Reviewing the Virtual Campus Phenomenon

The Rise of Large-scale e-Learning Initiatives Worldwide

Editor: Bieke Schreurs
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PREFACE

TO THE READER

Universities are facing a great deal of change and quite some pressure to review and adapt their services to meet the needs of a changing world. The UNESCO 2009 World Conference on Higher Education expressed the need for universities to widen access to their services and adopt more innovative approaches in general, with forum participants concluding that "At no time in history has it been more important to invest in higher education as a major force in building an inclusive and diverse knowledge society and to advance research, innovation and creativity". [1]

Without a doubt, the internet, open-source software, the OER movement and – on the other hand – the global economic crisis are all stimulating the reform of the European Higher Education Area (EHEA). Policymakers, international organisations, higher education institutions and researchers in the field of education agree that Information and Communication Technologies (ICT) have the potential to stimulate international collaboration, to create flexible learning paths and to open the borders of the university.

Throughout the last decade, numerous initiatives have been set up to experiment with the establishment of ICT-enhanced activities, under various frameworks and to varying degrees of success. The higher education area is a very complex world with a diverse list of providers; these include traditional universities, distance education providers, public and private institutions, associations and consortia.

In this handbook, we try to provide a glimpse into this complex world and how all institutions are experimenting with the set-up of what we refer to as *virtual campuses*. In particular, the handbook gathers the outcomes and experiences of the Re.ViCa project, which aimed to undertake a systematic and extensive review of virtual campuses in higher education.

During the course of the project, we invited experts to relate their stories, experiences, thoughts and concerns; we met and shared our own visions at many international events, and read a great deal during our journey. What we learned and witnessed is without a doubt inspiring, hopeful, complex, and eye catching: the diversity of cultural understanding around a specific topic like virtual campuses, the creativity and range of applications of technology in education, the complex and changing landscape, and above all, the positive spirit of knowledge sharing.

Dear reader, we hope you enjoy reading this book as much as we did putting it together. We hope you learn and get inspired by all the projects and initiatives that are happening in the connected and interactive world of today.

Mission of the Book

This handbook aims to provide policymakers in the field of higher education with valid, in-depth information on virtual campuses in different forms. We want to provide all readers with insight into what has been done and what is taking place in the domain of virtual campuses, as well as the opportunities, barriers and critical factors which exist. We have aimed to provide a global perspective. The parameters set out will provide an in-depth understanding as to the importance of – among other factors – the policy context in which a virtual campus is set up. Practical and concrete information is collected in order to enhance our readers' knowledge in this area, so contributing to a more informed approach on their behalf in the future. In particular, an analysis of past successes and failures in the establishment of virtual campuses, which you can find in the *World Tour* chapter, can make a significant contribution to better decision-making in the future. The research community interested in virtual campuses will find the historical overview very useful, as well as the theoretical framework identified.

Outline of the Book

The handbook is focused on the virtual campus phenomenon. Chapter 1 provides the reader with a short introduction into the history of the term *virtual campus*, followed by some examples of the first experiments with the set-up of virtual campuses. In chapter 2 we provide a theoretical framework for the definition of *virtual campus*; the reader can also find an overview of the different cultural meanings of the term *virtual campus* nowadays. Chapter 3 presents the theoretical categorisation of the different types of virtual campuses identified in our inventory work. Chapter 4 gives a "helicopter view" of the world of virtual campuses; you can find a detailed overview of key initiatives, market leaders and large-scale providers in different parts of the world. Chapter 5 provides the reader with a modern set of Critical Success Factors, a list which could help those working towards the set-up of sustainable virtual campus initiatives. Finally, the last chapter provides conclusions and lessons learnt from our work.

The Re.ViCa Wiki on Virtual Campuses

Most of the data used in this handbook is available on the Re.ViCa wiki (http://www.virtualcampuses.eu). We advise all readers to use the wiki as a working tool – a companion to this handbook. The Re.ViCa wiki is probably already one of the largest repositories on the topic of the virtual campus – and indeed, e-learning – available today. In addition to the impressive inventory of notable e-learning initiatives, it contains information about interesting programmes, projects and leading institutions, as well as a rapidly growing series of country reports describing the context for (and examples of) virtual campuses around the world. Most institutions included have a short entry in English containing general information about the institution and its virtual campus activities. The Re.ViCa wiki is set up to serve as a community tool and a dynamic and active database. We already have a user list of more than 80 active contributors and would like to invite all readers of this book to participate, to contribute and to share expertise, as we strive to reach the ultimate goal of all educators: "Education for All".

Editorial Information

Editor

This handbook is compiled from the Re.ViCa partnership experience, and was edited by Bieke Schreurs

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This handbook is an outcome of the Re.ViCa project. Working in a European partnership is always a deeply inspiring and enlightening experience, and this handbook would not have been completed if we had not had the opportunity to work with such an enthusiastic, creative and experienced team. The European Commission gives researchers the freedom to bring their ideas into practice. The Re.ViCa project was all about bringing people together, and that is what we did. The critical reflection, ideas and knowledge exchange of our International Advisory Committee is without a doubt reflected in our work, and not only gave us the opportunity to look at Europe, but also dared us to open our eyes to the world. Many of our ideas and descriptions are the result of 16 in-depth interviews we did with renowned experts in the field of education. To close, we want to say a special thank you to Tony Bates and Terence Karran, who devoted their time, wealth of experience and knowledge to this project and handbook in particular.

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CHAPTER 1: HISTORY OF VIRTUAL CAMPUSES

The concept of the virtual campus is in fact only around 15 years old, dating from roughly 1995. But the idea of virtual teaching had already emerged by the early 1700s. In the past, virtual teaching was carried out by posting text-books to a student, who read them and sent back assignments to be marked. Communication between the student and the academic was via correspondence – hence the phrases *correspondence teaching* and *correspondence university*. This approach in fact still happens in many institutions today, especially in less developed parts of the world. The concept of virtual teaching was first documented in 1728, when an advertisement appeared in the *Boston Gazette* from Caleb Phillipps advertising that any "Persons in the Country desirous to Learn this Art, may by having the several Lessons sent weekly to them, be as perfectly instructed as those that live in Boston".[1] Correspondence teaching evolved into the term *distance education*, first used in a University of Wisconsin-Madison catalogue for the 1892 school year. In 1905 the first true distance learning institution, the University of Wisconsin-Extension, was founded. Distance education is often seen as the precursor to online learning or technology-enhanced learning. In the Re.ViCa project we use the term *virtual* to mean enhanced by means of technology.[2]

In Europe, the Open University of the UK is often seen as the first successful distance teaching university, using communication technology to achieve "education for all". In the early 1970s, the use of television broadcasting for teaching in universities became popular, most notably in the UK Open University – originally called the "University of the Air". Some TV-based universities still exist, like NETTUNO or the Shanghai Television University, but the story in recent years of broadcast TV use in universities (including open universities) has been one of a long, broad retreat masked by a number of temporary local advances.

Although television can serve as a democratic learning tool, it misses the characteristic of being interactive. For learning and teaching, two-way communication is very important. Hence other technologies were introduced to accommodate these needs, e.g., videoconferencing (VC). The first VC systems started to appear on the market operating over ISDN (digital telephony) networks, and expanded throughout the world in the 1980s.[3] At the end of that decade, the use of email and bulletin boards became common to foster communication between distance learners and the staff teaching their courses.

In the early 1990s, the major breakthrough was the emergence of the internet and especially the World Wide Web (WWW). Teachers – or at least the early adopters among them – were soon experimenting with their own web sites to support their courses. These early adopters started to offer extra learning materials online. In some cases, these web sites evolved into real management systems, called course management systems (CMS), dealing with all organisational aspects of study, from student registration through automatic evaluation. Later more generic and commercial systems appeared, such as TopClass, WebCT, Blackboard, Docent, etc., which could serve first individual courses, and later on a broad spectrum of teaching and learning needs in educational settings.[4]

Increasingly, people started to use the term *virtual campus* for this "place" where students and teachers shared information and communicated with each other (mainly through email and online materials). In the past, many other terms were prevalent, each with its own nuancing – e.g., *online university*, *net university*, etc.

The actual term *virtual campus* made its first appearance in Europe around the mid-1990s. Experts first heard it used in national programmes and strategic documents from the European Commission. More than 10 years ago, European policymakers started to stimulate the analysis of the potential of ICT to enhance learning in higher education. The strategic reports of the European Commission state that "new technologies" are of strategic value to build a "university of the future". A direct result of these reports was a small number of projects focused on research into the possibility of setting up virtual European universities. One prominent example was the VirtUE (Virtual University for Europe) project; this ran from 1996 until 1998 under the TEN-ISDN Programme from the European Commission. The VirtUE project was proposed as a feasibility study for the development and implementation of a networked (or distributed, Euro-ISDN-based) virtual university for Europe in cooperation among classical universities, open universities, technology providers and telecom partners. Within this Virtual University, the VirTUE partnership identified three conceptual models of network-based educational services: Virtual Class and Virtual Campus; Network for Flexible Open and Distance Learning;[5] and Network for On-demand Learning. In our search for definitions and background information we also found BENVIC (Benchmarking of Virtual Campuses), one of the earliest projects funded by the European Commission addressing the issue of benchmarking virtual campuses. In the BENVIC project, the virtual campus concept is referred to as "a specific format of distance education and on-line learning in which students, teaching staff and even university administrative and technical staff mainly 'meet' or communicate through technical links".[6]

Next to BENVIC, through numerous other e-learning and Minerva programmes supported by the European Commission in the last decade, many institutions and organisations have been working on exploring and refining the concept of the virtual campus. Noteworthy results have been published, e.g., in the *Manual for a Collaborative European Virtual University*, the main outcome of the 2001–2003 cEVU (Collaborative European Virtual University) project. cEVU examined why a collaborative European virtual education offering would be beneficial to universities; how it should be structured and operate; and what should be put in place to create it. The report focuses on collaborative European virtual universities as one format of transnational virtual higher education.[7] The Peer Review Handbook outcome of the 2005–2007 MASSIVE (Modelling Advice and Support Services to Integrate the Virtual Component in Higher Education) project – which designed a model of necessary support services for European traditional universities to successfully implement the virtual component of teaching – has also had an influence on our understanding of the virtual concept.[8]

In June 1996, the term *virtual campus* emerged at an early workshop on this topic, at the EdMedia/EdTelecom conference in Boston, Massachusetts, organised at short notice by Robin Mason and Paul Bacsich (both then at the UK Open University). There was a workshop on virtual universities at Online Educa at Berlin in November 1996, and the topic featured largely in the Sheffield conference FLISH97 (Flexible Learning on the Information SuperHighway) in May 1997. Subsequently the topic exploded, and in the early 2000s conferences around the world

featured the concept, sometimes to the exclusion of anything else. National governments followed this trend: for example, a task force of the Finnish government used the term *virtual university* in a draft strategy for Finnish education and research toward the information society. In the UK the phrase *virtual campus* became prominent around 1997, when various UK universities launched their own versions of a virtual campus.[9]

The first experiments with the actual set-up of virtual campuses were initiated around the same time. In 1995 The Open University of Catalonia became the first virtual university in Europe, totally dependent on telecommunications and computers. The University of Oulu in Finland experimented with the set-up of a virtual campus. At the 1998 term-opening ceremony of Helsinki University of Technology (TKK), rector Paavo Uronen brought up the idea of "Finland's Online University". At the same time, the Minister of Education, Olli-Pekka Heinonen, suggested that the committee preparing the Information Strategy for Education and Research should include a proposal for a virtual university. The Portuguese government also launched a Virtual Campus project to promote the use of ICT in the classroom. The Swiss Virtual Campus programme was launched in 1999 by a joint proposal of the Swiss University Conference (SUC) and its planning commission to promote the use of new information and communication technologies in Swiss universities. Also in Europe, the Bavarian Virtual University was founded in 1999, and launched its first programme in May 2000. Hibernia College was set up in 2000 as Ireland's first private online college; it began accepting in students in 2002, and has continued to grow ever since.

In Canada they started to experiment with remote "tele-education" even earlier. In 1993, Prof. Rory McGreal reports that they were setting up about 30 community learning sites and linking them to community colleges. Later on, as educators discovered the World Wide Web, they started to experiment with a computer-based audio graphic system where people would write on tablets and travel virtually to these community centres where students would study. These linked sites evolved into the tele-campus. Unfortunately when a new government took control, the funding ran out and the tele-campus basically faded out. In the meantime, Athabasca University created the Canadian Virtual University, a consortium of 11 universities across Canada.

Colorado University Online was one of the first fully accredited online education programmes in the USA, created in 1996 by the University of Colorado Denver (UC-Denver). CU Online allows students to pursue the same University of Colorado Denver courses and degrees as those attended by students on campus, taught by the same faculty members. Another early bird was The California Virtual University (CVU), launched in autumn 1997 with 700 courses, using funding from the Alfred P. Sloan Foundation. CVU was essentially a portal to the online courses offered by institutions from all segments of higher education across the state of California (i.e., the University of California, the California State University, the California Community Colleges, and the independent colleges and universities of California). In 1999 – with 112 accredited public and private institutions offering more than 2,000 online courses through CVU – CVU was unable to secure the necessary funding to continue as an independent project. The California Virtual Campus (CVC) catalogue of distance education programmes and courses continues the work of CVU.

Even in less developed countries like Kenya, policymakers started to experiment with the set-up of virtual campuses and universities. One prominent example is the African Virtual University (AVU), initially launched in Washington in 1997 as a World Bank project. It was later transferred to Nairobi, Kenya in 2002.

The virtual campus concept has changed since it first came into use, because now more and more universities see the possibilities inherent in offering courses off campus. We see an increasing number of universities offering courses themselves on a virtual campus basis. Additionally, the term *virtual campus* is often used to describe international cooperation among universities from several countries. The advent of social software has enabled further opportunities for cooperation. While there are some institutions adopting fully online courses, it is now most common for courses to be *blended.*

In the last few years there has been an apparent decline in usage of the term *virtual campus*, but a continuing growth in the phenomenon. A number of other phrases have crept in over the years. A *distance teaching university* is essentially a correspondence university. An *open university* is in strict terms a university which has an open admissions policy (i.e., anyone can become a student, although not anyone can graduate – students still have to pass their courses), but increasingly this term is used to describe distance teaching universities in general, and even those which are not open in the open admissions sense. It is for reasons of this sort that the European Commission theorists coined the phrase *open and distance learning* (ODL), basically to avoid making difficult distinctions.

And in the early 2000s, the phrase *borderless education* (sometimes even *borderless university*) came into vogue, under the influence of Australian work, but the phrase has not been used in recent years.

CONCLUSION

This short introductory text about the history of virtual campuses is of course only a snapshot – it is not our intention to give a comprehensive overview of their history. The text is based on the other work carried out by our research team, and relies on interviews we did with 16 international experts, the Re.ViCa inventory of virtual campuses, in-depth country reports and a literature review.

Although the term *virtual campus* is 15 or so years old, it is still in its infancy and changing very quickly. Over the years, observers have noticed a shift of concepts: from the "well-defined", clear, 100% online virtual campus, to *virtual mobility*, whereby the more traditional universities open their borders, collaborate supra-/intra-institutionally and often (inter)nationally, and/or involve non-traditional students through e-learning. Actually, there is no strict definition of *virtual campus* anymore. Every campus becomes a virtual campus. "Blended models" gain more and more interest and attention. All in all, there seems to be a common feeling that a redefinition of the virtual campus concept is necessary, in order for it to be applicable to the educational needs of today.

In the next chapter we describe how we would define the term *virtual campus* and how it is used in different European countries today.

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CHAPTER 2: WHAT IS A VIRTUAL CAMPUS? A DEFINITION

Although the phrase virtual campus is an important concept in the field of education, there is no generally accepted theoretical framework for it among researchers. In this chapter we search for a contemporary definition. To do this we have gathered definitions from more than 10 European Countries. Based on these results, we have developed a theoretical framework for the phrase virtual campus.

DEFINITIONS OF VIRTUAL CAMPUSES

DEFINITIONS IN THE CONTEXT OF THE EUROPEAN COMMISSION

When defining a *virtual campus*, the European Commission stresses cooperation among higher education institutions in the field of e-learning, especially regarding joint curricula development by several universities. Indicators may include agreements for the evaluation, validation and recognition of acquired competences, subject to national procedures; large-scale experiments of virtual mobility in addition to physical mobility; and development of innovative dual mode curricula, based on both traditional and online learning methods.[1]

This broad definition involves many issues from partnerships between traditional and/or distance universities and other higher education providers, with a view to offering joint certifications (for undergraduate and/or postgraduate levels) and cooperation with learning-support services. This might also include collaborative activities in strategic areas of education or research through cooperation involving researchers, academics, students, management, administrators and technical personnel. At the e-learningeuropa.info portal, *virtual campus* is defined as "Part of a university or faculty that offers educational facilities at any time or, in theory, any place, by Internet".[2]

At a European Commission consultation workshop held in Brussels on 23rd November 2004, entitled "The 'e' for our universities – virtual campus", one of the working groups proposed three definitions emphasising different aspects of a virtual campus. These were the:

- Collaboration perspective: The term "virtual campus" denotes ICT-based collaboration of different partners supporting both, learning offers and research in a distributed setting.
- Enterprise (economic) perspective: The term "virtual campus" denotes an ICT-based distributed learning and research enterprise.
- Networked organisation perspective: The term "virtual campus" denotes an environment, which augments and/or integrates learning and research services offered by different partners.[3]

SOCRATES Thematic Network: Enhancing Engineering Education in Europe – E4 Survey of Virtual Campus and Virtual University Activities in Europe[4] takes a holistic approach and defines *virtual campus* as a broad conceptual framework for tools, services and facilities for students, faculty and staff. The word *campus* is used to denote the environment for the people who study, carry out research, and/or work at the university. These elements include e-learning, research activities, administrative services and other functions, e.g., complementing and supporting operations on the physical university campus.

Definitions in the Context of the Different Countries Within the European Community

United Kingdom

In the UK, the phrase *virtual campus* is still used, but not as widely as it was a few years ago. At least four UK universities still use the phrase within the boundaries of the range of meanings we regard as acceptable for a virtual campus in key locations on their web material – such as University of Lincoln, University of London External System, Oxford Brookes University and the Robert Gordon University. Others use the phrase within the text describing their operations, such as the University of Ulster with its Campus One virtual campus. In addition to universities, several colleges use the phrase – including City of Bristol College, Glenrothes College, North West Institute of Further and Higher Education (Londonderry), and St Helens College. Finally various consortia providers use the phrase, including UNIGIS, Western Colleges Consortium and Leeds Teacher Training (SCITT).

It is true that several high-profile universities – such as Sheffield Hallam University – do not use the phrase now, even though they demonstrate substantial e-learning activity. Others, such as the former NHS University, do not use the phrase because they are now inactive – but interestingly, several medical schools including King's College Medical School still use the phrase.

There are some synonyms of the phrase that are also used – including the Global Campus at Middlesex University, or the phrase *virtual* on its own, as at Brookes Virtual (from Oxford Brookes University).

Going beyond the remit of Re.ViCa, several private providers and charitable organisations use the phrase, including Kaplan Open Learning (an affiliate college of the University of Essex) and the Prisoners Education Trust.

However, to confuse the situation in the UK, there are a number of uses that are out of scope – including for "virtual tours" of a physical campus and for various experiments with Second Life including University of East London (which also has a virtual campus in our sense – UELConnect – though not called virtual).

Belgium

In Belgium the expression *virtual campus* was initially used for individual initiatives of universities, schools and companies that wanted to attract attention. Examples were campuses from universities or schools that were called virtual campuses, like the Virtual Campus of the University of Liège, or the Campus Virtuel en Gestion, created by the three departments of management from the University of Liège, Université Libre de Bruxelles and Université Catholique de Louvain.

At the University of Leuven they use the term *multi-campus* to describe virtual campus activities. Online networks of student groups and/or teaching staff emerge in learning communities or communities of practice. Virtual initiatives – joint learning materials, joint learning activities, joint courses – all play a vital part in this arrangement. Multi-campus education is also about a range of virtual support activities with regard to real physical mobility.

FRANCE

In France several definitions of *virtual campus* exist. Very close to the definition of *virtual campus*, the *université virtuelle* embraces content, management tools and course design tools. The virtual university acts as an in-between to link students to the broad training offerings that will be customised/tailored as they compose their own training programmes.[5]

Contrary to what is suggested by its name, in France it is felt that a virtual university belongs more to the business world than to higher education. The virtual university acts as a bridge to link the employee and the training offerings. It provides information on courses, and enables employees to set their own individualised programmes according to their personal preferences. In a different project in France, the virtual campus is defined as a web site aimed at a learning community in order to offer educational resources as well as communication and collaboration tools. Some of these web sites use a graphic metaphor symbolising a real campus, with its own cafeteria, library, classrooms, etc.

A virtual campus can be considered as equivalent to a *campus numérique* (digital campus) but is aimed rather towards a working community. A campus numérique is a modularised system of training that meets higher education needs and combines multimedia resources, interactivity of digital environments and human administrative supervision – all of which are necessary to learn and subsequently have the learning recognised. A campus numérique is also a system in distance and open training (FOAD: Formation Ouverte et à Distance), which requires multimedia resources, use of ICT, and human resources that are aimed at coordinating learning paths from an administrative perspective.

A further term is the *université numérique (en region)* (UNR). This type of a regional, digital university binds together the government, the regional authorities, the universities and other organisations in a geographical "contract of objectives" signed for two years. UNR projects have encouraged development of digital services and contributed to the planning of digital services in French territories. [6]

FINLAND

The Finnish Virtual University, one of the major higher education projects of Finnish information society activities in the late 1990s and the early 2000s, defines its own portal as a *virtual campus* (*virtuaalikampus*) for students, teachers, researchers and administrative staff working in online education The portal links together the virtual activities of the Finnish universities and provides services that can be used by all participants.

The approach taken by Finnish higher education society nowadays is a logical continuation of the SOCRATES Thematic Network, Enhancing Engineering Education in Europe – E4 Survey of Virtual Campus and Virtual University Activities in Europe, following the ideas of the National Information Society Policy for 2007–2011 (the Ubiquitous Information Society Advisory Board); the key processes and interaction are largely based on the utilisation of electronic communications and information technology. ICT applications contribute to service provision and availability, and create new operating models and new skills. The key elements are communications infrastructure, user-oriented services, development of digital contents, promotion of innovation activities and remote "telework", and development of science infrastructure. The use of ICT in teaching and studying is promoted. It is not seen as a separate

target area as such, but is rather integrated into all processes of education and development of a new electronic learning environment. This approach is often described as an *ICT-supported university* (*TVT-tuettu yliopisto*) or as "digitalisation of the university" in university contexts.[7]

NETHERLANDS

In the Netherlands the term *virtual campus* is a synonym of *digital campus*, which is often referred to as a "digital working and learning environment". This working and learning environment is seen from an educational perspective (not from a business point of view), and includes digital components (but is not solely an electronic environment). This definition comes close to what we nowadays call *blended learning*. A virtual campus encloses human – and technological – activities for educational purposes.[8]

When a closer look is taken at the definition of a *virtual campus* from a business perspective, it matches almost everything that is related to e-learning in general. Thus a virtual campus is an environment in which individuals can attend practical training sessions anyplace, anytime, anywhere – with just-in-time support, various learning material formats (audio, video, written), and learning at one's own pace.[9]

It is remarkable that the term *virtual campus* is not used very much in the field of higher education in the Netherlands. Although all universities have a virtual environment to offer, most of the time they use the expression *electronic learning environment* or *portal* to describe virtual support services. It appears that the term *virtual campus* is outdated.

ITALY

In Italy the expression *virtual campus* (*campus virtuale*) should in theory describe academic, university-based activities (based on the term *campus*). In fact, it has been used since the late 1990s to describe web-based training platforms as a whole. This definition was originally rather vague, as it was applied in several different contexts: in universities' specific e-learning initiatives (in the context of traditional didactic activities); in specific higher education research projects; in secondary schools; and in public administration and private company initiatives. The term described simple sites which collected information on a specific topic. Below, we review some examples of the original use of the term *virtual campus* in Italy.

Avicenna Virtual Campus was developed in order to allow transmission and sharing of knowledge and best practices among universities and education companies. Campus Virtuale (1) is an e-learning platform for computer science and information science vocational training, launched in the year 2000 by a private company in Italy's Campania region. Campus Virtuale (2) is similar in terms of didactic objectives; it is another e-learning platform for informatics and computer training, developed and hosted by a consortium of companies in Regione Puglia. Il Campus Virtuale is the Virtual Campus of Università Bocconi, a traditional private university. Finally, Campus Virtuale UNCEM is a knowledge base which collects information useful to mountain communities' local bodies.

The use of the *campus virtuale* expression was reduced by the introduction of the term *telematic university*, further to the approval of a law on the restructuring of the university didactic rule (affecting university autonomy); this led all the university e-learning initiatives to adopt this new terminology. At the moment, the most correct translation for the English *virtual campus* is

certainly *università telematica* (telematic university), an expression which includes the university connotation of *campus* and the computer-based and distance availability implications of *virtual*. These telematic (state and non-state) universities can establish and implement distance courses using computer-based and telematic technologies, in accordance with the technical requirements indicated by the Moratti-Stanca Decree. The distance education courses must be characterised, as stated in the decree: by the use of web-based connections for the use of training materials and the development of educational activities based on interactivity with teachers-tutors and with other students; by the use of PC; and by the continuous monitoring of learning progress according to the selective and rigorous criteria envisaged to assure the quality of the courses and the reliability of the educational offer.[10]

THE BOUNDARY APPROACH FOR THE CONCEPT OF VIRTUAL CAMPUS

Although the phrase *virtual campus* is an important concept in the field of education, there is no theoretical framework for it. This section focuses on the development of such a theoretical framework. Similar to the work that Stoof, Martens, Van Merrienboer & Bastiaens[11] undertook for the concept of competence, we propose the boundary approach for virtual campuses, an aid to support e-learning stakeholders in thinking about the virtual campus concept. Here the notion of the virtual campus is explored by focusing on its dimensions. This implies that the quest for one absolute definition of *virtual campus* is abandoned, and that instead definitions are being valued against their degree of viability.

Depending on the context, the target group, the different goals and the technology involved, a definition of *virtual campus* can be formulated. The partners in the Re.ViCa project group do not want to give one single definition of the concept of the virtual campus. Since there will never be one right answer on the question what a virtual campus is, we suggest the use of a conceptual representation aid to discuss the concept. Figure 1 shows the concept as an amoeba-like form. The amoeba represents the virtual campus as a limited and demarcated concept, which is expressed by drawing its boundary. The boundary is being shaped by two opposing forces, here visualised as arrows (based on the work of Stoof et al – see in particular page 352 of their paper). From inside the figure, forces expand the boundary. This process is labelled the "inside-out approach" to the concept of the virtual campus.

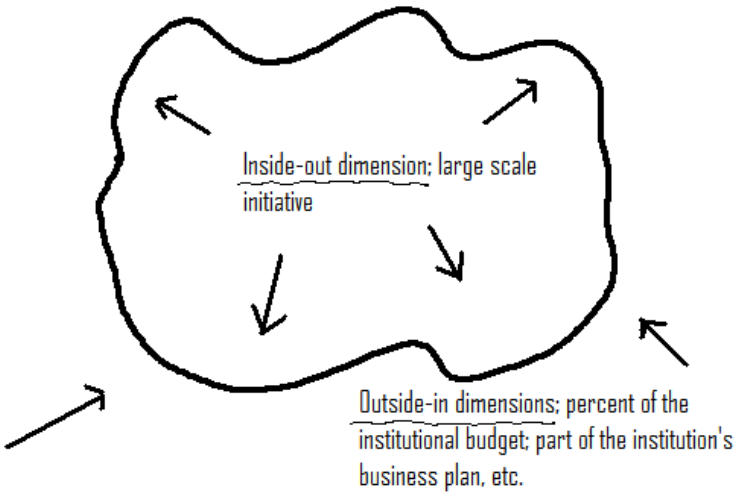

Fig. 1 Concept of a virtual campus as an amoeba-like form

These are dimensions that define and construct the concept. In Re.ViCa we aim to take *virtual campus* as synonymous with *large-scale e-learning initiative*. This "large-scale e-learning initiative" is the inside-out dimension.

On the other hand, the forces from outside the figure reduce the boundary. This outside-in approach focuses on the selection of terms that best express the intended meaning of the *virtual campus* (so it clarifies the relationships).

In Re.ViCa we avoid the issue of giving distance e-learning a privileged position over campus-based e-learning, but this begs the question of what is *large scale*? Here we examine some indicators. These are all outside-in dimensions, which suggest *large scale* – note that not all of them need to be satisfied.

An e-learning initiative in a university – or consortium of universities – is *major* if it has many (but not necessarily all) of the following characteristics:

- It requires at least 1% of the institutional budget (this is a rule of thumb taken from Activity Based Costing theory, i.e. that it is pointless to track any initiatives below that level of expenditure).
- The person responsible (as the majority proportion of his/her job) for leading that initiative has a rank and salary at least equivalent to that of a university full professor at head of department level, or equivalent rank of administrative or technical staff (usually an assistant director) – and ideally that of dean or full director.
- There is a specific department to manage and deliver the initiative with a degree of autonomy from mainstream IT, library, pedagogic or quality structures.
- Progress of the initiative is overseen by a steering group chaired by one of the most senior managers in the institution (in UK terms, a pro vice-chancellor).
- The initiative is part of the institution's business plan and is not totally dependent on any particular externally funded project.
- There are strategy, planning and operational documents defining the initiative, which are regularly updated.
- The head of the institution (vice-chancellor, rector, president, etc.) will from time to time in senior meetings be notified of progress and problems with the initiative.
- The head of the institution is able to discuss the initiative in general terms with equivalent heads of other institutions – in the way that he/she would be able to discuss a new library, laboratory or similar large-scale development.

A further distinction is made between various scales of activities – "giant", "major" and "notable" – and whether an initiative still is in existence or has "ceased" or "failed". The next chapter, chapter 3, will go into much more detail on these and other distinctions that can be made.

As discussed previously, the term *virtual campus* became popular in the last 15 years (within Europe, largely thanks to projects and calls of the European Commission). It is clear that most people think of different things when talking about virtual campuses. Major characteristics

agreed upon include some promotion and distribution of content, as well as some services available online. The main goal of a virtual campus is to provide a technologically supported place on the internet where students and teachers can "meet" without being in the same physical place at an institution. This creates advantages for learners and teachers. For example, a completely new feature that is created by the concept of a virtual campus is the possibility to study abroad at a foreign university without ever leaving one's own country.

However, the term *virtual campus* is an umbrella term, and its name suggests that it may be marginal to the physical campus. The term can best be used as a very loose concept, which can be viewed as analogous to talk about *business* and *e-business*, or *government and e-government*. A virtual campus nowadays can in some cases be a stand-alone university, or in others a consortium of universities – but it is much more commonly a part of a university. A possible pitfall of the virtual campus idea is that it can seem to be the overarching and perhaps overly dominant concept, when in reality this is the case only in rather few institutions (so far).

CONCLUSION

To summarise, as a project group we do not want to take the arrogant view of presenting one final definition of the *virtual campus*. Time would catch up with us if we did so, and our work might run the risk of becoming obsolete. Thus for the time being we present a working definition, that involves large-scale initiatives (an inside-out dimension) which are recognisable on the list of characteristics above. The boundary approach makes it easier to change the definition in the future and discuss new opinions as they arise.

Our research in the frame of the Re.ViCa project has confirmed that there is no common understanding about the term *virtual campus* or even *virtual university*. Different names are applied to similar activities in different countries, and in some countries the term has fallen out of use altogether – or has never been really used. Often terms such as *e-learning*, *distance learning*, *blended learning* and *open learning* are more commonly used to indicate smaller virtual campus projects, programmes or activities within a university, or even course offerings in the context of on-the-job or professional training. However, these terms are often no clearer than *virtual campus* when one analyses them, and they are usually much more specific in scope – for example, see later in this handbook for the debates about "what is an open university?" Thus for all its faults and difficulties, we feel that the term *virtual campus* does provide a useful, if interim, basis for analyzing the worldwide phenomenon of e-learning initiatives in higher education institutions.

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CHAPTER 3: TYPES OF VIRTUAL CAMPUSES

As seen from the previous chapter of this handbook, Re.ViCa partners determined quite early in the project that no simple definition of the term *virtual campus* could be agreed upon. A virtual campus might represent a grand consortium of national university partners, yet might as easily be formed within a single university department. Learning could take place entirely via the internet, but a more traditional-seeming "blended" or "hybrid" format might flourish as well. No two countries examined have seen the term used in quite the same way – and thus it is appropriate that in the end, no single definition of a *virtual campus* is here given precedence over any other.

This has meant, of course, that the list of institutions to be inventoried and classified as part of the Re.ViCa wiki project has become increasingly inclusive, and therefore expanded at a pace that has surprised even the core team (at the time of writing, over 500 discrete programmes worldwide were represented, with new ones still being identified for inclusion every month). The broader the definition of *virtual campus* became, the more complex the task of developing a taxonomy to describe the various virtual campuses seemed. Yet a primary outcome of this handbook was to come up with a practical yet comprehensive mechanism by which to do just that: i.e., to categorise the various types of virtual campuses as part of a broader process of identifying measures of success, best practices and generic parameters that might influence future virtual campus outcomes. There might be no standardised definition of a *virtual campus* itself, but a standardised system for categorising virtual campuses would be required all the same.

Developing a system which identifies the key similarities and differences among the different initiatives, manifestations, and instances in which virtual campuses are initiated has required a process of iteration among project partners and members of Re.ViCa's broader International Advisory Committee (IAC). Some approached the matter through literature review, whilst others undertook the technological process of wiki categorisation to "test drive" the theories being discussed. We have debated classification criteria ranging from the geographical to the pedagogical, with the system described in this chapter ultimately approved by partners as the culmination of a thorough process of investigation and discussion.[1]

Partners remain keenly aware that the results of this undertaking are not necessarily complete; in the future, categories may still be subject to clarification, expansion and/or change. Technological advances cannot be anticipated, after all, and in this new era, educational concepts and settings may shift as rapidly: today's commonplace ideas may seem outlandish only a few years on. Our system has sought to take such potential for change into account, a decision which has limited somewhat the scope of categorisation within the areas of presently understood pedagogies, technologies and learning styles – yet one which should contribute significantly to the project's long-term relevance.

Our categorisation system is also intended to clarify the "marketspace", providing key actors with a better understanding of evolutions and trends within the higher education landscape. It is focused deliberately on virtual campuses within the postsecondary (and primarily higher)

education sector, although it might be extended (with appropriate adaptation) to other areas of education – such as virtual schools or virtual training. Finally, with respect to this handbook, the system of categorisation described herein can be used as a reference tool to complement the next chapter, the *World Tour*.

RE.VICA'S APPROACH TO VIRTUAL CAMPUS CATEGORISATION

As discussed in a recent paper by Re.ViCa partners,[2] it was clear from the start of our investigation that we might take numerous approaches to classifying virtual campuses, addressing aspects such as funding model, degree of "virtuality", organisational model, partnership model, and various other criteria. The list grew increasingly complex as we examined existing work in this field, including that of the BENVIC project[3] and the UNESCO IIEP project on the Virtual University and e-Learning, as well as studies carried out by researchers like Robin Mason, Sabine Seufert and Paul Bacsich (Re.ViCa's own lead researcher). Readers will find a top-level overview of this research online, within the Re.ViCa wiki page on categorisation.[4]

The UNESCO categorisation of Virtual University Models[5] was taken as our most appropriate starting point, although this was modified to include four additional parameters. As such, all virtual campuses and programmes listed in the wiki are now classified according to the following criteria (elaborated in the subsections which follow): (A) UNESCO Category, (B) Political Scope of Initiative, (C) Current Status of Initiative, (D) Internal Scale of Initiative and (E) Academic Level of Initiative.

Categories which are less directly related to virtual campus classification have been applied to relevant wiki articles as well, e.g., for countries of origin, research labs and even publications (among others). These additional categories are addressed briefly at the end of the chapter. Note that – as discussed elsewhere in this handbook – an institution need no longer be operational to be valuable to the Re.ViCa inventory.

A. UNESCO CATEGORISATION OF INITIATIVES

The following categories form the basis of the Re.ViCa virtual campus categorisation scheme. For completeness, the full UNESCO Virtual University Models definitions follow the adopted Re.ViCa naming convention in parentheses (where relevant).

The basic UNESCO categories are as follows:

- **Newly Created Institutions** (UNESCO: *a newly created institution operating as a virtual university*)
- **Evolution of Existing Institutions** (UNESCO: *an evolution of an existing institution, with a unit or arm offering virtual education*)
- **Consortia** (UNESCO: *a consortium of partners constituted to develop and/or offer virtual education*)
- **Private Providers** (UNESCO: *a commercial enterprise offering online education*)
- **Private Nonprofit Providers** (Re.ViCa has added this special category for clarification)

Each UNESCO category is reviewed in the next few pages according to its Re.ViCa interpretation.

Newly Created Institutions: *Institutions created specifically to operate in e-learning mode (usually in or after 1996).* A *newly created institution* should represent a "new build" university, virtual from its inception. Institutions thus classified typically provide either all or most of their course offerings online. There are fewer newly created institutions than a hopeful analyst might imagine (45 at the time of writing), although there are countries in which such entities flourish. See, for example, the Italian telematic universities and the Korean cyber universities on our wiki. In general terms, it seems that many governments and agencies in Europe and beyond remain reluctant to invest in these distance e-learning sites.

- Examples: Swiss Virtual Campus; UNITAR (Malaysia)

Evolution of Existing Institutions: *Institutions which – though founded as traditional or standard (paper-based) distance learning institutions – have evolved from their original format to offer courses through e-learning.* An *evolution of an existing institution* might refer to an entire university with a significant virtual campus offering; a department (e.g., e-learning or other subject) offering pure-mode online degrees; or an e-learning offshoot which has branched out under its own name/business model (to name but a few of the configurations we have seen). This is perhaps the most inclusive of virtual campus categories, with 175 members in our inventory at the time of writing.

- Examples: Open Universiteit Nederland (Dutch Open University); Massey University (New Zealand)

Consortia: *Associations of partners working towards a common goal. This typically indicates an association of businesses, institutions and/or agencies formed for the purpose of engaging in a joint venture with a substantial e-learning aspect.* We speak about a consortium of partners as constituted to develop and/or offer virtual education, where a number of universities join together in a more or less tight organisational framework to wrap a "skin" of virtuality around them. The European Commission has directly or indirectly fostered several of these, as have national funding agencies (e.g., in the UK). Generally speaking, this is a rather comfortable model for governments and related agencies, with 123 represented in our inventory at the time of writing.

- Examples: UNINETTUNO (Italy); Katholieke Universiteit Leuven Association (Belgium); eCampus Alberta (Canada)

Private Providers: *Institutions which provide e-learning through a company aiming to produce a profit. (These are known as* commercial enterprises *under the UNESCO scheme.)* When it comes to the matter of private providers, the extent to which a virtual campus can be considered commercial is sometimes opaque. This distinction is not always explicit with respect to traditional universities either, as most of these now operate in the commercial world themselves to some extent. There were 74 private (for-profit) providers in the wiki at the time of writing, pre-screened for academic accreditation and reputation, although there are several hundred more examples known (many concentrated in the USA).

- Examples: U21Global (Singapore); University of Phoenix Online (USA)

Private Nonprofit Providers: *Institutions that provide e-learning, which are neither public institutions nor commercial enterprises, but are rather set up in nonprofit form (such as foundations, charities, or religious bodies).* Introducing the subcategory of private nonprofit providers allows for further granularity within the original concept of private providers. Unlike private for-profit providers, in some countries, these entities may receive public funds.

- Examples: Egyptian E-Learning University; Arab Open University

Prior to implementation, partners reviewed subtle distinctions among UNESCO categories, critical to establishing a framework for classification. Would an *evolution of an existing institution* include the for-profit arm of a traditional university, or would this be classified as a *private provider*? (It is the former.) Must a *newly created institution* be 100% online? (No.) A wiki is particularly well-suited to this iteration process, in that it allows individuals with specialised knowledge to assist with hands-on classification (and re-classification) of an initiative or institution where grey areas exist. Similarly, wiki format allows us to address overlaps by placing programmes into multiple categories as needed – see, for example, the UK e-University, which for all our efforts could seem to fit neatly into any of the above categories, depending on the criteria given precedence.

B. Political Scope of Initiatives

The following categories form the basis of Re.ViCa's cross-cutting political categorisation scheme. For initiatives which involve administration, course development and/or course delivery by one or more institutions, we consider whether these are:

- National Initiatives
- Multinational Initiatives
- International Initiatives
- VC Supported by EC (Virtual Campuses Supported by the European Commission – a special kind of "International Initiative")

Each political category is reviewed below according to its Re.ViCa interpretation.

National Initiatives: *Initiatives from one country – or a region, state or province within that country – involving institutions nationwide, in most cases founded (and funded) by a national agency.* This term refers to an initiative taken by a ministry or national agency in a country to set up a programme focused on e-learning in university-level institutions. Note that "national" may refer to an autonomous or semi-autonomous part of a country, e.g., Scotland (UK) or Catalonia (Spain) – or even to one of the states or provinces in federal countries such as Australia, Canada, China, India or the USA.

Typically most countries have only one national initiative extant at a time, and many countries (e.g., in Europe) have none, or none currently. There has been recent discussion within the project and International Advisory Committee around the premise that *Europe is tired of national initiatives*. While this is accurate at a headline level, especially in the westerly European Union, the truth is more complex. One country retains a seemingly inexhaustible enthusiasm for them (the UK); and they continue to appear towards the east end of the EU (e.g., Bulgaria and Estonia) and just south of the EU (e.g., Egypt).[6] Thus there are in fact just over 20 different countries with one or more national initiatives. See the *World Tour*, chapter 3, for details.

- Examples: Open Universities Australia; Hanoi Open University (Vietnam)

Multinational Initiatives: *e-Learning initiatives taken by more than one country but not many, and not by a supranational political grouping or range of countries in a region (e.g., the European Union).* As with international initiatives, in this arrangement partners act together to set up a programme focused on e-learning within university-level institutions.

- Example: eChina

International Initiatives: *e-Learning initiatives straddling more than one country and promoted by an international agency or supranational body such as the EU, World Bank or UNESCO.* This typically refers to an initiative taken by a supranational political grouping or range of countries in a region – such as the European Union – to set up a programme focused on e-learning within university-level institutions. The case of EU-wide initiatives funded by the EU is taken separately; see below.

- Examples: United Nations University; University of the Arctic

VC Supported by EC: *Virtual Campus projects supported (funded) by the European Commission.* This category is in fact a special case of the prior one. It includes assorted virtual campus-related projects selected under different calls from the European Union.

- Examples: Virtual Campus for A Sustainable Europe (VCSE); OIKODOMOS

Occasionally, representatives of each political initiative type listed above will set up a consortium or generate a *newly created institution*, leading to some overlap among UNESCO classifications. This is neither unusual nor problematic under the Re.ViCa classification scheme.

At the time of writing, the wiki inventory contained 19 international initiatives; 58 national initiatives; and 74 VC supported by EC (typically short-term projects with fixed end dates). There was only a single multinational initiative, though there are known to be more.

C. Current Status of Initiatives

A number of initiatives which operated previously do not now exist. Many remain of interest to analysts and are thus inventoried for this project, whatever their fate. Differentiating among reasons for closure is critical to understanding a virtual campus's unique story – indeed, we are particularly interested in comparing those entities which have collapsed and yet somehow continued, albeit with a modified structure, within higher education.[7]

We presently distinguish between the following:

FELIs (Failed e-Learning Initiatives): *Initiatives which are no longer active, and are commonly considered to have specifically "failed" to meet their goals (e.g., by entering bankruptcy).*

- Examples: US Open University (USA); UK e-University (UK)

CELIs (Ceased e-Learning Initiatives): *Initiatives which – for reasons other than failure – are no longer active and have officially ceased to exist.* These initiatives may have come to a planned close due to a number of factors, including re-branding as (or merging with) another institution or initiative; or meeting project goals (as in the case of a fixed-term project).

- Examples: e-TQM College (UAE); Swiss Virtual Campus

As it is often difficult to obtain information about initiatives which have ceased operations, differentiating between these two categories can pose a challenge to even the most skilled desk researchers. Furthermore, that certain entities have failed outright may seem unarguable to some, yet remain debatable for others – and there is rarely anyone left standing who is willing to clarify things after operations have ceased.

There are unintended ambiguities here as well. What if a failure has been gradual enough to appear (to external observers) like a planned closure? And if this is possible, then is there any substantive difference between the categories? Despite the apparent simplicity of the distinction between them, these two have been challenging categories to apply. It would seem that here as in other attempts at granularity, categorisation introduces divisions into the seamless but complex space of virtual campuses.

D. Internal Scale of Initiatives

The scope of an e-learning initiative within an existing institution may tell us much about it from the outset – and help form a simple basis for comparison. Without a strict definition of v*irtual campus* in play, classifying e-learning initiatives by relative scale emerged early on as a desirable tool.

Re.ViCa has arrived at a three-tier differentiation:

NELIs (Notable e-Learning Initiatives): *Initiatives which are interesting in a country, e.g., to other universities or analysts, and satisfy many but not all MELI criteria.*

- University of Jyväskylä (Finland); Université Nancy 2 (France)

MELIs (Major e-Learning Initiatives): *Initiatives which operate on a large scale within an institution, at the top level.* Detailed organisational criteria are identified clearly on the Re.ViCa wiki and in chapter 2, *What is a Virtual Campus?*

- Beijing Normal University (China); University of Ulster (Northern Ireland)

GELIs (Giant e-Learning Initiatives): *Initiatives which are very large MELIs.*

- Examples: The Open University (UK); Open University of China

Partners have pointed out that surely *all* programmes contained within our inventory should be considered NELIs, or "Notable e-Learning Initiatives", in a literal sense; if not, then why are they included within our research? Some confusion has therefore surrounded the application of the NELI category. Indeed, there was much internal discussion regarding what the word *notable* should indicate in any context, as we worked to identify to whom an initiative need be considered *notable* enough for study. We came to accept the views of various well-known e-learning experts, agencies and project reports which noted the significance of an initiative or institution – and as such we dutifully scoured the main sources of "notes", including (but not limited to) UNESCO, the Observatory on Borderless Higher Education (OBHE), the Commonwealth of Learning (COL), and various conference proceedings. But then of course many of our IAC and some of our project team are "Re.ViCa experts" who participate in organising conferences, so that some circularity is introduced.

Interestingly, it has been suggested that it is the term *initiative* itself which might benefit most from additional discussion in the future. For our purposes, when differentiating among GELIs, MELIs and NELIs, an initiative need only be a coherent, recognisable postsecondary education effort with somebody initiating, overseeing and managing it. In practice, this means that some "notable e-learning initiatives" may be at the departmental level and indeed quite small. This type of analysis might lead in time to an intermediate category of DELIs, for notable initiatives which are sizable at the departmental level.

E. Academic Level of Initiatives

The separation of virtual campuses and institutions into the familiar academic categories was anticipated by partners to be one of the more intuitive aspects of Re.ViCa categorisation. On the contrary, we discovered quickly that when the scale is truly global, defining even the word *college* is not always a clear-cut task. And when it came to the more nuanced terms, e.g., *university college* and *open university*, we did encounter outright differences in opinion regarding proper usage. These appeared to be both linguistic and genuinely ideological in nature (and might raise questions about any process of comparing international academic institutions).

Following partner consultation, the basic postsecondary academic categories now used by Re.ViCa are Universities; Open Universities; University Colleges; and Colleges.

Each academic category is reviewed according to its Re.ViCa interpretation below.

Universities: *Degree-granting institutions (public or private) providing tertiary-level education with undergraduate and postgraduate degrees issued in their name*. In several countries there are institutions, including prestigious ones, who satisfy the above definition of universities but which do not have the term *university* (or its equivalent in local language) as part of their name. For uniformity, Re.ViCa categorises these as "universities" (along with any other appropriate classification). There are also select national, multinational and international Initiatives bearing the name *university* which do *not* meet the criteria laid out herein.

- Examples: Aristotle University of Thessaloniki (Greece); Czech Technical University

Open Universities: *Generally speaking, distance learning universities which are open to all inhabitants of a region (with few or no prerequisite qualifications).* In our wiki, the vast majority of institutions with *open university* in their name are categorised by us as "open universities". In addition, any institution (not a consortium) which is a university and a member of one of the international associations of open universities – such as EADTU or AAOU – is categorised by us as "open universities". There are a few other examples which self-declare as "open" even if the word is not in their name.

- Examples: Open University of Hong Kong; Ramkhamhaeng University (Thailand)

University Colleges: *Typically, an institution (public or private) providing tertiary education at the level of undergraduate degrees, which does not have full university status and powers (for example to award postgraduate degrees in its own name).* A university college normally does not do research, but this may depend on the country context. Institutions describing themselves as "university colleges" are typically classified under this name – with a few notable counterexamples such as University College London. For a fuller discussion see the Wikipedia article on the term *university college*.

- Examples: Jutland University College (Denmark); Hogeschool-Universiteit Brussel (Belgium)

Colleges: *In most countries surveyed, institutions which provide tertiary education, but not at the level of university degrees.* Exceptions exist, e.g., in the USA, where the term *college* is used generically to refer to any higher education institution which awards undergraduate degrees only. We would categorise these as "university colleges" – and if they offer postgraduate degrees as well, we categorise them as "universities". For a fuller discussion see the Wikipedia article on the term *college*.

- Examples: Hibernia College (Ireland); Corinthian Colleges (USA)

As noted earlier we touch very little on pedagogy, except for the category of Open Universities. It is likely that other activities will soon encourage us to add to the categorisation, for example to have a general category of Distance Learning Providers to include such institutions as NKI (which are open colleges, not open universities) and one for Dual-mode Institutions where the face-to-face and distance learning operations are in approximate balance, such as Thompson Rivers University. On the technological side one could usefully categorise those institutions which still use television – more than many imagine, including Ramkhamhaeng University and Mackenzie University, as well as several pure distance teaching universities. Thus there is plenty of momentum still in the categorisation process.

Miscellaneous Categories

Not every article included in the wiki describes a virtual campus or e-learning programme – yet all are, to some degree, categorised for search and review. Other article types readers may wish to explore include OECD members, ministries, distance learning associations, institutions studied by MegaTrends, and e-learning experts (to name just a few).

An extensive geographical categorisation has been undertaken as well, sorting virtual campuses and programmes by country, region(s), native language, G8/G20 status and more, with nearly 180 geographically oriented categories applied at the time of writing (see the wiki Categories page for a full list). Regional analysis takes place in the *World Tour* chapter which follows, in which we leverage our notional categorisation to focus on the kinds of institutions that exist in different parts of the world, examining whether a virtual campus's regional location may have a significant impact on the way it operates (and, as part of our overarching project goals, whether European virtual campuses operate in a significantly different manner from their non-European counterparts).

Conclusion

Whether the system of categorisation developed for Re.ViCa is "successful" remains to be seen. Developing a system which is comprehensive has, thus far, taken a back seat to creating one that is primarily *functional*, a goal we feel has been met. We would hope that every virtual campus and programme represented on the wiki would now fit neatly into at least one of the categories outlined above (some, we know, have made their home in as many as five – or more). Yet we would not delude ourselves into thinking this system perfect. As noted in this book's *History of*

Virtual Campuses (chapter 1), there is no strict definition of *virtual campus*. Until one is located, there can be no strict approach to categorisation either.

In the meanwhile, the Re.ViCa wiki's search and sort capabilities have already begun to provide fruitful comparators for those seeking to analyse virtual campus initiatives worldwide. It is fascinating, for example, to compare the members of the current Private Providers, Newly Created Institutions, and International Initiatives categories – as much for their remarkable diversity as in hopes of identifying overlaps. No category ever seems complete when its constituent members are examined, a fact which researchers should not find daunting. The project has been developed by and for an active research community. We would hope that any remaining gaps can be filled in, over time, with input from this same group.

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[6] Bacsich, P. et al., "The Re.ViCa project: a review of virtual campuses".

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CHAPTER 4: A WORLD TOUR OF VIRTUAL CAMPUSES: A SUMMARY OF KEY INITIATIVES, MARKET LEADERS AND LARGE-SCALE PROVIDERS

In this chapter, we shall begin with a short description of virtual campuses in different parts of the world. This is based on the work carried out by our research team in building up an inventory of virtual campuses around the globe and relies on a summary of the information we gathered contained both in the Re.ViCa country reports – where we looked at how virtual campuses are organised on a national basis – as well as the information we gathered on individual virtual campuses of interest, reported in the extensive list of programmes contained in the Re.ViCa wiki. In this work we use an approach to categorisation described in the previous chapter of this handbook (chapter 3) which allows us to categorise virtual campuses along five axes; the UNESCO categorisation of initiative,[1] the political level of the initiative (national? multinational? international?), the existence of the initiative (still in operation? ceased?), the internal scale of the initiative (notable? major? giant?), and the academic level of the initiative.

As can be expected, this chapter comes with a number of important provisos. Like all "world tours", such as the ones published by InfoDev and other organisations, we do not claim to be fully comprehensive, nor have we covered every single country where there is a virtual campus activity or interest – although we do believe that we have covered many of the main institutions of global interest. In line with our brief, we have tended to focus on institutions of higher (and further) education: thus we have not taken into account the many corporate entities and agencies of one type or another who in some countries offer degrees (this includes those degrees linked exclusively to technical education and training awards like those awarded by Cisco, Intel and Microsoft). We have examined private universities, however, where they play a significant role in the virtual campus landscape.

Finally, given the fact that we are dealing with a dynamic and changing sector within the higher education context, it is important to point out that all information contained in this chapter is as correct as it could be at the time of publication; however, specific initiatives may have changed by the time readers access the information herein. Thus, if you have a specific interest in a country or programme, it is better to follow up directly with the specific country or programme entries on the wiki.

Nonetheless, we believe that within the constraints of the resources available to us, this chapter provides a good overview of how virtual campuses around the world are faring in today's climate. We hope it can be used to foster collaboration, stimulate debate and share experiences among those interested in the virtual campus phenomenon.

REGIONAL DESCRIPTIONS

In order to provide a meaningful description of the virtual campus phenomenon in this part of the handbook, we have chosen to arrange entities according to "region". Although this does raise several questions with respect to how one groups countries and programmes in this type of inventory work, it does fit with the outputs we have produced and the constraints under which

we have worked. In certain regions where it seemed relevant, we have made a distinction between *open universities* and *traditional universities*, particularly in Europe where there is also some collaboration among the open universities through the European Association of Distance Teaching Universities.

In each region we have chosen several significant virtual campuses to provide illustrative examples, and have tried to draw a generic picture of what is happening with respect to virtual campuses in the region. However these sections are certainly not comprehensive, and for a more complete view, the reader is directed to the Re.ViCa wiki (from which much of this information comes). Many of the institutions and networks mentioned in this chapter have a dedicated entry in the wiki, and where this is not yet the case, we are working closely with the community of wiki editors to make sure an entry is included as soon as possible.

European Economic Zone (EEZ)

We appreciate that reaching a common agreement as to what constitutes "Europe" is quite a complex task and one which reaches beyond the boundaries of an e-learning project like Re.ViCa. We have therefore taken the pragmatic decision as a project team to use a definition of Europe that fits between a narrow definition of Europe as the 27 member states of the European Union and the broader geographic definition of Europe. We therefore defined Europe for the purposes of our work in Re.ViCa as including the countries of the EU, EEA and Switzerland and so have used the regional descriptor European Economic Zone (EEZ) in our inventory work.

Open Universities in the EEZ

Many of the more "traditional" European open universities were slow in their deployment of e-learning, although the Open University, UK and the Open University, the Netherlands have always been leaders in this field. As such, they have made significant contributions to the general uptake of ICT in higher education in Europe. So too has the Open University of Catalonia, which began its life as an ICT-based institution. Not only have these universities set the standard in terms of technology use, they have also led much of the research into changing pedagogical models brought about because of (or even in spite of) an increased dependency on ICT tools and services.

In recent years, practically all European open universities have opted for a virtual campus model, although the term *virtual campus* itself is not in general use in any of the open universities we examined. It is clear, however, that the FernUniversität in Hagen (Germany), UNED (Spain) and more recently the Universidade Aberta (Portugal) are all now key players – although all three have adopted a blended rather than a fully online virtual campus offering.

Traditional Universities in the EEZ

In the Nordic regions of the EEZ including Finland, universities were relatively early adopters of ICT. This, coupled with a high GDP and significant regional challenges in terms of access to traditional universities brought about by geographical conditions, has resulted in a high level of virtual campus activity for many years. Practically all universities operate in the digital world, although the term *virtual campus* is no longer very common. Instead, an integrated model and way of thinking has become widespread: the key processes of services, interaction and knowledge creation are largely based on the utilisation of electronic communications and information technology. Several large-scale consortia-based efforts like the Finnish Virtual

University (FVU), and the separate Finnish Online University of Applied Sciences (formerly known as the Finnish Virtual Polytechnic), have been significant providers of services. There are also several large-scale purely distance education suppliers active in this region, including NKI in Norway, which registered more than 16,000 online course enrolments in 2006. Consortia models have been particularly popular in the past in Sweden; one of the first was founded as early as 1993 through an agreement between the universities of Linköping, Umeå, Uppsala and Växjö, and the Royal Institute of Technology (KTH). Sweden now has over a quarter of its university students studying via distance education.

In the Baltic region (Estonia, Lithuania and Latvia) there has been considerable collaboration between universities in the region and with Nordic countries through initiatives like the Baltic Sea University of Science and Technology. Several significant virtual campuses have emerged in this region, including the Lithuanian Virtual University.

In the UK, there are approximately six English universities with substantial operational off-campus e-learning activity. These include Middlesex University (Global Campus) and the University of Liverpool as perhaps the largest nodes of activity in terms of fully distance e-learning students.

Newer entrants include the University of Derby, the subject of an in-depth case study by the Re.ViCa team and a former Global University Alliance (GUA) member. (Launched in 2000, GUA was intended as a collaborative effort linking about 10 traditional and established largely Anglophone universities in different parts of the world; it is no longer operational in its original form.) Other newer entrants include the University of Leicester (the subject of a case study in a Megatrends report)[2], Staffordshire University, and the University of East London.

There is also an extensive online learning offering available from University College London, as well as many of the other colleges of London University via the London External System. A more specific set of courses is at the University of Portsmouth (Technology Extended Campus), some in conjunction with commercial partners. In Scotland, Scottish Knowledge closed down some years ago, but there was growing momentum within its partial successor, the Interactive University (based largely round Heriot-Watt University) – regrettably, now closed itself. A number of other Scottish Universities are also active, perhaps with Robert Gordon University (Virtual Campus) in the lead, closely followed by the University of the West of Scotland (formerly Paisley University). In Wales, the University of Glamorgan (another former member of GUA) was once a leading player; it later declined in importance, but recently is showing a resurgence. This cyclical movement is not atypical. In Northern Ireland, the University of Ulster (Campus One) is a key player. The UK has also experienced some significant failures with respect to large-scale virtual campus initiatives, most notable being the UK e-University – but, in line with the cyclical movement referred to, national interest is again growing in distance e-learning, with future initiatives to be funded by the Online Learning Innovation Fund.

In the Republic of Ireland, while practically all universities offer some form of online course support, there is relatively little dedicated virtual campus activity. Oscail, a dedicated open and distance education provider, has been operational for many years and is supported by Dublin City University (DCU). A relatively new player who is enjoying quite some success is Hibernia

College, a private university which offers a largely blended format to students in Ireland and the UK, and is the subject of another in-depth case study by the Re.ViCa team.

France has a complex set of e-learning activities in universities and agencies, but no clear national higher education player with an interest in promoting courseware beyond national boundaries. However, the L'Agence Universitaire de la Francophonie (AUF) has been successful in encouraging a variety of virtual campus initiatives between French universities and Francophone universities in the rest of the world. The government-initiated campus numérique programmes which began in 2000 have resulted in a significant increase in the number of collaborations among French universities and staff, and the creation of shared courses and resources. The universités numériques en region (regional digital universities) initiative has also promoted collaboration and the development of online services among existing universities. Given the changes taking place in higher education in France generally, the current pressure on French universities to become internationally competitive is likely to result in an increase in the number of French virtual campus initiatives. In particular, the Digital France plan (FRANCE NUMERIQUE 2012) contains actions affecting distance e-learning in universities) – see especially actions 98 and 99.[3]

National and regional state support schemes to support online educational activities have been in place for many years in Germany, and several large-scale virtual campus institutions are now in existence which cater to both undergraduates as well as postgraduates; see for example the Distance and International Study Center (DISC) of the Technical University of Kaiserslautern, Europäische Fernhochschule Hamburg, AKAD and Hamburger Fern-Hochschule. Collaborative initiatives include the Virtuelle Universität Bayern or Virtuelle Hochschule Bayern (Bavarian Virtual University) which is a cooperation between general universities and "universities of applied sciences" (Fachhochschulen, classified by Re.ViCa as "universities") in Bavaria. Many of the national and regional support schemes have decreased their funding of late as budgets come under increasing pressure; yet at the same time, e-learning is becoming more entrenched in the normal delivery patterns of many German universities.

There is considerable blended learning activity now in many traditional universities in the Benelux countries. In Belgium, the K.U.Leuven Association – which brings together a host of tertiary-level colleges in association with K.U.Leuven – is actively promoting online learning as part of its service offer to students. The K.U.Leuven Association is the subject of an in-depth case study by the Re.ViCa team; it is seen as being of strategic value in a country which is seeing considerable change with respect to higher education. Among recent changes we find the emergence of numerous large-scale consortia and associations of institutions offering higher education opportunities. The Open University of the Netherlands operates a strategic operation in the Dutch-speaking part of Belgium called the Open University Vlaanderen, which is coordinated by the University of Ghent. In the Netherlands, there was considerable enthusiasm in the earlier part of the century for consortia models of virtual campuses; however, the failure of the Digital University has dampened this enthusiasm somewhat. Several universities in the Netherlands have established international reputations with respect to their research in the area of technology-enhanced learning; these include the Open University Netherlands, University of Twente and the University of Amsterdam.

In Switzerland, the Swiss Virtual Campus was set up in 2000 as a way to bring together the online offerings of Swiss universities. An initiative that was set to last for a limited nine-year period (completed in 2008), it created a considerable number of joint learning activities among Swiss universities, although it is probably still too early to really judge its legacy.

In Poland, e-learning in the higher education sector is still at a relatively early stage, although there are many initiatives, projects and experiments of one type or another in evidence. The Polish Virtual University (PUW) launched in 2003 was jointly created by the Academy of Humanities and Economics in Lodz and the Marie Curie-Skłodowska University in Lublin and initially was based on a consortium approach. At the moment, PUW online studies are provided by AHE only, which classifies the initiative as an "extension of existing institution".

In Spain, the two open universities (UNED and UOC) have had significant impact on raising awareness of online learning generally, and both are actively promoting their courses and services in the Hispanophone world. There is also a new player in the field, the Open University of Madrid (Universidad a Distancia de Madrid, UDIMA), which is a private initiative; however, it is still too early to judge whether it will attract sufficient student numbers to be successful. This does not mean there is not a great deal of virtual campus activity going on in Spanish universities, however. One main way in which this manifests itself is in situations where traditional universities introduce online elements into their current course offerings; examples of this model include the Polytechnic University of Catalonia (UPC), the Complutensian University of Madrid (UCM), University of Oviedo (UNIOVI), Pompeu-Fabra University (UPF) and the University Carlos III of Madrid (UC3M). One significant initiative of this type is the Universidad Politécnica de Madrid (UPM) which currently offers more than 100 online courses – in 2004/2005, UPM had registered a total of 14,000 students in online courses. Collaborative models are also popular in Spain, and include the G9 Group, ADA Madrid, Instituto universitario de postgrado and Universia.

In Italy, following the introduction of a 1990 law related to university autonomy, public-private consortia were empowered to establish distance teaching universities. The best-known higher education virtual campus initiative is Consorzio NETTUNO, which has operated for almost 20 years as the Italian Open University and works on a collaborative model that involves other universities in Italy (as well as companies and other players particularly in the postgraduate sector). In 2007, more than 10,000 students were enrolled on its courses. In 2005, Consorzio NETTUNO gave rise to the International Telematic University UNINETTUNO (UTIU) which operates in close cooperation with traditional universities in Italy and abroad, including universities in Europe, the Arab World, the United States, and Latin America – and which offers courses in Arabic, English, French and Italian. Universities throughout Italy have had government support to implement virtual campus initiatives as well as to strengthen existing ICT-supported activities. In 2003 the minister with responsibility for universities was given the power to acknowledge the establishment of new telematic universities by decree. This has led to the establishment of 10 so-called telematic universities (in addition to UTIU) between 2004 and 2006. These are: Università Telematica TEL.M.A., Università Telematica e-Campus, Università Telematica Pegaso, Università Telematica Leonardo da Vinci, Università Telematica Marconi, Università Telematica Giustino Fortunato, Università Telematica delle Scienze Umane UniSu, Università Telematica Internazionale Unitel, Università Telematica Universitas Mercatorum and

Università Telematica "Italian University Line". The path taken by the Italian legislation has been full of initiatives, even if not all of them have been taken up. There also remain some questions about the compliance of certain telematic universities to national standards related to distance teaching.

Several central and eastern European countries who joined the European Union in May 2004 took part in a network of active distance education centres which was set up with the support of the PHARE Multi-Country Cooperation in Distance Education, a European Commission Programme which is now largely dormant. Many of these centres were linked to universities and have since evolved into centres of excellence supporting virtual campus initiatives within their respective universities. These include the Gdansk University of Technology in Poland, Brno University of Technology in the Czech Republic, the University of Ljubljana in Slovenia, and the Budapest University of Technology and Economics in Hungary.

Russia

In Russia, one of the largest players is the Moscow State University for Economics, Statistics and Informatics (MESI) which operates from a broad administrative basis comprising 50 branches, 117 representative offices and over 100 regional partners in the Russian Federation and abroad. Partners are located in Armenia, Belarus, Bulgaria, Israel, Kazakhstan, Latvia and Ukraine.

Several of the larger engineering schools, such as the North-West State Correspondence Technical University (NWTU), are turning increasingly to online models; the Eurasian Open Institute is one which operates as a regional network with more than more than 350 online courses. Furthermore the Ulyanovsk Consortium of Open Education (UCOE) provides open and continuing education in the Ulyanovsk region. A key member of this association is the Ulyanovsk State Technical University (UlSTU).

North America (USA, Canada, Mexico and the Caribbean)

USA

The USA has a complex structure of higher education e-learning providers, including organisations offering both face-to-face and e-learning (usually blended) provision via different subsidiaries. The term *virtual campus* is not exceedingly common, although online course offerings abound, and practically every university offers at least some form of blended learning (and often wholly online degree courses as well) in line with several other countries. In the USA, the term *virtual campus* is occasionally adopted as the title to be applied to a traditional university's online course offering (e.g., for the University of Texas or the State University of New York's learning network) or a specific online manifestation of a university (like the Second Life Virtual Campus maintained by the Ohio University Without Boundaries initiative). There have been numerous consortia-type virtual campus activities like the Arizona Regents University, a virtual university for the state of Arizona (now known as Arizona Universities Network); however, universities in the USA tend to operate somewhat independently and see their independence as being vital to their survival.

It is interesting to note the annual growth rate in online enrolments in the USA – 12%-14% per annum over the last seven years, compared with 2% for on-campus enrolments – which illustrates the significant interest in online learning in this part of the world.[4] Clearly related to these figures is the number of private for-profit online course providers who offer virtual

campus services. Quite a number of these operate to a high standard and in some cases are quite profitable, sometimes serving as a profit-generating activity of a traditional university.

In terms of blended/e-learning provision, among the leading players in the USA we find the University of Maryland University College (UMUC), with over 110,000 online enrolments spread over 540 distinct courses online; and the University of Phoenix Online, which has 109,000 internet-based students (compared with its sister organisation, the study-centre-based University of Phoenix, with 104,000 students). It is interesting to note that these two trailblazers have emerged in quite different ways, as UMUC is a traditional public university, while UOP is an Apollo Group for-profit venture. This illustrates well the diversity of structures underpinning successful virtual campus initiatives in the USA.

Significant private providers include Kaplan with nearly 50,000 online students, as well as Capella University with more than 20,000 students, Jones International University (which began originally as the Mind Extension University using television as the medium of instruction), American InterContinental University, and Walden University (owned by the Laureate International Universities Network). The private nonprofit Western Governors University, which started accepting students in 1999, was supporting more than 15,000 students from all over the USA at the time of writing.

A major feature of virtual campus activity in the USA is the *breadth* of deployment of distance e-learning services in HE, including significant activity overseas, from literally hundreds of universities and colleges. Many leading public universities such as the University of Central Florida, the University of Illinois and Michigan State University, are increasingly active in this sphere. It is also difficult not to mention the overall leadership in the whole area of technology-enhanced learning provided by globally recognised institutions such as Massachusetts Institute of Technology (MIT), Penn State and Carnegie Mellon University. Finally, it is interesting to note the significant amount of online activity now evident in many regional US community colleges – an advanced example is Coastline Community College in California (pure distance learning), but perhaps a more typical example is the Colorado Community Colleges Online consortium.

CANADA

Many, if not most, Canadian universities have competence in off-campus e-learning. Several major e-learning systems past and present have come from Canada, most notably WebCT from the University of British Columbia (UBC).

However, in recent years the Canadian political climate has been less helpful to e-learning, as in several other regions of the world. The main research programme (TeleLearning) was closed prematurely; the longstanding Open Learning Agency (British Columbia) has been closed and business transferred to a new entity, Thompson Rivers University; the charismatic start-up TechBC was closed and residual activity absorbed into Simon Fraser University; and Téléuniversité du Québec was merged into the Université du Québec à Montréal.

On the other hand, Athabasca University, Canada's Open University, continues to develop and thrive, and currently serves over 37,000 students (although the bulk of Athabasca University's online programmes are still mainly at postgraduate level). Canada also boasts a national initiative, the Canadian Virtual University (CVU), which is a consortium of accredited Canadian

universities offering complete degrees, diplomas, and certificates online and through distance education. CVU consists of 11 universities and a catalogue of over 2,500 courses and 350 programmes. These types of consortia models are popular in Canada, and many Canadian researchers consider the notion of consortia involving several universities in a collaborative online effort to be synonymous with the term *virtual campus* – unlike in the USA, where the term is more commonly applied to a traditional university's online or digital offerings.

Several single universities boast quite considerable virtual campus offerings; these include the Memorial University of Newfoundland with an extensive online course offering, along with the University of British Columbia (UBC), Simon Fraser University (SFU), Thompson Rivers University (TRU) and the Royal Roads University as well as the more modest offerings from Queens' University and Cape Breton University in Nova Scotia.

Another group of organisations that include BCCampus, eCampus Alberta and Contact North (Ontario) are worth mentioning as virtual campuses, as they provide one-stop shopping/web calendars for online courses from provincial institutions, funding for online course development, technical support, and faculty development opportunities, as well as provincial articulation committees which assure credit transfer between institutions within these provinces. (Note that these virtual campuses mainly serve two-year colleges rather than universities.)

It is important to point out that Canada does not have a single national educational policy; this means that each province is responsible for deciding its own policies and priorities – which does mitigate against large national networks. Mobility and inter-operability are facilitated by the fact that in principle the US credit system works throughout the USA and Canada, which means that a standard three credits in Newfoundland is the same as three credits in British Columbia. However there are still significant cross-provincial barriers to credit transfer, especially into Ontario universities from other provincial universities. It should however be noted that Athabasca University has more students from Ontario than from Alberta.

MEXICO

In Mexico, probably the best-known virtual campus is that of the Tecnológico de Monterrey (also known as the Monterrey Institute of Technology and Higher Education – or ITESM) which is a nonprofit association operating as a multi-campus university system with academic centres in different regions of Mexico. Interestingly and not atypically in such situations, it is classified by the government of Mexico as a private university. ITESM established its virtual campus in 1989 as a separate entity from ITESM (with its own vice-rector); it now extends its services to various countries in Central and South America. ITESM uses a variety of technologies and offers postgraduate academic programmes; continuing education programmes for directors of Mexican and Latin American companies, as well as governmental and non-governmental organisations; programmes for elementary and secondary school teachers; and programmes for the development of marginalised communities. Nearly all postgraduate programmes are fully online, and undergraduate programmes are offered in a blended learning mode through face-to-face teaching on regional campuses (with online components).

Several other players are emerging in Mexico, promoted by government support programmes and external factors. This includes an initiative which aims at creating a consortium of public universities currently called ECOESAD (Common Area for Distance Higher Education); this

consortium could be a preliminary step towards a national distance university. The Universidad de Guadalajara operates a significant virtual campus called Universidad de Guadalajara Virtual which, like Monterrey, operates as a separate "campus" from the other physical campuses, with its own vice-rector. Universidad Nacional Autónoma de México (which established its open university programme in 1972) and Universidad de Veracruzana also have significant online offerings.

Central America

Despite the many challenges faced by people in this part of the world, there are still a number of institutions in the region actively promoting their programmes, and it is clear that Spanish language providers like UNED, UOC and ITESM are active in this region. In Honduras there are active programmes in both the National Autonomous University of Honduras and the University José Cecilio del Valle, while in Costa Rica, the Universidad Estatal a Distancia (UNED) has a mission to offer higher education to all social sectors. In Guatemala the relative newcomer, the University of Galileo, has a focus on information technology, and has been developing distance learning programmes along with e-learning support services for existing students. The Universidad Francisco Marroquín in Guatemala has a large-scale distance education programme. In Panama the UNIEDPA (the Inter-American Distance Education University of Panama) supports online learning while the private Universidad Latino Americana de ciencias y tecnología, ULACIT (Latin American University of Science and Technology), offers tools and support services to its students to support a blended learning approach.

Caribbean

The University of the West Indies (UWI) is an autonomous regional institution supported by and serving 16 English-speaking countries and territories in the Caribbean, and is the best-known higher education institution in the region. UWI has been involved in distance teaching for many years and recently began a number of substantial blended learning initiatives aimed at increasing its virtual campus services. Another notable activity in the region is CUPIDE, a collaborative distance education project financed by the Japanese Funds-In-Trust for Capacity Building through the United Nations Educational, Scientific and Cultural Organization (UNESCO), bringing together the activities of several universities in the region (including UWI). CUPIDE was instrumental in establishing the Caribbean Regional Association for Distance and Open Learning (CARADOL); however, this does not appear to be active at the moment.

Several ministries in the region are also directly involved in the Virtual University of the Small States of the Commonwealth (VUSSC), which brings together interests from 30 countries and focuses on creating skills-related online courses in areas such as tourism, entrepreneurship, professional development, disaster management and a range of technical and vocational subjects.

In the Francophone region of the Caribbean, AUF operate a bureau in Haiti and run projects linking universities in the region with French universities. They employ e-learning tools and services in their work with universities which include the Université d'Etat d'Haïti (UEH), Université Action pour l'éducation et la culture (UNAPEC) in the Dominican Republic and the Université des Antilles et de la Guyane (UAG) which supports higher education in Guadeloupe, Martinique and French Guyana.

South America

The term *virtual campus* (*campus virtual* in Spanish) is commonly used in this region and generally is understood to refer to online course offerings. As already mentioned, significant efforts have been made by UNED, ITESM and UOC in South America, and a number of strategic alliances exist between these universities and the universities and agencies of South America.

Brazil

In Brazil, the level of interest in distance education among universities is generally quite high despite an unhelpful regulatory climate, as reported by several researchers. Private universities are the foci of innovation, including in e-learning. Plenty of initiatives exist and there are considerable ICT-supported services offered by Brazil's rapidly expanding corporate university sector. The government set up the Universidade Aberta do Brasil (Open University of Brazil; UAB) in 2005. This is a consortium of several state institutions that aims to coordinate the efforts of different educational entities, at federal, state, and municipal levels, in offering higher education in different modalities of distance education. One of the major activities within this project is the creation of local centres in areas where access to higher education is scarce. Brazilian universities also cooperate through other collaborative models, e.g., the Universia mentioned earlier in relation to Spain, and FUNIBER Virtual Campus.

There are a number of other Brazilian universities who have been actively engaged in virtual campus initiatives in recent years. These include FGV (Fundação Getúlio Vargas), FATECE (Faculdade de Tecnologia, Ciências e Educação) and the virtual campus located at Universidad Gama Filho. Furthermore, the School of the Future at the University of São Paolo has developed an international reputation in this field. Brazilian universities also participate in collaborative models, joining consortia such the Center for Distance Learning of the State of Rio de Janeiro (Cederj) and the Network of Catholic Institutions of Higher Education (CVA-RICESU) in an attempt to provide online courses.

Hispanic South America

In Argentina, the Virtual University of Quilmes has a significant virtual campus initiative which has attracted over 6,500 students. Two private universities, located in Buenos Aires, the University of Salvador and Universidad Maimónides, also offer online courses.

One of the largest online programmes in Chile is offered by the public UTEM Virtual (Universidad Tecnológica Metropolitana). Universidad UNIACC is also a major player and has over 3,000 students across three campuses interconnected by multimedia technology. It grants diverse academic degrees, and offers 31 academic programmes, diplomas and master's degrees. DuocUC (Instituto Profesional y Centro de Formación Técnica) is the technical education branch of the private Pontificia Universidad Católica de Chile (UC), and it too offers online courses and support services.

In Uruguay the largest private university, Universidad ORT Uruguay, is an active promoter of ICT-supported learning for both campus-based and distance education students.

In Bolivia, the Universidad Andina Simón Bolívar (UASB), which also has campuses in Peru and Venezuela, has been applying new technologies in diverse educational programmes that use distance learning for several years.

In Ecuador, the Universidad Técnica Particular de Loja (UTPL) provides both on-campus and distance education supported by ICT. In Peru, the Universidad Nacional Federico Villareal, (UNFV) is a public institution which includes a College of Distance Education with different offices around the country, aimed at facilitating distance education.

In Venezuela, the Universidad Nacional Abierta (UNA) is an open university operated as a public institution, which operates through a network of centres in more than 60 locations. It uses a variety of technologies to support its teaching, and provides significant e-learning knowledge and experience in the region.

Australia and New Zealand

Most universities in Australia and New Zealand developed substantial capability in distance learning in the 1980s, and several have now migrated this to e-learning. They are supported by a plethora of associations, government initiatives, state agencies and other support mechanisms, which has meant that both Australia and New Zealand now boast significant virtual campus activities. Even if the term *virtual campus* is not widely used in the region, it is clear that virtual campus activity is known and widely respected in this area, and considerable expertise and experience is available.

Australia

The Open Universities Australia (OUA), formerly Open Learning Australia, is Australia's national specialist distance tertiary education agency, established by the Australian government to ensure that the highest quality tertiary education be open to all Australians. Owned and operated by a consortium of seven Australian universities, it operates as Australia's Open University and has over 16 respected universities and other tertiary education providers offering courses. In terms of national initiatives, the Australian Flexible Learning Framework is also worth mentioning. Although focused on technical and vocational education, in the opinion of many researchers, it comes closest to a definition of *virtual campus* in Australia.

Many traditional universities in Australia also provide large-scale virtual campus offerings. The larger and better-known of these include the multi-campus Charles Sturt University in New South Wales and the Australian Capital Territory. Curtin University of Technology in western Australia operates seven campuses and six regional centres, and promotes its online courses widely, including to Malaysian students. Deakin University and Edith Cowan University also have considerable online offerings. Finally, the University of Southern Queensland is a major multi-campus university which was an early adopter of online learning, which has been recognised both nationally and internationally for its substantial distance education programmes.

New Zealand

All eight of New Zealand's universities offer some form of online support or service to their existing student base. Some, such as the University of Canterbury, Universal College of Learning (UCOL), University of Auckland, Victoria University of Wellington and the Auckland University of Technology, have developed considerable expertise in the use of ICT, and are actively engaged in promoting the university beyond geographical borders with a view to attracting students for both online and offline course entry. One of New Zealand's largest universities, Massey University has a considerable distance learning offering, and in 2007, 17,000 enrolled students were distance learners. The Open Polytechnic of New Zealand is a specialist institution in

distance learning and has just over 34,000 students, equating to around 7,000 full-time equivalent students. Funding for online course activity in higher education has been the subject of government funding, through for example the New Zealand Consortium for e-Learning.

Asia

We are indebted in our description of virtual campuses in this region to the extensive analysis provided by Colin Latchem and Insung Jung in their recent publication "Distance and Blended Learning in Asia"[5] which provides an extensive overview of virtual campus initiatives in this region while pointing out that "until recently the use of the word "virtual" in Asian contexts was largely rhetorical but that now there are some interesting examples of universities and colleges and consortia that not only teach and manage through the Internet but in some cases lack a physical location apart from an administrative unity".

Distance teaching has a long and impressive history in Asia and a significant number of the large "mega" open universities first described collectively by Sir John Daniel in the early 1990s[6] are located in this region. Many of these open universities are members of the Asian Association of Open Universities (AAOU), which brings them together and which has been recording how they have been evolving since the AAOU began in 1987 (although in recent years AAOU seems to be scaling down its activities and member services). Most of the region's mega open universities are experimenting with at least some form of virtual or digital offering.

Middle East

There are a number of notable virtual and open universities in this region. In Syria, the Syrian Virtual University was set up in 2002 to provide a significant number of online courses to students in Syria and other Arab countries. While it does create much of its own courseware, it is also a significant broker for courses from traditional Arab universities and other parts of the world, including the UK and the USA.

In Saudi Arabia, a joint venture by MeduNet, King Saud University and Sure Technology and Consulting has resulted in the launch of the Knowledge International University, which offers bachelor's degree programmes using a blended approach. In addition, there have been a number of incentives put in place to encourage traditional universities in Saudi Arabia to adopt e-learning. These include the establishment of the National Centre of E-Learning and Distance Learning; the work carried out by this centre has led to potential uptake of online course delivery among several leading Saudi Arabian universities.

In Iran, the first universities to take up e-learning were the medical universities. The University of Tehran began providing online courses in 2001; the Sharif University of Technology Graduate School of Management and Economics offers a joint online MBA with Canada's Royal Roads University. Iran also is home to two large open universities, the private Islamic Azad University of Iran and Payam-e Noor University, Iran's largest public university. However, development of online programmes in these universities has been limited up to now, possibly constrained by limitations in ICT infrastructure.

The largest university in Israel with 40,000 bachelor's and master's degree students, the Israeli Open University now offers a considerable number of programmes online. Despite efforts on behalf of the Israeli authorities to encourage other Israeli universities to adopt e-learning, the

movement towards offering online programmes has been slow. This is despite the fact that the Israel Council for Higher Education established an Inter-University Center for e-Learning as early as 1999.

Al-Quds Open University in Palestine is the only open distance education institute in the Palestinian territories, and has over 60,000 students studying in 24 educational regions and centres distributed all over the West Bank and the Gaza Strip.

In Jordan, the University of Science and Technology and the Hashemite University are starting to offer online courses.

Anadolu Open University in Turkey is the national leader when it comes to distance learning, and has put considerable effort into increasing the number of online programmes it offers in recent years. Ankara University and Sakarya University have now established distance education centres and deliver undergraduate and postgraduate programmes online, although on a much smaller scale than Anadolu.

A key player generally in the Middle East is the Arab Open University, which collaborates in a significant way with the UK Open University, and is permitted to adopt and adapt UKOU learning materials for its own uses. AOU has its main campus in Kuwait and branch offices throughout the Middle East.

Central Asia

In central Asia, the Almaty Distance Technological University in Kazakhstan uses technology to support its distance education programme, while the National University of Uzbekistan is actively developing open learning centres and ties with other universities in the region in an effort to extend the reach and value of its correspondence courses. A cross-border initiative, the University of Central Asia, may also have an impact in this region in the future.

In Ukraine, the National Technical University of Ukraine (Kyiv Polytechnic Institute) is making strides in offering its students online support services, while the Institute of Distance Education and Institute of Postgraduate Education at Lviv Polytechnic National University has been active in efforts to establish a Ukrainian Open University.[7]

Throughout central Asia, efforts to improve connectivity among research universities through projects like the Virtual Silk Highway[8] are likely to increase interest in online course offerings among traditional universities.

China

There have been major developments in e-learning in mainland Chinese higher education, with the first online courseware available from Hunan University in 1997. The Chinese ministry actively supports what it describes as "modern distance education (MDE) – the provision of ICTs-based DE using multimedia computer facilities and the Internet"[9] as a fast and cost-effective way to meet the demand for higher education in China. At the same time, the number of links with foreign universities is on the rise, and collaborative models linking traditional universities with private enterprise are increasingly popular.

By the end of 2003 there were 2.3 million enrolments in MDE programmes across 68 pilot universities. Higher education generally has received considerable financial support, and since 1998, 10 universities have been targeted by the Chinese government to become "world-class", including Beijing Normal University and Tsinghua University. China has received educational aid from UNESCO and many other international organisations and sources, including the World Bank, which recently loaned China $14.7 billion for educational development. This effort has included considerable spending in relation to establishing virtual learning opportunities for on- and off-campus students. There has already been significant progress within information technology, including digital libraries, virtual laboratories and online courses, leaving a "profound indelible imprint on higher education".[10] Both Peking University and Fudan University are collaborating with other universities and industry partners both in and outside of China in their creation and delivery of online learning programmes.

China has a network of independent radio and television universities (RTVUs) coordinated by the China Central Radio and Television University which are based on traditional media. One of the oldest and best established of these, which has an extensive distance learning project, is the Shanghai Television University (STVU; SHTVU). Its virtual campus now offers eight learning platforms serving different groups which include underdeveloped and disadvantaged communities, 400 rural schools, 4 million immigrants and the elderly. It is worth noting that the China Central Radio and Television University changed its name in autumn 2009 to the Open University of China. In 2003, the Chinese Ministry of Education, Beijing Normal University, China Central Radio and Television University, and the China Education TV station set up the Teacher Education Networking Union to provide online courses to China's teachers.

Most Hong Kong universities have considerable on-campus e-learning activity, but report that students are reluctant to study off campus via e-learning. However, there is an active Open University of Hong Kong (OUHK), as well as a CyberU branch of one of the more commercially minded universities, Hong Kong Polytechnic University. Movements towards distance teaching on the mainland have recently encouraged Hong Kong universities to rapidly develop online capability; leaders among these include the University of Hong Kong, Hong Kong Baptist University and the Chinese University of Hong Kong.

TAIWAN

In Taiwan, practically all universities are now offering programmes online and many collaborate in order to extend their e-learning offerings to working professionals and other non-traditional target groups. An early adopter of online course delivery was the National Sun Yat-Sen University, which also collaborates with Peking University in mainland China in its online course offering.

INDIA

India now has three of the world's largest so-called open mega universities (institutions in which over 100,000 students use largely distance learning methods). It is home to the Indira Gandhi National Open University, which is not only the largest open university in the world but also the world's largest university, with an estimated 2 million students. In addition, there are several other very large open universities – in fact, one in almost all regions of India, including the Dr. B. R. Ambedkar Open University in Ahmedabad and Yashwantrao Chavan Maharashtra Open University in Maharashtra. All of these open universities have extensive pilot activities

underway with the aim of setting virtual campus initiatives in place; however the relatively poor state of infrastructure available to students in this region has had a significant impact, and none of these have demonstrated a large-scale online presence to date.

The private-sector operation NetVarsity (part of NIIT), as well as University18, a nonprofit private-sector initiative (in partnership with the Karnataka State Open University), each represent a significant development in the region which may well have impact in the near future.

PAKISTAN

Pakistan is home to one of Asia's oldest open universities, the Allama Iqbal Open University, which was set up in 1974 and which for many years was the only provider of open or distance learning opportunities in the country. It has now been joined by the publicly funded nonprofit Virtual University of Pakistan, which opened in 2003 and which provides programmes in computer science, IT and business administration through a variety of blended learning media (utilising 76 real and virtual campuses in Pakistan and Saudi Arabia).

MALAYSIA

There has been considerable growth in the number of Malaysian virtual campuses in the last couple of years due to a significant effort by the Malaysian government to increase higher education enrolment – which in turn has stimulated growth, particularly in the private sector. This has led to the establishment of a number of private universities which operate online, including the Malaysia Multimedia University, Universiti Tun Abdul Razak (UNITAR), Wawasan Open University and the Open University of Malaysia (UNITEM). The Open University of Malaysia was set up in 2000 by Multimedia Technology Enhancement Operations (METEOR), and now has about 40,000 students. Wawasan Open University provides courses across borders through its collaboration with four other open universities in the region: Allama Iqbal Open University in Pakistan, Bangladesh Open University, Indira Gandhi National Open University and the Open University of Sri Lanka.

Universiti Sains Malaysia and Universiti Teknologi MARA are more traditional distance education providers in Malaysia who are moving more and more to an online or at least blended model. Other universities worth noting in Malaysia include Universiti Kebangsaan Malaysia, Universiti Malaya, Universiti Malaysia Sarawak, Universiti Putra Malaysia and the Universiti Teknologi Malaysia.

SINGAPORE

In Singapore, higher education institutions have been at the forefront in experimenting with ICT and in putting forward ICT-supported services for their existing and potential students. Leading institutions in the country have included Nanyang Institute of Technology, the National University of Singapore and the Singapore Polytechnic, as well as the recently opened private SIM University (UNISIM, UniSIM). However despite strong R&D activity and being the base of more than one virtual campus consortium, Singapore does not appear to have a dedicated virtual campus initiative distinct from the existing higher education providers.

BANGLADESH

The Bangladesh Open University (BOU) is the only distance learning university in Bangladesh, and has been in operation since 1992. It qualifies as a "mega" university, enrolling about 300,000

students in its first 10 years, and producing about 90,000 graduates.[11] Through formal and non-formal programmes it aims to give educational opportunities to a large section of the population, helping in the human resource development of the country. BOU operates as a traditional open university with a lot of print materials and traditional media, including radio and television, although there is increasing interest in the use of ICT. The University of Liberal Arts in Bangladesh is actively engaged in promoting the use of ICT and offers a range of ICT-supported services to its students, many of whom study part time. The University of Engineering and Technology has also launched two professional development courses combining CD-ROM and online delivery.

PHILIPPINES

In the Philippines, the University of the Philippines Open University is part of the national university, which is made up of seven constituent universities. It offers courses using a blended approach and operates through a network of support centres in the Philippines and Hong Kong. The Polytechnic University of the Philippines Open University (PUP-OU) offers a wide range of courses: doctoral, master's, and bachelor's degrees, as well as "technopreneurial" courses available through traditional and open, flexible or distance learning. The Pamantasan ng Lungsod ng Maynila Open University based in Manila is a dedicated open and distance teaching institute that was set up in 2002 and has enrolled about 13,000 students. The SAIDI School of OD (Southeast Asia Interdisciplinary Development Institute School of Organization Development, SAIDI) supports postgraduate distance education in the Philippines. It is a small but well-established entity, with about 600 graduates in 2009.

SRI LANKA

The Open University of Sri Lanka (OUSL) was set up by the Sri Lankan government in 1978 and supports approximately 30,000 students through its four Regional Centres, 16 Study Centres and five Teaching Centres. Courses are usually delivered via traditional distance education means, although there have been several pilot activities linked to capacity development programmes in the university to gear the university more towards e-learning. In 2006, the University of Colombo launched an online bachelor's-level programme in information technology, and also offers some English and Mathematics courses online.

THAILAND

Virtual campus activity at the Sukhothai Thammathirat Open University (STOU), and in both Thai public- and private-sector universities, is growing, and the number of registered students is impressive. Universities particularly active in this respect include the public Ramkhamhaeng University which functions as an open university, the private Assumption University, King Mongkut's College of Medicine and Chulalongkorn University, all of which offer online courses. In 2005, the Office of the Commission on Higher Education established the Thailand Cyber University, a portal service through which Thai universities are welcome to share OpenCourseWare and to deliver online programmes. Some 27 Thai universities are reported to be working with this portal, with over 50,000 course registrations for the more than 400 courses available.

South Korea

South Korea hosts its own Korea National Open University (KNOU), which was founded in 1972 as a branch of Seoul National University. It now has over 200,000 full-time, degree-seeking students for four-year university programmes, and some part-time students for non-degree, lifelong education programmes. It also offers online postgraduate degree programmes in several major areas. The university has campuses in 12 major cities of South Korea, including the capital, Seoul.

There is considerable virtual campus activity generally in South Korea, with 85% of the public and private universities providing courses online. More than 50% share online courses and courseware through consortia, partnerships, or national or international networks like U21Global and the Asia-Europe e-Learning Network.[12]

The term *cyber university* is popular in South Korea, and there are now 17 cyber universities as well as many online initiatives offered by conventional universities. Among the most significant virtual campus activities is the Ewha Womans University, which hosts the International Cyber University (ICU). Others include the Hanyang Cyber University (HYCU). The Korea Virtual Campus consortium was founded in 1997 with 10 member universities. Participants have included KNOU and EWHA. The Daegu Cyber University (DCU) supports fully online degree education in South Korea, while the Kyunghee Cyber University and the Sejong Cyber University are both linked to conventional universities (although they have their own buildings, faculties, deans and students). Both the Open Cyber University and the private Seoul Digital University (SDU) are based on a consortia model. SDU, which opened in 2001, recently boasted enrolment of 10,000 students from South Korea and 23 other countries.

Japan

The term *virtual campus* is not commonly used or understood in Japan, and although many Japanese universities now use ICT to support the services they offer, it is difficult to identify a significant discrete Japanese virtual campus initiative. This may have something to do with the Japanese regulation system, which requires that open or distance learning providers be regulated in a very different way from traditional universities. This has led to a situation where open and distance learning has had a rather poor reputation. A large-scale collaborative effort among 18 Japanese universities in 1999 resulted in the establishment of the International Network University Consortium (INUC) with the aim of developing and sharing online courses for students in the members institutions; however INUC is reported to have had difficulties due to a number of factors.

This situation is changing and the Open University of Japan, formerly the University of the Air (Hoso Daigaku), has recently been researching regulation policies in other countries with a view to streamlining regulation policies in Japan. Tohoku University in the Miyagi prefecture and Shinshu University in Nagano offer online learning opportunities, and two top private universities, Keio University and Waseda University, are also very active in this sphere. In addition the new Japanese Cyber University supports fully online bachelor's degree education and is Japan's first four-year online university. Japan also launched its first for-profit, online professional postgraduate university in 2005, the Kenichi Ohmae Graduate School of Business.

Africa

Several regional and continental associations like the Association of African Universities (AAU), the African Council on Distance Education and the Southern African Regional Universities Association (SARUA) are fostering institutional collaboration, and the role of external agencies like the L'Agence Universitaire de la Francophonie (AUF) in promoting the use of ICT in African Francophone universities is significant. Furthermore, three East African higher education regulatory agencies, including the Kenyan Commission for Higher Education, signed a memorandum of cooperation in July 2006 intended to streamline and harmonise accreditation and quality assurance practices and procedures in the region. This is expected to enhance access to quality higher education and accelerate the response to new opportunities for e-learning, use of virtual universities, and other modes of distance and open learning.[13] At the same time, cooperation agreements between individual universities in Africa and those in the developed world like the ones promoted by the Flemish Interuniversity Council (VLIR) in Belgium are greatly increasing the uptake of ICT in the region.

In terms of consortia, the African Virtual University is a key player and has operations in several African countries, with courses in both English and French. Francophone Africa has the Campus Numérique Francophone. Other types of collaboration also exist, particularly in relation to the development and use of open-source tools and resources, one of the most notable of which is the African Virtual Open Initiatives and Resources (AVOIR) which aims to build capacity in software engineering in Africa using Free Software (Open Source) as a vehicle. AVOIR is a partnership of 16 African universities in an alliance that includes partners in North America, Europe, and Afghanistan, with a node in each member institution.

Although there are considerable ties among nations throughout the continent of Africa, commentators often view the continent as being made up of two distinct regions, North Africa and Sub-Saharan Africa. In addition, due to the high level of activity in South Africa, we have also included a separate description here for South Africa.

Sub-Saharan Africa

The level of interest among Sub-Saharan African (SSA) universities in establishing a virtual campus of one type or another has rapidly increased in recent years. This has been brought about by a number of factors. First of all, the demand for university places in this part of Africa is extremely high, and traditional universities simply cannot meet the demand for access. At the same time, university enrolment is considerably lower in SSA than in other parts of the globe, with only 0.4% of the total SADC (Southern Africa Development Community) population enrolled in higher education. If South Africa is excluded, the percentage drops to 0.2%. Most countries fall into the 2-4% range. Only Mauritius (16% in 2005) and South Africa (14%) have tertiary gross enrolment ratios of above 8%. In comparison, the world-mean on this statistic for lower and middle-income countries currently stands at 19%.[14] Couple this with other problems in the region as described in a recent report[15] which states that the SADC (Southern Africa Development Community) region "suffers from a high degree of poverty and from the worst HIV-Aids crisis in the world. In addition, challenges include high infant mortality rates, low life expectancies, low literacy rates, low gross domestic products, low levels of technology development, and low levels of education participation".

Countries in this region with relatively advanced online offerings include Kenya, Tanzania, Botswana, Ghana and Uganda. In Kenya, the University of Nairobi, Kenyatta University, Maseno University and Moi University are all exploring the use of VLEs to support on- and off-campus students. In Tanzania, the University of Dar es Salaam has built up considerable capacity in relation to online learning generally, and now Tanzania also has an Open University which has been taking considerable steps recently towards enhancing its e-learning offer. In Botswana the University of Botswana has hosted an LMS for quite some time and supports its distance and local learners in a variety of ways using ICT. The university offered 343 online courses in 2006, supporting more than 13,000 students. In Ghana, the University of Ghana is very active, as is the University of Education, Winneba, which is actively promoting e-learning as a way to support its efforts to up-skill teachers. Uganda's largest university, Makerere University, offers several different degree-level courses at a distance and is making every effort to move more towards an online model.

In Rwanda, the National University of Rwanda hosts an e-learning unit which promotes the uptake of technology to support teaching on- and off-campus students.

In Francophone SSA, Senegal and Cameroon are actively pursuing e-learning goals in higher education, with Senegalese universities Université Cheikh Anta Diop and Université Gaston Berger both hosting active pilot initiatives with the support of AUF. In the Cameroon, Université Yaoundé 1 is working towards greater online provision in a planned and strategic manner.

North Africa

In North Africa, Egypt hosts a large branch of the Arab Open University and a new entity, the Egyptian E-Learning University (EELU), emerged in 2008. On a national level, there are several programmes operating to address the issue of e-learning centres at the higher education level, and there is a National E-Learning Centre (NELC) which forms part of the Supreme Council of Universities (SCU). Considerable numbers of Egyptian universities offer online courses, with Cairo University, Mansoura University, Ain Shams University, Al-Azhar University, Assiut University and Helwan University all being of particular note.

In Tunisia, the Université Virtuelle de Tunis (UVT) was established in 2002 as a government initiative and forms the country's tenth public university, offering open and distance education using multimedia technologies, while the École Nationale d'Ingénieurs de Tunis is also extending its competence in the area of e-learning with a view to offering online courses. In Morocco, Université Cadi Ayyad Marrakech, Université Sidi Mohamed Ben Abdallah and Université Ibn Tofail all have e-learning initiatives in place.

South Africa

Universities in South Africa lead the continent in terms of virtual campus offerings and there are extensive and growing programmes in practically all universities in the country, including the University of Pretoria and Tshwane University of Technology. The largest open university on the continent is the University of South Africa (UNISA) which has an active Online Campus; in 2006, UNISA had a registration total of more than 223,000 students and offered approximately 6,900 different courses. The University of the Free State has offered an online Bachelor of Commerce degree in partnership with a private-sector company, while Potchefstroom University supports its online facilities with 53 study centres in 53 different locations. The University of

Johannesburg has also adopted a blended approach which includes online delivery, and Stellenbosch University and University of the Witwatersrand are both transferring significant amounts of courseware to online delivery to meet the significant demand for seats that all South African universities face.

GLOBAL INITIATIVES

In addition to the regional, national and institutional initiatives, there have been a considerable number of global initiatives, many initiated by leading universities in an effort to meet the needs of students in the less developed parts of the world – as well as those which operate on a broad regional basis as opposed to a national one. Several of these have already been mentioned in relation to specific regions like the African Virtual University and the University of the West Indies. Three others worth mentioning here are the University of the Arctic, the University of the South Pacific Online Learning (USP) and the Virtual University for the Small States of the Commonwealth (VUSSC).

The University of the Arctic refers to itself as a coalition of institutions of higher education seeking to overcome barriers to education in the circumpolar region, involving a range of universities in a mix of face-to-face and online tuition.

The University of the South Pacific (USP) is a public, regional university co-owned by 12 Pacific Island countries: Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu. USP offers distance education through the People First Network's Distant Learning Centre Project. In 2003, USP supported just over 15,000 students.

The Virtual University for Small States of the Commonwealth is hosted by the Commonwealth of Learning and is still in the process of being set up. Considerable efforts are being made to create content for this start-up, which will involve agencies in 30 countries around the globe.

New global partnerships continue to spring up on a regular basis, although some of these have been very mixed in terms of the quality of the learning opportunities offered, and the degree to which they have been successful. Virtual campus initiatives of this type worth mentioning include the Worldwide Universities Network (WUN), Universitas 21 set up in 1997, U21 Global (bringing together a wide range of affiliated universities), and the Global Virtual University set up under the auspices of the United Nations University (UNU) in 2002. The Worldwide Universities Network (WUN) is a partnership of 15 research-led universities from Europe, North America, South East Asia, Australia and Africa. The first of its type that is still in existence, Universitas 21 is an international network of 21 leading research-intensive universities in 13 countries. U21 Global, which was established in 2001, markets itself as an online postgraduate school that works with an international network of universities in 11 countries. The Global Virtual University is somewhat different, as it is very much focused on development-related issues and describes itself as working to enhance learning for environmental sustainability.

Factors and Issues Influencing Virtual Campuses in Different Regions

One of the starting points for the Re.ViCa team was to try to identify whether there were certain core and identifiable characteristics or environmental factors that made European virtual campuses somehow different from those in other parts of the world. While in our case the focus was on Europe, the same question could be raised in respect to any other region – are there regional conditions that make virtual campuses in Africa somewhat unique and different from those in, for example, Asia? Although generalisations are difficult to make in this respect, one factor that does seem to have made a difference in the past relates to financial resources, and it was clear to us that in overall terms, there is more virtual campus activity in countries with a higher GDP. Necessary technical infrastructure alone calls for significant investment, and while several of the large so-called mega universities were set up in developing countries with a specific mandate to address the needs of poorer learners, many of these still relied on traditional distance teaching methodology, at least up until recently. However, even this may be changing as other factors – including developing countries' increased desire to compete, and a returning diaspora with know-how and resources – are having an impact on the level of virtual campus activity we witnessed in a large number of so-called developing countries.

Our general conclusion following the work carried out with respect to Europe is that while certain regional conditions do have an impact, and these can be important to take into account when analysing how well virtual campuses succeed in meeting their own and stakeholders' objectives, no clear picture of a distinctly "European" virtual campus has emerged. Virtual campuses in Europe are subject to much the same constraints and opportunities as those in other parts of the world. However there is still value in describing certain conditions that pertain to the countries of the EEZ that we consider have had, and continue to have, a certain influence on the set-up and operation of virtual campuses in this region. Many of these are not uniquely European; however they do have a bearing on the development of virtual campuses in this region.

The Impact of Bologna

It is difficult to underestimate the importance of the Bologna Process in Europe. Up to the end of the 20th Century, European universities operated on a largely independent basis, with the only real policy impetus coming at national level. This all changed with the introduction of the Bologna Process which began in 1998 with the Sorbonne Joint Declaration on Harmonisation of the Architecture of the European Higher Education System. The Bologna Process is the product of a series of meetings of European ministers responsible for higher education at which policy decisions have been taken in order to establish a European Higher Education Area by 2010 which includes cross-border recognition of awards and overall transparency of the European higher education systems.

A recent report written by David Crosier and Philippe Ruffio and published by the EACEA shows that in general terms the Bologna process is progressing well in Europe, with universities well on track to achieve the central objective of creating the European Higher Education Area by 2010.[16] According to this report, there are now 46 signatory countries of the Bologna Process, and significant reforms have brought about far greater compatibility of the different national European education degree structures. The various tools which are helping to achieve a common European education area, like the European Credit Transfer and Accumulation System (ECTS),

Diploma Supplement, and National Qualifications Frameworks, are increasingly common. Gaps do exist in certain fields of study; however convergence in the models for the first two academic cycles (bachelor's and master's) is clearly taking place.

Although there are no references within Bologna to the topic of the virtual campus, it is clear that a policy which favours transparency, cross-border collaboration and a shared credit transfer system is conducive to the development of virtual campus initiatives, and certainly being able to access a common credit transfer system like ECTS does facilitate collaborative models of virtual campus (in much the same way as the North American model, where credits earned in one university in Canada for example may be recognised by US universities). A lack of suitable credit transfer arrangements is certainly a significant barrier, as witnessed by the failure of the UK's Open University to successfully launch a successful branch in the USA; the failure is partially blamed on the lack of a suitable credit transfer system, by Katrina A. Meyer[17] among others. As Bologna becomes more and more entrenched in the European higher education sector, the barriers to cross-border collaboration among European universities diminish, European initiatives are expected to thrive and overall European mobility is expected to be further enhanced.

The Role of the European Union and the Programmes of the European Commission

While members of the higher education community in the EEZ differ in terms of when they first remember using the term *virtual campus*, one thing they generally agree upon is that the term really came into vogue when the European Commission started to use it in respect to their various funding programmes. For example, in the European eLearning Programme launched in 2001,[18] one of the four action lines proposed was dedicated to the promotion of European Virtual Campuses and so consortia anxious to be successful in their bids also used the term. The European Union has played a vital role in encouraging universities to adopt a more international approach – although here the focus is on collaborating with other institutions *within* the European Union, rather than globally. However this aspect of how European universities organise themselves should not be underestimated. From programmes such as Erasmus encouraging and supporting student mobility, through to the various initiatives aimed at fostering European collaboration in terms of specific research activities and the promotion of networks of excellence in the European academic environment, virtual campus initiatives in specific content areas involving international cooperation among existing HE providers are now very common in Europe. Despite the fact that many of these first emerged as a result of European funding, for many the degree to which common objectives and a strong demand for such collaboration exists has meant that they have gone on to be sustainable in their own right, sometimes replacing the more traditional types of collaboration found for instance in summer schools run by research consortia.

European programmes have also led to increased networking within the European higher education community, and nowadays it is rare to find any European university faculty that is not involved in some form of cross-border collaboration brought about in effect by European intervention. This has happened at a time when the use of English as a lingua franca among staff in European universities has greatly increased, and has resulted in overcoming linguistic barriers previously encountered in this regard.

The Impact of National Initiatives Within the EEZ

The European Economic Zone has had its fair share of national initiatives aimed at promoting the uptake of ICT in higher education. These have varied a great deal but in broad terms have taken one of the following approaches:

- Creation of a single national VC institution by bringing together several existing providers, e.g., Estonian e-University, Dutch Digital Campus, Finnish Virtual Campus, UK e-University – this can be either a small-scale initiative involving just a small select group of universities or a country-wide effort.
- The creation of a totally new institution supported by a national government, like UOC in Catalonia.
- Promotion of ICT within individual existing universities through the provision of funding for specific programmes in universities utilising ICT, e.g., in Norway where the national Norway Opening Universities (NOU) initiative supports Norwegian institutions of higher education by funding projects for developing ICT-supported flexible learning and distance education courses through a yearly application process. There is a similar process in place in other countries, such as the programmes offered by SURF in the Netherlands. These funding programmes go beyond the typical network support services (NRENs) run by agencies like JANET in the UK, HEAnet in Ireland, and the UNINETT group in Norway.
- Setting up of a portal which simply serves up course offerings from existing institutions, albeit through what can be seen as a nationally validated service offer. Typical of this type of national initiative in the Bulgarian Virtual University.

While many of the national initiatives which aimed towards a single institution have failed to have any major impact (and some, like the e-University in the UK and the Danish Virtual University, have completely disappeared) their longer term impact has been a raising of awareness of the notion of a virtual campus and a general acceptance of the value of online learning in the overall palette of options for the higher education student – helping online learning generally to "come of age" so to speak. While these types of national initiatives have been popular in Europe, they are not confined to this region and can also be found in South America and other parts of the world.

Although there is some evidence (in Europe at least) that national initiatives aimed at the creation of a single institution are no longer as popular as they were several years ago, the need for financial support to promote and foster online learning opportunities generally in the higher education sector continues to be met by national initiatives (funding programmes) which generally complement European programmes in this respect. The current economic climate also mitigates against the whole idea of setting up brand-new, and by definition, expensive institutions, and it is more likely in Europe at least that what we will see in the future will be far more incrementalist.

The Role of Open Universities in the EEZ

A number of European open universities have formed the bedrock of the virtual campus movement and continue to offer expertise and leadership in this area, providing other institutions with new ideas and in many cases piloting services and processes from which others learn. Some were early adopters – e.g., the Open University, UK and the Dutch Open University –

while others like the Universidade Aberta only really launched itself as an online virtual campus in 2006. The Universitat Oberta de Catalunya (UOC) is a particular case in point, as it was set up in 1997 as an online or virtual university from the start, and so has been particularly innovative and market driven.

The impact of open universities does vary considerably from country to country and there is some evidence that language has some bearing on this. In the UK for example, there are now centres of excellence and specialised resources aimed at fostering and supporting virtual campus activities in large numbers of traditional universities; these are no longer to be found only in the Open University. However in countries where the national language is spoken by far fewer people, e.g., the Netherlands, the open universities have served as magnets for much of the leading-edge, technology-enhanced learning development in their linguistic sector. Whether this has a positive or negative impact on the growth of virtual campuses in a country remains to be seen.

The Extent to Which Higher Education in Europe is Based on a Public Model

Few researchers would argue with the view that in the European Economic Zone, the dominant higher education model is a public one, with private universities playing a far smaller role than in other parts of the word (e.g., Brazil or the USA). Therefore it is hardly surprising that the ratio of private European virtual campuses to public ones is also quite low. Private higher education is often viewed with suspicion in European countries (even those where in fact it is not uncommon) and with only a few notable exceptions, the same is true of private virtual campus initiatives. There is some evidence that this is changing and the emergence of successful institutions like Hibernia College in Ireland is certainly raising awareness as to the potential of such models. Hibernia is also interesting in that while it is a private institution, a significant proportion of its income comes directly from the public purse in the form of payments for teacher training made by the UK government.

European Higher education is also changing a great deal in this respect and the old distinctions between what constitutes private (understood to mean “for-profit”) and public (understood to mean “not-for-profit”) are often no longer useful when it comes to making distinctions in Europe. Given the extent to which public universities are increasingly required to raise their own resources through the provision of various types of services, many of them have adopted highly commercial strategies in their promotion and operation of certain services, which has included in some cases, courses and educational services offered online in some form of virtual campus arrangement. In the UK for example, many of the public universities, including the leading ones, behave in a very commercial way (e.g., London Business School), with entrepreneurial activity and high salaries for key professors and senior staff.

CONCLUSION

In this chapter we have tried to provide not only an overview of key virtual campus initiatives around the globe, but also initiated a discussion about regional influences and factors that can have a bearing in more general terms on the development of a virtual campus. Our latter analysis is limited somewhat to factors that have had a specific impact on developments in Europe, in keeping with the context of the Re.ViCa project. Our hope is that such analysis can in turn lead to a more informed understanding of the virtual campus phenomenon in Europe, helping researchers and policymakers understand what makes them successful as well as how to avoid some of the mistakes of the past. As stated at the outset, our ability to provide a comprehensive list of virtual campuses worldwide is limited by many factors, not the least of which is the sheer richness of the available information and the degree to which virtual campuses around the world are flourishing. We look forward to further research in this field, and opportunities to discuss the nature and existence of virtual campuses with other researchers in the field.

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CHAPTER 5: CRITICAL SUCCESS FACTORS

If e-learning initiatives are to be sustainable (which includes being cost-effective), it is of the utmost importance to identify the factors that contribute to that sustainability. As the current trend is that online education is shifting from small-scale experiments to large-scale, mainstream operation, this aspect is growing to be even more important. Online education initiatives that are not robust and sustainable might be acceptable in small scale experiments, but not any longer in large-scale mainstream operations.[1] This is most obviously demonstrated by the various "failed" e-universities as analysed by Bacsich[2] and others.

A Critical Success Factor is defined as "an element that is necessary for an organization or project to achieve its mission".[3] This differentiates it from other factors, which are "important" or "nice to have" but not *necessary*. Benchmarking in e-learning typically looks at a wider range of factors, and quality systems for e-learning at an even wider range. This is sometimes represented as a "pyramid of factors".[4]

EARLY WORK ON CRITICAL SUCCESS FACTORS

Although e-enabled virtual universities are less than 15 years old, and the theory of virtual campuses resembles economics more than physics in that experimentation is hard (the failure of a system cannot be allowed to impact on students), even eight years ago there was enough observational evidence building up that experts could draw some conclusions.

The three analyses below all date from roughly the same era – the early years of this century – prior to the start date even of the planning for Re.ViCa. We present them to show some of the wider currents of thought running through the e-learning literature of the era. All three analyses were originally presented in a TeleLearning conference in Canada in 2001 in a session sponsored by Industry Canada entitled: "Online Post-Secondary Education: A Competitive Analysis". The topic of Critical Success Factors has had an international dimension since the beginning.

A TOP-LEVEL ANALYSIS BY BACSICH

An analysis by Bacsich in 2001 of UK and European experience (including international consortia impinging on the UK) during the period 1996-2001 (as reported by Bacsich in 2004;[5] see section 6) concluded that the following four factors were important. (For each factor the description is given in one paragraph, with a following paragraph in parentheses providing clarification.)

If a consortium "really hangs together" as the Americans call it – or more technically, has high binding energy – then it is more likely to succeed.

(Binding energy can be generated in many ways, including top-down and funding-driven methods. It can come from friendship of individuals or a shared vision of what might be. It may or may not have legal strength associated with it.)

The best guarantee of high binding energy is homogeneity or managed diversity (e.g., the OU-BBC partnership in the UK). (The greater the diversity, the more power there may be to surmount obstacles, yet the greater challenge in mobilising resources.)
In particular, consortia will work better if they are "stratified", i.e., take in universities at a similar level in the rank order. (Note that Universitas 21 is all high-rank research-driven institutions. Cardean has a similar model, but GUA was more heterogeneous across countries. WUN has been careful to find an appropriate similar rank for its members.)
Linguistic diversity is a particular problem, although the real problem may be the cultural baggage coming along with the linguistic. (In particular, there appears to be very few successful examples of a bilingual virtual university – with OUC being a notable counterexample. This is a real issue for Europe.)

CRITERIA FROM KUGEMANN AT THE BAVARIAN VIRTUAL UNIVERSITY

Walter Kugemann, then of the Bavarian Virtual University, suggested the following list of 10 factors in 2001 (as reported on in Bacsich 2004[6]), using the wording taken from his update in 2004.[7]

First clearly define the mission of the Virtual University. If it is part of an existing University, insure that the Virtual University fits and supports the institution's over all mission (for example, does it support faculty renewal, an institution's commitment to access? Revenue goals?).
Provide adequate capital to finance start-up and growth.
Define the institution's competitive advantage (price, quality, identifying a niche program, client service, convenience?).
Identify the primary client groups and the complete programs that meet their needs.
Invest in top quality offerings by employing first-rate faculty, first-rate learning technologies and approaches and by continually monitoring quality.
Use a learner (client) centred pedagogical model.
Develop sound marketing strategies for growth (international markets?; offerings of new programs?; developing a new client base?).
Create a common learning delivery approach through faculty training and institution-wide platforms.
Provide comprehensive administrative resources for students and instructors.
Implement centralized service standards to ensure responsiveness.

Criteria from Harasim

As an example of a less "managerialist" approach, Linda Harasim (then Network Leader of the TeleLearning research programme) suggested the following list of six factors (using here the version presented in Bacsich 2004):

Bottom-up approaches have much to offer, especially in terms of likely common vision and goals/objectives.
In a bottom-up approach, realistic assessment of what the consortium has to offer, the market for the product(s), and how to market them is key.
If funding is one of the initial motivators, her experience is that success depends on forming a consortium with a common vision, common principles of learning, and clear differentiation of roles, responsibilities and value/contribution. Different talents/skills/inputs can be integrated and mobilised for greater benefit of the whole, but it is important to be clear at the outset what these are. Different models or approaches can be complementary, even when the choice is not to integrate.
Within this strong model and framework, in order to ensure that differences are appreciated and enabled and that complementarity is leveraged, significant funding for management and marketing is required.
Contractual agreements are sound, in place, and accepted by all.
Without a doubt, role models of how other similar organisations achieved success, or overcame failure, are truly essential towards helping new consortia organise and mobilise their strengths and confront the many obstacles.

These factors formed the basis of many subsequent analyses.

An Analysis After UKeU Failed

The next step in the evolution of ideas may well have been the paper by Bacsich already cited, reflecting on the failure of the UK e-University in 2004. He proposed that eight more criteria were added to his "classical" list of four critical success factors (listed earlier) – namely, the following.

Understanding and leveraging the brand is crucial.
The right market research, and the willingness to act on it, is crucial.
"Time to market" must be kept short.
Cost of marketing must be kept low.
Realism about differentiators is necessary: "quality" is not a differentiator; price is; platform functionality is not.
An e-university must be a university and a company – doing that well is hard; it affects every aspect.

Good management and staff are essential – ensuring them is hard.
(For English-language organisations.) It is not really an "English-speaking world".

He made three further recommendations for public-sector organisations, one general and two technical.

There still must be a "business model" even if not a commercial one.
Open source is part of an answer – but no one is yet "betting the farm" on it. (One or two are now.)
Interoperability is getting closer but is not there. (Written in 2005 – but still true today.)

Note that the number of critical success factors had now grown to 15.

Recent Work on Critical Success Factors

Since the flurry of activity up to (but not beyond) 2005, there has been substantial recent literature on critical success factors for e-learning – although the reader should be warned that several papers use the term in a wider sense than we mean here (where we use the "strict" business school definition[8] of the term). Some references for Further Reading are given at the end of the handbook – but a few papers are key to the development of our ideas and are discussed here.

In particular, in the final book of the Megatrends project, the authors present 34 important success factors[9] identified from their in-depth analyses of both the "megaproviders" of e-learning in Europe[10] and the "discontinued" initiatives[11] (equivalent to our "Ceased" and "Failed") identified in their project. The hypothesis of the MegaTrends project was that it is possible to detect specific conditions that increase the possibility of success and sustainability of e-learning programmes; sustainability being defined as programmes offered on a continuous basis and not phased out after a defined project period or after specific subsidies are terminated.

For consortia, the PBP-VC project identified a large number of factors[12] tending towards success of consortia in e-learning.

Finally, benchmarking and quality schemes contain a great deal of "distilled wisdom" on what is important in e-learning. This is most clearly demonstrated in the public schemes for Pick&Mix and E-xcellence.

However, none of these schemes and projects produced a list of *Critical* Success Factors – and in particular not a short enough list to be appropriate for a senior management team of an institution to consider in its strategic management functions (around 24 factors). Thus, further investments in research and development in this area were indispensable. The added value of Re.ViCa lies not in the creation of a new virtual campus but in the foundations it will lay for all future and current initiatives, by synthesising the lessons learned from past and ongoing initiatives. Trustworthy research results are needed, in which feedback from all stakeholder groups has been incorporated and which can be used as standard literature. Re.ViCa helps to

make the most out of the knowledge gained by each initiative, to foresee hidden traps and to find ways of incorporating successful features of the initiative in the institutional structure itself (should a virtual campus in its original form have to be discontinued).

In a nutshell, the aim of Re.ViCa is to avoid a situation whereby every new virtual campus proponent has to start from the beginning, by providing stakeholders with a validated and comprehensive view of the virtual campus landscape in Europe (and beyond) as evidenced in the last decade. Roadmaps for establishing virtual campuses should be promoted, with exchange of information, expert validation and sharing of good practice as key objectives. Even more concisely, we should look at the past of virtual campus initiatives to enhance their future.

THE RE.VICA CRITICAL SUCCESS FACTORS

As noted above, there have been many projects which have been looking for potential Critical Success Factors. In Re.ViCa we first carried out desk research in order to learn from other projects (see the last three subsections for an overview of the key reports and literature – fuller details are on the project web site) and came to a list of 99 potential candidates for Critical Success Factors. This was far too many, of course, as we knew – but the aim was to not constrain the final scheme by making assumptions about earlier work, including that from our own experts among the Re.ViCa partners.

In June 2008 the first International Advisory Committee (IAC) Meeting took place at the EDEN Annual Conference in Lisbon, Portugal. In this meeting the experts from the IAC and the project worked in teams on this long list, cutting it back to 29 "essential" factors.

In an second meeting in December 2008, at the ONLINE EDUCA Annual Conference in Berlin, we let the International Advisory Committee (17 delegates present) vote on the 29 potential CSFs, using an electronic voting system in which they could give an opinion about the factors whether they must be kept or removed from the list. The possible answers were:

1. *must* be removed
2. should be removed
3. no view
4. should be kept
5. *must* be kept

After each voting round on a factor there was the possibility to have a discussion on that factor. The data collection resulted in a quantitative part (the voting) and a qualitative part (the discussion). This resulted in an even shorter list of Critical Success Factors.

This shorter list of potential CSFs was then checked against (a) our case studies and (b) five other schemes of success factors, benchmarking and quality.

1. Megatrends (already discussed) is the main study on large-scale virtual campuses done before Re.ViCa. Its final list of factors is quite short, though its earlier draft lists were very long. It has several lessons for us.

2. PBP-VC (already discussed) is the main study on consortia-based virtual campuses done before Re.ViCa. It has a strong focus on quality issues and on good practice for managing

consortia rather than single institutions, but among the details there are a few lessons for Critical Success Factors in the consortial area.

3. UNIQUe is a scheme for quality/accreditation in e-learning originally developed by a consortium involving EuroPACE. In some ways it is parallel to E-xcellence though it is possibly more oriented currently to on-campus and blended uses of e-learning. Despite many of the criteria being more focused on quality, there are some lessons to be learned, including on rewriting certain Critical Success Factors.

4. E-xcellence (already briefly mentioned) is a scheme of benchmarking/quality for e-learning developed in 2005-2006 by a consortium led by EADTU. It is often felt to still be most relevant to distance teaching organisations, although work is now underway to extend its reach. It has earlier been taken into consideration for our CSF work but this work was rechecked.

5. The OBHE scheme was used for three rounds of UK benchmarking and a later desk exercise on international benchmarking. Its approach is typical of a number of European schemes.

Three of these cross-correlations – the technical name is concordances – are summarised in an Annex (not in this Handbook).

Finally, related activity on benchmarking/quality of e-learning in the UK, especially with the Pick&Mix system (which itself had undergone concordance with several other benchmarking schemes across the world) had generated some comments on criterion wording and also some new criteria, which were taken into consideration.

These pieces of work led to 19 criteria (potential CSFs) that received very serious attention. Of these, eight were potential new criteria altogether. In particular there were three criteria related to collaboration that needed more detailed attention – which we provided, drawing on the experience of PBP-VC.

Acting on earlier feedback and intense debate on whether some Critical Success Factors were indeed critical for all types of virtual campus, it was finally decided to split the list of Critical Success Factors into two parts:

1. A list of 17 Critical Success Factors relevant to success of e-learning in *all types of virtual campus*.

2. A list of 14 Key Success Factors - these are Critical Success Factors relevant to success of e-learning in one or more *subsets* (categories) of virtual campus – such as private for-profit providers, consortia, etc.

The tables for these are given in the next section.

THE RE.VICA CRITICAL SUCCESS FACTORS TABLES

First, we make some remarks about how we represent Critical Success Factors. All such factors are taken from a broader scheme of benchmarking, Pick&Mix – whose earlier release (2.0, as used for Phase 2 and Gwella benchmarking in the UK) was enhanced to encompass the Critical Success Factors which were new to the scheme. Each factor has a concise description (second column). Each factor also has a name (first column), a three-letter code and a number (01 to 99). Earlier work over several years made it clear that despite their apparent lack of meaning, the *numbers* were the identifiers for factors that UK audiences found most useful – they did not at all like the codes and they seemed not very keen on the names. Thus we make no apology for including the numbers, but defer to some sensibilities by putting the numbers in the final column, not the first, as is traditional for Pick&Mix.

CSF NAME	CRITICAL SUCCESS FACTOR DESCRIPTION	CODE
Usability	All systems usable, with internal evidence to back this up.	04
e-Learning Strategy	Regularly updated e-Learning Strategy, integrated with Learning and Teaching Strategy and all related strategies (e.g., Distance Learning, if relevant).	06
Decisions on Projects	Effective decision-making for e-learning projects across the whole institution, including variations when justified.	07
Training	All staff trained in VLE use, appropriate to job type – and retrained when needed.	10
Costs	A fit for purpose costing system is used in all departments for costs of e-learning.	12
Planning Annually	Integrated annual planning process for e-learning integrated with overall course planning.	13
Technical Support to Staff	All staff engaged in the e-learning process have "nearby" fast-response technical support.	16
Decisions on Programmes	There is effective decision-making for e-learning programmes across the whole institution, including variations when justified.	19
Leadership in e-Learning	The capability of leaders to make decisions regarding e-learning is fully developed at departmental and institutional level.	22
Management Style	The overall institutional management style is appropriate to manage its mix of educational and business activities.	29
Relationship Management Upwards	The institution has effective processes designed to achieve high formal and informal credibility with relevant government and public agencies overseeing it.	35

CSF NAME	CRITICAL SUCCESS FACTOR DESCRIPTION	CODE
Reliability	The e-learning system is as reliable as the main systems students and staff are used to from their wider experience as students and citizens.	53
Market Research	Market research done centrally and in or on behalf of all departments, and aware of e-learning aspects; updated annually or prior to major programme planning.	58
Security	A system where security breaches are known not to occur yet which allows staff and students to carry out their authorised duties easily and efficiently.	60
Student Understanding of System	Students have good understanding of the rules governing assignment submission, feedback, plagiarism, costs, attendance, etc. and always act on them.	91
Student Help Desk	Help Desk is deemed as best practice.	92
Student Satisfaction	Frequent (ideally annual) Student Satisfaction survey which explicitly addresses the main e-learning issues of relevance to students.	94

The Key Success Factors are listed in the same way (below), except that there are different factors that apply to the six different genres (types) of institutions that we have considered.

FACTOR NAME	CRITICAL SUCCESS FACTOR (LEVEL 5 STATEMENT)	CODE	TYPES OF INSTITUTIONS
Collaboration for e-Learning	The institution has a reasoned approach to collaboration at various levels to gain additional benefit from sharing e-learning material, methodologies and systems.	24	Consortia National initiatives
Brand Management	The institution has a reasoned approach to managing its brand	25	For-profits
Worldware for Students	Students can on the whole make use of widely used hardware and software thus minimising cost and support issues	32	National initiatives Evolution of existing institutions
Recruitment of Staff	The institution has effective processes designed to attract, for appropriate roles, employees enthusiastic about e-learning	34	Newly created institutions
Pricing	The institution has effective processes which ensure that the prices of its courses are competitive yet sustainable.	36	For-profits Public institutions (maybe)

FACTOR NAME	CRITICAL SUCCESS FACTOR (LEVEL 5 STATEMENT)	CODE	TYPES OF INSTITUTIONS
Innovation Management	The institution has a balanced approach to encouraging innovation and innovators within the constraints of delivering effective services attractive to students.	37	Evolution of existing institutions
Consortia No-Compete	The consortium has taken steps to ensure that issues of competing with its members are resolved	41	Consortia
Consortia Roles Definition	Each member of the consortium has a reasoned, evidenced and documented approach to collaboration with partners.	42	Consortia
Consortia Role Implementation	Each member of the consortium implements the collaboration role it agreed with its partners.	43	Consortia
Foresight	Both look-ahead and lab, working in concert; at least one of these should be a sector leader.	55	Public institutions
Selling	Widespread skill in selling e-learning and the theory to support the skills.	56	For-profits Public institutions (maybe)
Competitor Research	The institution has processes to carefully analyse the relationship of each proposed e-learning offering to existing providers and stakeholders.	59	For-profits Public institutions (maybe)
Dissemination Internal	A systematic managed process of internal dissemination of good practice in e-learning aspects of courses is in place.	82	Evolution of existing situations
Organisational Learning	Institution is a learning organisation on all core aspects of e-learning.	99	For-profits

It should be remembered that the Critical Success Factors and Key Success Factors are drawn from a much larger scheme of benchmarking/quality for e-learning based on an updated version of Pick&Mix. This makes it easy to promote (from the benchmarking layer of the pyramid) or demote (back to benchmarking) Critical Success Factors and Key Success Factors, as further case study and country report information becomes available. It also makes it easy to select Key Success Factors for various kinds of e-learning not covered – in particular distance e-learning.

A spreadsheet for the scheme is available. In fact the latest stable beta of Pick&Mix is always available on the web. It should be noted that in benchmarking the factors are usually numbered in the form Pnn (P for Pick&Mix) but for Re.ViCa Critical and Key Success Factors they are usually numbered Rnn (R for Re.ViCa).

How an Institution Can Check its Status Against the Critical Success Factors

There are two methods by which an institution can check how well it is conforming to the Critical Success Factors – the Case Study (narrative) method and the Benchmarking method. The first is more straightforward but gives less information suitable for comparative purposes.

In the case study method, the institution produces a narrative report – rather similar to the way it would prepare a case study under various headings such as for Re.ViCa – or indeed a report for a quality review. To prepare the narrative it would consult the key documents in the area and possibly interview key staff with responsibilities covering the area. Such procedures are very familiar now from quality reviews.

We asked our case study institutions to produce such narratives for us. For reasons of confidentiality and conciseness the reports are not complete, focus on CSFs only and are limited to one paragraph per institution for each factor – but there is enough information so that readers can gain a good idea of how the process works.

Critical Success Factors

R06 e-Learning Strategy
Regularly updated e-Learning Strategy, integrated with Learning and Teaching Strategy and all related strategies (e.g. Distance Learning, if relevant).
The psycho-pedagogic model of **UNINETTUNO** was realised by Maria Amata Garito and it is the outcome of her research work and experimentation developed since 1993 with NETTUNO – Network per l'Università Ovunque. The results of this research represent the theoretical bases upon which the new organisational models of the distance teaching and learning system and of the new psychopedagogic and didactic models were realised. **Hibernia College** is a dedicated e-learning provider and have in place an explicit e-learning strategy which includes information about how the prescribed teaching strategy results in effective learning. All academic staff has to participate in a training course which includes ensuring their compliance with the principles and practice of this strategy as well as how it is implemented within the structure of Hibernia's courses. **OU-NL** has *a clear and also long term e-learning strategy*. First of all students are at the core of their educational system. Students themselves determine where, when and at what pace they will work through their programme, so that they can find the right balance between studying and their work, their family and their hobbies. The Open University helps by offering students their own space within an advanced electronic learning environment. By 2009 the **OUNL** wants to be a genuine Internet university. They capitalize on the opportunities that the Internet offers in education and for their students, much more than is now the case. Their aims? Online tutoring, online testing, quality assurance, and multimedia. Wherever possible, tutoring, testing, information and counselling will take place online within just a few years time. By 2014 at the latest, they expect their students and staff to have their own personal digital learning and working environment that they can set up to suit their own wishes and requirements. Ultimately, the OUNL wants to be able to describe its selves as a provider of multimedia, interactive distance education in which both the Internet and traditional printed books play an important role. An

open channel to flexible and innovative education.

UEF: At the moment, there is no such strategy. However, the first E-learning Strategy of UEF as well as the Learning and Teaching Strategy will be completed during year 2009. In the new university, the role of e-learning will be crucial, when the new university has to rationalize its teaching practices in those schools/departments where academic programs are co-organized on two campuses. Since some of the academic programs will be run simultaneously on two campuses, online learning and broadcasting of lectures and other teaching scenarios will most likely become a standard way of delivering courses. Equally critical will be to make programs and courses offered on one campus only accessible to students on other campuses through distance and online delivery. The university is currently developing its infrastructure, teaching processes, and e-learning tools and environments to support more extensive use of e-learning. The compilation of the first E-learning Strategy is also part of this work.

R07 Decisions on Projects

Effective decision-making for e-learning projects across the whole institution, including variations when justified.

Although there is an overall standard for e-learning software (**OU-NL** uses Blackboard as an electronic learning environment), in the end the choice of pedagogies and technologies is a responsibility of each different school (for example the school of psychology uses Moodle). Decisions on e-learning projects which are made by the overall institutional management provide enough space for different opinions and individual choices. For example, the faculty is supported by a diverse and large offering of instruments and technologies (like WEB 2.0 software), which is decided on a general management level. But faculty can combine their own tools in a media-mix.

R10 Training

All staff trained in VLE use, appropriate to job type – and retrained when needed.

UNINETTUNO: In the proposed psycho-pedagogic model, the student is at the centre of the educational process, guided by the new profile of the professor – telematic tutor – who represents a guide and a constant presence during the learning process. Every year, the UTIU, after the tutors' appointment, organises training courses to make the staff acquire specific skills. Tutors are selected by the area professors and chosen among doctor's degree candidates, researchers, study grant holders and experts in the subject. Tailored training is aimed at making them acquire a range of skills that can be grouped into five main areas: Specific disciplinary skills; Specific professional skills; Organisational skills; Communication and relational skills; Pedagogic and didactic skills. The use of ICT tools transforms traditional didactic communication. In the new didactic model, the professors have to learn a new way of explaining, synthesising and presenting his knowledge to a virtual student in order to trigger a critical and reflective learning process. The video lesson requires a specific preparatory work and, in order to exploit all the potentials of the tools, the professor has to work with a team of technicians and experts in language of image. We calculated that each hour of video lesson requires from twenty to thirty hours of preparatory work. This, of course, develops in the professors new communication skills and the use of new languages that area used also to store the results of their own research work. This new training experience has an impact on the way they deliver their lessons also in their traditional academic courses.

Hibernia operates with a small dedicated full-time staff and about 300 part-time academic staff who are

paid on a pro-rata basis. Academic staff are chosen based on their subject area knowledge and qualification and then have to take part in a training course as mentioned earlier which covers both Hibernia's e-learning strategy as well as the tools and learning services in use. This includes training in HELMS, Hibernia's proprietary LMS and the other tools and systems in place.

OU-NL has regular meetings on innovative e-learning issues. They have their own journals in which best practices are published (see http://www.ou.nl/eCache/DEF/15/152.html in Dutch language). They organise training sessions for faculty, whenever new software or new educational technology is implemented. There is a training programme in didactical skills for faculty.

UPM has a department called GATE, Gabinete teleeducación, this department is responsible for teacher training, GATE provides the necessary support services to the teachers of the University offering a team that will provide resources and training needed to teach in online distance education via videoconferencing or Moodle for example. There are 20 online courses to teach teachers and administration staff. There is also a virtual community for teachers where they can work together, exchange experiences and knowledge, based on web 2.0. Every teacher that is interested in designing an online course gets a 80 hour training package in order to help him to design online learning materials.

The Learning Centre of **UEF** will be responsible for providing training in e-learning to both students and staff. The following training programmes are available for the staff: University Pedagogy (25 ECTS) and E-learning (20 ECTS). All staff members are encouraged to educate themselves. However, in the end, the development of technical and pedagogical skills lies in the hands of individual staff members and their own activity. In the new university, there will be three campuses hundreds of kilometres apart from each other with fairly low number of students and teachers at each site. So the use of e-learning will be crucial, if the university wants to rationalise its teaching delivery and create new learning opportunities. Thus, the aim is that all staff members will be proficient in using e-learning in their courses at least to some extent.

R16 Technical Support to Staff
All staff engaged in the e-learning process have "nearby" fast-response technical support.
The support of the **KU Leuven Association**'s virtual learning environment is based on a layered support model. The Advisory board makes decisions for the whole Association and consists of 1 representative from each institution, 1 representative from the Toledo Team and the ICT-coordinator of the Association. The Toledo Team is the project leader. They supply both technical support (Hardware and Applications) and didactical support. They create the help desk and the Toledo support courses for the K.U.Leuven staff and local administrations of the other partner institutions. The Toledo Team also creates the data Integration, Building Blocks and bridges. Each institution has their own local administrators who are supported by the Toledo Team. **OU-NL** has a one-stop technical help desk. Employees can visit the help desk physically and virtually. Every problem or question is categorised. Help desk employees make visits on the workfloor and come to the individual offices to solve technical problems. The Learning Centre of **UEF** will provide a number of e-learning services to the staff, one of them being (centralised) technical support.

R22 Leadership in e-Learning

The capability of leaders to make decisions regarding e-learning is fully developed at departmental and institutional level.

OU-NL tries to be a frontrunner in open higher distance education and tries to be a leader in educational innovation (the innovation, development and implementation of new technologies and new educational insights), also on an international scope. Leadership in e-learning became obvious after the first phase of institutional development: the Open University came in a more mature phase in 1995 and its innovative targets were reformulated and more pinpointed towards innovation of higher education, meaning innovation of its own curriculum but also from other higher educational institutes in the Netherlands. Nowadays it is a leader nationwide. The OUNL tries also to share their expertise worldwide. Increasingly, they are trying to build long-term relationships with foreign partner institutes and companies, wherever possible in the form of strategic alliances. In fact, they have joined forces in the field of teaching, research and innovation with universities around the world, frequently in projects belonging to European programmes. The Open University of the Netherlands is also a leading member of EADTU (European Association of Distance Teaching Universities), in which open universities and institutions for distance teaching in Europe work together on projects and in task forces to develop business models, quality assurance, lifelong learning, multilingual open resources, cross-border virtual entrepreneurship, and virtual mobility. The capability of leaders to make decisions regarding e-learning is not fully developed at every level of the organisation. For that, management sessions are frequently organised and awareness raising and competency development on the topic of e-learning has always a high priority.

R35 Relationship Management Upwards

The institution has effective processes designed to achieve high formal and informal credibility with relevant government and public agencies overseeing it.

UNINETTUNO: The International Telematic University UNINETTUNO takes origin from the experience of Consorzio NETTUNO and benefits from its know-how that was acquired in over 15 years of practice in the field of distance education and e-Learning. Consorzio NETTUNO was established in 1992 in the form of a nonprofit association, promoted by the Ministry of Education, University and Research, and it united 43 universities to important companies such as Telecom Italia, IRI, RAI, CONFINDUSTRIA with the purpose of realising Distance University Degree Courses. When established, the UTIU took advantage also from the European Project Med Net'U, Mediterranean Network of University, from which it derives a marked Euro-Mediterranean characterisation. UTIU internationality is fundamental characteristic that which permeates all the didactic and research activities and the academic ones as well. The International Telematic University UNINETTUNO is based on a close cooperation with traditional universities, Italian ones and also European, of the Arab World, of the United States, Latin America ones and at present it is concluding new agreements with universities of China, Russia and Africa. The alliance of university institutions of many countries of the world allows supplying wider and more diversified offers as it regards the teaching staff and the subjects and educational contents as well.

Hibernia has had to invest considerable efforts in achieving accreditation from the Irish national accreditation agency, HETAC against a background of suspicion and sometimes downright hostility among the traditional higher education sector in Ireland. The first accreditation by HETAC took place in 2002 and a further quality assessment was carried out in 2004. The next round of accreditation takes place in 2009 and Hibernia has in-place considerable processes and procedures aimed at ensuring the college again succeeds in achieving approval for its courses from HETAC. Furthermore, partnership is fundamental to

the ethos of Hibernia and they have been very careful to put in place appropriate partnerships with credible and established agencies and organisation with established reputations in the specific field of study Hibernia enters. This is part of a deliberate strategy to enhance Hibernia's credibility and acceptance among students and stakeholder communities generally.

UEF: At least they are well-rehearsed in the annual so-called target-outcome negotiations between the university management of UEF and the Ministry of Education

R58 Market Research

Market research done centrally and in or on behalf of all departments, and aware of e-learning aspects; updated annually or prior to major programme planning.

Given the nature of its structure and objectives, **Hibernia** only enters markets which it has already investigated fully in terms of demand for courses and learning opportunities. The first course offered by Hibernia, the Higher Diploma in Arts in Primary Education (HDAP) came about in response to an explicit and documented need on the part of non-qualified Irish primary school teachers for a diploma that they could study for in a flexible and part-time manner. Research is always carried out into potential markets along the same lines to establish the real demand for such courses.

OU-NL has a department for marketing research and branding. Research is mainly focused on target groups and impact of marketing campaigns.

R94 Student Satisfaction

Frequent (ideally annual) Student Satisfaction survey which explicitly addresses the main e-learning issues of relevance to students..

UNINETTUNO: In order to evaluate and assure the high-quality standards to the Italian university system, in compliance with the Law n° 370/1999 it was established a National Committee for the Evaluation of the University System. This Committee is an institutional body of the Ministry of the University and Scientific and Technological Research. According to the above-mentioned regulations, the International Telematic University UNINETTUNO appointed its own Board of Evaluation, composed of experts in evaluation procedures coming from the academic environment and from the non-academic one as well. The Board is engaged in evaluating the educational, training and administrative activities and carries on regular surveys on the students' opinions and students' satisfaction. The student opinion survey carried out on the 2006/2007 academic year registers on average a high level of satisfaction with the organisation of the degree courses and the online didactics, with decidedly high percentage. Of considerable significance are the evaluations of the video lessons, exercises and efficacy of online tutoring, these representing the specific tools of the University and not usually found in traditional universities. Such instruments were available in academic year 2006/2007 in already consolidated form. The relevant evaluations are decidedly positive, being around 80-90% in all the Faculties.

Next to their own frequently held student satisfaction surveys, the **OU-NL** takes part in a nationwide annual survey. It is always in the top of the yearly ranking. Students at the OUNL are in general highly satisfied about the content, tutoring and e-learning support.

KEY SUCCESS FACTORS

The case study for Key Success Factors is available on request.

CRITICAL SUCCESS FACTORS – THE BENCHMARKING APPROACH

A more thorough approach than the case study approach is to take a benchmarking approach. This uses the feature that the Critical Success Factors and Key Success Factors are embedded in a benchmarking scheme – Pick&Mix – where each factor can be "scored" at one of six levels.

Note that benchmarking schemes other than Pick&Mix could be used as the "host", but the Critical Success Factors have to be integrated into the scheme in order for them to avail themselves of the scoring aspects of the scheme. In the exploitation phase of Re.ViCa this integration is likely to be considered for schemes like UNIQUe and E-xcellence.

The table below shows the principles. For simplicity and compactness we ignore level 6 (this is the "excellence" level, the one beyond "good practice") and take just a small subset of 10 CSFs. The principles are the same for the full schemes of Critical Success Factors and Key Success Factors – however, some further work is needed during the exploitation phase to agree scoring statements for a few of the very new criteria. (This has to be done for the Distance Learning Benchmarking Club of seven institutions that is now active across four countries.)

Nr	**06**
Criterion Name	e-Learning Strategy
Level 1 Statement	No e-Learning Strategy. No recent Learning and Teaching Strategy.
Level 2 Statement	Some mention of e-learning within the Learning and Teaching Strategy.
Level 3 Statement	e-Learning Strategy produced from time to time, e.g., under pressure from Funding Council or for particular grants.
Level 4 Statement	Frequently updated e-Learning Strategy, integrated with Learning and Teaching Strategy and perhaps some others.
Level 5 Statement	Regularly updated e-Learning Strategy, integrated with Learning and Teaching Strategy and all related strategies (e.g., Distance Learning, if relevant).

Nr	**07**
Criterion Name	Decisions on Projects
Level 1 Statement	No uniformity in decision-making regarding e-learning projects – "each project is different".
Level 2 Statement	Decision-making at department level.
Level 3 Statement	Decisions on e-learning projects get taken but some take a long time or may be contested even after the decision is taken.

Level 4 Statement	Effective decision-making for e-learning projects across most of the institution.
Level 5 Statement	Effective decision-making for e-learning projects across the whole institution, including variations when justified.

Nr	**10**
Criterion Name	Training
Level 1 Statement	No systematic training for e-learning.
Level 2 Statement	Some systematic training for e-learning, e.g., in some departments..
Level 3 Statement	Institution-wide training programme set up but little monitoring of attendance or encouragement to go.
Level 4 Statement	Institution-wide training programme set up with monitoring of attendance and strong encouragement to go.
Level 5 Statement	All staff trained in VLE use, appropriate to job type – and retrained when needed.

Nr	**12**
Criterion Name	Costs
Level 1 Statement	No understanding of costs of e-learning in any departments.
Level 2 Statement	Understanding of costs of e-learning in some departments.
Level 3 Statement	Understanding of costs of e-learning in most departments.
Level 4 Statement	Good understanding of costs of e-learning in most departments.
Level 5 Statement	Activity-Based Costing or a system with equivalent functionality being used to some extent in all departments for costs of e-learning.

Nr	**16**
Criterion Name	Technical Support to Staff
Level 1 Statement	No specific technical support for the typical (unfunded) person engaged in e-learning.
Level 2 Statement	A few staff engaged in the main e-learning projects are supported by technical staff.
Level 3 Statement	Key staff engaged in the main e-learning projects are well-supported by technical staff.
Level 4 Statement	Most staff engaged in the e-learning process have “nearby” technical support.

Level 5 Statement	All staff engaged in the e-learning process have "nearby" fast-response technical support.

Nr	**19**
Criterion Name	Decisions on Programmes
Level 1 Statement	No uniformity in decision-making regarding e-learning programmes – "each programme is different".
Level 2 Statement	Decision-making at meso level (school, department, faculty, etc.) for most e-learning programmes.
Level 3 Statement	Decisions on e-learning programmes get taken but some take a long time or may be contested or ignored after the decision is taken.
Level 4 Statement	Effective decision-making for e-learning programmes across most of the institution..
Level 5 Statement	Effective decision-making for e-learning programmes across the whole institution, including variations when justified.

Nr	**22**
Criterion Name	Leadership in e-Learning
Level 1 Statement	Leaders play no role in decisions affecting e-learning.
Level 2 Statement	The capability of leaders to make decisions regarding e-learning is moderately developed at department level but not institutionally.
Level 3 Statement	The capability of leaders to make decisions regarding e-learning is moderately developed at departmental and institutional level.
Level 4 Statement	The capability of leaders to make decisions regarding e-learning is adequately developed at departmental and institutional level.
Level 5 Statement	The capability of leaders to make decisions regarding e-learning is fully developed at departmental and institutional level.

Nr	**58**
Criterion Name	Market Research
Level 1 Statement	No market research done except centrally for the institution, with no reference to e-learning.
Level 2 Statement	Market research done centrally and in or on behalf of a few departments, and aware of a few e-learning aspects.

Level 3 Statement	Market research done centrally and in or on behalf of some departments, and aware of some e-learning aspects e.g., on major programmes; updated from time to time.
Level 4 Statement	Market research done centrally and in or on behalf of most departments, and aware of many e-learning aspects.
Level 5 Statement	Market research done centrally and in or on behalf of all departments, and aware of e-learning aspects; updated annually or prior to major programme planning.

Nr	**91**
Criterion Name	Student Understanding of System
Level 1 Statement	Students have little understanding of the rules governing assignment submission, feedback, plagiarism, etc – perhaps because the rules are not clear or clear but not enforced.
Level 2 Statement	Students have some understanding of the rules governing assignment submission, feedback, plagiarism, etc and usually act on them.
Level 3 Statement	Students have reasonable understanding of the rules governing assignment submission, feedback, plagiarism, etc and usually act on them.
Level 4 Statement	Survey done every year which contains many of the most relevant e-learning questions
Level 5 Statement	Annual Student Satisfaction survey which explicitly addresses the main e-learning issues of relevance to students.

Nr	**94**
Criterion Name	Student Satisfaction
Level 1 Statement	No attempt made to measure this.
Level 2 Statement	Survey done occasionally which contains some relevant e-learning questions
Level 3 Statement	Survey done every few years which contains some relevant e-learning questions
Level 4 Statement	Survey done every year which contains many of the most relevant e-learning questions
Level 5 Statement	Annual Student Satisfaction survey which explicitly addresses the main e-learning issues of relevance to students.

The preferred type of engagement approach used in benchmarking is not quite the same as some institutions are used to from national quality bodies. The version is called "The Iterative Self-Review Process" with use of expert moderators. It has four distinctive features.

1. It encourages a more senior level of participation from the institution: the result is "theirs", not the moderators.

2. It allows them to get comfortable over time with the criteria as they apply to their institution.

3. It helps them move *directly* to implementation of change.

4. However, it requires more effort from moderators, and more than one meeting (face-to-face or virtual) with them.

Typically there would be five meetings held at an institution. These are described below. It is helpful if the moderator can attend at least the first meeting, the scoring meeting and the reflection meeting (if any).

For more details of benchmarking readers are referred to one or more of the case studies of this process – of which we particularly recommend the public report from the University of Worcester.[13] For more general descriptions of benchmarking and its links to quality, etc., see the papers by Bacsich. [14] [15]

Introductory Meeting

This meeting sets the scene for the benchmarking. Institutions will agree what particular Critical Success Factors they will consider – it is best if they use all 17. They should also agree which other criteria to consider – in particular, whether to consider the appropriate set of Key Success Factors for their genre of distance learning. In some countries (England, Wales, Australia, Sweden) there are national indicators for e-learning and institutions often wish to ensure coverage of these by the criteria they choose – in particular in England and Wales, it is normal to choose the full set of the first 20 criteria (called the UK Core Criteria).

Institutions will also consider which "slices" of the institution to benchmark – in addition to benchmarking the complete institution. Typically if there are five or fewer major groups (like faculties), all are benchmarked – if there are more, some selection has to be made. There is often value in choosing a particular genre of e-learning (in particular distance e-learning) as a virtual slice to benchmark.

Consideration also needs to be given to where the evidence can be found. Does the institution have good documentation? (Lack of documentation is a particular problem with recently merged institutions.) Does it have managers who are supposed to be in charge of the various functions and have deep knowledge of them? Will specific interviews be needed? Is there a committee, task force or informal network of e-learning coordinators and/or experts across the university who can be consulted? If student and staff surveys have not been done recently, should these be done? Can the institutional VLE deliver useful statistics on usage?

Mid-process Meeting

It is very useful to have a meeting mid-way through the project in order to adjust the plan and schedule if unforeseen difficulties have arisen – either external factors (change of government, or proposed merger, etc.) or internal factors (loss of key staff, delays in ethics clearance of surveys, etc.)

Scoring Rehearsal

The scoring rehearsal is as vital as the dress rehearsal is in a theatre play. This is the opportunity to build consensus on scoring the criteria and also to chase up last-minute gaps in evidence. Lively debate on scores is not a bug, but a feature: different faculties will have different experiences of e-learning – and academics in faculties will have a different view of central services from those who provide the service. The aim is to agree a consensus score on each criterion for each faculty (or other slice) and (harder) a consensus score for the institution for each criterion. In particular, at this stage half-marks are allowed – e.g., 4.5 – this device of "tradecraft" resolves many clashes.

The scoring process and associated debate is one of the key reasons why it is not feasible to process more than about 30 criteria in this style of benchmarking.

Scoring Meeting

The scoring meeting is like the rehearsal but "for real". It should be chaired by a senior manager of the institution (e.g., pro vice-chancellor, vice-rector, assistant principal) and have full administrative support.

It is now common to use electronic voting for the scoring meeting – this allows anonymous voting and is particularly useful when the chair of the meeting is very senior and/or there are several rival vested interests in the room. At the final scoring meeting all half-marks *must* be "quantised" to the nearest whole mark above or below.

It is strongly recommended that the moderator takes *no part* in the voting, but takes a *full part* in the debate. Because the moderator is an expert, it is normal that the moderator will be asked to judge on tricky matters of interpretation of criteria, including how other institutions have interpreted them.

Reflection Meeting

Not every institution has a reflection meeting but those that do have it all find it very valuable. The format is that the institution considers each criterion in turn and reflects on whether the institution should take forward a process to increase its score – and if so, how, and with what urgency and resources.

CARPETS

When this analysis is done in a cohort, some effective comparisons can be made – using "carpets". As a real example, below is the carpet of the eight UK Core Criteria which are Critical Success Factors, taken from nine institutions in UK Phase 2 benchmarking. It is immediately and visually obvious that the institutions still have much to do in the area of costing e-learning (Factor 12) and that the adequacy of Decisions on Programmes (new courses) is in slightly poorer condition than Decisions on Projects (IT, VLE etc.). This carpet is a public document, but as usual the institutions are anonymous.

#	*Criterion name*	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*Av*
04	Usability (of the e-learning system)										2.5
06	e-Learning Strategy										3.9
07	Decisions on Projects										3.4
10	Training (staff development)										3.1
12	Cost (analysis approaches)										1.4
13	Planning Annually										2.7
16	Technical Support to Staff										3.3
19	Decisions on Programmes										2.7

Key	Red (1,2)	Amber (3)	Olive (4)	Green (5, 6)

It is now traditional to have six levels but only four colours, as noted in the key above.

MOVING TO CHANGE

The purpose of Re.ViCa is to identify a modern set of Critical Success Factors: it was not to build them into a scheme for putting them into practice, piloting this with institutions over several years, ensuring step-change and then evaluating the results – that would be a new project – and an exciting one. However, some institutions have asked now for recommendations in this area, so that we have produced some short notes on this topic.

Despite Re.ViCa not recommending a specific approach to change management, there are a number of approaches that, looking at the evidence, we encourage institutions to consider. These include Business Process Re-engineering, the MIT90s approach, the US approaches associated with Carol Twigg at NCAT, methodologies associated with Tony Bates (a member of our IAC), and the *Carpe Diem* approach associated in particular with Professor Gilly Salmon (a member of our IAC). In addition there is some earlier work of Bacsich and Karran (another member of our IAC) which could be brought up to date.

BUSINESS PROCESS RE-ENGINEERING

In the 1990s a number of e-learning experts including Professor Paul Bacsich in the UK and Professor Betty Collis in the Netherlands proposed transformative approaches to campus-based education based on *business process re-engineering* (BPR) – a concept first introduced in the early 1990s by Michael Hammer and James Champy.[16] The originators described it as

> the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality, service, and speed.

BPR ideas were popular in the heyday of the virtual campus in the late 1990s, part of the ferment which in the UK led to UKeU and the Interactive University – and some e-learning experts were encouraged by their institutions to put them into practice – though many e-learning experts were more sceptical. Since then there has been disenchantment in academia with the forceful BPR approach to change management, but many references to BPR are still extant – only time will tell whether in harsher economic times such ideas may return. They never really went away in industry – just became less strident.

MIT90S

MIT90s was first developed in the early 1990s by a group at MIT (Massachusetts Institute of Technology), and then applied to IT-induced transformation of US corporate organisations. It was later applied to the education sector, in Australia especially but also New Zealand. It became central in the UK to a number of JISC and related studies (including from ministries) on adoption and maturity in schools and the college sector. The approach remains attractive to a number of experts in information systems departments of universities interested in theories of IT-induced change. It has provided a useful contextual scheme for benchmarking and is a gentler framework for academic transformation than BPR was or is.

In universities, MIT90s was used for benchmarking e-learning, by the University of Strathclyde in 2006, and in 2007 (after substantial reworking) by a consortium of four universities: Bradford, Brighton, Thames Valley University, and the University of Glamorgan in Wales.

One key notion of MIT90s is the idea of categories under which an institution can be analysed: these include external environment (this one is often ignored); organisational strategy; individuals and their roles (leaders, staff, students); organisational structures; technology; and management processes. These categories form the basic classification for the case study template used in Re.ViCa. They are also built into the Pick&Mix benchmarking system and are thus inherited by the Re.ViCa Critical and Key Success Factors.

The other key notion is that of the five "transformation levels" which forms the basis of the scoring schemes used in Pick&Mix and several other schemes – including what we proposed in the last section for benchmarking Critical Success Factors.

Some critics say that MIT90s is good for *analysing* change, but not very good for engendering or *fostering* change. There is a literature survey[17] on MIT90s from which readers can make up their own minds.

Academic Transformation

A particular approach to academic transformation was pioneered by a team in the USA under the direction of Carol Twigg, with funding from the Pew Foundation. Later, the National Center for Academic Transformation was set up, with Carol Twigg as the Founding Director. The methodology was taken seriously by the relevant ministry in England but in the end it was decided not to go ahead with a trial. However, in Scotland, the approach was more directly taken up in the Scottish Transformation Programme, although the extent to which this followed a strict Twigg model is a subject of some debate:[18]

> The scale of these two programmes [Transformation and Pathfinder] is comparable to the Pew Grant programme in course redesign in USA higher education, which claimed both improved learning and reduced costs through the introduction of technology enhancements. This paper considers how these claims influenced the UK initiatives, and how divergent strategic considerations led the national programmes to be defined differently. A conclusion is that the way the initiatives were framed has influenced their outcomes. However, both programmes have succeeded in building a cross-institutional level of capacity development that offers a policy direction for the future.

Despite a number of setbacks and false starts outside the USA, the ideas of Twigg surface from time to time in various ways.

Tony Bates

Since 1999, Tony Bates has published several standard text-books on the challenges of managing institutional change engendered by distance learning and e-learning: from *Managing Technological Change* in 1999 through to *Technology, E-Learning and Distance Education* in 2005.[19, 20] Since he retired from the University of British Columbia he has been an advisor to several European and North American institutions featured in the Re.ViCa wiki, and a substantial contributor to IAC agendas. His blog is running a series of articles on the topic including a recent posting on 26 October 2009.[21]

Consequently his resources form a natural source of advice and guidance to implementers of step-change in institutions.

CARPE DIEM

Another approach to change management has been taken by those who decide to focus on staff development as a key to change (this is one of the "change trajectories" suggested by MIT90s). However, rather than putting on massive (and unsustainable) training courses for staff "just in case" – as was often the case in the richer institutions in the late 1990s and early 2000s – the approach is to put on targeted training events for small numbers of staff "just in time", the key time being just when curriculum update (and, hopefully, redesign in a more e-enabled way) is on the agenda for these staff. This brings the approach quite close to some of the JISC Curriculum Design projects.

The name Carpe Diem (Latin for "seize the day") for such an approach is closely associated with the name of Professor Gilly Salmon of the University of Leicester. A brief description follows, adapted from her web site.

Carpe Diem is a well-researched, well-rehearsed team-based model for promoting change in learner-centred e-learning design and assessment, institutional capacity building and innovation.

> *At the heart of Carpe Diem is a two-day workshop in which discipline-specific course teams, in collaboration with subject librarians and learning technologists, plan, implement and review student-centred e-learning designs, focusing on learner activity, group work and assessment for learning*. By the end of the second day, course teams have a blueprint and storyboard for their course, a set of peer-reviewed online learning activities (or e-tivities) running on their institutional virtual learning environment (VLE), a transferable model for e-tivity design and a practical action plan.

The Carpe Diem process comprises:

- **A pre-workshop meeting** for motivation and preparation. Our facilitator will meet with core members of the course team to clarify the aims of the course they intend to design for, explore what material already exists and what ideas the course team have agreed on.
- **The two-day Carpe Diem workshop:** The practical workshop involves a small course team in a single discipline (4 to 20 participants), a subject librarian and a learning technologist. The workshop takes place on two consecutive days, normally from 10 to 4.30. All team members must attend on both days. The workshop is run in a computer lab…
- **Follow-up meeting** to review the latest state of the online course with the course team, and fine-tune the work done at and since the workshop. This normally takes between half a day and one day. It is conducted in a computer room.

There are a number of other experts and institutions who adopt a similar approach, but few are as well-supported by research input as the one at Leicester.[22]

Work by Bacsich and Karran

There is another scheme for discussing change management that is due to Bacsich and Karran (Terence Karran is on the IAC also). [23]

It would not be difficult to update this and to correlate it with the Re.ViCa Critical Success Factors – if such a development were thought by our audience to be useful during the Re.ViCa exploitation phase.

Final Thoughts

The above summary of various approaches is brief and considers only the minimum set of approaches. In particular it does not consider the recent resurgence of interest in costs of e-learning and its relation to Critical Success Factors – in particular R12 "Costs". For more on this see Bacsich[24] (within the European context) and Laurillard.[25] The paper by Tony Toole[26] takes forward some of these ideas in a useful direction.

Apologies are also due to other eminent thinkers on change management, such as Stephen Ehrmann of the TLT Group, for not having space to consider their theories. In particular the TLT Group's recent espousal of "Frugal Innovation"[27] may have many lessons for the next decade.

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MAIN CONCLUSIONS AND LESSONS LEARNT

Investigating the evolution of the higher education area today is a complex and audacious expedition. We are without a doubt in the middle of a multifaceted transformation of the higher education landscape. We think of globalisation, privatisation, the reform in quality assurance, the changing dynamics of research and innovation, the strength of the Bologna Declaration and the influence of ICT on the organisations of our universities and colleges. In this handbook we have tried to review the impact of ICT, and in particular we have investigated one of its more notable features: the virtual campus phenomenon.

The historical overview showed us that term *virtual campus* really came into vogue when the European Commission and international policymakers started to use the phrase in the mid-1990s. The first experiences with the actual set-up of sorts of virtual campuses dates to around the same time, closely linked to the global breakthrough and expansion of the internet. Nowadays there seems to be a decline in usage of the term, but at the same time a continuing growth in the phenomenon.

We defined a *virtual campus* as a large-scale e-learning initiative, a working definition. At the same time we acknowledged the need to embrace instead of ignore the multicultural understanding and meanings of the concept worldwide, because these different interpretations are important to our understanding of the phenomenon's complexity.

We aimed to clarify the "marketspace", providing key actors with a better understanding of evolutions and trends within the higher education landscape.

We came up with a practical yet near-comprehensive mechanism to categorise the various types of virtual campuses. This has helped us begin to identify trends, measures of success, best practices and generic parameters that might influence future virtual campus outcomes.

The list of institutions inventoried and categorised as part of the Re.ViCa wiki is long: over 500 discrete programmes worldwide are currently represented, with new ones still being identified for inclusion. A world tour gives the reader an overview of key virtual campus initiatives around the globe. In order to provide a meaningful description these were represented according to region: from the European Economic Zone, to Russia, North America, South America, Australia and New Zealand, Asia and Africa, the whole world is covered. Furthermore, a discussion was initiated in this chapter about regional influences and factors that can have bearing in more general terms on the development of a virtual campus.

At the end we provide policymakers a practical tool to identify the factors that are critical to attaining a successful and sustainable virtual campus. Acting on feedback and intense debate, we came in the end to a list of 17 Critical Success Factors which are relevant to the success of e-learning in all types of virtual campuses, as well as a list of 14 Key factors relevant to the success of e-learning in one or more subsets of virtual campuses. The reader can examine how – through

either the case study method, or the benchmarking method – a higher education institution can check how well it is conforming to the Critical Success Factors.

All in all, with this handbook we seek to convince the reader that in order to be fully successful, one has to look beyond one's own country. In this respect we would like to summarise certain trends in the world, to enhance this openness and critical understanding of the virtual campus phenomenon.

We have noticed, for example, that many initiatives begin as pilots or projects, or through the establishment of specific programmes or institution-specific initiatives; and that most existing higher education institutions seem to follow a similar evolutionary path – there is rarely a shortcut, even though ministries and some rectors would like one.

There has been an increase in the amount of collaboration being undertaken by universities in the area of digital course provision, with newly formed alliances allowing for increased economies of scale. This has come about as a direct result of both government policy, and the institutions' desire for increased efficiency.

Virtual initiatives have often evolved in response to a rapidly increasing number of students, and the resulting demand for additional university seats. This is presently being experienced in some European countries, but it is more common in the developing world (Mexico, Kenya, South Africa, Pakistan, etc.), where a lack of physical infrastructure has forced universities to turn more and more to virtual campus-type strategies. However, this orientation also implies the need to invest in ICT infrastructure and to enhance connectivity – otherwise domestic students tend to go abroad, further adding to the devastating "brain drain" phenomenon in developing countries.

At the same time, in Europe – thanks in part to the Bologna Process – higher education institutions are focusing more on inclusion, lifelong learning and adult learning. All this has contributed to an expansion of virtual learning at higher education institutions. Traditional higher education institutions are orienting their course offerings more towards lifelong learners (and the changed needs of adult learners), who often are not located on campus and have to be reached from a distance, with flexible ICT-supported learning or blended learning methods. Virtual campus solutions allow us to reach segments of the population who, for various reasons, would not otherwise be able to access higher education. Countries are addressing this need to provide opportunities for lifelong learning in their policies, urging the higher education sector towards a broader and more open attitude towards learners. In developing countries, however, the link between lifelong learning and university education seems to be less clear cut, as there are numerous individuals involved in e-learning initiatives of one kind or another who are not linked to higher education institutions.

The influence of European policymakers has resulted in another remarkable trend. At the beginning of this century, several European governments provided generous state funding to set up large national programmes and initiatives. National information policy agendas were established, and encouraged the development of many virtual campus initiatives. However, the long-term impact and sustainability of these developments are now in question. This has been

the case in, for example, Denmark, France, Finland, the UK and Sweden. Most of these earlier initiatives have been closed down, and the activities related to organisations for distance education and flexible learning are decentralised as the responsibility of higher education institutions. However, in most of these countries there are support structures which are responsible for – for example – institutional infrastructure support and running development projects. In some cases this experience has also brought about the creation of thematic or regional networks or virtual-type initiatives.

The increased availability of open-source tools and services will also have an impact on the way in which virtual campus offerings of all kinds are made. In the past, a virtual campus could dictate (and in many ways control) the online learning environment selected and used by students. However, with the availability of diverse social networking tools and open-source services, students are increasingly unhappy to be "locked into" what can appear a rather old fashioned set of tools and services (many of which stem from late 1990s development work). Instead, they are demanding open and increasingly common tools, either identical or similar to the ones they use for their everyday communication needs. This development is having an impact on many aspects of virtual campus operations, including institutional control, security and management.

Quality Assurance of higher education is one of the key development areas in efforts to construct a European Higher Education Area (EHEA). Most countries or even higher education institutions themselves have their own systems of quality control, and Quality Assurance systems in place. It is only until recently that attention is being paid to setting up Quality Assurance systems expressly looking at virtual initiatives (thanks to for example European projects such as Excellence+ and UNIQUe and the work of EFQUEL, the European Foundation for Quality in e-Learning). In the past, Quality Assurance systems within academic institutions were focused primarily on traditional learning and in charge of traditional Universities Quality Assurance bodies, and the ICT component was often forgotten.

For-profit virtual campus initiatives tend to opt for content areas where there is a ready market for online courses. Some fields of study are not covered by virtual campus initiatives, and virtual offerings in higher education therefore tend to be oriented to a limited number of fields of knowledge, such as administration, management, economics and information technologies: those disciplines where the demand is high and which thus bring more money. These initiatives may be resented by other players in the region who have a broader range of courses and online learning opportunities.

Language is a key issue in the development of virtual campus initiatives, as it is important both in terms of providing access to a public outside the boundaries of a country, and in relation to possibilities for cooperation with other institutions and initiatives. Virtual campuses delivering content in major European languages such as English or French obviously have the advantage when expanding their market over languages such as Danish or Czech. Smaller countries or regions can offer "open university education" by working with other countries with open universities (e.g., the cooperation agreement between Austria and the German FernUniversität in Hagen). Having the same language facilitates and improves the prospects for cooperation. A different language strategy for overcoming linguistic and cultural bonds is to deliver courses in a

multilingual format. While Europe obviously faces specific challenges in relation to the language issues, it does not have a monopoly in this respect, as in Asia and other parts in the world similar challenges do exist.

Virtual campus activity worldwide is certainly of growing interest, despite a lack of consensus with regard to models, terminology or purpose. It is of particular interest to the educational research community who seek to identify common trends as well as opportunities and barriers with respect to the growth of virtual campuses worldwide.

While our inventory of virtual campuses does not claim to be fully comprehensive and is by its nature driven by the requirements and constraints of a short-term funded project, it certainly shows the rich diversity and educational significance of the virtual campus phenomenon. Virtual campuses can provide students with a real alternative to campus-based higher education, as well as enhancement to their on-campus opportunities. In a world facing an increased demand for higher education opportunities, the importance of virtual campuses should not be underestimated. Studies such as the one carried by the Re.ViCa team are a way to identify significant and timely trends, and help improve the ways in which virtual campuses operate. It is clear that the trends identified by the Re.ViCa team are of themselves already a useful step in helping others improve the performance of virtual campuses.

We hope and believe that this handbook will help avoid future situations whereby every new virtual campus proponent has to start from the beginning, by providing stakeholders with a validated and comprehensive view of the virtual campus landscape in Europe and beyond.

APPENDIX

GLOSSARY OF TERMS

Benchmarking: A process used in management and particularly strategic management, in which organisations evaluate various aspects of their processes in relation to best practice, usually within their own sector. This then allows organisations to develop plans on how to adopt such best practice, usually with the aim of increasing some aspect of performance.

Blended Learning: According to the dictionary definition, a mixture of various types of learning. Conventionally, one of the main ingredients in the mix is face-to-face instruction. In normal parlance (or what passes for normal among e-learning people) the term is used to mean a mix of face-to-face instruction and electronic techniques. The term *blended learning* became popular as a reaction against the pure e-learning attractive to analysts and dot-coms around the turn of the millennium, that is the complete lack of face-to-face instruction in a course offering. It seems now that the term is slowly going out of fashion again – but it is still popular with some thinkers.

Bologna Process: Process which aims to create a European Higher Education Area by 2010, in which students can choose from a wide and transparent range of high-quality courses and benefit from smooth recognition procedures. The Bologna Declaration of June 1999 has put in motion a series of reforms needed to make European higher education more compatible and comparable, more competitive and more attractive for Europeans and for students and scholars from other continents.

Ceased e-Learning Initiatives (CELIs)**:** Initiatives which – for reasons other than failure – are no longer active and have officially ceased to exist. These initiatives may come to a planned close due to a number of factors, including re-branding as (or merging with) another institution or initiative; and/or meeting project goals (as in the case of a fixed-term project).

Change Management: The use of theory, processes and tools for managing the organisational and people side of a change from the current state to a desired new state – normally, in our universe, a state where there is a considerably greater use of e-learning in a way which fits the organisation's purposes and finances.

Colleges: In most countries surveyed, institutions which provide tertiary education, but not at the level of university degrees. Exceptions exist, e.g., in the USA, where the term *college* is used generically to refer to any higher education institution which awards undergraduate degrees only. We would categorise these as "university colleges" – and if they offer postgraduate degrees as well, we categorise them as "universities".

Consortia: Associations of partners working towards a common goal. This typically indicates an association of businesses, institutions and/or agencies formed for the purpose of engaging in a joint venture with a substantial e-learning aspect. We speak about a consortium of partners as constituted to develop and/or offer virtual education, where a number of universities join together in a more or less tight organisational framework to wrap a "skin" of virtuality around them.

Critical Success Factor: An element that is necessary for an organisation or project to achieve its mission. This differentiates it from other factors, which are "important" or "nice to have" but not *necessary*.

Digital University: The phrase *digital university* has several meanings:

- The Digital University for finance professionals – see http://digitu.com/
- One of several projects at universities such as the University of Hull (UK) – see http://www.digital.hull.ac.uk/
- The Dutch Digital University – now ceased

Distance Learning: A broad definition of distance learning is that the locus of learning is much of the time physically distant from the core premises of the provider. We take distance learning to include such blended learning when the distance learning part is in the majority.

e-Learning: The use of electronic digital techniques to bring about learning, either in addition to, or in part-replacement of, face-to-face instruction and interaction (tutorials, etc.). Conventionally these techniques are taken to include television and video, even when in some cases these are still analogue in nature. The term *e-learning* seems to cause a lot of unease, and there is a reaction against it at the time of writing. Some theorists use the term *blended learning* to denote the reality that e-learning is normally (even if not always) used in conjunction with face-to-face techniques. Purists and those in contact with research and EU circles tend to try to use the term technology-enhanced learning – but the term *e-learning* still has a firm grip on many minds, including most in the benchmarking e-learning community across the world.

Evolution of Existing Institutions: Institutions which – though founded as traditional or standard (paper-based) distance learning institutions – have evolved from their original format to offer courses through e-learning. An *evolution of an existing institution* might refer to an entire university with a significant virtual campus offering; a department (e.g., e-learning or other subject) offering pure-mode online degrees; or an e-learning offshoot which has branched out under its own name/business model (to name but a few of the configurations we have seen).

Failed e-Learning Initiatives (FELIs): Initiatives which are no longer active, and are commonly considered to have specifically "failed" to meet their goals (e.g., by entering bankruptcy).

Giant e-Learning Initiatives (GELIs): Initiatives which are very large major e-learning initiatives (MELIs).

International Initiative: e-Learning initiatives straddling more than one country and promoted by an international agency or supranational body such as the EU, World Bank or UNESCO. This typically refers to an initiative taken by a supranational political grouping or range of countries in a region – such as the European Union – to set up a programme focused on e-learning within university-level institutions.

Key Success Factor: A factor whose presence is necessary for an organisation to fulfil its mission, for some subset of virtual campuses – such as *national initiatives*. In other words, it is a *critical success factor* across that subset.

Major E-Learning Initiative: Initiatives which operate on a grand scale within an institution. Detailed organisational criteria are identified clearly on the Re.ViCa wiki and in chapter 2, *What is a Virtual Campus*?

Multinational Initiative: e-Learning initiatives taken by more than one country but not many, and not by a supranational political grouping or range of countries in a region (e.g., the European Union). As with international initiatives, in this arrangement partners act together to set up a programme focused on e-learning within university-level institutions.

National Initiative: Initiatives from one country – or a region, state or province within that country – involving institutions nationwide, in most cases founded (and funded) by a national agency. This term refers to an initiative taken by a ministry or national agency in a country to set up a programme focused on e-learning in university-level institutions. Note that "national" may refer to an autonomous or semi-autonomous part of a country, e.g., Scotland (UK) or Catalonia (Spain) – or even to one of the states or provinces in federal countries such as Australia, Canada, China, India or the USA.

Newly Created Institution: Institutions created specifically to operate in e-learning mode (usually in or after 1996). A newly created institution should represent a "new build" university, virtual from its inception. Institutions thus classified typically provide either all or most of their course offerings online.

Notable E-Learning Initiative: Initiatives which are interesting in a country, e.g., to other universities or analysts, and satisfy many but not all MELI criteria.

Open University: Generally speaking, distance learning universities which are open to all inhabitants of a region (with few or no prerequisite qualifications). In our wiki, the vast majority of institutions with *Open University* in their name are categorised by us as "open universities".

Private Provider: Institutions which provide e-learning through a company aiming to produce a profit. (These are known as commercial enterprises under the UNESCO scheme.) When it comes to the matter of private providers, the extent to which a virtual campus can be considered commercial is sometimes opaque. This distinction is not always explicit with respect to traditional universities either, as most of these now operate in the commercial world themselves (to some extent).

Private Nonprofit Provider: Institutions that provide e-learning, which are neither public institutions nor commercial enterprises, but are rather set up in nonprofit form (such as foundations, charities, or religious bodies). Introducing the subcategory of private nonprofit providers allows for further granularity within the category of private providers. Unlike solely private providers, in some countries, these entities may receive public funds.

Quality Assurance (QA): In general theory, the use of planned and systematic production processes, with evaluation and feedback mechanisms, to provide confidence in the suitability of a product for its intended purpose. In tertiary education, it is taken to mean the use of mechanisms to ensure that each institution provides and continues to provide, courses of an appropriate university-level standard for the intended students, bearing in mind the offerings of

similar courses at other universities, government requirements, student feedback and staff wishes – and that the institution itself remains at an appropriate level.

University: Degree-granting institutions (public or private) providing tertiary-level education with undergraduate and postgraduate degrees issued in their name. In several countries there are institutions, including prestigious ones, who satisfy the above definition of universities but which do not have the term *university* (or its equivalent in local language) as part of their name. For uniformity, Re.ViCa categorises these as "universities" (along with any other appropriate classification). There are also select National, Multinational and International Initiatives bearing the name *university* which do not meet the criteria laid out herein.

University College: Typically, an institution (public or private) providing tertiary education at the level of undergraduate degrees, which does not have full university status and powers (for example to award postgraduate degrees in its own name). A university college normally does not do research, but this may depend on the country context. Institutions describing themselves as "university colleges" are typically classified under this name.

Virtual Mobility: A form of learning which consists of virtual components through a fully ICT-supported learning environment that includes cross-border collaboration with people from different backgrounds and cultures working and studying together, having, as its main purpose, the enhancement of intercultural understanding and the exchange of knowledge

Virtual University: A university where there is a rather small core of physical organisation and people carrying out face-to-face teaching, and a rather large amount of distance teaching, usually nowadays carried out with a significant amount of e-learning. There is not an absolute distinction between face-to-face universities and distance teaching universities – most distance teaching universities in fact use blended learning for their offerings, often via a network of tutorial centres.

List of Interesting Initiatives Mentioned in Chapter 4 (World Tour)

The growth of the virtual campus phenomenon in the last five years can be grasped by comparing this list with the Gazetteer produced by the Higher Education Academy in 2004 and the list of Virtual Universities produced about the same time by UNESCO. (The UNESCO list also applies an early version of the categorisation.)

Academy of Humanities and Economics, Poland	http://www.wshe.lodz.pl
ADA Madrid, Spain	http://moodle.upm.es/adamadrid/
African Council on Distance Education	http://www.acde-africa.org
African Virtual Open Initiatives and Resources (AVOIR)	http://avoir.uwc.ac.za

African Virtual University	http://www.avu.org
Ain Shams University, Egypt	http://www.shams.edu.eg
AKAD, Germany	http://www.akad.de
Al-Azhar University, Egypt	http://www.azhar.edu.eg
Allama Iqbal Open University, Pakistan	http://www.aiou.edu.pk
Almaty Distance Technological University, Kazakhstan	http://www.atu.kz
Al-Quds Open University, Palestine	http://www.qou.edu
American InterContinental University, USA	http://www.aiuniv.edu
Anadolu Open University, Turkey	http://www.anadolu.edu.tr
Ankara University, Turkey	http://www.ankara.edu.tr
Arab Open University	http://www.arabou.org.sa
Arizona Universities Network, USA	http://www.azun.net
Asia-Europe e-Learning Network	http://asem.knou.ac.kr
Asian Association of Open Universities	http://www.aaou.net
Assiut University, Egypt	http://www.aun.edu.eg
Association of African Universities (AAU)	http://www.aau.org
Assumption University, Thailand	http://www.au.edu
Athabasca University, Canada	http://www2.athabascau.ca
Auckland University of Technology, New Zealand	http://www.aut.ac.nz
Australian Flexible Learning Framework	http://www.flexiblelearning.net.au
Baltic Sea University of Science and Technology	http://www.baltech.info
Bangladesh Open University	http://www.bou.edu.bd
BCCampus, Canada	http://www.bccampus.ca

Beijing Normal University, China	http://www.bnu.edu.cn
Brno University of Technology, Czech Republic	http://www.vutbr.cz
Budapest University of Technology and Economics, Hungary	http://www.bme.hu
Cairo University, Egypt	http://www.cu.edu.eg
Campus Numerique Francophone	http://www.auf.org/actions/reseau-cnf/accueil.html
Canadian Virtual University, Canada	http://www.cvu-uvc.ca
Cape Breton University, Canada	http://www.cbu.ca
Capella University, USA	http://www.capella.edu
CARADOL	http://caradol.dec.uwi.edu
Carnegie Mellon University, USA	http://www.cmu.edu
Charles Sturt University, Australia	http://www.csu.edu.au
China Central Radio and Television University	http://www.crtvu.edu.cn
Complutensian University of Madrid, Spain	http://www.ucm.es
Consorzio NETTUNO, Italy	http://www.consorzionettuno.it
Contact North (Ontario), Canada	http://www.contactnorth.ca
CUPIDE	http://cupide.dec.uwi.edu
Curtin University of Technology, Australia	http://www.curtin.edu.au
Daegu Cyber University, South Korea	http://english.dcu.ac.kr
Deakin University, Australia	http://www.deakin.edu.au
Distance and International Study Center (DISC), Technical University of Kaiserslautern, Germany	http://www.zfuw.de
Dr. B. R. Ambedkar Open University, India	http://www.braou.ac.in
Dublin City University (DCU), Ireland	http://www.dcu.ie
DuocUC, Chile	http://www.duoc.cl

eCampus Alberta, Canada	http://www.ecampusalberta.ca
ECOESAD, Mexico	http://www.ecoesad.org.mx
École Nationale d'Ingénieurs de Tunis, Tunisia	http://www.enit.rnu.tn
Ecole nationale supérieure de technologie, Haiti	
Edith Cowan University, Australia	http://www.ecu.edu.au
Egyptian E-Learning University	http://www.eelu.edu.eg
Eurasian Open Institute, Russia	http://www.eoi.ru
Europäische Fernhochschule Hamburg, Germany	http://www.euro-fh.de
European Association of Distance Teaching Universities	http://www.eadtu.nl
Ewha Womans University, South Korea	http://www.ewha.ac.kr
Faculdade de Tecnologia, Ciências e Educação	http://www.fatece.edu.br/
FernUniversität in Hagen, Germany	http://www.fernuni-hagen.de
Flemish Interuniversity Council (VLIR), Belgium	http://www.vlir.be
Fudan University, China	http://www.fudan.edu.cn
Fundação Getúlio Vargas, Brazil	http://www.fgv.br/
G9 Group, Spain	https://www.uni-g9.net
Gdansk University of Technology, Poland	http://www.pg.gda.pl
Global Virtual University	http://gvu.unu.edu
Hamburger Fern-Hochschule, Germany	www.hamburger-fh.de
Hanyang Cyber University, South Korea	http://www.hanyangcyber.ac.kr
Hashemite University, Jordan	http://www.hu.edu.jo
Helwan University, Egypt	http://www.helwan.edu.eg
Heriot-Watt University, UK	http://www.hw.ac.uk

Hibernia College, Ireland	http://www.hiberniacollege.net
Hong Kong Polytechnic University	http://www.polyu.edu.hk
Hunan University, China	http://www.hnu.cn
Indira Gandhi National Open University, India	http://www.ignou.ac.in
Instituto universitario de postgrado, Spain	http://www.iup.es
Interactive University	http://www.virtualcampuses.eu/index.php/Interactive_University
Inter-American Distance Education University of Panama	http://www.uniedpa.com
International Network University Consortium, Japan	
International Telematic University UNINETTUNO, Italy	http://www.uninettunouniversity.net
Islamic Azad University of Iran	http://www.intl.iau.ir
Israeli Open University	http://www-e.openu.ac.il
Japanese Cyber University	http://www.cyber-u.ac.jp
Jones International University, USA	http://jonesinternational.edu
K.U.Leuven, Belgium	http://www.kuleuven.be
Kaplan, USA	http://www.kaplan.com
Karnataka State Open University, India	http://www.ksoumysore.com
Keio University, Japan	http://www.keio.ac.jp
Kenichi Ohmae Graduate School of Business, Japan	http://www.ohmae.ac.jp
Kenyatta University, Kenya	http://www.ku.ac.ke
Knowledge International University, Saudi Arabia	http://www.kiu.org
Korea National Open University, South Korea	http://www.knou.ac.kr
Kyunghee Cyber University, South Korea	http://www.kyunghee.edu

L'Agence universitaire de la Francophonie (AUF)	http://www.auf.org
Lithuanian Virtual University, Lithuania	http://www.lvu.lt
Lviv Polytechnic National University, Ukraine	http://lp.edu.ua
Makerere University, Uganda	http://www.mak.ac.ug
Malaysia Multimedia University	http://www.mmu.edu.my
Mansoura University, Egypt	http://www.mans.eun.eg
Marie Curie-Skłodowska University, Poland	http://www.umcs.lublin.pl
Maseno University, Kenya	http://www.maseno.ac.ke
Massachusetts Institute of Technology (MIT), USA	http://web.mit.edu
Massey University, New Zealand	http://www.massey.ac.nz
Memorial University of Newfoundland, Canada	http://www.mun.ca
Michigan State University, USA	http://www.msu.edu
Middlesex University, UK	http://www.mdx.ac.uk
Moi University, Kenya	http://www.mu.ac.ke
Moscow State University for Economics, Statistics and Informatics, Russia	http://www.eng.mesi.ru
Nanyang Institute of Technology, Singapore	http://www.ntu.edu.sg
National Autonomous University of Honduras	http://www.unah.hn
National Centre of E-Learning and Distance Learning, Saudi Arabia	http://www.elc.edu.sa
National E-Learning Centre, Egypt	http://www.nelc.edu.eg
National Sun Yat-Sen University, Taiwan	http://www.oia.nsysu.edu.tw
National Technical University of Ukraine	http://inter.kpi.ua
National University of Rwanda	http://www.nur.ac.rw
National University of Singapore	http://www.nus.edu.sg

National University of Uzbekistan	http://www.nuuz.uzsci.net
NetVarsity, India	http://www.netvarsity.com
NKI, Norway	http://www.nki.no
North-West State Correspondence Technical University, Russia	http://www.nwpi.ru
Ohio University Without Boundaries, USA	http://www.ouwb.ohiou.edu
Open Cyber University, South Korea	http://www.ocu.ac.kr
Open Polytechnic of New Zealand	http://www.openpolytechnic.ac.nz
Open Universities Australia	https://www.open.edu.au
Open University Vlaanderen, Belgium	http://www.openuniversiteit.be
Open University of Catalonia (UOC), Spain	http://www.uoc.edu/portal/english
Open University of Hong Kong	http://www.ouhk.edu.hk
Open University of Japan	http://www.u-air.ac.jp
Open University of Malaysia (UNITEM)	http://www.oum.edu.my
Open University of Sri Lanka	http://www.ou.ac.lk
Open University, Tanzania	http://www.out.ac.tz
Open University, The Netherlands	http://www.ou.nl
Open University, UK	http://www.open.ac.uk
Oscail, Ireland	http://www.oscail.ie
Pamantasan ng Lungsod ng Maynila Open University, Philippines	http://www.plm.edu.ph
Payam-e Noor University, Iran	http://www.pnu.ac.ir
Peking University, China	http://en.pku.edu.cn
Penn State, USA	http://www.psu.edu
Polish Virtual University	http://www.puw.pl/english/
Polytechnic University of Catalonia, Spain	http://www.upc.es

Pompeu-Fabra University, Spain	http://www.upf.edu
Pontificia Universidad Católica de Chile	http://www.puc.cl
Potchefstroom University, South Africa	http://www.puk.ac.za
Queens' University, Canada	http://www.queensu.ca
Ramkhamhaeng University, Thailand	http://www.ru.ac.th
Robert Gordon University, UK	http://campus.rgu.com
Royal Roads University, Canada	http://www.royalroads.ca
SAIDI School of OD, Philippines	http://www.saidi.edu.ph
Sakarya University, Turkey	http://www.sakarya.edu.tr
School of the Future, Brazil	http://futuro.usp.br/
Scottish Knowledge, UK	http://www.virtualcampuses.eu/index.php/Scottish_Knowledge
Sejong Cyber University, South Korea	http://www.sejong.ac.kr
Seoul Digital University, South Korea	http://en.sdu.ac.kr
Shanghai Television University, China	http://www.shtvu.org.cn
Sharif University of Technology Graduate School of Management and Economics, Iran	http://gsme.sharif.ir
Shinshu University, Japan	http://www.shinshu-u.ac.jp
SIM University (UNISIM, UniSIM), Singapore	http://unisim.edu.sg
Simon Fraser University, Canada	http://www.sfu.ca
Singapore Polytechnic, Singapore	http://www.sp.edu.sg
Southern African Regional Universities Association (SARUA)	http://www.sarua.org
Staffordshire University, UK	http://www.staffs.ac.uk
State University of New York, USA	http://www.suny.edu
Stellenbosch University, South Africa	http://www.sun.ac.za

Sukhothai Thammathirat Open University, Thailand	http://www.stou.ac.th
Swiss Virtual Campus, Switzerland	http://www.virtualcampus.ch
Syrian Virtual University	http://www.svuonline.org
Tecnológico de Monterrey, Mexico	http://www.itesm.mx
Thailand Cyber University	http://www.thaicyberu.go.th
The Polytechnic University of the Philippines Open University	http://www.pup.edu.ph
The Universidad de Guadalajara, Mexico	http://www.udg.mx
The University of Johannesburg, South Africa	http://www.uj.ac.za
The University of the Free State, South Africa	http://www.uovs.ac.za
Thompson Rivers University, Canada	http://www.tru.ca
Tohoku University, Japan	http://www.tohoku.ac.jp
Tshwane University of Technology, South Africa	http://www.tut.ac.za
Tsinghua University, China	http://www.tsinghua.edu.cn
U21 Global	http://www.u21global.edu.sg
UKeU	http://www.virtualcampuses.eu/index.php/UKeU
Ulyanovsk Consortium of Open Education, Russia	http://www.ide.ulstu.ru
Ulyanovsk State Technical University, Russia	http://old.ulstu.ru
UNED, Spain	http://www.uned.es
Universal College of Learning (UCOL), New Zealand	http://www.ucol.ac.nz
Universia, Spain	http://www.universia.net
Universidad a distancia de Madrid, UDIMA, Spain	http://www.udima.es
Universidad Andina Simón Bolívar, Bolivia	http://www.uasb.edu.bo

Universidad de Veracruzana, Mexico	http://www.uv.mx
Universidad Estatal a Distancia, Costa Rica	http://www.uned.ac.cr
Universidad Francisco Marroquín, Guatemala	http://www.ufm.edu.gt
Universidad Gama Filho, Brazil	http://www.ugf.br/
Universidad Latino Americana de ciencias y tecnología, Panama	http://www.ulacit.ac.pa
Universidad Maimónides, Argentina	http://www.maimonides.edu
Universidad Nacional Abierta, Venezuela	http://www.una.edu.ve
Universidad Nacional Autónoma de México	http://www.unam.mx
Universidad Nacional Federico Villareal, Peru	http://www.unfv.edu.pe
Universidad ORT Uruguay	http://www.ort.edu.uy
Universidad Politécnica de Madrid, Spain	http://www.upm.es
Universidad Técnica Particular de Loja, Ecuador	http://www.utpl.edu.ec
Universidad Tecnológica Metropolitana, Chile	http://www.utem.cl
Universidad UNIACC, Chile	http://www.uniacc.cl
Universidade Aberta do Brasil	http://uab.capes.gov.br
Universidade Aberta, Portugal	http://www.univ-ab.pt
Università Telematica “Italian University Line”, Italy	http://www.iuline.it
Università Telematica delle Scienze Umane UniSu, Italy	http://www.unisu.it
Università Telematica e-Campus, Italy	http://www.uniecampus.it
Università Telematica Giustino Fortunato, Italy	http://www.unifortunato.eu
Università Telematica Internazionale Unitel, Italy	http://www.uni-tel.it
Università Telematica Leonardo da Vinci, Italy	http://www.unidav.it

Università Telematica Marconi, Italy	http://www.unimarconi.it
Università Telematica Pegaso, Italy	http://www.unipegaso.it
Università Telematica TEL.M.A., Italy	http://www.unitelma.it
Università Telematica Universitas Mercatorum, Italy	http://www.unimercatorum.it
Universitas 21	http://www.universitas21.com
Université Action pour l'éducation et la culture, Dominican Republic	http://www.unapec.edu.do/
Université Cadi Ayyad Marrakech, Morocco	http://www.ucam.ac.ma
Université Cheikh Anta Diop, Senegal	http://www.ucad.sn
Université d'Etat d'Haïti, Haiti	http://www.ueh.edu.ht
Université des Antilles et de la Guyane	http://www.univ-ag.fr
Université du Québec à Montréal, Canada	http://www.uqam.ca
Université Gaston Berger, Senegal	http://www.ugb.sn
Université IBN Tofail, Morocco	http://www.univ-ibntofail.ac.ma
Université Sidi Mohamed Ben Abdallah, Morocco	http://www.usmba.ac.ma
Université Virtuelle de Tunis, Tunisia	http://www.uvt.rnu.tn
Université Yaoundé 1, Cameroon	http://www.uy1.uninet.cm
Universiti Kebangsaan Malaysia	http://www.ukm.my
Universiti Malaya, Malaysia	http://www.um.edu.my
Universiti Malaysia Sarawak	http://www.unimas.my
Universiti Putra Malaysia	http://www.upm.edu.my
Universiti Sains Malaysia,	http://www.usm.my
Universiti Teknologi Malaysia	http://www.utm.my
Universiti Teknologi MARA, Malaysia	http://www.uitm.edu.my

Universiti Tun Abdul Razak (UNITAR), Malaysia	http://www.unitar.edu.my
University Carlos III of Madrid, Spain	http://www.uc3m.es
University College, London	http://www.ucl.ac.uk
University José Cecilio del Valle, Honduras	http://www.ujcv.edu.hn
University of Amsterdam	http://www.uva.nl
University of Auckland, New Zealand	http://www.auckland.ac.nz
University of Botswana	http://www.ub.bw
University of British Columbia, Canada	http://www.ubc.ca
University of Canterbury, New Zealand	http://www.canterbury.ac.nz
University of Central Asia	http://www.ucentralasia.org
University of Central Florida, USA	http://www.ucf.edu
University of Colombo, Sri Lanka	http://www.cmb.ac.lk
University of Dar es Salaam, Tanzania	http://www.udsm.ac.tz
University of Derby, UK	http://www.derby.ac.uk
University of East London, UK	http://www.uel.ac.uk
University of Education, Winneba, Ghana	http://www.uew.edu.gh
University of Engineering and Technology, Bangladesh	http://www.buet.ac.bd
University of Galileo, Guatemala	http://www.galileo.edu
University of Ghana	http://www.ug.edu.gh
University of Ghent, Belgium	http://www.ugent.be
University of Glamorgan, UK	http://www.glam.ac.uk
University of Illinois, USA	http://www.uillinois.edu
University of Leicester, UK	http://www2.le.ac.uk
University of Liberal Arts, Bangladesh	http://www.ulab.edu.bd

University of Liverpool, UK	http://www.liv.ac.uk
University of Ljubljana, Slovenia	http://www.uni-lj.si
University of Maryland University College, USA	http://www.umuc.edu
University of Nairobi, Kenya	http://www.uonbi.ac.ke
University of Oviedo, Spain	http://www.uniovi.es
University of Phoenix Online, USA	http://www.phoenix.edu
University of Portsmouth, UK	http://www.port.ac.uk
University of Pretoria, South Africa	http://web.up.ac.za
University of Salvador, Argentina	http://www.salvador.edu.ar
University of Science and Technology, Jordan	http://www.just.edu.jo
University of South Africa (UNISA)	http://www.unisa.ac.za
University of Southern Queensland, Australia	http://www.usq.edu.au
University of Tehran, Iran	http://www.ut.ac.ir
University of Texas, USA	http://www.utexas.edu
University of the Arctic	http://www.uarctic.org
University of the Philippines Open University	http://www.upou.edu.ph
University of the South Pacific	http://www.usp.ac.fj
University of the West Indies	http://www.uwi.edu
University of the West of Scotland, UK	http://www.paisley.ac.uk
University of the Witwatersrand, South Africa	http://web.wits.ac.za
University of Twente, The Netherlands	http://www.universiteittwente.nl
University of Ulster, UK	http://campusone.ulster.ac.uk
University18, India	http://www.university18.edu.in
Victoria University of Wellington, New Zealand	http://www.vuw.ac.nz

Virtual University for the Small States of the Commonwealth (VUSSC),	http://www.vussc.info
Virtual University of Pakistan	http://www.vu.edu.pk
Virtual University of Quilmes, Argentina	http://www.unq.edu.ar
Virtuelle Universität Bayern, Germany	http://www.vhb.org
Walden University, USA	http://www.waldenu.edu
Waseda University, Japan	http://www.waseda.jp
Wawasan Open University, Malaysia	http://www.wou.edu.my
Western Governors University, USA	http://www.wgu.edu
Worldwide Universities Network (WUN)	http://www.wun.ac.uk
Yashwantrao Chavan Maharashtra Open University, India	http://www.ycmou.com

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Mason, Robin. *Globalising Education: Trends and Applications.* London: Routledge, 1998.

Mills, Roger and Tait, Allan (editors). *The Convergence Between Conventional and Distance Education.* London: Routledge, 1999.

Russell, Thomas L. *The No Significant Difference Phenomenon.* Chapel Hill: IDEC, 1999.

Teaching at an Internet Distance: the Pedagogy of Online Teaching and Learning. Report of a 1998–99 University of Illinois Faculty Seminar, 7 December 1999.

THE RE.VICA PROJECT

Re.ViCa stands for "Reviewing (traces of) European Virtual Campuses". The project brings together nine partners and international experts in the field that use their privileged strategic positions to collect vital information and open it up for the wider community of the European Higher Education Area. The project can – among others – build upon the partners' experience with and involvement in virtual campus projects and initiatives. The Re.ViCa community is creating an inventory and reviewing institution-wide and cross-institution virtual campus initiatives of the past decade within higher education at global, national and regional levels.

OBJECTIVES

Re.ViCa aims to make an inventory and to carry out a systematic review of cross-institutional virtual campus initiatives of the past decade within higher education at European, national and regional levels. The main objective of the Re.ViCa project is to identify relevant parameters and success factors for evaluating and comparing virtual campuses, based on thorough research and expert input

APPROACH

Re.ViCa conducted its research on Virtual Campuses along a broad range of parameters that are defined and investigated at the on-set. During this desktop research phase, attention was paid to former initiatives which can be useful for Re.ViCa's study. This desktop research was validated by the numerous discussion sessions that Re.ViCa organised with different stakeholder groups throughout the project. To ensure the success of the in-depth case studies, special care was taken in the selection of the partnership with respect to virtual campus management experience and a vast range of useful contacts with international experts. Quite some time was spent on preparing a survey on order to maximise its usefulness. For the creation of the survey questions, then, previous initiatives' expertise were be taken into account and where possible adapted to Re.ViCa.

TARGET AUDIENCE

The Re.ViCa project was aimed mostly at those teaching and management staff in educational institutions who are interested in gaining the specific organisational skills needed for setting up virtual campuses. It was also aimed at so-called stakeholders – those rectors, principals, deans, international relations officers and managers of universities who are interested in finding out more about best practices and sustainability strategies to integrate and exploit virtual schemes in their mainstream offer.

RESULTS

As a result Re.ViCa provides an online inventory and systematic review of Virtual Campus initiatives that are fully active, or have been discontinued or merged with other initiatives. This review led also to a taxonomy of Virtual Campuses. Next to the inventory the project consortium also created country reports, describing the educational context and ways in which decision-makers in these countries have taken steps to address changes brought about due to the emergence of the Information Society. It also drew up a historical overview of the evolution of the concept of the Virtual Campus and the societal context with which it is so closely linked. Based on extended questionnaires we gathered the information around nine in-depth Institutional reports. We have collected and described relevant research projects, outputs, and

publications, and provide a list of experts in the field of virtual campuses. To conclude, we identified critical and key success factors for setting up virtual campuses. The Re.ViCa Consortium compiled this manual with guidelines, lessons learnt, and recommendations. All information is available at http://www.virtualcampuses.eu

PARTNERS

EUROPACE

EuroPACE ivzw is a European nonprofit association of universities and their partners in education and training, e.g., private companies, international networks and governmental institutions. The main objective of EuroPACE is to foster networked e-learning for virtual mobility, for internationalisation of higher education, for knowledge creation and sharing and for lifelong learning. Its main interests are innovation in education, new educational technologies, quality in e-learning and e-learning competences and skills. Its target groups are higher education institutions, private companies and policymaking bodies.

AVNET

The AVNet Department of the Catholic University of Leuven, K.U.Leuven, is a university interface that aims to support networked e-learning in an international context, i.e., to support local university teachers in the internationalisation of their education by using ICT. It does this by providing advice, design, development, implementation, and training services. AVNet also assesses (inter)national trends in order to encourage local university teachers to participate in (inter)national activities and to translate (inter)national initiatives to the local and/or regional setting. AVNet has participated in a number of research projects on virtual education, e-learning and technology-enhanced learning in general.

ATIT

ATiT is a Belgian audio-visual and IT company, active in the field of education and culture. Its mission is to support the effective integration of technology into the learning context. ATiT staff have significant expertise and experience in mediating between technology providers and educational users. ATiT has several specific areas of expertise including audio visual and multimedia production, the set-up and management of cross-border trials and projects, the implementation of ICT-based systems for educational networks, assessment as well as evaluation and review of technology-enhanced learning systems. Furthermore, ATiT provides services in the area of training and staff development and support to ICT, supported learning initiatives in the development context, including consultancy to agencies like the World Bank, DfID (UK) and UNESCO.

MATIC MEDIA

Matic Media ltd is an e-learning consultancy firm operating from Sheffield, England, but with an international reach and perspective. First set up by Paul Bacsich in 1996, it now has a wide range of clients from the education, government and corporate sectors, in the UK and abroad, as well as intergovernmental agencies including EU and UNESCO.

LIFELONG LEARNING INSTITUTE DIPOLI OF HELSINKI UNIVERSITY OF TECHNOLOGY (TKK DIPOLI)

Teknillinen korkeakoulu (TKK , Helsinki University of Technology) is the oldest and largest university of technology in Finland. TKK has four faculties with 19 degree programmes and

three separate units one of them being Koulutuskeskus Dipoli (TKK Dipoli , Lifelong Learning Institute Dipoli). It was awarded by the Finnish Ministry of Education the status of University of Excellence in Adult Education for 2007 through 2009. TKK Dipoli is one of the largest continuing education providers among universities in its field in Europe. Global networking is an essential part of the activities of the Lifelong Learning Institute Dipoli. TKK Dipoli has been coordinator or partner in a great number of national, European and worldwide R&D and training projects and programmes.

UNIVERSITY OF WEST HUNGARY

Nyugat-magyarországi Egyetem (University of West Hungary) is the leading institution in Hungary in continuing professional education on Land Surveying, Geoinformatics and Land Management. The college is involved in various flexible education programmes for land management giving professional development services to engineers, technicians, and executives. International cooperation of College of Geoinformatics is oriented at the development of education. Several projects where College has participated aimed at the issues of interactive use of GIS, development of distance learning courses, education for continuing professional development, development of knowledge in land administration matters, and development of networking between universities.

FERNUNIVERSITÄT IN HAGEN

With its tradition of supported distance learning, the FernUniversität has been offering an alternative to on-campus studies within the German university landscape for 30 years and is currently serving around 45.000 students. Supported distance learning with a maximum independence and flexibility, making it particularly suitable for would-be students whose personal circumstances prevent them from studying at conventional universities.

UNIVERSITÉ DE STRASBOURG

Strasbourg University gathers about 42,000 students, 5,200 engineers, technicians, workers and administrative staff. The University is inter-disciplinary and covers virtually the whole spectrum of knowledge. It is a member of the League of European Research Universities (LERU) and its top-level research places it among the foremost French and European universities. The very best practices stemming from research are transmitted throughout the learning process, thereby providing all students with the critical analysis, intellectual openness and competence required for a smooth integration into a constantly changing professional world.

UNINETTUNO-NETWORK

The International Telematic University UNINETTUNO, established by Ministry Decree (April 2005) has been realised to valorise and enlarge the telematic didactic system settled by Consorzio NETTUNO (founded in 1992), enlarged at Euro-Mediterranean level thanks to the Med Net'U Project (Mediterranean Network of Universities-Eumedis Programme)in which a network was established among 31 partners of 11 countries of the Euro-Mediterranean area, aimed at designing and realising university courses at a distance in a multilingual format. With UNINETTUNO, the universities of the different countries are actually creating shared knowledge networks together and cooperate to deliver multilingual international university degrees at a distance.

Universities are facing a period of great pressure to review and adapt their services to meet the needs of the changing world.

Many international organisations, government ministries, policymakers, higher education institutions and education researchers believe that Information and Communication Technologies (ICT) have the potential to create flexible learning paths, to break down the walls of the university, to facilitate researcher and student mobility and to stimulate international collaboration.

In this handbook, we aim to provide a glimpse into the complex landscape of ICT in higher education and illustrate how institutions are increasingly developing and making use of what we refer to as virtual campuses - managed initiatives in technology enhanced learning, for students on- and off-campus, and in the workplace - within the framework of the lifelong learning and skills agendas.

Those interested in ICT in higher education can find valid, in-depth information on virtual campuses worldwide. We aim to provide insight into what has been done and what is taking place in the domain of virtual campuses, as well as an up to date set of Critical Success Factors which can guide their further development.

Practical and concrete information is collected - within a sound theoretical framework - in order to enhance our readers' knowledge in this area, contributing to a more informed approach in the future.

RE VICA

Education and Culture DG

Lifelong Learning Programme