

EFMD CEL Programme Accreditation for Technology-Enhanced Learning – Lessons Learned

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1. Introduction

The European Foundation for Management Development (EFMD) and the Swiss Centre for Innovations in Learning (scil) have jointly set up the EFMD CEL quality scheme for management-development programme accreditation with a particular focus on technology-enhanced learning. This has been in operation since 2004. The following programmes have so far been accredited (in chronological order):

- The Job Family Development Programme Vehicle Electronics, Volkswagen Coaching GmbH, Germany
- Online Professional Diploma in Management, Open University Business School, UK
- Online Master of Business Administration, Universitas 21 Global, Singapore
- e-Strat Challenge Business Game, L'Oreal, France
- Online Master of Distance Education, University of Maryland University College, USA
- Executive Master of Business Administration, Kavrakoglu Management Institute, Turkey
- Online Master of Business Administration, University of Liverpool, UK

These seven programmes are spearheading the quality management approach of EFMD-CEL and represent exemplary good practice of technology-enhanced learning in management development. The quality of their programmes has been evaluated on the basis of 30 CEL quality criteria which is reported in two documents: a self-assessment and an audit-team-visit report.

All who have participated in, and successfully completed the accreditation processes, including EFMD as the hosting institution for CEL accreditation, SCIL as the executive body for the accreditation procedures, the institutions and their members of accredited programmes, and the auditors expressed their interest in getting to know the lessons that can be learned from EFMD CEL accredited programmes. Hence, it was jointly decided to undertake the following study, which will provide (i) insight into the quality management approach of EFMD CEL, (ii) short descriptions of seven CEL-awarded programmes, (iii) an analysis of their strengths and weaknesses, and (iv) concluding remarks on the lessons learned from these best practice examples in technology-enhanced management education.

2. The quality management approach of EFMD CEL

The fundamental objective of the EFMD CEL accreditation is to raise the standard of technology-enhanced learning programmes worldwide. EFMD CEL aims at facilitating standard settings, benchmarking, mutual learning, and the dissemination of good practice. It allows for different approaches and diversity in designing and implementing such programmes. EFMD CEL is directed towards educational management programmes incorporating technology-enhanced learning.

A programme is regarded as “technology-enhanced” if a minimum of 20 % of its overall duration is delivered by teaching and learning methods based on technology, i.e. either interactive multimedia (media types other than printed text or recorded lecture material) or network interaction (interactivity between a student and stand-alone content or to connect different students to an e-tutor/e-moderator or to each other). A programme is more than just an e-learning medium (e.g. CBT, simulation tool), as it provides for e-communication (e.g. e-lecture, discussion forum, virtual classroom session) or learning sequences of short duration. It must contain at least one hundred hours of candidate learning effort ending with an assessment, evaluation, examination or the like. It must be operated on a sustainable basis, and it must have been run more than once.

The EFMD CEL quality accreditation programme is firmly grounded. The CEL scheme provides empirical and theoretically supported criteria for quality (Wirth 2005; Seufert & Euler 2003 & 2004; Brahm, Euler & Seufert 2006), which allows end users to better understand the meaning and relevance of the specific quality criteria. Furthermore, it transforms the quality criteria into indicators and CEL standards. Using the criteria in this way closes the gap between the theoretical quality framework and the guidance notes used by those executing the quality evaluation. This makes the criteria of evaluation more transparent to the relevant stakeholders. The standards for each criterion are defined and elaborated in the CEL manual (EFMD CEL Support Documentation).

The quality criteria relate to the programme as such, to its pedagogical, economic, technological, administrative, and socio-cultural dimensions as well as to their mutual interdependencies. These provide for a consistent and evidence-based framework for the conceptualisation of a quality management approach.

- **Programme-related criteria** focus on the transparency of the main characteristics of the programme and on the (added) value the programme provides especially by integrating the technological components.
- **Pedagogy** covers all aspects of the learning and teaching process including the specially designed learning environments that the programme includes and the (added) value of the learning processes supported by technology.
- **Economics** involve all facets related to efficiency and sustainability of the use of resources.
- **Organisation** covers circumstances and measures for adequately running the programme in accordance with its underlying objectives.
- **Technology** addresses the question of its functionality (i.e. the stability, usability, and standardization of the technology).
- **Culture** refers to factors of change and innovation and their adequate consideration.

The operating mode of the CEL scheme is mainly defined by organizational structures (in terms of governing boards) as well as by operational structures (in terms of the CEL process).

The organizational structures of the EFMD CEL quality management approach are highly comparable to analogous systems; within the CEL scheme the important role of auditors should be highlighted as their recommendations will form the basis for the decision by the awarding body. Because of their important role, auditors are trained by SCIL and accredited by EFMD. The following figure provides an overview of EFMD CEL’s organizational structures:

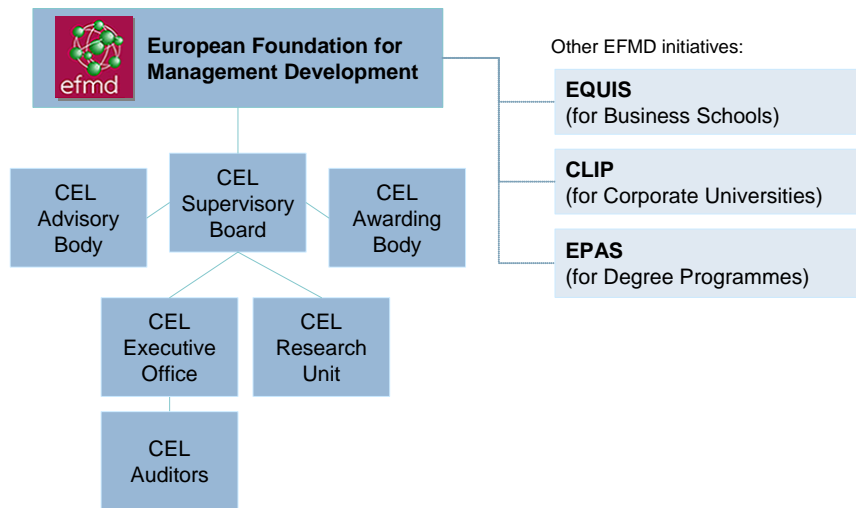


Fig. 1: EFMD CEL–Organizational Structures

The CEL accreditation process is composed of several distinct stages. Figure 2 below describes this process and shows how the different stages are linked:

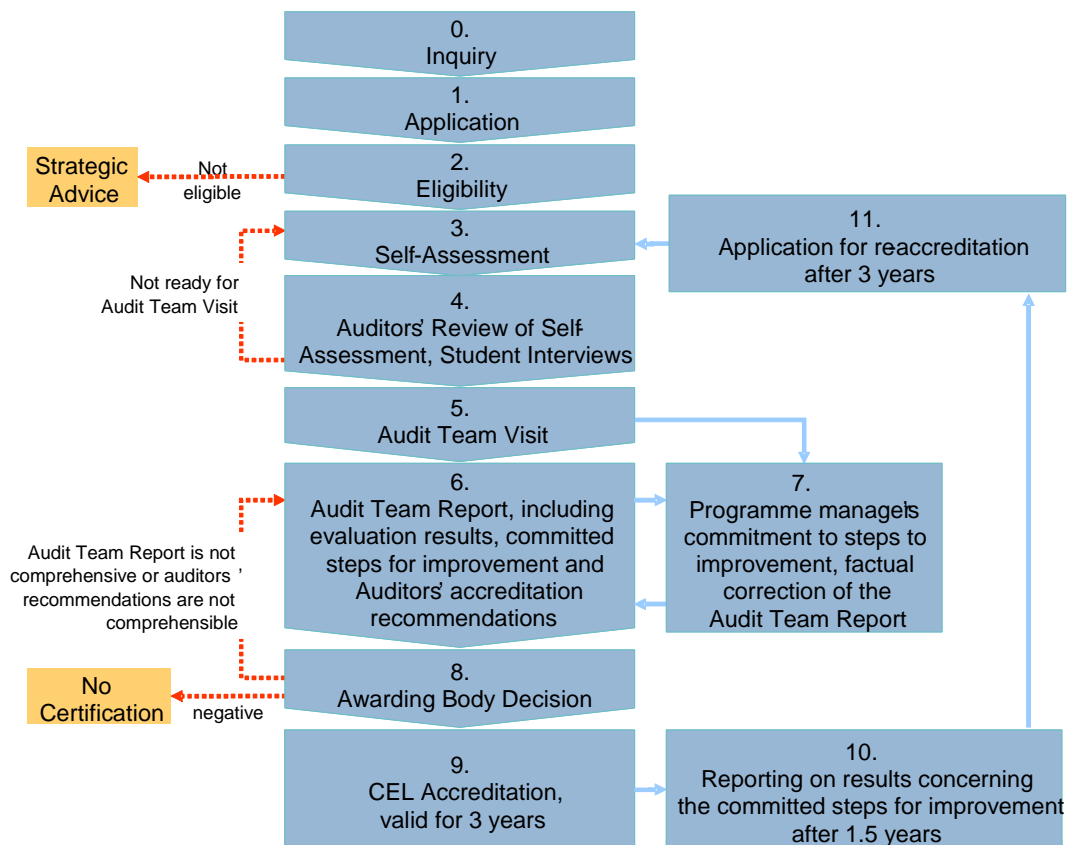


Fig. 2: CEL–Operational Structures

The core procedure of this accreditation process combines the submission of a Self-Assessment Report, using the EFMD CEL quality criteria, with a two-day on-site Audit-Team visit, resulting in the final Audit Team Report. The objectives of the Audit Team visit are to confirm the main findings of the programme-related Self-Assessment Report and, where appropriate, to challenge its conclusions and to engage in a constructive dialogue with the programme management team.

The Self-Assessment Report is used as a starting point for making an overall assessment and for providing recommendations for future developments and quality improvements. One self-assessment report has been made publicly available (MDE 2006).

The Audit Team Report provides a comprehensive summary of the findings, assessment and recommendations for improvement. The report will also state whether, in the opinion of the Audit Team, the EFMD CEL certification should be awarded.

Each programme that has been accredited must apply for re-accreditation after a three-year period. The EFMD CEL accreditation has been in operation since 2001.

3. A short description of EFMD CEL-accredited programmes

Volkswagen Coaching GmbH: Job Family Development Programme 'Vehicle Electronics' (JFD/VE VW) - piloted in 2003

Volkswagen Coaching and the Volkswagen AutoUni provide targeted Job Family-related programmes such as Vehicle Electronics. This programme was the first within the Job Family initiative that began in 2003. JFD-DE targets expert communities independently of hierarchies and structures within the Volkswagen group, including Audi and other brands, in order to develop company-wide networks, new opportunities for co-operation, and knowledge sharing.

The design of the JFD-VE is modular, consisting of four topics: (i) industry and market, (ii) technology, (iii) management processes, (iv) software development, and lasts four months. The JFD-VE programme is not operated on a commercial basis. According to the HR Masterplan it mainly serves strategic purposes within the Volkswagen group.

The Open University School of Management: Professional Diploma in Management (PDM OBS)

The online version of the Professional Diploma in Management programme is a 12-month post-graduate qualification. In total, it provides over 12 months a 500 to 600 hours of study targeted at the development needs of managers of teams, departments, projects and small organizations. The programme is explicitly cross-disciplinary and integrated. It also provides a link between the open entry Professional Certificate in Management and the post-graduate Masters Degree in Business Administration.

The blended learning delivery approach comprises tutor-led online discussion forums, comprehensive study material including CD-ROMS, a residential school, and a three-month student project.

For more information see: www3.open.ac.uk/courses/bin/p12.dll?Q01D64

Universitas 21 Global: Master of Business Education (MBA U21G) - launched in 2003

Universitas 21 Global (U21G) is a joint venture between Universitas 21, a consortium of research universities from around the world, and, at the time of review, Thomson Learning, a global publisher and a subsidiary of the Canadian Thomson Corporation. U21G is based in Singapore.

The MBA programme is the first programme offered by Universitas 21 Global. It began in August 2003, and its first students completed their MBA in November 2005.

The MBA programme aims at providing students with a graduate degree in management. Conducted completely online, the MBA programme features a variety of learning activities and a high degree of communication among faculty and students.

The programme follows a modular structure with 10 mandatory subjects and seven electives, each requiring an average study time of 120 to 140 hours. Beyond that, there is a management research project. Electives are selected from a choice of more than 20 different subjects. Currently, there are some 1140 students enrolled in the MBA programme 8450 at the time of review). The programme attracts students from more than 54 countries worldwide (30 at the time of review).

For more information see: www.u21global.edu.sg

L'Oréal S.A.: e-Strat Challenge (e-Strat L'Oréal)

e-Strat Challenge is a business strategy simulation organized as a competition in four steps: In Step One a first round promotes competencies in analytical problem-solving, decision-making, numerical reasoning. The teams (of about 1500) with the highest Share Price Index (SPI) at the end of the first round within each geographical zone are selected to continue in Step Two, the online competition. About 300 selected student teams then proceed to Step Three, the semi-finals, in which they write their business plans with feedback given by the L'Oreal financial directors. In the Final Step Four, 16 teams present their business plans and try to sell their company to an L'Oreal jury acting as potential investor/buyer.

Student teams at universities worldwide can participate in *e-Strat Challenge* in two ways: (i) In the Open Challenge student teams play the simulations without any further formal support from their university, and (ii) in the Academic Challenge, where professors integrate the challenge into their courses as a mandatory element.

The objectives of *e-Strat Challenge* are (i) image-building: broadening L'Oreal's image among students in universities and business schools worldwide as well as establishing long-term relationships with key universities; (ii) recruiting: providing executives at L'Oreal the opportunity of meeting exceptional and top performing students as well as allowing exceptional students the opportunity to be potential candidates for employment; and (iii) learning: educating young graduates in running a (cosmetics) company.

For more information see: www.e-strat.loreal.com/int/en/cel.aspx

University of Maryland University College: Online Master of Distance Education (MDE UMUC) - launched in 1999

The Master of Distance Education is offered by the University of Maryland University College (UMUC) in partnership with Carl von Ossietzky University of Oldenburg/Germany.

The MDE programme provides opportunities for new managers and future leaders to acquire the vision, knowledge, and skills required to lead, and specifically, to meet the distance educational, e-learning and training needs of today's organizations. The program's intended outcomes are that graduates will successfully manage the significant change processes that will likely affect entire organizations.

The 36-credit MDE curriculum consists of seven core courses and four elective courses, with the additional requirement of a final integrative project ("capstone" course). All courses are offered entirely online. The programme will be offered in a re-aligned structure beginning in fall 2007.

For more information see: www.umuc.edu/grad/mde/mde.shtml

Kavrakoglu Management Institute: Executive Master of Business Administration (EMBA KMI)

KMI is a consulting company based in Istanbul with a particular orientation towards executive and management development. Consulting and training are seen as interwoven business areas.

The overall strategic objective of the EMBA programme is to improve management competencies with respect to vision, business knowledge and leadership.

The EMBA programme is set up with a workload of approximately 500 learning hours, of which 60 % are core programme courses/modules and 40 % are electives; the modes of study are a mix of e-learning modules with individual support by faculty through email and telephone, face-to-face one-day workshops, project work, a virtual classroom, and examinations.

The Executive MBA is designed for two markets: (i) The private market for individual MBA learners who take the "standard option," and (ii) the corporate market with customized MBA programmes ("packaging options") according to the needs of a company.

To date, KMI's Executive MBA has been offered to approximately 1,500 participants, of which 80 % attended in groups/cohorts sent by companies and 20 % have entered the programme as individuals through open enrolment procedures. Class sizes are limited to 25 participants in one group/cohort.

For more information see: www.kavrakoglu.com/tr/high/index.html

University of Liverpool: Online Master of Business Administration (MBA UoL)

University of Liverpool's Online MBA is one of four degree programmes entirely offered online in partnership with Laureate Online Education B.V. The academic responsibilities are under the control of the University of Liverpool (UoL), whereas the day-to-day operations and the delivery of the programme provided by Laureate.

The Online MBA is offered worldwide to about 1,400 students already in a management role who wish to develop and update their knowledge and professional skills in business management. To date, 600 degrees have been granted.

The Online MBA is set up with a workload of approximately 1,800 learning hours, comprising four required and four elective modules of 150 learning hours each and a research methods and dissertation module with 600 calculated learning hours. The modules are delivered fully online in classes up to 18 students. The teaching and learning process is structured and paced for intensive interaction between the students and their instructors as well as between students.

For more information see: www.uol.ohecampus.com/programmes/mba.phtml

4. An analysis of strengths and weaknesses of EFMD CEL-accredited programmes

The following analysis of strengths and weaknesses of the seven EFMD CEL accredited programmes is based on each programme's self assessment and on reports from auditors as the two documentary procedures of the accreditation process. Rather than analysing almost 2,000 pages of documents against the background of each of the 30 EFMD CEL quality

criteria, which would have gone beyond the scope of this report, the following chapters report in more general terms how the seven programmes and their institutions underpin their quality concern and commitment to quality in their respective programme strategies as well as their teaching and learning organization and processes. The chapter on *exemplary quality management* is the only exception that distils unique selling points for each programme and thus highlights singularities that are exemplary.

Highly condensed findings are presented on *the institutional commitment for technology-enhanced learning*, how *technology and pedagogy* are aligned and an evolving *new teaching and learning culture* is becoming apparent in all seven programmes. These developments will be further exemplified in the chapter on *faculty and student support*.

The preceding chapters preferably address the interdependencies of the 30 EFMD CEL quality criteria between the programme and its pedagogical, technological, administrative, and socio-cultural dimensions rather than each criterion in detail.

Special attention is given to the *economic* dimension of the programmes. Finally *models of collaboration* are presented that are worth mentioning in this report.

So far, mainly achievements and strengths of EFMD CEL accredited programmes have been analyzed. Weaknesses drawn from auditors' recommendations for improvement are summarized in the chapter on *further opportunities for improvements* of quality management in EFMD CEL-accredited programmes.

4.1. Exemplary quality management

The term "quality management" refers to all management related activities that define quality policies, goals and responsibilities and realize them through quality planning, quality assurance, quality evaluation, and quality improvement (based on DIN EN ISO 8402/DIN-EN 9000; cf. Seufert & Euler 2006). In that context, auditors have highlighted the following examples of good quality management and how, as a part of programme management, they are integrated into the institutional context of the seven programmes:

JFD/VE VW: The programme's organisation consists of clearly defined roles and responsibilities. The quality management within the programme guarantees for cutting edge learning content through an ongoing re-alignment with Volkswagen strategy on vehicle electronics. By constantly reviewing and including participant's feedback into the advancement of the programme, it is clear that there is a high responsiveness to student complaints. These issues are not seen and handled as independent activities, but as parts of an integrated approach of quality improvement. They are tied together and controlled by the JFD/VE programme management and the learning strategy team.

It has been noted that Volkswagen Coaching wants to facilitate a fundamental shift in the structure, operations and learning culture of its educational efforts. The JFD/VE programme should serve as a role model for other programmes to follow. As a consequence, programme management has already put a lot of effort into continuing quality improvement before and after each new programme is run. The institutional goals that lead to the Job Family programme initiatives are insightful and convincing. Furthermore, the operationalization of institutional goals in this programme has been well achieved and therefore positions it well within the Volkswagen group (including Audi and other brands).

PDM OBS: Auditors were impressed by the comprehensiveness of the quality assurance and scrutiny procedures supporting the development of the programme, which follows the high quality standards of the Open University UK, a world leader in open and distance learning.

The programme is extremely well and extensively documented as a result of a professional quality management approach. Interdisciplinary teams of highly qualified academics and professionals assume the main responsibility for the development and delivery of the programme.

The information provided for students and prospective students is a best-practice example. It is comprehensive and consistent with the content and procedures of the programme.

MBA U21G: The system of programme review operates at a number of levels and more formally, the programme is reviewed regularly by U21p, which is a quality assurance organisation established by the U21 consortium of universities to monitor and review quality issues associated with U21G programmes.

e-Strat L'Oréal: This unusual kind of a programme represents an innovative way of providing a rich learning environment combining business and pedagogical objectives with respect to the competency development of students. It shows a high degree of professionalism in terms of pedagogical reasoning and a continuous improvement process over the years. It is also well supported through the commitment of its management.

MDE UMUC: The auditors identified the MDE as a best-practice case as regards pedagogical quality assurance. The MDE has several mechanisms and processes in place to guarantee quality and to maintain continuous quality improvement. In particular, the support of the faculty members and the excellent facilitation of their competence development follow high quality standards and have also been regarded as a best practice example.

EMBA KMI: In particular the relationship management to their customers and the high degree of flexibility in designing and customizing the Executive MBA programme can be regarded as a good practice example and as a point of excellence. The programme represents a continuous improvement process over the years.

MBA UoL: An impressive range of various measures and efforts represent quality assurance and professional development through UoL and Laureate in general and the MBA programme management in particular. Teaching and learning processes in general and assessment practices in particular are monitored and evaluated for ensuring operations on a high quality level.

With respect to the three graduate degree programmes **MBA U21G, MDE UMUC, and MBA UoL** the auditors concur that their highly elaborated quality assurance procedures relate well to course development as well as teaching and learning in their respective online distance learning environments. The anchoring of these practices with the institutions' strategies shows a clear and convincing commitment of their respective managements. The strategic alignment of programme and institutional goals has been proven in all cases. The auditors were impressed by the highly committed and enthusiastic staff in developing quality educational programme offerings. The common attitude demonstrated by those responsible reflects a learning culture where lessons are learned and improvements are highly appreciated as a personal and organisational challenge

Teaching and learning processes in general, and assessment practices in particular, are monitored and evaluated to ensure that operations are at a high quality level, and this is an integral part of planning and implementation. By monitoring the value and effectiveness of programmes the programme management contributes to (i) ensuring that goals are achieved; (ii) guiding improvement of both processes and outcomes; (iii) providing a basis for decisions to maintain and/or further develop programmes, and last but not least to (iv) justifying the investment of resources.

4.2. Institutional commitment for technology-enhanced learning

It has been stated in each of the seven audit-team reports that EFMD CEL-accredited programmes are each in their own way innovators in their respective applications of information and communication technologies (ICTs) in education and training. They all aim at widening access to education and training to create new and effective teaching and learning environments for faculty and students.

All seven EFMD CEL-accredited programmes are embedded in different types of institutions. Their profound differences, of course, shape the ways in which the new technologies are applied to teaching and learning. As a result the range of uses is enormous. However, the implementation of quality programmes, partly delivered in technology-enhanced modes, relies in principle on good and sound management. In contrast, programmes with a lower level of institutional maturity provide only a rudimentary technological and administrative infrastructure and capability so that technology-enhanced approaches to teaching and learning are insular or sporadic events not adequately integrated into and supported by their organizations (cf. Moore 2006).

Functioning technologies, stable and predictable procedures and scalable processes are indispensable preconditions for success. As ICTs are complex tools and serve a rich array of functions, they require well-established institutional policies that systematically guide implementation of technology-enhanced programmes. Institutional strategies, policies, and operations must all be aligned. Consequently, the auditors noted that, in all seven programmes technology-enhanced teaching and learning has become an integral part of institutional culture and that the institutions' missions and objectives are being coherently addressed. This includes a generally sophisticated understanding of the requirements for quality design and delivery of learning as well as for teacher and learner support. To various extents, monitoring and evaluation procedures are purposefully integrated into the strategic planning.

Each programme and its organization has established a technology-enhanced programme identity, conducts systematic assessment of technology-enhanced events, and has developed strategies for cultural change and the essential resource reallocation on which success depends.

As a result the seven institutions and their programmes are showcases for institutional commitment, effective strategic planning and quality management in technology-enhanced programming. They are making effective use of the new technologies for new approaches to teaching and learning. U21G, UMUC, and UoL are offering fully online distance learning programmes at master's level reaching out to audiences worldwide while VW, OBS, and KMI are offering mixed-mode and blended-learning programmes combining learning materials in various formats with online and intensive residential periods. All these programmes are addressing busy professionals and lifelong learners, whereas L'Oréal's business strategy simulation addresses student teams from campuses worldwide.

To various degrees, all programmes aim at overcoming the barriers, moving from traditional face-to-face, teacher-centred expository teaching to individualized, learner-centred and constructivist approaches that give ample scope to flexibility and independence for both teachers and learners. This kind of innovation in education and training deviates markedly from what has been practiced for hundreds of years as well as from the values, attitudes and learning behaviours that have been central to the history and tradition of higher education and training environments.

There is widespread agreement that such new practices apply new technologies that resonate with today's learners and thus represent the potential to develop the competencies

and capacities required in the emerging global market. But this development and change process also implies formidable institutional challenges - the “alignment of the planets” (Snydera, Marginson & Lewis 2007, p. 200).

Most institutions in education and training do not have the capacity to understand the need for developing strategies at the institutional level for transforming teaching and learning environments accordingly and for achieving sustained success. This applies all the more as erroneous “predictions in the last few years as to the sweeping impact of the new technologies on restructuring the learning/teaching practices at universities and their high-profit prospects have not materialized” (Guri-Rosenblit 2005, p. 5),

Our seven distinguished institutions have established new and appropriate institutional structures and successful operations and were able to convincingly prove that their teaching and learning processes embody quality as a key element, and a leading principle, of a new learning culture. Their innovative non-traditional approaches are benchmarking new standards while still addressing the prevailing norms particularly of traditional universities.

The desire of the accredited programmes’ leadership to excel in their fields is demonstrated by their commitment to continuous processes of quality-oriented development and resonates with EFMD CEL-accreditation and re-accreditation procedures.

4.3. The technology-pedagogy complex

Technology is not just a tool that, incorporated into education and training, automatically enhances teaching and learning. It needs to be well related to educational and training objectives and processes. This is not unlike the transmission in a car: There are many different versions of car transmissions and in order to make the car function optimally all parts must be well tuned and aligned. Technology in education and training is arguably as complex; contexts and purposes are critical to the dynamics of the technology-pedagogy relationship. It has already been mentioned in this report that institutional strategies and policies play a vital role in the implementation of ICTs in that they clearly define the objectives to be achieved. However, it is evident that the effective use of ICT depends on the existence of sound pedagogical principles and the quality of decision making.

As is seen in our cases, institutions adopt ICTs primarily in order to increase access for adult and lifelong learners and international students, thereby reaching out to new audiences beyond the geographical campus. Additionally, they attempt to enhance teaching and learning experiences that otherwise could not be achieved. It is worth noting at this point that the pedagogical goals are approached in ways that most efficiently align with new business models seeking long-term economies of scale.

ICTs help to overcome constraints of classroom and campus-based teaching and learning. They permit the recruiting of teaching staff from all over the world and they have the potential to

- intensify the level and the quality of interaction,
- improve the effectiveness of teaching and learning with cost-effective, sustained and scalable support services for faculty and students,
- provide access to library and other information resources,
- update study materials on an ongoing basis,
- handle assignments effectively and creatively in new ways,
- monitor activities related to teaching and learning properly,
- evaluate the quality of processes,
- assess the various levels of accomplishment.

The range of usage and applications of ICTs in education and training are enormous. Quality management, as demonstrated above, will determine the extent to which the potential of ICTs can be achieved.

While combining technology and pedagogy and clearly emphasizing the enhancement of teaching and learning, our seven institutions' focus is on pedagogical goals in the widest sense rather than the sophistication of technologies. In fact, the main rationale for technology-enhanced teaching and learning environments is related to access. Of the accredited programmes, PDM OBS and EMBA KMI reach out primarily nationally; and the programmes JFD/VE VW, e-strat L'Oréal, MBA U21G, MDE UMUC, and MBA UoL are reaching out globally. As a consequence, predominantly asynchronous online teaching and learning environments are in place.

The auditors stated that the accredited programmes and their institutions applied learning and content management platforms as users in the technological field rather than as innovators in the technology. Their primary goals are to provide easy access and to also offer robust functionality. However, such low-tech approaches should not be underestimated: The running of such systems requires considerable resource, expertise, and the capacity for continuous advancement.

Given the rapid rate at which educational technologies are progressing and pushing pedagogical developments on the one hand while taking into regard the complexity of technology-enhanced teaching and learning environments on the other hand, their structures and processes must be considered works in progress.

4.4. Developing a new learning and teaching culture

Acknowledging and eventually tapping the full potential of technology-enhanced teaching and learning corresponds harmoniously with developing a new learning and teaching culture, where excellence means providing opportunities for learners to learn and develop a multitude of competencies. Individualized, learner-centred, multifaceted, flexible, and constructivist approaches to teaching and learning have already been mentioned above as important aspects of a new learning culture shared by all EFMD CEL-accredited programmes. A wealth of varied experiences and examples of best practice demonstrate that there are many ways to go with respect to the teaching and learning process, which starts with the development, design and delivery of content, proceeds in teacher-learner interaction as well as interaction among the learners, results in assessment, and is supported by a range of services and administrative measures through the programmes' institutions. In most of our cases, the interaction and effective support that enables learning occurs online in asynchronous learning environments. Content and resources for learning are delivered in various mediated forms including the electronic media, which are the defining characteristics for technology-enhanced teaching and learning.

There is widespread agreement on the importance of high quality content and its delivery. This is commonly seen as the bottom line for being competitive and for benchmarking highest quality standards. The programmes in place are cutting edge in this regard. All show a high degree of professionalism in terms of instructional design, modularisation and updating of content development. There are many good examples where learning materials are structured to initiate a constructive dialogue between content and the learner, encouraging cooperative forms of learning as well as student-student and instructor-student interaction. These are successful efforts to support the cultural shift from expository to constructivist learning approaches. The relation between teacher-led instruction and learner-oriented construction is changing and the weight and importance of the latter is increasing for

developing competencies, capacities and attitudes required for globally responsible management and leadership.

Content development with the focus on facilitating and enhancing learning (as opposed to expository and ready-made content delivery) centres the teacher as the facilitator of learning – as is seen in all our programmes. According to various learning scenarios, the relationship between instruction and construction varies among the kinds and levels of person-to-media/interface as well as person-to-person interaction. In addition to mediated content delivery that activates learning and encourages student-student interaction, JFD/VE VW, EMBA KMI, and PDM OBS preferably hold short face-to-face events like workshops, residential tutorials, and seminars, whereas the online degree programmes – MBA U21G, MDE UMUC, and MBA UoL - give particular emphasis to teacher-student interaction, where students are expected to become visibly active learners posting their messages in meaningful asynchronous communications; at the same time teachers are expected to provide feedback to students' contributions. This includes the marking of assignments as quickly as possible with suggestions for improving learning. E-Strat L'Oréal builds its learning experience on content delivery for independent learning in self-organized groups of students.

In fact, all programmes are concerned for high quality interaction in both face-to-face and online modalities knowing that increased levels of interaction are indispensable in a teaching and learning process aiming at the learner and her/his individual development of skills, knowledge and competencies.

In the best of our cases, successful learning processes are completed by innovative forms of assessment that align with the course design, teaching provisions and learning objectives. In addition, when the teaching and learning processes in general and assessment practices in particular are monitored and evaluated, it can be assured that learning has been accomplished on a high quality level.

Auditors were able to take notice of highly individualized forms of formative assessment based on instructors' evaluations of written assignments, presentations, reflections on the learning content, real-world cases, linking theory and specific working environments, individual and group projects, research papers, tests that are built into the discussion topics, capstone projects and others.

A new approach to summative assessment can be found in UMUC's MDE programme, where students summarize and reflect on their learning experiences in an electronic portfolio in order to present evidence of their qualifications and to demonstrate their competencies, knowledge and skills at the end of their degree programme.

Hence, a successfully completed, technology-enhanced teaching and learning process combines the development, design and delivery of courses equipped with the following:

- Learning material;
- High quality interaction between learners and course content, learners with the teacher as facilitator, and learners with their peers;
- Compelling congruence of the assessment methods and their content;
- Constructive feedback, monitoring and evaluation.

4.5. Supporting faculty and students

Institutional support for developing and shaping a new learning culture becomes manifest in significant investment in the structures and services that support faculty and students.

Students must learn to learn and professors must learn to teach and facilitate in these new environments in different ways. Consequently, academic staff at OBS, U21G, UMUC, and UoL are expected to participate in organized professional development before they start teaching in the respective programmes. The most elaborated examples implemented remarkably well-designed staff development programmes and follow-up initiatives in order to build up and sustain a high degree of professional expertise. Accordingly, students, including prospective students, are provided with comprehensive information that is consistent with the content and procedures of the programmes and are prepared for self-directed and independent learning.

Within this context auditors stated the following:

PDM OBS: The information that tutors are provided for marking and grading assignments is very comprehensive and operational, allowing tutors to efficiently apply these guidelines to their daily work.

MDE UMUC: The staff designing and running the programme is well selected, highly qualified and absolutely committed and engaged. The faculty are well qualified, keen and professional. Visiting experts are a major strength of the programme. Bi-annual faculty meetings are linked to a professional conference event, the EDEN Research Workshop, where faculty are expected and supported to actively engage in conference proceedings.

MBA UoL: An administrative student support system is professionally provided. Well selected and trained part-time instructors for small online classes – no more than 18 students – create a highly interactive and cross-cultural online learning experience with timely and individual feedback to each student.

It is a distinctive feature of EFMD CEL-accredited programmes that they are designed to provide opportunities for learning in the first instance. For good pedagogical reasons and quite forcefully pushed by ICTs, the programmes convincingly show that teachers are assuming new responsibilities and adopting to new roles such as adjunct instructor, lecturer, tutor, mentor, trainer, or coach. In technology-enhanced settings as in our respective programmes, the teacher's role as the primary source of knowledge is diminishing. Instead, teachers guide students to sources of knowledge and create situations for students to become active, constructive, and collaborative learners, developing analytical and critical thinking skills for higher order learning. This includes the ability to assess learning progress and outcomes adequately.

Eventually, staff training and development must complement the planning and implementing of ICT-based programmes. There is convincing evidence for institutional commitment since an impressive range of new teaching skills has been developed, and support services have been put into place for teachers, students, and administrators.

The seven institutions with their respective programming units provide the necessary prerequisites for their teaching and administrative staff in order to fit into and to support such new roles and to provide the individual learner with the necessary academic and administrative support through their studies. The cases also show how to make effective use of ICTs and how to use their potential for running innovative programmes successfully in education and training for management development.

Support from an overall institutional strategy also means that funding and resource allocation for underpinning and sustaining these programme structures and developments are in place.

4.6. Economics

Against the background of embarking on different economic strategies, which vary from providing educational programmes for profit (MBA U21G, EMBA KMI, MBA UoL) to being self-supporting in the market place (PDM OBS, MDE UMUC), and to matching in-house corporate criteria (JFD/VE VW, e-strat L'Oréal), all institutions were able to demonstrate that the level of overall provision of resources were appropriate to achieve the respective programme objectives and that provisions were made for sustaining these programmes. Such resource provision included effective management and control over cost drivers, such as an appropriate administrative and academic staffing of the programme; establishing, maintaining and updating the technology infrastructure, mediated course-content development and revision; facilitating interactive learning environments; developing and supporting teachers and learners; and monitoring and evaluating teaching and learning processes for quality assurance.

EFMD CEL-accredited programmes and their institutions were able - each in its own way - to convincingly demonstrate approaches to sustainable financial planning of programme offerings.

In sum all programmes developed a business-oriented culture with scale economies. Hence, the programme organisations (i) are set out to reach large audiences in order to trade off high upfront and fixed costs for establishing and running programmes; and (ii) are drastically reducing tenured staff by employing academic staff part-time and for course-related duties. This reduces costs but also opens opportunities for recruiting and developing capacities for programme innovations in technology-enhanced teaching and learning environments as well as for ensuring accessibility for growing student numbers.

Auditors gained access to interesting new and viable business planning. However, this area of expertise is confidential and cannot be presented here in further detail. One example from UMUC's MDE program illustrates a situation where costing issues of programme management as well as of online-course development and delivery were published "without camouflage" (Hülsmann 2003).

4.7. Models of collaboration

Just as ICTs are allowing students to link with their institutions, their teachers and their materials from virtually anywhere, the same technologies are increasingly being used to teach students from anywhere in the world. CEL-accredited programmes are excellent representatives of these developments. Particularly, the three graduate programmes that are fully delivered online are a result of exciting new models of cross-border and global collaboration:

U21G is a joint venture between a consortium of originally 21 universities from around the world and, at the time of review, the Thompson Corporation; similarly **UoL** and Laureate Online Education B.V. represent a model of a private-public partnership in higher education; **UMUC** and Oldenburg University represent a successful international collaboration in academia.

Colleges and universities gather teaching expertise for their programmes and expand that capacity virtually. Now institutions can form alliances with other institutions that have faculty members with different expertise or institutions form alliances to develop a distributed set of faculty members. These different types of partnerships and alliances can be successful, but not without a great deal of planning and attention to detail.

5. Further opportunities for improvements

Up to this point, we have primarily reviewed the strengths of EFMD CEL-accredited programmes by examining various aspects of their technology-enhanced teaching and learning. Although the demonstration of strengths and many high levels of quality performance are impressive, none of the seven institutions represents an indisputable response with respect to the 30 CEL quality criteria. The shift to establishing a new learning culture is an enduring task that has not yet been completed.

EFMD CEL-accredited programmes and their institutions are strongly committed to innovation and for this reason they entered uncharted territories with quality management in place to control, monitor, and evaluate processes and outcomes.

Despite all of these achievements, auditors noted with particular respect to the (academic) institutions offering programmes on a master's level. While seeking recognition and acceptance within the academy there is a tendency to be defensive in the presentation of their data highlighting the similarities with traditional education rather than acknowledging differences. This is particularly so with respect to different or new learning outcomes enabled by technology-enhanced education in fully online-delivered programmes offered by U21G, UMUC, and UoL.

The novelty of experiences requires that research contribute to the development of a deeper understanding of particular aspects of the new learning environment through rigorous examination of the new variables. Such innovative approaches raise a considerable number of new research questions. Reasonable efforts have been noted within several of the programmes: The Open Business School (OBS), which is related to the Open University in the UK, has its benchmarking research capacities in the Knowledge Media Institute, Institute for Educational Technology, and the Centre for Research in Educational Technology. The University of Liverpool (UoL) has an e-Learning Unit and a Chair in e-Learning that is responsible for the evaluation of UoL online programmes. UMUC's partnering institution, the University of Oldenburg, edits the ASF book series on distance education, which directly supports specific courses in the MDE programme as well as dissemination of research and scholarship.

Interestingly, none of the programmes on the Master's level is substantially supported by an institutional research agenda. This situation could become threatening for the programmes and "needs to be tackled at its roots" (Cornuel 2007, pg. 11) with funds and resources dedicated to research for better informed quality management as well as for enhancement of teaching and learning environments.

The complexity of the teaching and learning process embraces such different functions as market analysis and identifying the target audience, counselling and educational guidance, intake of students, designing, developing and distributing courses, providing learning resources, developing high quality interaction, enabling students to become autonomous learners, integrating assessment, monitoring and evaluating processes and outcomes. There are endless opportunities for improvement as frequently noted by auditors, such as:

- When developing a new learning culture, applied approaches need to be aligned. This is for example the case when (i) purely cognitive oriented learning objectives do not support a competency-oriented programme that aims at social and affective goals as well, or (ii) conceptual statements of the programme do not match the factual realization, or (iii) the clarifications about workloads in learning hours, learning outcomes and the development of competencies sometimes lag behind state-of-the-art requirements.

- Interaction has been identified as the core of the technology-enhanced teaching and learning processes and as a source of student satisfaction. However, shortcomings are (i) the rudimentary use of communication tools, (ii) insufficient opportunities for students to bring up their own problems and have them discussed in appropriate learning environments, and (iii) a lack of competencies in the area of e-tutoring,
- In some cases the integration of assessment as an added value to the learning process lags behind its potential. New types of assessment such as student portfolios, learning logs and personal development plans, which help assess the competencies of students both in a diagnostic and reflective context of learning, are still relatively rare.
- The already existing expertise of part-time teachers is not sufficiently seen as a rich source, which can be used for professional development in order to raise the overall performance level. However, it should also be considered that part-time teachers are in a particularly weak position as far as advancement and recognition is concerned. Incentives and appreciations have a considerable impact on the development of a new teaching and learning culture.
- The advancement of technology should in the first regard aim at further improving highly interactive teaching and learning environments, both asynchronous and synchronous. In addition to the core areas, one should not forget the integration of library services, administration, co-operation, and in the best of all cases the enhancement of communities of learners, practitioners and researchers.
- Auditors also noted that excellent programmes are undersold and lacking marketing strategies that help to improve their outreach to audiences. A critical aspects is the existence of different credit-point systems that obstructs a clear understanding for intended worldwide audiences. This applies particularly to developments in the European higher education area, which is transforming its structures according to the Bologna process by 2010.
- Some programmes can promote themselves with alumni. But none have yet committed themselves to providing adequate services for this or come to regard them as invaluable assets for the programme and the whole institution.

In spite of these few weaknesses the seven programmes show clearly that a shift towards a new learning culture is emerging; EFMD CEL-accredited programmes have the privilege of being forerunners in this regard. The challenge is to hold this position and to further develop their successful approaches in order to exploit the full potential of technology-enhanced teaching and learning. The auditors recognise, however, that programme efficiency and quality goals do in some instances conflict with the wider economic context and conditions of some of the organisations investigated.

6. Concluding remarks on lessons learned from EFMD CEL-accredited programmes

The seven EFMD CEL-accredited programmes and their respective institutions, Volkswagen Coaching, the Open Business School, Universitas 21 Global, L'Oréal, the University of Maryland University College, Kavrakoglu Management Institute, and the University of Liverpool, are special and distinct and represent vastly diverse higher education and training systems worldwide. They all offer education and training for management development, and their programmes are deliberately enhanced by information and communication technologies. In so doing these programmes fulfilled the eligibility criteria of EFMD CEL and were able to take part in EFMD CEL's accreditation procedure.

Striving for EFMD CEL accreditation in addition to meeting other internal and external quality benchmarks demonstrate high-level institutional commitment to quality and continuous improvement processes. Having met EFMD CEL quality standards, the seven accredited programmes are benchmarking an international quality standard and thus entered the arena of best-practice examples for quality management in the rapidly expanding field of technology-enhanced education and training. They have accepted the challenge claimed by Eric Cornuel (2007, p. 14): *“Quality will become an ever-growing concern for business schools, in particular with regard to measures for determining and improving the quality of programmes. The most competitive schools are already looking for benchmarking opportunities as well as quality improvement programmes that will provide them with an opportunity to gain a thorough understanding of their strengths and weaknesses, to develop new and better programmes, and to prove the level of their offerings to the market through accreditation.”*

Such quality concerns and strategic considerations are particularly important with respect to the new ICTs that currently affect almost all spheres of life, including the world economy, corporate management and public administration, education, and training environments. ICTs will most likely increase in importance in the future.

The seven institutions and their programme organizations are showcases for institutional commitment, effective strategic planning and quality management in technology-enhanced programming. They are making use of the new technologies for new approaches to teaching and learning by offering fully online distance learning programmes on a master’s level, and mixed-mode and blended-learning programmes combining learning material in various formats with online and intensive residential periods.

A wealth of varied experiences and examples of best practice demonstrate that there are many ways to go by emphasizing different aspects of the teaching and learning process. A successfully completed, technology-enhanced teaching and learning process combines development, design and delivery of courses well equipped with learning material, high quality interaction between the learner and the course content, the learner with the teacher as facilitator, and the learner with her or his peers, compelling congruence of the assessment methods and their content, constructive feedback, monitoring and evaluation.

Without question such complex teaching and learning processes must be led by institutional strategies and guided by clear policies, management and operations. These should be aligned, robust, sustained, and committed to high quality standards in teaching and learning.

From these programmes one can learn about programme innovation that is guided by sound pedagogical principles as well as supported by effective technology. EFMD CEL-accredited programmes and their institutions are convincingly shifting to a new learning culture that features remarkable achievements in the core areas of technology-enhanced teaching and learning.

Although the demonstration of strengths and the high levels of quality performance are impressive, none of the seven institutions represents a perfect solution with respect to the 30 CEL quality criteria. The shift to establishing a new learning culture is an enduring task and has not yet been completed. EFMD CEL-accredited programmes and their institutions are strongly committed to innovation and for this reason they entered uncharted territories. EFMD CEL-accredited programmes are privileged forerunners in this regard. The challenges are now to hold this position and to further develop the approaches in order to exploit the full potential of technology-enhanced teaching and learning.

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