century, the Iberian Peninsula was a gateway that bridged Islamic civilization and Europe. At that time, one important function was the translation of works written in Arabic to Latin to facilitate wider knowledge transfer to the European community. The Arabic civilization had inherited characteristics of the European civilization in the Hellenic period through translation. Beginning in the Age of Discovery, Spanish universities and colleges were established all over the world, including the University of Saint Thomas in the Philippines, the oldest existing university in Asia.

During the mid-19th to mid-20th century, Japanese higher education also took the role of a gateway for introducing Western civilization to the Eastern world. In 1877, the University of Tokyo, a first-generation Western-style university, was established by the Asian government. This university and other higher
education institutions in the country invited many Western experts to offer advice on designing curriculums and tutoring. After a short period, however, those experts were replaced by Japanese academics trained in Western countries and eventually by Japanese universities. Through translation, Western knowledge was rapidly disseminated among Japanese intellectuals and the wide range of citizens who had acquired modern primary and secondary education.

In China, Peking University was established in 1898, based on university models in Europe, North America and Japan. To understand the Asian approach to developing a modern society, many Asian students studied in Japan in the beginning of the 20th century. In the latter half of the 20th century, Japan established a world class higher education system based on advanced science and technology and supported by the widely spread high standard of education in their own language. Japan, China, South Korea and other East Asian economies are now forming a de facto region that produces scientific knowledge through publications, which are primarily in English and therefore accessible around the world.

**Universities in the age of global knowledge**

The current environment in knowledge creation and transfer surrounding universities is completely different than it was in the age before the internet became widely accessible. Almost all newly created knowledge now becomes immediately accessible from everywhere in the world. Language barriers still exist, but the automation of translation is nearly to the stage of practical use. Even analyses and writings, a core part of knowledge creation, are becoming automated. Audiovisual materials and cloud-based learning tools are already merging into daily teaching, learning and research training. Detailed activities of respective researchers can be monitored, i.e., when he or she published, what kind of literature was published, details of citations, and who viewed or checked specific work; this information is reported to the authors and also to university managers.

However, not all universities and higher education institutions have access to this new academic environment. In less developed countries, the physical facilities for learning and research, and also the access to cloud-based knowledge resources, are still in shortage, and the gap is increasing. Some countries are trying to control the flow of knowledge in cyberspace, yet it is rare that the importance of science and technology themselves are officially denied.
**Competition for world-class status**

It is likely that the ongoing phenomenon of universities and individuals seeking world-class environments for learning and research will continue. Therefore, the number of universities wishing to establish world-class status will continue to increase. In East Asia, where the official concept of regional higher education typically seen in Europe is underdeveloped, national governments are the main players in international competition. For example, in 2014, the Japanese government started a 10-year project to support “Top Global Universities,” which was aimed and getting 10 universities ranked within top 100 in the world.

From a long term perspective, these types of strategic scenarios may easily face uncertainty. First, only a limited number of experts expected such a wide and significant impact of world university rankings on massive numbers of universities and the government around 15 years ago, when international university rankings were still in cradle. Currently, the ranking status is recognized as mandatory information when seeking university partnerships and collaboration. Even if a country does not have universities with major rankings, the government frequently refers to ranking positions when they award national scholarships or recruit new staff members. However, the ranking methodologies have changed frequently through a dramatic evolution, which has occurred partly through the rapid increase in information concerning university activities and also through a significant increase in “rankers” with diversified backgrounds.

The results of university rankings are also becoming diversified. For example, in 2014, only two Japanese universities were ranked in the top 100 in the World University Rankings in Times Higher Education and Best Global Universities by “US News and World Report,” while three ranked in Academic Rankings of World Universities by Shanghai Jiao Tong University, five ranked in QS World Class University Rankings, and eight ranked in Rankings of Universities by the Center for World University Rankings in Saudi Arabia. What do these rankings mean? Results of international university rankings vary according to selected indicators and weights. The U-Multirank does not provide comprehensive rankings, while some rankings allow users to choose indicators and weights. It is becoming common for ranking providers
to publish subject-based rankings. The golden age of university ranking providers has likely passed. Users, including universities and governments, now have more options for searching ranking results that fit their purposes.

We are facing another crisis of the idea of universities

The idea of the university: Another challenge and future prospects

Jamil Salmi has provided the recipe for developing world class universities. Adding to the concentration of talent and abundant resources, he stresses the importance of favorable governance including autonomy and academic freedom. In East Asia, or even in Europe before the establishment of the Humboldtian idea of universities, the idea of academic autonomy was not considered indispensable in seeking excellence in science and technology. As seen in the strong Confucius tradition in East Asia, the ideas of higher learning and research are not identical. Even within the East Asian region, interpretations of Confucius’ ideas have been highly diversified. Therefore, for some East Asian countries, such as Japan, with relatively established modern academic cultures, which mainly originated from the Western world, strong academic autonomy and freedom are taken for granted as a part of university culture.

The changing power balance in the economy and diplomacy have significantly influenced the ideas and models of universities as seen in the history of last 500 years. This will certainly be applied toward the next 500 years, or even 10 to 15 years from now. The change will not only occur through the macro level of international factors, but also through micro level transformations in learning and research, as previously discussed.

We are facing another crisis of the idea of universities. While past crises have always been overcome in the very long history of universities, we now need mutual dialogues among university-associated people with different identities. These dialogues may sometimes be geo-cultural in nature, as exemplified with the activities in the two North-African campuses of the University of Granada. In other cases, dialogues should be between learners with a more autonomous knowledge environment, supported by networks and intellectual automation, and the teachers or academics who can also make use of these evolved knowledge tools.

Although the role of translation will become more invisible, the study and science of translation and interpretation will continue to be key for university activities. Wider usage of lingua franca (English at this moment) means there is greater involvement of non-native speakers with more diversified language and cultural identities. Automation and commodification of translation and interpretation in reading, writing and speaking will increase the role of the studies of translation and interpretation. This would be one of many distinguished resources among the wide range of prominent fields at the University of Granada.

I will continue to focus on the future of the University of Granada as a distinguished gateway of knowledge. Congratulations again!
References


“Although the role of translation will become more invisible, the study and science of translation and interpretation will continue to be key for university activities”
It is not a common occurrence for institutions to reach their 500th anniversary. It is a milestone to be celebrated and there is no reason why we should not use the occasion to imagine and design an ideal future. However, the first question we should pose is whether it makes sense to undertake a strategic analysis of the university sixteen years in advance. In fact, 2031 is not so far off. Looking back, the year 2000 does not seem that distant and indeed seems closer than the year 2031. And, yet, during the years that have elapsed since then a significant process of transformation has taken place at all levels of the university and this process will undoubtedly gather speed as we approach 2031. The future is not what it used to be and, precisely for that reason, it makes sense to make the effort and perform this analysis so that we are better prepared to navigate that future and identify the challenges beforehand, to use the excuse of such a special occasion to set objectives wisely, taking great care both in how we define them and how we go about achieving them.

The trends and priorities on the horizon can be grouped into two main categories. On the one hand, the macro aspects which refer to global scenarios or are related to international or supra-organisational macro variables or aggregate factors and on the other hand, the micro trends or priorities, relating to universities as organisations and therefore to what they offer, their management and their governance.

When trends are analysed (and such trends must be based on some sort of evidence or rationale) it is easy to confuse them with our own wishes. However, let us not forget that it is people who have the leading role in forging the future, although not all have the same room for manoeuvre, and therefore, to a certain extent, they can channel things towards what they want. Bearing this in mind, here is a ten-point list of trends and/or challenges, which is neither complete nor does it establish an order of priority.

1. **New global university scenario**

Using Ohmae’s (2005) theatrical simile, the next global stage would appear to consist of large partial stages, due to the consolidation of new geostrategic areas which has an impact on
universities (i.e. the European Higher Education Area, the European Research Area, the Latin American Higher Education Area and similar initiatives in other regions of the world).

On this new stage the actors, that is to say the universities and higher education institutions, undergo in-depth transformations. They are appearing and will continue to appear in different guises and in various formats, namely new types of universities, i.e. world class universities, corporate universities, international universities, local universities, public universities, private non-profit making universities, private commercial venture universities. Each has a different style, different ways of relating to each other and there are different forms of cooperation between them, for example, by setting up branches or offshoots, in an in-depth transformation of the actors on the university stage.

Moreover, the target audiences will be wider and more diverse, with more opportunities for mobility and a greater predisposition to use those opportunities. In short, there will be sweeping changes with regard to the actors, the audience, the processes and the relations between them all.

2. The university is made up of people. People-based universities

Higher education is facing a heavy demand for training, due both to the quantitative increase in the world population and the increase in the proportion of people in all age groups who aspire to a university education at undergraduate or postgraduate level, in addition to life-long education.

According to UN estimates the world population will increase by 50% during the first half of the 21st century, and will do so to a greater extent in countries with a lower level of development and education. Between 2000 and 2012 in OECD countries there was an average yearly increase of 3% in the tertiary education rate (OECD 2014). At the same time, according to Eurostat, between 2005 and 2012 the population with a university education in the 28 European Union member states increased from 19.6% to 24.5%. Over the coming years the student population will be characterised by having a more diverse age range and including more women.

According to the Universal Declaration of Human Rights everyone has the right to education and higher education should be equally accessible to all, on the basis of merit.

Therefore, universities should be people-based institutions and this consideration should guide their mission, which implies that they should be guided by the right to freedom of thought, of opinion, of expression, of conscience, of faith, the right to free circulation and residence. None of these rights should involve a risk for the future of the persons concerned. Putting people first is a question of ethics.

Differences in education are a source of inequality and imbalance in the world. Whilst in affluent societies more education is available and is demanded, in poor societies access to education is much more limited. Closing this gap constitutes a strategic global challenge.

3. One common language or several common languages in our universities?

If initially the vehicular language at universities was Latin, nowadays the predominance of English is obvious. However,
in the medium term, will there be one single lingua franca? There are doubtless other languages with potential and it is possible that a range of internationally relevant languages may coexist in universities, either because of the significance of such languages in the past or because they are buoyant in the present.

Universities should be people-based institutions and this consideration should guide their mission

Spanish aspires to obtain a similar significance in the university system to that which it has in the world at large. According to the Cervantes Institute, in 2014 Spanish was the 2nd mother tongue for 6.7% of the world’s population (450 million people) and by the year 2030 Spanish speakers will account for 7.5% of the world population, a figure which will increase to 10% in three or four generations. Moreover, almost 20 million people study Spanish as a foreign language. By 2050, the USA will be the largest Spanish-speaking country in the world. Spanish is among the first five languages in the world on several counts: number of speakers, number of countries where it is an official language and the size of the geographical area where it is spoken, with a significant presence in social networks and new forms of communication (it is the third most widely used language on the Internet, and the second on Facebook and Twitter).

Parallel to this, Spanish is gaining influence in the academic world. According to the Cervantes Institute, the number of journals in Spanish with ISSN has increased by 130% in comparison to 2001 and there are five times more journals in Spanish included in JCR.

4. A commitment to shared development

According to Johnson (2011) innovation and ideas arise particularly when work is done in networks and for non-commercial purposes. In general terms, universities enjoy a reasonable reputation in the eyes of public opinion and are therefore the ideal institutions to assume leadership in the ecosystem of innovation, in cooperation with business and other public and private organisations. The university should occupy a leading role in the innovation ecosystem because this is an emerging area, an area which lends itself to open innovation, to the innovation and social transformation of an environment.

All this should go hand in hand with the commitment to advance in knowledge, sharing the responsibility for the development of the region with other stakeholders. Thus, the aim would be to promote the development of a system of universities which would lead innovation ecosystems or networks and, as such, become a driving force for the balanced development of a region. The extent to which universities fulfil this mission and promote these ecosystems will condition the social and economic impact in the region, with a multiplying effect that may contribute to redressing regional imbalances.

In many countries, processes aimed at reforming the university system have been undertaken or are ongoing. In such situations, we must not lose sight of the highly relevant role that universities can play in regional development. For this reason, the slogan for the University of Granada’s International Campus of Excellence project is precisely “shared commitment to shared development”.
5. Courses on offer and their content: from the first steps to the job market

Changes in courses offered by universities will have to be designed bearing in mind different dilemmas, with a cycle-based structure, but at the same time with more possibilities for complementary ad hoc initiatives.

Firstly, the aspiration to offer a range of specialised degrees must be reconciled with the standardisation of the courses offered by different universities, in the sense of them being formally comparable or officially recognised, especially in common higher education areas.

Moreover, traditional educational values must be balanced with the development of new skills to facilitate adaptation to changes in ICT or the need to foster entrepreneurship and the link with the surrounding area.

Universities will need to administer the co-existence of traditional formats with new formats such as MOOCs. They should accept that they must adapt to the needs of potential students with a much wider age range than before, with demands in more than one language and for different kinds of training at different points in their lives. This involves reviewing the teaching-learning process to increase flexibility with the mass use of mobile, portable or personalised devices. Here, accessibility is vital and the role of the teacher is broadened, going beyond giving the typical lecture to include the functions of facilitator and motivator, capable of eliciting the students’ best academic performance in these new contexts.

The selection and recruitment of students will move to the forefront, since attracting talent and following the educational process with students who are involved and motivated is a guarantee of better results.

The number of university graduates in the world will increase considerably over the coming years, which is why more attention must be paid to their incorporation into the labour market. Employment and job quality is a huge problem in many countries and, unfortunately, this will continue to be the case. Employment in the future will be characterised by increased autonomy and jobs with more flexible formats in the following areas: length of the working day (more part time jobs), the workplace (no longer exclusively in one fixed location, more teleworking), working hours (more variability) or working for one single employer. There will also be an increase in the trend towards self-employment, entrepreneurship and more internationalised employment, affecting both the location of the workplace and the relations necessary to perform the job. Universities must seek to respond to these trends and achieve quality in graduates’ incorporation into the labour market.

We may possibly see an increase in the differences existing in some systems between undergraduate universities, those which also offer postgraduate courses, and those which also offer doctoral programmes and are clearly research-based. All of these require efficient and effective control mechanisms. Neither society nor the market recognises or efficiently corrects deficiencies in the courses on offer.
6. **Focusing on R&D+i. Discovering and sharing**

The essence of the university is to generate knowledge, namely to make discoveries and share them in many ways, through scientific publications, art exhibitions, cultural or social events, or innovation in products and services.

The university is an ideal setting in which to promote R&D+i in collaboration with other stakeholders involved in the innovation system and in healthy competition with them, rather than seeing them as rivals.

Frontiers, or rather horizons of knowledge should be identified and proposals drawn up and implemented working together with other universities. A balance must be sought between top down plans introduced by government representatives who establish priorities and rules to promote optimum functioning of the R&D+i system on the one hand and, on the other, emerging, bottom up processes which need sufficient autonomy and appropriate conditions in the universities for ideas and innovation to flourish. The underlying idea is that research and knowledge should serve to respond to social needs or at least should not exacerbate them.

7. **Resources and their management, a necessary prerequisite**

Funding is an ever-present issue because it conditions recruitment of both teaching staff and other professionals, in addition to affecting the availability of essential resources, access to documentary sources, laboratories and other equipment, infrastructure or info-structures.

The trend towards diversification of funding sources for universities will persist and become more intense. Thus, increased efforts will be required in the design of strategies to obtain funds in competitive bidding processes or to develop systems for patronage, in short, savoir-faire in obtaining funding.

On physical campuses the teaching and learning process will have to be prioritised in classroom design and in the use of other areas and buildings which may be useful for the learning process. The design of physical campuses should focus on accessibility for its multiple users, environmental sustainability and connectivity with the city or surrounding area. Physical facilities should be complemented with on-line facilities for which equipment for info-structures is essential.
Accessibility thus becomes a priority but also on-line content or services, in other words, the value contributed by on-line services, which will also depend on the security and reliability with which the system functions.

Accessibility of resources (bibliographical resources, data bases) means that the concepts of flow, use and connection become more important than stocks, possession or storage.

Over the coming years we shall see the development of university information systems which permit improved collection and management of data on the university’s functioning and surroundings. Frequently such data is spread piecemeal in different services or departments that are not properly connected to each other. Advances will be made in the use of predictive analytics of big data, in short, a system for the most appropriate use of the data available.

8. Capabilities and their development

According to resources and capabilities theory, identifying resources and gaining access to them is not sufficient. Capabilities also have to be developed. Universities should be able to develop organisational capabilities. When universities speak of developing talent it is usually students, researchers or teachers that spring to mind, but not normally management staff. It is necessary to attract talent in management, able to implement the right organisational capabilities, prioritising professionalisation and autonomy. There is a link between the degree of autonomy and the position in the international university system (Aghion et al. 2010). This should be linked to a more agile organisational structure, which is also organisationally more sustainable, and includes recycling or re-use within the organisational structure and in the various entities that grow up around universities. A further challenge is to coordinate the increasingly wide network of entities that universities participate in.

University management has not always been given the importance it deserves. However, unsatisfactory management jeopardises the university’s capacity to successfully achieve its goals, especially in teaching and research. At universities there is scope for innovation both in governance and in strategic planning, moving from strategic planning based on drafting a plan, to strategic planning aimed at bringing about real changes based on sound research in management.

In short, for the success of universities, a legal framework is necessary which constitutes a stable frame of reference, with autonomy regarding resources and management, and with a wise strategic vision, both in design and implementation.

9. Creating value as a meta-mission

Creating value in universities is linked to appreciation and recognition of the education it offers, its degrees and graduates, its research and research activity, or with quality of life on campus during the university experience. Value, perceived in this way by different target groups, has a lot to do with satisfaction with the service offered by the university, with the image and reputation of the institution, and with the loyalty professed both through intention to collaborate (and even provide funding) and recommend the university.

The links universities maintain with their graduates be they at bachelors, master’s or doctoral level, or resulting from some other, alternative relationship, should be
strengthened during the university experience itself. Increasing attention should be paid to the post-university experience, to follow-up and cooperation with alumni through creative alumni programmes.

Value can be analysed from an individual (or social) perspective, such as the trade-off between the benefits and the sacrifices (economic, social, psychological) that going to university entails for each person (or society). There is ample proof that a university education leads to more job opportunities, higher income and a greater capacity to adapt, in addition to a healthier lifestyle. In addition to the obvious individual benefits, this also increases tax revenue and reduces the need for unemployment benefits and social expenditure, which should be taken into account in any analysis of the social value of the university system.

A focus on generating added value helps to enhance the reputation of a university and, indeed, this reputation has a halo effect on the professional reputation of the people linked to it. Thus the importance of reputation management, an issue to which increasing attention will be paid.

Closely linked to this, the social responsibility of universities will also gain more importance. Apart from abiding by the law (which, strictly speaking, is not social responsibility) the university’s accountability and social commitment will be increasingly demanded. Ethics should be present in this process of value creation and some things are simply unacceptable in the promotion of research and its publication (i.e. plagiarism, scientific fraud), in teaching or in the promotion of a social, personal or institutional reputation. In this sense, we should design systems which reliably accredit social responsibility at university level through some kind of instrument (certification, GRI indicators or similar).

The creation of value must be measured and disseminated. University rankings, which are really rankings of attributes rather than of the universities themselves, are frequently biased almost exclusively towards the volume of scientific production. They are a mere approximation to partial measurements, but they will have increasing influence and presence.

A further challenge is the dissemination of information about the value generated by universities. The advances in marketing intelligence and communication through non-conventional means will continue to evolve over the coming years and will gain ground in university strategies.
10. The glocalisation of multidiversity. The university becomes flatter

Friedman (2006) argues that the world has become flat. The world of universities has also become flatter and this trend will continue, more than ever before. This is due to standardisation, brought about through the setting up of geostrategic areas, but also due to the possibilities offered by information and communication technology and increased interaction between universities in research projects, joint teaching programmes and other forms of collaboration.

There is no doubt that all universities have their roots in the area in which they are located but at the same time they have more and more contacts, collaboration and participation in different international networks. Universities are increasingly glo-cal and multi-versity.

In the future, members of a university (students, researchers, teachers or professional staff) will also be linked to other universities. The number of universities with a strong link to a certain fields of study or professional activity will increase. People will no longer identify exclusively with one university but with a network of universities, either because of the prestige or reputation of one of the universities or because of a specialisation it offers, such as cooperation with less favoured environments, or collaboration in diverse projects and initiatives, strictly limited to teaching or alternatively, cultural, social or research projects.

In short, from now until 2031, universities face classic challenges on a new stage with different actors. The capacity to adapt to this context will be decisive in the improvement of the university’s fundamental missions, generating value for people and society, leading to a better, more liveable and more sustainable world.

Ten-point list of trends and/or challenges of the future of the university:

1. New global university scenario
2. The university is made up of people. People-based universities
3. One common language or several common languages in our universities?
4. A commitment to shared development
5. Courses on offer and their content; from the first steps to the job market
6. Focusing on R&D+i. Discovering and sharing
7. Resources and their management, a necessary prerequisite
8. Capabilities and their development
9. Creating value as a meta-mission
10. The glocalisation of multidiversity. The university becomes flatter
“From now until 2031, universities face classic challenges on a new stage with different actors”

References


Horizon 2031. The University of Granada in Light of its V Centenary. “Reflections on the Future of the University”
Horizon 2031: The University of Granada in Light of its V Centenary.
“Reflections on the Future of the University”
Horizon 2031. The University of Granada in Light of its V Centenary. “Reflections on the Future of the University”