Microsoft

Developing e-Learning in Africa

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Use this document to help plan e-Learning and ICT implementations in your school, local authority, Ministry of Education or university. Within this document you will find:

- Examples of leading edge ICT and e-Learning developments from across Africa
- Guidance on how to build a plan
- Details about supporting programmes
- Advice on finding the right partners
- Contacts and links

21ST CENTURY LEARNING IN AFRICA – SUCCESS THROUGH INNOVATION

Introduction

There is e-Learning excellence, and world class ICT in education happening right across Africa. The challenge now is how to multiply and scale the great work being done.

There are barriers, for sure, but with the right partners and careful planning it's possible for ICT to be used to improve learning further across Africa

This paper provides a practical roadmap for planning and implementing e-Learning and ICT; examples of the very best in e-Learning and ICT in Africa; and a brief summary of Microsoft's involvement in e-Learning in Africa.

Why e-Learning?

Economies across Africa are endowed with vastly different factors of production, but one factor is common to all - human capital. This is a renewable, sustainable resource available to all nations and communities but in emerging economies, human capital remains an under-used resource. These national economies need a more adaptable, better skilled, and more literate workforce.

This significant shift requires a skills upgrade across the entire community. There is a need for a knowledge economy workforce - one in which all citizens have basic IT skills, and future generations gain these skills as part of their education. More people with advanced IT skills are also required to provide the infrastructure and innovation needed for the knowledge economy, and for sustained overall competitiveness.

To achieve this, ICT needs to be further integrated into education in Africa and fortunately, many governments in Africa are now building policies and multi-stakeholder-led implementation processes that are taking us there.

E-learning and ICT can play a core role in building skills for employability by helping African countries deliver modern, relevant and effective education systems. It can be used to instill 21st century skills such as collaboration, communication and critical thinking required in today's knowledge economy and to address the inefficiencies of rote and traditional learning.

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Developing ICT in Africa

Why is e-Learning so important for Africa?

ICT and e-Learning can better prepare students for life and work in a rapidly changing global labour market, make learning more efficient than traditional methods, and help build local economies.

Skills for the Global Economy

More than 60% of Africa's population is made up of young people below the age of 25 years who form the basis upon which the future economic activity of the continent will be built.

The globalisation of the world economy is leading to increased demands for creativity, innovation, design and personal/inter-personal skills. Employers are increasingly looking for are independent students, collaborative workers and creative thinkers. The young people graduating from school and university without ICT skills are likely to be left out of the Global Economy.

Addressing the inefficiencies of rote and traditional learning

Traditional methods of teaching which are typically teacher-centred and factual, knowledge based information delivery are no longer adequate. ICTs and e-Learning support active, student-centred approaches to teaching. For example:

- It is a tool for independent learning – students can research, summarise and present their findings using the Internet and productivity tools
- Where teaching resources are scarce, a single teacher can provide direct instruction to multiple schools
- Where complex lab equipment is needed but unavailable, ICT can be used to simulate experiments and provide rich explanations
- ICT can be used to investigate the real world and build a wider, deeper knowledge base

Building local economies

Communities and individuals in developing countries greatly benefit from access to ICT. People in rural areas can become empowered with access to resources which might usually be taken for granted - such as market data, health information, and training materials - without having to travel to urban centres.

Microsoft brings together public and private partnerships that include universities, local developers, and investors. These partnerships perform two vital roles: helping to incubate innovative ideas; and helping individuals or communities translate those ideas into business success.

For example, in Egypt, ITWorx now sells its Microsoft® based education software and services across the world. It's a similar story in Jordan where Microsoft works with Menhaj who produce e-Learning content, and ITG who have developed a learning platform based on Microsoft technologies.

Microsoft is supporting the development of an indigenous African Education ICT industry by supporting African companies through the Africa School Technology Innovation Centre.

Success through innovation – African beacons

Innovation in schools

When making investment decisions, governments and universities need to be sharply focussed on ensuring maximum return on their investments. One way to do this is to look at examples of where investment is already making a positive impact.

For example, the Uganda Ministry for Education wanted to prepare its students for the knowledge-based economy. They knew that the best way to do this was through incorporating ICT in the classroom, but insufficient computers and less than 2% of its population online presented a significant challenge. Furthermore, existing course content was not relevant to students, and there was a lack of teachers trained in ICT education. Microsoft Partners in Learning supported a pilot programme in eight schools, from 2004 to 2005. It comprised three main strands: building infrastructure, training teachers, and developing content. As capacity building was the priority, the Microsoft Fresh Start for Donated PCs programme provided refurbished computers, and then Partners in Learning funded and established two Microsoft IT Academies to train educators in ICT basics, and provided ongoing technical support systems for teachers and students.

Relevant content is crucial to a successful ICT education programme, so in an innovative move Uganda linked Partners in Learning with its National Curriculum Development Centre. The pilot was a success, with over 60% of participants gaining significantly higher exam results than the norm. A key milestone has already been reached with development of the content for four subjects, with the aim of expanding to eight by the end of 2008.

"We write the content and develop multimedia according to what students should learn," says Paul Kentigern Kamya, Ministry of Education. *"And based on what we've learned from Partners in Learning, content is both student-centric and geared for the teacher's use in the classroom."*

Uganda is now rolling out new ICT-based learning to schools across the country, and expanding to universities and medical schools.

In another example, Don Mattera, a special needs school in a township in South Africa is making use of an interactive SMART board to meet the needs of their students. The tactile and visual learning styles around using this technology are proving to be remarkably effective for their students who do not always respond well to traditional teaching methods.

There are many more examples like this so to celebrate the e-learning innovation happening in Africa, 37 innovative teachers from 13 sub-Saharan African countries took part in the Microsoft Pan African Innovative Teachers Forum in Accra on 27th and 28th May. During the two day event, the teachers had an opportunity to exchange innovative lessons and ideas around the integration of ICTs into teaching and learning as well as teaching experiences from different contexts.

Marie-May Iman, a teacher at Plaisance Secondary School in Seychelles prepared an environmental education lesson for 12 – 15 year olds. The students had to track a locally tagged sea turtle named Carol on an Internet site and with the aid of a map, they recorded this data on a graph. Though tracking and monitoring the turtle students learned about turtle characteristics, behaviour and movement in a fun and exciting way. The students worked in groups to research and gather information about sea turtles, edit the information and made a presentation using Microsoft PowerPoint and Movie Maker.

John Elijah from Community Secondary School, Nigeria developed an animated abacus frame for counting. This project was an innovative solution to the problem of students having difficulties with counting. They did not have access to real abacuses and those drawn on cardboard or the chalkboard failed to explain the concept clearly. This teacher used animation in PowerPoint to show how an abacus frame can be used for counting, addition and subtraction. The students were then arranged in groups and tasked with carrying out exercises using the animated abacuses.

Last year, a South African teacher from an under-resourced school developed a mobile phone solution for delivering content to his students. Most students do not have access to computers, but do have mobile phones which they now use to access additional content and self-assessments to aid their studies. This solution won the Innovation in Community Award at the Worldwide ITFA held in Helsinki in October last year. This solution is being further developed to incorporate a mobile phone version of the Microsoft Digital Literacy Curriculum.

Innovation in higher education

There are countless examples from higher education where e-Learning has been exploited to improve the quality and reach of teaching, learning and research, and to develop skills for employability.

In Nigeria, students, faculty and teachers are benefiting from Microsoft IT Academies (MSITA), which provide access to Microsoft Official Curriculum and a range of technologies in order to gain Certification. Microsoft provides schools and tertiary institutions that sign up to MISTA with a complete IT training programme including course materials, software and faculty training. MSITAs have been set up in the Universities of Lagos, Ibadan and Nnamdi Azikiwe and will provide Nigerian graduates with skills for employability.

South Africa currently has a shortage of approximately 40 000 ICT workers. To address this challenge, Microsoft formed a partnership with a local partner, Intersoft, to deliver MSITA programmes at higher education institutions and schools. Benefits include students having the opportunity to gain valuable skills in using Microsoft Office programmes, as well as advanced technical skills. The MISTA programme has grown exponentially in just two years - from 27 academies in 2005 to 160 in 2007.

Microsoft is partnering with Maseno University, Kenya, to help improve academic excellence. Through the Windows Live@Edu programme, Microsoft has given all students in Maseno an e-mail address that will enable the university administration and lecturers to communicate. According to Prof Dominic Makawiti, Maseno University Deputy Vice-Chancellor, the University "*we will be able to give students assignments and mark them online as other universities in developed countries do*".

Other universities in Africa using Windows Live@Edu include: University of Nairobi; Zimbabwe National University of Science and Technology (10,000 students); Islamic University Kampala (5000) students; Universidade Jean Piaget, Angola (10,000 students); and University of South Africa (300,000 students).

In Nigeria, Microsoft is helping improve computer science teaching through Microsoft Faculty Connection, which enables universities to access development tools, technology news, courseware, and faculty-only forums. Materials available range from introductory level topics to advanced robotics and embedded systems.

Nigerian Students have also developed world class applications as part of “Imagine Cup” – a worldwide competition that Microsoft organises for computer science students. The winning application (Remote Lecturing System [RLS]) focused on using technology to find practical solutions to everyday challenges of delivering lectures to large numbers of students. The programme, which takes place within 20 countries across Africa, raises technical capacity and promotes communication skills, collaboration and team work among students to allow them to reach out and compete with their peers in the global arena.

A PRACTICAL GUIDE TO DEVELOPING E-LEARNING

The examples of e-Learning and ICT innovation in African education mentioned above are just the beginning. We need to be able to scale these kinds of examples if Africa is really to benefit from e-Learning. The examples and suggestions provided in the steps below are not meant to be prescriptive, but rather guidelines for planning and implementing e-Learning solutions.

Step 1. Identify the desired outcomes

The first step in planning e-Learning and ICT projects is to be clear about what outcomes are needed.
In higher education, desired outcomes could include, for example:

- Giving more access to learning to more students whilst lowering costs of delivery
- Student employability - giving students the skills and knowledge they need to compete in the Global Economy
- Accountability – measurement of outcomes; you can only change what you measure

For schools, desired outcomes could include:

- Better management of resources
- Giving students the skills they need to enter the global economy
- Personalised learning

At national level desired outcomes could include:

- Optimising the potential of Education Management Information Systems (EMIS) for increased stakeholder involvement in learning, in order to:
    - Make better decisions and more impactful resource allocation
    - Have more accountability at school and authority level
- Higher PISA scores

Step 2. Build an outcome based roadmap

The second step in building the roadmap is to think about what outcomes are required for students; teachers; the school or university as a part of a wider learning community; and for administration and management.

For each of these categories, we can describe a “good, better, best” set of required outcomes.

For example, take a school or schooling system (local authority or Ministry) that wishes to provide its students with the kinds of skills that modern employers need (21st Century skills). This capability could be developed through a number of stages, starting with basic computer literacy; then using the computer to learn independently; and when the school is able to deliver these, it will be easier to also provide students with the most advanced level of skills.

	Good	Better	Best
Learning	Basic computer literacy	Improved learning	Students with 21st Century skills
Teaching	Increased quality of lesson materials	More impactful teaching	Deliver personalised learning
Connected Learning Community	Community access to ICT	Connected community	Increased stakeholder involvement in learning
Administration & Management	More efficient administration	Improved flow of information	Better management of resources

Example roadmap for a schooling system

Step 3. Identify enablers

Once it’s clear what outcomes are needed and how they will be phased in, the next step is to identify the technologies and programmes that are needed to deliver this in each of the four categories.

Learning

The main point in investing in ICT in education is to improve learning. One possible way to think about how ICT can improve learning is along a good, better, best continuum between a basic understanding of computers at one end, and being in command of ICT as a tool for participating in the modern economy at the other end.

Good: Basic computer literacy

Giving students basic computer literacy means that they understand what computers can do and can operate them at a basic level for handling words, numbers and graphics. The enablers required to achieve this include:

Electricity – throughout Africa, the availability of electricity to schools is a major issue, but there are exciting new technologies that can address this. For example, in Ethiopia an increasing number of schools are using solar power. The Africa School Technology Innovation Centre (STIC) has been building partnerships with off-grid power companies, and is becoming a centre of expertise in off-grid solutions.

Appropriate facilities – once the issue of power is addressed, the next step is to provide dry, accessible accommodation with adequate benching and power sockets. Decisions need to be made about whether to have a "laboratory" or to spread computers throughout the school. In a laboratory, decisions need to be made about arranging worktables. For example, U or L shapes to allow group interaction. An "island" arrangement with two PCs on each side of a table works well encourages students to share information.

Security – PCs have high value, so security is critical. Communities that benefit from the value of computer labs are more likely to buy in to the idea, which can help to reduce crime and vandalism. Physical security is also usually required for example, "Kensington® Locks", burglar bars on windows, padlocked doors, biometrics, access controlled areas, storage units for laptops and other mobile technologies. There are also disablement and recovery securities, including automatic PC disablement.

Access to affordable computing - Microsoft supports a full spectrum of Affordable Computing scenarios to enable broader computing access. For example:

- Microsoft works with Digital Pipeline to provide affordable computing where needed. A recent donation of 30,000 refurbished PCs is benefiting up to 750,000 students in 20 African countries.
- Implemented in collaboration with local governments and NGOs, "Partnerships for Technology Access" delivers affordable PCs to underserved communities through innovative financing programmes.
- Microsoft also works with companies such as Intel® and AMD® to deliver solutions that include Ultra Low Cost devices such as the Classmate PCs and UVCs.
- Subscription, pay-over-time, and other payment models and Software and licensing programmes such as Windows® Starter Edition and Subscription Computing Programme make it easier to obtain the software needed to get maximum impact from hardware investments.

Curriculum - Another key component is having a curriculum to work to. For example, the Microsoft Digital Literacy Curriculum teaches and assesses basic computer concepts and skills and can help both teachers and students develop a fundamental understanding of computers.

Better: Improved learning

The next stage on from understanding the basics of how to use a computer is using it as a learning tool. For example, being able to use a computer to run multimedia learning packages; solve maths problems using a spreadsheet or onscreen calculator; research; read from interactive storybooks; develop writing skills; and learn language and scientific skills. To deliver this, institutions need to build on their basic computer facilities with the following enablers:

Local Area Network (LAN) – computers need to be connected to a LAN with a server that controls the network, stores files and enables printing. A classroom might have just a few computers that all the students take turns using, so it's important that an educational computer be configured just the way the teacher wants. The teacher shouldn't have to waste valuable teaching time troubleshooting.

- Microsoft's Learning Network Manager (LNM) can help staff control the Local Area Network, and carry out tasks such as quota control, password setting and provisioning users.
- Whilst LNM controls the network, Windows SteadyState™ enables each individual computer to be "locked down" and reset easily.

Internet – there are now a range of ways of delivering internet access to remote locations, including Satellite and WiMax. With Internet access, PC security becomes an important issue, and again, Windows SteadyState™ can help by securing the PC and enabling a quick return to its original state.

E-Learning content – one of the main points of investing in ICT in education is to give students and teachers access to content. On a LAN this can be stored on a server, and using Windows SharePoint Services®, which is part of Windows 2003 Server®, content can be organised easily into libraries.

ICT integrated into curriculum – once students understand the basics of ICT, the next task is to integrate ICT into the curriculum. This means going beyond teaching ICT as a subject and towards teaching subjects with and through ICT.

Best: Students with 21st Century skills

Beyond basic computing skills and using computers to enhance learning, the next stage is for students to be fully at ease with communication, collaboration and productivity tools that mirror their future workplace. The enablers required for this include:

Ubiquitous access - to get the best learning value from ICT, e-Learning should be available 24x7 to students. This can be achieved either through students having their own portable device, or good home access to a PC and the ability to connect to the school or university network from home. Through Unlimited Potential 1:1 access programmes and Partnerships for Technology Access (PTA), Microsoft is working with a range of partners to make ubiquitous access a reality.

Spectrum of applications and tools – having a comprehensive range of applications and tools makes hardware investments worthwhile. The wider the choice of applications, the more valuable the investment becomes. Besides being able to use the full spectrum of Microsoft productivity, communication and collaboration tools through a range of schemes, schools and higher education institutions can apply for the Microsoft Developer Academic Alliance® (MSDN AA) package of software for computer science, software engineering and information systems.

Teaching

Good: Increased quality of lesson resources

A first step towards teachers exploiting the power of technology includes activities such as using the PC and printer to produce worksheets, and using the PC and a data projector to present learning content. Having soft copies of documents means that teachers are easily able to save and reuse resources, thereby saving time. Productivity tools enable teachers to create higher quality resources. Enablers required for this include:

Devices - there are a range of innovative technologies available to support the basic use of ICT in teaching including "Compujectors" – devices that combine both PC and projector functions. Microsoft, through the Africa School Technology Innovation Centre can advise about different solutions and introduce partners.

Curriculum - as is the case for students, it is key that teachers understand the basics of using ICT and, as for students, the Microsoft Digital Literacy curriculum can play a key role here. Through the Microsoft Partners in Learning programme, almost 100 000 teachers across sub-Saharan Africa have been trained on integration of ICT into teaching and learning. PiL also provides free online resources for teachers.

Better: More impactful teaching

Once teachers have mastered using PCs in the classroom at the most basic level, the next logical stage is for them to be able to be creative with e-Learning content. Teachers rarely take other people's content and deliver it "as is" in the classroom – they tend to prefer to take materials from different sources and synthesise them into their own packages. For example, being able to bring multimedia along with text and graphics into PowerPoint® or build an interactive learning website for students. Interactive whiteboards are also used extensively to deliver more impactful teaching. Enablers required for more impactful teaching include:

Authoring and productivity tools – to take packets of digital content and synthesise them into e-Learning packages, teachers will need to have access to authoring and productivity tools, web tools and easy to publish to sites. Microsoft School or Campus Agreement enables teachers (and students) access to a full range of tools that can be used to produce high quality e-Learning content. Learning Essentials - a free add-on to Office® – takes this a step further by enabling content created in Office to be saved in SCORM (e-Learning content standard) formats and shared in a managed learning system.

Innovative Teachers Network - there is little point in teachers "reinventing the wheel" when producing learning resources, which is why Microsoft set up "Innovative Teachers Network". This network enables teachers worldwide to share their e-Learning materials and methods for classroom use.

Best: Deliver personalised learning

The ideal for all teaching is to be able to deliver personalised learning. Traditional organisation of teaching and learning mitigates against this, but technology can help teachers overcome artificial barriers. Enablers include:

Spectrum of e-resource - personalising learning involves providing students with maximum curriculum choice, a spectrum of software tools and e-learning content. When schools and universities are connected with one another in a wider Connected Learning Community, curriculum choice can be widened by teachers in one school or university delivering courses to students in another.

Education Management Information Systems (EMIS) - students should also be provided with good information on progress and guidance for what to do next. To provide personalised learning to meet their needs and abilities accurate student data and managements systems are required.

Management of resources and documents – Microsoft SharePoint Learning Kit makes it easier for teachers to share documents, and upload and mark assignments.

Connected Learning Community

Building a Connected Learning Community means connecting schools, campuses, homes, businesses and community resources in a dynamic, collaborative learning environment in which:

- Students and educators can access learning resources any time, any place, on any device
- Learning is individual and personalised
- Educators can focus on teaching
- Management systems are agile and support accountability

Connected Learning Communities aim to satisfy the diverse needs of everyone involved in education, from educators and administrators to the ultimate beneficiaries – the students.

Good: Community access to ICT

A starting point for building a Connected Learning Community is to make the computers available to students also available to the wider community when not being used by students. The benefit is that a local pool of skills, knowledge and interest in ICT can be developed. In some situations, small charges for training can be made, helping to meet costs. To deliver this service to the community, institutions need to provide secure access and software that resets computers after shared use.

Better: Connected community

With Internet access, the computer facilities at a school or university could be opened up to the local community and become a catalyst for local trade enabling buyers and sellers to connect in new ways. Through Internet enabled community access, e-mail and web tools, students can be connected to the world of work. Again, small charges could be made which help with recovering costs of the facilities.

Some schools in Uganda are used as community access points. Traders from different villages communicate with each other over email to find out what supplies are required before departing, thus ensuring that the demand and supply is in equilibrium. Enablers for this include:

> **Secure network capability** - with more open systems it is essential to protect the network, data and the people using them. Microsoft has a comprehensive range of technologies that deliver a secure networked environment including BitLocker™ Drive Encryption to help keep PC data – such as learner records, payroll, and other critical information - from being compromised.
>
> **Identity management and access** - its important be able to verify and authorise users from a single point of access, and again, Microsoft have technologies that fulfil this function.

Best: Increased stakeholder involvement in learning

In the best schools, colleges and universities you'll find a "web of tensions", defined by the demands of all the key stakeholders – students, teachers, faculty, parents, government, employers, governors, examining bodies, and the wider community. The glue that holds them is the free flow of information.

Connecting stakeholders together in a Connected Learning Community has enormous benefits such as engaging parents more deeply in the learning process, speeding up administrative processes and improving student's connections with the outside world. Enablers include:

> **Learning Gateway** - the Microsoft Learning Gateway is a role based portal enabling schools, local authorities and universities to deliver customised information and collaboration services. It gives students, parents, managers, teachers, and Connected Learning Community members their own "spaces" and delivers to them the resources that are important individually to them through a single web page portal. The first Learning Gateway in sub-Saharan Africa was launched in Johannesburg in March 2008.
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> **Connected Education Framework** – at the national/macro level Microsoft's Connected Education Framework provides the policies, technologies and programmes required to deliver Connected Learning Communities at scale.

Administration and Management

Running education institutions at local or national level can be a real challenge. Balancing limited public funds against unlimited demands is never going to be easy. However, technology can play a huge role in managing education institutions and making informed decisions.

Good: More efficient administration

ICT can make a big difference to administrative efficiencies at institution level. Office tasks, such as basic record keeping, issuing standard letters and communications, and timetabling all become a lot easier when using ICT.

At a base level, this requires at least one PC at institution level and in regional offices.

Better: Improved flow of information

The goal of improving the flow of information within and between institutions and regional offices is to make administration more efficient and enable increased resource to be focussed on teaching and learning.

With reporting, for instance, teachers should be able to type in a subject report on an easy-to-use template. Tutors can then view the subject reports whilst composing their pastoral report and, upon completion, the whole report can be printed and sent to parents or, even better, made available via a secure Internet site for viewing online.

If student data can be communicated electronically from feeder schools, or colleges, it should be possible to produce electronic set lists containing valuable information on students' prior attainment. Teachers can then drop the data into their own electronic mark books, in order to set challenging targets for their students and monitor progress towards meeting these targets. Improving the flow of information requires the following enablers:

> **Database** – at the heart of an integrated Connected Education System is powerful database capability providing secure, reliable, scalable storage and retrieval. An enterprise scale education system database

should provide an easy to build platform for delivering Web Services, supporting communication and collaboration, analysis, reporting, integration, and notification.

Portal technologies – providing the appropriate information and data perspectives to individuals is a critical part of improving the flow of information and SharePoint technologies can be used to provide a range of ways to find, view and retrieve information.

Business process integration - integrating data and applications should make it easy to analyse staff and student records, resources, finances, courses and essential data to understand operations at a glance and pick up on trends rapidly. Technologies such as BizTalk Server® enable the interchange of data across disparate systems.

Best: Better management of resources

Ensuring that resources are targeted at the areas where they are most needed and effective is a core activity of institutional management. Technology plays a key role in providing the information and perspectives required to make the best decisions.

Business Intelligence tools - these can reveal patterns and trends in operations so that you can plan, predict and deploy resources with greater accuracy and cost-efficiency. They help visualise complex information and make better decisions regarding learning trends, staffing levels and resourcing.

Besides ICT tools, there are other ways of ensuring that resources are well targeted and managed. For example:

School technology Innovation Centre (STIC) - setting up a STIC is a way in which technology enhanced teaching and learning methods can be showcased. A STIC can be used for piloting and evaluating new approaches and also for principal and teacher training.

Microsoft Education Alliance Agreements - another way to ensure that resources are maximised is to work with Microsoft on a Microsoft Education Alliance Agreement, which will provide the framework for a comprehensive joint public/private implementation plan.

Putting it all together, we are able to see at a glance the outcomes, enablers and phases required to develop a complete e-Learning solution.

	Good		**Better**		**Best**	
	Outcome	**Enablers**	**Outcome**	**Enablers**	**Outcome**	**Enablers**
Learning	Basic computer literacy	Electricity Appropriate facilities Secure shared access to affordable PCs Digital Literacy Curriculum	Improved learning	LAN Internet E-Learning content ICT integrated into curriculum	Students with 21st Century skills	Ubiquitous, 24x7 access Spectrum of apps & tools
Teaching	Increased quality of lesson resources	Printer Projector Whiteboard Digital Literacy Curriculum	More impactful teaching	Authoring & productivity tools School/ Campus Agreement ITF/ITN	Deliver personalised learning	Spectrum of e-resource SharePoint Learning Kit MSDN AA
Connected Learning Community	Community access to ICT	Shared access to PCs Digital Literacy Curriculum	Connected community	E-mail Web Secure network capability Identity management	Increased stakeholder involvement in learning	Learning Gateway Connected Education Framework
Admin & Management	More efficient administration	Admin PCs in schools and regional offices	Improved flow of information	Database and Portal technologies Business process integration	Better management of resources	Business Intelligence STIC Education Alliance Agreement

Example roadmap for a schooling system with identified enablers

DELIVERING E-LEARNING AND ICT IN EDUCATION

As we have seen, there are many good examples of e-Learning coming out of Africa, but the best news comes from a set of reports from InfoDev which states that *"unlike many parts of the developed world, staff and teachers [in Africa] appear to be more welcoming of the prospect of ICT in education".*

Whilst it's great that ICT is being welcomed into Africa, introducing ICT into an education system is complex and multi dimensional. However, with careful planning and adopting smart processes, ICT can make big impacts.

Create your own roadmap

The first step in the planning process is to create a detailed roadmap which covers the following factors:

- Leadership
- Research
- Technical solutions
- Policy
- Access
- Curriculum
- Training
- Technical support

Microsoft and our partners can help this process in many ways. Firstly, Microsoft works with a Paris based agency called Education Impact, who offer a range of services to Ministries of Education worldwide.

Education Impact is a global fellowship of independent international experts in education and ICT dedicated to helping governments and education institutions (K12 and higher education) harness the power of technology and transform education. The experts are world renowned and assist Ministries, schools and tertiary educational institutions with the methodology and tools to help envision, execute and monitor ICT strategies. Their expertise can be tailored to local projects as well as national and international education initiatives. Consultancy services are available in 10 core aspects of ICT and Education:

- Enabling and supporting vision
- Organisational capacity
- Digital inclusion – ICT infrastructure
- Digital curriculum development and distribution
- Connected Learning Community development
- Policy and planning
- Monitoring and evaluation
- Innovative solutions - software
- Educator training
- Support strategies

Education Impact can be used to build a complete roadmap for integrating ICT into education. After the roadmap has been produced, Microsoft Consulting Services and other technical partners can offer a range of technical workshops, including "Infrastructure Optimisation" – a method for building a detailed technical roadmap.

Supporting Programmes

Microsoft's principle programme for education is Partners in Learning (PiL) - a global initiative designed to help increase technology access for schools, foster innovative approaches to pedagogy and teacher professional development, and provide education leaders with the tools to envision, implement and manage change. Since its inception in 2003, the Partners in Learning programme has reached more than 90 million teachers and students in 101 countries.

In the next five years (2008-2012), Partners in Learning will focus on identifying, sharing and scaling practices and behaviours that improve learning outcomes. PiL includes:

Innovative Schools - delivers expert guidance in holistic school reform, plus a roadmap for technology integration to help schools meet their education objectives.

Innovative Teachers - connects a global community of educators focused on 21st century learning and recognises their exemplary efforts to prepare students for the future.

Innovative Students - aims to provide students with access to programmes and curriculum that help fully integrate technology into the learning process, both in school and at home. It also enables qualified governments to increase technology access for underserved primary and secondary student households that aspire to own a PC with affordable and reliable software.

Curriculum - Microsoft has developed a suite of relevant, engaging curriculum materials for every part of the Connected Learning Community. These include resources for policy makers, senior teachers, coaches, and school leadership, as well as an array of hands-on course materials for classroom teachers to use with students.

School and Campus Agreements - offers reduced pricing to academic institutions for many Microsoft desktop and server products. This approach to licensing agreements offers academic pricing and reduced administrative costs for thousands of schools in the region. In addition, it provides primary schools in economic need with the opportunity to receive even lower pricing for Microsoft Office and Windows Upgrade licenses.

MS Developer Alliance Agreement (MDN AA) - a software subscription programme for academic departments that use technology in support of science, technology, engineering, and mathematics courses. MSDN AA provides the easiest and most cost-effective way to make the latest Microsoft software available in labs and classrooms, and on faculty and student PCs. The membership provides a complete, inexpensive solution for keeping institutions on the leading edge of technology.

Public-private partnerships

The only way to scale e-Learning is through partnerships. At Microsoft, we work closely with stakeholders across all areas of education, bringing these organisations together to work in consortia that aim to provide affordable and relevant computer access to previously underserved population segments.

For example, Microsoft recently announced collaboration with the European Union and the Government of Angola, and an Affordable Computing Pilot Project with the Burkina Faso Minister of Education and Intel.

In May 2007 Microsoft formed a partnership with the International Youth Foundation (IYF) to equip young people in Kenya, Nigeria, Senegal, and Tanzania with the skills they needed to find jobs and create their own opportunities for success. Roughly 40,000 Africans between the ages of 16 and 35 will benefit from these efforts.

Microsoft welcomes the prospect of developing ICT in education in Africa, and looks forward to working with leaders, practitioners and stakeholders alike to build strong, connected and effective partnerships.

YOUR NEXT STEPS

1. **Contact your local Microsoft offices** using the contact details below, and ask to talk to the Education or Public Sector Lead.
2. Work with your local Microsoft contact to conduct a **Roadmap Workshop**.
3. **Find the right partners to work with.** Finding the right mix of high standard partners to deliver the full spectrum of what's needed can be a challenge. Our **Africa School Technology Innovation Centre (STIC)** can help though. STIC Africa manages a range of innovative partnerships covering the full spectrum of technologies and programmes needed, for example: off-grid electricity; affordable computing; curriculum; skills and certification; and change management.
4. **Arrange for a visit** to the Africa School Technology Innovation Centre (STIC) in Johannesburg, or contact the STIC for advice.

Contacts

Microsoft West East and Central Africa: http://www.microsoft.com/africa/contact_us.mspx; Tel: +27 11 361 7000
Microsoft North Africa: http://www.microsoft.com/northafrica/about; Tel: + 212 22 95 61 50

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Education Impact: Fred Fulton, i-fredf@microsoft.com
Microsoft IT Academies, MSDN AA: Atilla Szenvedi, attillas@microsoft.com
Partnerships for Technology Access (PTA): Martial Nogbou, mnogbou@microsoft.com
Unlimited Potential (PC access projects): Kevin Connolly, kevincon@microsoft.com

Partners in Learning and Citizenship Managers:
WECA Citizenship Manager: Ntutule Tshenye, ntshenye@microsoft.com
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South Africa, Lesotho and Swaziland: Reza Bardien, rbardien@microsoft.com
East and Southern Africa: Mark Matunga, mmatunga@microsoft.com
Nigeria and Ghana: Jummai Umar-Ajijola, jummaiu@microsoft.com

Links

Supporting programmes

Microsoft in Education: http://www.microsoft.com/africa and http://www.microsoft.com/NorthAfrica
Partners in Learning: http://www.microsoft.com/education/PartnersinLearning.mspx
Partners in Learning Resources: http://www.school.za/PILAfrica/
Unlimited Potential: http://www.microsoft.com/unlimitedpotential
Innovative Teachers Forum: http://www.microsoft.com/education/InnovativeTeachers.mspx
Innovative Teachers Awards: http://www.school.za/Regional-ITA/
Microsoft IT Academies: http://www.microsoft.com/education/msitacademy
Africa STIC: http://africastic2008.spaces.live.com/default.aspx
Unlimited Potential: http://www.microsoft.com/unlimitedpotential
Digital Literacy curriculum: http://www.microsoft.com/digitalliteracy

Technologies

Windows Live @ Edu: http://get.live.com/ http://get.liveatedu.com/Education/Connect/
Learning Network Manager: http://www.codeplex.com/lnm
Windows SteadyState: http://www.microsoft.com/windows/products/winfamily/sharedaccess
Learning Essentials: http://www.microsoft.com/uk/education/learning/essentials/default.mspx
Learning Gateway: http://www.microsoft.com/education/learninggateway.mspx
Digital Pipeline: http://www.digitalpipeline.org
Faculty Connection: http://www.microsoft.com/education/facultyconnection
Winning Worldwide ITF mobile phone solution: http://www.mlearner.co.za