

African Leadership in ICT

ICT Applications

Unit 3 Module 5

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Module 5 – ICT applications and the Role of Government in a Knowledge Society

Unit 3 – ICT Applications

Introduction

In the previous unit we discussed ICT applications in government. In this unit we will start by analysing how ICT applications in government can save the civil servants' and citizens' valuable time, while increasing efficiency and transparency. We will continue by studying how ICT is the access door to financial services' tools that will allow African countries to compete in the international markets. We will discuss potential ICT applications in the ICT sector, for trade facilitation and for online businesses.

Next, we will learn about e-Health: the use of ICT to enable, support and deliver health services to patients and populations. This subject will be followed by e-agriculture and e-environment, both particularly relevant issues for African countries. ICT can play an important role in addressing the current challenges, and perform a key role in economic development and growth. We will then study the state of ICT in education, a critical issue around the world, and particularly in Africa. E-learning, while it does not replace schools and universities, can help to educate and train children as well as adults throughout life. We will close the unit by analysing and discussing online tourist applications. The tourism industry is significant to African countries, since it carries the potential to diversify local economies and contribute to poverty alleviation, economic regeneration and stability, affording many Africans the opportunity to participate in its benefits. ICT can also help in marketing business information to consumers, and selling services worldwide.

Each of these overviews will set out the local challenge, identify the role for ICT, and provide some references to case studies illustrating local examples in cases where it has been put into practice.

Objectives

Upon completion of this unit the participants will be able to:

1. Understand how ICT applications impact several key areas
2. Appreciate your organisation's role and position in building and updating your country's KS.
3. Appreciate your role as leader in supporting the development of your country's Knowledge Society (KS)

1. E-Government Applications

In **Unit 2** we introduced the basics of e-government services and its three main models to interact with citizens (G2C), businesses (G2B) and intra-government (G2G). A few examples at this point will illustrate the range of economic and democratic benefits that can flow from well-planned and well-managed e-Government projects.

Citizens in developing countries, especially those in rural areas, often spend a significant amount of time and money accessing government services, since most of the processes are performed in major cities. The use of ICTs can **simplify access to services and save precious time and money for citizens who would otherwise have to travel great distances, stand in long queues, and spend a considerable time engaged in transactions.** And it also introduced greater transparency, reducing corruptive practices.

On the other hand, civil servants spend a substantial amount of their time paying attention to citizens who must deal with transactions, helping them, and sometimes arguing with them. The use of ICT can facilitate the civil servants' work with other departments within their organisation and within government, as well as with citizens (front office) all of whom can use ICT to deal with their proceedings without wasting civil servants' time.

e-Government applications can reduce bureaucracy, inefficiency and opportunities for corruption, and also offers the opportunity to streamline and rationalise processes, reducing the volume of paperwork and also the layers of bureaucracy that are involved in common transactions. By providing access to government information and services directly through the Internet and other channels of electronic communication, such as government-supported telecenters, e-Government can save **governments, citizens and businesses time and money.** However not every home has a computer and Internet access. In Kenya for example **Village information centres** are being set up in rural areas to promote public information access within rural communities. In India, **common service centres** are key for rural access.



Mobile government (m-gov) is the extension of E-government to mobile platforms. M-gov can be defined as a communication strategy which involves the use of every kind of mobile and wireless technology, services, applications, and devices in order to improve the benefits for all the agents involved in E-Government, including citizens, businesses, and governmental organisations. It is to be noted that mobile phones, which outnumber fixed-lines (and far outnumber personal computers) in most of Africa are increasingly being used as channels for e-Government.

Case studies:

1. One stop shop: Angola's **Portal for Government Services** has as its main objective to bring all governmental public information and services under the same platform and to make them available to citizens via the internet. Angolans can thus find information on government programmes, and are given the option to send their views and comments to the government. The system includes 157 public services online and provides information on 31 governmental programmes. The portal contains 28 official government forms and provides for the possibility to make appointments with government officials and to download documents.
2. e-Procurement: Online government procurement is one application that has been successfully implemented in several countries, with a range of benefits like making government procurement more transparent, reducing businesses' transaction costs, and reducing opportunities for corruption. In Tanzania, the Central Bank, the Tanzanian Revenue Authority, and the Public Procurement Regulatory Authority are setting up an **e-procurement** system for the Tanzanian Public Service.
3. Land Registry: Land and property registration matters can be complex and contentious in developing countries, including security issues, but governments can use ICTs to streamline issuance of land and property titles and make them more reliable and less susceptible to manipulation. The Government of Botswana had undertaken to improve land management through the introduction of electronic land management information systems. The development of these systems flowed from the country's ICT policy, which provided a roadmap that guided the transformation of the country toward e-governance through the adoption of ICT strategies. The computerisation of information about land holdings represented an important step toward this realisation. The Botswana Tribal **Land Integrated Management System** (TLIMS) is highlighted in the context of land registry in Africa. Another example is Mozambique, which has worked to digitize land records through the e-Land Registry and the **Land Information Management System** (LIMS). **In the state of Karnataka in India**, the computerisation of land records has been done and the services delivered online with great success.

4. Other transactional sites: South Africa **has a website** that provides detailed information on the steps required to apply for a driving license, along with the necessary forms. Malta has a **Transact website** that allows individuals to renew the registration of their automobile online. In **Rwanda arrival visa processing** by the immigration department has received an award for best ICT applications in e-government.

5. e-Participation features can promote civic trust by ensuring that citizens' views and interests are better represented in government programmes or processes. For example, Singapore has an **online feedback system**. The Philippine Civil Service Commission implemented an **e-Government system** that enables citizens to text message to lodge corruption charges or other complaints against government officials. India has implemented an electronic voting machine in Indi and the complete electoral process in India happens through **Electronic Voting Machine**. An interesting report by CIPESA on **How ICT tools are promoting citizen participation in Uganda** (2012) reviews various ICT tools being used to promote transparency, accountability, and citizen participation in Uganda. It examines the utility and shortcomings of these tools, the challenges they face, and the factors contributing to their success. Furthermore, it offers suggestions for improving the utility, reach, and, hopefully, the success of initiatives that utilise ICT to improve citizen participation

6. In Hong Kong "m-Government" initiatives allow citizens to book appointments with government agencies. Malta offers m-Government services that include acknowledgement and status of citizen complaints; notice of court hearings and exam results; license renewals; and direct payments from the Department of Social Security. Japan offers m-government services through **its portal**. The National Police Agency of Japan is disseminating photos of wanted suspects through cell phones.

7. **Local governance and ICTs in Africa : case studies and guidelines for implementation and evaluation** by IDRC 2011 offers studies from nine African countries that explore how ICTs can transform service delivery, tax, financial management, land management, education, local economic development, citizen registration and political inclusion.

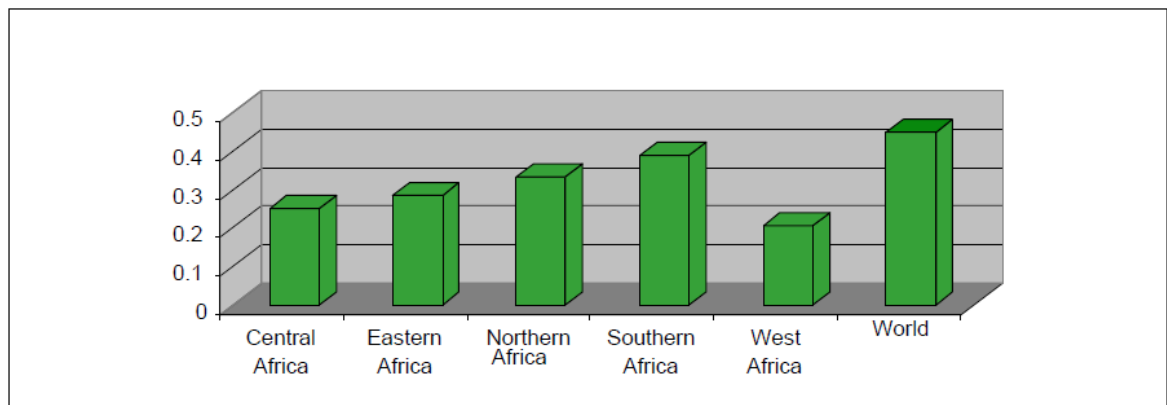
Additional Readings:

1. ITU's **M-Government: Mobile Technologies for Responsive Governments and Connected Societies** (2011)
2. **Compendium of Innovative E-Government Practices** published by the UN Department of Economic and Social Affairs in 2005
3. **E-government library** and other resources of the United National Online Network in Public Administration and Finance (UNPAN)

4. Development Gateway Foundation's **AiDA website** (Accessible Information on Development Activities), which facilitates information exchange on efforts to improve public sector transparency and effectiveness

5. On e-participation: "**E-Government and Democracy: Representation and Citizen Engagement in the Information Age**" (2004). Steven L. Clift

Practical Activity: Access The UN's **Global e-Government Readiness Reports of 2008**. Look for your country and region on pages 22-27 on e-readiness in Africa. How is your country doing? How has the rating changed in the last few years? Why do you think that is? Please share your opinion in the **Unit 3 Discussion Topic**.



2. E-Commerce, Business and E-Trade

The second most populous continent in the world, and with abundant natural resources, Africa continues to grow as the world's economy currently stands on shaky ground. However, steady GDP gains are sometimes obscured by the continent's economic, political, and social problems. As Africa develops and becomes more tightly integrated



with the global economy, its citizens and businesses increasingly need access to financial services tools that will allow them to compete. Information and communication technology (ICT) is one avenue for increasing that access. In this unit we will discuss potential ICT applications in the ICT sector, for trade facilitation and for online businesses.

The ICT Sector

According to the **e-transform Africa report**, The ICT sector has been the major economic driver in Sub-Saharan Africa over the past decade, witnessing an annual compounded growth rate of 40%; and, although mobile and Internet penetration remains relatively low in Africa, never before in the history of the continent has the population been as connected as it is today, thereby poising itself to continue its ICT growth trajectory. Furthermore Africa's perception as an investment destination has improved tremendously in the last few years, according to Ernst and Young's Africa attractiveness survey.

A suggestion of potential Interventions to Advance the ICT Sector in Africa can be found in **ICT Competitiveness report** (2012) and include measures like

- Reducing the cost of access for mobile and broadband – as we discussed in Module 4.
- Improving the e-commerce environment – as discussed in unit 1.
- Improving ICT worker skill levels and supporting ICT entrepreneurs. Encouraging innovative business models that drive employment.

Case studies:

1. Kenya has a very active **Kenya ICT board** which supports several activities.
2. In Rwanda, the **Rwanda Development Board** provides plenty of incentive schemes for investors in the ICT sector.

ICT for Trade Facilitation

Trade facilitation is a generic term applied to the procedures and technologies used to integrate domestic trade into global supply chains. The objective of ICT in this context is to replace the paper documents, original signatures, cash payments and face-to-face meetings that are required to obtain import and export approvals from government agencies, and from Customs processes. This specific application of e-Government is significantly dependent upon effective e-Governance for transparency and efficiency.



In other words, trade facilitation is the use of measures by governments and other trade stakeholders to simplify, harmonise and standardise trade management processes in order to address inefficiencies and lack of coordination that leads to delays, costs and unreliability. ICTs have demonstrated their potential to enhance performance and, in some cases, to transform organisations and processes in many social and economic development areas, including trade. According to **Transformation-Ready: The strategic application of information and communication technologies in Africa**, all this is possible thanks to three capacities of ICTs:

1. To enhance efficiency (enabling people and organisations to manage processes more quickly, reliably and cheaply than they could previously manage them);
2. To enhance coordination (enabling them to integrate processes with those of other people and organisations in ways that were not previously possible); and
3. To enhance information and knowledge (enabling them to access more information and other resources than were previously available, and thereby improve decision-making).

Additional reading:

1. **ICT Competitiveness report** (2012)
2. **Transformation-Ready: The strategic application of information and communication technologies in Africa** (2011) by the African Development Bank, the World Bank and the African Union

3. Trade Facilitation In Africa: Challenges And Possible Solutions, by *Creck Buyonge and Irina Kireeva*, World Customs Journal

E-Business

Electronic business, commonly referred to as "**eBusiness**" or "**e-business**", or Internet business, is the application of information and communication technologies (ICT) in support of business activities. Commerce constitutes the exchange of products and services between businesses, groups and individuals and can be seen as one of the essential activities of any business. Electronic commerce focuses on the use of ICT to enable the external activities and relationships of the business with individuals, groups and other businesses. (Source: [Wikipedia](#)).

E-business is the conduct of business on the Internet, not only buying and selling but also servicing customers and collaborating with business partners. At present, governments as well as major corporations are rethinking their businesses in terms of the Internet and its new culture and capabilities. Electronic business methods enable governments and companies to link their internal and external data processing systems more efficiently and flexibly, to work more closely with suppliers and partners, and to better satisfy the needs and expectations of their customers.



It is important not to confuse e-business with e-commerce. Basically, electronic commerce (EC) is the process of buying, transferring, or exchanging products, services, and/or information via computer networks, including the internet. EC can also be beneficial from many perspectives including business process, service, learning, collaboration, and community.

In practice, e-business is more than just e-commerce. While e-business refers to a more strategic focus with an emphasis on the functions that occur using electronic capabilities, **e-commerce** is a subset of an overall e-business strategy.

Case studies: Banknet, Mozambique: e-Business in the Banking Sector Case Study. Banknet is a Banking ICT solution which is used as an e-Business solution. From 2000 the Bank embarked on a system re-engineering project, to facilitate the bank to provide an e-Business solution. Under this project, a Banknet, that allows the Bank to offer an e-Business solution for Business to Business (B2B) was developed and implemented (Source: IST@frica,, 2006: E-Business – Case Studies)

3. E-Health

We define **e-Health** as the use of information and communication technology (ICT)—such as computers, mobile phones, tablets, broadband Internet access, cameras, information systems and digital platforms—to enable, support and deliver health services to patients and populations. Rather than depriving other areas of the health system of resources, investment in ICT serves to amplify the impact of those resources by improving accuracy, extending services to underserved areas, and cutting waste and redundancy. ICT can also be used to address the main obstacles to providing affordable quality healthcare in African countries. According to the literature, those obstacles include funding shortage, equipment and supplies shortage, insufficient quantity of skilled rural and community healthcare workers, populations who are uneducated about prevention and treatment of preventable diseases, lack of health system infrastructure and communication between urban and rural areas.



We can find several types of e-health applications:

1. Health Management Information System (HMIS) or Health Information System (HIS): are nationwide or provincial systems for centralised medical record, patient tracking, etc. more related to administrative tasks, statistical analysis, detecting patterns (such as disease outbreaks). Data stored in these databases allows cross-analysis of patient information (e.g., child weight loss) to drive evidence-based decision-making at the individual, group, community and national levels. These services are more likely to exist in upper-income countries and less likely to exist in low-income countries, as implementation for systems like these require top-down political support, financial commitment, human capital and technology transfer. One example is **EpiSurveyor**, a free mobile phone- and web-based data collection system used in 170 countries for the collection of information regarding clinic supervision, vaccination coverage, or outbreak response, and it helps to identify and manage important public health issues including HIV/AIDS, malaria, and measles.

2. Health resource Administration: It has been mentioned that supply chain inefficiencies impede procurement and delivery of equipment and medical supplies to remote areas. Improving the supply chain is one of the top three goals for developing health systems. This issue can be addressed by a mobile supply chain management and equipment tracking system in which mobile devices (phones, PDAs, tablets, laptops) are used for data collection and monitoring, and database information to detect trends and estimate future needs. For example ICT can also be used to reduce under-five child mortality by improving supply chain management to increase access and streamline the deployment of antibiotics, oral rehydration, vaccinations and mosquito nets. It could also be used for disease surveillance and monitoring drug distribution systems

3. Telemedicine, where patients in remote areas can access the services of a doctor remotely, or rural healthcare extension workers (HEWs) can consult with specialists in big cities. Rural areas do not have the same access to information as urban centers. ICT can help address this shortage. While many countries are increasing the presence of their public health services in the form of additional clinics in rural areas, communication between rural healthcare extension workers (HEWs) and trained nurses and doctors in peri-urban facilities can be accomplished with SMS, image delivery and video phone systems. For example in Tanzania ICTs are **used for distance diagnosis**, where Clinical officers use mobile phones to take pictures and notes of patients in remote areas of Tanzania. The information on complex medical cases can be shared with specialists from Dar es Salaam and abroad via the iPath telemedicine platform. Specialists view the information and provide advice remotely.

4. E-learning: Broadband can also be used to train more health professionals and keep them up-to-date with the latest in medical sciences and research. The insufficient number of skilled healthcare workers is especially acute in Africa, particularly among Rural Health Extension Workers (RHEWs). For example the UN's progress report on MDG 4 and 5 (mother/child mortality rates) exposed a lack of skilled healthcare workers at the time of birth as a primary cause of maternal mortality. By implementing SMS-based mobile and online training capabilities using municipal or private broadband infrastructure, it will be possible to promote best practices for (and between) rural health workers in African countries.

5. M-health: is the use of mobile services to promote health. It can be used for communication among healthcare professionals and also with citizens. For example, it can be used to increase access to educational material about preventing and treating preventable diseases. ICT can be used to combat HIV/AIDS, malaria and other diseases by making educational materials about prevention more readily available, faster and more frequent, like the case of [HIV Confidant](#) in South Africa. SMS can be used to send out advice about contraception and family planning—as is the case with [Text to Change](#) in Uganda. ICTs are also being used to manage supply chains, train workers and track epidemic outbreaks – for example malarial outbreaks. Disease prevention and treatment information can be disseminated through a variety of technology-based methods. For example mobile, SMS, Interactive Voice Response (IVR) and video technologies can make it possible to administer short-term and mid-term training regimens for rural healthcare workers. Mobile-based training and monitoring will prove more valuable when mobile broadband services become a part of the national communication service offering. At that point, health extension workers will have access to nurses and doctors via mobile phones, text message or video chat when problems arise.

Practical Activity – How Is Africa Doing in Implementing E-Health Programmes: According to a World Health Organization (WHO) [Global Observatory for eHealth](#) (GOe) survey, 83% of 112 surveyed countries identified at least one m-Health programme, and 33% identified at least one telemedicine programme within their country. Unsurprisingly, high-income countries, which have the most advanced enabling environment, are more likely to have fully established, institutional e-Health programmes than upper-middle, lower-middle and low-income countries. In contrast, the 31 African countries that responded to the survey and their lower-income counterparts were the least likely to have established, institutional e-Health programmes in m-Health, telemedicine or e-Learning. When these programmes exist, they are in either the pilot or informal stages of development. It is to be noted that in measuring progress towards achieving the Millennium Development Goals (MDGs), African countries have found more success, relatively, with MDG 6 (combat HIV/AIDS) than with MDGs 4 (reduce child mortality) and 5 (improve maternal health). The [2010 survey/report](#) measures identified e-health programmes and the level of development per country. Please access the report and look for your country profile and also reflect on these results in the [Unit 3 Discussion Topic](#).

Case studies:

1. Botswana is part of the Pan African e-network project of 53 African countries which is working towards connecting via one sole network with satellite and fibre-optic links for world class connectivity. The country aspires to thereafter provide various tele-education and tele-medicine facilities including inter-connecting with 11 Universities, 53 Learning Centers, 11 Super Specialty Hospitals and 53 Remote Hospitals in the membership of the e-Network project.

2. **Mashavu Project**, Kenya and Tanzania: A team at Penn State developed a number of inexpensive medical devices for Mashavu, a name that comes from the Swahili word for chubby cheeked, a colloquialism for good health. A variety of disciplines are joining together to create business plans and technical schemes being used by Mashavu's parent entity, Children and Youth Empowerment Centre, which is partially funded by the Kenyan government. On the technical side, the student teams created a number of medical instruments that connect to PCs so data can be sent to doctors at remote sites. They provide students the type of hands-on project that have become a mainstay as universities struggle to provide a steady supply of skilled engineers.

Additional reading:

1. **Making better access to healthcare services**, ITU 2008
2. **Scaling e-Health Services in step with ICT Transformation**, ITU 2011
3. **Health Sector Study**, Vital Wave Consulting, March 2012
4. **Country Case Study for e-Health South Africa**, Maurice Mars, MD and Chris Seebregts, PhD

4. E-Agriculture and E-Environment

Food security is highlighted as one of the main concerns relating to the survival of individuals, families and ultimately nations on the planet, emphasising the need to strengthen the agriculture sector. While agriculture is the largest economic sector in most African countries and remains the best opportunity for economic growth and poverty alleviation on the continent, it has been in decline over the past years. African agriculture is largely traditional and practiced by smallholders and pastoralists. This type of agriculture is characterised by low-yielding production, dependency on rain, and a lack of access to critical information, market facilitation, and financial intermediation services.

ICT can play a significant role in addressing these challenges so that agriculture can contribute more significantly to economic development and growth as it can **bridge the critical knowledge gap between stakeholders** like businesses, farmers, researchers, NGOs and government.



ICTs can be used at **different stages of the agricultural cycle**: Pre-cultivation (crop selection, land selection, calendar definition, access to credit), Crop cultivation and harvesting (land preparation and sowing, weather forecast, water management and fertilization, pest management), Post-harvest (including sales, aggregated sales, storage, marketing, transportation, packaging, food processing, tracking).

Potential Uses of ICT in Agriculture:

1. Multi-stakeholder e-Agriculture knowledge sharing in Africa: Multi-stakeholder research partnerships have many benefits. Applications can include multi-channel information delivery, ICTs for spatial analysis and targeting of programmes, ICTs for better risk management, ICTs and financial services for the farmer, e-Education, virtual aggregation of small stakeholders (for example, to buy and share equipment, or to sell products):

- Distribution and supply chain applications: it allows for the optimisation of costs, better use of resources, reduction of spoilage, and better compliance to standard requirements. One example is Zambian **ZNFU E-Transport** system for farmers to share transportation costs.

- Access to markets: direct for farmers, eliminating intermediation and obtaining better processes. Example: **Infotrade Uganda** and **SafEX south Africa**, a commodity exchange platform. Services to farmers can be easily implemented through SMEs, for example **Kenya farmers will receive storm alerts via SMS**.
- Research and information: sharing of best practices, weather, education. Example: **Grameen AppLab Uganda**

2. Information systems for stakeholders minimises the duplication of data and ensures consistency, improves integrity of the data, and addresses a variety of requirements. A good example of such a system is **Drumnet**, using ICT to bring together multiple stakeholders in the Kenyan agriculture sector.

3. E-commerce allows farmers to sell their product online, even export them, as shown by the Indian example of **farmers selling their products through online**. This project has won multiple awards in India and internationally. They have been implementing this project very successfully for over a decade.

4. Product Traceability is described as the recording of information so that an item moving through a global supply chain can be tracked from its origin along the value chain. In the agriculture sector, traceability is the forward and backward tracking of animals and food by paper or electronic means. In recent years there is an increased emphasis on the traceability of agricultural production particularly if you are exporting to Europe, due to an increasing consumer demand for quality and food safety.

Mobile Technology in E-Agriculture

Mobile phones, GPS systems used for geopositioning and traceability, smart card readers technology can be used to read and capture data and to store data. However, further components, such as the internet, communication networks and regulatory systems (to provide data security and standard systems for codes) are essential to complement the input and output devices. However, poor accessibility to sufficient infrastructure affects



the use and adoption of ICT in agriculture in Africa. Mobile technology, on the other hand, is increasingly being adopted as the technology of choice for delivery of ICT services and solu-

tions, even though many farmers complain that they don't have enough coverage in rural areas. In [Esoko blog](#) when they asked farmers what the current barriers were, they answered *"Lack of education and high rates of illiteracy are major problems. Though almost all farmers Esoko has dealt with have mobile phones and have access to phones, only a few know how to use the phones apart from making and receiving calls. Many cannot read and write and so understanding the messages we send them is difficult - some have to rely on the educated friends, children or others to interpret for them."*

Case studies:

1. In Ghana, the [Esoko Ghana Commodity Index](#) (EGCI) is a rural communication platform that publishes a cash market price index composed of data on physical commodities. The index is published weekly and tracks prices at wholesale and retail levels. Esoko seeks to improve incomes by helping farmers transform their business and link farmers to markets. Esoko provides a complementary partner support programme, which focuses on capacity building and financial sustainability, with an emphasis on market data enumeration and business development services.

2. Index-based agriculture insurance on Kenya – [Kilimo Salama](#) (Safe agriculture)

Additional reading: [Agriculture Sector Study](#), Deloitte, February 2012

5. E-Education and E-Learning

Africa is facing an education crisis. ICTs in general have the potential to improve access, quality, equity and relevance of education. E-learning, while it does not replace schools and universities, can help to educate and train children as well as adults.

E-learning may be described as the delivery of a learning, training or education programme by electronic means. E-learning involves the use of a computer or electronic devices (e.g. a mobile phone) in some way to provide training, educational or learning material. It can include a greater variety of equipment than online training or education, for as the name implies, *online* involves using the Internet or an Intranet. CD-ROM and DVD can be used to provide learning materials. E-learning overcomes timing, attendance and travel difficulties. E-education involves e-teaching and e-learning along with the various administrative and strategic measures needed to support teaching and learning in an Internet environment. It will incorporate a local, regional, national and international view of education.



For many adults, e-education and distance learning, or online learning, e-learning, provides opportunities to start or continue their educational pursuits while working, raising a family, or when they do not have immediate access to a campus. The e-learning industry is providing a major boost to area economies.

Broadband connections to schools and universities allow students and teachers to access rich multi-media resources. It allows for communication and collaboration with peers. It can allow those who can't presently get into the education system gain access to educational opportunities wherever they may be, at any time. It allows for access to life-long learning and professional development opportunities. Without some sort of decent Internet connection delivery of this ALICT course would not be possible without bringing participants to physical classrooms every day. There is consensus that universities need to play a meaningful role towards the development of knowledge societies with such societies requiring a support infrastructure in the form of people with knowledge, skills and abilities to deliver e-commerce. It further requires the reformulation of the nature of learning and what is required of a graduate.

This topic is so critical that we will dedicate **Module 6** to Education and ICTs.

6. Online Tourism Applications

As a continuously growing industry worldwide, tourism has often demonstrated its role as a vital tool in the advancement of economies through direct domestic and foreign exchange earnings and through the employment and investment opportunities it can generate. African countries have recognized the potential of the tourism industry to diversify local economies and contribute to poverty alleviation, economic regeneration and stability, affording many Africans the opportunity to participate in and benefit from tourism. **Because it is an information-**



rich industry, it depends on finding and developing new means to distribute travel and hospitality products and services, marketing information to consumers, and providing comfort and convenience to travellers. Also, consumers are constantly seeking new sources of information to help them make decisions before purchasing travel services to make their trips more satisfying. Many more travellers use the Internet to plan and book their trips in the recent years. It is not surprising that travel and hospitality e-commerce is among the top four growth categories, second only to finance and insurance services. Recent polls from [EyeforTravel](#), a leading research company on internet, focused travel, suggest that 7 out of 10 travellers use the internet as their primary source of travel information.

The Advantages of Using ICT and the Internet for Tourism Applications Are:

1. Global reach: easily access and connect to potential clients all over the world. Offer services and tourist locations in remote areas, without intermediaries. Easy to reach out in foreign languages.
2. Cost savings on streamlining and electronic processing of booking and payments, offering a direct link between the producer and the consumer (disintermediation), reduce telephone charges and communication with clients and potential clients.

Some Potential Uses of ICT for Tourism Are:

1. Government supported tourism portals, including general information for the country, region or key sites, can provide basic information for those that intend to travel, including visa entry requirements, health, transportation, money exchange, what to do, etc.
2. Promotional sites for hotels, parks, services, remote areas, historical sites, etc. Touristic portals for Small to Medium Enterprise (SMEs), Community and Eco-Tourism projects in remote areas.
3. Sale of African craft goods and products through e-business technology, providing access to a global market for producers in remote areas.

Case studies:

1. Example of main country touristic information site **from South Africa**.
2. Safaris', the tourist trip to the African game park, is already being undertaken electronically. A visit to **Africam** provides you with real-time access to a webcam located in a Safari Park.
3. African **arts and crafts for sale online**

7. Conclusion

In this unit we have presented the main characteristics and some examples of ICT applications in different development areas. But ICTs could be used in many other areas as well, allowing Africa to develop and even leapfrog developing countries. We look forward to African creativity in these areas!

8. Assignment – A Group Analysis of the Country’s Readiness for KS

This is a group assignment. The deadline for submission is Monday 18th June. When you have completed the assignment, only one member (e.g. the group coordinator) of the group must upload using [this link](#).

Taking into consideration the content of **Module 5** and your experience, you will reflect on your country’s readiness to become a knowledge society. Before going into the assignment, please take a short recap from **Unit 1** about [measuring Knowledge Society](#) and [different examples of reports and indexes](#).

Then download the assignment sheet by clicking [this link](#) and complete the three-part assignment according to the instructions.

Remember that you can use your group’s private work space for coordinating the group members’ efforts. If you have any questions about completing the assignment, please contact your [module tutors](#)!

9. Leadership Journal Reflection

Please [download the Leadership Journal reflection sheet](#) and complete your module reflection!

This module is about the roles of government in supporting the development of a knowledge society. We hope you have reflected about how well your country is doing, compared with other countries in the region or the world. Taking into consideration the content of **Module 5 and your experience, please **reflect on your country’s readiness to become a knowledge society, the role your organization plays or should play, and your role as a leader. How is your country doing, in general? What role is your organization playing or should be playing? What roles could you play as a current – or future – leader of the knowledge society development?**** Please access and read the future work skills listed here: <http://www.iftf.org/node/2774>. Identify two skills that you consider the most relevant that you have and briefly explain why. Identify two future work skills that you don’t think you have and integrate these skills as an addition to your *person-*

al development plan - outlining strategies for developing them in their workplace in the *long term section* over the next 10 years.

Please develop your module reflection based on the questions above, **trying to connect your role and your organization's roles in the KS development in your country.**

Please upload the journal before June 18th using the **Leadership Journal submission box**. Remember that this activity is mandatory but not graded.

Readings and References

Mandatory Reading

Apart from the learning material, there are no other mandatory readings in this unit.

Extended Reading

E-Government:

- 1. Transformation-Ready: The strategic application of information and communication technologies in Africa** by Lishan Adam, David Souter, Abiodun Jagun and F. F. Tusubira, December 2011
- 2. e-Government Capability Maturity Model**, UNAPICT 2010
- 3. Designing and Implementing e-Government Strategy**, World Bank 2005
- 4. eGovernment Project Advice**, World Bank
- Richard Heeks (Series Editor): **iGovernment - Information Systems, Technology and Government: Working Papers and Short Papers**
- ITU's **M-Government: Mobile Technologies for Responsive Governments and Connected Societies** (2011)
- 7. Compendium of Innovative E-Government Practices** published by the UN Department of Economic and Social Affairs in 2005
- 8. E-government library** and other resources of the United National Online Network in Public Administration and Finance (UNPAN)
- Development Gateway Foundation's **AiDA website** (Accessible Information on Development Activities), which facilitates information exchange on efforts to improve public sector transparency and effectiveness.
- On e-participation: **"E-Government and Democracy: Representation and Citizen Engagement in the Information Age"**, Steven L. Clift 2004
- Infodev's **handbook for e-government for developing countries** (2002)
- 12. eGovernment in Africa: Promise and Practice**

E-Business:

- 1. Financial Sector Study**, Vital Wave Consulting, January 2012

2. **ICT COMPETITIVENESS IN AFRICA**, Excelsior, TNO, December 2011

E-Health:

1. **Making better access to healthcare services**, ITU 2008

2. **Scaling e-Health Services in step with ICT Transformation**, ITU 2011

3. **Health Sector Study**, Vital Wave Consulting, March 2012

4. **Country Case Study for e-Health South Africa**, Maurice Mars, MD, and Chris Seebregts, PhD

E-Agriculture:

1. **Agriculture Sector Study**, Deloitte, February 2012