Universities and the emerging new players: Building futures for higher education

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Abstract

Universities are long-established organisations, and although reinvented themselves several times, major reforms are needed again, underpinned by systematic prospective analyses. A novel method is needed to take into account the wide-ranging and complex factors, shaping the future of the higher education system. 'Futures' should be devised in a multi-level structure as the bulk of trends and driving forces are international in their nature and universities are embedded in broader socio-economic systems. This new approach is demonstrated here by devising 'cascading' futures for the EU, the European Research and Innovation Area and universities.

Several advantages can be expected from this type of prospective analysis: (i) the potential changes of these broader settings, in which universities operate, as well as their impacts on higher education can be explored; (ii) the huge diversity of higher education systems and individual universities can be reflected; and (iii) the likely impacts of different policy options can also be explored.

It is also proposed to select foresight programmes from the 'prospective toolkit', given their specific features and benefits compared to other prospective methods.

Keywords: higher education, multiple futures in a multi-level structure, foresight, prospective analysis

Introduction[1]

Higher education has long been dominated by universities (and colleges), but more recently different types of new players are entering this arena. This development alone would be sufficient to instigate prospective analyses on the future of higher education (HE), but other factors – demographic, technological, societal trends, and new performance metrics, financial/ managerial requirements vis-à-vis HE organisations, etc. – are also changing the landscape for universities.[2] Further, the notions of knowledge and knowledge production are discussed intensely in recent years, given the emerging roles of new actors in producing, disseminating,

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[2] The term "universities" is to be understood to cover all sorts of higher education establishments, including, for example, the German *Fachhochschulen*, the British *polytechnics* and the French *Grandes Ecoles*.

using and validating knowledge. All these developments call for strategic thinking and actions both at the level of HE organisations and policy-makers. In 2007, the EU also launched a dialogue on the future of the European Research and Innovation Area (ERIA), of which universities are undoubtedly major players.[3] That process underlines the otherwise evident point that universities operate in broader socio-economic systems, and thus it is crucial to set the scene when thinking about their future. One possibility could be to treat these systems as given. The EU itself, however, is still evolving, due to a number of internal and external factors. This article, therefore, devises several distinct futures[4] for the EU as a starting point. It is also assumed that the European Research and Innovation Area can evolve in different directions, depending on the main features of the EU to a significant extent, but obviously having its own dynamics, too. The scenarios developed for universities below are largely driven by these broader structures, that is, the EU and the ERIA.

The article is organised as follows: First, the need for prospective analyses is highlighted by reviewing major trends, and drivers for future changes. Then the relevance of the proposed three-level structure is discussed. It is followed by multiple visions for the EU, the ERIA, and universities, with the time horizon of 2020-2025. The differences among various prospective approaches are also considered, focussing on the specific features of foresight processes, and their benefits for building futures for the HE sector. Finally, methodological conclusions are drawn.

Three major limitations should also be indicated. First, this article is aimed at a prospective analysis, and hence it does not offer a thorough enquiry of the current state and performance of universities. Second, a geographical limitation also applies: EU universities are considered here – but the proposed method can be extended to other regions of the world, obviously with important modifications; e.g. some EU-specific trends, policies and governance modes need to be replaced by the relevant ones. Third, it is not possible to reflect the significant diversity across universities and countries. At least three major types of diversities can be mentioned: the share of HE organisations in research activities (vis-à-vis the other research perfuming sectors);[5] the distribution of legal and financial competences between national and regional governments to regulate and fund universities;[6] and the quality of education and research activities of HE organisations.[7]

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[3] ERIA is understood throughout this paper as the set of all relevant actors of RTDI processes in the EU, as well as their interactions. In other words, 'ERIA policies' of the EU are just one element of ERIA, as it is composed of all other EU, national and regional policies affecting RTDI processes and performance, the activities of firms, all types of R&D units, higher education organisations, financial intermediaries, as well as a host of supporting, bridging and service organisations, and most importantly the interactions (communication, networking, collaboration and competition) among these actors.

[4] 'Futures' are depicting 'images of a future world', or a 'views of future states'. 'Futures', 'visions' and 'scenarios' are used as interchangeable notions here. That is, 'vision' is a neutral, value-free term in this article, and 'scenarios' are distinguished from 'fully-fledged' or 'path scenarios'. The latter ones develop detailed causal stories of how an organisation (or sector, region, country, etc.) might be transformed in a certain time period: when it is likely to arrive at cross-roads, and what direction (decision) is to be taken at those points.

[5] The business enterprise sector is a dominant one in the majority of OECD countries, and all the advanced ones share this feature.

[6] In small and medium-sized countries it is mainly the responsibility of the national government to devise HE policies, as well as to fund HE organisations, while in bigger countries – e.g. in Germany and the UK – regional authorities perform these tasks. For a more detailed discussion, see, e.g., Sanz-Menéndez 2007.

[7] A detailed analysis of the performance of EU universities is offered by Bonaccorsi and Daraio (eds) 2007.

The Need for Prospective Analysis on Higher Education: Trends and challenges

New scientific knowledge has been produced, validated and disseminated mainly by universities for centuries.[8] In the last two centuries, however, universities have lost their monopolies. First, other research actors have emerged since the late 19th century, notably firms, and public labs. More recently, patient groups and other types of NGOs also conduct research. The role of users in the innovation process is also recognised now, and become much better understood (von Hippel 1988; Fagerberg et al. 2005). Second, new actors offer higher education services, especially since the second half of the 20th century.

Of these two main fields of activities, only education is considered in this article, when devising multiple futures for universities, to reduce complexity.[9] In the same vein, solely those trends and challenges are discussed below, which affect education activities.[10] The order, in which they are tackled, does not necessarily reflect their significance.

Key trends and likely future changes

The most important driving forces for the current and future changes can be derived by considering the increasingly intense global competition in higher education activities; as well as financial, demographic, technological, and societal factors. There is an ever more intense quest for excellence in order to improve academic recognition and thus being able to raise funds. This is adding thrust to the strong pressure for intense international collaboration, and in the meantime a fierce competition for talents (both students and staff members) among universities. Governments are under pressure to cut public expenditures to balance their budgets, and/ or make tax cuts possible. Tighter funding opportunities, in turn, lead to increased competition among HE organisations for restricted funds. In the meantime, technological changes offer more sophisticated, more expensive equipment, and it also becomes a must to purchase these pieces of advanced equipment, given the intense international rivalry among HE actors. That is putting extra burdens on the already tight budgets of universities. Cost-efficiency of education thus becomes a major objective: the combined effects of technological and demographic changes, aggravated by the pressure on public funding, open a gap between increasing HE costs and parsimonious public budgets allocated to HE activities.

Regional, national or supra-national policies can toughen some of the above driving forces, slow down or divert their impacts, or create new drivers for change by introducing far-reaching and resolute goals for universities. A prime example of major impacts triggered by public policies is the Bologna Process (Alesi et al. 2005).

These S&T, societal and economic factors – coupled with various policies affecting the HE sector– give rise to several already visible trends and might cause major future changes.

Universities perform various tasks: teaching, academic research, joint RTDI projects with businesses; scientific advice for NGOs and policy-makers. The balance between these roles is changing, leading to different 'portfolios' at different types of universities; e.g. the dominance

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[8] Inventors have certainly advanced technologies to a very significant extent. Moreover, several major inventions have long preceded scientific theories explaining their actual operation. (The well-known examples include the steam engine, the first airplanes, semiconductors, etc.) Contrary to the widespread belief that technologies are, in essence, applied sciences, a number of scientific disciplines evolved from the puzzles why certain technologies work as they do (Nelson 2004; Rosenberg 1996, 1998).

[9] It is a somewhat artificial separation, no doubt. The main purpose of this paper, however, is to demonstrate the expected benefits of multi-level futures, rather than to offer full descriptions of potential futures states, covering all aspects. If this approach is accepted in actual strategy development processes, the aspects of research activities can easily be added. Both education and research aspects are considered, e.g. in Havas 2006.

[10] Some of them would affect both education and research activities of HE organisations, of course.

of undergraduate teaching in some cases, and research – coupled with post-graduate training – in others.

In the meantime, teaching activities themselves are likely to change: new types of courses/ degrees are to be offered to meet new societal and economic needs. The most obvious examples include short(er), more practical courses for job-seekers, and regular re-training of middle and top-level managers and policy-makers, as well as researchers (as required by life-long learning). Courses for self-development would be more in demand. Further, courses/ curricula should be tailored to students' needs. More pronounced demand is likely to be 'attached' to HE funds coming from governments, businesses, foundations, alumni associations, and 'consumers' (students and/ or their parents). As part of that trend, stronger, better articulated needs would emerge for multi- (trans-; inter-) disciplinary education and training.

An increasing share of the age group of 18-29 years old is registered for university courses. In a number of countries, there is already a very high enrolment at HE, leading to a fundamental transition from elite universities of the previous centuries to "mass production" of degrees. With 30-48% of the relevant age cohort attending tertiary education in most OECD countries it is neither exclusively the 'elite', who participates in it, and nor the only aim is to reproduce the academic and societal elite. Teaching and research nowadays are only 'intertwined' at a fewer number of universities, and usually only at the post-graduate level. The Humboldtian model has thus become an exception, rather than the rule.[11]

The overall trend of ageing population persisting in most EU and other advanced countries would increase the share of 'mature' students. Life-long learning further reinforces this trend. Thus new methods/ approaches in HE are likely to emerge; just as new types of communications between HE personnel (teachers and support/ administrative staff) and students, as well as among students (from different age groups, with dissimilar experience, behavioural norms, values and culture).[12]

The number of globally active HE organisations may increase significantly, leading to a more intense competition. First, a number of HE organisations located in currently laggard countries are likely to accumulate respect in the global HE arena, and thus emerge as non-negligible competitors. Second, new HE service providers might also evolve:

- fundamentally re-structured universities, e.g. financially weak, formerly independent universities taken over by strong performers from either the HE sector, or other businesses, such as publishing houses, with the ambition of selling education services;
- newly set up 'branch' campuses of highly respected universities, using their 'parent' university's curricula;[13]
- organisers of studies/ degrees,[14] as well as 'accreditation' organisations granting certificates, diplomas, or even degrees,[15] all operating without their own academic staff and courses;

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[11] The Humboldtian model of universities assumes a unity of teaching and research, based on the idea of higher education through exposure to, and immersion in, research activities (Kehm 2006).

[12] Some signs can already be felt in the US: "Institutions designed and operated for youthful students have often been traumatised by the changing composition of the student population. This is especially true of the faculties who are ill-equipped to deal with the demands of the 3 million working adult students who not only want an education but they want it delivered in much the same way the other services they purchase are delivered: efficiently, conveniently as to time and place, courteously, and with a consistent structure yielding a uniform quality. Furthermore, they want an education that, quite apart from what it may do for them as reflective beings, will improve their performance in the workplace whether it be in the professions or technical position." (Sperling 1999, 114)

[13] The West Report has devised a number of business models for universities, among others, this one (GAL 1999).

- large firms setting up their own 'universities';
- NGOs setting up virtual universities.

Currently 'unthinkable' players might also launch HE services by modifying current organisational forms and 'business models' or inventing new ones. That could change the HE 'ecology' quite radically, e.g. in terms of more pronounced variety, as well as new opportunities and rules for co-operation and competition. Several HE actors, or even 'species' of HE actors, might disappear, as they are becoming 'unfit' to the radically changing environment.

Depending on the speed and extent of changes envisaged above, universities are likely to be evaluated by using new metrics, besides the conventional criteria of academic excellence (publications and citations). In particular: to what extent do they fulfil their various societal roles; what types of courses are offered to whom, at what level of quality; are they attractive for foreign staff and students; to what extent are they engaged in multi- (trans-; inter-) disciplinary training; are they using resources in an efficient way? [16] Various types of universities (e.g. ones focussing on vocational training as opposed to post-graduate teaching and research; or meeting local needs vs. acting as a global player; etc.) are likely to be evaluated by different sets of criteria.[17]

There is already a wide variety of governance models (different ways of involving stakeholders) as well as management models (collegial vs. professional, and their different 'blends'). (Kehm 2006) The inherent tension between the interests, values, and goals of different stakeholders, as well as the one between the need to monitor and control the various activities of universities for managerial purposes and the nature of academic activities would most likely be resolved in distinct ways by different HE actors. The emergence of new players – and new business models for universities – is likely to add 'more colours' to this picture.

In sum, sweeping changes are already occurring in the HE sector, and even more far-reaching and fundamental shifts can be expected. In the meantime, the broader socio-economic environment of HE organisations is also undergoing thorough and wide-ranging transformations. The very notion of education, knowledge and research is being redefined. Stakeholders are reshaping science-society links, and thus new societal demands emerge for universities. Further, the principles of the so-called new public management (accountability, transparency, efficiency and effectiveness, responsiveness, as well as forward look) are posing new requirements for HE policy-makers and managers.

Universities cannot stand still amidst these sea changes; on the contrary, they need to face new realities, either simply by reacting, or taking the initiative in a pro-active way. Indeed, a strong consensus appears to be emerging on the need for major reforms from all corners: policy-makers, analysts, and universities themselves (Aghion et al. 2007; EC 2003, 2007; OECD 2006; LERU 2006; STRATA-ETAN 2002; Vincent-Lancrin 2006).

These responses/ reforms, in turn, should be underpinned by relevant prospective analyses and strategic processes. Given the diversity of HE organisations themselves, as well as that of

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[14] The Western Governors University is a case in point: it has been set up as a private collaborative venture by Governors of 18 states in the US and a number of large companies. It offers distance learning courses via its web site, alongside with 'brokered' courses and degrees (provided by 'real' education institutes), and act as a clearinghouse, too (Farbman 1999).

[15] These certificates, etc. can be based on proved competences, or more conventional course work done by the 'students' elsewhere, including e-learning. Offering these 'accreditation services' can be a new role for existing universities, too.

[16] As research activities are not covered in this article, the respective evaluation criteria are not discussed here, either.

[17] The overall rationale of ERIA, in which EU universities operate, is also likely to affect evaluation criteria and methods.

their broader context, in which they operate, it would be a gross mistake to search for a unified, 'one size fits all' solution. On top of that, the methodologies applied for guiding strategy-building processes are also diverse. Thus a conscious, well-considered decision is needed when selecting methods for prospective analyses.

The Relevance of Multiple, Multi-level Futures on HE

Methodological choices

Three major choices are to be made when devising the methodology for prospective analyses. First, is it sufficient to construct a single vision of a feasible and desired future, or is it more appropriate to build multiple futures? Second, the level of analysis should be defined. One possibility is to consider a single entity[18] on its own. Another one is to emphasise the importance of various driving forces arising from different levels of the broader systems, in which a given entity is embedded in. The third choice concern the number and range of participants: is it only a few experts who are to be involved, or is it a participatory process, in which representatives of different stakeholders groups are engaged in structured dialogues? The first two questions are considered here, while the third one is discussed in a separate section.

Before tackling these questions, it seems necessary to state that this article takes as an 'axiom' that HE reforms, or strategies of single universities – more generally, strategic actions in any field – should rest on explicit, systematic analysis of a desired future state. Yet, a number of – potentially influential – proposals or policy documents on the HE sector do not discuss the future at all (Aghion et al. 2007, EC 2003).

As for the choice between *single vs. multiple futures*, two hypothetical 'worlds' can be thought of. In the first one the current trends are well-understood, and are likely to be continued, without noteworthy new driving forces emerging, and hence no major interruptions can be expected.[19] In this world, simplicity rules, and thus extrapolation seems to be a relevant analytical tool. In the other one there are multifaceted, difficult-to-predict interactions among the identified current trends, and new major trends cause discontinuities, thus adding to the already existing complexity. A single vision, therefore, cannot provide sufficient guidance to decision-makers: multiple futures should be explored.

Futures developed by prospective analysis can be direct inputs for policy preparation or strategy-building processes: once a favourable future (future state) is identified among the feasible ones, the path(s) leading to that specific future state can be designed: a series of actions can be determined, which are likely to increase the probability of achieving the desired future. Equally, futures can be used as a sort of wake up call: in case the current trends continue – because no actions are taken to change the course –, we arrive at an undesirable future state.

Given the complexity of the current and likely future trends affecting the HE sector multiple futures are needed to underpin HE reforms or strategic responses of single universities. Moreover, multiple futures are crucial tools for decision-makers even in those cases, in which the underlying trends are easy to understand and their impacts can be forecast with satisfactory precision: the likely impacts of distinct options still have to be considered.[20]

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[18] The unit of analysis can be an organisation, an economic sector, a region, a country, or a group of these entities.

[19] Intentions of policy-makers or those of other stakeholders to change the current settings are understood here as driving forces, potentially leading to discontinuities. In other words, 'simple worlds' are characterised by the lack of these intentions.

[20] Without having considered diverse options, one cannot really speak of decision-making.

Against this backdrop, it is disquieting that major policy documents on HE do not consider multiple futures; a striking example of that approach is the EU Green Paper on the European Research Area (EC 2007).

As for the *level of analysis*, the time and resources available are decisive factors. Given these constraints, one can easily understand if a single university opts for a less demanding prospective analysis, i.e. only builds multiple visions at its own level. Or in the same vein, an umbrella organisation for universities devise futures at the level of the HE sector, disregarding trends and driving forces occurring in the broader context, affecting the HE sector as a whole. A thorough review has found an impressive number of prospective projects on HE, as well as a wide variety of organisations launching these exercises, ranging from single universities to international organisations (Georghiou and Cassingena Harper 2006). Yet, in all these cases the 'unit of analysis' is either an existing or a hypothetical university. This approach disregards two important fact(or)s, and hence leads to major shortcomings. First, universities operate in broader socio-economic systems, and thus it is crucial to consider the possible developments in those structures, which they are embedded in. Without that, the likely impacts of major changes in these broader systems cannot be analysed. Second, a huge diversity can be observed among the broad HE models across continents, or across countries on the same continent. Moreover, significant differences can be observed even inside countries concerning the performance, funding and governance models of their HE organisations. When an existing or an 'abstract' university is taken as a unit of analysis, this diversity simply cannot be reflected.

This article proposes a multi-level prospective analysis – using universities in the EU as an illustration – to rectify these shortcomings. The above list of factors that shape the future of universities clearly suggests that a number of trends or challenges are international in their nature, while the legal competences to set policies are with the national or (sub-national) regional governments. The European Commission has launched several initiatives to align these regional and national policies.[21] Moreover, the EU itself is still evolving; triggered by both internal and external factors. The nature of the broader EU strategies would also determine the range of stakeholders to be involved in a participatory prospective analysis: the role and influence of university staff, students and the civil society at large, policy-makers or businesses might differ significantly in distinct 'futures' for the EU. The starting point of the proposed multi-level prospective analysis is, therefore, the EU, as the broadest socio-economic context for the EU universities. It is followed by scenarios for the European Research and Innovation Area (ERIA), as the more immediate framework in which EU universities co-operate and compete with other HE actors.[22] Finally, futures are devised for universities.[23]

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[21] The most visible ones are the so-called Bologna process, the regular meetings of education ministers, as well as the other channels of the so-called "open method of co-ordination". The Spring European Council meetings, assessing the progress towards the Lisbon strategy, using several indicators on HE performance, can also influence national and regional HE policies. Also indirectly – and less manifestly – the various EC funded projects and expert groups on higher education can also shape these policies.

[22] Non-EU universities are already operating in the EU, and given the intense international competition for students and staff, their presence is likely to be more pronounced.

[23] The national – and sub-national regional – level is "skipped", given the huge diversity of the national (regional) education systems. Skipping these levels from this illustrative case, however, does not imply that national (regional) factors can be neglected in actual prospective analyses.

Benefits of multi-level futures for HE stakeholders

The benefits of building multi-level futures are also discussed in the context of the EU, but most of them would be applicable in other Triad regions, too.

For *citizens*, as well as for *decision-makers in general*, a main advantage would be that major strategic decisions – in this case on the overall rationale of the EU policies and on the mission of the European Innovation and Research Area – are taken in a transparent and conscious way. No doubt, the 'small-scale' decisions – made every day, without taking into account the 'broader picture' – would shape these broader systems, too. This 'muddling through' might seem to be preferable for those who would like to spare the time needed for social dialogues on clearly formulated multiple strategic options, and/ or want to avoid the potential tensions occurring while discussing actions and their consequences. The genuine cost, however, can be a missed opportunity: conscious, well-articulated and broadly supported strategic decisions might lead to much more favourable future state, as opposed to the outcome of 'muddling through'.

A major benefit for *policy-makers* could be to 'simulate' the likely impacts of their decisions, by changing the various 'parameters', e.g. the overall rationale of the EU or national policies (i.e. 'switching' between different EU futures), or the actual higher education policy tools, as well as the links between HE policies, *per se*, and other policies affecting education, R&D and innovation processes (e.g. exploring the impacts of certain polices on the mobility of researchers and students). As already stressed, a number of drivers are global (or EU-wide) in their character, while decision-making competences are with the national or regional authorities. Thus, multi-level governance should be understood in order to devise appropriate policies (accomplishing what is possible and not striving for unattainable goals). A set of futures, representing the various levels of governance, can contribute to design relevant policies. Further, the diversity of universities can also be taken into account, provided that the appropriate 'ideal types' of universities are identified – and used as 'input data' for this qualitative simulation – for a specific policy design task. EU policy-makers might also use multi-level futures as a tool assisting their initiatives to align national policies. In that case, however, the national level needs to be introduced.

Stakeholders of universities – their executives, academic and supporting staff, students, businesses, the relevant community around them, be it local, regional or national – would better understand the context they work in, including the potential future states, towards which these broader systems might evolve. Hence, they would be better equipped to devise a 'future-proof', robust strategy: they can explore how their planned strategy would work in different future environments, and thus can adjust their strategy to make it successful in these different futures. They can also 'hold' the environment as given, and study if changing their university's main features would improve (or deteriorate) their performance. That would be a useful exercise in case they intend to reform their university.

Finally, for *innovation policy analysts* this multi-level structure offers three advantages: (i) the likely impacts of potential changes in the broader socio-economic systems, in which universities operate, can be analysed; (ii) the observed diversity of higher education systems and/ or individual universities can be reflected by identifying relevant ideal types (tailored to specific research questions); (iii) the role of other research actors, and more importantly, the links among universities and those other research players can be discussed systematically.[24]

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[24] As already noted, the research activities of universities are not discussed in this article – yet, it is worth mentioning here this latter benefit, too.

'Cascading' Futures for HE and its Broader Landscape

First scenarios are devised on the EU as a whole. Then the European Research and Innovation Area (ERIA) is taken into account as a 'mezzo level' system. Finally, the most important trends and drivers are addressed at the level of universities. This simple exercise has twofold aims: (i) the futures presented here are aimed at triggering a debate among experts on the relevance of this method; (ii) the content of these futures can be used as an input for actual prospective analyses.[25]

To avoid potential misunderstandings, the major underlying assumptions are spelt out before building futures in this multi-level structure. First, as already stated, policies can modulate – e.g. speed up, slow down or 're-direct' – trends, and can also trigger new developments themselves. Second, universities cannot operate fully isolated from their socio-economic environment. For these two reasons, various EU polices under the label of the Lisbon Process, especially concerning the relative weight of competitiveness[26] and cohesion objectives, as well as the more specific ones on the ERIA are considered here.[27] Third, the interrelations between competitiveness and cohesion can be thought of in different ways: (i) as mutually exclusive goals (a 'zero-sum game', in which these policies are competing for the same set of scarce political, intellectual, organisational and financial resources); or (ii) as mutually reinforcing ones (a competitive, thriving EU can afford to support cohesion regions, while narrowing the gap between advanced and laggard regions would enhance the competitiveness of the EU as a whole). The latter view is taken here, and thus a great significance is attributed to innovation processes in the cohesion regions/ countries, as well as to the wide range of policies to promote innovation. Fourth, cohesion is an issue (a) inside the large, advanced EU member states (given the significant differences among their own regions), (b) for the four 'classic' cohesion countries, and (c) for the 12 new member states. Thus, it has long been a major political and policy issue for a non-negligible part of the EU15, too – and has become even more prominent since 2004. Moreover, the forthcoming enlargement(s) would add more countries and regions to this list. Fifth, it has been shown that promoting RTDI efforts in cohesion regions via joint research projects (funded e.g. by the EU RTD Framework Programmes) has not compromised scientific excellence (Sharp 1998). Sixth, a pronounced policy emphasis on cohesion does – and should – not preclude competition among universities.

Futures for the EU

The point of departure is two fundamental features of the EU: (i) its main strategic intention/ orientation in terms of putting the main emphasis on cohesion (societal issues) vis-à-vis competitiveness; and (ii) its overall performance compared to the other Triad regions.[28] Four fundamentally different futures can be derived by taking into account these "variables":

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[25] It is beyond the scope of this article to estimate the degree of probability of the specific futures. The modest aim is to sketch "consistent and coherent descriptions of multiple hypothetical futures that reflect different perspectives on past, present, and future developments, which can serve as a basis for action. They are tools for thinking about the future, which will be shaped partly through deliberate strategies and actions, partly by factors beyond the control of decision-makers." (OECD 2006, 1)

[26] There is no widely accepted definition of competitiveness; economists have dissenting views even on the appropriate level of analysis: products, firms, value chains (production networks), (sub-national) regions, nations, or even larger entities. This article cannot attempt solving this problem.

[27] One of the strategic guidelines of the recent EU cohesion policy is to improve the knowledge and innovation for growth (EC 2005). More specific areas of interventions include: improve and increase investment in RTD, facilitate innovation and promote entrepreneurship.

[28] Emerging countries, e.g. China and India, might also become important competitors, but a flexible interpretation of the Triad regions can easily include any relevant countries.

Future A) *Double success*: A carefully balanced development strategy of the EU – composed of (i) cohesion/ welfare policies pursued in a flexible way, and using appropriate, refined policy tools[29] and (ii) competitiveness policies – leads to an 'externally' successful and cohesive EU.[30]

Future B) *Successful multi-speed EU*: The already successful EU regions, perceived as 'engines of growth', are heavily promoted by EU policies, making them even stronger, leading to enhanced competitiveness of the EU vis-à-vis the Triad regions. In the meantime, the gap between these successful EU-regions and the less developed ones significantly widens, even inside the large, advanced member states.[31]

Future C): The EU development strategy is incapable of harmonising the requirements of competitiveness and cohesion; policies meant to support the latter are not modernised, and thus take up too much resources, and hamper the processes required for an enhanced competitiveness. Two "variations" on this theme can be thought of:

Ca) *Shaky cohesion*: Temporary success in terms of stronger cohesion (at the expense of external competitiveness, and thus being "shaky").

Cb) *Double failure:* Inappropriate strategies, insufficient co-ordination of policies, poor implementation and/ or external factors lead to an overall failure both in terms of cohesion and performance vis-à-vis the other Triad regions.

Future D) *Failed multi-speed EU*: A multi-speed EU strategy fails to improve the performance vis-à-vis the other Triad regions, while it widens the gap between the advanced and less developed EU regions. The reasons for this failure can be numerous: e.g. internal (inappropriate policies and/ or poor implementation), external (improving EU performance, but an even quicker development of the other Triad regions). The former case is an 'absolute' failure, while the latter is a 'relative' one. Key players of strong EU regions would act together both at an intra-regional and an inter-regional level – probably also with their counterparts outside of the EU.

None of these futures can be dismissed on logical grounds. Their likelihood, however, might differ a lot, and there is no sound method to predict which of them is most likely to materialise. The actual relevance of them is to present stark choices in terms of strategies, and project the repercussions of the strategic choices made now. In that way, these scenarios can inform present-day decisions, and also show the possibilities to shape our future.

Visions for the ERIA

These different futures for the EU have strong implications for the ERIA, too. In principle, therefore, different types of ERIAs can be derived from them.[32] In practice, however, not all

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[29] The current success of Denmark, Finland and Sweden points to the possibility of a 'reformed European socio-economic model' (Aiginger 2004; Aiginger and Guger 2005).

[30] This vision requires an efficient policy co-ordination, in three ways: horizontally, i.e. across policy fields; vertically, i.e. across governance levels; and along the time dimension, too, i.e. short-, medium- and long-term policies also need to be harmonised. The vision itself, however, makes no assumption if this co-ordination is achieved via heavy-handed top-down mechanisms or as concerted actions of member states and other key players, without a strong centre. This is the well-known issue of having or not a 'federal EU'. (See also two visions of the EUROPOLIS project (2001), coined "Federal Europe", and "Roundtable Europe", respectively.)

[31] Two types of EU behaviour can lead to this future state: (i) a conscious strategic choice to use available funds and other policy tools exclusively or excessively for boosting competitiveness, and thus ignoring cohesion; (ii) incapability to devise strategies and policies, and/ or general inaction, inertia, inefficiency to implement policies. In a radical scenario, not to be discussed here, the loss of EU policy-making power to national, regional, and local authorities would also result in widening gaps among regions. For a largely similar scenario, called "Swiss Europe", see EUROPOLIS 2001.

[32] As already stressed, ERIA is understood throughout this paper as the set of all relevant RTDI actors, as well as their interactions. Therefore, by making a strong link between the EU strategies on the one hand, and the ERIA, on the other, does not deny the possibility that 'ERIA policies' can enjoy some level of independence from the

of them are equally relevant from a strategy point of view. Thus, to demonstrate the use of the proposed method, it is sufficient to consider two EU-level futures when building ERIA visions: A) *Double success* and B) *Successful multi-speed EU*. Some of the main features of the types of ERIA 'fitting' to these two EU futures are presented in Table 1.[33]

Table 1 about here

Futures for universities

Taking into account the trends and drivers identified above, several futures for universities can be elaborated, depending on the extent to which the diversity of universities is taken into account. A relevant method to deal with diversity is to identify ideal types. To keep the discussion relatively simple and short, only two types of universities are considered here:

- Universities remain largely unchanged, performing the same functions in roughly the same organisational attributes;
- Universities reform themselves – or are reformed by other actors – radically by transforming their main functions and/or organisational attributes.

In other words, a sort of 'average' university is assumed when discussing *unchanged universities*: neither an extremely inward-looking, inflexible one, further characterised by inertia and poor performance, and nor a flexible, dynamic, highly successful, particularly active one in various networks – although we can find such universities at the extreme. *Radically reformed universities*, by contrast, are highly flexible, and thus adapt their courses, teaching and research approaches, as well as their organisational structures, managerial practices and other internal processes to the ever changing external environment, expressed by the needs of their 'clients' (that is, students, the wider research community, businesses, policy-makers and the civil society). They possess excellent 'navigation' skills to find their way in this complex world, often characterised by conflicting requirements of the various stakeholders.

In this logic, a third option – to emphasise the possibility for fundamentally different futures, and thus encourage 'outside the box' thinking – could be that universities disappear and their functions are assumed by new players, who perform their tasks/ roles in radically novel and diverse ways. (Havas [2006])

For an actual prospective analysis, aimed at assisting decision-making either at the level of universities, regional, national or EU (ERIA) policies, a much better refined set of ideal types should be developed. The aim of the above 'crude' typology is just to demonstrate that (a) different types of universities would act in different ways in the framework of the same ERIA; and (b) the same type of universities would behave differently – at least to some extent – when they are embedded in different socio-economic systems.[34] In other words, this method can be understood as a sort of qualitative simulation. Thus, the method itself should not be judged by the choice of these simplified types of universities, taken as somewhat arbitrary 'inputs' for this qualitative simulation.

Tables 2-3 identify major changes in the external environment of universities – relying on multiple visions developed for the EU and ERIA – and explore the likely features of

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overall strategy of the EU. Yet, it would go beyond the scope of this paper to discuss when this potential 'discrepancy' can be seen as a 'healthy, creative' tension, i.e. ERIA policies take the lead into the 'right' direction, and pull other policies, too; and when it is 'destructive' by hampering development and/ or leading to waste of public resources.

[33] A more detailed discussion can be found in Havas [2006].

[34] Universities, obviously, have a certain level of autonomy in choosing their strategies.

unchanged and radically reformed universities under those conditions, focussing on their education activities.[35]

Tables 2-3 about here

Foresight and Other Prospective Techniques

As already pointed out futures-building (prospective) activities can be conducted by a small group of experts, or by involving the representatives of key stakeholder groups. This section briefly addresses the basic differences between these approaches, highlighting the specific features of foresight programmes/ projects, as well as their expected benefits.

Locating foresight among prospective analyses

Decision-makers, experts and laymen living in different historical periods and in different socio-economic systems shared at least one desire: to know their future in advance or even to influence it for their advantage. They had used very different approaches and methods from spiritual/ religious ones to scientific investigations and various modes of planning. Without going into details, it is worth recalling some of the major methods/ approaches in order to locate – and distinguish – foresight programmes:

- visionary thinking (in ancient times by prophets, more recently mainly by consultants)
- forecasting
- futures studies (for pure academic purposes)
- prospective analyses (for business or policy purposes, e.g. roadmapping, list of critical/ key technologies)
- strategy formation (at firm, sectoral, regional or national levels)
- scenario planning (at a firm level)
- indicative national planning
- central planning (at a national level)
- foresight programmes.[36]

Obviously, the above approaches have a number of common characteristics. All of them (a) deal with the future(s) in one way or another; (b) collect and analyse various pieces of information, and (c) can apply a wide range of methods. Three key features can be used to differentiate the above approaches, and thus distinguish foresight programmes from other methods.

These approaches can:
- be action-oriented vs. 'contemplative' (passive)
- be participatory vs. non-participatory
- consider multiple futures vs. a single future state (already 'set' by external forces).

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[35] Research activities of these two types of universities, using the same structure, are considered in Havas [2006], as well as the impacts of those important driving forces, which can affect universities regardless the differences among the multiple futures devised at EU and ERIA levels.

[36] The term 'foresight programme(s)' is used here as an attempt to distinguish individual (personal) foresight and 'collective' foresight programmes, i.e. the ones launched (and sponsored) by an organisation (or several ones), and conducted by a number participants. Moreover, an increasing number of articles are published by researchers working in the field of future studies, in which 'foresight' is used as a new label for their work (although still following the 'futures studies' or futurology paradigm). Thus it might be useful to tell apart that sort of 'foresight' and 'foresight programmes'.

Action-oriented endeavours aim at shaping/ influencing the future,[37] while passive ones are 'contemplating' about it (futures studies, without being connected to decision-preparatory processes). In other words, the latter ones merely try to develop a better-informed anticipation of the future.

Participatory future-oriented programmes/ projects meet the following three criteria: they (i) involve participants from at least two different stakeholder groups in structured, face-to-face dialogues; (ii) disseminate their preliminary results (e.g. analyses and tentative conclusions) among interested 'non-participants',[38] e.g. at workshops, via the internet with free access for everyone, or in the form of printed documents, leaflets, newsletters; and (iii) seek feedback from this wider circle. Conversely, if any of these criteria is not met, that activity cannot be regarded a participatory programme.

Finally, certain prospective analyses are based on the assumption that the future is not pre-determined yet; and thus it can evolve in different directions, to some extent depending on the actions of various players taken 'today'. In other words, there is a certain degree of freedom in choosing among the feasible future*s*, and hence increasing the chance of arriving at the preferred future state. Clearly, there is a close link between being action-oriented and considering multiple futures.[39] Other approaches, on the contrary, can only think of a single future, already 'fixed' by certain factors, and thus the task is to forecast 'the' future scientifically.[40]

In sum, foresight programmes are action-oriented, participatory and consider multiple futures.

Why foresight for building HE futures: specific advantages

The very idea behind foresight programmes is to bring together different stakeholders with their diverse sets of accumulated knowledge and experience, as well as distinct viewpoints and approaches so as to enrich the discussion and analysis. The participatory element of foresight programmes is particularly important in the case of building futures for the HE sector: given the vital role of universities in generating, transmitting, disseminating and applying knowledge, and hence their contribution to socio-economic development, major stakeholders need to be involved when strategic decisions are to be made concerning universities. Further, a foresight process aligns the participating actors around emergent agendas, resulting in a co-ordinated mobilisation of people, resources and actions. The shared vision and policy recommendations, stemming from the dialogue among participants, lead to commitment to joint actions, as well as actions by individual organisations along the lines of the shared vision. This, in turn, offers a basis for faster and more efficient implementation. In contrast, futures developed by individuals can only experiment with new methods, or spark dialogues, by offering food for thought, at best.

A foresight process might have many different outcomes. Following the usual distinction in the literature, we can think of 'process benefits' and 'products'. The first would include

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[37] *Nota bene*, the first UK Foresight Programme had chosen the following slogan: "Shaping our future".

[38] 'Non-participants' are those persons who have not been members of panels or working groups set up by the programme, and have not been involved directly in any other way, e.g. by answering (Delphi) questionnaires.

[39] Some foresight programmes, e.g. the second Swedish Technology Foresight Programme, consider alternative futures with the explicit aim of identifying key choices confronting their 'constituency', but do not intend to single out any preferred future. In other words, these programmes do not follow a normative approach. (The author is indebted for this comment to Göran Pagels-Fick.)

[40] Cuhls (2003) offers an excellent, comprehensive discussion on the differences between forecasting, prediction, planning and foresight. The possibility of a single future vs. multiple futures is a central element of her analysis.

more intense, regular communication among the stakeholders even when the process is completed; stronger co-operation; a shared vision, leading to consensus on the actions need to be taken; commitment to act upon the recommendations emerging from the process. The second refers to lists of priorities and proposed actions (for different stakeholders, in this case e.g. university rectors and deans, regional, national and EU policy-makers, businesses and local communities as partners of universities), inputs for strategic planning (again, at different levels). The type of intended outcomes always depends on the objectives of a foresight programme, i.e. if it is mainly a process-oriented exercise, a product-oriented one, or a mixed approach is taken. Acting upon the recommendations – e.g. strategy formation for a specific university, strategies for the higher education sector in a region, a country or the EU – is the competence and responsibility the decision-makers.

Conclusions

Universities have been around since the 12th century in Europe, and must have reinvented themselves several times, rather significantly – otherwise would have not survived. The fact that in heated disputes some politicians and observers regard them as still largely 'medieval organisations' indicates, however, that major reforms are needed again. The reasons for that are wide ranging: globalisation of the economy and research; emergence of new HE 'service providers' and research performers; changing science-society links and societal demands towards universities; demographic changes; 'massification' of higher education; student 'consumerism'; technological development (offering new opportunities, and in the meantime putting extra burdens on the already tight budgets of universities); tensions in the national/ regional budgets financing higher educations, and the concomitant requirements of the so-called new public management (accountability, transparency, efficiency and effectiveness, responsiveness, as well as forward looking); and finally the new methods, approaches and norms to organise, manage, validate, legitimate and evaluate HE and research activities.

This article has argued that given the complexity of these factors, the proposed new round of HE reforms needs to be supported by thorough and systematic prospective analyses. That is, the practice observed in some potentially highly influential analyses and recommendations by leading academics, as well as in EC policy documents where no discussion is devoted to describe a desired and feasible future state is not a satisfactory basis for any policy decision. Further, it is not sufficient to devise a single future: HE is characterised by intricate interactions among the already visible trends, coupled with driving forces potentially causing discontinuities in the future. In such a world multiple futures are needed to assist decision-making processes. In this way not only the huge diversity of higher education systems and individual universities can be reflected, but the likely impacts of different policy options can also be explored.

Universities are embedded in broader socio-economic systems. Moreover, the bulk of trends and driving forces are international in their nature. These fundamental features cannot be taken into account when futures are devised only at the level of universities – and this is a widespread practice in recent works on the future of HE. In contrast, this article has suggested constructing multi-level futures, using the case of EU universities as an illustration, to rectify these shortcomings. With this approach both the potential changes of these broader settings, in which universities operate, as well as their impacts on higher education can be explored.

The main intention of the futures presented in this article is to demonstrate how to use the proposed new approach, and initiate lively dialogues among stakeholders. The proposed three-level structure of futures – or 'cascading' visions – offer several advantages for policy-makers, the stakeholders of universities, as well as academics interested in prospective analysis of innovation systems.

The article has also argued that there are fundamental differences between foresight programmes, on the one hand, and future-oriented academic or consultancy projects, on the other. The very idea behind participatory programmes is to bring together different stakeholders with their diverse sets of accumulated knowledge and experience, as well as distinct viewpoints and approaches so as to enrich the discussion and analysis. Further, the shared vision and policy recommendations, stemming from the dialogue among participants, offer a basis for faster and more efficient implementation. Futures developed by individuals cannot bring these advantages, but could offer new methods and/ or content elements, which can trigger fruitful methodological or policy dialogues.

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Table 1: Features of the ERIA in two EU futures: "Double success" vs. "Successful multi-speed EU"

ERIA ╲ EU	"Double success"	"Successful multi-speed EU"
Rationale for EU RTDI policies	"Double-track": tackle societal challenges, promote cohesion and enhance competitiveness	Excessive emphasis on enhancing competitiveness
Location of major HE and research centres	Widely distributed across the EU, weaker centres are strengthened, new ones are set up in laggard regions with a specific objective to promote cohesion	Concentrated in already strong, successful regions
Research agenda	An appropriate balance between societal and techno-economic issues	Focus on techno-economic issues; some research efforts to tackle social challenges stemming from the widening gaps between flourishing and laggard EU-regions
Mobility of researchers, university staff and students	"Two-way traffic": gaining experience, building contacts in more advanced regions across the Triad, and then exploiting these contacts upon return to 'cohesion' regions via intense, mutually beneficial co-operation Mobility grants explicitly aim at nurturing talents for excellence in RTDI and competitiveness and fostering cohesion	"One-way street": brain-drain from laggard regions to booming ones Policy schemes aim at further strengthening strong regions via mobility grants "Two-way traffic" with strong Triad countries/ regions
RTDI collaborations	Widely occurring across the EU and globally; policies aimed at promoting RTDI collaborations have an explicit aim of fostering cohesion, too, among other EU-wide issues	Mainly among strong, successful regions across the Triad, driven by businesses, supported by policies; laggards are left out
Innovation systems, co-operation among key players[a]	Strong, flexible innovation systems in a large number of regions (with their own specific strengths), capable of renewal and adaptation to the external environment, underpinning both cohesion and competitiveness Intense communication among businesses, academia, policy-makers, and the civil society to set RTDI priorities – relevant for cohesion and competitiveness –; strong academia-industry co-operation, mutually beneficial, intense links among large firms and SMEs in a large number of regions (gradually increasing over time) Co-ordinated, joint efforts – supported by EU funds – to strengthen weaker innovation systems, including communication, networking and co-operation among key players inside those regions and across regions	Strong, flexible innovation systems in the advanced regions, capable of renewal and adaptation to the external environment, underpinning sustained competitiveness Intense communication among businesses, academia, and policy-makers to set RTDI priorities relevant for enhancing competitiveness; strong academia-industry co-operation, mutually beneficial, intense links among large firms and SMEs both inside and across flourishing regions Ad hoc, weak communication and co-operation among the key players in laggard regions; weak RTDI policy constituencies Insufficient, half-hearted EU-supported efforts – at best – to strengthen weaker innovation systems of laggard regions/ countries
Financial infrastructure	Conscious EU efforts (policies, guidelines, networking, exchange of experience) to improve financial infrastructure across the EU	No conscious EU efforts to improve financial infrastructure in the laggard regions
Policy-preparation methods, practices	Conscious EU efforts (guidelines, networking, exchange of experience) to improve policy-making practices across the EU	No conscious EU efforts (guidelines, networking, exchange of experience) to improve policy-making practices in the laggard regions

[a] Co-operation with the relevant Triad partners is taken for granted, i.e. not discussed here as a distinguishing feature

Table 2: Driving forces and their likely impacts on universities: "Double success" case

Trends, driving forces \ Universities	Largely unchanged universities	Radically reformed universities
The role/ mission of universities	The main emphasis is on teaching and 'basic research' (science for the sake of science), not much interaction with other players in (regional, national, sectoral, international) innovation systems and with the society Universities do not understand/ take on their role in addressing societal issues Increasing tensions between these 'traditional' universities and the societal and techno-economic requirements of an ERIA in the *Double success* EU	A new balance of the main activities; and a new way to conduct them: intense interactions with other players in (regional, national, sectoral, international) innovation systems and with the society New activities to promote cohesion among EU regions and enhance competitiveness in the meantime Universities understand the societal and techno-economic requirements of an ERIA in the *Double success* EU, and able to adapt to this new environment
Competition for talents	Only a few 'world-class' EU universities can attract talents from advanced Triad regions Mindsets are against competition, measurement and evaluation – beyond the traditional academic indicators Inferior performance and a weakening position vis-à-vis the leading Triad universities	A large(r) number of EU universities become attractive for talents from advanced Triad regions Universities focussing on serving regional/ local needs do not pay attention to attract talents from other countries Competition, measurement and evaluation of performance is widely accepted Strong performance vis-à-vis the leading Triad universities
Courses/ degrees	Mainly 'traditional' courses/ degrees are offered, following a 'pure science' rationale; i.e. societal needs and competitiveness issues are largely neglected Shorter, more practical courses are missing or exceptional Life-long learning is perceived as a challenge to centuries-long traditions, and not taken as a great opportunity	Teaching programmes are balanced in terms of meeting societal and techno-economic (competitiveness) objectives Life-long learning becomes a reality; most universities across the EU are flexible enough to offer the right mix of longer (traditional) and shorter courses, adjusted to the new structure/ balance of learning and working
Multi-disciplinary education/ training	Multi-disciplinary education slowly becomes a more widely used practice, but limited to the logic of 'pure science'. In other words, the complexities of societal issues and competitiveness are not addressed.	Multi-disciplinary education becomes a widely used practice. Students are trained to understand the close relationships between societal and techno-economic issues/ challenges.

Table 3: Driving forces and their likely impacts on universities: "Successful multi-speed EU"

Universities Trends, driving forces	Largely unchanged universities	Radically reformed universities
The role/ mission of universities	The main emphasis is on teaching and 'basic research', not much interaction with other players in innovation systems and with the society Some of the 'elite' universities put emphasis only on enhancing competitiveness	Emphasis on enhancing the competitiveness of businesses; all activities serve this goal; close co-operation with businesses
Competition for talents	Same as in the *Double success* case	Same as in the *Double success* case
Courses/ degrees	Same as in the *Double success* case	Teaching programmes put emphasis on meeting techno-economic (competitiveness) objectives at the expense of societal challenges Life-long learning is a daily practice mainly in the advanced EU regions; in the laggard ones it is available for, and requested by, only a tiny share of citizens. Universities located in the advanced regions are flexible enough to offer the right mix of longer (traditional) and shorter courses, adjusted to the new structure/ balance of learning and working. Most universities located in the laggard regions are not prepared/ flexible enough to offer these "mixes" of courses.
Multi-disciplinary education/ training	Same as in the *Double success* case	Multi-disciplinary education mainly integrates disciplines relevant for tackling techno-economic (competitiveness) issues (i.e. eclipsing societal issues).