
African schoolnet toolkit



COMMONWEALTH *of* LEARNING

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COMMONWEALTH OF LEARNING

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SCHOOLNET AFRICA

SchoolNet Africa is one of Africa's first African-led, African-based non-government organisations (NGO) that operates across the continent in its endeavour to improve education access, quality and efficiency through the use of information and communication technologies (ICTs) in African schools. SchoolNet Africa works mainly with learners, teachers, policymakers and practitioners through country-based schoolnet organisations across Africa.

SchoolNet Africa's vision is for the empowerment of all of Africa's children and youth through access to quality education, information and knowledge on the basis of their effective use of ICTs.

SchoolNet Africa's mission is to support national schoolnets throughout Africa by mobilising resources, building effective partnerships and developing knowledge by promoting education through sustainable use of ICTs in African schools.

www.schoolnet africa.org

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About the *African Schoolnet Toolkit*

Introduction

Welcome to the *African Schoolnet Toolkit*. The *Toolkit* is designed to help education planners and practitioners integrate information and communication technologies (ICTs) into education systems.

Education systems are under the spotlight worldwide today. Many countries are grappling with significant development challenges, such as meeting UNESCO's "Education for All" goals, as well as other social objectives. The information age is creating economic pressure for countries to develop into knowledge societies in order to become or remain internationally competitive in a global economy.

ICTs can help address these challenges. They are an important catalyst for transforming education, creating exciting new possibilities for teaching and learning, and facilitating shifts towards new pedagogies.

This *Toolkit* is a practical resource about ICTs in education, and more specifically, about setting up and operating schoolnet programmes and projects. A schoolnet programme is an organised set of activities that expands the use of ICTs and promotes sharing of educational resources by teachers and students at schools. Schoolnet programmes may be located inside or outside government, may be large initiatives with substantial funding, or may be smaller innovative projects without big budgets.

Schoolnet projects usually adopt a multifaceted approach that addresses technology issues (connectivity and infrastructure), curriculum integration processes, assessment, pedagogy and professional development of teachers; identifies and develops suitable content and software; and creates online communities of practice using ICTs. Schoolnets may also be involved in reshaping the policy environment through advocacy, research or support of policy processes underway.

A number of African countries have contributed their experiences to this *Toolkit*. The exact form of schoolnet programmes varies from country to country. Nevertheless, the case studies on which the *Toolkit* is based show substantial convergence towards a body of best practice in ICT integration in education.

The *Toolkit* distils these experiences into a clear and simple format designed to be useful with both start-up and mature schoolnet programmes.

Who Is the *Toolkit* for?

The *Toolkit* is for:

- **Policymakers and high-level managers** who need to understand the policy and macro issues involved in planning and establishing schoolnets and educational ICT programmes
- **Schoolnet builders and managers** who are involved in starting and running schoolnet programmes and projects
- **Practitioners** such as teachers, school principals and content developers who work with ICTs in an educational context and participate in schoolnet activities

How to Use the *Toolkit*

The *Toolkit* is structured into four main sections, designed with different readerships in mind:

- **Guidebook 1: ICTs in Education and Schoolnets** is intended for *everyone*. It describes the value of ICTs in education, and the broad processes that need to be integrated to ensure sustainable impact. It looks at the characteristics of schoolnet programmes and different organisational and leadership models for schoolnets. It also outlines a variety of functions that schoolnets perform and services that they can deliver. Lastly, it presents ways of assessing the effectiveness of schoolnet programmes and gives some examples of active schoolnets.
- **Guidebook 2: Planning Schoolnet Programmes** is intended for *policymakers and high-level managers*, and for *schoolnet programme managers*. It examines the policy and planning implications of schoolnet programmes, such as relating ICT programmes to broader economic and education development goals; understanding the financial and other resources that will be required and working within a range of constraints; establishing appropriate partnerships; and using change management strategies. It describes ways in which the education system should respond to the introduction of ICTs, such as changes

in curriculum structure, assessment strategies and professional development programmes for teachers. Lastly, it looks at factors that influence sustainability at various levels, broadening and extending the impact of schoolnet programmes. It also looks at methods of evaluating and assessing impact.

- **Guidebook 3: Implementing Schoolnet Programmes** is a practical and operational guide for *managers of schoolnet programmes*, covering project planning and implementation and the key elements involved in an ICT project. It provides advice on choosing appropriate technologies and putting in place support, maintenance and troubleshooting systems. It describes models of training provision and how to create and operate online services and schoolnet communities. It also provides indicators for measuring participation and impact.
- **Guidebook 4: Practitioner's Guide** provides pointers on ICT integration for *educators, school management and others* directly involved in producing or using educational ICT resources in a school context. It covers the ICT integration process; changing ways of assessing learning outcomes; selection, use and adaptation of ICT software and resources; collaboration with other educators in online communities; and recommendations for skills and competencies that teachers should build through professional development programmes.

A list of abbreviations and acronyms and a glossary of ICT terms are provided following this introduction.

The *Toolkit* and additional resources are available on CD and can also be accessed online at <http://toolkit.schoolnet africa.org>. It is intended that the *Toolkit* be a living document, which will be enriched over time by adding further stories about and experiences of African learners, teachers and schoolnet organisations.

Abbreviations, Acronyms and Glossary

Abbreviations and acronyms

BECTA	British Educational Communications and Technology Agency
COL	Commonwealth of Learning
EMIS	Education management information systems
FET	Further Education and Training Curriculum (South Africa)
GET	General Education and Training Curriculum (South Africa)
ICT	Information and communication technology
IDRC	International Development Research Centre
ICAA	International Curriculum and Assessment Agency (UK)
IPR	Intellectual property rights
ISTE	International Society for Technology Education
ITU	International Telecommunication Union
K-12	Kindergarten to grade 12
LoTI	Levels of Technology Integration (Framework)
NCDC	National Curriculum Development Centre (Uganda)
NCREL	North Central Regional Educational Laboratory (USA)
NETS-T	National Educational Technology Standards for Teachers
NGO	Non-governmental organisation
OECD	Organisation for Economic Co-operation and Development
RBM	Results-based management
RITSEC	Regional Information Technology and Software Engineering Center (Egypt)
SIDA	Swedish International Development Cooperation Agency
STaR Chart	School Technology and Readiness Chart
SWOT	Strengths, weaknesses, opportunities and threats (analysis)
UNESCO	United Nations Education, Scientific and Cultural Organization

Glossary of ICT terms

ADSL	Asynchronous digital subscriber line, fast, always-on broadband Internet connection.
ASP	Applications service provider.
AUP	Acceptable use policy.
Bluetooth	A short-range wireless connectivity standard used by mobile and hand-held devices such as cell phones, PDAs, headsets and notebook computers.
Broadband	Internet connection faster than 200 Kbps (kilobits per second).
Broadband 3G connection	Third generation of mobile communications technology that provides increased bandwidth.
ccTLD	Country-code top level domain. Internet country domain code, such as .ke for Kenya.
CD(-ROM)	Compact disk (read only memory).
CD-R	Writeable CD format.
CMS	Content management system.
Digital divide	Divide between those who do and those who do not have access to the Internet.
DNS	Domain name system, which translates Internet domain names to IP addresses.
DSL	Digital subscriber line. <i>See</i> ADSL.
DVD	Digital video disk. High-capacity storage medium for digital video and data.
DVD-R	Writeable DVD format.
E-rate	Education rate. Discounted rates for telecommunications and/or Internet services for educational institutions.
ETRN	Extended turn, an extension to the SMTP mail delivery protocol used for forwarding e-mail.
Fat client	Workstation where applications are stored and run locally rather than on a server.
Firewall	System which provides protection against unauthorised intrusion, worms and viruses by blocking certain types of network traffic.
FOSS	Free open source software.
Free software	Software provided with source code and a licence which permits users to modify and redistribute the software under the same licence.

FUP	Fair use policy.
GUI	Graphical user interface.
HTML	Hypertext markup language.
IANA	Internet Assigned Numbers Authority.
ICANN	Internet Corporation for Assigned Names and Numbers.
IM	Instant messaging.
IMAP	Internet message access protocol.
Information literacy	The ability to locate, evaluate, analyse and synthesise information from a variety of sources.
IP	Internet protocol. The underlying protocol used by systems on the Internet.
ISDN	Integrated Services Digital Network: telecommunications service providing fast digital dial-up connections to the Internet (up to 128 Kbps).
ISP	Internet service provider.
Kbps	Kilobits per second.
LAN	Local area network, connecting computers within a building or campus.
LMS	Learning management system.
Metadata	Structured information that describes an item of content or software.
MP3	A popular format for digital sound files.
ODMR	On-demand mail relay; used for forwarding e-mail.
Open source software	Software provided with source code and a licence which permits users to modify and redistribute the software (similar to free software).
Operating system	Underlying software layer which allows application software to be run on a computer or other device.
PC	Personal computer.
PDA	Portable or personal digital assistant.
PDF	Portable document format. A platform-independent format for distributing documents.
POP(3)	Post office protocol. Popular method of accessing Internet e-mail from a server.

Proprietary software	Software which restricts access to source code and does not allow users to freely copy or modify the software.
RAM	Random access memory.
Server	Computer which provides file, printing or other services to other computers on a network.
SMS	Short message service used for text messages on mobile phones.
SMTP	Simple mail transfer protocol. Internet protocol for sending e-mail between systems.
TCO	Total cost of ownership. All costs associated with deploying, operating and maintaining a computer network and applications.
Thin client	Workstation model which allows users to run applications on a server, rather than on the workstation itself.
TV	Television.
Unicode	System for representing language characters in international character sets.
URL	Uniform resource locator. Internet address format used for Web sites and other information services (e.g., <i>www.unesco.org</i>).
UUCP	Unix to Unix copy; used for forwarding e-mail.
VCD	Video compact disc. A CD which contains digital video material.
VCR	Video cassette recorder.
VPN	Virtual private network. Network which runs on top of an existing network, providing additional security, addressing or management features.
VSAT	Very small aperture terminal. A small antenna (1 to 3 metres in diameter) and satellite terminal.
W3C	World Wide Web consortium, which defines the standards used on the World Wide Web.
WAN	Wide area network, connecting networks over a large geographical area.
WiFi	Wireless fidelity. Generic term for wireless networks using the 802.11 protocols.
Workstation	Computer used by users to run applications and access network services (<i>see</i> server).
WWW	World Wide Web.

