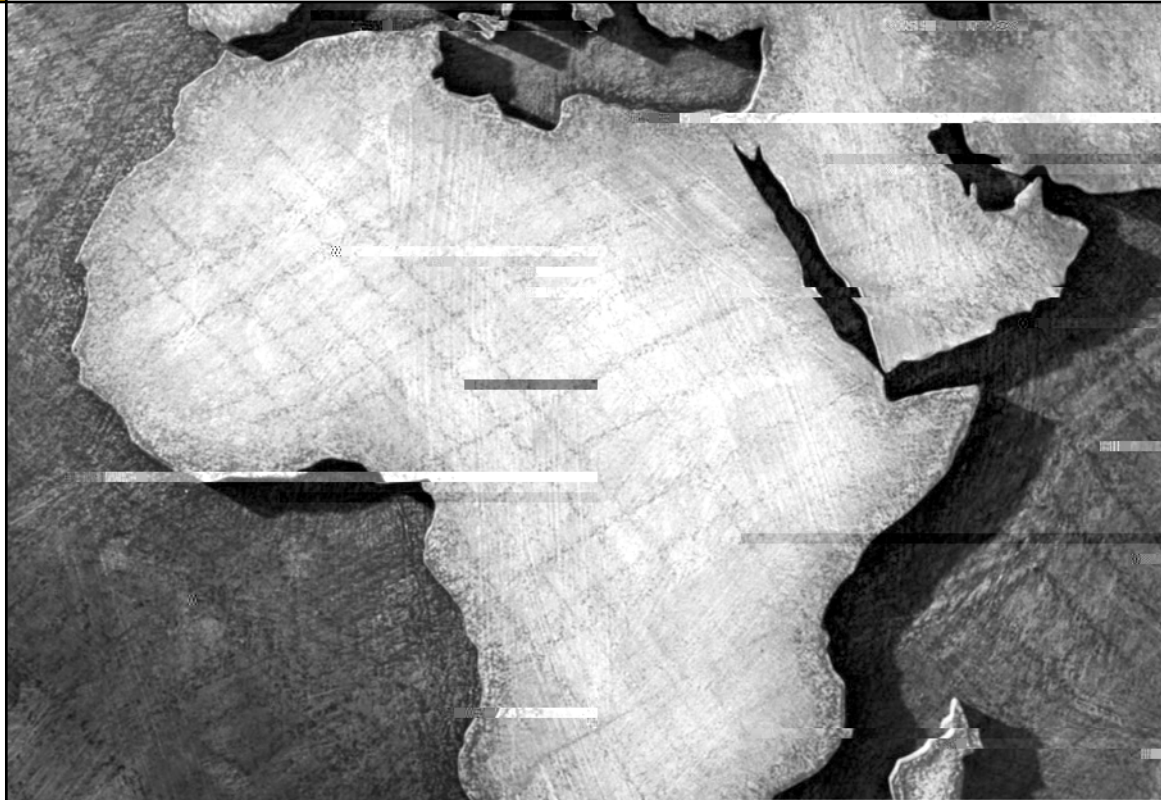


The Promise of E-Learning in Africa: The Potential for Public-Private Partnerships

E - G o v e r n m e n t S e r i e s



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F O R E W O R D

January 2003

On behalf of the IBM Endowment for The Business of Government, we are pleased to present this report by Norman LaRocque and Michael Latham, "The Promise of E-Learning in Africa: The Potential for Public-Private Partnerships."

The report is based on the premise that e-learning is now a viable tool for addressing the significant education challenge in Africa. The report argues that adopting e-learning in Africa will increase education access and quality, as well as lower education cost. There are now an increasing number of success stories with e-learning throughout the African continent. This report describes models and approaches of public-private education partnerships that are now in place. While e-learning is not a cure for all the problems related to education in Africa, it is clearly a tool that now must be taken into serious consideration by policy makers and donors.

Introducing e-learning technologies in primary, secondary, and higher education in Africa will clearly present many challenges. Thus, partnerships with the private sector will be an essential part of any strategy to bring e-Learning into Africa in a systematic and cost-effective way. There is now considerable potential for expanding public-private partnership activities in e-Learning, including the delivery of services, private finance initiatives, demand-side initiatives, and strategic partnerships.

The emergence of new technologies and new models of public-private partnerships in education will create many new opportunities for African education. These opportunities will require that government policy makers invest time and effort into developing a new and workable framework for facilitating public-private partnerships in the education sector in general, and the e-learning sector in particular. We trust that this report will lead to further discussion and analysis of how such partnerships can contribute to addressing the education needs of Africa in the next decade.

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EXECUTIVE SUMMARY

This report examines the contribution that e-learning and public-private partnerships have made and can make in Africa. A quantum leap in education is required for Africa to attain the target of universal primary education by 2015, meet the burgeoning demands for access to secondary education, and deliver the appropriate education and training for post-secondary students to enter the knowledge economy. As elsewhere in the world, African countries are looking to the educational possibilities offered by Information and Communication Technology (ICT) and partnership in education as a means of improving access and enhancing quality.

This report discusses the concepts of e-learning and public-private partnerships. It examines the challenges and prospects of partnership and e-learning. It outlines examples of public-private partnership and e-learning in Africa and other countries. It concludes with some key findings and puts forward suggested options.

Key Findings

The main findings include the following:

Current Situation

- Africa has joined the bandwagon of the information and communication technology revolution, but faces the challenges of institutionalizing the development of ICT and allocating its benefits in schools and universities. Despite the 52.1 percent growth of the Internet in Africa in 2000–2002, usage was limited to 1.2 percent

users and 0.8 percent penetration for a population of 859 million.

- The challenges to increase ICT development and penetration in African societies can be overcome. Current initiatives and business models used throughout Africa to leverage ICT development indicate that the missing link is public and private sector partnerships, which can offer lower costs and greater access.

E-Learning

- The Commission on Technology and Adult Learning (2001) defines e-learning as instructional content or learning experiences delivered or enabled by electronic technology. In practice, it incorporates a wide variety of learning strategies and technologies.
- E-learning can bring a number of benefits to education, including increased access, improved quality, and the potential for lower-cost provision to African learners.
- The global market for e-learning is growing. Africa has an extensive history of using distance education and technology in education, particularly with interactive radio instruction at the primary level and the use of computers—and, more recently, the Internet—to improve residential teacher development.
- The African continent is increasingly using computer technology and the Internet to improve access and strengthen teaching, research, and professional networks.

- The transformation of the education sector generally, and the e-learning sector specifically, is being driven by a number of broad economic, technological, and social trends that have accelerated in recent years. One of the key ones is the significant increase in the demand for tertiary education in both developed and developing countries.

Public-Private Partnerships

- Public-private partnerships (PPPs) are not new. The private sector has been involved in the delivery of so-called “public” services such as water and transport for many years. However, the extension of PPPs into social policy areas such as health and education is more recent and is arguably one of the most significant trends in public finance in the past decade.
- PPPs can be defined broadly or narrowly. From our perspective, true PPPs are formal in nature, include an element of risk sharing, and include both the voluntary and commercial sectors in a variety of ways. True PPPs are most likely to be commercially sustainable and scalable.
- There are several factors underlying governments’ increasing adoption of PPPs to deliver public services. These include increased access to capital, the introduction of market disciplines to decision making, and the introduction of private sector knowledge and management skills to the public sector.
- There are few examples of PPPs in e-learning in Africa, although there are growing pressures for more involvement from the private sector, particularly in the post-secondary sector. Six examples from inside and outside Africa are outlined in the report.
- There is considerable scope for expanding the use of PPPs in e-learning in Africa. This is due to the convergence of three forces that makes the present environment more conducive to ICTs and partnership in education—namely, a growing interest in e-learning on the part of host nations and donor agencies, enhanced appreciation of the significant role that the private sector can play, and growth in the private sector itself.

Going Forward

- Despite these forces, the path over the digital divide is hardly straightforward for African countries. A number of factors—economic, technological, and policy—need to be addressed if PPPs in e-learning can be an important partner in progress.
- A key one is the “digital divide” on the continent, which is reflected in the vast disparity among different countries in institutional capacity, infrastructure, and access to revenue; and reflected internally within countries with regard to access and usage by different segments of the community.
- Even for the poorest population sectors, the benefits of IT appear appropriate for handling the basic problems of literacy and technological literacy, and enhancing the socioeconomic consequences for the lives of the users.

These findings represent the status of e-learning and PPPs in Africa as of September 2002. Given the public’s ever-increasing demands and the growing but diverse technological capabilities of the countries, ICTs in education and partnerships remain in a constant and variable state of development. However, we have made certain recommendations in support of an increased role for e-learning and partnerships.

Conclusions

Conclusion 1: E-Learning—A Key Factor in Development

A country’s capacity to take advantage of the knowledge economy depends on how effectively it can become a “learning economy.” This in turn requires drastic shifts in formal education systems; most particularly, it needs the focus changed to one whereby people are taught to learn rather than merely to transmit facts. The application of ICTs provides essential support to this change process.

Conclusion 2: E-Learning—No Panacea

Africa faces many educational challenges. On their own, e-learning and ICTs cannot resolve all of them. But the emergence of new technologies and new models of partnership is creating opportunities

for African education to move forward in ways that only a decade ago could only have been imagined.

Conclusion 3: E-Learning—No Killer Application

The use of ICTs in education has had a lengthy history in Africa, but no “best purpose” application or linkage has emerged. The way forward should not be to impose a top-down, one-size-fits-all e-learning model for Africa. The appropriateness of various technologies should be assessed on a case-by-case basis. Different technologies may work better in different contexts.

Conclusion 4: E-Learning—Reform Education Reform

Education systems have been created to enable transmission of both culture and knowledge, but ICTs are changing the fundamental assumption of cost and availability of information. New means of linking and transmitting human understanding are emerging as we begin to understand these tools. Yet there is still a lack of a clear policy with regard to the use of technology in education.

Conclusion 5: PPPs—A Many Splendored Thing

PPPs are being used increasingly across a range of countries and in a range of ways. There is a continuum of involvement from information exchanges to joint ventures in partnership and e-learning across the social sectors. There are many examples of partnership within an e-learning initiative. There is considerable scope for expansion. PPPs can offer many benefits to e-learning given that such applications generally involve significant investments, are complex transactions, require specialist skills, and involve considerable technological and cost risk.

Conclusion 6: PPPs and E-Learning—New World, New Roles

The changing role of government in education and the implementation of PPPs place new demands on the public sector and require much different skills sets to implement than traditional methods—if they are to be done right. This is due in part to the fact that PPPs involve moving from input- to output-based contracting.

Conclusion 7: PPPs and E-Learning—One Piece of the Bigger Puzzle

The successful promotion of e-learning and PPPs requires that African governments adopt a number of strategies to facilitate the emergence and expansion of e-learning and the wider use of ICTs in education, including ensuring that broader economic policies are focused on lifting economic growth, promoting investment, and improving telecommunications infrastructure.

Conclusion 8: Financing Supply and Demand—Two Sides of the Same Coin

PPPs focus on financing the provision, or supply side, of the education market. While they may provide financing to develop or introduce e-learning technologies in education, they do not address the issues of affordability and equity of access to technologies. Hence, any policy aimed at promoting e-learning and PPPs must focus equally on how the demand for education will be financed. A variety of innovative demand-side policies have been introduced, including student loans and vouchers.

Conclusion 9: PPPs and E-Learning—Technology Is Easy, People Are Hard

A key requirement for introducing e-learning and PPPs is a ready supply of trained professionals capable of supporting the implementation of partnerships within the education sector. This will be particularly important in a developing-country context. There is thus a need for substantial funding to support capacity building for public and private stakeholders.

Conclusion 10: PPPs and E-Learning—Uncharted Waters

ICTs and partnerships in education would involve dramatic changes in the education system, heavy investment, and long-term commitments that in turn require an extensive knowledge base upon which to make decisions. There is little such research on Africa. More large-scale research is required that embraces activities such as comparative analyses across countries, ongoing measurements of cost-effectiveness, and the piloting of alternative modalities.

Conclusion 11: PPPs and E-Learning—Carpe Diem Partnerships and e-learning in Africa are still in their infancy. Countries are at different stages in the process of integrating ICTs in education and using the partnership approach. A confluence of technological, economic, and other factors is providing a sound basis for advancing PPPs in e-learning. These include the expansion of digital technologies, a growing interest in ICT in education projects among donor agencies, and a growing recognition of the role of the private sector in education.

Recommendations

The report makes a number of recommendations aimed at promoting PPP initiatives in the e-learning sphere. These are:

Recommendation 1: Agenda for Action on E-Learning in Africa

Multilateral and bilateral organizations, nonprofit organizations and foundations, and governments and the private sector must develop a development agenda and funding mechanism for action in e-learning in Africa with the understanding that public education alone cannot meet the challenges of lifting participation, improving quality, and ensuring equity of access. Private sector participation can assist public education in meeting its education objectives through e-learning as it can provide a cost-effective means of increasing access, equity, and quality in both formal and vocational education.

Recommendation 2: High-Level Body on E-Learning

Multilateral agencies, governments, and the private sector should establish a high-level body. The high-level body will oversee the implementation of the e-learning agenda in Africa with the function of identifying obstacles to public-private partnerships in e-learning and the use of technology in education. The body would also review best practices worldwide and formulate policy guidelines for partnership structures, taking into account mechanisms for ensuring quality, equity, relevance, transparency, and accountability.

Recommendation 3: Private Sector E-Learning Initiative Opportunities

Governments and donors should support private sector e-learning initiatives. There is a wide range of opportunities to launch public-private partnership initiatives in e-learning. Private sector involvement could include the provision of e-learning instruction for pre-service and in-service professional development of teachers; contracting with the private sector to finance, equip, maintain, and staff school computer laboratories, or contracting with the private sector to use the facilities after school hours for the delivery of private training courses to the community; and contracting with the private sector for the development of IT-based curricula.

Recommendation 4: Regulatory Framework Improvements

Government organizations and donors should examine the broader economic regulatory framework to ensure it is focused on reducing taxes and lowering customs duties on technology and educational materials, ensuring neutral funding arrangements between the public and private sectors, minimizing barriers to entry by new education providers, and ensuring a strong quality assurance focus on education.

Recommendation 5: Increased Access to Finance

Governments, multilaterals, and investments funds with a focus on IT in Africa must support supply side financing models such as the provision of structural funds to invest in IT equipment and training for e-learning; and demand-side financing models to ensure access and equity in participation and to promote the creation of financing mechanisms such as trust funds and corporations for partnerships in education.

Recommendation 6: Market Information

Multilateral agencies and governments should undertake market and regulatory surveys of information technology and e-learning markets in Africa to guide technology and e-learning investment decisions as well as support the development of a framework for public-private partnerships in e-learning in Africa.

Introduction

One would be foolish to question the importance of the Internet and www for education in this new decade. At worst, it has the ability to connect communities of learners and teachers ... and at its best it could very well be the tool that education has been waiting for these past thousands of years. Its promise is only limited by the imagination and capacity of the people who can apply and benefit from it.

Dr. Gajaraj Dhanarajan
President, Commonwealth of Learning

In sum, working on IT to enhance the education and livelihood of poor people is a tremendously challenging area of development work today. To be effective in this complex and ever-changing domain is more difficult than meets the eye. Yet, with a set of good principles and a reasonable level of support, a great deal can be achieved—indeed more than has ever been thought possible.

Daniel Wagner
International Literacy Institute

Education is the cornerstone of African development. A number of studies have shown that education, and particularly primary education, has a significant positive effect on economic growth, earnings, and productivity.¹ Technology—and, in particular, e-learning—can help developing countries, especially those in Africa, to meet both old and new challenges. It can do so by providing a flexible and cost-effective medium for educating large numbers of school-age and adult Africans. E-learning can bring many benefits. At the same time, it is important that the promise of e-learning not be oversold.

The introduction of new technologies into Africa—and into African education more specifically—will itself present many challenges, including financing, skills, and capacity. It is highly unlikely that African

governments will be able to “go it alone.” Partnerships with the private sector are likely to be an essential part of any strategy to bridge the digital divide and bring e-learning to Africa in a big way. This report discusses the role that public-private partnerships can play in doing that. It looks at both the promise of e-learning and its pitfalls, and attempts to draw out lessons that can help ensure the successful use of public-private partnerships in e-learning.

The report is structured as follows. The next section, “E-Learning in Africa,” defines the term e-learning, and outlines the global market for e-learning and the current provision of distance learning and use of ICTs in education in Africa. This is followed by a section that discusses private participation in

education, and the concept of PPPs, and outlines their potential benefits. The next section highlights a variety of examples of e-learning initiatives, from both within and outside Africa. Following this is a discussion of the benefits, prospects, and challenges for e-learning in Africa, including the scope for PPPs in e-learning in Africa. The final section outlines some conclusions and recommendations on e-learning and PPPs in Africa.

Challenges Facing Africa

The challenges facing the African continent are significant. The challenges of old—low and uneven education participation, poor quality education, low per-capita incomes, and a rapidly growing population—have been joined by new and more daunting challenges, including HIV/AIDS, globalization, political conflict, and rapidly advancing technology. The size of this challenge is clear. Despite good progress during the 1990s, key education indicators remain weak:

- Primary school enrollment rates remain low, both in absolute terms and relative to other developing countries. In 1997, the gross enrollment ratio in Africa stood at only 76.8 percent—down from nearly 80 percent in 1980. In the mid-1990s, six African countries had primary gross enrollment ratios below 50 percent.
- Gross enrollment ratios at the secondary level stood at just over 26 percent in 1997—about half the rate for all developing countries.
- Tertiary enrollment rates stood at 3.9 percent in 1997—well below the 10 percent rate for all developing countries and significantly below rates in developed countries. Current projections suggest that, over the coming decade, at least 16 African countries will need to double enrollments among the “traditional” 18- to 23-year-old age cohort just to maintain existing enrollment ratios.²

While overall indicators of access to education are weak, the situation is even less favorable for girls. Despite significant gains since 1980, female enrollment rates still stand at only about 80 percent of male enrollments at the primary and secondary levels and 55 percent at the tertiary level.³

Quality of education is another significant challenge facing African countries. This low quality is exacerbated by a number of factors, including inadequately skilled teachers, few learning materials, and inadequate school buildings and equipment. Because of the poor quality of education, children leave school with inadequate skills, and repetition and completion rates are such that many countries must devote as much as 50 percent more resources than required to produce a primary school graduate. At post-primary levels, there is a critical need to improve the quality of education taught in math, science, and technology.

Table 1: Challenges Old and New

Old Challenges	New Challenges
• Expand access	• Knowledge-based economic growth
• Stabilize and increase financing	• Information/communication revolution
• Preserve and boost quality	• Global labor market
• Maintain relevance	• Competition from abroad
• Promote equity	• Competition from private providers
• Strengthen management	• HIV/AIDS
• Renovate facilities	• Conflict and political instability

Source: William Saint (2001), Higher Education in Sub-Saharan Africa: What Role for the World Bank?, *The World Bank, Washington, D.C.*

In April 2000, the world community gathered in Dakar, Senegal, to assess progress in achieving the target of Education for All (EFA), which had been set in Jomtien, Thailand, a decade earlier. The Dakar meeting agreed to pursue six goals:

- improving early childhood care and education
- ensuring by 2015 that all children have access to, and complete, free and compulsory primary education of good quality by 2015
- ensuring equitable access to life skills programs
- achieving a 50 percent increase in adult literacy by 2015
- eliminating gender disparities in primary and secondary education by 2005
- improving all aspects of the quality of education

These targets are under threat in Africa. Without considerable progress, Africa will fall short of the 2015 universal primary education target by 55 million children (equivalent to nearly 1.4 million classrooms, assuming 40 students per class). If current trends continue, in 2015, Africa will account for 15 percent of the world's primary-school-age children, but 75 percent of children out of school.

The extent of the challenge facing African countries is evident from the fact that, of the 20 countries suffering setbacks in the United Nations human development index in 1999, 12 were in Africa.⁴

List of Abbreviations and Acronyms

ADEA	Association for the Development of Education in Africa
AusAID	Australian Agency for International Development
AVU	African Virtual University
COL	Commonwealth of Learning
COLISA	Confederation of Open Learning Institutions in South Africa
DFID	United Kingdom's Department for International Development
EFA	Education for All
FVU	Francophone Virtual University
GDP	Gross Domestic Product
HDNED	Human Resource Development Network
IBLF	The Prince of Wales International Business Leaders Forum
ICT	Information and Communication Technology
IDC	International Data Corporation
IFC	International Finance Corporation (The World Bank)
IRI	Interactive Radio Instruction
ISP	Internet Service Provider
NGO	non-governmental organization
OSISA	Open Society Institute for Southern Africa
PFI	Private Finance Initiative
PPC	public-private collaboration
PPP	public-private partnership
SADC	Southern African Development Community
UNECA	United Nations Economic Commission for Africa
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNEVOC	UNESCO's International Project on Technical and Vocational Education
UNISA	University of South Africa
USAID	U.S. Agency for International Development
VET	vocational education and training
WorLD	World Links for Development

E-Learning in Africa

What Is E-Learning?

The Commission on Technology and Adult Learning (2001) defines e-learning as instructional content or learning experiences delivered or enabled by electronic technology. In practice, e-learning incorporates a wide variety of learning strategies and technologies, from CD-ROMs and computer-based instruction, to videoconferencing, satellite-delivered learning, and virtual educational networks.

Defined in this way, e-learning is broader than web-based instruction or distance learning. It includes a range of ways in which students and teachers interact and communicate.⁵ E-learning can involve the delivery of course materials, tuition, or assessment and can be either:

- asynchronous (one-way) learning, which is defined as learning in which teacher/student interaction occurs intermittently with a time delay; or
- synchronous (two-way) learning, which is defined as real-time, instructor-led online learning in which all participants are logged on at the same time and communicate directly with each other.⁶

E-learning can be either classroom based or delivered via distance mode. It provides an alternative to taking courses in a traditional classroom setting and is seen as providing learners with the flexibility and convenience to access learning where, how, and when it is needed.⁷ The term is synonymous with online learning, web-based learning, Internet-based learning, and distributed learning.

The E-Learning Universe

- Distance learning
- CD-ROMs
- Videoconferencing
- Computer-based instruction
- Satellite downlinks
- Interactive TV lectures
- Computerized diagnostic assessment
- Competency certification
- Electronic portfolios
- Virtual educational networks
- Corporate universities
- Communities of learners
- Group- and project-based learning technologies

Source: Commission on Technology and Adult Learning (2001), A Vision of E-Learning for America's Workforce, p. 7.

The Market for E-Learning

Distance learning and associated technology applications are not new tools for education systems in Africa. This section discusses the size, nature, and growth in the global e-learning market. It then provides a brief overview of the use of ICTs in Africa at the tertiary teacher development, and secondary levels.

The Global E-Learning Market

The global market for e-learning is significant and increasing. According to Merrill Lynch, the size of the online market in the U.S. alone stood at \$1.2 billion in 1999 and was expected to grow to \$7 billion by 2003. E-learning is one of the fastest-growing sectors in the U.S. education and training market, with the total dollar value of all e-learning products and services projected to reach \$40.2 billion in 2005. A number of online initiatives have not been as successful as hoped (e.g., Fathom and UNext). However, for-profit online institutions such as the University of Phoenix Online have continued to thrive despite the dot-com bust and the economic downturn—with enrollments growing at a rate of 50 percent per quarter in 2002.⁸

While the size of the e-learning market is smaller in other countries, growth is rapid there as well:

- 57 percent of Canadian universities were offering online courses in 2000, with 3,000 courses offered in total.
- The European e-learning market is forecast to be worth \$6 billion (U.S.) by 2005, with the Netherlands, Sweden, and the UK being the biggest markets.⁹
- One in four Dutch universities say they provide electronic learning environments, while all but 10 percent say they have plans to do so.
- 34 percent of four-year institutions in Japan use the Internet for online learning, with 23 percent more planning to do so. More than 120 universities there have installed a communications satellite system for organizing lectures, seminars, and meetings.¹⁰

According to the International Data Corp. (IDC), the number of college students enrolled in distance education courses will reach 2.2 million in 2002—up from 710,000 in 1998. By 2002, distance education students are expected to represent 15 percent of all higher education students in the world—up from 5 percent in 1998—with the Internet acting as a catalyst for growth.¹¹ In the U.S., the market for distance learning is expanding, with the U.S. Department of Education estimating that 58 percent of all two- and four-year colleges offered distance learning courses in 1998 and that 84 percent of colleges were expected to do so by 2002.¹²

Developing countries are also making extensive use of distance learning. For example, National Open University in India has some 600,000 students, while Anadolu University in Turkey has more than 500,000 students, and Technikon SA in South Africa has 60,000. A number of developing countries, including Pakistan and Tunisia, are currently establishing virtual universities.

Dirr (2001) and Saint (1999) have documented the rise of the virtual university—one of the key innovations in tertiary education during the latter part of the 1990s. The term is used to describe the electronic delivery of tertiary instruction through one or more technologies such as videoconferencing, interactive e-mail, satellite transmission, and online libraries via the Internet. Unlike traditional universities, the virtual university operates without a campus, does not have residential students, and has only limited face-to-face tutoring. One of these,

Distance Education Partnership in Ghana

Ghana has committed to using distance education to meet the education needs of identified sectors of the Ghanaian population.

With financial assistance from the Canadian International Development Agency (CIDA) and support from Simon Fraser University, four Ghanaian tertiary institutions have initiated the Ghana Distance Education Development Project. Over a five-year period (1995 to 2000), the University of Ghana, University of Cape Coast, University of Science and Technology, and University College of Education of Winneba developed a distance education system to address the educational, social, and economic needs of the country.

The mission of the consortium is to make education more relevant to Ghanaian needs, provide greater access to education, and prepare the workforce toward the attainment of middle-income status by the year 2020.

Source: Peter J. Dirr (2001), "The Development of New Organizational Arrangements in Virtual Learning," Commonwealth of Learning.

ITESM Virtual University, is affiliated with the Monterrey Technical Institute in Monterrey, Mexico. Established in 1989, it offers 15 degree programs and has more than 50,000 students. Others include African Virtual University, Western Governors University, the University of Phoenix, and the California Virtual University.

The global market for e-learning products and services is expected to grow strongly in the forthcoming years. However, recent downturns in the ICT sector and consolidations in the market for e-learning products have shown that the transition may not be as quick or smooth as many had hoped and expected. While the market is still expected to grow, it needs to be seen in a longer-term perspective.¹³

The E-Learning Market in Africa

Africa has considerable experience using e-learning, albeit most of this has been of the correspondence-type distance-education variety using basic technologies. This is changing, however, and African countries are beginning to use more sophisticated technologies.

A recent Commonwealth of Learning report highlighted the technological advancement that has taken place in Africa and the range of ICTs currently being used there. These include:

- financially assisted telephone dial accessed Internet connectivity for schools and rural communities
- satellite transmission and e-mail
- advanced fiber-linked “skills centers” equipped with videoconferencing for university courses
- software job re-training packages
- telecenters—public sites that offer access for a fee to ICTs, which are becoming more common in South Africa, Ghana, Nigeria, Senegal, and elsewhere. In some cases, these are being expanded to offer access to learning.¹⁴

These various ICT initiatives are summarized in Table 2.

Table 2: Current ICT Initiatives in African Education

Country	Projects	Technologies
South Africa	<ul style="list-style-type: none"> • SchoolNet • Community Information Services • TELISA Technology Enhanced Learning Centers • Distance Education Digital Learning System • African Virtual University (Regional) • Multipurpose Community Telecenters 	<ul style="list-style-type: none"> • PCs, Internet, and website • PCs, Internet, touchscreen kiosks, CD-ROMs, information delivery systems, and website • PCs, LANs, Internet, scanners, photocopiers, and other office services • Planning a wide range of open learning technologies • Satellite, video broadcast, PCs, website • Telephones, PCs, fax, e-mail, scanners, photocopiers, etc.
Ghana	<ul style="list-style-type: none"> • African Virtual University (Regional) • ‘World Links for Development’ SchoolNet (International) • Multipurpose Community Centers 	<ul style="list-style-type: none"> • Satellite, video broadcast, PCs, website • PCs and Internet, broadcasting (radio and video), CD-ROMs, databases, satellite • Telephones, PCs, fax, e-mail, scanners, photocopiers, etc.
Mozambique	<ul style="list-style-type: none"> • ‘World Links for Development’ SchoolNet (International) • Multipurpose Community Telecenters • University Distance Education Program 	<ul style="list-style-type: none"> • PCs and Internet, broadcasting (radio and video), CD-ROMs, databases, satellite • PCs, fax, e-mail, scanners, photocopiers, etc. • Satellite broadcast, PCs, Internet, CD-ROMs

Source: Intelcon Research (2000), *Use of ICTs for Learning and Distance Education*, COL International, Vancouver.

Higher Education

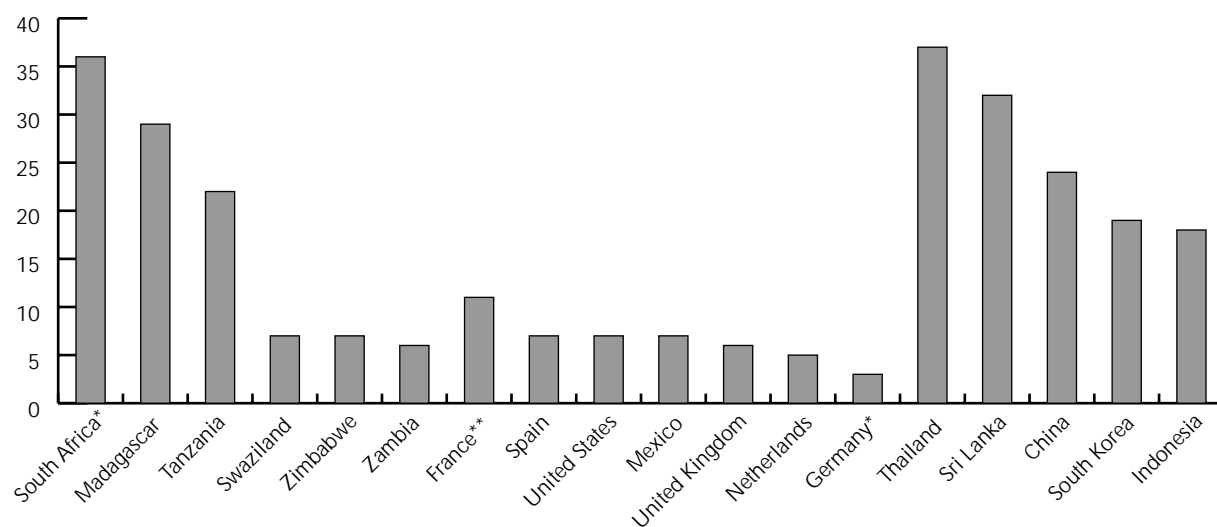
Distance education is not new to the higher education sector in Africa. Saint (1999) cites evidence of the extensive history of distance learning and associated technology applications in Africa since the mid-1940s.¹⁵ Distance education use in some African countries is high relative to Europe or North America. For example, distance education in South Africa represents 36 percent of enrollments—second only to Thailand (see Figure 1). Madagascar and Tanzania also make considerable use of distance education. Beyond that, the use of distance education in African countries is on a par with North America and Europe, but well below Asia.

According to Roberts and Associates (1998), there were more than 140 public and private institutions providing tertiary distance education services within sub-Saharan Africa in the late 1990s.¹⁶ Most of those programs use basic technologies (largely print media) and cover a narrow range of study areas—principally skills upgrading for in-service teacher training. Despite this relatively modest history, the distance education landscape in Africa is changing rapidly, due in part to technological change. A number of ICT initiatives are currently being pursued that involve much more advanced technologies than those used in the past.

The core medium of instruction on the continent remains print, with other technologies acting as a supplementary means of delivery. Nonetheless, significant investments are being made in computer technologies to support functions such as the extension of programs to distant sites and the use of ICTs to support the teaching/learning, research, and other management functions. Saint (1999) notes that:

- Namibia and Ghana have formally declared dual-mode instruction to be their national policy.
- Botswana, Cameroon, and Zambia are using a university-based Internet system to support interactive regional study centers for distance learners, while Tanzania, Botswana, and Zimbabwe have established new tertiary institutions wholly dedicated to distance education.
- The Zimbabwe Open University already enrolls nearly 10,000 students in nine programs and recently launched a master’s degree in education for in-service teachers.
- Uganda enrolls 1,400 students in a bachelor of commerce course given at a distance, and is planning to expand into the areas of law, technology, and sciences, while Nigeria’s Centre for

Figure 1: Tertiary Distance Education Enrollments in Selected Countries



Notes:

* Rough estimate based on several different sources.

** Ministère de l'Éducation Nationale, de la Recherche et de la Technologie, June 1999.

Source: Table reproduced in Saint (1999), p. 12.

Distance Learning (Abuja) offers B.A. and B.S. degrees in 14 subject areas.

- Madagascar has pioneered the use of audio-cassettes for university programs in law and the social sciences, while Côte d'Ivoire, Congo, Togo, and Benin are in various stages of setting up university-based distance education programs.
- In Senegal, distance education supports teacher training and master's degree programs in health and law.¹⁷

The University of South Africa (UNISA) has recently partnered with the two other major South African distance education providers to implement a number of ICT applications. The partnership, dubbed the Confederation of Open Learning Institutions in South Africa (COLISA), is developing Internet-based courseware, a web-based student-teacher interaction system, and a series of local Internet access points for students.¹⁸

Table 3 outlines distance education technology use at selected tertiary institutions in Africa.

Secondary Education

The focus in secondary education appears to be mainly on using distance education technologies to increase students' access. Over the past two decades, distance education using print and radio has been used in many countries. Unfortunately, for a number of reasons—such as inadequate budgetary support, poor quality of delivery, and ineffective teacher/learner support—the verdict is mixed. Table 4 provides a summary of some of these efforts.

Interest in options for using computers to improve the quality of secondary education is growing, but there is still an inadequate body of knowledge to guide decisions on how investing in computers can assist in closing the knowledge gap. A recent report for the World Bank and the United Kingdom's Department for International Development, drawing on data gathered from South Africa and Zimbabwe, posits the following findings:

- If high usage can be sustained, the cost of basic computer provision need not be prohibitively expensive.

Table 3: Distance Education Technology Use at Tertiary Institutions

Country	Institution	Technology Used
Côte d'Ivoire	Francophone Virtual University	Satellite, CD-ROMs, video, and print
Ethiopia	Addis Ababa University	Print and audio
	African Virtual University	Satellite broadcasts, Internet, print
Ghana	African Virtual University	Satellite broadcasts, Internet, print
	University of Science and Technology	Print
Guinea	Francophone Virtual University	Satellite, CD-ROMs, video, and print
	University of Conakry	Computers, Internet, print
Mauritius	University of Mauritius	Print, Internet, computers, audio, and video
Nigeria	University of Abuja	Print, audio/video tapes, digital radios

Source: Adapted from World Bank (2002), *Enhancing Learning Opportunities in Africa*, International Bank for Reconstruction and Development, Washington D.C., p. 14.

Table 4: Use of Distance Education for Secondary Equivalence

Country	Enrollments	Technology Used
Botswana	600	Print and radio
Ethiopia	8,4000	Print, radio, and TV
Malawi	80,000	Print and audio tapes
Namibia	18,325	Print, radio, and audio tapes
Zambia	11,138	Print and radio
Zimbabwe	25,000	Print

Source: World Bank (2002), *Enhancing Learning Opportunities in Africa, International Bank for Reconstruction and Development, Washington D.C., p. 9.*

- Schools should receive assistance in developing income-generating ICT activities.
- Actual regular users as a proportion of regular users are often less than 20 to 30 percent.¹⁹

Teacher Training

The burgeoning pressures resulting from universal primary education have compounded a situation in which alternatives were already being sought for the conventional teacher development programs, which were deemed overly expensive and often ineffective. As a result, Africa has been an important pioneer in using technologies for teacher development, training, print-based materials, radio, television, computers, and video. Distance education has been used in a number of African countries to deliver both pre-service and in-service training. Countries that have made use of distance education to train teachers include Nigeria, Tanzania, and Zimbabwe.

A range of technologies has been used, although print-based correspondence courses have dominated. Radio and television have been used in larger countries with bigger potential audiences. More recently, experiments in the use of video and computer conferencing have been undertaken. Research to date indicates the following:

- Distance teacher education can deliver highly successful completion and examination pass

rates, especially where trainees were guaranteed promotion on completion.

- Unit costs have tended to be lower than for conventional courses because of savings in residential costs and economies of scale. Costs per successful student have often been between one-half and two-thirds of conventional teacher education programs.
- Combinations of media have an advantage over any single medium.

A number of success factors have been identified in the use of distance education for teachers. First, effective student support is important. Second, good course management is essential—trainees need to have lessons on time, receive feedback from their tutors, and have appropriate, well-prepared teaching materials available in a medium, and at a time, that is convenient. Third, programs need to be integrated with the regular work of the teaching service. Finally, ideas about education built into the curriculum need to be close enough to the day-to-day practice of the schools for trainee teachers to see how the two fit together.²⁰

The E-Learning Market: Drivers of Change

The transformation of the education sector generally, and the e-learning sector specifically, is being driven by a number of broad economic, technological, and social trends that have accelerated in recent years. One of the key ones is the significant increase in the demand for higher education in both developed and developing countries. According to one estimate, overall demand for higher education is expected to grow from 48 million enrollments in 1990 to 159 million in 2025—an annual growth rate of 3.5 percent.²¹ The projected annual growth rate for Africa—at 5.8 percent—is well above that of any other region.

This increased demand is due to a number of factors (see “Drivers of Growth in International Higher Education Markets”).

- Higher population growth. The fertility rate in Africa—at 5.5 in 1997—is higher than anywhere else in the world. Africa is the only region in the world whose school-age popula-

Drivers of Growth in International Higher Education Markets

- Prevalence of inflexible traditional education systems with enrollment limits and overcrowding
- Explosive growth of high school graduates and few second-chance higher education opportunities for adults
- Low percentage of college graduates as well as low percentage enrollment in higher education
- Low forecasted public expenditures in worldwide education over the next 20 years
- Increased appetite for American business and management practices and education—approximately 500,000 international students enrolled in U.S. higher education institutions today, and growing
- Critical shortages of skilled and educated workers in many local workforces
- Summary: Increasing enrollments drive need for higher education

Source: Jorge Klor de Alva (2001), *Beyond US Borders: Analyzing Investment Potential in International Markets*, p. 6.

tion is projected to increase rapidly over the next 20 years.²²

- Higher participation rates in tertiary education. As noted above, tertiary education enrollments in Africa in 1997 were well below other developing countries, let alone developed countries.
- Recognition of the value of a tertiary qualification, with a consequent increase in the willingness to pay for higher education. A range of studies provides evidence of the significant returns that accrue to those who undertake a tertiary education.²³
- Changes in the way firms organize work, changes in the nature of skills demanded by employers, the growth of the service sector, and rapid economic adjustment have combined to create a demand for lifelong learning.

A second factor shaping the higher education sector is the continuing pressure being placed on government budgets. Many African governments already spend upwards of 25 percent of their budgets on education. Despite this, they have not always been able to keep up with rapidly increasing enrollments. As noted in World Bank (1994), funding for tertiary education in sub-Saharan Africa fell from \$US6,300 to \$US1,500 during the 1980s, and fell a further 30 percent during the 1990s, which places per-student spending at or below the minimum required to deliver appropriate tertiary education in the modern world.²⁴ These pressures are set to continue.

The final, and perhaps most relevant for this report, factor shaping the higher education sector is the rapid and relentless advance in technology. In many ways, advancing technology is posing a serious challenge to the traditional model of higher education—campus-based education for the school population. It is doing this by affecting both the demand and the supply sides of the tertiary education market. On the demand side, technological change is raising skill requirements, changing the generic skills required for work, and rendering existing skills obsolete, thus creating a need for retraining and reskilling.

Technological advances have also significantly affected the supply side of the education marketplace. Despite the excessive hype of the late 1990s and the subsequent “dot.bomb” phenomenon, it appears that the Internet will have an enduring impact on the way that tertiary education is organized and delivered. As one commentator put it:

Technology will greatly expand access to higher education and fundamentally change the models of education with which we are familiar. In particular, technology will enable education that is learner-centric, individualized, and interactive, making education far more relevant to the needs of the individuals. It will allow for anytime, anyplace learning, which will be particularly attractive to working adults, and it will enable true lifelong learning in a formal sense. These new forms of delivery will require new ways to measure and credential learning.²⁵

Technological advancement has facilitated the emergence of new forms of delivery and new institutional structures, including the rise of for-profit virtual universities and hybrid “clicks and mortar” institutions offering both campus-based and online instruction. One of the best examples of this new breed of institution is Phoenix Online, the largest private online university in the United States, with more than 45,000 students.²⁶

It is clear that these broader social forces are having, and will continue to have, a major impact on the higher education sectors in both developed and developing countries. The relative importance of these may differ over time, across countries, or across the developed and developing world. Other factors, such as the spread of HIV/AIDS and the brain drain, will have a pronounced effect on developing countries. For all countries, the policy and budgetary implications of these industry trends will be significant. E-learning can help countries position themselves to respond to these forces—by offering cost-effective, flexible learning solutions that allow institutions to adapt more speedily to market changes.²⁷

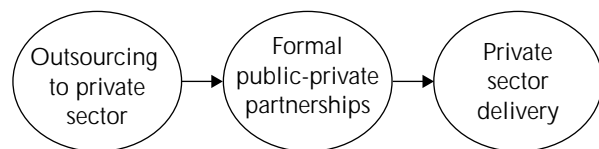
Private Participation in Education and Public-Private Partnerships

The private sector has long been involved in the provision of goods and services to public schools and post-secondary institutions. In some countries, and at some levels of education, the private sector has played a significant role in the delivery of education services. However, for the most part, the private sector's role has been confined to that of supplier of inputs, such as books, and, to a lesser extent, a provider of non-core services, such as school transport, janitorial services, or food services through outsourcing arrangements. Recent years have seen an expansion and broadening of the private sector's role in the financing and provision of education services in many countries. This has been true at all levels of education, but particularly at the post-secondary level.

In terms of Figure 2, recent trends have seen a shift away from “low-level” private participation in education, such as provision of services via short-term outsourcing arrangements, toward more sophisticated public-private partnerships, such as private finance initiatives, vouchers, and private management of public schools and outright private sector delivery of education services (see Table 5).

Private participation in education can have many benefits. It can supplement developing governments' limited capacity to deliver quality education to the rapidly increasing numbers of students at both the school and tertiary levels. Greater private participation in higher education can play a particularly important role in improving the quality of government spending in developing countries—by facilitating the retargeting of public spending

Figure 2: Private Sector Participation in Education: A Continuum



toward lower levels of education such as schools and early childhood. Greater private participation can also sharpen competitive pressures in the education sector, thus generating efficiency gains and spurring greater innovation in education delivery.

What Are PPPs?

The growth in private participation has been a catalyst for the expansion of public-private partnerships, or PPPs, in the education sector. PPPs represent a move away from the traditional model of government procurement for the delivery of public services. Despite the expansion of PPPs and the increased attention they have received in recent years, there is little agreement about what constitutes a PPP or how to define it. At one extreme, the term can be interpreted narrowly to mean simply partnerships between public sector organizations and private sector investors and businesses for the purpose of designing, planning, financing, constructing, and/or operating infrastructure projects that would normally be provided through traditional procurement mechanisms by the state. This would cover, for example, commercially oriented concession arrangements such as the Private

Table 5: Private Participation in Education

Private Participation in Education	Examples
<p>Delivery of Services Private management of public schools</p>	<p>Publicly financed voucher schemes (e.g. USA, Chile, Colombia, India, Kenya, Mexico, South Africa, UK, etc.)</p>
<p>Before and after school care</p>	<p>Publicly financed voucher schemes</p>
<p>School review</p>	<p>Publicly financed voucher schemes</p>
<p>Private Finance of Infrastructure Private financing, construction, and operation of public school infrastructure</p>	<p>Publicly financed voucher schemes</p>
<p>Demand-Side Financing Initiatives Publicly financed voucher schemes</p>	<p>Publicly financed voucher schemes</p>
<p>Private scholarships</p>	<p>Publicly financed voucher schemes</p>

Finance Initiative (PFI) in the UK, where the private sector finances, builds, and operates infrastructure projects for a given period before turning them over to the state.

At the other extreme, the term PPP can be used to describe pretty much any instance of private and public cooperation or collaboration that aims to achieve a common goal, no matter what the arrangements and no matter whether the partnership is formal or informal. This report, therefore, proposes a broad, though not all-encompassing, definition of PPPs such as that advanced by the Commission on UK Public-Private Partnerships:

PPPs are a risk-sharing relationship based upon an agreed aspiration between the public and private (including voluntary) sectors to bring about a desired public policy outcome. More often than not, this takes the form of a long-term and flexible relationship, usually underpinned by contract, for the delivery of a publicly funded service.²⁸

PPPs need not be focused simply on the delivery of a public service. They can also be strategic partnerships between the public and private sectors aimed at achieving more general policy outcomes (e.g.,

the eradication of polio or the improvement of schools in a given area), which may be broader than simply the delivery of a given public service.

Despite their broad scope, it is generally accepted that PPPs share a number of characteristics, including that they:

- are formal in nature
- involve the development of a long-term relationship between the partners
- include an element of risk sharing among the partners
- can involve both the voluntary and commercial sectors as private sector partners

Two of these are worthy of further comment. First, the element of risk sharing in PPPs is important in that it entails a degree of mutual dependence between partners to the relationship. This shared risk can be either financial or reputational. Possible risks can include:

- design and construction risks associated with a project taking longer and costing more than originally thought
- risks that operating costs may rise faster than expected
- risks associated with incorrect estimates of demand
- risks associated with technological obsolescence
- risks arising from changes in the regulatory environment

Second, it is important that the private sector be broadly defined to include businesses, non-governmental organizations (NGOs), foundations, universities, professional organizations, and parents, and that public and private partners may be supported through loans or grants from international or bilateral institutions.²⁹ In our view, such a definition best balances the commercial imperatives driving PPPs and the “public good” nature of many of the activities that will be relevant in an African context. Too narrow a definition would unduly restrict the nature of activities that could be considered PPPs, while too broad a definition would reduce the usefulness of the term. In addition, PPPs as defined

here are most relevant to international and donor agencies as they are most likely to be commercially sustainable and scalable.

In all PPPs, the public sector’s role is essentially to define the scope of business; specify priorities, targets, and outputs; and set the performance regime by which the management of the PPP is given incentives to deliver—and, in the case of PFI projects, also to pay for—the services. The essential role and responsibility of the private sector in all PPPs is to deliver the business objectives of the PPP on terms offering value for money to the public sector.

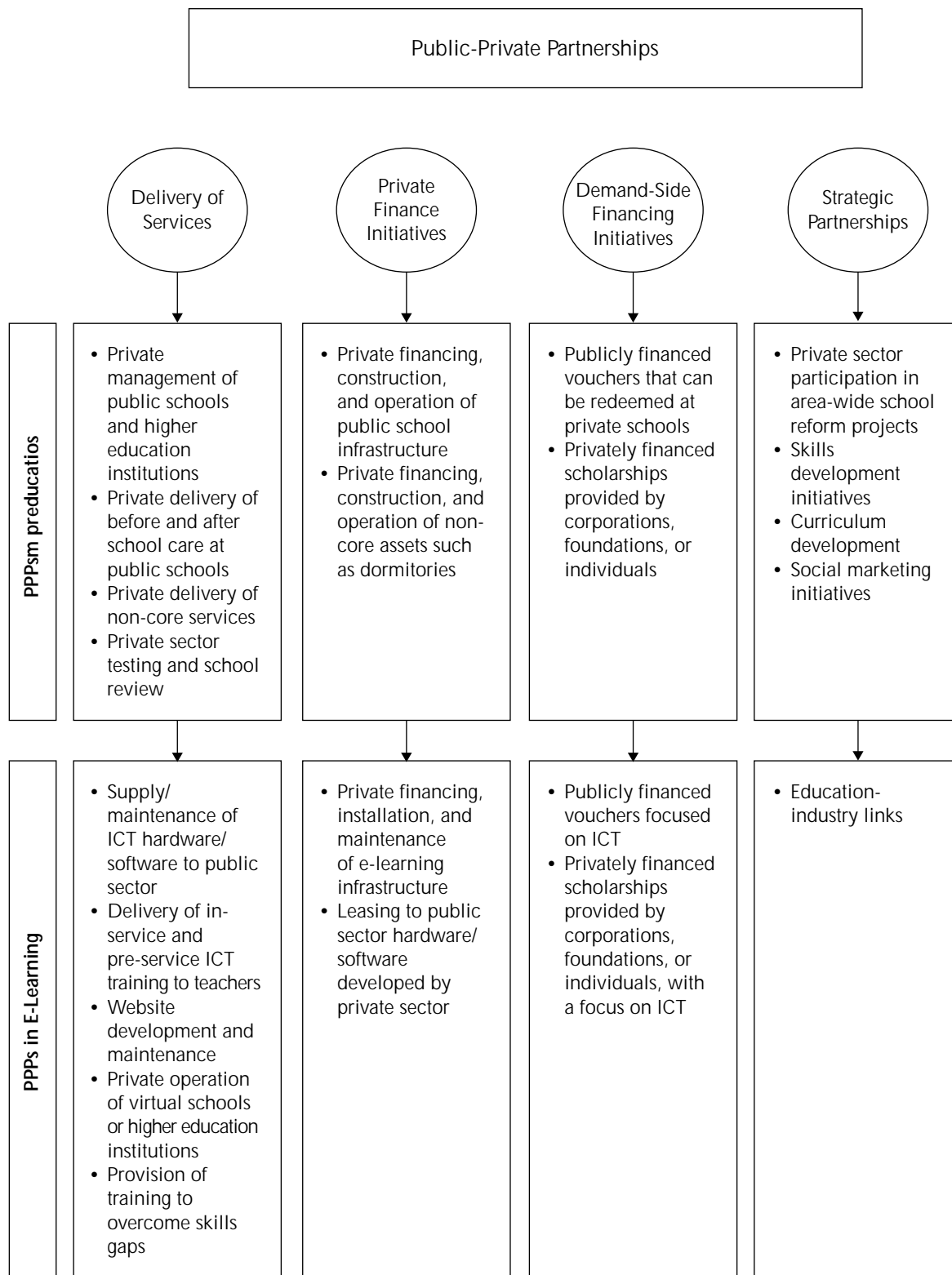
PPPs need to be contrasted with privatization. As Wang (1999) notes, privatization implies permanent transfer of control, whether as a consequence of a transfer of ownership right from a public agency to one or more private parties, or, for example, of a capital increase to which the public sector shareholder has waived its right to subscribe. In contrast, PPPs aim to promote improvements in the financing and provision of services from both the public and private sectors but not to increase the role of one over the other. Rather, PPPs are geared toward improvement of existing services provided by both sectors with an emphasis directed on system efficiency, effectiveness, quality, equity, and accountability.³⁰

PPPs in Education

PPPs are not new. The private sector has been involved in the delivery of public services such as water and transport for many years. However, the extension of PPPs into social policy areas such as health and education is more recent and is arguably one of the most significant trends in public finance in the past decade. Broadly speaking, however, PPPs in education can be classified into four broad areas:

- delivery of public services by the private sector
- private finance initiative type arrangements
- demand-side financing initiatives
- strategic partnerships

Figure 3 outlines these four broad types of PPPs, as well as examples of each. It shows that, within these broad classifications, there is a wide range of types of PPPs in education generally and e-learning



in particular. These include the operation of private schools and universities, the provision of private scholarships to students, the private management of public schools, the private provision of school review, the contracting out of education department functions, and the provision of finance via PFI type arrangements.

PPPs in E-Learning

There is considerable scope for PPPs in e-learning. This is because the PPP model is sufficiently broad to allow different forms of e-learning partnerships to be subsumed under a PPP umbrella. A range of possible e-learning partnerships between the public and the private sector is summarized below.

- *Education-industry links.* These include business sponsorship and corporate social responsibility initiatives, often with an emphasis on socially disadvantaged groups. Corporate involvement is philanthropic or based on sponsorship.
- *Partnership programs.* These involve public-private collaboration to develop “proof of concept.” Initial funding is focused on developing innovative education and training methods and products. Such partnerships may later lead to full-scale implementation on a commercial basis (and possible contractual PPP).
- *Outsourcing of management and services.* This includes supply and maintenance of ICT hardware/software to the public sector or the provision of some forms of in-service teacher training by private sector suppliers.
- *Publishing partnerships.* These involve collaboration between commercial content developers and teachers/trainers who provide subject expertise. Fees or royalties related to sales may be paid to individuals or institutions in the public sector.
- *Skills gap initiatives.* These are often closely linked with a single company or small group of companies in the same industry sector. The primary aim is usually to alleviate the specific recruitment problems of the sponsoring company.
- *Leasing.* This involves the private sector developing a capital asset—usually infrastructure or hardware—and renting it to the public sector.
- *Private finance initiatives.* These are often large-scale capital investment programs involving, for example, the building of new facilities or redevelopment/maintenance of existing institutions co-financed by the public and private sector, or financed by either sector but managed under contract by the private sector partner.³¹

The Uses of PPPs

Why is the move to PPPs occurring? In particular, what are the benefits that are seen to arise from the use of PPPs in education generally and e-learning in particular? Generally speaking, PPPs work best in areas where the private sector has some advantage over the public sector in terms of the skills and competencies required to deliver a particular good or service. The fact that governments around the world are expanding PPPs into non-traditional areas suggests this is true across a number of activities.

PPPs would appear to be well-suited to use in an e-learning context. There are several reasons for this. These relate primarily to the nature of e-learning initiatives, which are generally complex transactions, involve considerable risk in both design and implementation, involve innovative technologies, and require significant commitments of capital and specialized skills. In particular, PPPs would offer the following:

- Provide developing country governments with increased access to private capital to finance e-learning investments, thus allowing projects to be undertaken sooner than would otherwise be the case.
- Bring market and commercial disciplines to bear on what are often complex transactions that require effective strategic planning and rigorous cost and time control. This is particularly important in an e-learning context given the size and complexity of many ICT projects and the fast pace of technology, which can quickly render technologies obsolete (see “ICT in Schools in the Indian State of Karnataka”).
- Introduce private sector knowledge, skills, and innovation into the design and management of e-learning projects and into the delivery of ongoing services such as maintenance and upgrading of equipment and training of staff. This is particularly important in education,

where key technical and management skills are often lacking. It is also particularly important in complex areas such as ICT.

- Ensure that project risks are allocated to the parties who are best qualified to assume them. These may include technological and implementation risks. There are many examples of large-scale public sector ICT projects being poorly designed and implemented, with a consequent impact on time to completion and project success.
- Allow bureaucrats, school principals, and teachers to focus on areas of core business such as educational delivery, pedagogy, curriculum, and teacher development, rather than focusing on ICT installation and maintenance issues.

ICT in Schools in the Indian State of Karnataka

A number of states in India have partnered with private sector computer training companies. One such partnership in the State of Karnataka provides an example of a true PPP in a developing country. Through a partnership with NIIT, a private training institute, the government of Karnataka equipped 700 schools with ICT labs in only 45 days.

Under the PPP, the Karnataka government contracted with NIIT to equip and maintain school computer labs and provide an instructor for technical training for students during school hours. In exchange, the training institute is compensated with a five-year contract for providing the training, and is allowed to use the facilities after school hours for delivery of its private training courses to the community. The initiative had a number of positive spin-offs—including bringing power and telecommunications services to areas where none existed before and hiring considerable numbers of local staff. Both government officials and the private training institute have deemed the project a success.

Source: Robert J. Hawkins (2002), Ten Lessons for ICT and Education in the Developing World.

- Force the public and private sectors to take a longer-term view of investment decisions by requiring the public sector to articulate its long-term service needs. The private sector would need to assess the long-term viability of potential e-learning projects since its capital would be at risk.
- Introduce a much longer time horizon into public-private relationships and better align the interests of the public and private sectors. For example, the private sector is much less likely to “cheat” on quality in the development of e-learning infrastructure if it knows it will be responsible for maintaining the equipment over its lifespan.
- Allow for greater cross-jurisdictional collaboration and knowledge sharing by getting around jurisdictional and political rigidities in traditional models of service delivery.
- Allow for much greater innovation in the delivery of education by focusing on the outputs and outcomes desired from an educational provider, rather than specifying how those outcomes should be achieved.
- Introduce commercial realities by providing both the public and private sectors with valuable information by identifying successful technologies and business models that can be replicated.

Overall, if done right, PPPs can stretch limited government budgets by delivering better value for each dollar spent. This is critically important for cash-strapped governments—in developed and developing countries. PPPs can also result in higher-quality services delivered in a more timely and efficient manner. These too are critical given the rapid advance of technology, the importance of good infrastructure (physical and human) to economic growth, and increased globalization.

This is not to say that PPPs will necessarily be cheaper in the short term. They may not be. PPPs are often complex arrangements that require considerable financial, contract management, and contract monitoring capability. The formulation and specification of contracts is complex and time-consuming—particularly for bureaucracies unfamiliar with an

An overriding theme of much of today's literature on distance education is the extent to which alliances among colleges, between colleges and high schools, and between colleges and commercial interests are playing leading roles in the development and delivery of distance and open education, especially when that education is delivered through information and communication technologies.

—Dr. Peter Durr, *"The Development of New Organizational Arrangements in Virtual Living"*

external, output-based contracting model. Contract monitoring and enforcement are not costless, and they presuppose a well-functioning legal framework for ensuring property rights and timely and fair dispute resolution. This suggests that, to be successful in an African context, PPPs could require considerable capacity building or contracting in of expertise to operate effectively.

Finally, PPPs may not reduce the time required to complete a project, as is often claimed. Instead, they may simply reallocate the time between the set-up and transaction phases of a particular project. For example, a PFI-type arrangement to outfit schools with IT equipment may take just as long to complete under a PPP as under a traditional public sector procurement model. This is because, while the transaction phase may be shorter under a PPP, the longer time required to negotiate the PPP contract may offset this. Clearly, the development of model contracts would help reduce contract set-up times and could tilt the balance toward PPPs.

However, to the extent that PPPs allow the government to avoid unnecessarily restrictive labor, employment, and business laws, they can result in much quicker time to market for large projects.

Current E-Learning PPP Initiatives

Documenting current PPPs in e-learning in Africa is not a simple task. At one end of the spectrum, PPPs are ubiquitous—every instance of a private sector partner donating goods or services to a public school could be considered a PPP. However, few of these would have the characteristics outlined earlier: a long-term relationship, based on an explicit contract, risk-sharing arrangement, etc. Even more extensive partnerships in developed and developing countries are often not true PPPs. As noted by the European Commission, the majority of existing PPP initiatives in e-learning are better characterized as public-private collaborations (PPCs) rather than PPPs. In contrast to PPPs, private sector funding in PPCs is essentially being used to support innovation rather than to develop and maintain services on a long-term basis or to foster the widespread use of e-learning.³²

There is a wide range of partnerships occurring in e-learning across Africa and the developing world, although few of them would have the general characteristics of PPPs set out here. PPPs in e-learning are not yet as common as PPPs in infrastructural areas such as ports, water, or telecommunications. According to the World Bank, more than 121 developing countries introduced private participation in at least one infrastructure sector between 1990 and 1999. Those countries awarded over 1,900 projects that involved investment commitments of US\$580 billion.³³

Nonetheless, some e-learning initiatives are operating. A number of examples are highlighted in this section.

- Shoma Education Foundation, which delivers teacher professional development training in South Africa
- African Virtual University, which uses modern information and communication technologies to give sub-Saharan African countries direct access to higher education
- SchoolNet Africa, which offers technical, educational, and support services to schools
- World Links for Development, which aims to link secondary-school students and teachers around the world, implementing Internet connectivity, to improve education
- European Commission eLearning initiative, which looks to adapt the European Union's education and training systems to the knowledge economy and digital culture
- The Digital Partnership, which aims to facilitate affordable access to technology, training, and the Internet for learning, enterprise, and development in developing and emerging market economies

These initiatives show the tremendous diversity in the types of PPPs that are possible. They cover a range of partnership types, with varying objectives. These initiatives cover different types of provision at various levels of education, from schools to post-secondary institutions. While non-African initiatives—and those in developed countries in particular—may not be directly relevant to the African situation, they nonetheless may offer design and implementation lessons that would be transferable to the African situation.

Shoma Education Foundation: Teacher Development in South Africa³⁴

The Shoma Education Foundation in South Africa provides an example of an NGO-led partnership designed to address specific national educational goals—in this case, teacher development. The current initiative follows on from a 1998 pilot project. The Shoma program uses computer and telecommunications technology tools to train teachers in remote areas of South Africa.

Shoma manages 14 centers that are supplied with one television monitor, a video server and satellite dish, a decoder, a Windows NT server, 24 Pentium workstations, and, recently, Diginet Internet connectivity. Software for the centers includes a web server and exchange server software for e-mail, sequel server software for database administration, broadcast software, and operating system software for PCs.

Currently Shoma is operating in 14 centers in all but one of the nation's provinces (Western Cape). The centers are operated by the provincial education departments and are based at various governmental institutions, ranging from teacher training colleges, provincial department of education offices, and schools.

Although the number of professional development sessions varies across centers, most host three to four sessions per day, four days per week, serving approximately 320 teachers per year, over 5,000 across all centers in 2001, and approximately 13,500 since 1998. Some of the school-based centers have made arrangements that allow students at that school and surrounding ones to access computers on a weekly basis.

Shoma's total annual budget for both 2000 and 2001 was R8 million (approximately \$US1 million). In 1999, the budget was R12 million, which included additional funds to establish 10 of the 14 centers. The total Shoma budget from 1998 through the end of 2001 was R32 million.

Partners

The Shoma teacher development model has a number of public and private partners.

- MultiChoice, a satellite digital television broadcast company, through Shoma, supports the development of video and computer-based content for teachers' professional development and delivers the content through its satellite delivery technology.

- Provincial education departments establish and operate the teacher development centers and provide staff who serve as facilitators during the Shoma training sessions.

- The National Department of Education provides the curriculum and consultation upon which the Shoma materials are based.

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educational purpose: building skill in offering outcomes-based education, a key issue in the national educational agenda. Furthermore, the role of Shoma as an NGO is one of leadership and program development, not merely one of supporting the implementation of a public program.

- E-learning opens up new possibilities for developing the teacher development market. Indeed, the Shoma model makes use of a variety of technologies, including satellite television program clips, face-to-face discussions, Internet- and CD-ROM-based resources, and video material. Although it is still too early to assess the durability and generalizability of the Shoma model, the experience bears watching. Given the universal concern for teacher professional development, the potential for IT tools in this area is clear.
- Shortcomings in the model include variable attendance at the training sessions (ranging from 20 percent to 100 percent); inadequate follow-up and classroom-based support for teachers; variable quality in the training facilitators; too little time allocated for the Shoma training sessions; a lack of focus on school-based learning and development; and limited material resources (for example, teachers could not take copies of the learning materials with them back to their schools).
- The approach could be strengthened by giving teachers access to the Internet and facilitating online discussions among participants, facilitators, and other instructional resource supports. In addition, it is likely that a more significant impact would accrue from a school-based training approach, as transportation to the centers was a major barrier in many rural areas. Teachers also would benefit by having the opportunity to practice the new behaviors in the training setting and to receive feedback from their peers and facilitators.

African Virtual University³⁵

African Virtual University (AVU) uses modern information and communication technologies to give sub-Saharan African countries direct access to higher education.

African Virtual University

- **Year Started:** 1997 (pilot phase)
- **Countries:** 15 anglophone and francophone African countries
- **Description:** Provides higher education using various technologies
- **Partners:** World Bank, DFID (UK), CIDA (Canada), and Carnegie Foundation
- **Website:** www.avu.org

Since the launch of its pilot phase in 1997, the World Bank-sponsored AVU has set up 25 learning centers in 15 anglophone and francophone countries. By early 2000, it had provided more than 2,500 hours of instructional programs, more than 12,000 students had completed semester-long courses in engineering and the sciences, and over 2,500 professionals had attended executive and professional management seminars. AVU also offers access to an online digital library with over 1,000 full-text journals, and a website (www.avu.org) that allows access to e-mail for over 10,000 free accounts. The AVU website is reported to get over 80,000 hits per day. AVU is now an independent nonprofit organization with headquarters in Nairobi.

Initial plans were for AVU to offer two main product lines: an academic stream, offering undergraduate programs in computer science and engineering, and a business and technology stream, delivering short courses in management, IT, and foreign languages, as well as an executive MBA. AVU also plans to expand to more countries in Africa and reach undergraduate students, faculty, and professionals through learning centers in public and private universities, private franchises, and on-site professional learning centers housed in corporations and NGOs.

AVU uses satellite technologies to deliver academic courses to learning centers throughout Africa. Each center is generally equipped with an inexpensive satellite dish for receiving signals; large-screen projectors or television monitors; at least 50 computers; Internet access; e-mail, fax, and telephone services; as well as access to AVU's Internet-based

digital library. On-site moderators are available to guide the learning process and offer student support. The presence of on-site moderators is particularly attractive for institutions that are dual mode or multi-modal and employ a wide range of delivery mechanisms (e.g., paper-based correspondence, radio transmission).³⁶

Partners

AVU received financial backing from the World Bank, DFID in the UK, CIDA in Canada, and the Carnegie Foundation.

Lessons Learned

While still in its developmental stages, AVU is playing a significant role in providing lessons with regard to the use of ICT in higher education in Africa. These include:

- *Developing an appropriate business model.* The AVU experience highlights the need to keep revisiting the nature of the business model used to deliver e-learning. For example, due to funding shortages, AVU recently dropped plans to offer its own degree programs in a variety of disciplines. The university will instead focus on delivering computer science and business programs from established institutions.
- *Emphasizing the importance of leadership and business management skills.*
- *Maintaining and enhancing support for distance education.* AVU has broadened the scope of distance education offerings in Africa and shown that countries can collaborate to deliver quality education using sophisticated technologies. In addition, from the start, it has attempted to involve the private sector in its development, something other distance education programs have been accused of neglecting.
- *Building better infrastructure including regional delivery of courses.* AVU, with donor funding, has donated large numbers of computers and additional equipment to participating institutions. It has used local facilities and promoted collaboration among professors in universities in Africa and abroad.
- *Improving course design and development and developing the skills of indigenous educators.*

Participating in AVU has enabled African faculty to upgrade their computer skills and enhance their abilities in curriculum design. Further development occurred through access to colleagues from around the world and up-to-date information. In time, AVU is supposed to move to a model where African professors deliver many of its courses.

- *Choosing the most appropriate technology and better meeting student needs.* AVU has chosen a high-tech route to deliver courses, with the intent of better meeting student needs. With its focus on professional training, it seems to address the criticism that too much distance education is focused on academic, formal studies. However, this high-tech approach means AVU must charge fees at a level that will likely restrict its clientele to the economically advantaged portion of the African population.

AVU is an experiment still in progress. It might be a top-down initiative that eventually fails, or it could be a catalyst for significant reform and advances in tertiary education in sub-Saharan Africa. It has shown that technology can work in distance education, even in countries with some of the world's worst infrastructure. It has benefited individual African faculty and students, even though it may be a continuing force for the westernizing of these nations. AVU bears watching; its ultimate success or failure will have a large impact on the future of distance education programming in countries in sub-Saharan Africa.

SchoolNet Africa

SchoolNet Africa is an independent NGO that promotes education through the use of ICTs in African schools. SchoolNet has four major focus areas:

SchoolNet

- **Year Started:** 1999
- **Countries:** 28 African countries
- **Description:** Offers technical, educational, and support services to schools
- **Partners:** UNECA, OSISA, COL, and ThinkQuest
- **Website:** www.schoolnet.org

- connectivity and technology infrastructure
- teacher development and training
- content and curriculum
- advocacy and marketing of ICTs in education

SchoolNet offers technical, educational, and support services to schools, including the following:

- SchoolMail, a low-cost e-mail service for all schools
- website hosting
- mailing lists on a variety of topics
- domains for each school
- specialized advice and technical services to schools
- seminars, conferences, and training for teachers on various aspects of the use of ICTs in education (such as an annual conference)

Partners

SchoolNet is a partnership comprising the following members:

- United Nations Economic Commission for Africa (UNECA), which has promoted the concept of an African Learning Network as an integral component of the African Information Society Initiative
- Open Society Institute for Southern Africa (OSISA), which committed support for the inception phase of SchoolNet Africa and, depending on performance, will support SchoolNet Africa for another three to five years
- Commonwealth of Learning (COL), whose mission recognizes knowledge as key to cultural, social, and economic development. (COL is committed to assisting Commonwealth member governments to take full advantage of open, distance, and technology-mediated learning strategies to provide increased and equitable access to education and training for all their citizens.)
- ThinkQuest International, a nonprofit corporation dedicated to the advancement of education

that has created and now coordinates, manages, and operates an educational technology program for students and teachers

World Links for Development (WorLD)³⁷

WorLD aims to link secondary-school students and teachers around the world, implementing Internet connectivity, in order to improve education, enhance cultural understanding across nations, and help develop skills that youth need for obtaining jobs in the 21st century.

The WorLD program has 5 components:

- Internet connectivity for secondary schools in developing countries
- computer donations
- training in the use of technology/Internet to improve teaching and learning
- school-to-school partnerships, as well as regional and global partnerships with public, private, and NGOs
- telecommunications policy advice for education sector monitoring and evaluation

The project is currently active in 15 countries in Africa, Latin America, Eastern Europe, and the Middle East (Brazil, Cape Verde, Chile, Colombia, Lebanon, Mauritania, Mozambique, Paraguay, Peru, Senegal, South Africa, Turkey, Uganda, West Bank/Gaza, and Zimbabwe).

WorLD

- **Year Started:** 1997
- **Countries:** 15 countries in Africa, Latin America, Eastern Europe, and the Middle East
- **Description:** Links secondary school students around the world through Internet connectivity, training, etc.
- **Partners:** World Bank Institute, governments in six countries, local businesses, and global corporate partners such as Microsoft, Cisco, etc.
- **Website:** www.worldbank.org/worldlinks

Partners

Launched in 1997, the project was initiated by the World Bank Institute. The initiative involves a range of partners:

- nonprofit providers/sponsors such as WorLD
- governments of six countries as public partners (Canada, Finland, France, Italy, Japan, and Switzerland)
- local commercial providers/sponsors such as Fan Milk Ghana Limited, Ghana Chamber of Mines, Ghana Telecom, Metropolitan and Allied Bank, The Partnership, Private Enterprise Foundation, Providence Insurance Company, Standard Chartered Bank, Tema Oil Refinery, and Africa Online Ghana Ltd.
- global corporate partners such as Security Storage, Sun Microsystems, 3Com, UR Labs, Microsoft, Cisco Systems, Lucent Technologies, and JDL Technologies

European Commission eLearning Initiative³⁸

The European Commission has adopted an e-learning initiative to adapt the European Union's education and training systems to the knowledge economy and digital culture. The initiative recognizes that while Europe is highly educated and has the necessary investment capacity, it still lags in the use of new ICTs. The eLearning initiative is designed to enable Europe to overcome this. It implements and extends into education and training the eEurope Action Plan.

The eLearning initiative has four components:

- to equip schools with multimedia computers
- to train European teachers in digital technologies
- to develop European educational services and software
- to speed up the networking of schools and teachers

A key aim of the eLearning initiative is to strengthen cooperation and dialogue and improve links between measures and initiatives at all levels—local, regional, national, and European—and between all

European eLearning Initiative

- **Year Started:** 2002 (pilot)
- **Countries:** Members of the European Union
- **Description:** Aims at adapting the European Union's education and training systems to the knowledge economy and digital culture
- **Partners:** Member governments of the European Union, the European Investment Bank, and private sector corporations
- **Website:** europa.eu.int/comm/education/elearning

the players in the field—universities, schools, training centers, decision makers, and administrators responsible for selecting equipment, software, content, or services (including the social partners).

Partners

The eLearning initiative aims to strengthen partnerships between the public and private sectors, between the players involved in education, training, and culture and those in the content industry. There will be special focus on cooperation with the economic and social players, particularly the social partners, in implementing the initiative. Partnerships between the public and private sectors are seen as vehicles to encourage exchanges of experience, technology transfers, and an improvement in the way in which the skill needs of businesses are taken into account.

The Digital Partnership³⁹

The Digital Partnership is an international partnership facilitating affordable access to technology, training, and the Internet for learning, enterprise, and development in developing and emerging market economies. A practical aim is to enable ICT skills training in disadvantaged communities to support socioeconomic development. Schools, students, and educators, as well as community enterprises, will use technology and the Internet for learning, skills training, personal development, and community life. This can help realize the potential of thousands of young people who find themselves across the digital divide without access to the skills, knowledge, and technology required to live and work in the global economy.

Digital Partnership

- **Year Started:** 2002 (pilot)
- **Countries:** South Africa, with further pilots planned for Brazil, India, and possibly Russia and Poland
- **Description:** Facilitates affordable access to technology, training, and the Internet for learning, enterprise, and development in developing and emerging market economies
- **Partners:** Public, private, and not-for-profit partners, including South Africa Department of Communications, Nestle, Eli Lilly, World Bank, and South African development agents
- **Website:** www.iblf.org

An initial pilot was launched in South Africa in June 2002, with subsequent pilots planned for Brazil, India, and possibly Russia and Poland.

The Digital Partnership will be implemented through the establishment of e-learning centers with computers, Internet links, software and content, and ICT skills training in disadvantaged schools and social enterprise projects. Tapping into the thousands of computers that are decommissioned from large companies each year, refurbished computers will be provided, combined with training resources and networking solutions from leading corporate partners. The Digital Partnership is working in South Africa with existing organizations as development agents that have proven successful in rolling out school and community networking programs. Technology, resources, and know-how provided by the consortium of private sector partners will enable a wider impact in disadvantaged communities. Schools will contribute by developing sustainability plans to cover running costs.

The Digital Partnership is providing a platform for a range of partners to contribute resources, technology (pre-used PCs and equipment), training programs, and technical assistance. The partners—government, corporate, and nonprofit—work collaboratively to combine resources and competencies.

Planning for the Digital Partnership South Africa began in May 2001. A six-month pre-pilot testing and evaluation phase was conducted from November 2001 to May 2002. The purpose of the initial pilot was to set up the network of partners and test the mechanisms for delivery. A full-scale pilot was launched in July 2002 and will last for two years, with a target of up to 2,000 e-learning centers established, and 200 “master facilitators” trained in ICT skills and the use of computers and the Internet in education. A full evaluation will be conducted throughout the pilot, with early lessons learned made available to enable knowledge sharing of the model as it develops.

Partners

The Digital Partnership is an initiative of The Prince of Wales International Business Leaders Forum (IBLF), a UK-based international charity (nonprofit). The Digital Partnership in South Africa is chaired by the director general of the Republic of South Africa’s Department of Communications and is funded by public, private, and nonprofit partners. These include:

- South Africa’s Department of Communications
- private sector companies such as ABB, Nestle, Diageo, Eli Lilly, StandardChartered, Exel, Microsoft, Cisco Systems, Vodacom, Intel, and ZILS
- South African development agents such as Khanya Project, Women’s Development Bank, NICRO, and CITI Bridges
- The World Bank and John Ryder Memorial Trust

The Digital Partnership in South Africa draws on the skills and competencies of existing South African school networking and social enterprise organizations to implement e-learning centers and training. It is billed as the first initiative of this scale in South Africa to combine the resources, skills, and competencies of corporate and community organizations in a partnership, using refurbished computer hardware and training programs, to address the digital divide.

Benefits, Prospects, and Challenges

Africa's success within the global knowledge economy will require an accelerated transition to a flexible, educated, and healthy workforce. As discussed earlier, African countries need to overcome a range of challenges, including low levels of access to education and the poor quality of education, to achieve this transition. African countries are beginning to make some headway in addressing these challenges, though much remains to be done.

E-learning offers a potentially useful tool to address the challenges facing Africa. As discussed below, well-designed e-learning initiatives can provide a low-cost, flexible, and culturally appropriate alternative to traditional face-to-face learning. In addition, a number of factors are creating a climate that will help support increased use of IT in developing countries, including those on the African continent.

The Benefits of E-Learning

E-learning offers a number of potential benefits as a means of increasing access to and improving the quality of education in Africa. It also provides a potential means of addressing both access and quality in educational delivery in a relatively cost-effective way.

Access

E-learning offers a number of significant benefits in terms of increasing access to education.

- Education can be delivered to learners with limited financial resources who need to study on their own time while they remain at work.
- Education can effectively reach those learners who are often denied access. For example:
 - women who are unable to attend traditional educational programs because of household responsibilities or cultural constraints
 - secondary-school graduates who fail to gain admission to the traditional university with the residential campus model
 - economically disadvantaged or isolated communities
- Distance learning programs at the post-graduate level, delivered by universities in the developed world, can be accessed by self-motivated students in Africa without the need to incur the costs of living overseas.

Quality of Instruction

E-learning can also bring a number of benefits in terms of improving the quality of instruction.

- There is greater flexibility in the design and delivery of curriculum content than is normally associated with classroom teaching.
- E-learning enhances the ability to adapt the program to suit specific student needs or work requirements.
- The use of standardized materials developed by subject experts promotes quality assurance and equitable education provision.
- When good instructional materials for distance education are used, they are quickly appropriated by classroom students as study aids.

- E-learning provides lecturers with increased access to the latest information, syllabi, and teaching aids.

Cost and Cost-Effectiveness

Although the experience to date with distance education is mixed, e-learning offers the possibility of lower cost—or at least more cost-effective—delivery of education. That is, it allows an expansion in enrollments and improved quality at a lower per-student cost than traditional education models. There are a number of reasons why this might be the case.

- Since courses are often delivered through existing facilities, they provide expanded access without incurring additional infrastructure costs, although clearly there are significant up-front costs in the form of technology.
- Students do not have to give up income from employment in order to study, thus reducing the opportunity costs of their study.
- E-learning can operate at lower staff/student ratios, thereby reducing the proportion of institutional budgets dedicated to staff salaries.
- Distance education offers declining marginal costs in that as enrollments rise, the cost per student declines at least over some range of output.
- Due to its modular approach, e-learning materials can be updated or modified more readily and in an incremental manner.

While the theory suggests that costs should be lower, the evidence on the cost-effectiveness of distance education is mixed. For example:

- A United Nations Educational, Scientific and Cultural Organization (UNESCO)/World Bank report in 2000 found that the per-student cost of education at the world's largest distance education institutions—the majority of which are in developing countries—was, on average, about one-third the cost of that at traditional institutions in the same country.
- A study of online learning by Ruth and Shi found that, on average, online learning had the highest cost and lowest yield, although it acknowledged that costs may decline over time following high start-up costs.

- U.S. research funded by the Pew Foundation reported significant cost savings for redesigned online undergraduate programs.
- Other studies show that there is no significant cost difference (in terms of pedagogic effectiveness) between distance learning, including online learning, and face-to-face provision.⁴⁰
- Ruth (2002) concludes that “virtual learning is invariably more expensive than traditional approaches.”⁴¹

Based on the above, there is reason to believe that well-designed applications of e-learning—including distance education and the use of ICTs—are underutilized and could play a more substantial role in addressing the challenges facing African countries. However, it needs to be recognized that the cost-effectiveness of online learning will depend very much on context, the technology used, scale of operation, and other factors. Nonetheless, it would seem clear that the e-learning revolution as well as the development of new technologies and reforms in education, telecommunications, and other policy areas, have all combined to provide a better environment in which ICT use can grow.

Given continuing constraints on government spending, it seems improbable that African governments will be able to meet either the access or quality challenges using only traditional methods of instruction such as face-to-face learning. This has led Saint (1999) to argue:

Distance learning techniques, augmented by judicious use of new information and communications technologies, are a viable option for African governments and societies that wish to expand higher education in the decade ahead. Distance learning programs are not by themselves the solution to this problem. However, they can make a much larger contribution to meeting this challenge than they have to date.⁴²

At the same time, the key test for any technology has to be whether it actually improves learning outcomes. In essence, does technology change the actual educational experience? Can we use this technology to measure these changes, changes such as the ability to individualize learning solutions, the flexibility of the system to be updated

and adapted, and, perhaps most tellingly, the ability to support learning by doing rather than by merely memorizing? Table 6 summarizes the challenges for technology in transforming education.

A crucial lesson learned from past ICT initiatives is that a technology-centered policy will not produce meaningful results or the expected impact on learning outcomes. Effective gains in student learning, teacher practices, and efficient management can only be achieved if the focus resides on people and on how to improve their skills and practices with the assistance of ICT.

An Emerging Supportive Environment

Based on this report, our judgment is that there is considerable scope for expanding the use of PPPs in e-learning in Africa. In our view, this favorable environment is due to the convergence of three forces:

- growing interest in developed countries and among donor agencies in e-learning and ICT-related education solutions, which will stimulate the development of delivery models that can be applied and expanded in an African context
- increased recognition of the important role that the private sector can play in assisting developing countries overcome their economic, social, and educational challenges
- growth in the private education sector in Africa and the prospects for that to continue

These three factors are working to provide a more favorable environment for ICTs and PPPs to work together to bring about much needed solutions in education.

Factor 1: Interest in e-learning and ICT-related education solutions

Recent years have seen growing interest in developed countries and among donor agencies in e-learning and ICT-related solutions to the economic, social, and educational challenges facing developing countries. For example, donor agencies have been working with client countries in a number of respects to bridge the digital divide. These efforts have included:

- broadening and deepening sector and institutional reforms, including creating an enabling environment for e-commerce and e-government and improving regulation
- developing information infrastructure, including extending access through innovative solutions such as public-private partnerships
- supporting ICT applications across a range of areas, including health, education, and public sector management
- building ICT skills and capacity, including needs identification and lending to education in ICT in higher education projects

Table 6: Technology and the Challenge of Transforming Education

Objective	Technology Application
Access to technology/connectivity	<ul style="list-style-type: none"> • Computers in classrooms • Integrate into curriculum • Teach networking skills
Improve quality	<ul style="list-style-type: none"> • Classroom processes • Teacher development • Curriculum revisions
Access to education	<ul style="list-style-type: none"> • Distance learning • Teacher production • Virtual schools
Improve education system	<ul style="list-style-type: none"> • Manage education systems

Agencies such as the U.S. Agency for International Development (USAID), GTZ, the World Bank, the Australian Agency for International Development (AusAID), and the UK Department for International Development (DFID) have all introduced initiatives in the area of donor-funded support for ICTs in education. Three examples are outlined below.

USAID

The Digital Opportunity through Technology and Communication (DOT-COM) is a five-year, \$15 million U.S. government effort to promote information and communication technology for development. DOT-COM activities cross all sectors, including education, economic growth, trade, health, environment, and telecommunication/e-commerce. DOT-COM has three cooperative agreements that provide expertise and services in policy, access, and learning systems:

- DOT-GOV provides assessments, training, and technical assistance on telecommunications and e-commerce policy and regulatory reform.
- DOT-ORG provides pilots, technical assistance, and institutional support to increase access and use of communication technology by the underserved.
- DOT-EDU provides pilots, technical assistance, and institutional support for the use of information and communication technology in learning systems.

The Leland Initiative is a five-year, \$15 million U.S. government effort to extend full Internet connectivity to 20 or more African countries. The Leland Initiative builds on existing capacity with the ultimate aim of facilitating Internet access throughout each country. The Leland Initiative hopes to achieve the following results:

- improving connectivity within Africa
- increasing access by Africans to people and information for sustainable development
- enhancing Africans' ability to find solutions to African problems
- making African-produced information available to the world

GTZ

As a result of a UNESCO request for support to developing countries, a number of private companies (Corporate Research of SAP AG, INGENATIC, Bosch, and Lucas Nuelle) embarked on an initiative to identify and implement an e-learning pilot/research project in the Western Cape region of South Africa. The *Distributed Advanced Strategic System for Industrial E-Learning* (DASSIE) project is financially supported by the German development agency GTZ.

The project's objective is to assess the relevance and value that e-learning can bring to the cost-effective delivery of quality learning in South Africa. In addition, it develops an e-learning model for the whole country, with the aim of supporting the South African government's policy of open and flexible learning, accessibility, and the expansion of education and training.

This project fits very well with the initiative *Learning for Life, Work and the Future* (LLWF), comprising the 14 member states of the Southern African Development Community (SADC), which was initiated jointly by the Ministry of Education in Botswana and the UNESCO-UNEVOC International Center. (UNEVOC is UNESCO's international project on technical and vocational education.) During this initiative, several project proposals on sub-regional cooperation have been developed, two of which are touching the issue of e-learning.

The World Bank

Currently, 76 percent of new World Bank education projects (equal to 40 percent of new dollar lending) include a technology component. In fiscal year 1999, lending for technology in education amounted to \$US835 million, up from \$US644 million in fiscal year 1997. Distance education represents the bulk of this lending—57 percent. Of 21 new World Bank projects in the year 2000 (worth \$US280 million), 16 had technologies included. An example of the World Bank's growing interest in ICT-related activities is the AVU initiative discussed earlier. Other recent projects have included:

- computers and connectivity in Turkey
- virtual teacher certification in Brazil

- distance learning for continuing education in Romania
- radio broadcasting in Ghana
- IT infrastructure in Jordan⁴³

The World Bank has recognized the need to adopt

- In December 2001, the UK government announced that Partnerships UK is to provide strategic support for the development of public-private partnerships in South Africa through an agreement with the South African Department of Finance PPP Unit.⁴⁷
- According to a recent World Bank report, one of the proposed mechanisms for building ICT skills and capacity is to invest in private ICT training institutes from developing nations and support PPPs for technical education and skills transfer.⁴⁸
- Robert Hawkins of the WorLD program has argued that governments must recognize that they alone cannot meet policy objectives such as equipping schools with ICT and that PPPs are essential.⁴⁹
- The May 2001 European eLearning Summit, which included both public and private sector partners, noted the benefits of PPPs in e-learning and committed itself to exploring their potential in this area. It called on the European Commission to stimulate discussion and initiate a major study on sustainable models for PPPs.⁵⁰
- In response to the eLearning Summit, the European Commission recently came out in support of the use of PPPs in e-learning.⁵¹
- In May 2002, the World Economic Forum Digital Divide Task Force proposed three initiatives, to be piloted in Ghana, to be undertaken as a partnership between governments and the private sector.⁵²
- The World Bank's International Finance Corporation (IFC) is increasing its investment in the private education and health sectors. By early 2001, the IFC had approved or was considering some 28 education projects worth over \$US128 million.⁵³
- The African Development Bank's Education Sector Policy Paper proposed a number of initiatives aimed at facilitating the expansion of private education.⁵⁴

Factor 3: Private investor interest in the education sector

Recent years have seen considerable private sector interest in the education sector, both in developed and developing countries. The private education

sector grew rapidly at all levels of education in Africa during the 1990s as a result of a number of demand and supply factors.⁵⁵ Investor interest in developing countries has come from both domestic and foreign investors. For example, India IT trainer NIIT has set up a franchise in Accra, Ghana.

Outside Africa, Sylvan Learning Systems has announced its intention to set up a university in the Indian state of Hyderabad. The university would specialize in IT, hotel management, engineering, business, and health sciences.⁵⁶ Also in India, Apollo Group, Inc. of the U.S. and Hughes Escorts Communications Limited have partnered to offer degree and certificate programs using the latter's network and services. The joint operation will target the working adult segment of the market.⁵⁷ More broadly, Apollo Group has indicated its intention to build "bricks and mortar" campuses in China, India, Latin America, and elsewhere.⁵⁸

While there is considerable experimentation with new funding and business models for e-learning in both developed and developing countries, the potential of PPPs for the delivery of education and training has not yet been tested.

The Challenges of E-Learning

Although a confluence of factors has created a useful platform for advancing PPPs in e-learning, the path over the digital divide is not straightforward for African countries. A number of factors—economic, technological, and policy—need to be addressed if e-learning and PPPs can be important partners in progress. These challenges need not be seen as insurmountable. Indeed, many of the challenges identified are ones that are common across a range of policy areas, both inside and outside education.

Financing

PPP can bring many benefits, as discussed above. These can include providing access to skills and capital that might not otherwise be applied to a given project. However, they are not a panacea. While PPPs spread the cost of the asset over time, they don't create the funding that the government and consumers need to pay the ongoing costs associated with a PPP (e.g., the lease costs for ICT equipment). This means that demand-side financing considerations need to be addressed as well as

supply-side ones if access to education and equity considerations are to be addressed by any e-learning initiatives. For example, the development of a virtual university under a PPP might require the establishment of a student loan scheme to help students finance the cost of attending.⁵⁹

The ability to pay of most Africans is very low, with an average per-capita income of \$US490 per year. This is lower than the average annual cost of using local dial-up Internet account for about 20 hours a month (\$720 per year). In many countries, some cost sharing for distance education, particularly at the tertiary level, is well established and accepted. But in many instances, the high cost of tuition and Internet services and the low per-capita incomes will continue to ensure that accessing alternative means of finance, both for the provider and consumer, are key challenges.

This raises a key question: To what extent should the costs of e-learning be shared between the government and students? Within Africa, annual tuition costs in tertiary distance education range from \$40 in Madagascar, \$180 in Zimbabwe, \$185 in Tanzania, and up to \$1,200 for an MBA program in South Africa.⁶⁰ In addition, even if the recurrent costs could be covered in part by student fees, a further dilemma for the government is how to access the considerable initial up-front investment that is required to train staff, design curriculum, as well as select and purchase the hardware.

The above suggests that demand-side financing issues should be addressed at the same time as the supply-side PPP is being designed to ensure a coordinated policy response to the challenges facing Africa. The two are inextricably linked.

The financing challenges for e-learning are similar to those that apply in other areas of IT. In those areas, the lack of financing among the poor is leading to the generation and development of innovative business models that focus on shared infrastructure, public access facilities, and the use of intermediaries to interact with the public who may not have functional literacy, let alone be computer literate. A key transition, therefore, is to move thinking from ownership to access, from investment to "pay for use," and from the individual to the community as the customer.

Serving poor communities can be a powerful source of innovation and learning with the potential to create new markets and transform existing ones. The constraints and needs of these markets force attention to a lower-cost structure and counter-intuitive new business models (see Table 7). For example:

- A small cellular system called a MiniGSM provides stand-alone or networked voice and data communications for up to 5,000 users within a 15 kilometer radius.
- A connection of hundreds of franchised village kiosks that contain both a computer and a phone with a central node is, in turn, connected to the national phone network and the Internet.

Need for Regulatory Reform

Any successful implementation of a PPP program requires that the government create a favorable environment for private investment in telecommunications infrastructure, education, and e-learning, supported by an effective institutional, commercial, and legal framework. Strong (1999) has argued:

Table 7: Developing Business Models to Serve Poor Communities

Untapped Opportunity	Business Case
<ul style="list-style-type: none"> • Poor have purchasing power • Markets are concentrated • Rural areas have economic potential • Poor welcome new technologies 	<ul style="list-style-type: none"> • Demand is high for access to credit, connectivity, and quality education services • Provide product/services that meet client needs for lower cost system, aggregated demand, and aggregated purchasing power

... the role of the private sector must be facilitated by supportive policies on the part of governments. Potentially, severe limitations of the benefits are possible if there are economic distortions due to an inappropriate regulatory environment, and perhaps if there is a lack of government incentives to catalyze investments by the private sector, especially in areas where market forces alone may not lead to investments required to meet certain societal needs.⁶¹

In his view, the private sector should determine what technologies to pursue, set the pace of development, establish appropriate standards, and develop new services and applications. Governments, on the other hand, can facilitate these activities by creating a legal and regulatory environment that supports efficient investment and innovation, and promotes full and fair competition. Governments can also provide leadership by supporting test beds for new technologies, fostering the transfer of resulting technologies to the private sector, promoting the assimilation and use of applications and technology through government procurement, and developing applications that support government operations and dissemination of government information.

Institutional and regulatory policies should focus on promoting private sector investment in African countries and ensuring a reliable telecommunications infrastructure. This involves:

- appropriate regulation of infrastructure and telecommunications markets and privatization of assets
- effective legal processes
- eliminating red tape and corruption in government regulatory processes
- reducing taxes and lowering customs duties on technology and educational materials

Such an environment would be most likely to provide reliable access to high-speed Internet, ensure reliability of the telephone service, increase the affordability of telephone and Internet service, and reduce the price of computers and online access. This would also help address the significant bandwidth divide that exists between and within countries.

Education sector policies and regulations should also aim to promote private investment in e-learning and entry by private sector education providers. Key policies include:

- ensuring neutral funding arrangements between the public and private sectors
- minimizing barriers to entry by new education providers, including foreign ones
- providing a strong framework for quality assurance in education (whether publicly or privately provided)
- putting in place effective intellectual property protection
- ensuring that regulations focus on outcomes and outputs rather than inputs. This includes allowing alternative curricula and providing systems for recognition of learning.

The above institutional, regulatory, and policy reforms would provide an environment that encourages private sector investment and PPPs. This is important from a general investment point of view, and even more important in areas such as infrastructure and PPPs because of the size of investments and the risky nature of transactions.

Moving to a PPP environment would also require a significant adjustment for the public sector as it involves moving from input- to output-based contracting. This can require a significant investment in developing skills and guidance on best practices, enactment of enabling legislation, development of appropriate quality assurance mechanisms, and institutional reform to assist in prioritizing, providing resources for, and approving transactions. It also requires a significant upgrading in the skill sets required to design, negotiate, and monitor PPP contracts.

Connectivity

One of the key prerequisites for developing e-learning in Africa is an appropriate technological base. Yet, this clearly does not exist in Africa. Access to the Internet expanded from 11 countries in 1996 to all 54 countries in September 2000. However, it remains concentrated in the capital cities, with only 16 countries having connections in some of the smaller towns. There is a rapid growth of cyberspace

cafes and other types of public Internet access such as adding PCs to community phone shops, clinics, and schools. The number of dial-up subscriber accounts to Internet Service Providers (ISPs) in Africa is estimated at more than 1 million. About 200,000 are in North Africa, 650,000 in South Africa, and 150,000 in the remaining 50 countries. It is estimated that Africa currently has a total of about 3 million users, with approximately 1 million outside of South Africa. Almost 20 new mobile cellular networks came online in Africa in 1997 and 1998. The number of cellular subscribers in the region neared the 2 million mark in 1997. By 2001, South Africa alone had 8.9 million subscribers.⁶²

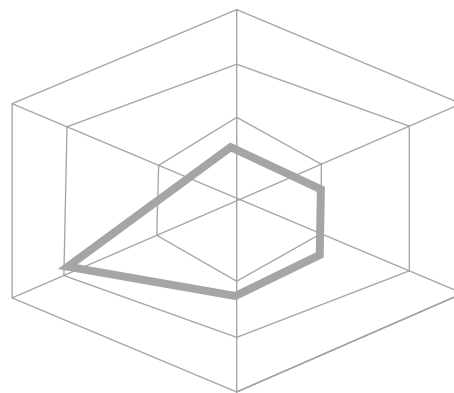
The Mosaic Group has developed a framework for characterizing the state of the Internet in a nation. Figure 4 illustrates the use of this framework by comparing four African countries against six dimensions, each with a value range from 0 (lowest) to 4 (highest):

- pervasiveness—number of users per capita
- geographic dispersion—concentration of the Internet within the country

- sectoral absorption—level of connectivity and server ownership in business, government, health, and education
- connectivity infrastructure—measure based on international and intra-national bandwidth exchange points
- organizational infrastructure—measure based on the state of the ISP industry and market conditions
- sophistication of use—characterizing usage from mere e-mail to highly sophisticated use in e-government and e-commerce⁶³

Despite recent progress, many African countries have low levels of diffusion of the most basic components of ICT including telephones, dependable infrastructure such as electricity and telephony, personal computers, and in some cases relatively low availability of TV, VCR, and radio.⁶⁴

As outlined in Table 8, Africa has considerably less bandwidth than other regions, and the divide is growing. This places special challenges in the way of the development of e-learning on the African



- Cameroon
- Uganda
- Kenya
- Madagascar

Table 8: The African Bandwidth Divide, 2000-2001

Region	2000		2001		MBPS % Change 2000-2001
	MBPS	Ratio of MBPS in Other Region/ Africa	MBPS	Ratio of MBPS in Other Region/ Africa	
Africa	649.2	1.0	1,230.8	1.0	89.6
Asia	22,965.1	35.4	52,661.9	42.8	129.3
Europe	232,316.7	357.9	675,637.3	548.9	190.8
Latin America	2,785.2	4.3	16,132.5	13.1	479.2
USA/Canada	112,222.0	172.9	274,184.9	222.8	144.3

Source: Adapted from Stephen Ruth (2002), *Virtual Learning: Between Imagination and Challenges*, TechKnowlogia, April-June, p. 51.

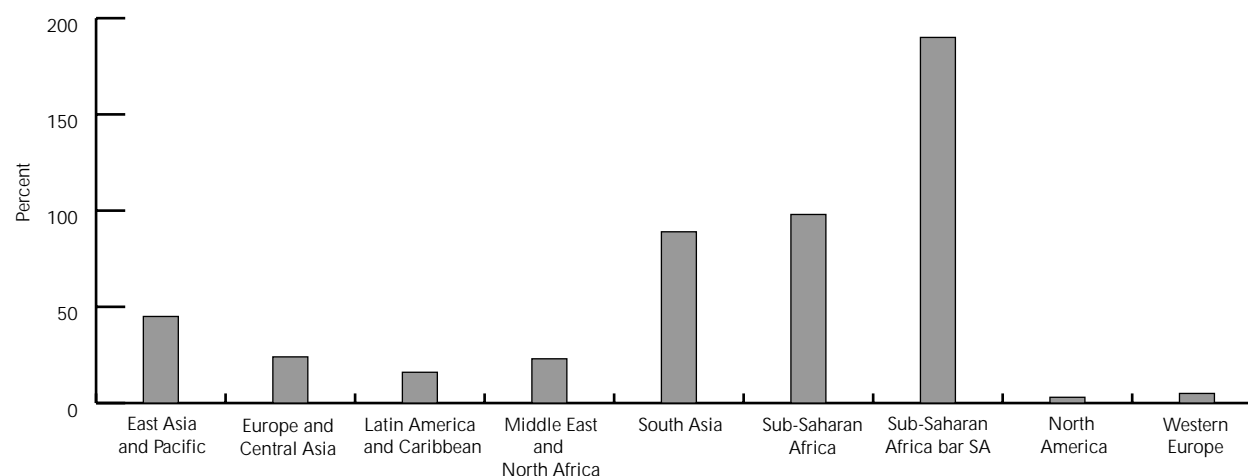
continent. Statistics on interregional bandwidth show a similar story, with Africa having just over one half of 1 percent of total bandwidth in 2001.⁶⁵

A further challenge in regard to connectivity and the adoption of an integrated approach is the disparity in stages of connectivity within the continent. According to IDC data, South Africa still accounts for 50 percent of African bandwidth demand. Among medium and small economies, Senegal and Cape Verde showed the most demand in 2001.

Finally, Internet affordability is a critical issue, with the annual cost of Internet access in Africa being well above annual per-capita incomes (see Figure 5).

Human Resources

Capacity for planning and management of e-learning is a further challenge, and the present lack of trained professionals to support the implementation of e-learning is a common complaint. At all levels of the teaching profession, the instruction of mathematics, science, and technology poses special challenges because teachers are often unfamiliar

Figure 5: Cost of Internet Access as a Proportion of Average Per-Capita Income

Note: Calculated as the cost of a typical ISP subscription and calling charges based on average usage of 20 hours per month.

Source: *Imfundo Satellite Primer*

with these subjects. At the same time, skills in technology are foreign to many teachers. As in developed nations, it is also becoming increasingly difficult to retain high-quality instructors in these subjects.

Lack of Market Information

While aggregate information for Africa exists on key economic drivers such as population and income growth, little detailed market information exists to guide e-learning investment decisions. For example, a recent Australian National Training Authority review of existing market research on vocational education and training (VET) found significant differences in the amount and nature of information provided on different markets. The study examined more than 50 market research reports and classified the available information across three groups of factors—demand (socio-political, demographic, technological, VET Online), barriers (regulatory/cultural barriers, competition), and product/marketing. The study found the following:

- The U.S., Hong Kong, Singapore, South Korea, Taiwan, India, and China provided more information than other countries across all categories, while little information existed for the Middle East, Africa, South America, and many European countries.
- Demand information relating to ICT usage and infrastructure was the most common information provided by research, while the least common was competitor information.
- In six out of the seven categories examined, no market information was available for Africa. The exception was technology, where a moderate amount of information was available.⁶⁶

This has been echoed in other reports, which have found limited information on local education markets. This suggests that market and regulatory surveys should be a key part of any investment program in e-learning in Africa. These would help identify key demand characteristics and potential regulatory barriers to the provision of e-learning on the continent.

Conclusions and Recommendations for Moving Forward

This report has examined the potential for PPPs in e-learning in Africa. This section outlines a number of conclusions and recommendations aimed at promoting the use of PPPs and e-learning.

Conclusions

Conclusion 1: E-Learning—A Key Factor in Development

A country's capacity to take advantage of the knowledge economy depends on how effectively it can become a "learning economy." This in turn requires drastic shifts in formal education systems; most particularly, it needs the focus changed to one whereby people are taught to learn rather than merely to transmit facts. The application of ICTs provides essential support to this change process as e-learning offers:

- increased access to underserved areas through distance learning
- improvement in the quality of teaching and learning through the use of appropriate software
- strengthened education management systems
- opportunity for the sharing of knowledge among the diverse stakeholders

Conclusion 2: E-Learning—No Panacea

Africa faces many educational challenges. On their own, e-learning and ICTs cannot resolve all of them. The agenda for reform for both e-learning and the use of the partnership approach in Africa is itself challenging for the reasons outlined above.

But the emergence of new technologies and new models of partnership is creating opportunities for African education to move forward in ways that a decade ago could only have been imagined. The extent to which African countries will be able to take advantage depends to a significant degree on the capacity of the different education systems to harness the potential of e-learning and embrace partnership.

The process of effectively integrating e-learning and partnership involves a number of deliberate decisions and actions that encompass vast parameters, such as policy and strategy, physical infrastructure, hardware and software requirements, as well as human and financial resources. There is a clear and growing digital divide within the countries of the region, and each country has to consider its own set of demands in order to determine appropriate needs and resources.

Conclusion 3: E-Learning—No Killer Application

The use of ICTs in education has had a lengthy history in Africa, but no "best purpose" application or linkage has emerged. This is understandable, given the barriers of poor infrastructure across the continent and the extreme variation in connectivity among countries. Radio remains the most pervasive medium, with 200 million radio sets in use in Africa—more than 25 times the number of PCs. At mid-2002, the number of dial-up Internet subscribers was less than 2 million.

The way forward should not be to impose a top-down, one-size-fits-all e-learning model for Africa.

The appropriateness of various technologies should be assessed on a case-by-case basis. Different technologies may work better in different contexts.

Conclusion 4: E-Learning—Reform Education Reform

Education systems have been created to enable transmission of both culture and knowledge, but ICTs are changing the fundamental assumption of cost and availability of information. New means of linking and transmitting human understanding are emerging as we begin to understand these tools. Yet there is still a lack of a clear policy with regard to the use of technology in education. The equipping of laboratories and the provision of connectivity are necessary stepping-stones, but the most vital link—the linking of ICT to learning objectives and education outcomes—is still too often missing. This linkage requires alignments such as incentives for teachers and students and a flexible curriculum. Unfortunately, in most places where new technologies in education are being used, the technologies are used simply to reinforce outmoded approaches to learning.

Conclusion 5: PPPs—A Many Splendored Thing

PPPs are being used increasingly across a range of countries and in a range of ways. There is a continuum of involvement from information exchanges to joint ventures in partnership and e-learning across the social sectors. AVU, Joko, Imfundo, SchoolNet Africa, and BusyInternet provide five very different examples of partnership within an e-learning initiative. There is considerable scope for expansion.

PPPs can offer many benefits to e-learning given that such applications generally involve significant investments, are complex transactions, require specialist skills, and involve considerable technological and cost risk. While PPPs are themselves not a “killer app” and do themselves require specific skills to implement successfully, they nonetheless offer a mechanism for advancing e-learning initiatives in a timely, successful, and cost-effective way.

The broad scope covered by the term PPP fits well with the differentiated (as opposed to one-size-fits-all) approach to implementing e-learning, as discussed in Conclusion 3.

Conclusion 6: PPPs and E-Learning—New World, New Roles

The changing role of government in education and the implementation of PPPs place new demands on the public sector and require much different skill sets to implement than traditional methods—if they are to be done right. This is due in part to the fact that PPPs involve moving from input- to output-based contracting. This can require:

- a significant investment in developing skills and guidance on best practices
- enactment of enabling legislation
- development of appropriate quality assurance mechanisms
- institutional reform to assist in prioritizing, providing resources for, and approving transactions
- a significant upgrading in the skill sets required to design, negotiate, and monitor PPP contracts

These requirements, while new to social areas such as education, have long been required in economic policy areas such as PFIs in infrastructure. Much can be learned from their experience. The establishment of a central oversight body (as proposed below) would assist in ensuring cross-fertilization of ideas.

The use of e-learning and ICTs also poses special challenges to quality assurance regimes in education. Traditional quality assurance measures, based around institutions, are less relevant for an e-learning environment. Government and industry will need to adapt quality assurance mechanisms to meet the new challenges, including determining quality by measuring the knowledge and skills (or competencies) acquired by students. This will encourage new and innovative programs, as well as technologies, to come to the fore. Governments also need to ensure that quality assurance processes are efficient. Lengthy quality assurance processes can be a significant barrier to innovative providers entering the market.

Conclusion 7: PPPs and E-Learning—One Piece of the Bigger Puzzle

PPPs and e-learning are important elements in helping Africa overcome its many challenges. But

they are only one element in the wider set of required policy reforms. Setting goals and monitoring performance against agreed targets has proved to be a successful strategy for improving results. Further, findings from research and experience indicate that improving the policy environment—including macroeconomic and structural policies, public sector management, and social inclusion—is at least as important a component of improving educational outcomes as the amount of resourcing going into the sector.

The successful promotion of e-learning and PPPs requires that African governments adopt a number of strategies to facilitate the emergence and expansion of e-learning and the wider use of ICTs in education. These include:

- Ensuring the broader economic policies are focused on lifting economic growth and per-capita GDP. This offers the surest means of achieving sustainable increases in the amount of funding—public and private—available to the education sector.
 - Focusing institutional, regulatory, and policy reform on promoting private sector investment in African countries and introducing a framework that is flexible enough to accommodate e-learning and the partnership approach.
 - Improving telecommunications infrastructure, policies, and regulations to ensure that they promote ICT connectivity and sustainability. This could include well-designed industry deregulation, privatization, and the promotion of competition.
 - Situating national strategies for using e-learning and partnerships within an overall education sector framework. As Hawkins (2002) notes, many governments commit to computerizing schools, but “few have developed coherent strategies to fully integrate the use of computers as pedagogical tools.”⁶⁷ This is critical to avoid having the technology become an end in itself.
 - Linking these strategies to specific educational goals and basing them upon a realistic assessment of infrastructure, institutional capacity, costs, and means of finance.
- Introducing specific policies that facilitate the partnership process in e-learning such as the provision of favorable rates for telecommunications connections to schools, a reduction in the cost of access to broadcasting stations, and preferential policies for the education sector to purchase hardware and software.

Conclusion 8: Financing Supply and Demand—Two Sides of the Same Coin

PPPs focus on financing the provision, or supply side, of the education market. While they may provide financing to develop or introduce e-learning technologies in education, they do not address the issues of affordability and equity of access to technologies. Hence, any policy aimed at promoting e-learning and PPPs must focus equally on how the demand for education will be financed. A variety of innovative demand-side policies have been introduced around the world, including student loans and vouchers. Key issues to be addressed include:

- developing finance policies that define clear priorities for public resource allocation, increasing the effectiveness of public spending, and including strategies for diversifying funding sources beyond the public sector
- ensuring that public sector education funding and purchasing processes maximize opportunities for service delivery by private for-profit and nonprofit providers

Conclusion 9: PPPs and E-Learning—Technology Is Easy, People Are Hard

A key requirement for introducing e-learning and PPPs is a ready supply of trained professionals capable of supporting the implementation of partnerships within the education sector. This will be particularly important in a developing-country context. There is thus a need for substantial funding to support capacity building for public and private stakeholders. The UK government's support of the South African Department of Finance's PPP Unit provides a good example of funding to support capacity building within the public sector. But there is also an unmet need to support partnership building among the private education bodies such as federations and associations of private providers.

Conclusion 10: PPPs and E-Learning—Uncharted Waters

ICTs and partnerships in education would involve dramatic changes in the education system, heavy investment, and long-term commitments that in turn require an extensive knowledge base upon which to make decisions. There is little such research on Africa. More large-scale research is required that embraces activities such as comparative analyses across countries, ongoing measurements of cost-effectiveness, and the piloting of alternative modalities.

Conclusion 11: PPPs and E-Learning—Carpe Diem

Partnerships and e-learning in Africa are still in their infancy. Countries are at different stages in the process of integrating ICTs in education and using the partnership approach. A confluence of technological, economic, and other factors is providing a sound basis for advancing PPPs in e-learning:

- From an e-learning perspective, the expansion of digital technologies offers the possibility of increasing infrastructure on a broader scale. Satellites and Internet services make it possible for closer international connections.
- From a partnership perspective, there is growing recognition of a legitimate role for the private sector in education, coupled with an expansion of the private education sector, in developing countries.
- There is a growing interest among developing countries and donor agencies in the need for solutions that stimulate the development of delivery models that incorporate e-learning in partnership with private sector involvement.

To sum up the potential role of PPPs in e-learning in Africa: The need is great, the time is right, the opportunity is there.

Recommendations

A number of actions could be considered to move the e-learning and partnerships in Africa agenda forward. These are summarized below:

Recommendation 1: Agenda for Action on E-Learning in Africa

Multilateral and bilateral organizations, nonprofit organizations and foundations, and governments and the private sector must develop a development agenda and funding mechanism for action in e-learning in Africa with the understanding that public education alone cannot meet the challenges of lifting participation, improving quality, and ensuring equity of access. Private sector participation can assist public education in meeting its education objectives through e-learning as it can provide a cost-effective means of increasing access, equity, and quality in both formal and vocational education.

Recommendation 2: High-Level Body on E-Learning

Multilateral agencies, governments, and the private sector should establish a high-level body. The high-level body will oversee the implementation of the e-learning agenda in Africa with the function of identifying obstacles to public-private partnerships in e-learning and the use of technology in education. The body would also review best practices worldwide and formulate policy guidelines for partnership structures, taking into account mechanisms for ensuring quality, equity, relevance, transparency, and accountability.

Recommendation 3: Private Sector E-Learning Initiative Opportunities

Governments and donors should support private sector e-learning initiatives. There is a wide range of opportunities to launch public-private partnership initiatives in e-learning. Private sector involvement could include the provision of e-learning instruction for pre-service and in-service professional development of teachers; contracting with the private sector to finance, equip, maintain, and staff school computer laboratories, or contracting with the private sector to use the facilities after school hours for the delivery of private training courses to the community; and contracting with the private sector for the development of IT-based curricula.

Recommendation 4: Regulatory Framework Improvements

Government organizations and donors should examine the broader economic regulatory framework to ensure it is focused on reducing taxes and lowering customs duties on technology and educational materials, ensuring neutral funding arrangements between the public and private sectors, minimizing barriers to entry by new education providers, and ensuring a strong quality assurance focus on education.

Recommendation 5: Increased Access to Finance

Governments, multilaterals, and investments funds with a focus on IT in Africa must support supply side financing models such as the provision of structural funds to invest in IT equipment and training for e-learning; and demand-side financing models to ensure access and equity in participation and to promote the creation of financing mechanisms such as trust funds and corporations for partnerships in education.

Recommendation 6: Market Information

Multilateral agencies and governments should undertake market and regulatory surveys of information technology and e-learning markets in Africa to guide technology and e-learning investment decisions as well as support the development of a framework for public-private partnerships in e-learning in Africa.

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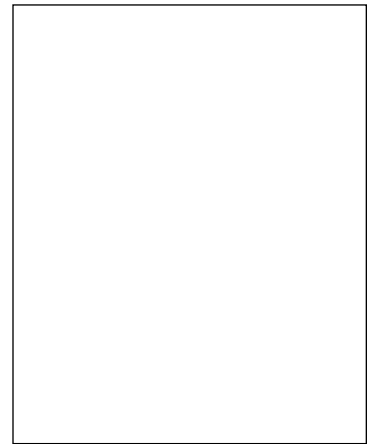
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A B O U T T H E A U T H O R S

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