UNIVERSITY OF AVEIRO

EUA EVALUATION REPORT

22 November 2007

TABLE OF CONTENTS

1   Foreword

Thirteen years ago, the CRE, one of the predecessor organisations to the European University Association (EUA), launched the Institutional Evaluation Programme as a service to its members. In thirteen years, the Programme conducted nearly 200 evaluations of 173 institutions in 39 countries.

The Programme is designed to contribute to the capacity of universities to change. The evaluation asks the institution what its mission, goals and objectives are and how its activities achieve these. It investigates the decision-making processes and structures, how the institution monitors its activities and how it implements the necessary changes.

The methodology of the EUA institutional evaluation includes (i) a self-evaluation process, which results in a report that is written by a self-evaluation team and approved by the institutional leadership and relevant governing bodies, and (ii) an external review. The latter is carried out by an expert panel, composed of current or former rectors and vice-rectors, a team secretary with significant experience in higher education management and – optionally – a student a the university's request, as was the case for the University of Aveiro.

The institutional evaluation of the University of Aveiro was conducted by the following panel:

- Prof. Luc Weber (chair of the team), Rector emeritus of the University of Geneva, Switzerland, and EUA founding Board Member

- Prof. Eric Froment, Former Président of the Université Louis Lumière – Lyon II, France, and EUA founding President

- Katja Kamsek, Undergraduate student in pharmacy, University of Ljubljana, Slovenia

- Prof. Carles Sola, Former Rector of the University Autonoma of Barcelona, Former Minister, Departament per a Universitats i Recerca, Catalonia, Spain and EUA founding Board member

- Dr. Andrée Sursock, (team secretary), Deputy Secretary General of EUA

The expert panel undertakes two visits:

- A preliminary visit in order to get acquainted with the institution, its main issues and challenges and its national context. In the case of the University of Aveiro, the first visit took place on 21 – 23 March 2007

- A main visit that examines in greater depth the central institutional processes and challenges. This visit took place on 10 – 13 September 2007.

Both the self-evaluation and the external evaluation reports examine the short- and long-term objectives of the institution as well as the external and internal constraints under which it operates. The final report, written by the external panel, identifies major strengths and weaknesses, as well as opportunities and challenges and recommend strategies to improve the quality of the institution and its strategic capacity.

The EUA institutional evaluations take as their point of departure the aims, objectives and plan of the specific institution under review in order evaluate whether the ways it realises its aims are adequate to its stated purposes. The EUA evaluations do not seek to identify or recommend standardised solutions. Specific recommendations are made to each institution in order to support its development. Therefore, it is essential that the evaluation is based on a voluntary process and conducted in an open spirit of self-critical discussion. This was the case in Aveiro.

The self-evaluation report provided by the University of Aveiro was very informative and reflected the input of a group of institutional members who had self-critically and carefully examined the strengths and weaknesses of the institution. A questionnaire was sent to about 100 members of the academic community. The report was discussed with a wider group and was published on the internet. The self-evaluation report was so well done and comprehensive that, exceptionally, the team did not ask for any supplemental information or analysis at the end of the preliminary visit. Following the first visit, a meeting of the 100 staff members who had received the questionnaire was organised by the University in order to discuss next steps and an action plan.

During both visits, which had been very ably organised by Prof. José Alberto Dos Santos Rafael, the university representatives who were interviewed displayed a notable degree of openness and a great willingness to address the central concerns of the institution. As evidence of this, the programme for the first visit, which is always organised by the institution, included all types of meetings, with the clear and uncommon intent to show the University in an honest and open way. Thus, the team was provided with good and multi-perspective insights into the institution, which gave it as reliable a basis as possible for formulating the analyses and judgements provided below.

The team would like to thank all of whom they met for their warm hospitality and the openness and frank atmosphere, which pervaded during the meetings held in Aveiro and contributed to the success of this evaluation. Particularly, it would like to express its sincere thanks to Prof. José Alberto Dos Santos Rafael for the perfect organisation and the support he provided before and during the visits.

2   Introduction: The 2007 institutional evaluation of the University of Aveiro

Within the 13 year of the Institutional Evaluation Programme, the University of Aveiro is one of the nearly 20 institutions to ask for a second institutional evaluation by EUA. The first evaluation took place in 1995, under the auspices of CRE, with a follow-up evaluation in 1998. The initial evaluation resulted in a series of changes regarding the organisation, governance and management of the University. The follow-up evaluation led to the implementation of a series of internal quality processes.

The University of Aveiro had discussed with EUA the possibility of organising a second follow-up evaluation in 2001 but this is not an option offered by the Programme and it was untimely then to undergo an entirely new evaluation exercise.

The timing of the 2007 evaluation is important. The Portuguese Ministry of Science, Technology and Higher Education (MCTES) had offered to fund the EUA evaluation of ten Portuguese institutions. These were selected following a call for applications. The MCTES' request for the evaluation of the ten Portuguese institutions was made at the same time as both an OECD system review and an ENQA review of the Portuguese quality assurance agency (CNAVES) were underway. These three evaluations signalled the current Portuguese government's interest in reforming the Portuguese higher education system.

The University of Aveiro applied directly to EUA and self-funded this exercise in order to seek the opinion and recommendations of external experts on the present state and development perspectives of the institution. Specifically, the university set the following goals for this evaluation: To consolidate objectives and to increase a shared and global understanding of the institution in order to re-start a discussion on strategic goals after an attempt had been made three years ago

These goals receded somewhat in the background during the second visit. In the intervening time, a new higher education law was promulgated and generated quite a bit of

uncertainty in terms of its implementation and implications. Therefore, the University became more interested in receiving advice on the implications of the new law.

Thus, the promulgation of the new law in the midst of the evaluation changed, to a certain extent, the orientation of the exercise and required the evaluation team to focus on the potential future governance structures rather than the current ones. For obvious reasons, however, this report is focused on the University as it has been functioning under the previous law.

3 Objectives of the University of Aveiro (UA)

The objective of UA is to maintain its position among the three best universities in Portugal in teaching, research and service to society. Specifically, it aims to achieve prominence in at least three research fields and to be a catalyst for regional development through its research, education and outreach activities to the local community. With the recognition of the global competition for developing knowledge societies, these two levels of aspiration – international and regional – now co-exist in many other universities around the world and are part of a global trend.

UA has clear and realistic goals and priorities for its research, education and cooperation with society, which translate into a range of activities, thus giving a strong impression that the university is dynamic and engaged. In addition – although there are dissenting voices – these strategic objectives seem to be endorsed by the university community. This report will come back to this point in the recommendations (Cf. Section 9).

4. International trends and national context

Given the international and regional aspirations of the University of Aveiro, the evaluation team took into account key international trends and features of the Portuguese national context in order to provide an analytical framework for this evaluation.

4.1 International trends

Competition among research intensive universities is increasing across Europe and internationally. Even the best endowed and positioned institutions in Europe are beginning to suffer from receding state support and are increasingly turning to third-party funding. In order to secure such type of funding, however, it is important to demonstrate success in specific fields. A successful niche research strategy tends to favour the stronger at the expense of the weaker institutions. The first are on a positive spiral and get stronger while the former are weakened if they do not develop targeted strategic goals. The EUA team notes that UA has identified its current research strengths and niches.

In addition to receding or stagnating state budgets, the increased cost of research and research infrastructure adds to the financial pressures, especially for mid-size institutions. In this context, some countries (e.g., Germany with its "Excellence initiative") are considering or already implementing funding policies that concentrate investment on a small number of their best-positioned institutions – a policy that results in reduced opportunities for others. While some governments, including the Portuguese one, have pledged to adopt the Lisbon objectives of bringing their overall research expenditure up to 3 per cent of GDP, it has not yet succeeded in doing so.

In order to increase critical mass, there is a general trend toward forming alliances with other higher education institutions in leading strategic activities. This can take the form of international research partnerships, trading of departments (e.g., between the universities of Geneva and Lausanne and the Ecole polytechnique fédérale de Lausanne; or between the universities of Durham and Newcastle) or even mergers (e.g., in Finland, France or the United Kingdom) in order to reach international standards.

Similarly, the competition for talents and for the best qualified researchers is becoming increasingly international and severe. A few well positioned international research universities are recruiting talents worldwide. International researchers are interested in joining international institutions. In this context, the universities that are ahead in the internationalisation of their staff have a competitive advantage as compared to the others. Conditions for international recruitment, however, are often constrained by legal frameworks: this is the case in Portugal.

The increased international competition among research universities is amplified by the creation of the European higher education and research area, which enables more comparison and mobility across Europe. As a result, institutions are becoming increasingly aware that in order to optimise their positioning they have to focus their priorities strategically and have to seek cross-border alliances in order to achieve their goals and increase their international visibility.

Finally, the increased importance of interdisciplinarity requires a culture, specific structures and good communication flows across the institution in order to bring together researchers from across the disciplines. The matrix organisation of Aveiro presents a good foundation for interdisciplinarity, provided there is strong leadership, which is and has been the case in recent years.

4.2 National context: National constraints in research and higher education

4.2.1 General considerations

The 2007 OECD report notes: "Despite massive expansion of education since the revolution in 1974, educational attainment of the adult population in Portugal remains low". Although student numbers rose from 30 000 (1960) to over 400 000 (1999), "as much as 62 per cent of the adults aged 25-64 had six years of schooling or less in 2001". This compares very poorly to other OECD countries and places Portugal at the lowest end of educational attainment, along with Turkey and Mexico.

The declining birth rate in Portugal, low levels of immigration and the increased life expectancy of the population are leading to the ageing of the population. This – combined with the percentage of cohort that fails to earn a high school diploma and the poor performance of those who stay in school (OECD Pisa study) – represents a particular challenge to the higher education sector in Portugal and is increasing competition for students among universities.

The government introduced recently a "23 plus" policy to address the issue of adult students' under-representation in the sector by encouraging higher education institutions to enrol them. This is clearly a strategic priority because the Portuguese economic sector is characterised by "low-tech" activities due to the poor educational level of the population.

According to the 2007 OECD report, public expenditure on higher education was 1.04 per cent of GDP in 2001, similar to the average for the then EU-15 countries, but significantly below such countries as Denmark, Finland and Sweden. Expenditure on research and development, as percentage of GDP (GERD 0.78 per cent in 2003), is evaluated as one of the lowest in Europe. Although the number of PhDs produced has been growing rapidly in recent years, "the number of researchers with a PhD or equivalent working in industry was only 189 in 2003".

4.2.2 A mix of institutions

The Portuguese higher education system is binary, with a mix of 14 public universities (45.6 per cent of enrolment), 15 public polytechnic institutes (28.4 per cent of enrolment), some of which are integrated in a university, as is the case at the University of Aveiro, and over 100 private institutions (26.0 per cent of enrolment). Enrolment figures are for

2004/05 and show that the private sector has considerably increased its market share from twenty years ago when it enrolled only 11.2 per cent of students.

Under the previous higher education law, the main differences between the universities and the polytechnics have included the following aspects:

- Both universities and polytechnics deliver the *licenciado* but the polytechnic degrees must be vocational or professional. The polytechnic *licenciado* is generally limited to 180 ECTS, while the university's *licenciado* can go up to 240 ECTS. Only universities award doctorates.

- All new programmes, or any change in existing programmes, in polytechnics must be approved by the Ministry while the universities need only to register them. In all cases, ministerial approval is necessary if a new programme requires an increase in staff levels. The approval and registration process is slow.

- Research in universities encompasses the full spectrum while in polytechnics it is linked to R&D and to local and regional development.

4.2.3 *On institutional autonomy*

The law distinguishes between universities and polytechnics, which translates into less autonomy for the latter.

- All public institutions have very limited autonomy in respect to human resource policies and management, with the polytechnics being further constrained than the universities. Academic and administrative staff members are civil servants and the Ministry control their numbers, salaries, etc.

- Institutional governance is regulated by law with the disputable aim of ensuring that all universities or all polytechnics have identical governing structures. The law is quite detailed in this respect and specifies the number, function and type of members of internal bodies.

A new funding formula was implemented in 2005. The expenditure budget of institutions is based on prior year appropriations and adjusted using a performance-based formula. Institutions have the autonomy to decide on their internal allocation formula but, in effect, this autonomy is curtailed by the civil servant status of staff members because institutions are governed by civil service law, which limits their capacity to shift funds in programmes with a high proportion of tenured staff.

In addition, the legal framework restricts the capacity of universities to manage academic staff careers, particularly of young researchers: the FTC is slow in determining the number of grants each university will get; the universities cannot grant tenure automatically to recently-recruited senior researchers and, as compared to international standards, salaries are very low, which restrict the capacity of universities to attract international researchers.

Further limitations on institutional autonomy have included several important aspects:

- Institutions are not allowed to roll over their surplus, which restricts their ability to commit to multi-year projects

- Government policies on fiscal audits require all institutions to submit overly detailed and complex reports on expenditures

- The total number of students is set by the state (except in health and fine arts) but the university can redistribute them across programmes

- Universities can set up spin-off companies but holding shares requires permission from the finance ministry

The OECD report recognised that the landscape is cluttered with "obsolete laws and conflicting regulations", which echoes the recurrent complaint heard in Aveiro that institutional autonomy is only theoretical because, in effect, it is constrained by such a range of regulations.

In addition, capital investment is negotiated with MCTES separately from current expense funding, on the basis of a project, which must be part of a regional plan.

Finally, two different national sources of basic funding, for research and education, lead to the creation of additional and sometimes unnecessary structures because formal research units must be created in order to receive funding. This seems to be legitimate for the interdisciplinary research units but when this is not the case, it seems superfluous to have both a department and a research unit because it weakens the link between teaching and research.

The strengths and weaknesses of the University of Aveiro, which are described below, should be considered within this national and international context.

5. The strengths of the University of Aveiro

The University of Aveiro has several strengths. Foremost among them is it campus, which is attractive and includes almost all of the constituent units of the university. The campus is well equipped. For instance the self-evaluation report notes that the campus is 100 per cent wireless and that 95 per cent of teachers use electronic teaching tools and platforms; a single, integrated information system supports the management, research and education functions.

UA's organisational structure is a matrix characterised by the absence of faculties: departments, in specific (inter)disciplinary fields, organise teaching according to developing needs; research units are responsible for research activities. This flexible matrix model is meant to enable the organisation and reorganisation of fields of study and research in order to promote interdisciplinarity. In theory, the units can be dismantled and this has happened twice during the 30-year history of the University. The EUA team had planned to delve more deeply into this organisational structure during the second visit but the promulgation of the new Portuguese higher education law reduced this priority. Nevertheless, the team endorses a structure that does not include faculties for the flexibility, speed of response and potential for interdisciplinarity that it brings. It enables UA units to exchange needed competence across departments or research units.

It is clear that the general atmosphere at the university is very good. The University is a young, mid-size institution. It was established in 1973 and comprised about 12 612 students as of 31 December 2005. Its institutional age means that the University is not weighed down by tradition and its size implies that internal communication is not a major challenge and can serve to create consensus on key issues. As a result, the general impression is that staff and students are proud to be part of UA: the term *community* is often used to refer to the University. The use of a common logo – a practice the EUA team fully endorses – is a sign of this shared identity.

In addition, there have been only six rectors since the creation of the institution. It is clear that the continuity and momentum from one rector to the next has been maintained and that the University has successfully elected rectors for their dynamism, vision and leadership. In addition, the current leadership is constituted of a team that works well together and seems to have the support of the university community.

The University is very active in Europe. It participates in many European projects, conferences and organisations (e.g., EUA, Columbus, Magna Charta, Tuning Project, etc.). This active international engagement has led the University to be well-known and a

recognised "brand" in Europe and to learn a great deal about international trends and European policies, which it is quick to implement. For instance, in addition to the speedy implementation of Bologna, doctoral education is being re-thought to move away from the apprentice model.

From its origins, the University has pioneered and promoted research and education in innovative interdisciplinary areas, such as electronics, telecommunication, ceramics and glass engineering, environmental sciences, tourism, etc. and has achieved international standards in some of them. In UA's niches of excellence, its researchers seem extremely productive (as measured in terms of number of publications) and highly rated in Portugal. Aveiro has four associated labs. The fourth one was approved in 2006 but the contract has not been signed yet[1]. They are 25 such units in Portugal, which have been rated as being at the top of research in Portugal.

The University is also very active in technology transfer, notwithstanding a regional context characterised by low-tech SMEs. Since its origins, service to society has been considered to be a major priority. This priority translates into a range of activities including: participation in solving regional problems, provision of specific public service, promotion of public understanding of science, lifelong learning programmes, cultural activities, and, overall, good relationships with industry. The University is also interested in reaching out to adult students ("23 plus") and vocationally-orientated students: it offers a range of short, post-secondary programmes through its polytechnics.

The academic staff comprises a good proportion of PhDs (80 per cent) and the University is set on increasing this rate.

The students seem satisfied with their education and their general educational experience. Many have come from outside the Aveiro catchment area to study at a university that offers a diversity of educational provisions that seem well-recognised in Portugal. In addition, the size of the institution is an important factor in allowing students to find their place and the support that they need to succeed. Last but not least, they are represented by a student organisation that seems to be well-run and effectively led, which is a sound basis for establishing a productive and constructive dialogue.

The administration is well-staffed, integrated and service orientated. The EUA team heard no complaint about over-bureaucracy or inefficiencies and was favourably impressed with the heads of administration with whom it met.

Recently, the financial service has implemented analytical accounting, which will allow the university to know the full cost of its activities and enables it to claim the maximum rate of indirect research costs.

A significant number of good initiatives have been started and need to be further developed, without changing their general orientation. These include for instance, tracking alumni, which will enable UA to use the information to improve its programmes and internationalisation efforts.

Finally, as opposed to other regions in Portugal, the local birth rate is good, there is a strong work ethic and the region is able to absorb the UA graduates.

6. The weaknesses of the University of Aveiro

In a world where resources are scarce and in order to develop strategic partnerships with other higher education institutions and private enterprises, efficiency and quality must be

---

[1] http://www.fct.mctes.pt/labs/associados/index.asp?dados=true&labs=true

demonstrated through internal evaluation processes. As mentioned in the introduction, the University of Aveiro implemented a series of internal quality processes following the 1998 follow-up evaluation. More recent initiatives include the creation of a "Quality Protocol" and piloting it in a few units; the establishment of an integrated information system, at both front-office and back office levels, that supports all university activities; the strengthening of staff development programmes for both academic and administrative staff; a web-based questionnaire for the evaluation of teaching; monitoring class attendance. Despite these efforts, however, the internal QA system requires a great deal of development to be in line with the new European policies. It also requires a clear definition of quality and a demonstration of the way results are used. The report will come back to these points with a range of recommendations.

Given the absence of faculties, the main governance structures include the rectorate and the senate. While the matrix model provides great flexibility it also requires more work in order to ensure adequate understanding across the university community of the main challenges facing the institution. The interviews and the self-evaluation report conveyed a sense that the articulation between the centre and the departments and institutes is burdensome to manage as is the balance that needs to be achieved between the central leadership priorities and the required autonomy and responsibility at the levels of departments and institutes. In fact up to the promulgation of the new higher education law this summer, the university statutes had been under revision and questions regarding the role, composition and interaction of these structures had been raised in order to streamline decision making and implementation. The EUA team was not able to delve into these issues in any depth because of the promulgation of the new law but the general impression is that statutory bodies (regulated by the national framework) overlap with the bodies necessary to manage the matrix organisation, thus creating unnecessary complexity. In addition, the reasons for having both research and teaching institutes seem unclear and result in a de-linking of research and teaching.

The EUA team noted that there is an endogamous tendency in academic staff recruitment. The EUA team was told that 50 to 60 per cent of academic staff earned their doctorates in Aveiro. This is part of a national pattern and the compounded result of the Portuguese institutions' behaviour, which reduces each institution's opportunity for exogamous recruitment. This issue will need attention at the level of the system.

The presence of four polytechnics within UA and UA's activities in lifelong learning and distance learning are positive but – like many universities across Europe – UA is lacking a clear strategy in these areas, which is essential for regional development. In addition, the polytechnics are somewhat off-centred: some of their units lack critical mass and teaching support material. Although the polytechnics seem satisfied with the links to UA, there might be room for greater synergy and greater collaboration.

One of UA's research aspirations is to develop its nanotechnology. This goal would be challenging to achieve without a faculty or school of medicine because health is the sector receiving more benefits from this technology.

The existence nearby of a few big firms and industry R&D and their commitment to UA are a strength that seem to be well-exploited by the University and could be developed further. External partners do appreciate the existing links but think that these can be strengthened and institutionalised. They note that the University could be more open and should be developing the entrepreneurship of students. Doctoral students make the same diagnosis. They think that their teachers do not speak sufficiently to firms and that firms do not come often enough to the university. They worry that the link to industry is left to individual professors' initiatives and would like to have industrial internships and to be taught entrepreneurship and other "soft" skills in order to ensure a more effective insertion in the labour market.

Finally, in the view of the EUA team, small and medium firms do not seem to be sufficiently supportive of the university: SMEs do not seem to have understood fully the assets represented by a local university. Thus, undergraduate student interns are sometimes underused (e.g., students are sometimes given menial tasks such as copying documents, etc.) and not paid. Although the SMEs benefit from the University, they do not seem to grasp the need to support it actively – both politically and financially. Similarly, because UA has taken a number of excellent initiatives to reach out to the community (e.g., Fabrica, science cafés, music festival, math games, etc.), the public authorities tend to think that no further support is needed. This report will address these points in the recommendation section below.

7. The opportunities faced by the University of Aveiro

The University has gained new self-awareness and improved internal communication thanks to the self-evaluation report. This report served to reveal to the University community the strategic goals of the institution, its strengths in some research areas and its weaknesses, particularly in the quality monitoring processes, and in the presentation of new data that compared departments along specific indicators. This excellent and bold report has already generated internal discussion and will allow the university community to develop a strategy based on shared understanding, analysis and data. This is well-timed given the work that will need to be carried out in implementing the new higher education law.

There is a range of opportunities faced by UA. Foremost among them is the intention of the Portuguese government to develop a strategy in order to reach the Lisbon goals and to transform Portugal into a knowledge society. Key targets for this strategy include raising the share of science and technology graduates by 50 per cent and to double the number of PhDs; to double GERD financed by the government and triple the BERD/GDP ratio; to double the total number of R&D personnel and to increase by 50 per cent the number of scientific publications (OECD 2007).

European processes such as Bologna, the creation of the European Research Council (ERC) and regional development funds can be fully exploited to increase internationalisation and research funding streams. Some of the UA research teams can certainly aspire to ERC funding and the University is actively implementing the Bologna reform, with the expectation of being well ahead of the national deadline. A recent study of the implementation of Bologna degrees in Portugal revealed that "programs that changed their curricula to conform with the Bologna principles were subject to an increase in demand by prospective students. That positive impact on demand was more pronounced if the institution took the lead, being the only institution in the country that restructured the program" (Cardoso et al. 2006:21). This bodes well for UA at least in the short term.

The new stress on "23 plus" students and a well-thought through lifelong learning strategy represent opportunities for UA to increase enrolment and develop further its regional development role.

The new law represent an opportunity to revisit the decision-making structure and to revise the whole governance system toward greater efficiency and effectiveness. It is an opportunity to simplify the decision-making process while keeping in mind the need to engage the community and ensuring its understanding of the university as a whole in the context of international and national trends.

The existence of four universities in the Northern region of Portugal represents an opportunity for alliances – and not only for research as is currently the case – but also for education and regional development.

Finally, the city is fully supportive of UA and recognises the University's contribution to the vitality of the region. The external stakeholders spoke eloquently about UA. One stated: "I cannot imagine the region without the University and cannot imagine the University without the region." One employer recognised the positive contribution of the University in revitalising the city of Aveiro and changing its culture: "Twenty years ago, the city of Aveiro was completely different: the town was not welcoming to outsiders and our employees were commuters. Now it is different and our employees are happy to live here."

8. The threats faced by the University of Aveiro

The University of Aveiro is located in close proximity to three important universities: the University of Coimbra, the oldest Portuguese university; the University of Porto, located in the second city of Portugal; and the University of Minho further to the north. The declining demography in Portugal means that universities have been competing for students. This report will come back to this point and analyse how this threat could be turned into an opportunity. Suffice it to say here that the University is commended for having set a target of 12 500 students in 1998, which it has been able to maintain for the past five years, despite the declining Portuguese demographic. According to the self-evaluation report, this was achieved by a two-prong strategy that included adapting more closely undergraduate offer to demand and expanding and varying its postgraduate programmes to reach 20 per cent of the student population.

The national policy has fluctuated in terms of the link between teaching and research, which leads to a range of dysfunctions both in terms of academic carers and academic structures.

There are uncertainties regarding aspects of the new law. For instance, the criteria for and the implications of changing the university status to a foundation are unclear. There are also uncertainties regarding the future funding formula and the status of academic staff, which make it difficult to plan ahead.

The new higher education law mentions that a Council of Higher Education has been set up and will be chaired by the Minister. This means that there are no buffer bodies between the universities and the ministry and this represents a potential risk in limiting institutional autonomy, which the new law aims to increase.

The reliance on the few existing big industrial R&D is dangerous because they could decide to relocate.

9. Recommendations

9.1 Strategy

The EUA team views the co-existence of four strong universities in the Northern region of Portugal as an opportunity to develop a regional plan that put the universities at the centre of regional development. This would strengthen the possibility of applying for European regional funding and would require the creation of a regional strategic commission that would include the interested universities, the public authorities and private firms (cf. also Section 9.3.1). Thus, the first and most important strategic question that UA must address is whether it wants to stay alone or form alliances with one or more universities. This is a very difficult and challenging question because a discussion with potential partners will require trust building in the current competitive climate. Therefore, any potential alliance will take time to negotiate. Nevertheless, it will be important for UA to think through its options and start thinking about a general strategic orientation in parallel to the implementation of the new higher education law. If the answer is to form such partnerships, these must be developed with due consideration to UA's strengths as well as

the need for developing critical mass and the right structures for doctoral education. In addition, as mentioned above (Section 4), UA has identified its current research strengths. It would be good to re-assess them every 6 to 7 years in order to update them in the context of successes that have been achieved and the thematic evolution of research.

UA's research strengths are clearly in the sciences and applied sciences. This should not lead to the conclusion that the social sciences and humanities should disappear or are unimportant: suffice it to say that the Massachusetts Institute of Technology has strong departments in these fields. These fields are crucial to solving societal problems: Interdisciplinary university teams working together, in total intellectual independence, are important to the region. As an example, UA wishes to further develop strength in environmental studies and these can include scientific, technological, social and economic research strands.

Should UA try to become a comprehensive university or a technical/applied science university? In the view of the EUA team, it is important to abandon the outdated notion of comprehensive universities but without falling into the trap of an applied science university. All universities must focus and find their own balance between specialisation and breadth. Thus, the UA portfolio of activities will need to be continuously refined in order to allow adaptation to changing internal and external conditions. This portfolio must be focused and balanced between the need for long-term research and response to short-term external demands and must include the social sciences and humanities. In addition, UA's aspirations in nanotechnology will require (i) significant funding in order to develop and carry out an effective research programme and (ii) medical facilities, since health is one of the main recipients of nano applications. Finally, if new funding arrangements make it possible, the benefits of a matrix structure may be increased by ensuring that research and teaching are linked in the departments rather than in different institutes that de-link them.

As the UA leadership is well aware, the new law will require in-depth study. The EUA team recommends that UA engages in discussions with the Ministry and ensures that the Portuguese rectors' conference works collectively in these discussions, particularly concerning the next ministerial steps regarding university autonomy for academic staff recruitment and increasing and diversifying income sources. In this respect, UA would be well-advised to consult lawyers about the opportunity for creating a foundation and to specifically examine with them the financial and legal implications of such a step and consider its risks and benefits.

Furthermore, UA is well aware of the importance of the polytechnics that are integrated in the University. The presence of the polytechnics is important in meeting the regional development role that UA has set for itself. Therefore, it is also important to recognise the role and place of these institutions in making UA more visible in other circles of the regional population and to ensure that access routes of polytechnics students to the university are fair and uncomplicated. In addition, the polytechnics have traditionally worked closely with some professions and SMEs in developing vocational education and training. They offer project- or research-based learning that might fit well with those among the "23 plus" learners who are not interested in theoretical knowledge. The mix of young and older students might also contribute to a stimulating environment for all.

Ultimately, these strategic orientations will need to be developed in concert with the UA community. This requires communicating effectively and is an important part of the leadership's responsibility. The self-evaluation report and comments in some of the meetings indicate that communication is not optimal: there seems to be a gap between the aspiration of the University to change and the reality in the departments as well as the need to engage the community in a wider discussion of strategic goals. Naturally, academic staff members live in their units, which constitute the primary locus of their identity. Some complain of too much communication rather than targeted communication;

others that communication is top down rather than two-way. Although the EUA team was unable to confirm these perceptions, it will be important to make certain that these issues are addressed while promoting awareness that communication is everyone's responsibility – not only that of the leadership.

9.2 Internal Quality Processes

While it is clear that these strategic questions, linked to the changing legal framework, will be at the top of the agenda in the next few months, UA will also need to develop further its internal quality processes. In the view of the EUA team, this includes the following steps:

9.2.1 Evaluation of departments, research units and administrative services

It will be important for UA to develop an internally-organised system for evaluating departments, research units and administrative services. These evaluations could be derived from the EUA Guidelines and centred on its four key questions (What is the Unit trying to do? How does it do it? How does it know it works? What does it do to improve?) and the four conventional phases of evaluations: self-evaluation, visit of an external panel, evaluation report and publication (within the university) and – most importantly – a follow up. Thus, the outcomes of these evaluations would be discussed in the appropriate university and unit committees and action plans for improvement would be monitored centrally. This is now a European requirement and will serve to boost the autonomous capacity of the institution for self-steering.

Such processes would require setting up a small office for quality that should be staffed with individuals whose experience would be credible to the academic staff and who would be asked to be attentive in avoiding bureaucratic and burdensome processes.

9.2.2 Evaluation questionnaires and an "academic development structure"

The teaching evaluation questionnaires need to be re-examined as follows:

- Rethinking the web-based distribution of the evaluation questionnaires: Universities that have tried web-based questionnaires all seem to face the same challenge. Supply does not create demand and students forget to fill them out. A more effective way is to distribute the questionnaire in the classrooms and to ensure that they are collected by someone other than the professor in charge and taken to the administration for scanning and processing.

- The EUA team did not look at the UA questionnaire but would recommend nevertheless ensuring that the questionnaire:

  o Ask questions that are relevant for identifying effective teaching, without pushing particular pedagogical agendas or creating biases. A form that asks whether the instructor used small groups in class, for example, implies that good teachers use small groups, which is not necessarily appropriate in all courses.

  o Ask questions about students' engagement in the learning process in order to convey to students that teaching and learning is an active partnership[2].

- It is essential not to rely on the questionnaires alone because their reliability seems to consist in identifying only the best or worst teachers. Research has shown that the questionnaires are limited in their ability to control such factors as class size and type

---

[2] For an example, cf. the evaluation form of the University of Washington, Oregon, USA :
http://www.washington.edu/oea/pdfs/course_eval/FormB.pdf

(e.g., large classes or theory courses usually receive low ratings) (Glenn 2007). Therefore the questionnaires should be part of a package of instruments for evaluating teaching and learning – a package that would include analyses of written instructional materials (e.g., course descriptions that include learning targets, reading material, description of activities, assignments and examinations) and that takes into account the identification of learning outcomes and whether these objectives are met.

- The results of these evaluations should be analysed and pedagogical teams should come up with action plans to be discussed, implemented and monitored.

- In addition to end of term evaluations, it is useful to encourage academic staff to conduct their own evaluation during the term in order to re-orient their teaching if necessary. Angelo and Cross (1993) recommend using what they call " the Minute Paper": "an instructor stops class two or three minutes early and asks students to respond briefly to some variation on the following two questions: 'What was the most important thing you learned during this class?' and 'What important question remains unanswered?'" Students write their responses and hand them in. A second method (Lang 2007) is to gather feedback from students by taking 10 or 15 minutes at the end of a class and administering a survey with some version of these two questions: "What classroom activities or assignments have been most effective in helping you learn this semester, and why?" and "What classroom activities or assignments have been least effective in helping you learn this semester, and why?" Students are asked to respond anonymously and write a paragraph for each question. These mid-term techniques should be developed by the teachers and their results need not be communicated to the administration.

In parallel, it is essential to develop training and advisory services to teachers who are interested in improving their teaching skills. It is best that these services are made available on a voluntary rather than compulsory basis and, if possible, such involvement could be taken into account in promotion decisions. An academic development structure such as a "Leaning and Teaching Unit" (that might integrate the distance-learning academic development activities) would offer workshops and individualised training to interested teachers, as well as a library of relevant material and equipment to develop student-centred learning. It could also provide a tutoring service for students (workshops and individualised sessions) to help them improve their study-skills, time management, etc. The combination of these two functions within a single unit would serve to ensure synergy and cross-learning by working with these two groups. This unit could also spearhead the new European requirements to identify learning outcomes: it could offer training to pedagogical teams in order to develop learning outcomes for all programmes in a non-bureaucratic way.

9.2.3 Ensure a sound quality culture

The main objective of internal quality processes is to improve quality levels. In order to do so effectively, UA will need to pay great attention to the engagement of the community (academic and administrative staff, students and, when appropriate, external partners) in these processes. (EUA 2006 a; E4 2006). Seminars and workshops involving Europeans will be important as introduction to these procedures.

In addition, given the structuring of UA into departments and research units as well as the extreme specialisation of knowledge in universities, it is essential to ensure cohesion across the community by (i) promoting teamwork within the units (e.g., to define learning outcomes, discuss patterns of student failures and ways of addressing them) and (ii) across units to discuss internal quality culture in order to answer the following questions: how to define quality? What sorts of quality levels are required in the context of UA's strategic goals? Given the combination of goals that the University set for itself – a niche

research strategy and a regional role – it will be important to define quality not only as excellence in research – as is currently the case – but also in teaching and community outreach. This will ensure that the community adheres to the future internal quality schemes and that these will support the institutional objectives.

The Integrated Information System is of great value to UA and its use will need to be better exploited. For instance, data on student performance can be analysed in order to understand patterns of success and failure. This might allow UA to deal with student retention through a route other than that of monitoring class attendance. Although the EUA team understands that Portuguese schooling provides insufficient preparation to university, it is essential that student failure is analysed and university courses adapted accordingly.

9.3 Service to society

9.3.1 Outreach to the community

Given its regional aspiration, UA would be well advised to create a regional strategic commission to discuss regional development. This commission would include the major research organisations (extended or not to the neighbouring universities), representatives of SMEs and public authorities. Such commissions are found in major European and international "knowledge regions" (EUA 2006 b). They tackle the local societal and economic challenges with a view of strengthening the region culturally, socially and in economic terms.

Such a cooperative approach would allow UA to develop a sound strategy for its lifelong learning activities, the development of doctoral students' "soft skills", a closer anchoring of the polytechnics in the University and would present an opportunity to boost the contribution of the social sciences and humanities to regional development.

9.3.2 Knowledge transfer

The EUA team commends the technology platform developed by CICECO: led by this associated lab, this is a membership organisation of industry R&D that meets regularly to set its research agenda and share research results. This is a model that can be applied to other areas of the university.

In addition, it might be useful that UA uses the "Guidelines for Universities" that were developed by EUA, with EIRMA, EARTO and PROTON in order to benchmark its own practices in this area (EIRMA 2005: appendix 2).

The UA incubator is full but there are science parks in Portugal that stand empty. UA should evaluate the option of developing or not a science park. If yes, UA will need to consider a sequence of strategic decisions: Whether it should be developed for the region or locally? Whether to undertake this project alone or with other universities and where to locate it physically in order to meet its strategic goals?

10. Conclusion

UA is a good university that functions in a difficult environment: e.g., weak secondary schooling, constrained institutional autonomy and significant under-funding. The successes it has achieved so far are due to its matrix organisation, its strong and stable leadership and an excellent atmosphere that contributes to maintaining a sense of belonging to a community with shared values and purposes.

The challenges UA faces are significant if only because of the growing and acute competition in Europe and internationally. Therefore, it is essential that the university reviews its strategic choices and its possible partnerships and sets clear priorities for the future.

UA is also facing significant changes with the promulgation of the new higher education law. Such major changes require maintaining high morale among academic and administrative staff and students through good communication channels and their involvement in the new decision-making process.

The EUA team is confident that the University of Aveiro has the appropriate strengths to deal with this new set of challenges: foremost among them is a pervading self-identity as a dynamic and young institution, which will serve it well in the years ahead.

11. Annexes

11.1 Preliminary visit

21 March 2007, Wednesday		
Afternoon	Arrival of evaluation team	
90 minutes	Brief meeting	Evaluation team alone
Evening	Dinner	<u>Rector</u>: H. Nazaré <u>Vice-Rectors</u>: José A. Rafael (liaison person); Francisco Vaz; Isabel Martins; Manuel Assunção <u>Pro-Rectors</u>: Fernando Rocha; Nelson Rocha
22 March 2007, Thursday		
09.00 – 09.30	Meeting with Rector	Rector: Helena Nazaré
09.40 – 11.00	Introduction meeting	José A. Rafael (liaison person) Manuel Assunção
11.10 – 12.30	Meeting with self-evaluation steering group	<u>Self-evaluation steering group</u>: José A. Rafael (liaison person); Manuel Assunção; Gillian Moreira; José F. Mendes; Maria L. Pinto; Gonçalo P. Dias; António S. Pereira; Maria F. Duarte; João Rosa; Daniela Costa; Miguel Conceição
12.30 – 14.00	Lunch	J.A. Rafael (liaison person) and Manuel Assunção
14.10 – 14.40	**Parallel** visits to 1. Department of Electronics, Telecommunications and Informatics (DETI)	DETI Dean: Maria B. Santos DEGEI Dean: Joaquim C. Leite
14.40 – 15.40		Academic staff representatives
15.50 – 16.40	2. Department of Economics, Management and Industrial Engineering (DEGEI)	Students
17.00 – 18.00	Meeting with external partners	Gil Nadais (CM Agueda); Elio Maia (CM Aveiro); Ribau Esteves (CM Ilhavo); Paulo Nordeste (PTInovação); Joãa Vieira (Pascoal & Filhos); Lusitana Fonseca (Aveiro Digital; António Oliveira (Oliveira & Irmão)
18.30 – 19.30	Debriefing meeting	Evaluation team alone
Evening	Dinner	Evaluation team alone
23 March 2007, Friday		
08.30	Departure to Águeda (Visit team 1)	
09.00 – 09.30	**Parallel** visits to 1. Águeda Technology and Management School (ESTGA)	ESTGA Dean: Estima de Oliveira CICECO Head: João Rocha
09.30 – 10.15	2. Materials Associate Laboratory (CICECO)	ESTGA Academic staff CICECO Researchers
10.15 – 11.00		ESTGA Students CICECO Post-doc and Post-graduate students
11.00 – 11.30	Return from Águeda (visit team 1)	
11.30 – 12.00	Meeting	Evaluation team alone
12.00 – 13.15	Lunch and concluding session	Rector: Helena Nazaré <u>Vice-Rectors</u>: José A. Rafael (liaison person); Francisco Vaz; Isabel Martins; António Ferrari; Manuel Assunção <u>Pro-Rectors</u>: Fernando Rocha; Nelson Rocha
13.15	Departure of evaluation team	

11.2 Main visit

Sunday 9 September 2007		
Afternoon	Arrival of evaluation team	
90 minutes	Debriefing meeting Business Room Hotel Meliá	Evaluation team alone
Evening	Dinner	Sr.ª. Reitora, Prof. Rafael, Prof. Assunção, equipa de avaliação (5)
Monday 10 September 2007		
08.45	Departure from hotel	
09.00 – 10.00	Meeting with Rector	Rector: Profª. Helena Nazaré
10.00 – 11.00	Meeting with self-evaluation steering group	Prof. José A. Rafael (liaison person); Prof. Manuel Assunção; Profª. Gillian Moreira; Prof. José F. Mendes; Profª. Maria L. Pinto; Prof. Gonçalo P. Dias; Prof. António S. Pereira; Drª. Fátima Duarte; João Rosa; Drª. Daniela Costa; Eng. Miguel Conceição
11.15 – 12.45	Meeting with the directors of research institutes: **Research institute and research units**	▪ **Research Institute**: Executive secretary <u>Prof. José Grácio</u> and adjoining secretary Prof. Carlos Fernandes da Silva ▪ **CESAM** (<u>Prof. Casimiro Pio</u>) ▪ **CICECO** (<u>Prof. João Rocha</u>) ▪ **I3N** (Profª. Maria Celeste do Carmo) ▪ **CDTTF** (<u>Prof. António Cachapuz</u>) ▪ **CLC** (Prof. João Torrão) ▪ **MA** (<u>Prof. Luís Filipe Castro</u>) ▪ **QOPNA** (Prof. José Cavaleiro) ▪ **ELMAS** (<u>Profª. Beatriz Valle Aguado</u>)
12.45 – 14.00	Lunch with vice rectors for research and for teaching	Prof. Francisco Vaz; Prof. António Ferrari; Profª. Isabel Martins; Prof. Manuel Assunção
14.00 – 15.00	**Parallel** meetings: 1. **Meeting with the directors of the teaching institutes** 2. **Meeting with the directors of the polytechnics**	**1.** **IFIU** Executive secretary Prof. Claudino Cardoso and adjoining secretary Profª. Lídia Silva; <u>Degree Directors</u>: a. Natural and exact sciences: <u>Prof. Armando Silvestre</u> b. Engineering: <u>Prof. Humberto Varum</u>; c. Teacher Education: Profª Ana Ramalheira; d. Social sciences, humanities and arts: Prof. João Torrão **IFPG** President <u>Profª. Isabel Martins</u>; Executive secretary <u>Prof. Carlos Ferreira</u> and adjoining secretary <u>Profª. Helena Sá</u> 2. **ESTGA** (<u>Prof. Estima de Oliveira</u>); **ESSUA** (<u>Prof. Nelson Rocha</u>); **ISCAA** (<u>Profª. Fátima Pinho</u>); **ESAN** (<u>Prof. Vitor Costa</u>)
15.15 – 16.15	Meeting with administrator and the directors of the central administrative staff	<u>Dr.ª. Fátima Duarte</u>; <u>Dr. Mário Pelaio</u>; Dr.ª. Laura Lemos; Mestre Fernando Batista; Eng. Fernando Cozinheiro;
16.30– 17.30	**Parallel** meetings 1. Culture: FJJM, UA Science centre, External Relations Services, CRC, AMB 2. Tech Transfer and innovation: UAtec, GrupUNAVE, CIENCIVEST, IEETA, CEIDET, IDAD, IT, IDPOR	1. <u>Prof. Paulo Trincão</u>; <u>Prof. António Batel Anjo</u> e <u>Profª. Ivone Delgadilho</u>; <u>Dr.ª. Ana Bela Dias</u>; <u>Prof. Vitor Costa</u>; Prof. Vassalo Lourenço; 2. <u>Doutor Paulo Rainho</u>; <u>Eng. Fernando Santos</u>; <u>Prof. Alberto Castro</u>; Prof. Paulo Jorge Ferreira; Prof. Anselmo Castro; Prof. Carlos Borrego; <u>Prof. José Neves</u>; Prof. Pascoal Neto
17.45 – 18.30	Meeting with external stakeholders	Siemens (<u>Eng. João Picoito</u>); <u>Martifer</u>; PT Inovação (<u>Eng. Paulo Nordeste</u>); Aveiro Digital (Engª. Lusitana Fonseca)
18.30	Return to hotel	
19.00 – 20.00	Debriefing meeting Business Room	Evaluation team alone

	Hotel Meliá	
Evening	Dinner in the hotel	Evaluation team alone
Tuesday 11 September 2007		
08.45	Departure from hotel	

09.00 – 09.30	Parallel visits to
	   3. Linguistics department
	   4. Education departments
		1. Prof. João Torrão;
		2. <u>Prof. Jorge Adelino da Costa</u> and <u>Profª. Ana Isabel Andrade</u>;

09.30 – 10.15	(Educational Sciences and Didactics and Educational Technology)	Academic staff
10.15 – 11.00		Students

11.15 – 12.15	**Parallel** meetings:
	   1. Student associations and student union
	   2. Departmental administrative staff
		1. AAUAv, ISCA, ESTGA Student's Union
		<u>Luís Ricardo Ferreira</u>, <u>Chantal Teixeira</u>, <u>Albano Reis</u>, <u>Daniela Silva</u>
		
		2. <u>Drª. Alexandra Vale</u> (CV); <u>Drª. Cristina Silva</u> (CA); <u>Drª. Nautília Maia</u> (DETI); <u>Drª. Noémia Lay</u> (DLC); <u>Eng. Sérgio Cruz</u> (MAT); <u>Drª. Helena Costa</u> (CSJP); <u>Drª. Ilda Camarneiro</u> (ESTGA); <u>Drª. Dora Santos</u> (CICECO)

12.15 – 12.30	Debriefing meeting	Evaluation team alone
12.30 – 13.30	Lunch	Prof. António Ferrari e <u>Profª. Estela Pereira</u>

13.45 – 14.30	**Parallel** meetings:
	   1. Meeting with international office
	   2. Meeting with international students
		1. <u>Dr. Mário Pelaio</u>, Dr. Niall Power, <u>Dr.ª. Sofia Bruckmann</u>
		
		2. International students

14.30 – 15.30	**Parallel** meetings:
	   1. Internship and first employment office, alumni association office,
	
	   2. Student support services, distance learning and academic staff development office
		1. <u>Dr. Mário Pelaio</u>, GESP (<u>Dr.ª. Marta Oliveira</u>, <u>Dr.ª. Paula Pereira</u>); <u>Mestre Cláudia Luz</u> (AAAUA); Dr. Niall Power
		
		2. <u>Mestre Helder Castanheira e Dr.ª. Anabela Oliveira</u>; <u>Prof. Fernando Ramos</u>, <u>Eng. Gilberto Vasco</u>, <u>Eng. Helder Caixinha</u>

15.30	Departure to hotel	
15.45 – 20.30	Debriefing and preparation of oral report Business Room Hotel Meliá	Evaluation team alone (requires a meeting room)
20.30 – 21.30	Dinner in the hotel	Evaluation team alone
21.30	Preparation of oral report Business Room Hotel Meliá	requires a meeting room
Wednesday 12 September 2007		
08.45	Departure from hotel	
09.00 – 10.00	Meeting with the Rector	Rector: Profª. Helena Nazaré
10.00 – 10.30	Internal meeting	Evaluation team alone
10.30 – 12.00	Presentation of oral report	Rector and guests
12.00 – 14.00	Lunch	Sr.ª. Reitora, equipa reitoral (Prof. Ferrari, Prof. Francisco Vaz, Profª. Isabel Martins, Prof. Nelson Rocha, Prof. Tavares Rocha), equipa de avaliação (5), steering group (11)
14.00	Departure of the team	

11.3 List of Acronyms

Departments

BIO – Department of Biology (*Departamento de Biologia*)

CA – Department of Communication and Art (*Departamento de Comunicação e Arte*)

CIVIL – Department of Civil Engineering (*Departamento de Engenharia Cicil*)

CV – Department of Glass and Ceramics Engineering (*Departamento de Engenharia Cerâmica e do Vidro*)

DAO – Department of Environment and Planning (*Departamento de Ambiente e Ordenamento*)

DCE – Department of Educational Sciences (*Departamento de Ciências da Educação*)

DEGEI – Department of Economics, Industrial Management and Engineering (*Departamento de Economia, Gestão e Engenharia Industrial*)
DETI – Department of Electronics, Telecommunications and Informatics (*Departamento de Electrónica, Telecomunicações e Informática*)
DLC – Department of Languages and Cultures (*Departamento de Línguas e Culturas*)
DQ – Department of Chemistry (*Departamento de Química*)
DTE – Department of Didactics and Educational Technology (*Departamento de Didáctica e Tecnologia Educativa*)
FIS – Department of Physics (*Departamento de Física*)
GEO – Department of Geosciences (*Departamento de Geociências*)
MAT – Department of Mathematics (*Departamento de Matemática*)
MEC – Department of Mechanical Engineering (*Departamento de Engenharia Mecânica*)
Autonomous Sections
CS – Autonomous Section of Health Sciences (*Secção Autónoma das Ciências da Saúde*)
CSJP - Autonomous Section of Social, Juridical and Political Sciences (*Secção Autónoma de Ciências Sociais, Jurídicas e Políticas*)
Polytechnic Schools
ESAN – The Aveiro – North School of Design, Management and Production Technologies (*Escola Superior de Design, Gestão e Tecnologia da Produção Aveiro - Norte*)
ESSUA – The Aveiro Health School (*Escola Superior de Saúde da Universidade de Aveiro*)
ESTGA – The Águeda School of Technology and Management (*Escola Superior de Tecnologia e Gestão de Águeda*)
ISCA – The Aveiro Institute of Accountancy and Administration of Aveiro (*Instituto de Contabilidade e Administração da Universidade de Aveiro*)
Research Units
CBC – Centre for Cell Biology (*Centro de Biologia Celular*)
CCPSF – Development of Pedagogic Knowledge in Education and Training Systems (*Construção do Conhecimento Pedagógico nos Sistemas de Formação*)
CDTTF – Research Unit for Didactics and Technology in Teacher Education (*Centro de Investigação em Didáctica e Tecnologia na Formação de Formadores*)
CECE – Centre for the Study of Entrepreneurial Competitivity (Centro *de Estudos de Competitividade Empresarial*)
CEGOPP – Centre for Research in Governance and Public Policy (*Centro de Estudos em Governança e Políticas Públicas*)
CEOC – Centre for Research in Optimisation and Control (*Centro de Estudos em Optimização e Controlo*)
CLC – Centre for Languages and Cultures (*Centro de Línguas e Culturas*)
ELMAS – Lithospheric and Surficial Environment Evolution Research Unit (*Evolução Litosférica e do Meio Ambientel de Superfície*)
FSCOSD – Physics of Layered Semiconductors, Opto-Electronics and Disordered Systems Research Unit (*Física de Semicondutores em Camadas, Optoelectrónica e Sistemas Desordenados*)
IEETA – Institute of Electronic Engineering and Telematics of Aveiro (*Instituto de Engenharia Electrónica e Telemática de Aveiro)*
MA – Mathematics and Applications Research Unit (*Matemática e Aplicações*)
MIA – Industrial Minerals and Clays Research Unit (*Minerais Industriais e Argilas*)
QOPNA – Organic Chemistry, Natural and Agro-Food Products Research Unit (*Química Orgânica e de Produtos Naturais e Agroalimentares*)
TEMA – Centre for Mechanical Technology and Automation (*Centro de Tecnologia Mecânica e Automação*)
UNICA – Research Unit on Communication and Art (*Unidade de Investigação em Comunicação e Arte*)
Associated Laboratories
CESAM – Centre of Environmental and Marine Studies (*Centro de Estudos do Ambiente e Mar*)
CICECO – Centre for Research in Ceramics and Composite Materials (*Centro de Investigação em Materiais Cerâmicos e Compósitos*)
I3N – Institute for Nano-Structures, Nano-Modelling and Nano-Manufacture (I*nstituto para as Nano-estruturas, Nano-modelação e Nano-manufactura*)
IT – Telecommunications Institute (*Instituto de Telecomunicações*)
Other
AAAUA – Alumni Association (*Associação de Antigos Alunos da Universidade de Aveiro*)
AAUAv – Students' Union (*Associação Académica da Universidade de Aveiro*)
ACD – Cultural and Sporting Activities (*Actividades Culturais e Desportivas*)
APL – Accreditation of Prior Learning
AURN - Association of Universities of the Northern Region (*Associação das Universidades da Região Norte*)
CEIDET – Centre for Studies in Innovation and Entrepreneurial and Territorial Dynamics (*Centro de Estudos em Inovação e Dinâmicas Territoriais*)
CEMED – Multimedia and Distance Learning Centre (*Centro Multimédia e de Ensino a Distância*)
CET – Technical Specialisation Programme (*Curso de Especialização Tecnológica*)

CIAQ – Kindergarten (*Centro de Infância Arte e Qualidade*)
CICUA – Informatics and Communication Centre (*Centro de Informática e Comunicações*)
CIFOP – Integrated Teacher Education Centre (*Centro Integrado de Formação de Professores*)
CRE –Association of European Universities (former)
DETI – Full-Time Equivalent Teacher
ECDU – University Teacher Career Statutes (*Estatuto da Carreira Docente Universitária*)
ECDESP – Polytechnic Teacher Career Statutes (*Estatuto da Carreira Docente do Ensino Superior Politécnico*)
ECIU – European Consortium of Innovative Universities
ECTS – European Credit Transfer System
EIT – European Institute of Technology
ETI – Full-Time Equivalent
EU – European Union
EUCEN – European University Continuing Education Network
FCT – Science and Technology Foundation (*Fundação para a Ciência e Tecnologia*)
FJJM – João Jacinto Magalhães Foundation (*Fundação João Jacinto Magalhães*)
GAGI – Information Management Office (*Gabinete de Gestão de Informação*)
GAPI – Industrial Property Office (*Gabinete de Apoio à Propriedade Industrial*)
GAQAP –Quality, Evaluation and Procedures Office (*Gabinete de Qualidade, Avaliação e Procedimentos*)
GESP – Internships and Professional Opportunities Office (*Gabinete de Estágios e Saídas Profissionais*)
GRETUA – Experimental Theatre Group (*Grupo Experimental de Teatro da Universidade de Aveiro*)
GRUPUNAVE – UA Holding
HE – Higher Education
ICT – Information and Communication Technologies
IDAD – Institute for Environment and Development (*Instituto de Ambiente e Desenvolvimento*)
IEETA – Institute of Electronic Engineering and Telematics of Aveiro (*Instituto de Engenharia Electrónica e Telemática de Aveiro*)
IFIU – University Undergraduate Education Institute (*Instituto de Formação Inicial Universitária*)
IFP – Polytechnic Education Institute (*Instituto de Formação Politécnica*)
IFPG – University Postgraduate Education Institute (*Instituto de Formação Pós-Graduada*)
IFs – Education Institutes (IFIU, IPF and IFPG)
II – Research Institute (*Instituto de Investigação*)
IMHE – Institute for the Management of Higher Education
INE – National Institute of Statistics (*Instituto Nacional de Estatística*)
KPI – Key Performance Indicator
LEGUA – Legislation, Regulations and Procedures Knowledge Base
LLL – Lifelong Learning
MCTES – Ministry of Science, Technology and Higher Education (*Ministério da Ciência, Tecnologia e Ensino Superior*)
OECD – Organisation for Economic Cooperation and Development
PACO – Academic Portal (*Portal Académico On-Line*)
PIDDAC – Central Government Investment and Development Expenditure Programme (*Plano de Investimento e Despesas de Desenvolvimento da Administração Central*)
SASUA – Student Welfare Services *(Serviços de Acção Social)*
SDUA – University Library Services (*Serviços de Documentação*)
SIADAP – Integrated System for Evaluation of Public Administration (*Sistema Integrado de Avaliação da Administração Pública*)
SIGEF – Integrated Financial Management System (*Sistema Integrado de Gestão Financeira*)
SINBAD – Digital Library and Archive (*Sistemas de Informação de Biblioteca e Arquivo Digital*)
UA – University of Aveiro (*Universidade de Aveiro*)
UATEC – Unit for Technology Transfer (*Unidade de Transferência de Tecnologia*)
UNAVE – Association for Professional Training and Research (*Associação para a Formação Profissional e Investigação*)

12 References

Angelo, Thomas A. and K. Patricia Gross (1993), *Classroom Assessment Techniques: A Handbook for College Teachers*, Jossey-Bass.

Cardosa, A. R et al (2006) Demand for Higher education programs: the impact of the Bologna process, in *IZA DP*, No. 2532, December 2006.

EIRMA (2005) *Responsible Partnering - A Guide to Better Practices for Collaborative Research and Knowledge Transfer between Science and Industry*, http://www.eua.be/index.php?id=128

EUA (2006 a) *Quality Culture in European Universities: A Bottom-Up Approach - Report on the Three Rounds of the Quality Culture Project 2002-2006*, http://www.eua.be/fileadmin/user_upload/files/EUA1_documents/Quality_Culture_2002_2003.11504 59570109.pdf

EUA (2006 b) *The Rise of Knowledge Regions: Emerging Opportunities and Challenges for Universities,* By Sibylle Reichert, 2006, http://www.eua.be/index.php?id=128

E4 (2006), *Embedding Quality Culture in Higher Education – A Selection of Papers from the 1st European Forum for Quality Assurance*, http://www.eua.be/fileadmin/user_upload/files/Publications/EUA_QA_Forum_publication.pdf

Glenn, D (2007), Method of Using Student Evaluations to Assess Professors Is Flawed but Fixable, 2 Scholars Say, *Chronicle of Higher Education*, 29 May 2007, http://chronicle.com/daily/2007/05/2007052901n.htm

Lang, James, (2007) Did you learn anything? *Chronicle of Higher Education*, March 9 2007, http://chronicle.com/weekly/v53/i27/27c00101.htm

OECD (2007) *Reviews of national policies for education – Tertiary education in Portugal, Examiners' report.*