



COMMONWEALTH of LEARNING



A Guide to
Virtual Universities
for Policy-Makers

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Virtual Universities
for Policy-Makers**

Griff Richards



COMMONWEALTH *of* LEARNING

The Commonwealth of Learning (COL) is an intergovernmental organisation created by Commonwealth Heads of Government to promote the development and sharing of open learning and distance education knowledge, resources and technologies.



Commonwealth of Learning, 2015

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A Guide to Virtual Universities for Policy-Makers

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FOREWORD

This guide presents a review of the current practice of online education in its various forms, including the single-mode online universities/cyber universities around the world, but especially in the Commonwealth. At the turn of the century, when the dot-com boom seemed to cause a major disruption, the Commonwealth of Learning (COL) started exploring the field of virtual education and produced several reports and start-up guides on online learning to offer a balanced view on the perils and possibilities.

In the recent past, there have been phenomenal changes in the world of technology in education. With the emergence of low-cost tablets, increasing access to mobile phones, and the proliferation of Massive Open Online Courses (MOOCs), open universities and distance teaching institutions are now increasingly adopting online technologies for their operations, especially for teaching and learning. Given the potential of online education and stand-alone 21st-century virtual universities, COL commissioned the preparation of this guide to inform policy-makers about the various models and practices used in existing virtual universities.

Goal 4 of the UN's Sustainable Development Goals states, "Ensure inclusive and quality education for all and promote lifelong learning" by 2030. In order to achieve this goal, governments in the Commonwealth need to embrace modern open and distance learning (ODL) methods. Online learning and virtual universities are effective ways to increase access to quality educational opportunities.

This guide provides an overview of various models and presents different issues that policy-makers need to consider when planning for a virtual university. It emphasises the need for having appropriate policies, and lists critical success factors in running virtual universities. I am sure this will trigger more discussions about the need for setting up virtual universities in the Commonwealth and about the models that work.

As the international community begins to develop strategies for achieving "quality lifelong learning for all" by 2030, online and virtual education will become even more important than before.



Professor Asha S. Kanwar
President & CEO
Commonwealth of Learning

EXECUTIVE SUMMARY

In only over 20 years, the Internet has changed many aspects of modern life. Much of personal correspondence has been replaced by email, and expensive long-distance telephony has been replaced with virtually free two-way video calls. For distance educators, the Internet brought greater flexibility in the design and delivery of distance courses. Gone were rigid print publishing deadlines. Web-based courses could be updated on the fly. Telephone tutors were replaced with email and Skype. And a new era of student-to-student interactions became possible for collaborative learning opportunities.

However, not all courses took advantage of the interactive possibilities, and many eLearning courses continue to mimic the classroom lectures of another era.

The work for this guide started as an overview of virtual universities — universities that deliver most of their courses over the Internet. However, the review soon found that the phenomenon of online learning, or “eLearning,” is also pervasive among campus-based universities, and so a wider lens was used to capture the current status of online learning in post-secondary education. The distinction between *virtual universities* and *universities going virtual* is becoming blurred. This guide makes no attempt to capture all of the instances of online learning courses: it simply attempts to capture the trends and highlight emerging practices.

One pattern that emerges is the difference between the developed and developing worlds in motivation for online courses. In the developed world, the declining demographic of traditional students means online courses are seen as a way to increase the number of potential students for a given course. In the developing world, online courses are about access. The population continues to increase, and universal education is also increasing the number of secondary school graduates who seek post-secondary education. As the Internet spreads in the developing world, eLearning offers the potential to rapidly increase post-secondary capacity.

Although comparing costs is important for policy-makers, this guide does not engage in a prolonged “apples and oranges” debate. While it is obvious that a virtual university requires fewer buildings and classrooms than a campus does, operating costs vary greatly by the mode of distance delivery and the need in developing countries to support learners through regional learning centres. Courses that will be delivered to thousands (or tens of thousands) of students merit greater design and development than do courses that will attract a smaller number of students. However, small courses tend to have much more faculty–student engagement and so incur higher per-student faculty costs. Some course learning outcomes require hands-on experience, so most virtual universities shy away from those areas and stick to courses like Business or Computer Science that require no campus attendance.

Perhaps the most interesting development since D’Antoni’s 2010 study for UNESCO has been the surge in Asian cyber universities. Korea now boasts over 20 cyber universities that cater to over 100,000 learners.

The second part of the guide reflects on several issues and promising practices to be considered in the development of a virtual university. A key practice is implementing a quality assurance (QA) process that responds to both the needs of external regulating and accreditation bodies and the internal needs for continual course improvement. QA recommendations such as those from the Asian Association of Open Universities (AAOU) suggest that QA processes should permeate all processes of the institute.

eLearning challenges both the organisational and the pedagogical cultures of higher education. eLearning takes place in a dynamic online environment where new tools and platforms continue to emerge. New technologies can help make eLearning a more engaging learning experience. Where some universities use online videos to replicate classroom lectures, others use short single-topic vignettes to effectively micro-teach difficult topics. Thus, a virtual university is not only free of the campus; it is free to be innovative and maximise access and outcomes for its learners.

In investing in a virtual university, policy-makers need to be aware of the variety of organisational models possible and of how Internet-readiness shapes the range of delivery options. As well, policy-makers should take time to examine the promising practices suggested by similar universities.

A successful online university, whether open or traditional, virtual or campus-based, is the university that brings learners together with quality intellectual resources and engaging academic activities. Expanding access to higher education is an investment in both individual learners and the nation's economic potential.

INTRODUCTION

Over the last 20 years, there has been a dramatic rise in the availability of distance education via the Internet. Almost every higher-education institution is either offering some form of eLearning or contemplating a move in that direction.

The motives are related to economics and access. In the developed world, the pool of traditional university attendees is shrinking and eLearning helps expand the catchment locally, nationally and abroad. In many developing nations, the population is booming and bricks-and-mortar universities cannot be built fast enough to keep up with the increase in the number of secondary school graduates who want to go further.

The 2001 UNESCO study on national strategies for eLearning in post-secondary education observed that “countries that are not ready for the knowledge economy are probably not ready for e-learning” (Bates, 2001, p. 111). Internet access has grown rapidly in most parts of the world, although increasingly through mobile networks rather than dedicated landlines. In both developed and developing countries, eLearning is also expanding rapidly. Countries such as Korea that have promoted eLearning as part of a national information and communication technology (ICT) strategy have seen strong growth in their knowledge economy and a rise in the number of virtual universities (although a closer inspection reveals many of these to be affiliates of existing institutions). In many developing countries, however, the delivery of online education is constrained by the reality of nascent Internet infrastructure, the paucity of personal computers and a lack of computer literacy. For many, connection to the Internet will be via their mobile phone.

Purpose of this guide

This guide aims to clarify the virtual university concept for policy-makers. Information was gathered from a review of literature and an examination of online university websites in a variety of countries, but with a particular preference for those in the Commonwealth. Each institution has its own legacy of policies that pre-date eLearning and are embedded in the culture and government policies that reflect the pre-Internet world.

Where possible, specific examples of actual policy practices are used to illustrate the points discussed.

It is hoped that the reader will find this a thought-provoking look at the evolution of virtual universities and a helpful guide in planning a virtual university.

This guide aims to clarify the virtual university concept for policy-makers.

Key terms used in this guide

Distance education is a mode of teaching and learning characterised by separation of teacher and learner in time and/or place for most of the educational transaction, mediated by technology for delivery of learning content. It may involve, for example, face-to-face interaction for learner–teacher and learner–learner interaction; provision of two-way didactic communication; and economies of scale.

eLearning is an umbrella term that refers to the use of any digital device for teaching and learning, especially for the delivery or accessing of content. Thus, eLearning can take place without any reference to a network or connectivity. The digital device used by the learner to access materials need not be connected to a digital network, either a local area network or the Internet (or even to a cellphone network if a tablet is used as a terminal or access device).

Learning management system (LMS), often also called a *course management system* or *virtual learning environment*, is a web-based software system that helps teachers manage courses and deliver lessons online. It helps in administration, tracking and reporting of learning process.

Massive Open Online Course (MOOC) is an online course available for large enrolment on the open web, where “open” largely refers to open registration and not necessarily courses in open licence.

Online learning is eLearning with a mandatory involvement of a digital network that a learner needs in order to access at least part of the learning materials and services. Online learning refers to network-enabled teaching and learning that allows the learner to have increased interaction with content, the teacher and other learners.

Open and distance learning (ODL) refers to a system of teaching and learning that is characterised by separation of teacher and learner in time and/or place. It uses multiple media for delivery of instruction; and involves two-way communication and occasional face-to-face meeting for tutorials and learner–learner interaction.

Open educational resources (OER), as defined by the OER Paris Declaration 2012, means any: “teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions. Open licensing is built within the existing framework of intellectual property rights as defined by relevant international conventions and respects the authorship of the work.”

Open university is a type of single-mode distance teaching institution that also offers flexibility in terms of choice of courses, entry requirements, learning media and approaches, and time and place of study. Courses and programmes of an open university may offer different degrees of openness in their provision, based on the nature of the studies and the legal contexts of operation.

Virtual universities/cyber universities are higher-education institutions, or networks of higher-education institutions, responsible for designing, developing and offering courses and programmes in a flexible online environment.

Source: Adapted from the Commonwealth of Learning: <http://oasis.col.org/handle/11599/829>

WHAT ARE VIRTUAL UNIVERSITIES?

The term “virtual” is borrowed from Computer Science where computer-generated experiences were used to replace real equipment and experiences as in the “virtual reality” that became popular in the 1990s. Farrell (1999) suggests the term “virtual university” emerged about 1995. This was the same year that the graphical web browser enabled widespread Internet use.

For distance educators, the Internet offered both a low-cost distribution medium for course materials and a way of enhancing learning conversations among faculty and learners. Distance education institutions have largely adopted eLearning tools and methods as a low-cost alternative to printed modules and classroom instruction.

While the International Council for Distance Education (ICDE) website defines virtual institutions as “institutions which offer programs only by electronic means, and which are not open universities,” Wikipedia offers more inclusive definitions:

“A **virtual university** provides higher education programs through electronic media, typically the Internet. Some are bricks-and-mortar institutions that provide online learning as part of their extended **university** courses while others solely offer online courses. They are regarded as a form of distance education.”

“Any university for which the primary mode of engagement is via the internet.”

Source: en.wikipedia.org/wiki/Virtual_university

Although some virtual universities say they offer online courses only, many of these institutions augment their eLearning courses with workshops and laboratories in face-to-face settings. Online access is not only more convenient for learners who cannot otherwise attend university, but it often means more courses are available to the learner through transfer arrangements with other virtual universities.

Over the past 20 years, the number of virtual universities has rapidly grown and the number of educational programmes that are available online is still increasing. In a study for UNESCO, D’Antoni (2010) estimated the number of virtual universities to be over 115 and this did not include programmes that are offered online by predominantly campus-based institutions or the non-academic online training provided by many companies for staff training. Allen and Seaman (2013) estimated that 32% of U.S. undergraduates are taking at least one online course — a total of 6.7 million learners. Coursera, a facilitator of free Massive Open Online Courses (MOOCs) claims to have attracted over 11.5 million learners worldwide (Ham, 2015, blog post).

A virtual university follows much the same organisational structure as a regular university, except that a sophisticated ICT infrastructure replaces the physical campus.

Some virtual universities say they offer online courses only, but many of these institutions augment their eLearning courses with workshops and laboratories in face-to-face settings.

Virtual universities are important because they:

1. Provide increasing numbers of online learners access to both formal and informal learning on an unprecedented scale.
2. Are international in scope and only limited by the barriers of culture, language, Internet connectivity and commerce.
3. Have the potential to increase higher-education capacity without the costs and delay of building bricks-and-mortar institutions.
4. Disrupt the traditional delivery and business models of both campus-based universities and ODL universities.
5. Are, thanks to modern eLearning tools, relatively easy and inexpensive to start up and offer courses over the Internet.

Obviously, these attributes can be seen as either threats or advantages to the *status quo* of higher education. Universities that embrace eLearning systems for on-campus learners also gain the institutional capacity to expand offerings online at lower costs to a larger worldwide body of learners. Those embracing elitist principles that restrict higher education to 7% of the population may equate virtual universities with “digital diploma mills” and discount any education without the essential “residential experience” that few citizens can afford. It is not unusual to find opposing views on the same campus, with some educators trying to maintain the quality residential programmes while extension educators try to provide better service to a growing number of off-campus learners.

Although virtual universities may look easy to create and operate, they are not always successful. Thus, this guide looks at different models of virtual universities and discusses examples of both successes and failures.

Ultimately, the goal of this guide is to inform policy-makers on virtual university models. It looks at public and private universities and how they co-exist in many countries. The structure and planning for a virtual university are discussed in a general way, as these are common to both public and private institutions. Government policy is discussed to stress the importance of understanding how regulation must be considered when developing a business plan.

MODELS OF VIRTUAL UNIVERSITIES

D’Antoni (2010) conducted an extensive study for UNESCO and created a list of 115 virtual universities. She categorised these into four basic models: about 50% were evolving *traditional institutions* (campus-based or distance universities); about 20% were a *consortium of providers*; and *new institutions* and *commercial ventures* represented about 15% each.

Bacsish et al. (2010) suggested including a small but important category for private non-profit institutions, and Sanjaya Mishra (COL, personal communication, June 2015) suggested that the new breed of public cyber universities deserves a category of its own.

As with any evolving taxonomy, some cases might be imprecisely classified — the plumage of an ODL university with study centres that go online may be difficult to distinguish from that of an online university that opens regional study centres.

The following scheme is used in this study:

- Consortium models
- Campus-based institutions that offer some programmes via eLearning (e.g., online courses and MOOCs)
- Distance learning institutions that deliver primarily eLearning courses
- Virtual universities (those that predominantly deliver courses online)

These broad definitions do not include change-agent organisations such as the Commonwealth of Learning, UNESCO or the virtual universities that promote eLearning but do not themselves offer courses for academic credit. Establishing accurate numbers of virtual universities is difficult because almost every higher-education institution is exploring eLearning for both on-campus learners and distance learners.

Consortium models

In a consortium, institutions agree to work together towards common goals.

For example, the 11 partners of the Canadian Virtual University¹ (CVU) collectively offer over 2,000 distance courses. The consortium provides increased market exposure for the universities, particularly for international students, and a greater range of course selections. A learner registered at a member university is guaranteed transferability of distance course credits taken at another (provided that the course fits into the learner’s academic programme).

Learners cross-registering through the CVU are also spared many of the visiting student fees. CVU also helps the consortium find funding for projects in common. However, CVU does not itself register students or deliver courses: that is the role of the member universities.

¹ <http://www.cvu-uvc.ca/english.html>

The Virtual University for Small States of the Commonwealth² (VUSSC) is another successful consortium. Its goals are the professional development of online educators, and the development and sharing of online educational resources. As with CVU, VUSSC does not itself deliver credit courses. VUSSC has developed a Transnational Qualification Framework³ (TQF) for the registering of accredited courses. The TQF makes it easier for learners to have course credits transferred and to have qualifications recognised in member countries.

In a consortium, institutions agree to work together towards common goals. A consortium works well when the goals are clear and the group builds on and promotes the independence of its members.

A new consortium is the Open Education Resource Universitas⁴ (OERu). OERu has over 30 member universities drawn from five continents. Its goal is to make open online courses available for as many learners as possible. While each member has its own motivations for joining the consortium, some hope that tuition-free courses will draw new learners into post-secondary education where they can transfer credits earned for degree programmes. Other members hope to offer for-fee assessment and credentialing services.

The business models of OERu are still forming, mainly because of the independent goals of the partners. While it might become possible for a learner to earn a degree without paying tuition, a more likely scenario is that OERu credits will be acknowledged like those earned through a Prior Learning and Recognition (PLAR) strategy that recognises equivalencies for many junior courses. Laddering courses is a well-established strategy in distance education. For example, when learners taking a five-course post-graduate certificate find they can lever those credits towards a 12-course Master's degree programme, many are inclined to continue studying towards the stronger credential.

Not all consortia end in a positive way. Particularly vulnerable seem to be course development projects, where a number of universities form a consortium to receive grant funding to develop new courses or convert existing courses to a distance learning format. For example, from 2000 to 2008, the Swiss Virtual Campus⁵ engaged faculty from several participating universities to develop online resources that could then be shared among all members. Although a number of online resources were created, the project did not continue to the delivery phase. Perhaps it was too great a leap for traditional campuses to learn how to develop courses and also work out a common sustainable course delivery system for quality online education. Swiss eLearning remains the purview of its ODL university, the Formation universitaire à distance/Suisse Universitäre Fernstudien Schweiz.⁶

² <http://www.vussc.info/>

³ <http://hdl.handle.net/11599/501>

⁴ <http://oeru.org/>

⁵ <http://www.virtualcampus.ch/>

⁶ <http://unidistance.ch/>

Similarly, from 2002 to 2004, the Mediterranean Virtual University involved nine regional universities plus two in Europe to build resources and share expertise. However, it too failed to launch after the course development phase. Presumably, if one nation has a difficult time harmonising efforts among its universities, the challenge is even greater across cultural and linguistic barriers.

From a distance, it would appear that a consortium works well when the goals are clear and the group builds on and promotes the independence of its members. In CVU, each member is already developing and delivering its own academic programmes online. The consortium enhances members' efforts to share marketing and to give access to greater numbers of students, but it does not interfere with the administrative or academic processes of the member universities. Since all members are also accredited under the same organisation, they already share a common culture of quality. A consortium appears to be weaker if universities are expected to use the course materials developed by their peers.

Wayne Mackintosh (OER Foundation, personal communication, 2013) noted that about 85% of academics are willing to share their course materials, but only about 15% are willing to use them. Any consortium that expects faculty to use materials developed by others will likely have curriculum adoption and adaptation issues. At best, communal curricular materials become useful reference materials for instructors and learners.

In 2000, the UK launched the UK eUniversities (UKeU) Worldwide Ltd⁷ as a consortium, which by 2003, was offering two courses from the Open University and Sheffield Hallam University. By mid-2004, the UkeU closed its operations and in 2005 the House of Commons Select Committee on Education and Skills produced its final report, brandishing the initiative a “disgraceful waste of money.”⁸ Reasons behind its failure include: bad timing (initiated during the dot-com crash), confusion over branding of institutions and that of UKeU, over-emphasis on building technology for online delivery, delay in recruitment, and impatience of higher-education administrators to see results quickly (Garrett, 2004).

Expansion of online delivery in traditional campus-based universities

With the adoption of learning management systems to support on-campus courses, traditional universities have the means to deliver the same courses at a distance. While many traditional universities had extension departments offering evening classes or distance learning, most now also offer eLearning. About half of the virtual universities enumerated by UNESCO⁹ were expansions of traditional institutions.

⁷ <https://en.wikipedia.org/wiki/UKeU>

⁸ http://www.obhe.ac.uk/documents/view_details?id=393

⁹ <http://www.unesco.org/iiep/virtualuniversity/linkliste.php>

About half of all virtual universities are expansions of traditional institutions. eLearning enables campus-based universities to market courses outside their normal catchment areas and to reach international audiences.

According to *The Economist* (2014), economics is the main driver of virtual universities. In developed countries, higher-education institutions have faced increasing costs, while the post-baby-boom demographics mean a shrinking pool of traditional undergraduates. Thus, eLearning enables universities to market courses outside their normal catchment areas and to reach international audiences.

For example, the University of British Columbia (UBC)¹⁰ is one of larger universities in Canada, with about 50,000 students attending its two campuses and another 15,000 involved in non-formal learning. UBC offers about 140 academic courses online and 125 non-academic courses online through Continuing Studies. eLearning has grown rapidly to be about one-quarter of those course offerings. Non-formal learning creates strong ties with the community, but it also adds significant revenue to UBC's annual income — about \$20 million in 2014 (UBC, 2014, p. 2).

Kenyatta University (KU) in Nairobi, Kenya, has a traditional campus for 21,000 learners. About half of these learners live in the university's residences; the remainder must commute daily. In 2014, Kenyatta rebranded the Centre for Open and Distance Learning as the Digital School of Virtual & Open Learning.¹¹ Online learning is blended with lectures at Kenyatta's nine regional centres. Because 80% of Internet connections in Kenya are through mobile devices (Crandall et al., 2012), one of KU's launch strategies to overcome concern about the lack of connected endpoints for eLearning was erecting billboards to entice initial enrollees with free tablets.

The Commission on Science and Technology for Sustainable Development in the South (COMSATS) is an international organisation supported by 13 member countries. In 1994, the COMSATS Institute of Information Technology (CIIT) was established, a public institution focused on training in information technology. Headquartered in Pakistan, CIIT provides services throughout South Asia to about 35,000 students. In 2012, CIIT started delivering select programmes through its Virtual Campus.¹² The online courses are supported by a network of over 150 study centres where learners can access computers and take examinations (COMSATS, 2015).

Massive Open Online Courses (MOOCs)

In addition to the above discussion, it is important to note the rapidity with which traditional universities are exploring the MOOC phenomenon that is attracting hundreds of thousands of learners online. While the first course called a MOOC was offered in Canada in 2008, it was the 160,000 registrants to a 2011 Stanford University course in Artificial Intelligence that caught the attention of top-tier universities. The *New York Times* called 2012 “the year of the MOOC” as mainstream universities jostled for bragging rights in the great potlatch of higher education.¹³

¹⁰ <http://www.ubc.ca/>

¹¹ <http://ku.ac.ke/dsvol/>

¹² <http://www.vcomsats.edu.pk/>

¹³ http://www.nytimes.com/2012/11/04/education/edlife/massive-open-online-courses-are-multiplying-at-a-rapid-pace.html?_r=0

Nevertheless, however popular these free courses might have been, completion rates were low (about 5%) and most of the registrants already held degrees. In essence, the universities were “preaching to the converted” rather than reaching new learners. As with educational television of the 1990s, the popularisation of educational programming did not necessarily lead to growth in the numbers of serious students. By 2013, MOOCs started to enter the “trough of disillusionment” on the Gartner “hype-cycle.”¹⁴ Udacity, one of the pioneer MOOC providers, changed its business model to providing for-fee professional training.

Although MOOCs involve online delivery, they tend to reflect more the pedagogy of recorded classroom lectures than the engaging practices of distance education. MOOC research has been quick to point out that few learners will watch more than six minutes of anything (Guo, Kim & Rubin, 2014). MOOCs tend to be found more in Science, Technology, Engineering and Mathematics (STEM) education, where the content is crisp, rather than in the Humanities where debate and opinion are champion. It is simply more difficult to monitor the quality of discussions with massive numbers of learners.

Many universities fund their MOOC activities through the university advancement office as a way to promote public awareness and to recruit new learners. Some have even considered using MOOCs to evaluate international applicants.

As attractive as MOOCs are, universities are facing hard financial times and need to increase revenues to survive. And at \$70,000–\$100,000 to prepare each broadcast-quality course, MOOCs are an expensive experiment.

While the MOOC model will continue to evolve and eventually find its niche in the panoply of higher education, the MOOC phenomenon did show how easily the traditional business model of higher education can be threatened by disruptive online innovations. Massive online course delivery is possible, just as mass media televised course delivery was possible, but education is more than access to content.

As new methods emerge for animating learning conversations, conducting assessments and providing laboratory experiences, low-cost massive courses may emerge in the future. Indeed, the Texas State University System recently announced “Freshman Year for Free” — 30 MOOCs that could be credited towards a first year of university (TSUS, 2015).

Massive online course delivery is possible, just as mass media televised course delivery was possible, but education is more than access to content.

Distance learning institutions delivering eLearning courses

Traditional ODL institutions have also moved much, if not all, of their course delivery online. Although ODL universities once enjoyed the lion’s share of the distance education market, they now find themselves in direct competition with eLearning programmes offered by evolving campus-based institutions.

¹⁴ <https://pando.com/2013/09/13/moocs-and-the-gartner-hype-cycle-a-very-slow-tsunami/>

While eLearning has also expanded the catchment area for ODL institutions, it has unfortunately disadvantaged those who are not online. As content distribution moves to electronic documents and tutor conversations to online forums, people living in rural and remote areas with limited Internet access, and those incarcerated, are in danger of becoming disenfranchised from the ODL systems.

In short, if traditional ODL institutions narrow their service delivery to only those learners who are online, there is little to differentiate them from the campus-based institutions that are now delivering online courses. In tighter economic times governments may question the continued need for special-purpose single-mode institutions (Abrioux, 2006).

In developing nations, the market for higher education is expanding rapidly. Not only is the population in Africa expected to double in the next 20 years, but universal primary education has led to unprecedented numbers of secondary school graduates eager to attend university. The developing nations realise they need to increase the percentage of the population attending higher education to promote economic development, and they are increasing the number of face-to-face (F2F) campuses and also opening ODL institutions to provide access to the masses. For example, although Nigeria has grown the number of F2F institutions to over 100, only about 15% of qualified applicants can be accommodated in F2F institutions (Okeke, 2008). Since 2001, the National Open University of Nigeria¹⁵ (NOUN) has augmented ODL capacity by about 60,000 learners and is extending its reach through eLearning.

While there is a demand for eLearning in the developing regions, the technical infrastructure and skill base are not always in place to carry eLearning courses. It is difficult to provide reliable Internet services in areas where there is no reliable electric power supply. High-bandwidth fibre-optic cabling is just beginning to appear in African cities and, as there are few telephone lines, mobile devices provide most of the Internet endpoints. This poses an interesting market barrier to text-heavy eLearning materials from the developed world.

The Open University of Malaysia¹⁶ (OUM) is a private university owned by Multimedia Technology Enhancement Operations Sdn Bhd (METEOR¹⁷). What makes OUM an interesting case is that METEOR's 11 shareholders are public universities, some of which offer their own distance learning courses. OUM opened its doors in 2001 as an ODL institute, but quickly invested in eLearning. It now has over 100,000 learners, making it one of the larger providers of online education in the world. OUM delivers courses using its proprietary learning management system and maintains learning centres in every state of Malaysia.

The rapid growth of OUM has posed some interesting problems. For example, when the sheer number of learners made it impractical and costly to schedule written examinations at designated writing centres, an "Online Assignment Submission Platform" was implemented to streamline the student assessment process (Ali & Fadzil, 2013).

¹⁵ <http://www.nou.edu.ng/>

¹⁶ <http://www.oum.edu.my/v3/>

¹⁷ <http://meteor.com.my>

Virtual universities

Virtual universities exist because they respond to a perceived need in the marketplace. Whether they target a large market segment or a small niche, virtual universities will continue to operate only if their learners perceive they are getting value for money, and if the convenience of eLearning also provides accreditation that is recognised for employment or advancement.

While accreditation is key for higher education, there are also many corporate training academies providing not-for-credit skills training online. Furthermore, many virtual universities are private enterprises (either for-profit or not-for-profit), having approval from governments to operate and grant degrees.

It should be noted that many of the world's leading universities are "private" and had foresight to provide services before public institutions were created. However, unlike public institutions, most commercial organisations more closely feel the fluctuations of the market, and their freedom to operate leaves them less sheltered by government funding. Over time, many of the private universities have had access to government funding either as direct grants or research funds, or through student loans.

Unfortunately, the private sector also includes about 1,800 unaccredited "diploma mills" that will issue a diploma involving little or no instruction. University World News (King Head, 2011) reported continued increases in the number of unaccredited institutions, mostly operating online from the U.S. or Europe. The unregulated nature of the Internet makes it easy for websites advertising degrees to be set up and moved frequently.

Concern over the integrity of online learning has even spilled over into American federal politics (Straumsheim, 2015). In efforts to thwart bogus degrees, some countries refuse to recognise non-residential degrees and this creates a market barrier for legitimate virtual universities.

Possibly the most visible private eLearning institute is the University of Phoenix¹⁵ (UoP), owned by the Apollo Group in the U.S. and established in 1976. Wikipedia reports that UoP peaked in 2010 with over 600,000 learners online and in 112 campuses worldwide, but dropped to 227,000 in 2015. With UoP's tuition fees being an estimated five to six times those of local community colleges, a student loan default rate of 26% and a graduation rate of only 5–10%, the UoP business mandate seemed to have overtaken its educational goals. When the U.S. economy declined and jobs for graduates became scarce, interest in over-priced online degrees dropped significantly. More recently, the UoP stock decreased in value when the U.S. government announced plans to lower community college tuition (CNN Money, 2015).

Virtual universities can target a large market segment or a small niche. Either way, they will continue to operate only if their learners perceive they are getting value for money, and if the convenience of eLearning also provides accreditation that is recognised for employment or advancement.

¹⁵ <http://www.phoenix.edu/>

In the Commonwealth, both successful and unsuccessful launches of virtual universities have taken place.

One of the more impressive launches has been the Virtual University of Pakistan,¹⁹ a public online university that began in 2002. By 2009, its enrolment exceeded 50,000 learners. Course texts are supplemented by video lectures, often in the Urdu language to increase access and understanding for those with limited English language skills. The lectures are broadcast on TV, distributed on DVDs and streamed on the Internet by YouTube. Examinations are given at proctored examination sites, including over 100 “campuses” in 60 cities. The campuses also provide enrolled students with free computer and Internet access. The pedagogical model makes mass education both scalable and affordable.

Size is not always a pre-requisite for success. One successful “micro-virtual university” is the UK’s Interactive Design Institute (IDI).²⁰ IDI is a private micro-virtual university, formed in 2004. It focuses on the narrow but growing field of interactive media for websites and mobile applications. Delivery is 100% online.

IDI is the first fully virtual university to have been passed by the UK’s Quality Assurance Agency for higher education.²¹ Since 2008, the institute has expanded its programming to deliver BA (Hons) and MA programmes through a symbiotic partnership with the University of Hertfordshire (UoH), in which IDI has also helped UoH move parts of its curriculum online.

IDI had fewer than 500 learners in 2013, of which about 80% were studying part-time. Its pedagogical model is based on online courses and close tutoring by faculty members. IDI’s success appears to be the result of its tight focus and high level of quality interactions with and among learners.

Cyber universities/eUniversities

Korea’s “cyber universities” are a special case of private virtual universities that were encouraged by government regulation. Hwang, Yang & Kim (2010) report how Korea’s national knowledge economy strategies embrace ICT in education. eLearning encourages lifelong learning, and e-learners then carry their computer literacy skills and attitudes into many sectors of the economy.

After a 1998–2000 pilot project by the Ministry of Education Science and Technology (MEST), a 2001 legal framework allowed nine cyber universities to be established. Although OBHE (2003) reported that cyber universities were having a slow start, with only 11,000 enrolments (46% of quotas) after two years, by 2014 the Ministry of Education reported that the number of enrolments had grown to over 114,000 learners in 21 institutions (Arirang News, 2014).

¹⁹ <http://vu.edu.pk/>

²⁰ <http://idesigni.co.uk/>

²¹ <http://www.qaa.ac.uk/reviews-and-reports/provider?UKPRN=10006389#>

Im (2013) notes that the pilot phase allowed MEST to develop a set of quality assurance procedures for the establishment and periodic monitoring of cyber universities. Cyber universities that passed their evaluations were allowed to increase their quota of student registrations. In 2008, 12 cyber universities were permitted to change their status from lifelong education institutions to higher-education institutions, essentially equating them to campus universities. In 2010, Hanyang Cyber University²² became the first cyber university accredited to offer graduate programmes.

The rapid deployment of Korea's cyber universities was likely possible because the country's national ICT strategy had developed a nearly ubiquitous Internet infrastructure and achieved the goal of a high rate of computer literacy (through, for example, online support for K-12 learners). As well, most of the initial cyber universities were operated by established private universities.

However, even with curriculum, faculty and administrative processes in place, the creation of a cyber university still requires technical development of the course delivery system, modularisation of courses, media development, and creation of a student recruitment and support system — all under the watchful eye of the MEST quality assurance process.

The rapid deployment of Korea's cyber universities was likely possible because the country's national ICT strategy had developed a nearly ubiquitous Internet infrastructure and achieved the goal of a high rate of computer literacy.

²² <http://en.hycu.ac.kr/>

BUILDING A VIRTUAL UNIVERSITY

Whether for-profit or non-profit, a virtual university is a business. It requires strategies that clarify the intended audience, the services to be performed, how those services will be

Several variables should determine the delivery strategies to be adopted by a new virtual university: planned enrolment size (large, small), planned content (stable, dynamic), planned interaction (low, high) and known available bandwidth (low, high).

performed, and how the university will generate sufficient income to continue the operation.

Creating a virtual university generally involves the development of three main components: a business plan (or institutional plan); an e-course design and delivery strategy; and a quality assurance strategy.

First, however, developers must assess several factors that can affect what specific delivery strategies are adopted for the new virtual university.

Analysing options for curriculum delivery strategies

Recapping to this point: a virtual university follows much the same organisational structure as a regular university, except that a sophisticated ICT infrastructure replaces the physical campus. With the advent of cloud computing systems, the ICT infrastructure can potentially be leased from a more reliable and less costly source than an in-house server system.

A virtual university is characterised by the use of electronic media over the Internet. Rather than professors giving lectures in classrooms and meeting learners during office hours, the course content is organised in advance into learning activities, and the instructor provides guidance online, usually in weekly missives or by responding quickly to emailed queries.

Several situations can affect the delivery strategies adopted by a virtual university, and should be considered as the first step in building such an institution:

- **Large enrolment, stable content, variable bandwidth** – Undergraduate courses with large enrolments and stable content are often more cost-effective when delivered by self-paced modules in which the content is divided into small chunks interspersed with formative assessment questions.

If desired, additional explanations can be provided by video recordings of lectures or, preferably, single-topic video vignettes such as the micro-teaching videos popularised by the Khan Academy.²³ These materials can also be delivered on CD-ROM for users

²³ <http://www.khanacademy.org/>

in low-bandwidth areas. Student support is provided by a network of online tutors who can answer questions and follow up on students flagged as having difficulty by the learning management system.

Self-paced courses enable students to pick a convenient start date and work at their convenience. Such courses also spread the workload for the support team across the calendar year. Disadvantages of self-paced courses are that they make it difficult to organise student–student interactions, and the modules require maintenance and revision every three to five years.

- **Large enrolment, dynamic content, variable bandwidth** – Undergraduate courses with large enrolments and content that is frequently changing are less cost-effective to run with the entire content packaged in self-paced modules. Typically, in a situation like this, modularisation should be done only for the core of the course — that is, for those principles that are stable — and then the assignments set around readings that can be easily updated. For example, a course in current events might have a core that provides a model of media and political decision-making, with assignments based on analysis of recent news stories.

Marking rubrics provide guidance to both learners and markers as to the expectations of the papers; and in some instances, marking can be better facilitated through computerised essay-marking systems. If the content requires student–student interaction, then the learners can be assigned to small groups that meet either asynchronously in a text conference, or synchronously using telephone conferencing (or, if the bandwidth is reliable, computer conferencing).

- **Small enrolment, high interaction, high bandwidth** – Senior courses and many graduate courses have insufficient enrolment to merit large investment in the production of media. As well, these courses are typically focused on facilitating intellectual development as well as the mastering of the content.

In campus settings, such a course would be delivered in a seminar format, and this method carries well online, too. The course will usually revolve around a study guide and a textbook or collection of readings. Learning activities include individual assignments and small-group collaborative learning activities. A course that is offered over several time zones may choose to have students grouped by time zone. Often the course culminates with the creation and presentation of an original project or a major paper such as the development of a business plan.

To facilitate student–student interaction, students are registered in a fixed-term cohort model. If a high degree of faculty interaction or marking is involved, the number of registrants in a course may have to be limited and the course offered each trimester.

Developing a business plan (institutional strategy)

The first step in developing a virtual university is to develop a business plan (which can also be thought of as an institutional plan). A full business plan template is provided in Appendix A.

The first step in developing a virtual university is to develop a business plan.

In planning for a virtual university, the first question often asked is about how much it costs to start such an institution. The answer is always a straightforward “it depends.” It is important to consider issues indicated in Box 1 while developing a blueprint. Without a clear understanding of the market and the regulatory environment within which the university will operate, achieving success would be difficult. For any initiative to be successful, the right mix of experienced and young academics, professionals, and administrative staff must be in place. Recruiting the first team to set up the virtual university is key: the right staff should have a passion for, as well as experience in and understanding of, online education.

A virtual university’s costs will be related to the kind of operations and technology it plans to deploy. While open source software may reduce the cost of operation, its maintenance and updating may need special budgetary provisions. Usually, the cost structure is similar to that of open universities, with fixed and variable costs.

- **Fixed costs** (e.g., content development costs, technology and software development costs, and overhead costs that are fixed irrespective of number of students) get amortised over a longer period of time and decrease with the number of learners, up to a certain point.
- **Variable costs** (which are recurring in nature) increase with the number of students. For example, use of discussion groups and more synchronous sessions will require more tutors and therefore be more costly.

While the cost of technology and software has been decreasing, no reliable study is available to clearly spell out the cost structure in online education. There are many reasons for this, including the range in the design and delivery of online education.

The use of open educational resources (OER) can offset some of the costs related to development of learning materials. For example, Butcher and Hoosen (2012) reported that use of OER in the production of learning materials substantially reduced the time of production of student learning materials. However, the overall cost of learning materials development for online delivery is typically high, though economies of scale can greatly reduce the cost per learner.

Cost issues can also be different in different countries because of exchange rate fluctuations and the labour market. Thus, estimating the cost is an important exercise that improves as the design considerations are finalised based on the market research.

BOX 1: Key planning questions at the institutional level

Market

What is the need for a virtual university?

What audience of learners will it address? Where are those learners located and how many are there?

What ICT access and skills do they have? Are new learners with ICT skills emerging?

What programmes will the virtual university teach?

What are the competing options for higher education?

Environment

Is the higher-education regulatory environment favourable to a new virtual university?

Is the ICT infrastructure and culture sufficient for reliable delivery?

Is there a job market for graduates?

Finance

What are the capital costs of start-up?

What are the operating costs for administration and per course?

Who will back the start-up? What return will that body or group expect and over what period?

What level of subsidies and grants are available?

Income: What is the current tuition for a course or programme enrolment?

Projected cost recovery: When does the university expect to break even in its investment?

Human Resources

What are the availability and costs for full-time, part-time and contract personnel?

- faculty
- instructional designers
- technical support staff
- administrators

What standard of orientation and training will be required for each position?

Developing an e-course design and delivery strategy

The planned e-course delivery strategy should be a product of existing educational practices and the needs of the learners, constrained by the technical environment, ICT skills and budget available.

There is no universal formula for the design of an eLearning course. The delivery strategy should be a product of existing educational practices and the needs of the learners, constrained by the technical environment, ICT skills and budget available.

Some eLearning courses involve using multimedia interaction; others involve listening to recorded video lectures or watching short micro-instructional video vignettes such as those championed by the Khan Academy. Many eLearning institutions develop a template (or several) to facilitate the systematic development of courses. Each template is implemented on a learning management system and reflects the basic expectations for course organisation and

assessment and for learner and faculty engagement. The instructional designers work with the faculty to choose the template that best fits the content and objectives of the course. Some of the key questions are highlighted in Box 2.

BOX 2: Key planning questions at the design and delivery system level

What ICT systems are required?

- learning management system, repository, conferencing, web-casting, analytics, office systems

Will ICT systems be in-house, leased services or cloud-based?

What types of courses will be developed and delivered?

Course design matrix example		
Low engagement	Self-paced modules augmented with video	Purchased course or outsourced
High engagement	Cohort with seminars and collaborative projects	Study guide with individual study

What assessment systems will be needed?

What media production systems are required?

- video production, lecture capture, desktop media

What resources and costs are involved in developing a course?

- texts/other resources/special equipment
- subject matter experts (authors, reviewers)
- instructional designers
- project managers
- editors
- clerical assistants
- media team
- learning management system technicians
- operating overheads

A key decision in the design of an eLearning course is whether the learners will work individually at their own pace or as part of a cohort working together.

The individual “self-paced” course provides the most flexibility for the learner. Typically, a university will have regular start dates, and there is usually a maximum study period allowed in which the learner must complete all assignments. The advantage of the cohort method is that learners can interact with each other in discussion groups, work together on projects, and even peer-review each other’s assignments before they are submitted for marking. Cohorts provide the most social support but the least flexibility.

Both models are widely used.

The media used in a course is in part dependent on the bandwidth available to distribute the media. In areas with high-bandwidth Internet access, all educational media can be delivered via the Internet, while in low-bandwidth areas printed modules and DVDs may be mailed to the learner — with the online being reserved for low-bandwidth activities such as text chats and email communications with the instructor.

In areas where computers are modern and plentiful, the messages might be formatted for a high-resolution monitor, while in areas where Internet connection is by mobile devices, a more conservative approach to screen use must be taken.

Table 1 shows how the available bandwidth and reliability of the Internet will shape design and delivery of learning activities.

TABLE 1: How Internet infrastructure impacts course design		
Learning Activity	Broadband	Limited Bandwidth
Asynchronous activities	<ul style="list-style-type: none"> • Downloadable e-texts • Study guides • Multimedia presentations • Video presentations • Asynchronous discussions 	<ul style="list-style-type: none"> • Learning management system for assignments • Printed modules • CD-ROM/DVD • TV broadcasts • Telephone tutoring
Synchronous activities	<ul style="list-style-type: none"> • Videoconferencing • Small-group discussions • Student presentations • Remote equipment control 	<ul style="list-style-type: none"> • Study centre work groups, seminars and hands-on labs • Telephone conferencing

High-bandwidth applications such as synchronous videoconferencing systems might not be feasible in areas of low bandwidth, especially in remote regions, because many of the commercial systems require connections to an Internet hub in America or Europe. If the distance from the host servers is too far or the network has too many relays, then signal delays (latency) can make Internet conferencing systems unreliable. Internet technologies that work well in developed regions may simply be unusable in developing regions.

Interaction

Anderson (2003) noted the importance of learner interaction with the course content, the instructor and other students. His Interaction Equivalency Theory suggested that having all three sources of interaction was not essential: any source of interaction could be used. However, important to note is that some forms of interaction may be more efficient than others for learning outcomes. For example, attitudes might be changed better through guided discussion than through reading a book.

eLearning course designs tend to promote more interaction with the content, the instructor and other learners than occurs in the print-based, self-instructional modules of distance education.

Quite often, distance learning universities transitioning to eLearning will start off by augmenting the self-instructional modules with video lectures and other eLearning activities. The degree of interaction among learners tends to vary with the type of courses and the pedagogical traditions of the discipline — that is, less student–student interaction in Math and Sciences and more in Humanities and Social Sciences. Student–student discussion and collaboration are also prevalent in graduate studies and in courses involving decision-making and design.

In eLearning, learners and instructors also interact with the eLearning system — a collection of web utilities and software agents that guide the learner through all facets of his or her university experience, from registration through lessons to examinations.

Assessment: formative and summative

A salient feature of a good eLearning course is the amount of formative assessment activities embedded in the course. Much of assessment can be machine-scored to give learners quick feedback on their progress. As well, modularised instruction that incorporates small step lessons and direct formative assessment can effectively coach motivated learners to mastery performance.

When written assignments or projects form part of the assessment plan, peer review can be used in courses at all levels to stimulate deeper understanding of the assignment requirements, provide social support, and be a source of formative feedback on assignment drafts. Peer review also helps learners develop critical thinking skills and reflect on their own assignment, and it prepares them for the academic peer review process.

The goal for a well-designed eLearning course should be that the summative assessment contain no surprises. A student who has worked through a mastery learning module and completed the formative assessments should be able to successfully complete the final test.

Developing a quality assurance strategy

Distance learning institutions defend their quality by making explicit all processes and documentation for developing curriculum and delivering courses and for assessing student outcomes.

Distance courses are typically better documented than their counterparts in the lecture hall. For learners at a distance, all processes, from admissions to graduation, must be well documented, must adhere to accepted standards and must be free of any corrupt practices. Many jurisdictions and institutions have specific quality assurance (QA) guidelines that are tailored to their need for internal improvement or external reporting. Some also integrate ISO 9001 process documentation requirements. The Asian Association of Open Universities (AAOU) developed a framework of 107 QA “best practices” that touch all areas of institutional operation (AAOU, n.d.). Box 3 shows an example of the key QA areas considered at Wawasan Open University following the Malaysian Qualifications Agency directives (Wong & Liew, 2013).

Thus, any virtual university should develop its own QA strategy before offering courses. Such an approach gives stakeholders confidence in the quality of educational programmes on offer and assurance that delivery of services will comply with national standards and accreditation bodies.

Any virtual university should develop its own QA strategy before offering courses. Such an approach gives stakeholders confidence in the quality of the educational programmes on offer and assurance that delivery of services will comply with national standards and accreditation bodies.

BOX 3: Key planning areas for quality assurance adopted by Wawasan Open University, following the Malaysian Qualifications Agency directives

1. Vision, Mission, Educational Goals and Learning Outcomes
2. Curriculum Design and Development
3. Assessment of Students
4. Student Selection and Support Services
5. Academic Staff
6. Educational Resources
7. Program Monitoring and Review
8. Leadership, Governance and Administration
9. Continual Quality Improvement

Source: Wong and Liew (2013)

DEVELOPING VIRTUAL OPERATIONS

Managing interactions among learners and with their instructors is really only the tip of the iceberg. Those building a virtual university must undertake course development and maintenance, infrastructure development and maintenance, and implementation of a quality

Building a virtual university involves undertaking course development and maintenance, infrastructure development and maintenance, and implementation of a quality assurance strategy for the whole operation.

assurance strategy for the whole operation. Doing all this is in addition to undertaking many of the same tasks required of a traditional university, from seeing to recruitment, registrar functions and human resources to setting up library services and a purchase system for educational materials.

A micro-virtual university could be created by identifying a market need and hiring experienced faculty who are already teaching the topic or have recently taught the topics elsewhere. The courses would then be mounted using an open learning management system such as Moodle on a rented cloud-computing infrastructure.

Other tools can be added depending on the model of course delivery that the institution embraces. Primed with a targeted advertising campaign and enticing scholarships for early registrants, a start date would be set and the operation begun.

However, as noted in the case of the UK's Interactive Design Institute, the complexity of dealing with accreditation and academic administration can be simplified by developing a partnership with an existing university.

Hiring experienced professors is paramount for the quick mounting of quality courses: developing courses from scratch with inexperienced professors can result in false starts. Professors who are acknowledged leaders and researchers in their fields will also have a desire to maintain their courses over time. As well, course development is easier to do if a generic model or template is first developed to set the minimum expectations in terms of content presentation, interactions, and formative and summative assessments. Professors accustomed to presenting lectures or presiding over seminars may want to perpetuate these in the online environment. However, in the long run, more flexibility is accomplished by developing asynchronous learning activities.

Experienced, well-regarded professors also bring the credibility needed for the virtual university to apply for accreditation. Without accreditation, learners will have difficulty transferring credits and having their degrees recognised. Furthermore, if accreditation is necessary to enable learners to obtain student loans, then the acquisition of, or partnership with, an accredited institution can be an asset.

While not all virtual universities develop from conventional campus-based institutions, many do start that way. Of the first 15 cyber universities in Korea, 10 were established by a conventional

university or college, three by consortia of colleges, and only two by independent corporations (Jung, 2002).

An existing university has the advantage of accredited programmes, experienced faculty, tested administrative policies and procedures, and knowledge of the market. The difficulty facing existing universities lies in convincing all operations of the university to interface with learners online and to change the pedagogic models and faculty working conditions. In the Korean example, many of these potential issues were simply sidestepped by creating new universities rather than trying to change the old ones.

Here are additional guidelines for developing virtual operations:

- **As a rule of thumb, it is easier to move extension programmes online first.** Moving popular night-school programmes online carries less organisational risk than disrupting regular day-time face-to-face classes. Extension programmes are usually cost-recovery programmes and are often constrained by available classroom space. Thus, increasing the number of learners will help increase revenues. The faculty involved are usually part-time faculty or regular faculty with separate contracts for extension, so many of them will have a monetary incentive to be involved in the new offerings. Note that to attract distance learners, it is preferable to offer entire programmes online rather than a scattering of courses.
- **Bundle workshops and laboratories into intensive weekends or a summer session.** If the programme has mandatory hands-on workshops or laboratories, these should be bundled together and offered as weekend workshops or an intensive summer session. In some cases, experiments can be done with mail-out kits, but the acquisition, storage and distribution of kits is an expensive undertaking. Weekend sessions also provide learners with vital social contact with their peers and the faculty, although they can also be a barrier to those who cannot travel or who have other commitments. Enrolment in a weekend workshop should be limited to those who have met the pre-requisites. There is nothing worse than a learner in a workshop without any idea of what he or she is to accomplish. A simple pre-test based on the workshop manual will ensure that the learner's time and money are well spent. Any required face-to-face events must be advertised clearly in the recruiting and registration process.
- **Provide a learning management system to support regular face-to-face classes.** Faculty who learn to use a learning management system for posting course notes and assigning and accepting student work are half-way to becoming online professors. Even better, the learners will also become comfortable with these tools and will be more disposed to becoming online learners in the future.
- **Provide web interfaces for all university services.** These services include the library, student counselling, registrar's office, bookstore and student finance. Even if the interface is simply a common email account, the online learner will feel that he or she is included in the university's community and is not a second-tier learner.

- **Create systems for the proctoring of examinations and other assessments.**
Distance education providers are always under scrutiny for quality, and the best way to ensure quality standards are met is to ensure that there is no cheating when examinations are administered. Ways to improve integrity include:
 - a. Use a network of exam administrators (often school teachers or those at test centres) who, for a small fee, will receive the exam from the university, supervise the learner during writing, collect the papers and return them to the university for marking.
 - b. Create multiple versions of examinations. This is best accomplished with randomisation from a large item bank and is most feasible for large enrolment courses. This is recommended for large enrolment courses and institutions.
 - c. Ensure that formative assessments and practice examinations are available so that learners can build confidence before attempting final examinations.
 - d. Ensure that assessments are reviewed to ensure they align with the learning objectives, and conduct item analysis on all examinations to identify weak questions.
 - e. For small enrolment courses, use individual projects rather than examinations.
 - f. If large enrolments are anticipated, invest in an electronic assessment system for randomising multiple-choice examination questions and blind marking of short answer and essay questions.
 - g. Consider subscribing to an “originality checking” service that helps instructors automatically screen assignments for possible plagiarism. The reputation of a university is in its graduates. If a university develops a reputation for low academic integrity, then the credibility of all of its credentials will be brought into question.
 - h. Adopt an honour code for all students enrolled in the university, and follow the code through monitoring.

As well, the following recommendations paraphrase guidance from Jung’s (2002) experience setting up the cyber universities in Korea:

1. Invest in a quality assurance management system at the beginning of university development. This will help pinpoint problems and provide feedback if adjustments are creating improvement.
2. Formalise the training programmes for all faculty and staff and adjust the programmes as skills and procedures evolve.
3. Look for cost-savings wherever possible. For example, partnerships may make it possible to develop shared learning centres.
4. Create open education policies to enable access to as many learners as possible.
5. Build accessibility into the system from the start of course development.
6. Make the learning experience pleasing for adult learners by paying attention to ICT human factors such as screen design and instructional design for quick information access and feedback, and include social interactions.

GOVERNMENT POLICY AND BUSINESS PLANNING

eLearning is part of the digital economy. Not only does eLearning provide learners with access to higher education; it enables those learners to gain many digital skills and knowledge that can be deployed to grow the digital economy and a pool of ready consumers for online services.

Thus, governments wishing to grow the digital sector should implement policies that promote investment in ICT infrastructure and services and the learning of online skills. A national strategy to promote eLearning should be a natural progression of this logic.

Unfortunately not all governments have the constitutional authority to act. For example, in Canada there can be no national education policy because education is the responsibility of the individual provinces and territories. When the federal government created an eLearning programme within its Information Highway strategy, there were indeed constitutional complaints from the provincial and territorial governments. However, in retrospect, Canada's investment in Internet infrastructure, access and research has paid off in many ways and the nation enjoys a strong Internet infrastructure and many social benefits — including eLearning at all levels of education.

Governments wishing to grow the digital sector should implement policies that promote investment in ICT infrastructure and services and the learning of online skills. A national strategy to promote eLearning is a natural progression of this logic.

Governments can generally take one of three policy positions relative to eLearning:

a. Have no national policy.

Where there is a policy void, private education and technology sectors will continue to develop without a cohesive strategy. Learners will continue to take courses without knowing whether their credential will be recognised.

b. Have a policy that signals acceptance of eLearning

Simple acceptance is a step forward. It means that learners who have earned a degree online will not have it questioned. However, there may be confusion in that regard with other national policies.

c. Have a policy promoting eLearning

This is the strongest stance a government can take, but it may require skillful negotiation with vested interests to create a workable policy.

Russia made initial progress with the recognition of eLearning in amendments to the national education law. However, the law did not encourage the establishment of eLearning institutions but instead seems to give the major state universities an opportunity to take the lead. As the Russian university-age demographic decreases, Moscow is also reducing the number of universities (Semyonov, 2015) and increasing recruitment of international students.

Kenya has a national policy that favours eLearning, and it is planning to launch an Open University of Kenya. However, Kenya's *Elections Act* requires candidates to have an approved degree involving a minimum of three months' residency. So, while the eLearning policy is pro-active, additional work needs to ensure eLearning degrees holders are not discriminated against should they run for election. Kenya also requires all universities to possess several acres of land to build their campus, an artifact of regulation that pre-dates the Internet. Furthermore, to thwart low-quality international universities from setting up in Kenya, the government has recently threatened strong measures against any professor collaborating with unlicensed foreign universities (Waruru, 2015).

After consultation with stakeholders, the Province of Ontario, Canada, issued guidelines on eLearning for trades training, stipulating the proportion of online training activities that might be allowable for each occupation. This recognises the interest in eLearning yet maintains the importance of hands-on training.

Malaysia has taken a most pro-active position in releasing its Malaysia Education Blueprint, which includes Global Internet Education as part of its overall strategy. Education in general and higher education in particular are clearly seen as the way to economic sustainability and eLearning as a way of increasing access to and quality of university courses. Of course, Malaysia has 67% Internet penetration, so it is ready to lever that investment for educational purposes, and it also sees growth in the private university sector as a way forward. In 2011, Malaysia released *E-Learning in Malaysian Higher Education Institutions: Status, Trends, & Challenges* that elaborated on the eLearning policy and other issues (Embi, 2011).

A focus group organised by Harley and Lawrence (2006) identified five broad and overlapping topics that concern government policy for eLearning:

- The Changing Regulatory Environment: Who, What, Why, and Where?
- Finance, Investment and Capital
- Student Demand, Access and Equity
- Social Costs and Benefits: Cross-Border Education and the International Context
- Consumer Protection in Cross-Border E-learning

Those planning virtual delivery should first determine the regulatory framework in the main countries for delivery, and be prepared to respond to the above concerns in their business plan.

CRITICAL SUCCESS FACTORS FOR VIRTUAL UNIVERSITIES

While many of the administrative policies of virtual universities are borrowed from those of traditional campuses, considerable effort has gone into understanding the type of policies required to guide eLearning and to share “best practices” for an emerging culture of open online education.

The difficulty for virtual universities is they are new enterprises, and even when growing out of a large traditional campus, they are often expected to be successful in a relatively short period of time. While the technology for eLearning can be rapidly deployed, the development of courses takes time and requires considerable investment in effecting a culture shift.

The technology for eLearning can be rapidly deployed, but the development of courses takes time and requires considerable investment in effecting a culture shift.

In Europe’s Re.VICa project, Bacsis et al. (2010) reviewed several virtual campuses and identified 17 critical success factors for effective operation. Table 2 shows these factors clustered into five areas: Student Learning Experience (three factors), Management (four factors), Institutional Planning (three factors), Technology (three factors) and Faculty and Staff Training (one factor). These factors are similar to the QA clusters identified by Wong and Liew (2013) and by AAOU (n.d.).

Note that policy per se does not appear in the list in Table 2. Rather, policies for virtual universities need to be respectful of these factors in order to encourage the success of both the learners and the organisation. Successful eLearning depends on the synergies of the systems at play.

TABLE 2: Critical success factors for a virtual university's operations		
Cluster	Success Factor	Brief Description
Student Learning Experience	Usability	All systems are usable, with internal evidence to back this up.
	eLearning Strategy	Regularly updated eLearning strategy, integrated with a learning and teaching strategy and all related strategies (e.g., distance learning, if relevant) is in place.
	Student Understanding of System	Students have a good understanding of the rules governing assignment submission, feedback, plagiarism, costs, attendance, etc. and always act on them.
	Student Helpdesk	A helpdesk is deemed as best practice.
	Student Satisfaction	Frequent (ideally, annual) student satisfaction survey explicitly addresses the main eLearning issues of relevance to students.
Planning	Decisions on Projects	Effective decision-making is carried out for eLearning projects across the whole institution, including variations when justified.
	Planning Annually	Integrated annual planning process for eLearning is in place, integrated with overall course planning.
	Decisions on Programmes	There is effective decision-making for eLearning programmes across the whole institution, including variations when justified.
	Market Research	Market research, done centrally and in or on behalf of all departments, is aware of eLearning aspects and is updated annually or before major programme planning.
Management	Costs	A fit-for-purpose costing system is used in all departments for costs of eLearning.
	Leadership in eLearning	The capability of leaders to make decisions about eLearning is fully developed at the departmental and institutional levels.
	Management Style	The overall institutional management style is appropriate to manage its mix of educational and business activities.
	Relationship Management Upwards	The institution has effective processes designed to achieve high formal and informal credibility, with relevant government and public agencies overseeing it.
Technical Reliability and Usability	Technical Support to Staff	All staff engaged in the eLearning process have "nearby" fast-response technical support.
	Reliability	The eLearning system is as reliable as the main systems that students and staff are used to from their wider experience as students and citizens.
	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.
Faculty and Staff Training	Training	All staff trained in the use of virtual learning education, appropriate to job type – and retrained when needed.

Source: Adapted from Bacsinh et al., 2010, p. 65.

SUMMARY AND CONCLUSIONS

This guide shows how virtual universities are evolving as online learning matures, and it puts a particular focus on higher-education institutions in Commonwealth countries.

Below is a summary of the key points for policy-makers.

The advantages of online learning/eLearning

1. Online learning/eLearning increases unprecedented access to post-secondary education.
2. Online learning/eLearning has become an accepted practice for the delivery of higher education and it will continue to evolve as new technologies emerge and as more research is conducted on the effectiveness of the methods used.
3. Online learning can be deployed by existing traditional universities or through the development of innovative virtual universities. Online learning can be implemented in both the public and private sectors, and most open universities have already moved strategically in that direction.
4. Online learning/eLearning develops and strengthens a nation's ICT capacity and should be part of any national ICT strategy.

Developed versus developing regions

5. Developed regions are experiencing a demographic shift that is seeing a reduction in the number of young adults of “university age.” There is growing over-capacity in higher-education systems that were expanded in the past to educate the “baby boom.” Governments are now reducing spending on higher education. Online learning/eLearning provides a way for traditional campuses to enrol more learners. While MOOCs are used as a way for marketing a university's “brand,” these are also being used to encourage interest in ongoing professional education and to increase access to courses, with the possibility of generating greater revenue.
6. In developing regions, a demographic shift is seeing an increase in the university-age cohort. This is due in part to an increased birth rate and to the desire to provide basic education to a wider segment of the population. There is under-capacity in the higher-education systems of developing regions, and increasing government interest in supporting higher education. Populations in many areas (particularly Africa) are growing faster than bricks-and-mortar campuses can be built, and governments may consider using online learning/eLearning to increase education access to rural and remote regions. eLearning also provides increased access to women and other marginalised groups who have difficulty attending residential university.

Design and development issues

7. There is no set “formula” for the design of an eLearning course. Courses tend to be initially constrained by prior practice and the technology and skills available. Practices evolve over time and eLearning courses tend to become more interactive, providing learners interaction with the content, the faculty and other students.
8. Academic integrity is an ongoing concern, and as eLearning systems expand to take on more and more learners, computerised marking schemes are being introduced to cope with assessment and examinations.

Consortium models

9. A marketing consortium (such as the Canadian Virtual University) provides a common interface for learners, and particularly international learners, to engage with eLearning institutions. A common credit transfer policy enhances the ability of learners to access a wider variety of courses. The number of students participating remains small and difficult to count because the model pushes interested learners to enrol in one of the institutions.
10. A development consortium (such as the Swiss Virtual Campus) sees universities linking together to access eLearning development funds, often with the promise of operating a joint eLearning programme. These projects have been disappointing and fail to overcome the cultural and institutional autonomy issues involved. On the other hand, the Virtual University for Small States of the Commonwealth works well as a professional development network, but leaves course delivery to the individual universities.
11. The pooled interests model (e.g., the Open University of Malaysia) has seen much more success. In this model, the institutions become shareholders in a new private eLearning university. The new entity is free to operate programmes appropriate for e-delivery where there is sufficient market demand, rather than trying to offer everything at once.

Regulatory policy

12. An aura of consumer distrust about private virtual universities persists. Learners and countries are wary of digital “diploma mills” and low-quality or outdated programmes. While there is a cost to regulate and implement quality control systems, there is a greater social cost when these are not in place. Accreditation is an important issue for all eLearning programmes.

The number of virtual universities today demonstrates that they can make an appreciable contribution to increasing access to higher education. Many eLearning programmes are still evolving from traditional distance learning methods while others are running all aspects of their programmes online.

Virtual universities will continue to evolve and, given sufficient control mechanisms to ensure quality and academic integrity, they will help enhance the quality of life for many citizens of the world.

APPENDIX A: BUSINESS PLANNING TEMPLATE FOR A VIRTUAL UNIVERSITY

Columns 1 and 2 are courtesy of Dr Roger Pawley, Athabasca University. Comments on related policy issues have been added for clarity.

Section No.	Business Plan Section	Related Virtual University Policy Issues and Actions
	Overview	
1a	Business Plan Executive Summary <ul style="list-style-type: none"> • Summary of the major findings of the business plan • Indication of how long for profitability 	n/a Return on investment (ROI) considerations will impact policies on budgets, salaries and tuitions.
1b	Business Name	n/a
1c	Business Environment <ul style="list-style-type: none"> • Brief summary of business analysis findings 	Identification of government regulation in any jurisdictions with greater than 10% of the virtual university’s target market.
1d	Business Strategic Direction <ul style="list-style-type: none"> • Vision • Mission 	Mission should identify initial target audiences and programmes. Why is this “need” not being met by others? What will the virtual university accomplish in the short- and long-term perspectives?
	Legal	
2a	Legal Status and Form of Business	Universities may require special licensing to operate. Government regulations may limit scope of virtual universities or specify accreditation requirements.
2b	Business Location/ Geographical Location	Identify headquarters and any regional offices. Note that regional offices will have to conform to local laws, including labour laws and taxation.
2c	Business Description <ul style="list-style-type: none"> • Business products and services • Details of products to be developed • List of services to be provided to customers 	For example: List initial academic programmes and support services. Describe in-depth programmes, length of study, and face-to-face components such as labs or practical experiences. Note all support locations, if required. Policy is required on the provision of ICT services. For example, U.S.-owned IT providers must expose data to U.S. security agencies.

	Governance	
3a	Governance Process <ul style="list-style-type: none"> • Reporting structure • Decision-making process • Regulations and guidelines that impact the business 	Private universities need to keep business interests and academic operations separate.
3b	Management Team <ul style="list-style-type: none"> • Qualifications and experience • Roles of the management to team • Organisational structure 	<p>Experience in higher education and vision are essential.</p> <p>Ethics and anti-corruption policies to be in place.</p> <p>Structure can be flat and flexible or tall and bureaucratic.</p>
3c	Relationship to Other Organisations <ul style="list-style-type: none"> • Internal relationships • External relationships 	Determine accreditation and quality assurance linkages early. Consider partnerships and alliances.
	Marketing and Sales	
4	Marketing and Sales <ul style="list-style-type: none"> • Marketing strategies/plan • Detailed sales projection 	<p>For example:</p> <p>Verify employability skills.</p> <p>Do not oversell programmes and services.</p> <p>Determine level of service for learners.</p>
	Requirements	
5a	Workflow Plan <ul style="list-style-type: none"> • List of major tasks/products and services to be created/ supported • Type of personnel needed to complete work • Level of effort for each person 	Ideally, the Workflow Plan should reflect the first 3 years of the business plan.
5b	Human Resource Requirements/Plan <ul style="list-style-type: none"> • Personnel requirements based on findings from workflow plan • Type: full-time, part-time, contractors • Ownership of curricular materials 	<p>Experienced academics should be recruited to develop and deliver courses.</p> <p>Many IT functions can be out-sourced to cloud computing providers. However, operational capability for implementation, development and maintenance may be required in-house.</p> <p>Percentage of full-time, part-time and contract staff should be determined.</p> <p>Curriculum needs should be balanced with maintenance issues.</p>

5c	Work Processes and Procedures <ul style="list-style-type: none"> • Standardised processes and procedures to guide work • List of existing guidelines/ manuals • List of guidelines/ manuals that must be created 	For example: Admissions policies Courses and programmes to be offered Curriculum development procedures Academic policy and procedures, including assessment Copyright and use of OER materials Learner manual
5d	Quality Assurance	Configure quality assurance programme on a systems improvement model for a learning organisation.
5e	Research Strategy (if applicable) <ul style="list-style-type: none"> • Key areas of investigation • Role/expectations of faculty • Intellectual property • Institutional support and facilities 	Determine if the university will be contributing to the growth of knowledge or simply remain a teaching institute.
Resource Requirements		
6a	Infrastructure/Office Requirements <ul style="list-style-type: none"> • Office furniture and equipment • Office computer hardware and software • Office space based on personnel requirements 	Verify campus size regulations in country. Minimise physical plant. Consider technical standards for virtual faculty and staff. Determine space needs for workshops and laboratories.
6b	Information and Communication Technology (ICT) Requirements <ul style="list-style-type: none"> • Types of ICT software and tools required • Administrative systems • Learning management system/ learning content management system • Social networking tools • Media repository • Video streaming • Privacy and data security • Geographic challenges 	For example: Balance in-house and cloud systems. Determine bandwidth and endpoints supported. Determine mix of systems required. Monitor academic use of non-secure channels. Determine storage and international copyright issues. Establish support for mobile devices. Address privacy and freedom of information issues. Determine practical delivery area, latency, time zones.

6c	Technology Support <ul style="list-style-type: none"> • learners • faculty • library 	For example: Set up helpdesk support. Get purchasing assistance. Determine role of library, e-library licensing, and virtual collections.
Financial Plan		
7	<ul style="list-style-type: none"> • Start-up projections/budget • Source of start-up funds • Revenue projections • Cash flow projections/multi-year budget 	Position programmes in the marketplace.
Performance Management		
8	<ul style="list-style-type: none"> • Overview of performance management approach • Complete balanced scorecard • Reflects the performance indicators based on strategic goals • Should include performance indicators, methods of measure, frequency of measures, etc. 	Consider explicit management philosophy, including ethics.
Timelines		
9	Timeline for implementation <ul style="list-style-type: none"> • Priorities of work (e.g., who will complete the work) • Major implementation milestones 	Carry out project management training and implementation.

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