



A Review of the African Virtual University

By Cliff Missen, MA
Systems Analyst & Instructor
University of Iowa

For the Carnegie Corporation of New York

Overview

The African Virtual University (AVU) represents an ambitious and creative approach to improving tertiary education throughout Africa by harnessing cutting-edge information and communication technologies (ICT). Focusing largely on technical training that is not yet offered at most participating African universities, the AVU aims to deliver first-class course offerings developed by Western educators as well as to train African educators in the production and delivery of their own distance learning programs.

After a two year pilot phase, the AVU has broadened its goals, expanded its leadership to include more African academics, and has prepared a business plan that it hopes will deliver it to self-sustainability in three to four years. The AVU is guided by an impressive group of academics and managers who have weathered some critical milestones in conceiving and elucidating this plan. They have adopted a high stakes, high cost course of action which, if successful, might radically alter the delivery of university level courses across the continent. However, this project is by no means guaranteed of success. The AVU faces some sobering challenges in implementing their plan.

Absent the typical politicking, corruption, and acrimony that befalls many private and public sector high-stakes schemes in Africa, the AVU might be viewed as a risky but worthwhile investment. In the context of the African milieu, however, the AVU represents a high-minded and unpredictable experiment in Western aid.

The Carnegie Corporation has been approached by the AVU to fund a small portion of the AVU's administrative development and significant portion of the ICT infrastructure at a selection of AVU partner universities.

The question of the viability of the AVU aside, it is clear that African universities desperately need to invest in ICT if they want to collaborate and participate in scholarly endeavors around the world and deliver relevant and timely academic resources to their students.

It seems as though the Carnegie Corporation has several choices:

- Fund the AVU and AVU activities at its partner universities as proposed
- Fund AVU activities at the selected African universities
- Fund ICT development at the selected African universities, whether or not they participate in AVU
- Punt

The ideas in the articles offered here are meant to stimulate the discussion of the AVU project and ICT development at African universities. This arena is too dynamic to dismiss or embrace proposals like the AVU too readily.

Hopefully these comments will shine more light on the subject...

Contents

The Curse of the Bottom Line
Opening the Door to Competition
Sticky Issues Around Money
How Much are African Universities Willing to Spend?
The Big Question -- Functional ICT?
The Promise and Peril of Distance Education
The Value of Computer Aided Instruction
Buying vs. Renting Educational Materials
Developing Student Management Software
A Digital Virtual Library
How Much Bandwidth is Enough?
How Successful has the AVU Been?
Whither the University?
If not the AVU, then What?
A Proposal with Many Faces
Computer Resources of Partner Universities

The Curse of the Bottom Line

Born of the World Bank and dependant on large contributions from international donors, the AVU's great challenge and vulnerability is its goal to be self-supporting in the short term.

It is debatable, at this point, whether any sort of ICT investment in Africa can expect to turn a profit. By its very nature, ICT is expensive and, since it affects virtually all aspects of an organization's communication and culture, its application is fraught with dangers. After ten years of experience in the U.S., there are still more ICT failures than successes (although some organizations appear to do well by throwing more resources into ICT than they ought to.) There's not a university in the West that can yet point to its ICT investments and declare that they have "broken even." ICT is simply expensive. While it contains the potential to make users more efficient and possibly automate some jobs to the point of extinction, it also requires significant and costly personnel to deploy and maintain it. ICT is additive: it expands the potential of those who embrace it. It augments the capacity of institutions to conduct their mission and increases their workers productivity, but it does not pay for itself.

ICT is an institutional investment, like buildings, roads, and electricity. To invest in ICT is to move one's infrastructure to a higher plane.

In today's highly connected, richly digitized world, there is no neutral ICT choice. An institution that does NOT invest in ICT is doomed to lag further and further behind its peers, risking, eventually, irrelevancy.

So the real questions are: "how much?"; "for what purpose?"; and "how soon?" These are very difficult questions for any institution, but even more difficult for African universities that are grossly under funded and decades behind their Western counterparts in technology and systems capacity.

The AVU is in an unenviable position: it wants to deliver course content to African universities and has calculated a way to deliver its content in a self-sustaining manner. Unfortunately, the plan requires partner African universities to provide the most expensive and complicated component of the course delivery system – the equipment on the ground in Africa. No university in Africa, even those with which I am familiar that have spent half a million dollars on ICT, can point to a finished product anywhere near as functional as what the AVU projects a learning center will need in order to be successful.

The success of the AVU hinges on its partners' ability to deploy functional ICT systems in a timely manner. The key words being: "functional" and "timely." As much as I know and love Africa, I cannot vouch for either of these traits and keep a straight face.

Opening the Door to Competition

Currently, the African universities in question possess very little Internet bandwidth. Most are not connected to the Internet at all, while those that are connected do so via telephone dial-up or dramatically limited satellite connections. As the AVU was originally conceived, it was to overcome this lack of bandwidth by using satellites to broadcast TV signals into unconnected universities.

However, the top-down, neo-colonialist flavor of this model did not sit well with most of the participants (in Nigeria, I'm told, the AVU pilot project was dismissed out of hand because of this perception.) So the players have insisted on a more equitable model that includes two-way communication technology and all participants being able to assume the roles of both content provider and consumer.

The conundrum is this: once these universities become connected to the Internet, they then gain access to all the resources of the Internet. Meaning that they will be able to take delivery of distance education from multiple vendors, gather curriculum materials from their colleagues around the world, establish collaborations with the institutions of their choice, as well as attract instructors to their institutions.

Might this be a question of putting the cart before the horse?

If these institutions were already connected to the Internet might they be able to negotiate most of the services that are to be offered by the African Virtual University from other sources? Certainly, there are ample private sector and Western university groups who are anxious to participate in the growing training market in Africa. Last year the dean of the business school at the University of Lagos told me, in a private conversation, that he knew of more students working on MBA programs in other countries via email and the Internet than he had in his own classrooms. The private sector and entrepreneurial universities are already delivering programs to students around the world with Internet connections and financial resources.

According to budget set forth in this proposal, during the fourth year of operation learning centers will be paying one-third of their revenue -- \$450,000 -- as royalties to the AVU. (Appendix D, "Operating Forecast for an AVU Learning Center...") I suspect this sum will have many participants scratching their heads and looking for better bargains.

There are hundreds of universities, technical colleges, and private training concerns that offer on-line degrees and training. A sample of the more successful include:

- University of Phoenix --- www.phoenix.edu
- National Technological University --- www.ntu.edu
- The Open University --- www.open.ac.uk
- Cisco Network Academy --- www.cisco.com/warp/public/779/edu/academy

And, for those with a few extra shekles to burn... (\$95,000, but it includes a free computer...)

- Duke University MBA/Global Executive --- www.fuqua.duke.edu/admin/gemba

In the end, the original confounding bandwidth issue may be the undoing of AVU's closed market projections and the golden opportunity for African universities.

This holiday season, consumers in the U.S. were introduced to the first of a new generation of two-way Internet satellite bandwidth services that will, in the next few years, become available around the globe. For a few hundred dollars for equipment and \$70 a month, consumers can enjoy 400K to 1Mbit of bandwidth to the home. As new satellite systems come into service over the next two years, the options will increase and the prices will drop. Every square inch of the globe will be bathed in relatively inexpensive bandwidth and African universities will have a much easier time deciding to be connected to the Internet.

At that point in the future, the AVU will have no advantage over other institutions providing content and instruction over the Internet, hence it needs to be prepared to factor heavy competition into its budget predictions.

Sticky Issues Around Money

On paper, it is possible to demonstrate that this endeavor could be self-supporting. However, there are a lot of assumptions being made about the way business is done in Africa that are not supported by the experience of others in various sectors. Are there examples of such high-stakes enterprises being carried off successfully in Africa? At African universities?

What happens if the partner universities receive their Carnegie-funded equipment and then determine that the AVU is too expensive for their tastes?

What happens when the partner institutions decide to mount their own computer science, computer engineering, electrical engineering, and/or MBA programs independently of AVU? Any conflict? Can they use the resources garnered from their AVU experience? Who owns the content?

What about partnerships with corporations within the countries? Banking, insurance, governments, NGOs, manufacturing, telecommunications, and others all have specific ICT training needs that could be met by the university crafting programs to suit local needs and satisfy potential partners. These kinds of relationships have provided generous benefits to universities and community colleges around the U.S. and Europe, allowing the institutions to develop their training programs far beyond what was possible via traditional funding modes. Might a private sector partner of AVU, or the AVU itself, compete with a partner university to provide such training?

As well, universities and community colleges throughout the U.S. are partnering with ICT companies through arrangements where the ICT companies provide hardware and software, and -- in some cases -- whole buildings, while the institution provides made-to-order training for a cadre of young technicians. It seems that the AVU could assist partner universities in developing such arrangements, or it could simply partner directly with the ICT company. It could either build up or undercut the university in the same instance. What protections would the university have?

And what is the real break-even point for participating universities? The proposal assumes that profitability is reached when the university's income exceeds the cost of faculty, support staff, equipment, marketing, and royalties. But what of the hidden infrastructure costs? Most analysts assume the cost of ICT equipment to be a mere 5-10% of the entire cost of supporting a network system over time -- with the greatest amounts being spent on training support staff and end users. Using the higher percentage number of this model, if we suppose an initial outlay of \$300,000 for ICT equipment (as per proposals, minus lab equipment), then we can assume the actual costs for creating and supporting such a system in the U.S. would be \$3million.

Of course we can adjust the figures downward to accommodate the cost-of-labor differences between Africa and the U.S., but we'd also have to adjust some figures up to account for the additional costs that Africans pay for equipment, training, and materials from the West. In the end, we must recognize that the system implemented at the participating universities will cost many times the actual equipment costs and this needs to be taken into consideration when determining the universities' break-even point.

Finally, a question that begs to be asked: if the AVU is likely to be profitable in a few short years, why not try to attract private sector investors? Sixty-two million is chicken feed for an Internet startup that promises to break even in four years. It seems that, leveraging World Bank and foundation support, the AVU ought to look attractive to investors who know the turf.

How Much are the African Universities Willing to Spend?

According to their own documents many of the universities who have participated in the AVU pilot project provided few if any of their own resources. Of the six sites providing reports, only one, Kenyatta University reported purchasing more than a handful of its current stock of computers. (Kenyatta purchased an admirable 100 of 220 computers.) Three sites reported limited networking and one had a satellite connection to the Internet.

	Kampala, Uganda	Uganda Polytechnic Kyambogo	Kumasi, Ghana	Kenyatta, Kenya	Dar es Salaam, Tanzania	Open University of Tanzania
<i>Rooms</i>	3	1	2	3	1	
<i>Purchased Computers</i>	3	5	5	100		
<i>Donated Computers</i>	60	32	64	120		25
<i>Computers located in labs</i>	43	20	11	100	21	?
<i>Computers located elsewhere</i>	20	7	58	120		?
<i>Total Computers</i>	63	37	69	220	21	14
<i>Internet connected computers</i>			11	40		6
<i>Networked computers</i>		0	46	200		6
<i>Printers</i>		4	2	5		1
<i>Network Servers</i>		2				
<i>Type of Internet Connection</i>	Wireless radio	Dial-up leased line	Dial up, leased line, VSAT	Dial up	Wireless	Wireless
<i>Phone lines</i>		1 voice/fax	2 voice,1 fax			1 voice/fax

In contrast, there are universities like the University of Jos in Nigeria, where over 175 computers are linked on a fiber optic network that spans the campus, or Obafemi Awolowo University in Ile-Ife, Nigeria, where 26 computers are linked to a satellite Internet connection. These institutions leveraged nominal outside support with central funds to create a greater product; a significant sign that these institutions have tackled some of the more onerous institutional hurdles and were ready to risk their own funds (hundreds of thousands each) to better their university. What are the chances the in the next few years the AVU partner universities will be willing to invest hundreds of thousands of their own dollars in new computers and network systems? This is, I believe, a critical issue. It's very easy to spend someone else's money haphazardly, but not one's own. Unless these universities "buy in" to the concept and accept significant risk, they are insulated from the seriousness of the task and more likely to abandon it when it starts to look expensive. (ICT projects ALWAYS cost more than anticipated...)

ICT-related administration shakedowns have rocked universities in the U.S. and elsewhere, so it's best that those undertaking ICT projects understand the risks and gird their loins for the battle.

The Big Question Mark -- Functional ICT

Creating reliable Internet connections at African universities is a huge and complex task. Starting from the ground up, the challenges include:

- convincing university administrators make ICT a priority
- crafting a campus constituency to support the adoption of ICT
- developing policies and procedures for the use of ICT resources
- building infrastructure to host and secure ICT equipment
- investing in network infrastructure
- developing the basic technical capacity to support ICT on campus
- providing a consistent source of power
- catalyzing a corporate culture that supports and utilizes the technology
- training armies of end-users to use ICT effectively

Developing ICT technology at universities is difficult enough. Developing it to the point where it can efficiently and effectively deliver distance education is a true challenge. It has taken many Western institutions over a decade of effort to arrive at a point where their results are nominally successful. Given the vast amount ground that African universities need to cover in this area, it is conceivable to imagine their efforts during the next three years to be entirely consumed by planning, preparation, internal negotiations, and false starts.

A common but audacious statement included in the proposal points up the need to develop distinctions between having computers and using ICT effectively. On page 9 of the “Proposal for Partnership” the writers claim that 60% of professors at Kenyatta University are “computer literate” thanks to AVU training. What is the measure of literacy and what are the outcomes? Most U.S. universities would be hard pressed to declare 60% of their faculty computer literate, although the vast majority use computers to send and receive email.

The Promise and Peril of Distance Education

The AVU project emphasizes distance education in all of its literature – in fact, the royalties from distance education are the key to cost recovery – but is distance education really what is needed at African universities?

In asking this question, it is important to distinguish between distance education, the synchronous or asynchronous teaching of students at geographically distant sites, and computer aided instruction, where computers are used by instructors to present materials to students either in the classroom or as stand-alone teaching modules.

Distance education is NOT cost effective for the average student when the provider is responsible for the student’s Internet connection, workstation, and space.

In the U.S., distance education is generally found to be cost effective, from the provider’s perspective, because the student (or his/her company) provides his/her own space and equipment. Distance education is cost effective from the student/employer’s perspective since the student is not required to travel to the course site and the student/employer have ample access to equipment and bandwidth.

However, for African universities that must supply power, equipment, bandwidth, and computer “face time” for every student, distance learning is an expensive undertaking. Classroom lecture-style teaching remains the most cost-efficient option on a cost-per-unit basis.

It is true that African universities either do not have or cannot attract faculty talent in the more esoteric areas of electrical engineering and computer science, but is distance education cheaper than subsidizing visiting Diaspora educators?

Truly good distance education remains the Holy Grail for Western institutions. From the well-bankrolled Western Governor’s University and University of Phoenix, to homegrown correspondence programs at virtually every state university and community college – including a myriad of private sector training institutes – a recipe for successful and meaningful distance education has remained elusive. Finding the right mix of technology, content delivery, student/instructor interaction, as well as student assessment and course management tools is a tough assignment. Hence, we still see that the majority of students who enroll in distance education programs do not complete the program.

Why the emphasis on training Africans to do distance teaching? Are they not overwhelmed with their responsibilities at their home institutions? Is it likely that they will find a market for their instruction at other African

universities? Where's the market for distance learning from Africa? Since the size of the distance educator's market is limited to those who have ready access to ICT, it stands to reason that the largest market for African educators is the U.S. student. Should we be looking at "exporting" African courses to the West? Can African educators compete with their Western counterparts? Should they? What's the added value that African instructors can provide (besides in the obvious courses like African languages and history)?

Developing distance education requires numerous times more energy than developing a standard classroom course. Might African institutions, bent to the task of improving their campus offerings in this manner, lose their best minds and talent to servicing a market segment that continues to elude their Western counterparts?

The Value of Computer Aided Instruction

Computer aided instruction (CAI) allows instructors to digitize their ideas, using various types of media, and deliver content to students in various venues: in a lecture, over the Internet, on a CD-ROM, or as a stand-alone self-paced module.

I cannot provide real figures for this assertion without digging into the literature, but I suspect that most of my colleagues will back me up on this point: it generally takes roughly four times as much effort to make digital versions of standard course materials for a lecture-style classroom course and ten times as much effort to make good digital versions of standard course materials for an on-line or stand-alone course.

But they remain different beasts. Much more information must be digitally recorded for an on-line course. For example, in a typical lecture course I can make up some PowerPoint slides and stand in front of my class and extemporaneously review the slides, drawing relationships between objects on the slide and adding whatever new examples and observations come to mind. However, for an online course I need to animate my slides, add voice-over narrations or transcripts of my lecture, and be sure to include the whole range of examples and observations. There are terrific rewards, however, to be realized by digitizing course materials. Once a course has been digitized, it can be offered virtually everywhere for significantly less than a lecture-based course. One course I offer is taught on several continents simultaneously, with students working through the materials at their own pace in their own time, because it is available on the World Wide Web and CD.

Done Right... adopting multimedia CAI technologies provides an organization a chance to rework and examine their pedagogy and raise questions about their efficacy. It "breaks the ice" and creates an opportunity to reinvent. Done wrong... multimedia CAI technologies can be used to "freeze" the status quo into an even more frustrating straightjacket, since altering CAI content takes exponentially more effort.

On top of all this, getting the current generation of Western professors to use the digital communication technologies of their student's generation has proven to be an underwhelming success. Many instructors have gone so far as to replicate their classroom lecture with nominally interesting PowerPoint slides, but only a rare few have ventured into the world of asynchronous learning using the whole host of digital communication technologies to recreate a holistic and engaging "classroom" experience for their students. In the end, many instructors view digitizing their courses, beyond a Web version of their syllabus and PowerPoint slides, as a waste of time and a hindrance to their full expression and interaction with their students.

The best examples of CAI tend to be those academic titles developed by well-funded commercial textbook manufacturers and discipline specific consortia. However, ICT-related computer-based training modules typically demonstrate the state-of-the-art. Such titles, which once cost hundreds of dollars, can now be purchased at stores for under \$100 (some popular titles, like Java Programming and Microsoft Office 2000 suite going for under \$50.)

Recently, some ICT training vendors have assumed a model whereby the student receives their training from CD or Web site, but can contact a "coach" via on-line chat or email 24 hours a day.

Taking these concepts into account, the AVU proposal to have African professors spend time developing their courses for Web delivery is vexing. It is understood that they need to develop distance education courses to fit the AVU cost model, but I suspect that the creation of distance education materials may not be the best use of most professors' time.

Will they learn how to make good pedagogical use of the new technologies for making classroom presentations? (Still the most cost-effective way to teach large numbers of students.)

Will they be creating a set of materials that other instructors can use for classroom presentations at other African universities? (A laudable endeavor that will save other instructors significant course preparation time while allowing them the flexibility to customize the course to their student's needs.)

Or are they being drawn into the time-consuming task of digitizing their courses to be fully self-contained modules that will be offered at other institutions? (An effort-robbing task which strikes fear into even the most experienced Western multimedia developer.)

Buying vs. Renting Educational Materials

From a particular point of view, this analogy might be appropriate:

Assume the problem is that African universities lack good textbooks and curricula for teaching certain technical courses that are common in the West.

African universities have several options:

- buy textbooks from established (probably Western) commercial developers, borrow a syllabus from prior faculty, and make modest adjustments to suit their students' needs. Use these materials for years and years until the students complain... (Essentially what is done at most U.S. institutions.)
- work with Western counterparts and other universities to develop appropriate textbooks and syllabi that can be adapted by faculty at African universities to suit their students' needs. Use these materials for years and years until the students complain...
- rent textbooks on a student-by-student basis. Keep the textbooks in a special secure room that seats only a portion of the students in the course. Use expensive top-of-the-line textbooks and reading rooms. Entice faculty to ignore their teaching and research to write textbooks that can be rented to others.

African universities might be better served if they secured digital course curricula (either by purchasing it, downloading free stuff from the Web, or receiving it through programs like UNESCO, or AAAS) and then customized it to fit their students. The products of their labors could then be shared with other African institutions at low cost.

Developing Student Management Software

How does this AVU student management software differ from offerings from Blackboard? Web CT? PeopleSoft? (Each of which have cost tens of millions of dollars to develop.)

Will this be a system that is readily distributable to all universities or a Web-based system that presupposes an Internet connection?

What is the cost of inventing a new program versus buying one off-the-shelf? Will it be sustainable, affordable, and extensible over time?

Does this duplicate/frustrate the efforts of the partner universities or their national agencies?

Will universities have to support two MIS systems? Will they be compatible?

Will this student management software be IMS compliant? IMS is an international effort to define metadata standards for higher educational institutions so that data can be exchanged freely. Any new development in academic software ought to be IMS compliant. See www.imsproject.org/

A Digital Virtual Library

The products of "virtual library" endeavors like the Gutenberg Project, Virtual Hospital, TechniconSA, (and others) are admirable and the resources they provide to African scholars are invaluable.

In essence, these virtual libraries serve two functions: gathering related academic material into cohesive collections for faster, easier retrieval; and securing permission for the intended audience to access materials which would otherwise only be available to paid subscribers.

However, their greatest weakness is that they require the scholar to have full Internet access and significant (expensive) bandwidth. All of the universities in this proposal are planning for limited Internet bandwidth. They will, no doubt, eventually have to decide who gets to utilize this bandwidth and for what purposes, since only a limited number of users can browse the Web effectively on lesser connections.

Since the AVU is already planning to have servers on the partner university's LAN, they might want to consider moving the contents of their virtual library to a server on the university LAN, (a technique called caching) where the content can be accessed quickly at no additional bandwidth cost to the university.

How Much Bandwidth is Enough?

The University of Iowa, with 28,000 students and 14,000 employees, fully utilizes 65Mbit of Internet bandwidth. Those in high-end computing areas of the university (computer science, medical imaging, scientific visualization, and remote supercomputing) command another 25Mbit for their purposes. In addition to this, we can assume that more than half of the university staff and students also have independent Internet bandwidth to their homes, albeit in modest 53K and 1Mbit increments, that adds up to a substantial, possibly larger, amount of bandwidth. (This is very important because some portion of those tasks undertaken at home would be done at the university if the individual did not have Internet access at home.)

Leaving the computer science and medical imaging folks aside for the moment, this means that our institution must be prepared to offer bandwidth averaging 1.3Kbit per person. (Although many do not typically use computers on a daily basis, we can generalize...)

Using these figures, we might assume that a 128Kbit satellite connection would adequately serve 93 people. However, once the error rate and latency of satellites are figured in, the actual throughput is much less. Then factor in that most users will only be able to use the system during a shorter period when the computer center is open, that the university will no doubt want to send and receive emails via this same connection, and that those downloading image-intensive materials (like distance education materials) will monopolize the bandwidth, it can be safely assumed that a 128Kbit connection might adequately serve 20 non-concurrent users.

Some experts in the field suggest that 20Kbit per person is a more reasonable standard. In this case, a 128kbit connection would adequately service six persons.

In either case, a \$150,000 Internet connection serves a painfully small group of people if it is devoted to simulcasting data and uploading/ downloading distance education materials.

In just a few years, satellite bandwidth will be a small fraction of its current cost. In the meantime, African university administrators need to decide how much they are willing to spend on satellite bandwidth (a constant drain of scarce foreign currency) versus building Local Area Networks around their universities where, after they purchase the wires, they can enjoy unlimited bandwidth for free.

With a LAN, an inexpensive small-but-reliable bit of Internet bandwidth can be put to use creating a widely popular messaging (email) system, building broad campus support for ICT.

How Successful has the AVU Been?

There's a discomfoting lack of qualitative assessment of the AVU's track record over the last three years. I found no indication of student satisfaction (an important consideration when operating in a free, competitive market), no account for the number of students who completed courses, little to demonstrate that real learning is taking place, and little feedback from the participating instructors on how the experience has shaped their pedagogy or increased their skills.

How many of the "enrolled" students completed the coursework? How many hours of training did the students receive? How many of the courses were delivered successfully? What were the causes for those courses that did not go off as planned? What measures of success can the AVU demonstrate? Were there exams? If so, how did the students fare?

While in the current proposal the AVU planners highlight courses in systems analysis, computer languages, and electrical engineering and design, the bulk of the pilot project courses seemed to be short seminars on word processing, Y2K, spreadsheets, databases and introductions to the Internet.

The types of courses included in the pilot are of the ilk commonly taught at high schools, community colleges, and private sector training organizations. Training in some of these areas can be done in a matter of hours or days and might even be better-accomplished using computer based training (CBT) materials. With these sorts of topics it would be extremely easy to train trainers in a matter of weeks, who could then turn around and train hundreds of students and staff at their universities at very little cost.

What we do not know is whether the AVU can successfully deliver more technically complex and time-consuming courses like systems analysis and the design of electronic circuits. Two-way interactive education is a level of complexity exponentially more difficult than one-way broadcast.

Wither the University?

It is hard to understand how this independent-entity, entrepreneurial model will strengthen the traditional university. A university achieves its best efficiency by teaching thousands of students simultaneously for the least possible cost. Students attain admission, pay tuition (or not, in many African countries), fulfill the obligations of a degree, and graduate. In this AVU-enhanced model, the student pays tuition (or the state does) and then turns around and purchases, a la carte, certain technical training from a para-commercial entity within the university. Does this undermine the state's intention of providing full tuition? Won't the university be competing with a vibrant private sector?

Universities profit greatly from instructors who master their fields, prodded along by peer review and research, and then, year after year, convey their knowledge to their students effectively and efficiently. Yet this plan raises the specter of talented faculty beholding as much to outside agencies and business plans as they work on a "side business" that generates more profits and rewards than their university appointment.

In some ways, the AVU might represent a Western "Oh here, let us show you how it's done" project that creates a shell university within a university. However, in reading this proposal it seems at times that the AVU expects to be shielded from the controversies, corruption, and politics that plague similar academic ventures at African (as well as Western) universities.

If successful, the AVU might indeed demonstrate how transparent, accountable, and depoliticized education can be delivered in the context of the African university.

If typical, the AVU could be an expensive civics lesson that winds up annoying everyone involved.

At its worst, the AVU could distract and detract from the participating universities' on-going strategic programs, create a disruptive money machine that becomes the object of attention of the more enterprising faculty, and/or cause such a controversy as to raise the ire of students who do not benefit from the substantial spending and hence unseat vice-chancellors.

If not the AVU, then What?

The AVU aside, there are only a handful of nominally successful, mostly under funded programs aimed at building ICT capacity or improving the quality of education at African universities. So, to most African university administrator's, the promise of a multi-million dollar project like the AVU must appear to be their only salvation. But what else might the universities do themselves with \$300,000 worth of networking and computers? Might they be better off taking advantage of the open market without servicing AVU's need to become self-supporting? What added value does the AVU provide that the participating universities would not be able to secure elsewhere?

Many universities claim to have instructors but few resources. If they were going to spend the money on equipment, why would they want to pay royalties to distant instructors and tie up their expensive ICT equipment for distance education?

Why might the AVU work with established universities at all? While not explicitly addressed in the proposal, it seems clear that the universities will be providing a great deal in terms of their resources (space, faculty, support staff, equipment.) On the other hand, it also seems that universities bring a lot of baggage to the table as well.

Private training firms might prove more agile and require less "overhead" than federally controlled and entrenched universities. Is this a good fit?

Will universities wind up siphoning resources away from their traditional liberal arts, social sciences, natural sciences, law, and medicine courses to underwrite high-tech training for a select group of engineering and computer science students?

How exactly will AVU learning centers establish and retain autonomy from their university's administration? Might the AVU become the tail that wags the dog? At what point do we determine that the university isn't simply spinning off its resources and talent to feed a short-term cash cow?

Except for a few demonstration sites, the participating universities are expected to provide their own equipment and infrastructure. From a larger perspective, it may not be in the university's best interest to spend an extraordinarily large amount of money building a system designed around curriculum offered by an external agent.

To highlight this, let's examine some scenarios:

A university can spend \$300,000 putting in a satellite dish, video servers, and a computer classroom with 25 computers. Having purchased into the system, the university would be obliged to commit this equipment to teaching a small group of students a narrow choice of courses.

On the other hand, the university could spend the same \$300,000 building a local area network that serves 6 buildings around the campus and put a handful of workstations in a dozen department plus set up a 25-station classroom (or two.) They could purchase off-the-shelf CBT software for teaching technical courses and pay premiums to their faculty for developing digital lectures to be delivered in large lecture halls (using computer projectors) as well as via the university's Intranet. Couple this with a dialup Internet connection for sending and receiving email and hundreds of students and staff at the University could enjoy years of free internal and low cost external messaging. (And the university could wait two years for the cost of satellite bandwidth to plummet...)

A Proposal with Many Faces

Is this a plan to strengthen and revitalize academics at African universities?

Much more than distance education and ICT would be required to accomplish this. However, without the communication infrastructure that ICT provides, academics at African universities will remain isolated and out-of-date. It might be possible to plan a revitalization program around ICT, but teaching instructors to make PowerPoint slides, use pre-packaged instructional materials, and teach via video represents a weak start. Helping to resurrect professional societies, developing communication and collaboration opportunities with colleagues around the world, encouraging real research and publishing, and providing instructors with access to contemporary journals and resources are more likely to strengthen academics.

Is this a plan to provide ICT training at African universities?

The most frequent complaint of those who teach computer science at African universities is not that they lack skills, but that they lack equipment. IF a university were to decide to invest in ICT to the degree that they would be required in order to participate in the AVU, they might instead use their own faculty -- or private sector professionals -- to offer ICT courses to a larger number of students at a fraction of the cost of AVU courses.

ICT skills are straightforward to teach and easily duplicated. With the aforementioned resources at their disposal, African universities might do better to train a cadre of ICT specialists and have them teach the next generation of ICT professionals using the same equipment they would have used for the AVU.

ICT training is the most common topic offered by private sector training organizations around Africa and, in the U.S., is generally seen as the purview of community colleges.

There are more computer assisted instruction titles for ICT than any other discipline. There are more distance learning opportunities for ICT than any other discipline. It is a natural concept: use computers to teach computers. In a sense, using video to teach computing is an oxymoron.

Is this a plan to build up the ICT capacity of selected African universities?

While this proposal focuses on teaching technical courses, the kinds of training needed by those building and maintaining the university networks and computer systems are substantially different than what is generally delivered in a classroom setting. A student who has graduated from a database design course is still hundreds of hours away from being an effective database designer. A student with a Microsoft Certified Systems Engineer certificate needs to spend hundreds of hours setting up and maintaining servers before they can be relied upon to deliver consistent network services.

ICT specialists at African universities need focused, purposeful, and substantial coaching and experience before they will be able to deliver the level of service expected of a high-stakes operation like the AVU. The AVU might be wise to revisit this area and design a specific program for transferring systems management and administration skills to the participating universities.

Is this a plan to assist African universities to provide distance instruction to other African universities?

Distance education is most useful when an instructor, trained in an esoteric subject that others would like to garner, teaches students at other institutions where no such expertise exists. However, distance education is not necessarily synonymous with satellite video. Distance education can involve books and CDs via the mail, email discussions, on-line chats, the instructor or the students taking occasional trips to visit each other, even telephone conversations. The best technology is that which fits the instructor's style and the topic. Will the participants in this program receive coaching and have the freedom to adopt other forms of distance education? Are there more cost-effective scenarios that might better suit African universities?

Is this a plan to provide access to academic resources?

If the resources in question are on the Internet, than the simple procurement of an Internet connection would suffice -- with or without the AVU. What the AVU is offering is what any satellite consolidator could arrange in a matter of weeks if the university had the money and -- more importantly -- their government's permission to set up a satellite dish.

The AVU does intend to make some AVU resources available on the local network through the use of video and network servers, but these materials would represent a very narrow subset of the information needed by those in the various disciplines of a university. Accessing the remaining disciplines' academic resources would require the use of the university's expensive satellite bandwidth.

In the end, the only academic resources provided will be those of the AVU.