



**NEW PARTNERSHIP FOR AFRICAN
DEVELOPMENT (NEPAD)**

ICTs IN THE DEVELOPMENT PROCESS

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1. Introduction and Background

Advances in science, technology and globalisation in recent years have led to economic, social, cultural, political and geopolitical transformation on a global scale. Information and communications technologies (ICTs) are at the core of this phenomenon. ICTs have not only diffused much faster than revolutionary innovations of agrarian and industrial societies but also become a potent force for transformation of social, economic and political development world-wide. Their dramatic power and versatility has led to the growth of global networks that have changed businesses and markets, creating new modes of knowledge flows and the emergence of a new information and knowledge-based economy. With reduced costs and the increase in the speed of communication across the globe, breaking down pre-existing barriers of time and space, ICTs are affecting all areas of political, social and economic life.

The capacity of new technologies to affect the production process, commerce, governance and learning has created an impetus for economic growth and social development, which is revolutionising information gathering and transmission. The critical elements are expanding international networks created by computers and electronic connectivity. The Internet has approximately 400 million users today, expecting to reach one billion people by 2005 and to be available to half the world's population by 2010. The network that is driven by the Internet is becoming the central nervous system of knowledge and advancement.

The revolution in ICTs has not only altered the way people live, work and play but has also created a new infrastructure for business, scientific advancement and social interaction. This revolution has continued to fuel the proliferation of new media and the globalisation of business and finance. It has increased the participation of citizens in national and global affairs. At the same time, it has brought about complex issues that transcend national boundaries including the emergence of the "digital divide" among regions, nations and between communities.

Although most nations are bound to benefit from this transformation, fears abound about a growing gap between rich and poor. Rapid globalisation and increased competition can adversely affect countries where the policy environment and institutional capacities are weak. However, the cost for African countries not joining the information and knowledge economy is much higher than for them to join.

While the developed world forge ahead with building knowledge societies, African countries are grappling with daunting social political and economic challenges. Central are key objectives identified by African leaders including strengthening peace and security, conflict resolution, upholding democratic values, ensuring human rights and the rule of the law, achieving macro-economic stability, building institutional capabilities, increasing levels of human development, promoting the role of women and expanding infrastructure for socio-economic development. The recent United Nations Millennium Summit set similar development goals for the next decade, including reducing poverty, raising levels of education, improving standards of health, enhancing empowerment, and reversing the loss of environmental resources. It also called for improving access to information and knowledge and enhancing Africa's active participation in the global information economy.

Such global consensus reflects not only the necessity of addressing poverty and other human needs through harnessing information, communication and knowledge, but also an emerging sense that the international community is at a crossroads in the

development process. Although ICTs themselves are not panaceas, analysis of experience around the world reveals ample evidence that used in the right way and for the right purposes, they can have a dramatic impact on achieving specific social and economic development goals as well as play a key role in broader national development strategies. They could offer new opportunities for out-of-school youths while improving the quality of education in existing sectors of the educational systems. The prospects for African integration and the possibility of halting and reversing Africa's "brain drain", enabling the continent make best use of and benefit from its human resource in the Diaspora could all be achieved through the effective use of technologies.

There are also employment opportunities arising from the ICT sector and through wealth created by enhanced knowledge and skills, which ultimately reduce poverty. In addition, the judicious application of ICTs could create niche opportunities in trade, investment and finance for African citizens and institutions. These technologies also have a substantial role in enhancing the effectiveness of public administration, in conflict management, control of pandemic and towards the organisation of an efficient early warning by providing the tools for constant monitoring of tension spots.

The seamless storage, retrieval, sorting, filtering, distribution and sharing of information can lead to substantial efficiency gains in production, distribution and marketing, creating new products, services and distribution channels in the process. Through innovative expansion of networks, ICTs can transcend cultural and linguistic barriers by providing individuals and groups the ability to live and work anywhere, allowing local communities to become part of the global network economy. These and other related attributes make ICTs powerful tools for Africa's renaissance and indeed present one of the hopes in the quest for eradicating poverty.

Experiences in developed countries indicate that the productivity gains in industry, tourism, trade, transportation and other production and service industries can be attributed to the use of ICTs. A case in point is agriculture where they could provide the means for improving the delivery of inputs, enhancing access to markets as well as enabling interaction between farmers and various agricultural institutions. These technologies have the potential of creating well-informed and empowered populations. and could be applied to the full range of human activity with benefits from exponentially increasing returns.

Consequently, there is a growing recognition by African governments, development agencies and the global community of the potential of ICTs for social and economic development in Africa. Governments, the private sector and academic institutions have been at the forefront of an increase of Internet access in Africa. A number of institutions including the Economic Commission for Africa, the International Development Research Centre, The United Nations Scientific and Cultural Organisation, the World Bank, the International Telecommunications Union have invested considerable amount of resources and energy in improving the state of information and communication infrastructure in the region.

Furthermore, tremendous progress in the use of ICTs for socio-economic development has been registered in African countries where political leadership has been strong. This has been the case in Rwanda, Mali, South Africa and Mozambique, where Presidents Kagame, Konare, Mbeki, and Chissano are playing a visionary and catalytic role in the development of ICT activities in their respective countries.

ECA: 25 YEARS PROMOTING ICTs FOR DEVELOPMENT

The Economic Commission for Africa has been one of the institutions in the region to recognise the powerful contribution of ICTs as early as 1975. It has been working for more than 25 years in promoting ICTs for African development. Its programme came into existence in 1979 with the Pan African Development Information System (PADIS). The PADIS concept involved the establishment of a centralised development information database at ECA and national databases at participating centres in African countries.

Looking for ways to exchange information more easily on the African continent, ECA undertook a series of computer networking pilot projects from 1989. In 1992, ECA initiated the *Capacity Building for Electronic Communication in Africa* (CABECA) project supported by the Canadian International Development Research Centre (IDRC), which resulted in the establishment of electronic communication nodes in 24 African countries. Following the CABECA project, ECA implemented other electronic networking projects in the region with support from the Government of the Netherlands and the United States Agency for International Development (USAID).

In 1996, African governments adopted the African Information Society Initiative (AISI) as an action framework to build Africa's information and communication infrastructure, making the continent the first region in the developing world to launch such an initiative. Implementing AISI will facilitate the participation of the continent in the global information society and reduce the digital divide between Africa and the rest of the world.

The three years of AISI achievements were evaluated through the African Development Forum 1999, ADF'99 (24 – 28 October 1999, Addis Ababa, Ethiopia) on the theme "*The Challenge to Africa of Globalisation and the Information Age*".

Nevertheless Africa's capacity for harnessing knowledge, information and communication for development has been inadequate. As a result, the region has not contributed significantly to the development of the global knowledge society. Part of the reason is the complex structural constraints including the limited human resource base, coupled with weak institutional and regulatory capacity.

Lack of investment in ICT infrastructure is also another factor why Africa has not been an active participant in the information society nor harnessed ICTs for development.

Consequently, African ICT infrastructure is the lowest in the world. Inadequate regulatory and policy frameworks and the limited skill base further aggravate this.

Generally, training institutions that can produce the relevant expertise needed for harnessing information for Africa's development are virtually non-existent. Although computer science studies have expanded at college levels, universities continue to produce young professionals with limited exposure to modern software engineering, networking and systems development

techniques. This aspect will remain one of the greatest challenges as Africa attempts to create its own information society.

2. STATUS OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTs) IN AFRICA

Given its relatively low ICT infrastructure base, Africa has achieved substantial growth over the last ten years. Progress in policy formulation, regulatory reforms, regional and national ICT initiatives and the formation of partnerships has been encouraging. However in comparison with other regions of the world and considering the actual needs of the continent, such progress pales into insignificance.

2.1 ICT Infrastructure

One of the major obstacles for development in Africa is the existence of poor infrastructure. Many African countries are still maintaining roads, seaports, railways and telecommunication infrastructure built during the colonial era, which has received little investments since. The existence of minimal ICT infrastructure has implications beyond national boundaries, as they are tools for enabling economic integration at the national, regional and global levels.

With respect to information and communication infrastructure in Africa, radio is the dominant medium covering 60% of the continent with a penetration of 216 per 1000 people. The number of private and community radio stations has been increasing. Although television coverage continues to be restricted to main cities, access to satellite transmission has improved television reception elsewhere. The existing broadcasting infrastructure, particularly radio could be central to the development of ICTs on the continent.

One among eight inhabitants of this world lives in Africa, yet only 2% of the world's telephone lines are located in the region. Approximately 2.6 million people are on waiting lists for telephone lines. Cost and access are the key challenges to telephone penetration. Price for utilization of telecommunication services is very high compared to the standard of living. On the average, it ranges from \$71 - \$94 for connection, \$4.9 - \$6.5 for monthly subscription and \$0.09 for three minutes local call. Such figures generally mask realities and disparities between countries and within countries. There are countries with densities as small as 0.13% where costs of telephone are exorbitant, while others are over 10%.

Access to computers is limited, and current estimates show that there are about 6 million PCs on the continent. The distribution ranges from 1 computer per 1000 people in some countries to more than 50 per 1000 in others. In the developed world, computers are central to research and development activities, and play a key role in the new information economy. In Africa, where available, computers are standalone and mostly used for very basic applications such as document processing. Among the major obstacles to diffusion of computers are duties and high import taxes that range between 0% to 31%.

Although all African countries are now linked to the Internet, facilities are concentrated in capital cities, and/or in major cities. The cost of connection remains very high with limited bandwidth capacity for interactive multimedia applications. Nevertheless, public access to the Internet is possible in many countries through kiosks, cybercafes, telecentres, *tele-boutiques*, hotels and other commercial centres, even though the number of Internet users remains insignificant. Of about 2.6 million Internet users in the region, 1.8 million alone are in South Africa. After promising trends and substantial progress in the mid 90s, Africa accounts only for about 0.3% of the world's Internet content. The growth of Internet hosts relative to the rest of the world has been declining since 1997. In 1999, only 2.6 percent of Internet hosts were in Africa. Table 1 shows comparative position of Africa in ICT infrastructure.

Table 1: Comparative figures of global ICT infrastructure

Item*	Africa	World	Asia	Europe	Americas	Oceania
Main Telephone lines	18,617,100	906,713,600	297,140,600	307,809,600	271,006,100	12,140,200
Teledensity (telephone lines per 100 inhabitants)	2.43	15.16	8.32	38.66	33.27	40.38
Telephone demand						
Total	21,913,200	914,480,300	295,235,500	314,872,500	270,429,200	12,029,800
Satisfied (%)	83.8	96.3	96.1	95.7	98.2	99.9
Waiting list	3,610,300	34,497,200	11,987,200	13,932,900	4,955,800	10,900
Waiting time (average years)	2.2	0.6	0.4	1.3	0.4	
Telephone tariffs (all in US\$)						
Connection (Residential)	71	94	113	103	100	57
(Business)	94	128	152	151	134	69
Monthly subscription (Residential)	4.9	6.5	5.1	7.9	7.9	9.2
(Business)	6.5	10.4	9.2	10.1	16.3	14.2

Item*	Africa	World	Asia	Europe	Americas	Oceania
Three minutes local call	0.09	0.08	0.05	0.10	0.06	0.11
Subscription as % of GDP per capita 1998	12.8	5.6	5.2	1.0	3.3	3.9
Number of Internet users	2,674,900	235,449,200	64,258,500	67,373,600	94,407,600	6,734,500
% of world	1.14%	100.00%	27.29%	28.61%	40.10%	2.86%
Number of Internet hosts	185,330	72,005,852	4,391,172	10,056,186	56,005,148	1,368,016
% of world	0.26%	100.00%	6.10%	13.97%	77.78%	1.90%
Estimated number of PCs	6,011,000	389,980,000	86,824,000	117,310,000	170,532,000	9,213,000
Estimated number of PCs per 100 inhabitants	0.90	6.84	2.53	15.04	21.50	37.90
Number of radio receivers Total (millions)	158	2,432	900	531	811	31
Number of radio receivers per 1000 inhabitants	216	418	255	729	1,017	1,071
IT import taxes [#]	8.84%	5.39%	7.28%	3.12%	7.70%	0%

**Source: World Telecommunication Indicators 2000/2001, ITU. (All are 1999 figures.)*

#Source: UNESCO's Institute for Statistics (http://unesco.org/statsen/statistics/yearbook/tables/CultAndCom/Table_IV_S_3.html.) (All are 1997 figures.)

#Source: Computed from data obtained from Office of Information Technologies, International Trade Administration, U. S. Department of Commerce (<http://exportit.ita.doc.gov/ocbe/TariffTa.nsf/76fc32623f0cac128525651a00679a60/5303400f0e52026a8525651a0068d5e5!OpenDocument>)

Consequently, the continent needs serious investments to develop its infrastructure base so as to attain the goals set out by the AISI and more recently, the New Partnership for African Development (NEPAD).

2.2 Policy and regulatory frameworks

Progress in telecommunication regulatory and policy frameworks is encouraging. By the end of the year 2000, twenty-five countries had established regulatory bodies to oversee the sector, with thirteen having partially privatised fixed networks of their Public Telecom Operators (PTOs), while four others had introduced second fixed line operators. The number of countries that opened up value added services such as the Internet and mobile services also increased. According to the ITU, the majority of African countries (56 per cent) now allow competition in mobile cellular networks. As a result mobile services are enjoying a substantial growth surpassing, in some cases, fixed telephones lines. The trend in fixed line is to partially privatise the operations of the PTO with shares being sold to a strategic partner, a telecom company, usually from the developed world.

Such measures, though limited in qualitative terms, has been the thrust for improving telecommunications infrastructure in the region. A number of countries have also begun to develop comprehensive national ICT strategies to promote infrastructure and regulatory capacity as a core activities. Currently fifteen countries have already completed the process of developing NICI plans and strategies, whilst four others are at the early stages. Another group of nine countries has are about to establish similar policies.

The structural gap in infrastructure constitutes a very serious handicap to economic growth and poverty reduction. Given its current mandate, this is where the African Telecommunication Union (ATU), an institution created from the moribund regional agency, the Pan-African Telecommunication Union (PATU), could make significant contributions in accelerating the continent's infrastructure development.

2.3 ICT Initiatives in Africa

AISI- Africa's Digital Agenda

- ◆ Prepared by a high-level expert group appointed by the twenty-first meeting of ECA Conference of Ministers which consists of the fifty-three African ministers of social and economic development and planning
- ◆ Adopted by the ECA Conference of Ministers responsible for economic and social planning and development in Addis Ababa, in May 1996
- ◆ Endorsed by African Ministers of Telecommunications at the African Regional Telecommunications Development Conference in Abidjan in May 1996
- ◆ Launched at the Information Society and Development Conference (ISAD) held in Midrand, South Africa in May 1996
- ◆ Adopted by the OAU Summit of Heads of State in Yaounde, in July 1996
- ◆ Commended by the G-8 Summit in Denver, in 1997
- ◆ Showcased during the African Development Forum 1999
- ◆ Translated into the "African Common Position for Digital Inclusion" in April 2001

The African Information Society Initiative (AISII) is the first region-led initiative that provides a comprehensive and continent-wide action framework, perceived as the basis for activities in the last five years. AISII was endorsed at several levels and by many partners as Africa's common vision for its quest not only to bridge the gap, but more importantly to create digital opportunities, and to speed the continent's entry into the global knowledge economy. It also serves as the framework for UN ICT Co-ordination of the New Partnership for African Development (NEPAD).

Furthermore, several initiatives have been introduced by the UN system, international and bilateral development agencies as well as regional economic communities such as COMESA, ECOWAS, SADC, UEMOA, and UMA. Some of the initiatives complement AISII activities while others have sadly, duplicated its efforts. Significant initiatives for ICT development in Africa include:

- the IDRC-led Acacia Initiative for Africa, which is an integrated program of demonstration projects as well as research and development activities to address issues of applications, technology, infrastructure and policy;
- the Leland Initiative, a multi-million U.S. government effort, which aims at extending full Internet connectivity to 20 or more African countries;
- the UNDP Africa Internet Initiative (AII), which aims at enhancing national Internet infrastructures and promoting the development of national and regional backbones, including building national technical capacities and telecom skills in 15 African countries;
- the Africa Connection, which was launched almost four years ago and is in the process being institutionalised to also undertake infrastructure expansion initiatives in the context of restructuring the African Telecommunication Union (ATU); and
- La Francophonie, which has an Information Highway Fund to support projects that encourage the adoption and use of ICTs in generating French content.

2.4 International Initiatives

There is mounting global consensus on improving digital opportunities that lead to the launching of potentially significant and new initiatives to support ICT applications in the developing world, particularly in African countries.

Under the auspices of The United Nations Economic and Social Council (ECOSOC) a high-level international panel of ICT experts met in April 2000. They called upon the United Nations to play a leadership and catalytic role in helping to bridge the digital divide and accelerate development by harnessing the development potential of ICTs. The panel subsequently recommended a forum for key stakeholders in an international ICT Task Force and creating an associated Trust Fund. In a Ministerial

declaration in July 2000, ECOSOC adopted the high-level group's recommendations and recognised the key role of partnerships among national governments, bilateral and multilateral development agencies, the private sector and other relevant stakeholders in putting ICTs to the service of development. The September 2000 United Nations Millennium Summit endorsed the ECOSOC Ministerial Declaration and announced significant new initiatives, three of which were ICT related. The Task Force was launched in November 2001.

In a related development, at their meeting in Okinawa in July 2000, the G8 group of industrialised nations adopted the Okinawa Charter on the Global Information Society and resolved to set up a Digital Opportunities Task Force (Dot Force). The Dot Force recommendation to the G8 was endorsed during the 2001 Genoa meeting resulting in proposals for strengthening the regulatory and policy framework, building human resources, increasing connectivity and encouraging SME's participation in global electronic commerce.

Furthermore, the UNDP recently launched a Digital Opportunity Initiative (DOI) to support the development of national strategies in developing countries and harness ICTs in key sectors of their development agenda. The ITU has also announced a major initiative on Internet training.

Annex 2 provides description of major ICT initiatives of particular relevance to Africa.

2.5 ICT partnerships

Given Africa's huge development agenda, partnerships are imperative in the implementation of digital opportunities on the continent. Through partnerships, which reflect the active participation of all stakeholders, resources can be optimised and maximised to build on existing programmes and achievements. The real challenge for all concerned would be to avoid the establishment of isolated programmes and duplication of efforts.

ICT partnerships for Africa's development has improved in recent years, mainly through the Partnership for Information and Communication Technologies in Africa (PICTA) - a network of public and private, national and international organisations, with programmes on ICTs in Africa. Its mix of members includes United Nations organisations, governments, multinationals and major NGOs that are implementing ICT programmes on the continent, as well as donors. In addition to the individual work programme of its members, collaborative initiatives have also emerged in areas such as development of NICI plans, the provision of advisory services to countries, training and capacity building, impact assessment mechanisms, and pilot projects in key sectors such as education, health, and business.

PICTA members and ECA are co-ordinators of the Global Knowledge Partnership (GKP) chapter on the continent to amplify the African voice in the global arena. Civil society groups, the Diaspora and ICT organisations have also made considerable progress in ensuring that Africa takes a proactive stance in advancing its interests in fora such as the WTO, ITU and ICANN. ECA, as one of the commissioners of the Global Information Infrastructure Commission (GIIC), has been engaging with the private sector for instance.

3. THE WAY FORWARD

3.1 Need for national and regional ICT strategies

Progress in the developed world in the last two decades shows that ICTs could become change agents in the development process. However, to actualise this requires concerted efforts and strategies at the national and regional levels. The rapid and sustained economic growth in East and Southeast Asian economies prior to their financial and economic crisis, provides a useful reference point for strategic government interventions in stimulating growth through ICTs. The move from industrially weak, subsistence-based agricultural societies to information and knowledge-based economies requires the development and implementation of comprehensive integrated ICT-led socio-economic policies and strategies.

The formulation of policies and strategies currently determines the role of countries and their ability to nurture innovations to provide them with comparative advantages in the global economy. It is for this reason that the United States launched the National Information Infrastructure (NII), whilst the United Kingdom placed emphasis on the National Learning Grid (NLG) around which ICT policies evolved. With regard to developing countries, different strategies were developed by different countries to respond to globalization through the use of information technology. Some have focused on developing ICT within the economic sector—either to boost exports (Costa Rica and Taiwan) or to build domestic capacity (Brazil, India and Korea). These economies have strengthened the market orientation of their economic policies and institutions, have gradually dismantled barriers to trade and investment, and facilitated rapid changes in production of goods and services. Above all, these countries made concerted efforts to build their human resource capacity to enable their citizens participate in the information and knowledge economy.

Others pursued strategies that used ICT as an enabler of a wider socio-economic development process. Some have focused primarily on repositioning their country's economies to ensure competitiveness in the global economy (Malaysia, Mauritius, Tunisia, Trinidad and Tobago) and others including a bulk of African countries such as South Africa, Mozambique, Egypt, Senegal, Rwanda have focused on ICT in pursuit of development goals. Experience so far indicates that comprehensive national policies are vital to integrating ICTs into the broader development agenda.

Most African countries do not have to start developing policies from scratch. Considerable progress has already been made in defining broad-based strategies that focus on economic growth. Assisted

by ECA and its partners, and within the AISI framework, over half of the countries on the continent have NICI plans, strategies and policies that articulate long-term goals

National Information and Communication Infrastructure (NICI) Strategies in Africa

AISI states that although African countries are equally placed to take advantage of ICTs to facilitate their socio-economic development process, they cannot hope to move their industrially weak, subsistence agriculture based economy towards an information and knowledge economy unless they develop and implement a comprehensive integrated ICT-led socio-economic development policies, strategies and plans. The NICIs are sets of steps to be undertaken by government to harness ICTs for development and to implement AISI. These steps include:

- e-readiness assessment - to undertake base line studies and to define the general problem and policy areas
- e-policy - to detail government commitment and strategic direction
- e-strategies and actions - to detail how policy commitments are translated into concrete programmes and initiatives for implementation.

Although at different levels of development stages, about twenty-eight African countries are engaged in developing national ICT policies and strategies. Out of these, about fifteen countries have already completed the process of developing their ICT plans and strategies and are now in the process of mobilising funds for the implementation of various ICT programs and projects.

within their national development agenda. Mauritius, Morocco, Mozambique, Rwanda, Senegal and Tunisia have completed e-readiness assessments and are defining action plans in critical areas of their economies. A number of countries now have action plans ready for implementation that require the assistance of partners, whilst others are at varying stages of this process.

Some countries also have a two-pronged approach by developing NICIs and at the same time harnessing ICT applications in key sectors such as education and commerce. Egypt, Mauritius, Morocco, South Africa and Tunisia are countries using this approach and making tremendous progress. They have begun developing electronic commerce strategies and building information technology parks to attract foreign direct investment, to stimulate knowledge-based economy, to create jobs for the youth and to harness the potential of ICTs.

3.2 Need for transformation of the regulatory framework

Regulation in the telecommunications and broadcasting sectors is relatively new in Africa. Regulators, whether autonomous or under direct government control, have had little practical experience and need their capacities strengthened. The implementation of an effective regulatory process requires certain skills and competencies to balance legal, political, economic, social and cultural imperatives, weighed against local, national and regional interests and conditions. As a result, transformation of regulatory and legal frameworks in Africa is contingent upon the capacity of its regulators to effectively operate within national and regional spheres.

Already there are efforts in this direction where several sub-regional associations of regulators are trying to assist their respective national members by providing training and harmonizing initiatives at the regional level. These bodies need to be supported and strengthened in the framework of NEPAD so that they can play more effective roles in providing advisory and building-capacity services. Consequently, networks of regulators in the region (such as Telecommunication Regulatory Association of Southern Africa – TRASA, the West African Telecommunication Regulators Association – WATRA and the Association of African Regulators, AAR) are crucial to improving regulatory capacities that provide guidance in developing regional infrastructure, whilst harmonizing national policies that provide the basis for integration on the continent.

Building the capacity of regulators, judiciary, civil society and private sector in the telecommunication sector, developing implementable rules, procedures and principles that cover licensing, tariff setting, interconnection, universal access, resource technical management and in the service of developing a strong and viable communication sector are urgent tasks that need addressing. Globalisation and its impacts on the trade and finance sectors has stimulated the emergence of other contending issues, such as the need to develop guidelines and regulation for e-commerce activities at the global level, including addressing electronic signature, encryption, security, computer related crimes, privacy and consumer protection issues. At the global level these are some of the issues regulators all over the world will have to confront and there is a need to develop African-specific strategies ensuring that the continent reaps maximum benefits from emerging global opportunities.

3.3 Need for application of ICTs in critical areas identified by the NEPAD

The New Partnership for African Development can build on efforts already underway to accelerate social and economic development in Africa through ICTs. The ICT framework as defined by NEPAD consists of the following five critically inter-related areas relevant to the objectives set out by African leaders: i) strengthening mechanisms for conflict prevention and management, (ii) protecting democracy and human rights, (iii) restoring and maintaining macroeconomic stability, (iv) revitalizing human development and development in key sectors and (v) improving the voices and equality of women in development. Therefore, defining an ICT framework that cuts across NEPAD's major goals should include:

- public administration, electronic government and e-democracy initiatives to foster peace and security, democracy and public and corporate governance
- ICT applications in health and education to revitalize human development
- infrastructure to improve access to knowledge, economic development and advancement
- Private sector participation to foster entrepreneurship through ICTs
- Harnessing ICTs for the development of agriculture and management of environment
- Promoting an enabling policy and regulatory environment to foster investment, partnership and participation by all actors

These sector applications are described below. Specific activities that could be undertaken to implement them are detailed in Annex 1. Priorities could be defined according to ADF '99 recommendations. Indeed, the first African Development Forum (ADF '99) organized on '*The Challenge to Africa of Globalisation and the Information Age*' identified four priority areas for Africa's attention and action. These included youth and education, health, business and commerce, and policy and regulatory issues. Since then, ECA with the guidance of the African Technical Advisory Committee (ATAC) of the AISI, and in collaboration with its major partners initiated a series of projects in four prioritised areas.

3.3.1 Improving Governance and Public Administration

Moves towards democratisation and political pluralism in Africa have paved the way for growing dialogue and popular participation on national issues. ICTs hold the promise of further increase greater dialogue between governments and their citizens, thereby strengthening the governance process. In addition, ICTs can assist governments in their bid to reform their public sectors by increasing efficiency of services and administration.

Harnessing the use of ICTs in the realisation of good governance and reform of the civil service could facilitate reforms in the public sector and enhance government performance, enabling various ministries, departments, divisions and agencies to connect with each other by storing and exchanging vital and voluminous data. This in turn will strengthen the capacity of governments to investigate, develop and implement strategies and policies from an informed position.

In establishing information systems ICTs can promote greater accessibility by citizens to government services and information, encouraging feedback from the general public and soliciting ways and means to improve efficiency and accountability in the public sector. The use of email could reduce the hierarchical nature of public institutions and reduce unnecessary and lengthy bureaucratic procedures. In addition, technologies could also be used to promote human rights, effect judicial reform, and enable parliamentary procedures become more accessible to ordinary Africans.

3.3.2 Human Development, Health and Education

3.3.2.1 The use of ICTs in the Educational sector

THE AFRICAN LEARNING NETWORK

The African Learning Network is one of the initiatives that came out of the ADF '99 process. The initiative presupposes that information and communication technologies can significantly change the education sector. The three pillars of this initiative are:

1. ICTs in schools, and the creation of a regional **SchoolNet Africa** structure that aims to support national and regional school networking activities;
2. **VarsityNet**, which establishes connectivity at universities and related institutions of higher learning and research, and stimulates the development of content production and information sharing within this environment.
3. **OOSYNET**, a youth networking initiative that addresses the needs of Out-Of-School Youth (OOSY) at both national and regional level.

Achieving human development for Africa's 800 million people to lead productive and creative lives can be fostered through improved access to information and knowledge, which form the basis for a healthier life and an improved standard of living. However, Africa's educational systems are in deep crisis. Schools are overcrowded, understaffed and riddled with inadequate resources to equip themselves with teaching and learning materials, etc.

Information and communication technologies offer opportunities for new forms of learning and teaching in an emerging knowledge economy, posing urgent imperatives for transforming

teaching and learning. Multimedia applications permit the development of novel teaching programmes with the use of audio-visual presentations and imaginative problem-solving software. In addition, the interactive capabilities of the Internet allow 'real-time' conversations and lectures among students and teachers across great distances.

SCHOOLNET AFRICA

SchoolNet Africa's mission is to enhance education in Africa by extending sustainable access and use of ICTs to teachers and learners through the development of a partnership among national school networking initiatives, and their constellation of stakeholders.

Over the next three to five years, SchoolNet Africa will:

- Support the development of national school networks throughout Africa.
- Facilitate the provision of low cost, basic connectivity for schools across Africa
- Facilitate capacity building and know-how for integrating ICTs in education.
- Support the development of local educational content on an ICT platform.
- Collect, develop and disseminate information and resources relevant to school networking.

If properly harnessed, ICTs could play a role in enabling marginalised school dropouts achieve greater skills to re-enter the education system or the job markets. Furthermore, the role that higher education institutions can play in serving as R & D laboratories and/or incubators of ICT-led initiative becoming 'knowledge centres' for countries. However, national ICT strategies must balance the benefits of investing in computers and Internet access against the need to improve basic services in education.

Priority areas for education were outlined during ADF '99 within the context of the African Learning Channel (see box).

3.3.2.2. ICTs and health

Poor medical facilities hampers access to basic health and delivery services on the African continent, particularly in rural areas. According to recent statistics there is an average of one physician for every 400 people in the high-income group while for 1000 people in the low-income group in Africa. In the rural areas, the disparities are even far more glaring, with one physician for 20,000 people.

The advent and diffusion of ICTs is beginning to facilitate the effective delivery of health care services. It is now possible to conduct online consultations and exchange of knowledge and information among doctors. ICTs can also help reduce disparities between the services available in urban and rural areas and reduce the costs involved in transporting patients to urban facilities, through various telemedicine applications. As recognised during ADF 2001, ICTs could address the challenges of HIV/AIDS and deliver cost-effective public healthcare programmes, to achieve the following:

- provide training in health through the experience and investment of Africans in Diaspora by initiating distance learning programmes, video conferencing, and tele-working;
- Promote public debate and awareness on significance of national health information systems and networks;
- Create and support networks that improve information access and interaction among African health professionals and their counterparts;
- Deploy community health information systems within innovative strategies to support access
- Deploy telemedicine/telehealth projects within a national health information systems strategy;
- Develop multi-media information systems and web-based clearing sites to facilitate the delivery of health education to students, researchers and the public at large particularly in combating HIV/AIDS.

3.3.3 Agriculture and Environment

Agriculture is the mainstay of most economies in Africa. However, inefficient farming techniques and unrealistic economic policies, compounded by adverse natural disasters, poses serious environmental challenges for the continent with devastating consequences. Thus food security and poverty reduction have become major challenges facing many African countries as a result of the above-mentioned factors. Countries need to improve land use management practices, strengthen agricultural inputs and techniques through efficient dissemination of research findings, particularly to farmers, and the creation of agri-businesses that ensure the efficient links between the agricultural and industrial sectors. Consequently, the need for ICTs and installation of information systems could go a long way in assisting governments in their planning exercises, providing them with early warning and other geo-information systems.

Environmental degradation as a result of deforestation, soil erosion, desertification, and urban and industrial pollution are just some of the challenges facing African countries. Managing the continent's fragile eco-system and averting natural and man-made disasters of the magnitudes that impacts negatively on the livelihoods and well being of Africans is crucial. Effectively safeguarding the environment by all sectors of the society requires up-to-date and relevant data, as well as appropriate information systems. ICTs not only provide the means for governments to plan and manage their

entire eco-systems, but it also saves lives and protect livelihoods through early warning systems, for instance. Vital national data could be stored and retrieved with relative ease through the establishment of observatories, encouraging exchange and sharing of information between various government agencies and different groups in society.

3.3.4 Private Sector Development and Entrepreneurship

The old paradigm where governments were considered the major actors in national development is changing. The power and the resources of the private sector, local and foreign, in driving the development agenda of the continent cannot be underestimated. There is also a strong drive to nurture a vibrant indigenous private sector expected to adopt new strategies for global competitiveness and seeking practical business solutions in partnership their counterparts abroad and with governments. Consequently, a great deal needs to be done by way of developing the capacity of local financial institutions to make contributions that can sustain the emerging ICT sector in countries. On the other hand, policies should be put in place to enhance the entrepreneurial, managerial and technical capacities of indigenous private sector.

The time is ripe for interventions in this area for the fact that Africa has made impressive economic progress in the 1990s with several countries sustaining double-digit growth. Consequently, the market is becoming conducive to domestic and foreign investment alike and the recent signs of economic recovery gives room for renewed optimism. Africa is regarded as a virgin market for big ICT companies but the absence of adequate regulatory and policy instruments has continued to deter investment and innovation. Putting these legal and institutional frameworks in place can attract foreign investment and will provide a window of opportunity to develop the local private sector through joint ventures. Developing small and medium-scale enterprises to harness ICTs and utilise e-commerce activities for competitiveness are also critical for Africa's participation in the global information economy.

4. STRATEGIES FOR IMPLEMENTATION

4.1 Need for consideration of crosscutting issues

Efforts to achieve success in the six interrelated areas of the NEPAD ICT framework require synergies between technology and social development. There is a strong need for ensuring equity and equality in the information society, if countries are to become knowledge societies. Consequently, themes such as access, gender diversity, youth, content development, training and intellectual property rights (IPR) should be given consideration in addressing ICT issues in Africa. Such cross-cutting issues not only pose challenges in the implementation process but also serve as a yardstick for moving the NEPAD agenda forward.

4.1.1 Access

Access to ICTs by millions of Africans is characterised by a number of factors constituting barriers. Marginalised groups such as women and youth and/or the poor and disadvantaged and the rural communities often face such obstacles. Is addressing access by various stakeholders in society, issues of costs, the role of gender, language, rural-urban dichotomy are factors that have to be considered and determined in ensuring equity. Promoting access should not only be confined to the

policy arena, even if it makes a big difference in providing the broad framework, but it must be backed by actions and programmes that promote the ICT interest of each and every stakeholder in society. This way, the information society does not become the preserve of the privileged classes nor does it perpetuate inequities.

4.1.2 Gender

Gender in relation to the access and applicability of ICTs is just as important as ensuring access. The policy formulation and its implementation processes should incorporate and integrate guidelines and strategies for ensuring that both men and women have equal access to ICTs in society. These strategies should take into account the peculiar needs of both sexes in becoming ICT-literate. Consequently, strategies should disallow gender disparities and provide the basis for women in particular to use ICTs to improve their living standards and become productive participants in the emerging knowledge economy. There are fears and a danger that African women could be left behind if relevant policies and programmes are not instituted to prevent this.

4.1.3 Youth

Africa's population has the youngest age structure where children below the age of 15 years constitute approximately 45% of the population, compared to 30% in the rest of the world. Consequently, the youth of Africa are important constituencies for governments when ICT frameworks and strategies are being considered, as they constitute the future workforce in a world that will be predominantly knowledge-based. The youth of Africa will be prime players in linking the continent to the information highway. However, the kinds of ICT-led education policies that are put in place, both formal and informal will determine the extent to which African youths are prepared for the knowledge economy and the employment opportunities that they can derive from it. In creating an enabling environment for the effective utilisation of ICTs the youth deserve special attention.

4.1.4 Content development

The challenge for Africa in particular is to initiate web content specifically meets the information needs of its people. If this happens, then the impact of Internet technologies in development and on Africans could be felt more significantly. Consequently, there is a need for in-depth information needs assessment exercises in key socio-economic areas and the increased building of web based information resources i.e. portal sites that provide static and current information that can impact on the people's daily work and lives, as a result. This particular initiative would strengthen the culture of accessing the Internet and other ICT materials by ordinary people, especially when African languages are used. The introduction of African languages on the web should be promoted to democratise access and enable the majority of the population to benefit from the knowledge economy.

4.1.5 Training, Skills development and Capacity Building

Handling ICTs, hosting of information and retrieving useful information from the net does require a fair amount of technical skills and net-literacy. In Africa, the level of computer and Internet skills is extremely low which impedes their transformation to knowledge societies even when other factors are favourable. Providing skills on ICT and information management and new learning methods needs to be inculcated at all levels of society - children, youth, women and older generation at the individual and

community levels. This is where a great deal of effort should be placed in enhancing opportunities for the youths as they will become the new generation of knowledge workers. For guaranteeing the future generation to be competent with the use of ICT, imparting training on Internet technologies should become integral part of the curriculum in both formal and non-formal systems of education.

4.1.6 Intellectual Property Rights (IPR)

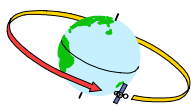
With the new global economy, Intellectual Property Rights issues are becoming increasingly important for policy-makers, the business community in the global, regional and national markets, with implications for general publics and consumers world-wide. IPR systems, namely patents, copyrights and trademarks are traditional legal mechanisms that support and encourage technological innovation and artistic creativity. The advent of the information and knowledge economy is changing and altering IPR issues and there is now a move to most developed countries to ensure that intellectual property from a knowledge economy perspective safeguards the interest of their nationals. However, the majority of African countries face severe limitations in providing the managerial and technical capabilities in ensuring that IPR issues are addressed in Africa's favour, and that the continent can negotiate for fair terms within the global IPR system.

The new opportunities offered by advancements in ICTs are also bringing new challenges such as the preservation, conservation and dissemination of biological diversity, the use of intellectual property by holders of traditional knowledge, its role in the protection of indigenous cultural expressions, and implications for electronic commerce. As a result, the NEPAD ICT initiative should address issues to safeguard Africa's cultural, intellectual and economic resources.

4.2 Monitoring and Evaluation - Impact Analysis

Despite considerable investment in ICT applications in Africa, there is limited understanding of the effectiveness of interventions by development agencies, the

private sector and governments. The jury is still out on the impact of ICTs on the development process in as a whole, as the advent of the information age is relatively recent for both qualitative and quantitative assessments. Outside of the telecommunications sector, information is sparse, diffuse and anecdotal in sectoral applications, investment flows, donor/funding activity, and in the industrial or business sectors. Nevertheless, the fact still remains that there is urgent need to develop indicators that not only monitor the role of ICTs in each and every sector applicable, but also for the development of mechanisms that provide precise assessments on its contribution to the economic and social development of the continent. Indeed, basic indicators for ICT



The Scan ICT project

With the view to develop Africa's capacity in collecting, analysing and organising data on the penetration and utilisation of ICTs for development and to make the data available for decision making in investments in the ICT sector, IDRC and ECA with support from the European Commission and NORAD have embarked on the Scan-ICT project. The first 12 months of the 3 years project are devoted to the pilot phase whereby the suggested framework for the baseline study is tested and refined as appropriate.

Ghana, Senegal, Morocco, Ethiopia, Uganda, and Mozambique have been selected and sponsored to undertake baseline studies by employing indicators reflecting thematic areas, namely, infrastructure, content development, sectoral applications such as education, health, e-commerce. Within a phased development program, Scan-ICT proposes to implement an African "Observatories" to monitor the penetration, impact and effectiveness of ICT application in Africa. It will serve as a one-stop information resource for investors, decision-makers and practitioners. In mid 2002, the first results of the project will be released

activities are still lacking, and there is a growing understanding that the application of external indicators within Africa creates distortions. Consequently, indicators need to be developed to reflect the African environment.

A number of e-readiness assessment programmes have been launched by development agencies to measure progress and carry out comparative analysis. However, it has become clear that a sustained effort is required in collecting information and analyzing data to guide policy making and ICT investment. It is also necessary to document investment efforts enabling decision-makers to know whether ICT use and application is bringing the desired effects. It is in this light that the Scan-ICT project was designed and launched to enable the emergence of a comprehensive African capability to collect and manage key information needed to support the growing investment in ICTs as well as the transition of Africa into an information society.

Monitoring and evaluation mechanisms in this domain that the NEPAD goals should be measured against the activities that are generated, providing relevant insights into how programmes are making an impact.

5. FRAMEWORK FOR PARTNERSHIP

ITCA: A multidimensional partnership endeavour

Launched during ADF '99, the Information Technology Centre for Africa (ITCA) is a Knowledge management and exhibition centre, a Life-long learning and Outreach centre focussing on empowerment of senior African policy makers to participate in globalisation.

In partnership with CISCO, the World Bank and with the support of the Korean Government, ITCA is conducting training courses on Networking Technology for African women.

In co-operation with USAID, ITCA is also organising workshops for African Ambassadors based in Addis Ababa on the challenges of ICT and globalisation.

ITCA is developing portals on African expertise, on e-commerce, on regional integration and on HIV-AIDS.

Experience from the NICI process in countries demonstrates the importance and relevance of strong partnerships in this field. The ICT sector is also attracting partnerships between civil society and the private sector, between governments, the private sector and civil society, etc. Consequently, partnerships are key to implementing the ICT agenda of NEPAD. The continent's huge development agenda calls for greater sharing and optimisation of resources. The exact roles of various partners such as governments, the private sector, civil society and the international community are outlined below:

5.1 Role of Government

Government actions, through it's a strong vision provides the enabling environment to facilitate and develop appropriate policies, strategies and plans for the ICT sector in Africa. Ideally, these policies should promote equity and access for the wider society whilst harnessing the potential of other stakeholders such as the private sector to play their role in developing the sector through investments.

The government is also responsible for bringing various stakeholders together to create synergies that can accelerate ICT development in countries. For instance, there is ample room for governments to create public-private partnerships in delivering healthcare through ICTs in collaboration with insurance companies, as they have the ability to ensure the social responsibility role of the private sector.

5.2 Role of the Private sector

The private sector holds the key to stimulating investments in ICT development on the continent and by their very nature partnership driven. This sector has also been known for being the nurturing grounds for innovation and creativity in ICTs and should become one of the key pillars of any partnership. Specifically private businesses and companies could provide the following assistance to the ICT sector in Africa:

- *Provide start-ups funds, through financial and human capital in IT based local companies and businesses.* They could for instance provide start-up funds for indigenous e-commerce.
- *Counselling and project designing,* is one area that the private sector could provide leadership and promote access by indigenous companies to external sources of funding and investments in the North.
- *Training and capacity building,* in partnership with educational institutions. In Africa, transnational corporations, particularly those from the banking and oil sectors have always sponsored and supported education initiatives some countries. Opportunities further exist for such companies to support training and capacity building in the ICT sector.
- *Creating trust funds,* in partnership with schools, governments and local communities, trust funds could be established to enable Africa close the digital divide. These funds could go towards supporting community telecentres or providing ICT hardware to schools and community centres, or even, developing appropriate educational material and software. Funds could also go towards providing training and ICT skills upgrading for teachers, students and the community at large.
- *Regional Integration,* is a theme that would provide strong resonance with the private sector and stimulate their support. Companies, particularly transnationals could provide the investment for the construction of regional backbones, through venture capital or partnerships. The essence of such initiatives is that it would become a positive contribution towards regional integration goals.

5.3 Role of the Civil Society

The role of civil society is also important in that they work with more intimately and closely with communities. Therefore, their participation in partnerships is necessary to ensure the reflection of strong social responsibilities goals. NGOs and CBOs could play a key role in providing access to marginalised groups (because, gender, disability, geographic location, income, class, etc). Some activities of the civil society sector includes:

- Conducting ICT policy advocacy.
- Enhancing the ability of the population and mainly the disenfranchised groups to make informed decisions and give relevant input to the policy making process.
- Supporting access to communities and disenfranchised groups such as women, children and the disabled

- Supporting provision of access through community information centres and affordable private telecentres.

The civil Society could also play a key role in mainstreaming ICTs in their respective fields in the global, regional, national arena, and to support communities and whilst playing an advocacy role in the policy process.

5.4 Role of the International Development Partners

The international community, such as development agencies and donors are key partners in promoting ICTs for development, as they also need to integrate ICTs into their work on the continent, as many are beginning to do. Secondly, they could work towards innovative approaches to mobilising resources for the implementation of the ICT agenda of NEPAD. In addition to official development assistance and advocacy for innovative financing, the international community could support efforts in the generation and management of locally relevant, culturally oriented information.

Mechanisms such as the Partnership for Information and Communication Technologies in Africa (PICTA) could also be strengthened to foster alliance and strategic partnerships among development partners and other actors. Development partners need to support sub-regional and regional strategies to create economy of scale for the deployment of ICTs, which could improve regional economic integration, harmonisation of policies and strategies and resource sharing. In addition the development community needs to support exchange of experiences through web sites, international networks, conferences and workshops on applications of ICT for wealth creation.

6. CO-ORDINATION OF THE IMPLEMENTATION OF THE ICT AGENDA OF THE NEPAD

A critical component of partnership would be the co-ordination of the NEPAD agenda. This is where ECA's comparative advantage, through its convening power, and leadership role in implementing AISI makes it the appropriate and suitable co-ordinator for ICT initiatives within the NEPAD framework. Recognising this role, other UN agencies unanimously agreed to ECA being the co-ordinating agency for the UN's response to the NEPAD programme of action on ICTs. ECA's capacity to co-ordinate and harmonise ICTs for development in Africa emerges from its strength and comparative position in the following areas:

6.1 Advocacy and Policy Analysis

Analytical activities are central to the overall work of ECA, which serves as a policy advocate on critical development issues to encourage the policy initiatives and reforms necessary for economic and social advancement in Africa. Externally, ECA's advocacy is geared towards promoting increased understanding of the complexity of the African development context. It is also aimed at informing and sensitising Africa's external partners in development about the region's need for sustained inflows of external resources supplementary and complementary to the resources and efforts mobilised by Africans on their own.

6.2 Technical co-operation and capacity building

ECA has a mandate to assist member States and institutions in developing their capacities to design and implement development policies and programmes through technical co-operation activities. The technical co-operation, which does not involve

disbursement of financial resources, takes the form of on-demand regional advisory services to member States and their intergovernmental organisations; training workshops, seminars and fellowships; institution building; and field projects. Advisory services – ECA's main vehicle of delivering country level support -- are provided by a multidisciplinary team of regional advisers who focus on clearly defined policy and technical challenges facing member States and for which the countries lack specialised expertise.

6.3 Bringing together stakeholders

Partnerships have been generally and widely accepted as a means towards more effective development in Africa, and are central to ECA's vision for an African renaissance. Partnerships have been an underlying theme in all the Commission's programmatic work since 1996, when ECA embarked on a reform and restructuring programme in 1996 with the conviction that development assistance to Africa requires concerted effort and new forms of partnerships and collaboration among the stakeholders in the continent's development.

The ECA houses the secretariat of the Partnership for Information and Communication Technologies in Africa (PICTA), which has become an important engine for sharing information among Africa's partners and building co-operative projects and programmes in ICTs. During the last PICTA meeting organised by the ECA, (Addis Ababa, September 2001), the PICTA members re-expressed their commitment to work together in order to strengthen their support to African countries and to assist them speed up their ICT development. The Commission is also contributing to the UN ICT task force, provided input to the G8 Dot Force and is involved in the activities of the Global Knowledge Partnership (GKP). ECA is also a member of the private sector initiative, the Global Information Infrastructure Commission (GIIC).

6.4 Capacity building and awareness

ECA is equipped to provide exhibition and training facilities and has become a central venue in Africa. In addition, the Information Technology Centre for Africa (ITCA) was launched in 1999 is a major ECA advocate on the effective use of ICTs among the region's senior policy makers. ITCA also works to strengthen networks among partners as well as provide training, advisory services, and organise conferences and workshops. The Information Technology Centre for Africa has already mounted ICT exhibitions, and is implementing onsite, distance learning, and outreach services in various areas of ICT for development. It has become an information sharing platform and learning centre for African policy-makers and planners on the value of ICTs for African development.

7. FINANCING ICT FRAMEWORK OF NEPAD

The ICT framework of NEPAD outlined above requires considerable amounts of resources to enable member states to implement catalytic projects and long term programmes in key areas such as infrastructure and human resource development. It is estimated that Africa needs US\$10-15 billion to attain the NEPAD teledensity target of 2 percent. An additional US\$ 22 million is needed to establish regional backbones, Internet exchange points and hubs. The estimated cost of the NEPAD ICT agenda (see Annex 1) covering the remaining five areas of human development, policy and regulatory framework, institutional capacity building, electronic government, harnessing ICT in agriculture and environment amounts to US\$ 127.5 million.

Innovative financing of the ICT agenda of NEPAD through public and private partnership is a necessity. Other financing mechanisms to be pursued would include government funding through streamlining of ICTs in the national development budget. More financing mechanisms such as auctioning of public resources including radio frequency spectrum, enforcing global bit tax for ICTs, diversion of a very small percentage of military spending to the development of ICT and knowledge and swapping debt for education, information, communication and knowledge for Africa should also be pursued. The International community should also create universal fund for ICT applications in Africa through initiatives such as the United Nations ICT Task Force and Trust Fund, the G8 initiative on Global Information Society.

ANNEX 1 - Flagship projects and cost estimates in selected priority areas

1. POLICY AND REGULATORY FRAMEWORK

The need for African countries to commit to policy and regulatory changes in order to develop an enabling environment for harnessing ICTs for development cannot be over emphasized. Policy changes are needed to improve the national information and communication infrastructure, to put in place the necessary legal and regulatory institutions, facilitate both sub-regional and regional co-operation and enhance the capacity of African countries to respond to the global challenges of the emerging new economic order. The African Information Society Initiative has been promoting the development of national information and communication strategies that should address:

- the deployment and use of ICTs within the economy and society particularly in key areas identified by NEPAD;
- the development of a local ICT industry to facilitate the production, manufacturing, development, delivery, and distribution of ICT products and services;
- the development of the human resource capacity to meet changing demands of the economy;
- the development of national information and communications infrastructure plans;
- the development of the legal, institutional and regulatory frameworks and structures;
- the development of standards, practices and guidelines to support the deployment and exploitation of ICTs.

It is imperative that gender issues be integrated in the formulation and implementation of national policies. Mechanisms also need to be put in place to ensure the participation of women in the formulation of national, regional and global ICT policies and to ensure that information and communication policies at all levels are geared toward meeting specific developmental needs of women.

Policies should also facilitate sub-regional and regional co-operation by the relevant agencies - ECA, OAU, ADB, SADC, COMESA, UDEAC, PATU, URTNA, the African Connection etc. Subregional policies need to:

- Develop a mechanism to improve information exchange on best practices and the sharing of national experiences on ICT strategies and plans at the sub-regional and regional level;
- Put in place policies and procedures on regulatory issues;
- Implement mechanisms and guidelines to encourage joint procurement in ICT products and services and harmonise payments clearing, financial auditing and arbitration in accounting settlements;
- Create a Network of Regulators in Africa to share information, co-operate in practical areas, and build capacity;

- Develop a mechanism to promote co-operation between National Statistical Agencies and Authorities in data collection and the use of information economy-related socio-economic indicators for monitoring the performance of the African economies as they are transformed into information and knowledge based societies and economies;
- Develop mechanisms to encourage the deployment of regional communications infrastructure including intra-regional telecommunication backbones and links.

Increasingly, key decisions that impact on ICTs in Africa are taken in global institutions such as WTO, ITU, ICANN, WIPO and World Bank, in areas that include Internet governance, telecommunication accounting rates, spectrum allocation, Intellectual Property Rights (IPRs), and telecommunication liberalisation. Yet the capacity of Africa to influence these decisions is constrained by a number of factors, including limited bargaining power and leverage, the absence of coherent, well articulated African positions that anticipate events, lack of technical capacity and experience partly as a result of the brain drain and limited co-operation amongst African countries. Therefore an African response must enhance capacity in research and advocacy through supporting African skills in this area, building alliances between government, private sector and NGOs, improving public understanding and galvanising government action.

Objectives:

- Development of broad based national ICT strategies to create the building blocks necessary to facilitate harnessing ICTs for development;
- Attaining sub-regional and regional cooperation and integration;
- Improving regional cooperation to influence international decision-making on issues related to information and communication technologies in Africa;
- Work with and build capacity of key institutions to undertake effective legal, regulatory and policy framework;
- Creating or strengthening supportive institutions enabling institutional, legal and regulatory frameworks for ICTs;
- Encourage the sharing of best practices at national, sub-regional and national levels
- Harmonisation of national ICT strategies;

Actions:

- Securing commitment from Governments to create enabling environment;
- Development of national information and communication strategies and plans;
- Development of sub-regional information and communication strategies;
- Capacity building for regulatory, legal and policy institutions and actors;
- Building and supporting policy instruments in African countries to enable them to develop policies in emerging areas such as electronic commerce, Intellectual property rights, etc;
- Capacity building for Africa's participation in global fora.

Program areas	Estimated cost (USD)
Develop broad-based strategies in 25 countries over 5 years.	2,500,000
Provide training for African policy makers, lawyers, regulators over 5 years	2,000,000
Develop sub-regional information society strategies	500,000
Building national, regional and international capacities and networks and community of practices on national strategies, regional co-operation and Africa's participation in global ICT governance	2,500,000
Setting up regional centre on ICT policies in Africa to provide ongoing support	2,500,000
TOTAL	10,000,000

2. IMPROVING CAPACITY OF PUBLIC ADMINISTRATION, E-GOVERNMENT, E-DEMOCRACY

Africa's inability to participate in the global information economy partly stems from the lack of commitment of member States in developing appropriate standards in public sector management, financial management and corporate governance. The NEPAD democracy, political and corporate governance initiatives could be enhanced through utilization of ICTs in putting in place government information systems and building capacities in electronic governance and electronic democracy. E-governance/democracy offers a new and refreshing way forward, helping improve government processes, informing citizens whilst building interactions with and within civil society, whilst entrenching democratic values and culture. E-government/democracy initiatives could also play a critical role in improving financial and internal revenue management, facilitating electronic tendering systems, improving accessibility to national public administration information, especially to citizens who live in rural areas, supporting national and provincial coordination and standardization of regulations and legislation and decentralization of decision making at various levels.

Objectives:

- Developing e-government/e-democracy strategies and plans on the introduction of ICTs into government machinery through automation and informatization to enhance administration and delivery of citizen and public services, strengthen parliamentary oversight, promote participatory decision making and improve the legal system;
- Supporting and strengthening decision making and policy formulation processes, including consultations and consensus-building through effective use of ICTs;
- Introducing public information network to further enhance the knowledge base of citizens on government responsibilities and duties;
- Ensuring transparency, accountability and trust between public administrations and citizens by creating space for interaction using ICTs;
- Using information and communication tools such as distance learning to build capacities of the judiciary, public services and parliament and to harness the contributions of Africans in Diaspora;
- Increasing access to government data, information and sources by citizens.

Actions:

- Developing coherent e-government strategies including process re-engineering strategies for automation and informatisation of public services;
- Providing appropriate training for personnel in managing government information;
- Providing training to parliament, judiciary and the general public in the value and use of ICTs for enhancing governance and democracy;
- Implementing pilot program for creating networks (LANs and WANs) aiming at linking government ministries, key agencies;
- Establishing public access centres for delivery of government services and supporting content development of government services in local languages.

Programme areas	Estimated cost in US\$
Development and implementation of coherent e-government/e-democracy strategies in selected countries	5,000,000
Training and capacity building in ICT use for parliaments, judiciary and public institutions including advisory in business-process engineering in 10 African countries	4,000,000
Developing web based resources and capacity building for information managers in public administration, legal and parliaments in Africa	500,000
E-governance and e-democracy conferences for Africa	500,000
TOTAL	10,000,000

3. INFRASTRUCTURE

The development of modern, sophisticated, efficient, and productive telecommunication sector that provides services to every segment of society at an affordable cost is a necessity for the growth of the ICT industry and development. Africa not only needs to increase telephone line penetration rate by expanding the existing telecommunications network and providing new ones, but also need to embark on aggressive universal services strategy to reach the majority of people in rural areas. Technology innovation in the areas of rural infrastructure particularly the use of wireless and VSAT technologies Internet, Cable and voice communications is important to reach under served communities. International gateways and national exchange points are urgently needed to improve access and reduce costs to the Internet. Regional gateways, Information Technology (IT) parks and incubators, equipped with the most modern facilities and matchless incentives to provide a one-stop shop for prospective investors in the IT industry need to be established.

It is crucial to note that the expansion of access to telephone lines requires a huge investment. To meet the NEPAD objective of doubling teledensity to two lines per 100 people by 2005, it requires from US\$ 10 - 15 billion. Apart from this significant efforts should be exerted and resources committed to developing national, sub-regional and regional communication backbones and hubs.

Objectives:

- Developing sound ICT infrastructure base to enable countries to fully optimise the information economy;
- Developing national, sub-regional, and regional backbones/hubs;

- Enabling access to the majority of the African people to information and knowledge;
- Optimising national and regional access points to reduce cost of Internet access
- Utilise innovative mechanisms to harness the integration of old and new technologies;
- Creating opportunities for the greater spread of ICTs in rural and urban areas.

Action Plans:

- Identification and pursuing regional and national telecommunication plans that attract strategic partners in infrastructure development;
- Creating mechanisms for the development of strategies and programmes for national, sub-regional, regional backbones;
- Facilitating the development of Internet Exchange Points;
- Adoptions of universal access strategies to realize access to ICT infrastructure throughout Africa;
- Encouraging regional co-operation in the areas of standards, and regulations governing equipment and technologies to enable greater integration of economies.

Programme areas	Estimated cost in US\$
▪ Establishing sub-regional backbones and Internet Exchange Points/hubs	20,000,000
▪ Regional forums on infrastructure rollout plans and co-operation, and rural communication technologies	1,500,000
▪ Developing a long and medium term ICT infrastructure deployment plans for Africa	500,000
TOTAL	22,000,000

4. PRIVATE SECTOR AND ENTREPRENEURSHIP DEVELOPMENT

The development of the private sector is key to achieving targets set in the NEPAD action plan. Development of an indigenous ICT private sector in systems development, manufacturing and assembling, provision of Internet and value-added services, planning and implementation of IT projects, promoting standards for hardware and software, installing and maintaining ICT equipment, as well as database and content development is a prerequisite for building a good local industrial base. Incentives ranging from tax holidays to facilitating technology parks should be made available to attract foreign investment and to increase the contribution of local private sector to national wealth creation. There is also a need for proper regulations and incentives for encouraging venture capital investments and setting up private funds. Among other incentives are provision of accurate and transparent information to investors and lowering the perceived risk, improving the stability in the regulatory and economic environment and prioritising, funding and implementing a good national ICT plan.

Globalisation combined with the emergence of electronic commerce, has created enormous opportunities for Africa's entrepreneurs to market their products and services to the rest of the world and to provide the support to economic growth. ICT use by small and medium enterprises (SMMEs) would not only improve access to international marketplace but also increases their competitive advantage.

Objectives:

- Assist member States to develop ICT led industrial and economic policies that provide incentives to the private sector;
- Develop the emergence of indigenous ICT enterprises;
- Promote African goods and services through effective use of electronic commerce;
- Promotion of regional integration for greater exchange of goods and services;
- Harness the potential for greater economic and industrial base for ICTs.
- Building small business capability in e-commerce by:
 - Strengthening e-commerce education and training services;
 - Identifying and disseminate information on potential market niches;
 - Developing effective mentoring, twinning and inter-mediation mechanisms;
 - Creating Africa-based, Diaspora-focussed Internet portals; and
 - Ensuring the credibility of African e-business.
- Creating a supportive environment through:
 - Electronic procurement systems in governments and regional organisations;
 - E-business related legal, regulatory and tax environments;
 - Consumer accessible electronic payment systems; and
 - Local, national and regional fast package delivery systems.
 - Mentoring arrangements between African e-commerce start-ups and more established operations in the North, as well as the provision of a variety of training packages shaped to the needs of new e-business entrepreneurs.

Actions:

- Establishing the necessary sectoral framework and guidelines for the deployment of ICTs in the local business and industrial environments;
- Reform of existing statutes and frameworks to remove barriers to create conducive environments for active participation of SMMEs in the global information economy;
- Creating conditions for SMMEs to take advantage new markets and opportunities for African e-markets;
- Strengthening the environment for the financial and banking sectors to fully exploit ICTs and provide expansion into rural areas;
- Providing public institutions with the means to advance the role of ICTs in the business;
- Instituting frameworks for harmonization of policies, taxes and incentives pertaining to ICTs, creating the basis for common market;
- Supporting a new generation of enterprises that participate in global ICT services;
- Developing national and regional e-commerce and IPR strategies.

Programme areas	Estimated cost in US\$
Private sector and entrepreneurship development strategies for selected African countries	500,000
Forums and training for ICT enterprises in Africa	500,000
Capacity building for SMMEs and their supporting institutions	1,500,000
Regional forums on e-commerce development	500,000
Electronic commerce and IPR strategies, capacity building for banking sectors, policy makers, e-commerce market places and forums	2,000,000
Total	5,000,000

5. ICT FOR IMPROVED ENVIRONMENT AND AGRICULTURE

The agriculture sector plays a major role in economic development in Africa accounting for a contribution in the GDP and the labour market. Despite considerable work in developing information systems that cater for improved agriculture and environment, the impact of information systems on agriculture is minimal. Considerable effort is needed to build the capacities of agricultural and environmental institutions through employing ICTs to improve agricultural performance, to monitor and manage environment.

The use of various information and communication tools including radio, Internet and video in agriculture to reach extension workers and farmers, setting up information systems on agricultural production patterns and performance, agricultural trade, agricultural inputs, farming techniques, and rural income levels and capacity building for institutions are critical to achieve food security. ICTs can also be used to find effective and commercially sustainable ways of linking emerging farmers to high value-added formal agricultural markets for their products and services. Early warning systems that monitor agricultural production, desertification, global warming are prerequisites to attain environmental and food security goals outlined by the NEPAD.

Objectives:

- Develop policies, strategies for the full deployment of ICTs in the agricultural and environmental sector;
- Improve food security through access to timely information for determining optimal harvesting times, locating sources of surplus, distribution channels, post-harvest and storage facilities;
- Identify consistent strategies for effective communication with farmers and extension workers by ensuring their access to information: up-to-date market prices, new markets and new farming techniques;
- Improve access to libraries, networks, databases for agricultural and environmental personnel, including farmers, extension workers, researchers, scientists, planners and policy-makers;
- Build capacities of institutions including national agricultural research systems;
- Improve the common pool of knowledge and interaction in agricultural development and environment management between farmers, researchers, policy makers and other agricultural expertise.

Actions:

- Developing strategies for rural information delivery system taking into account information needs of farmers, extension workers, women, etc.;
- Creating mechanisms to enable farmers and extension workers to obtain information on new farming techniques, produce and markets using ICTs;
- Building capacities of environmental and agricultural institutions in information management particularly in early warning systems and building links between environmental and agricultural institutions;
- Supporting the development of agricultural networks to exchange information, expertise and innovations among researchers, farmers and policy makers, sub-regionally, regionally and with other developing countries.

Programme areas	Estimated cost in US\$
Development of rural information delivery guidelines, strategy and pilot systems using combination of ICT tools (radio, TV, Internet, WWW) in 20 countries	2,000,000
Building agricultural and environmental knowledge base, capacity development and networks between environmental and agricultural institutions and researchers in Africa	2,000,000
Initiative on agricultural market information systems and use of electronic commerce to market African agricultural products	1,000,000
Agricultural and environmental information systems, knowledge base in 20 countries in Africa	20,000,000
TOTAL	25,000,000

6. EDUCATION

The moves toward a global knowledge society require a fundamental shift in thinking about the methodology of education. ICTs have already begun to exert massive transformation in system of education in developed countries. Through distance education universities are now quoted on the stock exchange, the best teachers in the world and Africa's best talents in Diaspora are becoming available anywhere at the click of a button while 'Lifelong Just In Time Learning' has become the order of the day. Failure to similarly change Africa's education and learning systems in the next 5 years will have dire consequences 10-15 years from now. Without major strides to modernise the education system, there will be no next generation of leadership to guide African institutions in the global information society, African intellectuals will be active mainly in the universities and corporations of the North and of other developing regions. African children, male and female, will have little or no access to global knowledge and no capacity to exploit that knowledge or generate and defend their own and community livelihoods.

A pragmatic, practical, innovative Youth and Education Programme is needed, which must be flexible, modular and designed to meet the different needs of African countries. It must develop and nurture responsible, well-informed citizens capable of creating sustainable incomes and livelihoods, thereby reducing pressure on scarce government finances. University connectivity is a mandatory for attaining flow of knowledge and to revitalize the declining educational standards. The implementation of the African Learning Network (ALN) and the African Virtual Library and Information Network (AVLIN) will substantially contribute toward the development and sharing of improved educational content.

Objectives:

- Develop a comprehensive ICT- led policy to enable a paradigm shift in education in Africa;
- Re-skill Africans through a life-long learning approach to education through the use of ICTs;
- Enable ICTs empower the dispossessed and unemployed such as out-of-school youth so as to enhance their productive capacity to work and gain greater opportunities for employment;
- Enable improve curriculum development through broader participation of all stakeholders;
- Provide relevant educational content that could also be delivered through ICTs;

- Enable reforms in the teaching and learning process in both formal and informal educational institutions;
- Enable educational institutions become centres of ICT excellence that could be of benefit to the wider society.

Actions:

- Developing relevant strategies for harnessing ICTs in education and research and development activities in the education sector in Africa;
- Implementing schoolnet Africa program covering issues such as curriculum development, new learning approaches outcomes, teachers and youth access and training to ICTs, knowledge sharing and building intellectual capital;
- Implementing university connectivity and knowledge sharing and management programmes to reach all African universities by 2005;
- Providing forums and information exchange leading to the creation of African education and learning network;
- Implementation the African Learning Network (ALN) and the African Virtual Library and Information Network (AVLIN), which is a network of Internet-based information and knowledge resources and services that form a web of virtual libraries and knowledge exchanges, and linking African educational institutions, information centres and specialised networks;
- Developing capacity for collecting, organising and disseminating local content and indigenous knowledge to harness development in the education sector.

Programme areas	Estimated Cost in US\$
ICT for education strategies in selected countries in Africa	2,500,000
Schoolnet Africa	25,000,000
Varsitynet and knowledge management in universities in Africa	15,000,000
Forum and knowledge base for educationalists, policy makers and key stakeholders on building African Learning Network	2,500,000
Implementation of AVLIN	2,500,000
Developing, capturing and disseminating improved educational content	5,000,000
Total	52,500,000

7. HEALTH

Health threats that are characterised by epidemics, the spread of infectious diseases, high levels of infant and maternal mortality, low levels of life expectancy, declining resources for public health, a rapidly expanding global stock of medical knowledge and poor co-ordination between medical facilities are by far the major challenges facing Africa. ICTs can play a substantial role in mitigating some of these problems. They can

- improve access to health services in rural areas,
- underpin public education campaigns to promote healthy behaviour,
- transfer diagnostic information to specialised centres,
- strengthen the basis for decision making, promote information exchange among researchers and students, and enhance the effectiveness of health institutions.

ICT applications in African health care to date are characterised by islands of donor-supported projects that have little impact on the growing health crisis because they often prove too costly to be replicable. An increasingly African-driven approach that draws expertise into an ever-widening network will have more chance of defining applications appropriate to the different needs of the continent.

Objectives:

- Develop health policies within framework of national policies that integrates ICTs into planning, management, training and administering of health delivery services;;
- Improve health information flows for health delivery services such as preventative medicine;
- Enable rural population to access health services (telemedicine);
- Increase the efficiency and effectiveness of the health sector through informatisation and automation of records and data;
- Enable medical practitioners to access current medical information through libraries, networks, databases and other on-line resources;
- Harnessing ICTs for combating HIV/AIDS through instituting effective and efficient information systems that increase awareness and provide People living with Aids (PWA) with a voice and encourage greater HIV testing.

Actions:

- Developing sectoral policies and strategies for ICT in the health sector at the national level;
- Developing strategies for harnessing telemedicine in rural areas to redress the skewed nature of medical services;
- Devising strategies to harness education in telemedicine and the development of human resources;
- Building networks among researchers and health workers to foster the flow of medical knowledge;
- Developing ICT programmes in combating HIV/AIDS;
- Setting up school and centres of excellence in medical informatics in Africa;
- Promoting interaction on ICT standards, health information systems and ethical issues relevant to ICT in health;
- Implementation of community-based health information systems and epidemiological networks;

Programme areas	Estimated cost in US\$
National ICT in health strategies	2,000,000
Centres of excellence in health informatics and an African medical knowledge hub	3,000,000
Telemedicine/telehealth programmes	5,000,000
Regional HIV/AIDS knowledge-base and information networks catering for youth, PWAs, policy makers, health workers and media	6,000,000
Forums on ICT in health	2,000,000
Community-based health information systems and epidemiological networks	6,000,000
Total	25,000,000

ANNEX 2 – Major ICT Initiatives in Africa

The Acacia Initiative: Communities and the information society in Africa

<http://www.idrc.ca/acacia>

The Acacia is an initiative of the International Development Research Centre (IDRC) of Canada. It is an international effort to empower sub-Saharan African communities with the ability to apply information and communication technologies to their own social and economic development. The initiative is designed as an integrated program of demonstration projects and research and development to address issues of applications, technology, infrastructure and policy. Acacia supports Canada's contribution to the goals of the African Information Society Initiative, which was endorsed by African governments in 1996 as an action framework to build Africa's information and communication infrastructure.

African Connection (AC)

<http://www.africancnnection.org>

The African Connection (AC) is an initiative to improve telecommunications, broadcasting and information technology infrastructure in Africa. AC's programme serves as a plan of action for the African Telecommunications Union (ATU) that resulted from the process of restructuring the Pan African Telecommunications Union (PATU) in August 1998.

African Information Society Initiative (AISI)

<http://www.uneca.org/aisi>

AISI is an action framework that has been the basis for information and communication activities in Africa for the last five years. AISI is not about technology. It is about giving Africans the means to improve the quality of their lives and fight against poverty. AISI is Africa's common vision for its quest not only to bridge the digital divide between Africa and the rest of the world, but more importantly to create effective digital opportunities to be developed by Africans and their partners, and to speed the continent's entry into the information and knowledge global economy. AISI was launched at the 22nd meeting of ECA's Conference of Ministers in charge of social and economic development and planning in May 1996, and adopted by the OAU Heads of State Summit held in Yaounde, Cameroon in July 1996.

Digital Opportunity Task Force (DOT Force)

<http://www.dotforce.org>

The G8's Digital Opportunity Task Force (DOT Force), created by the G8 Heads of State at their Kyushu-Okinawa Summit in July 2000, brought together forty three teams from government, the private sector, non-profit organisations, and international organisations, representing both developed and developing countries, in a co-operative effort to identify ways in which the digital revolution can benefit all the world's people, especially the poorest and most marginalised groups. The DOT Force has examined in depth the challenge of bridging the digital divide and harnessing the power of information and communications technologies (ICT) and global networks to assure opportunity, empowerment and inclusion for all. The DOT Force has analysed the underlying causes of the digital divide, the poverty-reducing and empowering potential of new technologies, and the complex mix of strategies, policies, investments, and actions required to create digital opportunities for all while

addressing key development imperatives. The results of the study have been reported in the DOT Force final report.

Francophonie Agency

<http://www.francophonie.org>

The Francophonie Information Highway Fund finances projects which encourage adoption and use of information highways through creation of French contents in such varied fields as youth, culture, education, research, economics, law, journalism, tourism and arts.

Imfundo

<http://www.imfundo.org>

Imfundo is an initiative of the Government of the United Kingdom that provides partners with an opportunity to help transform the education sector in Africa. Imfundo works with donors, recipient countries, experts and other stakeholders to identify options for teacher training and education management projects, which support the education reform strategies in African countries. Imfundo is focusing on sub-Saharan Africa in the first instance, but will be prepared to work in any developing country. Imfundo will work with any donor organisation, charity or other body that wants to make use of Imfundo's expertise.

International Institute for Communication and Development (IICD)

<http://www.iicd.org>

IICD focuses on knowledge sharing with local and international community, empowering local organizations in using ICTs for development. It has two approaches: country program in six African countries (Burkina Faso, Ghana, Mali, Tanzania, Uganda, Zambia with round table consultation process) and thematic networks in education, e-commerce, and e-governance. IICD has also a Global Teenager program in 18 countries with 90 schools (in North and South). Other activities include evaluation with InfoDev: ICT-stories, co-operation with Bellanet in learning and training, e-business with Cap Gemini, e-governance conferences, and I-connect initiatives on digital divide. IICD is a member of the executive committee of GKP.

International Telecommunication Union (ITU) Internet training initiative

<http://www.itu.int>

The (ITU) has launched its *Internet Training Centres Initiative for Developing Countries (ITCI-DC)*, a multi-million dollar project aimed at closing the gap in Internet and "new economy" skills in developing countries. Launched on World Telecommunication Day, held this year on the theme of "Internet: challenges, opportunities and prospects", ITU's *Internet Training Centres Initiative* is considered a tangible contribution to sustainable development in a partnership approach. Under the initiative, ITU plans to establish 50 training centres to provide skills in Internet Protocol (IP) networking and services by July 2003 in existing non-profit institutions in developing countries. It is expected that the centres will also function as incubators to help small and medium-sized enterprises to develop Internet-related services.

Leland Initiative

<http://www.usaid.gov/leland>

The Leland Initiative is a five-year, \$15 million U.S. government effort to extend full Internet connectivity to 20 or more African countries. The Leland Initiative builds on existing capacity with the ultimate aim of facilitating Internet access throughout each country. The Leland Initiative completed its first five years in June 2001. During this phase, it has worked with more than 25 countries on a variety of policy infrastructure and user base development activities. USAID/Leland is preparing a revised strategy for the next few years that will focus on policy and regulatory capacity building, regional networks of regulators, development of course and training modules to be delivered by African universities, stimulating private sector-led development of connectivity to secondary cities and rural areas, and building capacity among user networks such as governments and universities.

Regional Information Network for Africa (RINAF)

<http://www.unesco.org/webworld/informatics/rinaf.htm>

RINAF is a framework for co-operation within UNESCO's Intergovernmental Information Programme (IIP) which was initiated in 1992 to strengthen the capacity of the public sector and the civil society in Africa to exploit information and communication technologies for development. RINAF is working to include all sectors of the society including rural, isolated and other disadvantaged communities. 43 African countries are now participating in RINAF through national focal points.

United Nations Development Programme (UNDP) - Digital Opportunities Initiative (ODI)

<http://www.undp.org/it4dev>

Its objective is to support the development of national strategies in African countries and harness ICTs in key sectors identified by African leaders.

UN ICT Task Force

<http://www.un.org/esa/coordination/ecosoc/itforum/icttaskforce.htm>

The ICT Task Force of the United Nations has been set up by Secretary-General Kofi Annan to find new, creative and quick-acting means to spread the benefits of the digital revolution and avert the prospect of a two-tiered world information society.

The Task Force represents in its composition the public and private sectors, civil society and the scientific community, and leaders of the developing and transition economies as well as the most technologically advanced. Operating under the aegis of the United Nations, it is well positioned to build strategic partnerships and to meld diverse efforts.

United Nations Special Initiative on Africa (UNSI) - Harnessing Information Technology for Development (HITD)

<http://www.uneca.org/unsia>

The UNSIA-HITD programme focuses on the intensification of policy dialogues on regulatory framework for ICTs through national policy and sectoral workshops, establishment of a regional commission on ICTs, installation of Internet nodes in eight countries, training of system engineers, operators and information users throughout Africa in computer networking, and establishment and operation of an electronic

clearing house on African development information. UN-ECA and UNESCO are jointly co-ordinating the activities of the UNSIA-HITD programme within the framework of the African Information Society Initiative (AISI).