Final report presented to the Technical University of Catalonia

Introduction:

DURSI, the department of the Generalitat of Catalonia responsible for higher education, commissioned the European University Association to review in 2005 the quality and management of the province universities that were willing to go through a simultaneous assessment of their social relevance and capacity for change. A meeting was organised on 21 October 2004 for EUA to present the calendar and methods for such a scheme to all interested universities in the region, and UPC was among the first to accept the challenge of such a shared type of experience. This group evaluation could, indeed, lead to a global appreciation of the constraints, strengths and weaknesses of the higher education system in the country as a whole and point to possible measures of common interest for the academic world in Catalonia as such – an effort that had proved possible in other parts of Europe, for instance in 2004, when EUA looked at the potential of research and training both in Bosnia Herzegovina and in the Republic of Ireland.

This transversal approach, however, is grounded in the specificity of each institution, thus calling for individual analyses of the strategies and growth of the various universities taking part, each with its own identity and history. Hence the present report – that deals with the Technical University of Catalonia - is addressed to its rector, Prof. Josep Ferrer Llop. It is based on the model used in the EUA institutional evaluation programme set up in 1994, a programme that has already assessed more than 150 institutions of higher education from some 35 countries, in Europe and beyond. Its aim: to help university leadership teams to understand the capacity for change of their own institution after having drafted a report on their present strengths and weaknesses, the so-called self-evaluation report, a document that also points to areas of possible transformation, should the university meet the challenges linked to its role in society and to the evolution of science and pedagogy. This self-evaluation report is then tested and validated by a team of outside experts, usually rectors or former rectors of European universities that have undergone a similar mirroring exercise. After two visits to the institution under review, the group of peers submits to its leaders a report assessing the situation: this is the present document that also intends to offer a few recommendations for enhancing the institution’s capacity for change.

For the Technical University of Catalonia, the Steering Committee in charge of the EUA programme of institutional evaluation appointed a review team consisting of Georges Verhaegen - chair - , the former Rector of the Université Libre de Bruxelles, and Jiri Holenda and Winfried Müller, as members, respectively the former Rectors of the Universities of Western Bohemia in Pilsen, Czech Republic, and of Klagenfurt in Austria, while Andris Barblan, former Secretary General of EUA and CRE, was asked to act as the team secretary.

The group met in Barcelona for a preliminary visit held from 1 to 3 March 2005 in order to validate the findings of the self-evaluation report, a very dense analytical document of some 20 pages presenting an honest analysis of a complex situation – which was illustrated by complementary figures and booklets outlining the development of the university over the recent years. To complete their understanding of the situation, however, the group asked for further data that was received in time for the main visit, the latter being organised from 30 May to 2 June 2005 with a view to assess the institution’s potential for change.
In its two visits, the EUA group of experts discussed the university situation with:

- **leaders, professors and students** from **six schools** based in several of the UPC campuses (the Technical School of Castelldefels (EPSC), the School of Industrial Engineering of Barcelona (ETSEIB) and that of Terrassa (ETSEIT), the School of Architecture of Barcelona (ETSAB), the School of Civil Engineering of Barcelona (ETSECCPB) and the associated College of Agricultural Engineering of Barcelona (ESAB) now being transferred to the Baix Llobregat campus area);

- **representatives of outside society** (the leaders of the UPC Social Council, a body that, in Spain, is the formal university interface with local and regional stakeholders; the head of a large consultancy firm that employs many UPC graduates; representatives of the Barcelona Chamber of Commerce, of the Press, of the Trade Unions and of the municipalities in Manresa and Terrassa – two cities that host UPC campuses);

- **officials of the University centres** (the Foundation in charge of recurrent education, upgrading and lifelong learning on behalf of the UPC, the Centre for Technological Transfer (CTT), INNOVA, the unit for spin-off activities, and CFIS, the Interdisciplinary Centre).

There were also intense discussions with the University leadership, be it with the Rector, his team – essentially the vice-rectors and the central staff in charge of specific aspects of university development such as doctoral studies, student affairs, academic planning, international relations, finances or equipment -, the self-evaluation group or members of the Governing Board and the Senate (or the claustro, in Spanish terms). All people met by the EUA team showed vivid interest in explaining the achievements and challenges that shape their own responsibilities in the wider framework of the UPC, the main technical institution of higher learning in Catalonia. These many encounters were efficiently organised by Xavier Masso, from the central planning office, and his colleague Santi Roca. The team would like to thank them and all its other interlocutors for their willingness to help EUA understand an unusually complex and sometimes difficult situation. The team’s gratitude also goes to the rector for the UPC warm hospitality during its two visits.

**The context of the evaluation**

During the two visits, the **University Laws** - the LOU for Spain (passed in December 2001) and the LUC for Catalonia (dated 19 February 2003) –, although recent, were rarely mentioned as if the tradition of centralisation had not been really affected by new legislation. Indeed, in many instances, the EUA team was reminded of unavoidable delays due to the slow adaptation to the new requirements, in particular in Madrid where the long discussions about necessary decrees – affecting the Bologna process, for example – were unduly postponing change at institutional level. Even if the Spanish law had evoked resistance from staff and students at the time of its adoption by a Parliament then controlled by the Popular Party, its application today by the new Socialist majority seemed to proceed very much on the same organisational lines. As for the Catalan law, it gives important responsibilities to the universities – in the framework of the national law, of course. Contrary to the national law, however, it clearly focuses Europe, as if the European Higher Education Area (EHEA) – that celebrates diversity as a basis for higher education convergence of purposes – could represent an opportunity to reinforce the cultural specificity of universities in Catalonia. So, the EUA team heard a lot of the role played by the DURSI, i.e., the Catalan Department of Universities, Research and the Information Society, as the promoter and funding supporter of many initiatives that are important for university development – even if, at UPC, the money coming from the Generalitat represents half the university income only – but far more than the 6 or 7% coming from the national government.
Constraints and institutional norms

In EUA evaluations, constraints are the elements given by the situation that the institution must work with – with little chance to change them, in the near future at least. Obvious ones are the scarcity of resources; others – more hidden and perhaps more important in terms of institutional capacity for change - reflect the mentality and culture linked to the Catalan past and the region’s reaffirmation of its cultural identity.

Thus – apart from the legal context mentioned above – UPC feels constrained by a lack of resources compared to the role it wants to play as the scientific and technological powerhouse for the social and economic development of Catalonia. Thus, it deems itself an under-funded institution, although, with a 2005 budget of nearly 270 million Euros – complemented by a 75 million Euro investment budget –, its resources, in absolute terms, are rather important compared to other technical institutions in Europe; however, when introducing the number of UPC undergraduates (28'000) and postgraduates (some 3’000), the relative amount per student is indeed less favourable even if it does not translate into misery. The problem appears to be the earmarked nature of most of the funds received – another form of constraints, indeed – since only one percent of the overall budget represents finances with fewer strings attached, e.g. monies obtained from the DURSI on the basis of results achieved according to negotiated targets.

The history and geography of the UPC are also important defining features for the institution. In 1971, when it was created as a single organisation, the University moved from the B of Barcelona to the C of Catalonia, thus pointing to the ambitions of the new institution. It started federating not only much older institutions based in Barcelona - like the School of Industrial Engineering with a tradition going back to 1851 or the School of Architecture created in 1875 as the Free School of Architecture, not to speak of the Faculty of Nautical Studies going back to a School of the same name set up in 1769 – but also schools and institutions based outside of the city, establishments that had been created to serve the needs of old industrial centres like Terrassa or Manresa in what has become today the Greater Barcelona. Add to this the existence of schools that belonged to the regional authorities and were associated to the new UPC until they can be integrated in the system with similar conditions of development – not an easy task since the professors of associated institutions tend to enjoy a better salary scheme than those from the fully integrated sectors of the university. Later on, some of the units and research centres were regrouped in Castelldefels – not far from the airport, on former Olympic grounds – while the Barcelona main campus was being redeveloped north of the Diagonal and south of that avenue too, there in conjunction with the transfer of the Science faculties from the University of Barcelona to the Pedralbes area. In other words, the UPC is a confederation of various teaching and research entities that are still integrating into a federal organisation, an unfinished process; this implies some persistence of centrifugal forces that need to be counteracted by a high sense of community belonging in order to allow for the future development of a single institution based on the convergence of a chequered past with the many purposes of its present functions. Anyway, extending from B to C remains a long-term trend since new units could soon be formed outside of Barcelona in Mataro, Sabadell or Mollet del Vallès while activities further away in the Catalan hinterland could prove of interest to the UPC too.

An important defining feature of the institution is also the reference to a Catalan identity still in the forging: this is particularly evident in the will to make of Catalan an internationally recognised scientific language of its own. As indicated in Article 3 of the LUC, the universities of Catalonia should not only ‘create, transmit and disseminate culture and scientific knowledge…’, should not only ‘foster critical thinking … and transmit civic and social values’ but they should also ‘enrich the intellectual, cultural and scientific patrimony of Catalonia’ as well as ‘incorporate the Catalan language in all areas of
knowledge, thus contributing to the process of its standardisation in scientific, cultural and social contexts’. Spanish being also an official language of the universities in Catalonia (Article 6.2), the reaffirmation of cultural diversity represents certainly an important constraint for the development of higher education in the region and for the work of a technical university – like UPC – affected also by the growing use of English as the lingua franca for science and technology, not only in the world at large but also in Europe as such.

In other words, the UPC is to be understood as the result of various requirements:

**Psychological**, for instance, since it wants to serve not only the technological and scientific development of Catalonia but also its cultural identity.

**Political**, since it considers the limits of its influence to be the frontiers of Catalonia as a province; not to speak of the Catalans as a group when, outside of the region, there is a need for the provision of scientific and technological knowledge in Catalan - for instance in the Balearic Islands, hence a new programme of e-learning and distance education for that area.

**Financial**, since the amount of public funds has always been mitigated by the inflow of private monies linked to research and development activities or to the teaching services offered to the community – hence the growing importance of non-governmental support.

**Institutional**, since UPC, a young university, is a federation of many schools, institutes and research centres – all with their own cultural specificity – that needs constant balancing between centrifugal and centripetal forces in the distribution of power and responsibilities.

**International**, since Europe is the traditional counterweight to the influence of Madrid, thus explaining the great number of international agreements with sister technological universities, in particular in Italy (Milan and Turin), Sweden (KTH in Stockholm) or Switzerland (EPF-Lausanne) – not to speak of universities like Darmstadt or Munich in Germany. In such a context, the Bologna Declaration of 1999 is a welcomed tool for further development rather than an imposition of inopportune regulations.

In addition to these various frames of mind, one should also consider a demographical constraint, since the number of future students in Catalonia could be on the decline in the mid-term future – an important point of reflection for a university very much linked to the Catalan market and the regional specificity in science and technology, two fields that happen to be of lesser attractiveness than in earlier times - a situation that occurs in other parts of Europe too.

**Assessment of present-day situation**

With such constraints, change can prove difficult when the will to adapt lacks consensus. The self-evaluation report mentions the multiplicity of university activities and the many programmes, plans and commissions that exist to develop coherent policies ensuring the rational development of the institution. The picture, however, is of a complex array of varied efforts for which a strong sense of purpose is needed to support convergence of action. Indeed, 16 UPC schools linked to 7 associate schools and to another 4 schools with related activities are sharing the teaching of some 35’000 students on the basis of 40 disciplinary departments – that represent the research ‘home’ of the teaching staff -, departments that distribute their teaching capacity to answer the requests for didactic personnel coming from the Schools and other teaching units. This matrix arrangement – common to Spanish universities – is supposed to ensure flexibility and avoid redundancy of action (one department of chemical engineering, for example, serving all the needs for the teaching of chemistry throughout the university). In the course of time, however, UPC has set up 4 departments of applied mathematics, 2 of architectural technology and 2 of architectural representation and visual analysis as if academic fiefdoms were necessary to ensure the
survival of groups of similar minded people. Combined with the fact of multiple campuses and of units of very different sizes and prestige – i.e., of different weight in the institution – this dispersion makes rather difficult the coordinating task by the university of so many autonomous actors. The EUA team wondered if, for most academics, the institution is really perceived as being larger than the sum of its many parts – although most people, when asked about their sense of affiliation, considered the ‘UPC’ to be a good brand to go by. In such a context of diverse loyalties – to departments, schools or the university – the writing of the self-evaluation report could have been an opportunity to engage the staff in a reflection on the university’s common references beyond the official mission statement – rather general and all encompassing. This could have reinforced and legitimise the vision developed at central level by the Rector and his team with the support of the Board of Trustees, thus transcending the internal barriers – be they practical or psychological – that divide the many parts of UPC.

For lack of time or for lack of awareness of the possible use of the self-evaluation report to initiate institutional change processes, the report was entrusted to a small group of six staff members and one student under the chairmanship of the Vice-rector in particular charge of strategic planning. For efficiency purpose, all groups of personnel were represented among the committee members, some coming from the central campus Barcelona ans others from outlying locations. Two members of the central planning office put together the facts and figures supporting the description of the institution and presented several drafts to the members of the self-evaluation group – the latter meeting in full twice to decide the structure of the report and to finalise it. If the process was technically efficient – in terms of the full description provided of a many sided institution – it proved essentially analytical and did not lead to a critical appraisal of the situation of the institution as a whole. Interestingly enough, the only weighing of pros and cons was done in the field of institutional activities, their funding and organisation. But this assessment of recognised strengths and weaknesses in UPC was not completed by any appreciation of the threats and opportunities that could shape the future of the university. In other words, when asked by the EUA guidelines to think in terms of a SWOT analysis of their institution, the self-evaluation group carried through the mechanical part of the process but stopped short of a reflection on the long-term evolution of the university. Perhaps, the group was not formed in such a way as to allow for strategic thinking – a prerogative that, at UPC, seems to lie with the rector and his team of 8 vice-rectors, people who have been chosen on a political platform of specific ambitions for the institution, professors who were not involved directly in the work of the ‘self-evaluation group’, apart from the person chairing it.

In other terms, the report was not ‘owned’ by the institution as a whole, a fact that was reinforced by the little publicity the document received inside the UPC: nearly none of the some 100 people met during the two visits knew of the report and of its contents. The EUA team thus considers that it was offered a good picture of a complex situation but that it was not presented the dynamics of potential change the UPC could thrive on - since the process of evaluation did not evoke a sense of ownership in as well as by the organisation. Hence, in the short time available, it was difficult for a group of outsiders to draw from the conversations with university members the aims that could unite them in the continued expansion of their institution – and the team remained with the impression that, maybe, the present motor of growth was the assertion of the monopolistic role of UPC in Catalonia – in terms of teaching, research and development –, a role based on the existing capacity of the various units to offer innovation and services relevant to the demands of Catalonia, its people and enterprises. But, in the long run, will the university be able not to select strong priorities, a strategy that supposes the discarding of interesting and well grounded activities in order to concentrate efforts on the key elements of a strong profile that could make the UPC unique, not only in Catalonia but also in Europe and the world?
For the EUA team, drawing conclusions from the apparent *fuite en avant* revealed by the self-evaluation report, based on the obligations of an apparent monopoly, the present reality of the Technical University of Catalonia seems to consist in seizing all opportunities that seem to justify some kind of technological and scientific commitment in order to contribute best to the social and economic development of the country – perhaps with not too many afterthoughts on the risks and threats such investments in time and people could entail in the long run. This hypothesis could not be verified in detail but does explain the lines of thinking of the EUA team and the various recommendations made below.

**The mission**

The institution has defined a multiple set of objectives in terms of *teaching, research, social involvement* and *organisational structures* – that correspond to the four chapters of the institutional planning process. They refer to a very general understanding of the role of UPC in science and society as ‘paving the way towards a more knowledgeable, supportive and sustainable world’, its students learning to understand the world of today and its researchers breaking down, structuring and absorbing a disconcerting flow of information whose sheer dimensions could lead to passivity. If this latter function is rarely mentioned in similar documents in other universities, these ambitions remain rather general and make it difficult to imagine the specificity of the institution in its regional, national and European environment.

The UPC has translated these global aims into operational objectives recorded in its *Strategic Lines of Governance and Plan of Action*, but the resulting 14 strategic goals, 42 specific aims and 160 actions for improvement – that find support in 10 action lines defined by the *Generalitat* of Catalonia – seem to be an exercise in the thorough definition of many – if not all - possible options. This certainly indicates an intention to use modern tools of management by determining adequate ways to strengthen the institution. But the EUA team has doubts about the possibility for any university to be excellent in everything it does or that it happens to develop as an answer to the demands coming from society; at a certain moment in time, clear priorities need to be negotiated and adhered to – even if some choices could prove wrong. For example, content wise, why should nanotechnologies, bio-engineering and telecommunications be the innovation ‘menu’ of the UPC when so many sister technical universities proclaim to entertain similar goals? Or, if it is the trend to follow – also because of guidelines from Brussels - , what can be the specificity of the UPC contribution to these fields – in competition and in collaboration with other institutions of research and learning around Europe? The EUA team members wondered if their impressions of a jungle of good intentions were shared by some of the UPC staff – who, like them, would also grope for clear directions about mid- and long-term development, i.e., strategic guidelines that would be determined by balanced views of the opportunities and risks induced by the future profile of the institution in relation to its community.

Cohesion and coherence could be reinforced, by defining one or two axes of growth only, especially in so diverse an institution where allegiance to the university and its ambitions are differently shared from one unit to the other. From the documents and the interviews, it seems that two poles of development – accepted by most insiders at least - are more or less defining features for the UPC, the desire to be a *student-centred university*, on one side, the wish to turn the institution into the *technological power house* of Catalonia, on the other. These two areas of intervention will be discussed below in operational terms. For the moment, the EUA team would like to remind that, to succeed, the values of a university should also be referred to by the outside world, i.e., the community that pays, directly or indirectly, for the institution. Indeed, the convergence of UPC internal and external images builds up the institution’s long-term strength.
The UPC – to test outside needs and opinions – can count on the action of its Board of Trustees (Consejo Social) that consists of 9 outsiders and 6 insiders, one of the latter being a student. The EUA team reflected that the place of the student could have been in the group of outsiders too, since the young population represents external demands from society that need to be met by the institution. It also noticed that, in general, the students are not given in Spain - or at UPC - the place of partners that they often take in universities further north in Europe or that is recommended by the Bologna process. Anyway, the manageable size of the Board of Trustees makes it a full actor of the academic development of the institution for society, in particular because of the prestige and dedication of its president, a successful entrepreneur of Barcelona. With important responsibilities in strategic planning, budgeting and asset management, with links with the DURSI and other public authorities, with connexion to economic actors on the Catalan scene, the Consejo at the UPC is more than a sounding board – as proves the fact that the Fundacio, the legal entity in charge of adult education for UPC, an institution with a permanent administration of some 30 people catering for thousands of mature learners, is headed by the President of the Board of Trustees. For the EUA team, the trust relationship existing between the President and the rector is certainly an asset for UPC development since the power given by the law to the Consejo could also lead, in some instances, to tensions about the way to reach the institution’s long-term goals and, in others, to the Board of Trustees becoming a rubber-stamping interface with society. This is certainly not the case at UPC where the Consejo is a dynamic force shaping the institution’s future.

When discussing with other UPC stakeholders, however, it became evident that there was some discrepancy between the insiders’ and outsiders’ perception of the institution’s role in the community, stakeholders claiming that graduates, next to their good craftsmanship in engineering, were often lacking social competences – i.e., the capacity to work in a team or the ability to convince and take responsibilities, not to speak of a better knowledge of English; they also indicated that the institution was a formidable depository of techniques and scientific understanding but that it was not always ready to address social partners on their own grounds and in function of their real difficulties – as if the university had solutions looking for problems rather than solutions invented to meet the specific situation of a given firm or set of enterprises – whose basic needs required original analyses. Such complaints are common in many countries of Europe and point to the fact that universities are in general more supply driven than demand focused. Social partners are perhaps justified to ask for more relevance to their problems; however, the universities have not only to meet the requirements of society about welfare and order; they are not simply the consultancy firms and workshops of their supporting community. They have also to play a pro-active role in the definition of the training and of the technologies that can be adequate for the long-term future of their area, Catalonia in that case. This ‘innovation presence’ is a part of the mission that should be accepted with its risks and possible failures both by insiders and outsiders – the latter being represented in particular by the Generalitat and the municipalities of Barcelona and its surrounding industrial centres.

In other words, it could be worth using to the full existing arenas for strategic thinking – the Board of Trustees in particular or a special committee it could set up – in order to discuss the axes of development around which Catalonia should organise relatively to other parts of Europe, a debate that would help define the unique contribution – in ideas, programmes and projects – the UPC could offer over the next few years as a responsible and pro-active partner in society. A mission based on one or two axes accepted both by the university and the community would allow for the restructuring and hierarchy of the manifold goals and objectives that now cover nearly all fields of scientific and technological action.
The distribution of power

Mission recognition ensures coherence of purpose. However, it needs to be shared among the schools and departments to ensure the cohesion and smooth running of the institution. In view of the heterogeneity of the institution, UPC has developed a strong central leadership backed by a strong central administration in an effort to provide common rules to the university’s constituent parts. It was not clear to the team, however, how impetus from the centre is supported by incitation measures that would show to the various schools and departments the interest of institutional strategies. Indeed, despite extensive tables and graphs of many coloured pies and columns, the team never fully grasped the costing, budgeting and spending policies of the institution. The EUA group was not really sure that UPC rank and file had a clearer understanding of the amounts and flows that make the operational and investment budgets or define the links between external support and internal development. Transparency and a sense of common understanding are essential, however, if financial policy is to become a lever for institutional change.

From the EUA point of view, the rather important budget of the UPC seemed essentially ear-marked for specific activities, either because the allocation of funds was duplicating at unit level formulas applied by the Generalitat – the main contributor to the budget – or because the monies obtained from outside contracts were essentially used to meet the obligations taken vis-à-vis the outside ‘customers’. The 14% of overhead taken on all outside linkages – even on the salaries given to students placed by the university in specific enterprises – appeared to go to central costs incurred by the institution. It was not clear either how much of the 25% of the budget covered by fees paid by the students could be used as ‘free’ money to support innovative activities in teaching, research or services. From the discussions with people at the centre or with members of the units, the EUA team gathered that there was nearly no leeway to encourage innovative policies that would encourage the development of a common language throughout the institution. In such a large university, it could be expected that the leadership has at its disposal some kind of stimulation fund intended to support initiatives reinforcing the global quality of the UPC. For example, in teaching, some schools are experimenting new forms of pedagogy – like problem based learning – but they cannot call on supporting funds from the centre not only to reinforce their work but also to share good practice with other parts of the institution, should UPC decide that part of its identity is linked to didactic innovation. In research, the support of young post-docs with interesting ideas – i.e., people not known yet in outside research centres and funding agencies – should be possible at institutional level, either by internal grants or by fellowships aiming at sending young researchers to foreign institutions, better equipped for testing their sense of innovation and projects. Such a flexibility of funding for this specific group – very much the future of the institution – did not seem possible. The EUA team understands that the level of overheads is difficult to touch considering the ownership of operations that academic entrepreneurs have inside the UPC. However, if the creation of a stimulation fund - to which all parts of the institution could turn in order to launch new initiatives - would make sense to develop institutional coherence, would not an extra 2 or 3 % be accepted to feed a pool of resources that would reinforce the flexibility and adequacy of support to new teams and projects thanks to specific institutional care?

The distribution of money usually reflects the allocation of power – and initiative – in the institution and expresses in concrete terms the balance that needs to be struck between centralisation and devolution in the institution, a problem that is common to most universities. From the EUA team point of view, it seems that UPC is moving towards a greater centralisation as it expands into more and more activities – the Rector, indeed, expressed his hope to see the amount of outside money double over the next few years, an ambition that implies a multiplication of UPC external services. However, when coherence cannot be
induced by various encouragement measures, financial in particular, the institution can fall into bureaucratic temptations in order to achieve the same aim. The search for greater control of the institution thus generates a high degree of administrative procedures that tend to weigh heavily on schools, departments and individuals. For instance, the team was told that the technical management of the different campuses is largely directed from the centre – a mode of decision that leads to slow remedial action if not to patent dysfunctions. But, despite the overview derived from such centralised decision-making, the main services have very little power in redistributing space to meet the diminishing or growing needs of the various schools and departments: the reluctance of professors or units to relinquish the symbolic power represented by university territory seems to represent a real blockage. Central administration has more control in other areas. Thus, the professors who, in the departments, sign up different ad hoc contracts with outside customers cannot hire temporary administrative staff of their wish to meet their obligations but must use the central services to do so. Moreover, the ‘point system’ introduced by UPC leaders to account for the research contribution of staff has led to the quantitative assessment of time allocation in other fields – teaching, administration, services, etc…thus making the exercise so complicated that a line to the questionnaire could be added asking about the time spent to fill in the form! But here again, the fault is not necessarily that of the administration since the staff that felt not recognised in their dedication to non-research activities did ask for the integration of all activities in the system of evaluation – thus encouraging the bureaucracy and rigidity that they, themselves, were complaining about.

Interestingly enough, when asked about their final aim, UPC top administrators answered ‘flexibility’… This perhaps indicates an understanding of the bureaucratic impasse that the need for general efficiency and global control could lead to, especially in a university that, despite a declining number of prospective students, is engaged in a systematic growth policy leading to major constructions, to the development of new campuses and to the expansion of peripheral activities – for instance through the Fundació, an autonomous institution which is now running some 300 courses – many of them 400 to 450 hours long – to offer to some 8000 non traditional students in industry and UPC alumni special training or upgrading as well as recurrent education courses leading to various masters qualifications. This could represent somewhat of a strain on the UPC in so far as most of the educators are drawn from the normal teaching personnel – which is supposed to be fully dedicated to its traditional duties in the university. Staff, moreover, can be involved also in the hundreds of contracts signed yearly by the Centre for technological transfer (CTT) with companies asking for research and development support. Monitoring all the activities using the UPC brand thus becomes a titanic task considering all the loopholes in the system where small fiefdoms tend to thrive. A general view is important however since one may wonder if this host of side activities is not weakening the capacity of the institution to modernise its core functions in terms of curricula, teaching methods and innovative projects. In other words, there is a tension between the important elbow margin that has been left to peripheral units – that can influence directly or indirectly the main sectors of university activities - and the centralisation of administrative processes that pushes towards a bureaucratic control tending to become so detailed that it discourages initiatives rarely supported from the centre….

In other words, in terms of general management, it would be important to sort out the various power structures shaping the daily life of the institution and to rethink their interactions in a university that is both growing fast and federating slowly. UPC needs a well-defined balance between central supervision and the capacity for initiative distributed in the departments and schools so that staff feels supported in those entrepreneurial innovations that can contribute to the cohesion of the UPC as a whole, around set axes of development.
This implies a clear hierarchy in the potential dedication of each member to core and to peripheral activities. If the hierarchy of tasks and duties becomes transparent, present bureaucracy – accumulating data rather than offering tools for the management of personal responsibilities – could be much reduced to empower staff to innovate in teaching, research and services – an innovation process that should be encouraged from the centre (even financially), thus building a culture of trust rather than of control inside the institution. More concretely, technical competences could also be delegated to external campuses and some flexibility be given to the contractors taking the responsibility of agreements signed with outside partners – a responsibility delegated from the centre to units becoming also liable for possible unfortunate developments made on behalf of the institution the brand of which they are using. Transversal collaborations between schools or between departments could also be encouraged to reinforce the visibility of the UPC as one multi-service institution – another way to develop core values leading to better cohesion. To sum up, a strategy of incitation should take over the policy of control that corresponds to the old authoritarian culture that prevailed for so long in Spain.

A student-centred university

Putting the student at the centre of the learning process is no easy task since this requires changes in the curricula, in the pedagogy – even in the equipment and in the distribution of space – not to speak of changes induced in the general attitudes towards and among the students themselves. This is true for all universities but the UPC can take advantage of some of its assets to progress faster along this line: for instance, compared to other institutions of higher learning, it has a rather good student/staff ratio and offers already plenty of its courses to rather small groups of learners. Moreover, training in engineering cannot bypass the need for project work, often prepared in internships organised in various companies closely linked to the university – hundreds of students taking advantage every year of such placements in industrial reality, at home or abroad. Finally, ITC is at the core of UPC development – students being satisfied with the modern computers at their disposal while courses are being prepared for distance education and e-learning that could become part of ‘distributed learning’ packages.

However, the EUA team wondered where were the cosy corners in which students would meet in small informal groups to discuss their work and progress, where were the bookshops or special equipment catering for student learning. Was also computer access always as easy as in the school of industrial engineering in Barcelona? Indeed, it was noticed that, for a supposedly student caring university, apart from a few exceptions, teaching remains traditional in most schools. For instance, innovation in learning techniques or content seems not to be sufficiently recognised in the point system describing the profile of staff activities. Some professors even complained of the marginalisation of their attempts to change teaching here and there. The matrix system linking schools’ demands and departments’ supply of teaching forces is not favouring change either, professors usually giving allegiance to their research ‘home’ – the departments where they meet colleagues of the same mind and discipline -, rather than to the school(s) where they are serving their teaching duties not necessarily in so congenial an environment. The lack of flexibility of the grid system becomes particularly obvious when student evaluations of teaching prove unfavourable: it seems often impossible to move a teacher to a different job since this would imply swapping other people – as if the departments had rarely staff on a loose end to be used in various situations. In fact, once a department has assigned one of its members to particular teaching duties in a specific school, there is little room for manoeuvre and people tend to stay where they are. The Spanish matrix system – that was supposed to foster flexibility in teaching – appears to have become fossilised in accepted routines that simplify the administration of personnel.
This trend towards rigidity is certainly not counteracted by the inflow of money that could support innovation practices. Indeed, in the opinion of the EUA team, the funds allocated to schools for the development of their work are ridiculously low – some 1.25% of the whole budget or some 100 Euro per student per year – also a rather low proportion of the full fee of 1700 Euro required from each student! Hence the importance noted earlier of not distracting further the teaching staff from its obligations with core students by engaging them with mature and more demanding students recruited for adult learning by the Fundacio. It is practically impossible for deans and school directors to find the resources, human and financial, to cover the costs of pedagogical innovation and to stimulate the transformation of curricula – even if this is being requested by the adoption of the Bologna process. But, in this area too, the progress is slow – even if the UPC as such has taken an active part if not the lead in the many commissions redefining learning packages at the national level. Procrastination in Spanish government circles has been delaying in the peninsula the expected adaptation to the two tiers structure of learning and the use of ECTS credits to measure student workload – the kingdom following suit to several countries that have been already implementing the Bologna guidelines for a while. This is particularly unfortunate in Catalonia where the regional law is betting on the development of the European Higher Education Area to offer a wider frame of reference to the development of Catalan institution of learning and research. Some schools, however, have managed to shape their future in their field of learning by a very pro-active approach – like in agriculture where the proposed curriculum devised by the teachers acting as a group has been accepted as such by the decision-makers in Madrid. The EUA team was somewhat surprised that benchmarking in curriculum development with sister institutions in other parts of Europe did not seem a priority as if the national frame of reference was the first frontier to meet before moving over to different partners outside of Spain. Comparability – or, better, compatibility – with foreign providers of higher education is indeed a key to the students’ mobility in the future EHEA and could be encouraged at institutional level.

In the revision of the learning package, the content of courses in terms of facts, figures and methodology in a given discipline also needs to be balanced with the need for communication skills and social competences – i.e., the capacity to work in a team and to take responsibilities of an entrepreneurial character, areas of personal development that, as mentioned earlier, seem insufficient to several of the stakeholders met during the visit. Social ‘fluency’ also implies an understanding of the place of science and technology in society, and of the impact of engineering on community development. As not everything can be done, such requirements call for a full redefinition of courses that cannot be traditional teaching simply repackaged into a 3 + 2 BA and MA structure. Methodology and content have to be rethought and, next to the core curriculum answering national norms, there is potential flexibility to adapt the learning to the needs considered important by the UPC and by the students. Indeed, the students should be full partners in the redefinition of learning – as reaffirmed by the Ministers in their meeting in Bergen of May 2005 – a partnership that does not seem so evident in Spain. In this context, however, the students met by the EUA team regretted the little fluency they could show in English – not to speak of other languages of importance in Europe. Interestingly enough, some of the students impervious to English indicated that they would take advantage of the international importance of Spanish by making internships in Latin America, thus benefiting also from an experience abroad. Interestingly enough, remedial courses for a better knowledge of Spanish are no free service of the UPC to its students, i.e., the young people who could strengthen a Catalan presence in the world through the use of Spanish as a world language. Moreover, in science and technology, the main fields of UPC activities, it seems that ignoring English is a serious disadvantage, especially in the wider European employment market covered by the EU or the EHEA. When pleading for an improved capacity to communicate, students certainly require – next to the better use of their own language, be it Catalan or Spanish, or both – a good
mastery of the *lingua franca* of our time and day. The EUA was surprised to hear that English courses are outsourced to a private school of languages – at a cost for the students. Only technical English is provided free of charge but as an option in classes that tend to be overloaded.

A student-centred university is more than a provider of good courses based on a modern pedagogy. It is also an institution ensuring the conditions of learning success – what the Bologna process calls the ‘social dimension’ of higher education. This means not only good facilities and adequate equipment – which are usually appropriate at UPC - but also the support of the learners’ daily life. Considering that student fees cover a quarter of the budget, the EUA team was surprised by the low level of student services: too few and expensive student houses; costly student restaurants; no discount for transportation in a system where campuses are dispersed over the whole agglomeration; no top up grants coming from the university to support out-going students; no subsidisation of language training – except for Catalan; no free access to sports facilities; minimal support to student clubs and cultural or other social organisations. Considering that more than half the students are also working – not necessarily in their own field of study – to cover their living costs or complement insufficient income, the EUA team was not surprised by the fact that the duration of studies is one or two years longer than the time officially set for their completion and that the drop out rate in the early years amount to a third of the entrants. There are certainly other reasons for failure but a caring attitude towards students could certainly increase the efficiency of learning.

As hinted earlier, a student-centred university also means a structure of consultation and participation in the decision-making process. A great freedom of organisation is left to the students so that each school sets its own system – from direct democracy, at the limit of ‘spontaneism’, to representative structures based on elections. As a result, participation varies and, often, amounts to a very small minority expressing itself – thus discrediting the value of institutional representation as a whole. The EUA team was concerned by the evident lack of trust between the students themselves, and between students and the university as an institution – as evidenced by the little regard that seems to be given to student evaluation of teaching. In general, students recognised that they acted more as consumers preparing for employment rather than as partners in their education. This somewhat passive approach is certainly reinforced by the fact that there is not much of a practical advantage to join the student community - hence a reduced sense of belonging, the university becoming more of a public service than an *universitas scholarium et magistrorum*.

In other words, reinforcing the student-centred profile of the UPC calls for a series of measures, small or large, be they

- **A social policy** developed at institutional level to reduce inequalities and help underprivileged students (by subsidising rents, restaurants, sport facilities or by negotiating with the city fathers a special transportation policy\(^1\) that could also benefit the other universities in the area). This is certainly a costly affair but, in many European universities, a fixed part of the fees is dedicated to such a support - that can only benefit the whole UPC community in the long run.

- **A pedagogical policy** that would strengthen the unique profile of the UPC not only in terms of scientific and technological training but also in the education of an all-round engineer and active citizen – aims that are affirmed by various university documents. This means promoting institution-wide innovations in the didactics so that teamwork and entrepreneurial responsibility are emphasised, a way of moving from a teaching

\(^1\) The EUA team – when presenting its oral report – was told that such a discussion had been launched with the support of the other universities in Greater Barcelona and that it should soon reach a successful conclusion
culture (based on professors’ offers) to a learning culture (based on student demands). Promotion implies not only a considerable increase in the budget of the schools so that they can encourage innovation in teaching but also a revaluation of the assessment system of points as far as teaching is concerned. In this context, the hiring of professors in Fundacio courses should not weaken their core commitment to UPC schools.

- A **support policy** at institutional level that would create a UPC service centre that could offer English and remedial linguistic courses in all schools, the learning of languages being rewarded by credits. To open minds to world developments, teachers could be encouraged to use English literature as reference material for their courses. Moreover, courses and introductory programmes in various social sciences and the humanities should also be made available – perhaps by the same service centre – the university needing to decide how much of these courses on the social dimension of technology should be offered on a compulsory or an optional basis, a status that should be reflected in the credits linked to such studies. Some of those general courses could also be given in English to encourage the use of that idiom.

- A **policy of participation** stimulating student engagement in the development of their education (as far as the relevant mix of disciplines, technical know how and social competencies is concerned, especially when the institution and its stakeholders decide about curricula) as well as in the definition of the workload implied by study courses and expected learning achievements which should be reflected in the ECTS credit system now to be fully implemented in all areas of UPC activities. The use of student evaluation of teaching should be more than an alibi and become an element of staff development policies and of the continued process of study reform. To encourage interest in student politics, UPC could streamline the structures of representation in the decision-making at school and at university level; it could also offer greater responsibilities to students in the management of services – sport facilities, restaurants, shops or dormitories – taking example on other institutions where responsible decision-making is learned through the development of initiatives of interest for the social dimension of university life – a social dimension clearly endorsed by the European Ministers of Education in their ‘Bologna’ statements of Prague, Berlin and Bergen.

### UPC as the technological powerhouse of Catalonia

The systematic expansion of the University throughout the region – often at the request of local municipalities interested to host a part of the institution like at Mollet del Vallès where the UPC could soon develop a research centre on the use and recycling of waste material – corresponds to a basic policy of thematic and geographic presence in all areas of concern for the people of Catalonia, thus justifying UPC monopoly in the field. The EUA team found great interest in the vibrancy shown by the various initiatives born out of UPC diverse social functions – adult education and upgrading on the job (with the Fundacio), applied research and technology transfer (CTT) or the development of spin-off companies based on innovation projects launched by university graduates or teachers (Innova). Their success is closely linked to the entrepreneurial spirit of a large part of the UPC staff – for which the university should be commended. The EUA team, however, as indicated earlier, wonders if the core commitment of the personnel to the teaching of undergraduates or graduates and to the exploration of new fields of knowledge – with the support of the largest supercomputer in Spain – allows so many peripheral activities. Is there not a risk of overextension – both in geographic and in disciplinary terms – thus making it still more difficult to ensure the cohesion of the UPC as a single institution, if it is to be more than the sum of its parts? Could sometimes the search for resources – and the desirable autonomy it supposes, also vis-à-vis neighbouring units - entail the risk of compromises as to institutional
objectives in order to meet the expectations of external partners? Quality is usually valued relatively to the purposes supposed to be reached: thus, research is not development, and development is not service, although these different functions cohabit in the same units and often rely on the same staff. Can the UPC be clear enough in the definition of its axes of development so as to give solid references to its constituent parts when they scan their environment to find projects and programmes they could lead or take part in? This is all the more important as the university does not seem to have an innovation fund that could encourage specific activities of long term interest for the institution or a stimulation fund that could support original yet fledgling new ideas from young researchers – in postgraduate or post-doc positions. The latter – be they in-coming or out-going - could be engaged in an innovation policy encouraged from the centre and leading to a staff renewal policy.

The question of quality is certainly discussed at several levels and the UPC has launched many plans and created few committees and administrative units to monitor quality development. A lot of data has been collected on teaching, research, and people – through the point system - as if quantification were the core element of the institution’s quality approach. The EUA team had the impression that – as in many aspects – the UPC had been laudably active but that it was now somewhat drowned in so much information that it was difficult to turn it into workable knowledge that could support the choices made by the leaders or the decisions taken by management. This situation could be reinforced by an ‘engineering culture’ - a rather normal thing in a technical university – which assumes that mechanical forces can be numbered and measured in order to determine the moves of the system. Figures can reassure, indeed, but they should not replace judgement when decisions are taken – in a responsible way, i.e., to respond adequately to a given situation as framed in a set of priorities – internal and external –, priorities that represent the frontiers of the ‘possible’ for the institution when it is aware of its strengths and weaknesses. As a result, from the EUA team’s point of view, a small set of overarching institutional priorities – linking external demands and internal capacities - are needed to steer UPC dynamism as the motor of Catalan development in science and technology.

In other terms, the capacity for long term growth needs to be made clear by the UPC; this implies first the strengthening of its ‘scanning power’ – especially in peripheral activities so that CTT and the Fundacio abide by what they are best at (in terms of applied research and education), thus avoiding to fall into the temptation of ‘easy’ money-making at the risk of mismanaging scarce resources. What is the academic value, for instance, of some of the ‘service’ activities when trying to meet the requirements of external stakeholders? Are they really worth university investment in time and personnel? The ‘scanning power’ also touches core functions since the UPC cannot be best in all possible areas. This means formulating priorities around which to structure and organise specific activities that are more or less valued in function of chosen institutional goals – the quality of UPC achievements being measured by the university’s fitness for these selected purposes. Finally, linkages and synergies have to be searched between core and peripheral operations, so that the innovative projects done outside of normal duties in teaching and research can contribute to the success of the basic activities rather than run the risk of draining them of their vitality. Synergies are evoked and reinforced by resources allocated to their development: for this the UPC needs the ‘free money’ – i.e., not earmarked – of a stimulation fund, also in the research and application fields. These resources could also support an innovation policy centred on post-docs and young researchers whose imagination needs patient nurturing with no immediate expected result. The goal, in all these efforts, is to ‘keep the future open’. And this should also be the rule for an audit of the procedures and linkages that make up the departments – whose capacity for change could be assessed as part of the self-awareness exercise the UPC needs if it is to imagine its axes of long-term development; departments indeed represent key features...
of the university since they are at the cross road between teaching and research, between structures and people.

A global institution

In most discussions with the EUA team, UPC members used implicit benchmarks to define their place in the world. The other technical universities in Spain, Madrid and Valencia, were mentioned first. In a second place come the ‘Latin’ Polytechnics with similar structures in terms of teaching and research, Milan and Turin, in Italy, or Lausanne in Switzerland. Then, Sweden and Germany. UPC statistics show that citizens from other parts of Spain make up 5% of the student body while the presence of foreigners is roughly half that amount – many coming from Latin America, especially at graduate and post graduate levels. As for the European mobility flows, they are very much centred on the countries mentioned above as if a privileged network of trust had been set up over the years through Erasmus contacts or through personal collaborations - that were later institutionalised. These networks are certainly used as, in some large schools like industrial engineering, more than half the students have some experience abroad during their studies – quite a few preparing their diploma project in foreign companies too. In terms of staff, however, the presence of foreigners seems very restricted – in part because of the language, since teaching has to be done in Catalan or Spanish. For a university that aims at high international recognition, however, this is not an ideal situation. That is why an ambitious and thorough International Relations Plan (2003-2006) – taking the EHEA as its long-term horizon - has been prepared and adopted at the beginning of the rector’s present mandate indicating targets that needed to be reached by a certain date – usually before the end of this year. A recent taking stock exercise has shown that implementation has not met large parts of the strategic goals indicated in the document – in particular in terms of student mobility and as far as the internationalisation of UPC courses is concerned. This has led to reduced ambitions: the promotion of classes taught in English in official syllabuses being now restricted to the doctoral courses only – where the demand is more obvious. Despite a strong European will, the implementation of the Bologna process is slow (the plan acknowledges that there is still a lot to be done, for example in the generalisation of the ECTS system in order to allow for comparability and compatibility of different curricula). In this sector, too, there is a lack of institutional funding to stimulate action and exchanges or to top up grants and fellowships coming from various benefactors. The EUA team also noted that UPC is hosting the Global University Network for Innovation (GUNI) – linking UNESCO chairs around the world, among them one on higher education management based at UPC – but did not see how this presence was taken advantage of by the university for its own institutional development (apart from image building).

Ambitions are there since the allegiance to Europe – recommended by the Catalan Law on Higher Education – is certainly a way to balance the influence of Madrid. Indeed, with the EHEA, the UPC should feel free to develop fully the potential of networks set up with European peers, moving from simple collaborations in specific areas (like the learning agreements signed in the Socrates framework) to more complex projects committing several institutions to similar goals. That UPC can take the lead in this field has been proved by the four Erasmus-Mundus projects the steering of which the European Union has entrusted to it – one of the highest rates of success among all institutions taking part in the programme. There is thus an opportunity for the university to define a unique European character based on the Catalan strengths that can be harnessed by the UPC in science and technology – what the management books call the ‘glocalisation’ of institutional development. This, however, should not be a random exercise and, to move further, such an evolution will have to become a core part of innovation in teaching and research at UPC.
In other terms, Europe and the world must become the norm rather than the exception in UPC development. This means finding the means – financial and otherwise – to streamline in everyday teaching and research the international dimension. Apart from money, this implies realising the ambitions of the plan for instance in introducing courses taught in English at MA level already – rather than falling back on the reality of the linguistic needs of doctoral activities, since the teaching of such courses at all levels has proved impossible. It means also speeding up the implementation of the Bologna process in all its dimensions, as it represents the best way to support, in the long run, balanced student exchanges and staff mobility, thus making the UPC a full European institution based on its Catalan and Spanish past. Such a move away from possible provincialism should reinforce UPC in UNESCO work.
Conclusions

UPC knows it all: it has developed the policies, the tools, the programmes, the committees that can structure its development into a student-centred university as well as into the technological and scientific powerhouse of Catalonia. It has accumulated the necessary data and statistics that monitor its progress on the way to becoming a recognised centre of knowledge for Europe and a key contributor to intellectual know how in the world.

It stumbles however on the transformation of heaps of information into knowledge that is relevant for the steering of change, in particular at institutional level where the need for coherence and cohesion is most pressing. Making a multi-service institution speak with one voice is no easy task and requires the setting up of a few axes of development to which all opportunities of expansion can be referred to before being taken up – if taken up.

Institutional progress calls for judgement – a qualitative approach of a diverse reality – rather than assessment – a quantitative attitude that delves into the mechanics of a situation rather than taking distance from it in order to envisage the many sides of its evolution. Then a guiding principle can be chosen - more like a gardener accompanying organic transformation than as an engineer shaping a desired new reality.

To be present everywhere and to meet the demands of every social partner interested in technology and science is a question of efficiency in the use of scarce resources that could prove insufficient. It is not a policy of transformation taking best advantage of the innovation capacity of the UPC and its community – doing less but better, all the more so after the institution has developed a sense of purpose based on the self-awareness of its advantages.

The constraints, legal and financial, that impede the present evolution, should be seen as opportunities to decide which way to go, keeping to this choice even if it means discarding other possible interesting commitments – at least until the risks of the selected path prove so high as to endanger the survival of the institution in its desired new form.

In other words, UPC as a community with unique knowledge and know how, can foster synergies by fixing limits to change through the definition of priorities and calendars of expected achievements – should the stimulation and orientation funds be made available through the reorganisation of budgets and earmarked obligations. UPC can keep the future open by enlarging the elbow room and autonomy of the institution and of its federated parts.

| UPC has tools enough to imagine and build a brilliant future. Now, it is a question of channelling the vitality of its members – the entrepreneurial spirit of its staff and students –, towards the development of a vibrant institution able not only to meet its goals of welfare and order for the transformation of Catalonia but also to offer its people a sense of the meaning (and unknown challenges) that lie ahead in these changes - for persons and institutions alike. |

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Summary of recommendations

In terms of **mission:** BE A **PRO-ACTIVE PARTNER IN SOCIETY!**

- Use the Board of Trustees or a special committee to **define and prioritise** UPC potential actions in reflecting and contributing to the main axes of development in Catalonia.

In terms of **internal structures:** BE A **BALANCED ORGANISATION!**

- Use the reflection on strategic planning to sort out the various power structures and rethink their interactions to support both **expansion** and **cohesion**, helping entrepreneurial innovation from various units to converge into a UPC mid-term project.
- Streamline bureaucratic support in an effort to **empower staff** innovation in teaching, research and services by building an institutional culture of trust rather than of control.
- Delegate technical competences to external campuses and **entrust the responsibility** of external contracts (rights AND liabilities) to the staff negotiating and signing them.
- Encourage transversal synergies between schools and departments to reinforce the **visibility of UPC as one** institution with multiple functions supporting each other.

In terms of **students:** BE A **CARING INSTITUTION!**

- Reduce inequalities by **subsiding rents, restaurants, sport facilities and transport.**
- Develop a **UPC pedagogical brand** as the institution training an all-round engineer AND active citizen, through team work, project based learning and a wide offer of optional courses allowing to tailor make didactics to individual student needs and interests.
- **Increase the budget of schools** to encourage innovation in pedagogy and reassess the system of points in function of teaching responsibilities.
- Ensure that the **Fundacio** does not become a ‘second university’ whose development reduces – rather than enriches – the academic presence offered to normal UPC students.
- Set up a central UPC **language service centre** for English and remedial linguistic courses to be offered in all schools, the learning of languages being rewarded by credits.
- Encourage the systematic **use of reference material in English** to integrate people in the international engineering community.
- Set up the use of **technology in its social context** offering courses on the development of a sustainable world – e.g. introductory programmes in social sciences and the humanities.
- Define and encourage the **participation of students**
  - in the **development of their education** (mix of disciplines, technical know how and social competencies),
  - in the **definition of the workload** implied by expected learning achievement (ECTS)
  - in the **evaluation of teaching** as a continued process of study reform
  - in the **management of services** that encourage success in the learning development of students (dorms, restaurants, libraries, etc.)

In terms of **technological powerhouse:** KEEP THE FUTURE OPEN!

- Strengthen the **UPC ‘scanning power’** not to fall into the temptation of ‘easy money’.
- **Fix institutional targets** – that determine UPC quality by its capacity to meet such goals.
- **Look for synergies** between core and peripheral operations.
- Develop a **stimulation fund** to evoke and develop synergies and new activities.
- **Audit procedures and linkages** that make up departments as a UPC self-awareness exercise to imagine and comfort UPC long-term axes of development.