10 Year Reflection

A review of trends, gaps, and priorities.

GESCI's contributions to the implementation of the WSIS Outcomes and identification of priorities for the post 2015 agenda (particularly, relating to Action Line C4 Capacity Building and Action Line C7 ICT Applications – E-learning).

Includes a chronology of 10 years of ICT4E/D

Introduction

GESCI was founded at the first World Summit on the Information Society (WSIS) in 2003 on a key recommendation of the UN ICT Task Force. In keeping with its founding remit and for the past 10 years GESCI has been responding to the challenges and difficulties emerging economies experience in planning for the integration of ICTs into national education and training systems. Some of these difficulties resulted from the lack of a clear vision and understanding of the potential of ICTs to deal with issues of both quantity and quality in educational provision at a system-wide and system- deep level. At the early stages, there was also a belief, driven largely by technology-hype, that the simple provision of ICT devices will lead to better teaching and to enhanced and inclusive learning experiences in schools.

In order to contribute to its vision of a *knowledge society for all*, and in the course of achieving its mission to improve the quality of, and access to, education, GESCI has largely focused its efforts on action lines C4 Capacity Building, and C7 ICT Applications - E-learning.

Process

GESCI's contribution over the last 10 years can be categorised broadly as the expert provision of:

- **ICT Policy advice and strategic planning for ICT4E & development**

- **Technical Assistance on ICT integration in education including TVET**

- **Leadership development in ICT & knowledge society development**

GESCI has worked very closely with government partners to **enhance the capacity** of future architects of education policy to develop and implement policy and strategy that cost-effectively utilises e-**learning** with the objective of improving the quality of, and access to, education at the primary, secondary and vocational levels. To that end, GESCI has consistently worked on both action lines and largely in tandem, learning from experience that technology without the human capacity to effectively incorporate technology is a wasted resource.

ICTs have evolved rapidly in 10 years, but education as a sector has been slow to adapt to the changing learning and communication culture that ICTs have made possible in emerging economies and in the world at large. Because of this, GESCI has witnessed the rapid emergence and adoption of devices by the general population and in isolated education projects on the one hand, but also the very slow but recognisable change in attitude towards ICT integration in the general education sector on the other.

GESCI has reconciled the differing pace of change in the ICT and Education sectors by ensuring that its advice and technical assistance is guided by the overall education objectives of its partners. While championing its use and effectiveness, GESCI has never allowed technology trends to dictate the nature of education interventions, as it has witnessed failures, on local to national scales, of education initiatives that were seduced by the glamour of technology without paying due heed to the capacity of its teachers, lecturers, instructors and students to integrate that technology in a planned and effective manner. GESCI's services continue to be sought-after by governments, foundations and private sector agencies because its position as a neutral convener of technology and education interests remains unblemished.

Developments

Over the last 10 years GESCI has worked in Latin America, India and Sub-Saharan Africa. Informed by an in-depth study carried out by McKinsey and Company in 2003 on the state of ICT4E integration in several emerging economies, GESCI's activities during its first few years centered largely on the provision of policy advice to Ministries of Education on themes such as: Total Cost of Ownership (for wide-scale ICT implementation), localisation of e-content for ICT integrated curricula, and ICT4E policy formulation. GESCI also acted as lead convener of multi-stakeholder partnerships for education (MSPEs) for policy development, working closely with the **Governments of India, Namibia and Ghana on their first National ICT in Education Policy** which was accepted by these governments for subsequent implementation.

In recent years governments have gained a better understanding of education policy development that holistically integrate ICTs to widen access to, and improve the quality of teaching and learning. The challenges that GESCI is more frequently responding to today are those related to the successful implementation of those policies and strategies. **However, there remains a need for capacity development for those in positions of leadership at several levels of Government and, in particular, ministries of science & technology, economic planning, finance and education** to:

- utilize ICTs effectively for more efficient human resource and institutional management, and, for example, to understand through direct experience, the potential of ICTs in educational management and to improve teaching and learning in the wider education system;

- Identify trends, advances, developments and challenges *across* key sectors of the economy, namely, science, technology, innovation and education that aid the successful implementation of policy.

Leadership development

In response to this leadership challenge GESCI began implementing the **African Leadership in ICT (ALICT) Programme** in January 2011 in partnership with the African Union Commission and the Ministry for Foreign Affairs of Finland. The programme focuses on multi-sectoral /multi-level capacity building for Knowledge Society development. Enhancing leadership skills for coherent policymaking and implementation of ICT at several levels – from governmental to institutional to school level; equipping these leaders with a commanding understanding of the four key pillars essential to the development of knowledge societies and placing a particular emphasis on new leadership skills and approaches.

In the face of rapid change, the message is to build a critical mass of leaders across East, West and Southern Africa with the skills and knowledge and capability to develop and implement policies which will advance technology-driven and sustainable socio-economic development at national and regional levels.

ALICT has earned academic accreditation from one of Europe's leading universities and has awarded 213 public sector leaders from 12 African countries with **a post-graduate diploma in *African Leadership Development in ICT and the Knowledge Society*.** Demand for the course is high - the most recent programme offered 310 places from a qualifying group of 750 mid-to-senior level government

officials. A further 700 applied to take the course which will be delivered online across 16 East, West and Southern African countries over the next two years.

For further information see: http://www.gesci.org/african-leadership-in-ict-alict.html. GESCI will also provide wider access models of capacity building to both Government and public service personnel through partnership models currently being developed.
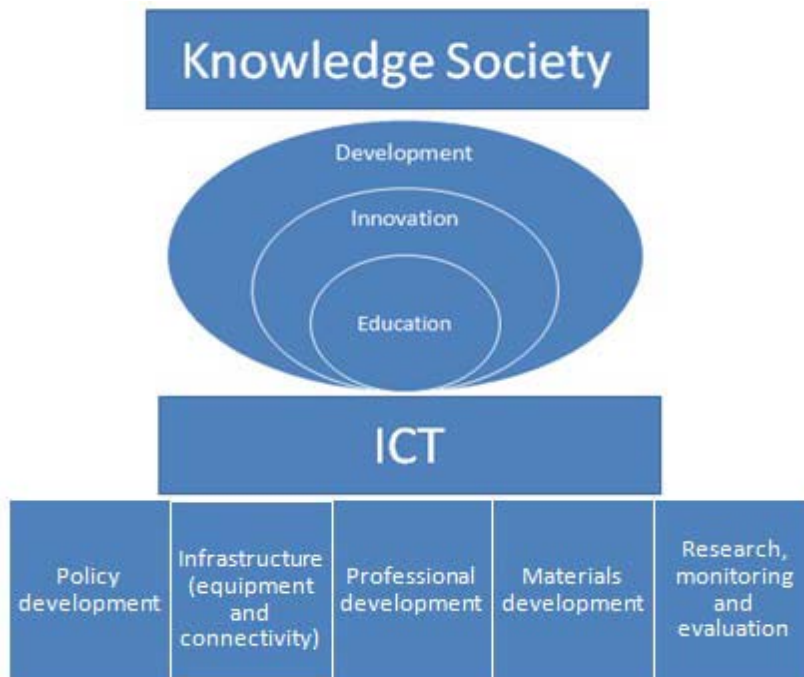

Fig 1. Framework for reflecting on ICT, Education, Innovation and development for a knowledge society (N. Butcher 2011)

With sharp increases in primary school enrolments since 2000 brought about by efforts to realise Goal 2 of the Millennium Development Goals (MDGs), and Goals 1 and 2 of the six *Education for All* (EFA) priorities, the education systems in most emerging economies are stretched beyond their capacity to deliver a quality education to the majority of students. Enormous pressure continues to be placed on current infrastructure and human resources to educate a growing youth population. Now, attention is shifting from increasing enrollment rates to concern over a continuing decline in the quality of education at primary, secondary and vocational levels.

Poor results in Science, Technology English and Mathematics (STEM) at primary and secondary level combined with poor uptake of science subjects are of particular concern, as many school leavers enter university and vocational institutions without the mathematical, numeracy and language skills to become quality technicians, engineers, researchers, managers and scientists. Low level results in these

subject areas are also discouraging young people from taking engineering and computing courses, leaving many emerging economies in Africa with a dire shortage of skilled technicians, doctors, scientists, researchers, engineers, programmers, mathematicians and technology innovators. Despite a decade of impressive economic growth Africa's dearth of scientists and researchers is threatening to be, in the words of Chris Witty, DFID's Chief Scientific Adviser and Director of Research, "a major block to the development of middle-income countries in Africa"[1], where there are 1000 times fewer scientists than there were in China, South Asia and South East Asia when China and countries in those regions were at an equivalent stage of development. With over 50% of Kenya's undergraduates taking business related courses it's easy to recognise the future imbalance of skill sets a major African economy like Kenya is likely to continue to experience if the imbalance is not redressed through better teaching and resourcing of these subjects.

In efforts to tackle poor performance in STEM (Science, Technology, English and Mathematics) subjects, GESCI is implementing the *Strengthening Innovation and Practice in Secondary Education* **(SIPSE) project** in Kenya and Tanzania funded by the MasterCard Foundation and with the support of the Kenyan and Tanzanian governments. More and more foundations and corporations are investing in STEM programmes recognising that there will be an increasingly critical shortage of engineers, scientists, researchers, technology innovators and good managers to meet the human capital needs of corporations, manufacturing plants and research centres based in Africa in the future, if students are not furnished with better STEM skills today. SIPSE is piloting the innovative use of ICTs to train secondary school teachers to improve their pedagogical skills and ability to integrate ICT into their teaching practice and to provide learners with a richer and more satisfying learning experience leading to better results.

The SIPSE project is addressing two key challenges:
a) The poor quality of teaching and learning in secondary schools, reflected by weak student performance in Science Technology, English and Mathematics (STEM).

b) The need to make education relevant to the needs of 21st century learners by preparing them for successful working lives, whether through regular employer recruitment or by applying the entrepreneurial and enterprise skills and know-how acquired.

The SIPSE project will run until June 2015. For more information on the SIPSE project please visit http://www.gesci.org/partnership-to-strengthen-innovation-and-practice-in-secondary-education.html

As countries approach 2015 and the next set of Millennium Development Goals, the success of Education For All (EFA) and Universal Primary Completion (UPC) embedded in national educational policies have brought to the fore the quality challenges. The narrative of access has been replaced by

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[1] Lack of Science Capacity threatens Africa's Development. http://www.scidev.net/global/funding/news/lack-of-science-capacity-threatens-africa-s-development-.html. 02/11/12

access *plus learning* – in recognition of an emerging *learning crisis* (DFID, 2013).[2] The UNESCO 2012 GMR describes the *learning crisis* in terms of at least 250 million young people globally who cannot read or write even with four years of primary schooling – young people in need of second chance educational opportunities to acquire basic numeracy and literacy skills.[3]

The issues are exacerbated in Sub-Saharan Africa where continuing erosion of the quality of education provision at all levels of the education system is placing dangerous limitations on the equitable development of emerging economies.

ICTs are now being seen by the majority of education stakeholders as the most practical means to deliver a more relevant education to more learners, more cost-effectively, than the bricks-and-mortar schooling model of yesterday. However, much remains to be done at the leadership level to improve the education policy implementation process so that cost-effective e-learning and mobile device- enabled processes can be utilized, effectively, to improve teaching and learning and to help address issued of growing numbers and poor teaching. Planned ICT incorporation and integration in informal learning environments and as a key agent in supporting reform of TVET will raise a new appreciation for the relevance of effective leadership for planning and implementation of these ICT interventions in education systems.

African Knowledge Exchange (AKE) and Skills for new ICT –Based Employments

Today's global economies have gone through a shift from an industrial economy to a service economy that is driven by information, knowledge and innovation. Economic success increasingly comes to depend on effective utilization of intangible assets such as knowledge, skills and innovative potential, and workforce requirements change as a result of advancements in Information and Communication. AKE focuses on the use of technology in skills development and in learning models for innovation, enterprise skills and employment in knowledge societies.
The overall goal of the project is to demonstrate the critical link between skills development / learning and innovation and enterprise as a requirement for knowledge society development.

The project also takes a specific focus on investigating how new digital creative media skills are, and could be, developed in Eastern and Southern Africa. As learning takes place and information is used to create knowledge, the AKE 2012 project seeks to answer questions such as: What is the role of informal learning environments? What is the role of ICT tools in the learning process? What is the role of innovation hubs and incubators in accelerating the learning and innovation process? The project consists of GESCI driven research studies, a research competition that puts the limelight on research carried out in Eastern and Southern Africa, and piloting of an innovative approach to skills development for the digital creative media industries.

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[2] DFID 2013. *Education: Improving learning, expanding opportunities*. Retrieved from: https://www.gov.uk/government/publications/education-improving-learning-expanding-opportunities

[3] UNESCO 2012. *At least 250 million young people do not learn the basics*. Retrieved from: http://unesdoc.unesco.org/images/0021/002193/219349E.pdf

Review

GESCI has always been a demand and needs driven organisation. Its agility, flexibility and adaptability are some of the qualities which ensures its continued relevance. GESCI's sensitivity to the changing needs and priorities of governments has, in recent years, led the organization to make greater investments in its implementation expertise, as the policy development needs of governments are increasingly being met, and the challenge of successfully implementing those policies and strategies is demanding more resources. As GESCI has become proficient as an implementer of ICT4E/D policy as well as being an advisor to ICT4D/E policy makers, it has recognised the changing global education and training landscape and in Africa in particular. GESCI has been responding to this changing environment, having found that its expertise is in increasing demand, as many countries struggle to meet MDG targets and as post 2015 agendas are being set, and national vision end-dates loom closer.

What is therefore pressing now is the capacitation of leaders in policy making (Action line C4 – capacity building) at every level of the education system to cost effectively, realistically and holistically implement ICT supported solutions to the current *quality of education* crisis (Action line C7 ICT Applications – E-learning), with a particular emphasis on Science, Technology, English and Mathematics. Teachers and other facilitators of learning cannot be replaced by technology. Where the provision of ICT devices does not take account of the teacher/facilitators' central role in the teaching and learning process, devices have limited impact on the achievement of learning objectives. Where facilitators of learning are made central to ICT integration in education efforts, the impact on teaching and learning can be measurably improved. Governments are increasingly incorporating this tenet into their policies and strategies. An over emphasis and focus on the digital device, following the introduction of one-to-one learning devices such as the production of OLPC computers in 2007 may have distracted attention away from accompanying infrastructural requirements as well as the development of teacher ICT competencies to enable effective integration of these devices in the daily work of teachers. Technology has limited impact on learning achievements without the planned guidance of the teacher.

1. Developments and Challenges

Historically, policy makers have failed to make adequate forecasts of the future that anticipated peak oil, climate change, population growth, food insecurity, bio-diversity spoilage, rising economic inequality, rapid technological advancements and other 21st century realities. *Education* policy makers in the past did not develop policies that took into sufficient account developments across key sectors of the economy that affect education, such as science, innovation and ICT. Policy makers must now be capacitated to consider different possible outcomes of policies at every level of the education system, by forecasting how current trends will shape the future of their countries, their institutions, their schools and their communities.

Therefore, GESCI recommends that action line C4 devote attention to the capacitation of policy makers to develop coherent polices which incorporate cross-ministerial involvement and commitment. Knowledge society development is a coherent government - wide policy activity which takes account of the entire policy eco-system as it cuts across ICT, Science, Innovation, and Education, including trends that are likely to impact the current and future generations of learners and workers.

Leadership development is also required at multiple levels within the education system – Education ministry (policy), Institutional, School and Community (implementation) – to develop and implement realistic and effective policies.

Action line C7, in respect to E-learning, requires more focus and investment in the contextualisation of the UNESCO ICT Competency Framework for teachers, lecturers, instructors and all facilitators of learning in formal and informal learning environments. Current and future generations of learners require full immersion in ICT with the goal of being competent in the acquisition, building, evaluation, adoption and adaption of digital content to meet learning objectives in their local contexts. Teachers/facilitators of learning need to be equipped with the skills to facilitate this learning process. More research into this area would lead to the identification of ICT devices, platforms for delivery of learning, and pedagogical models that are appropriate and accessible to different learners in different educational contexts, taking into account: connectivity, infrastructure, cultural appropriateness, subject appropriateness, existing facilities, total-cost-of-ownership, maintenance, and e-content.

GESCI has been working on the contextualisation of the UNESCO ICT Competency Framework for more than five years. These efforts have cut across multiple programmes and informed the policies, strategies and plans of ministries of education and higher education in Nigeria, Tanzania, Kenya, Rwanda and Ghana.

Fortunately, Technical and Vocational Skills Development (TVSD) has been benefitting from increasing attention on the part of governments across most African countries, as evidenced by the theme of the African Union's 2011 summit – *Youth empowerment for sustainable development* and the EFA Global Monitoring Report 2012 - *Youth and skills: Putting education to work*. With youth unemployment soaring and universities unable to absorb the majority of school leavers, vocational institutions, once stigmatized as the refuge of under-achievers, are now being looked to as one answer to Africa's youth unemployment crisis. However, significant reforms are urgently required to address *o*utdated curricula, poor infrastructure, lack of new technologies and lecturers and instructors in need of professional development . In most African countries great emphasis is still placed on the importance of earning a qualification from a university, when in fact, most emerging economies are suffering from a far more critical shortage of skilled technicians, both for traditional craft services and in the new digitally- driven occupations. Shortage of engineers and scientists is not just an African problem. President Obama has called for government and industry to train 10 000 new U.S. engineers every year as well as 100 000 additional STEM teachers by 2020. GESCI recommends that TVSD reform be made a priority for all governments in emerging economies and that industry take a greater responsibility for informing, supporting and financing the preparation of TVSD students for the knowledge economy.

2. Conclusions and Recommendations

Education leaders who fail to take account of prevailing and emerging trends such as population growth, youth unemployment, rural urban digital divides, rural-urban migration, changing communication patterns, internet as information source, the cost of electricity, renewables as an alternative source of energy, gender disparities etc. will create policies that are based on inadequate forecasts of the future. Therefore every effort should be made to work with leaders at every level of the education system – government, institutional, schools and communities – to give them practical insight into the

transformative potential of ICT on learning, and to capacitate them with the skills and knowledge to plan effectively for ICT integration in education systems, through coherent policy development and implementation.

In line with this recommendation is a cause for even greater concern, and that is the decline in aid spending on basic education, which is hindering the ability of emerging economies to devote resources to improving the quality of education. Aid spending on basic education fell by 9% in 19 low income countries (13 of which are in sub-Saharan Africa) between 2010 and 2011[4]. The reduction to sub-Saharan Africa alone would have been enough to fund good quality school places for over 1 million children. As it is, 130 million primary school age children around the world, but many in emerging economies, are failing to learn basic numeracy and language skills after four years of schooling[5]. These very same children will struggle to complete primary education, with few managing to complete secondary education, and even fewer making it to tertiary level. It is these children who will become the disenfranchised youth of tomorrow, denying their economies the skills and knowledge required to advance equitable social and economic development. Planned incorporation and funding of ICT integration across education & training sectors has huge potential to assist in meeting basic education needs and in modernising TVET so that it provides youth with much needed skills in both traditional and digitally driven skills for employment.

While much development aid is now spent on food security, environmental protection, HIV/Aids and other urgent issues, we must refocus on a revised model of education and understand anew, the central importance of education and skills development for future social cohesion, employment and wider knowledge society development Without a better and more relevantly educated majority in every country in the world today we will lack the wisdom, confidence, problem solving skills, foresight and knowledge to create alternative transformational futures in which wealth is equitably distributed, resources are well managed, environmental integrity is restored, digital, knowledge and gender divides closed, and peace and security guaranteed.

Education cannot be dealt with later, when more pressing problems are resolved, because education more than anything else will shape our future, and will determine whether it will be one of collapse or transformation, because one thing is becoming abundantly clear, maintaining the status quo is not sustainable. Just one extra year of good schooling increases the annual economic growth of a country by 1%[6], making developing countries more independent and less aid dependent through better education.

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[4] Education for All Global Monitoring 2013 Report http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/efareport/reports/2013/

[5] Ibid.

[6] DFID 2013, Making sure children in developing countries get a good education
https://www.gov.uk/government/policies/making-sure-children-in-developing-countries-get-a-good-education

GESCI priorities

As the development policies and preferences of donors continue to change, GESCI has successfully diversified its implementation advice, support and services to meet donors' new development policies and to widen its project funding base. The diversification of funding sources will remain a significant focus for GESCI as well as the development of more partnerships with international organisations, the private sector and foundations. In addition, the traditional focus on East and Southern Africa is expanding to encompass French speaking Africa as demands for GESCI's services grow, based on the successful implementation of its African Leadership in ICT programme and other key projects.

Recommendations for the Post- 2015 WSIS agenda.
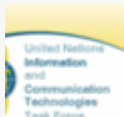
GESCI recommends that WSIS +10 stakeholders devote more resources and attention to:

a) the capacitation of policy makers to work at cross-sectoral and coherent policy formulation policies that take account of the entire policy eco-system as it cuts across ICT, Science, Innovation, and Education in order to facilitate development towards knowledge societies.

b) specific leadership development at multiple levels of the education system – Government (policy), Institutional (policy & implementation), School (implementation), and Community (i[7]mplementation) – to implement realistic, cost-effective, and coherent strategies for the enhancement of education and training which will impact the current and future generations of learners and workers.

c) The requirement for more research and development in eLearning and the contextualisation and operationalization of ICT Competency Framework for teachers, lecturers, instructors and all facilitators of learning in pre-service and in-service teacher professional development programmes .

d) that **TVSD reform** be made a priority for all governments in emerging economies, and donors, and that industry take a greater responsibility for informing, supporting and financing the preparation of TVSD students for the knowledge economy.

1. GESCI strongly advocates for the re-prioritisation of education as the most important investment for future generations and for their ability to contribute to the social and economic developments of their countries

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[7] To create effective Teacher Professional Development programmes for ICT immersion in the class room please see GESCI's work on the UNESCO ICT Competency Framework.

10 years of ICT4E/D - snapshots

Chronology created by GESCI

	Event Date:	Event Title:	Event Description:
	1st Jan, 2000	**Mobile phone subscriptions in developing countries reach 200million**	
	1st Jan, 2000	**Only 13 African countries have a National ICT Policy in place**	
	1st Jan, 2000	**21 million female children are out of primary school in SSA**	
	12th Nov, 2001	**School Net Africa is launched**	SchoolNet Africa is one of Africa's first African-led, African-based non-government organisations (NGO) that operates across the continent in its endeavour to improve education access, quality and efficiency through the use of information and communication technologies (ICTs) in African schools. SchoolNet Africa works mainly with learners, teachers, policymakers and practitioners through country-based schoolnet organisations across Africa.
	20th Nov, 2001	**UN ICT Task Force is launched**	Secretary General Kofi Annan launches the UN ICT Task Force. The purpose of the UN ICT Task force was to build broad-based partnerships, find the means to spread the benefits of the digital revolution in information and communication technologies and avert the prospect of a two-tiered World Information Society.

	Event Date:	Event Title:	Event Description:
	21st Dec, 2001	**UN endorses WSIS**	UN General Assembly endorses holding of World Summit on the Information Society (WSIS)
	1st May, 2002	**African Virtual University headquarters in Kenya**	The African Virtual University (AVU) is a Pan African Intergovernmental Organization whose aim is to significantly increase access to quality higher education and training through the innovative use of information communication technologies. As an African organization, the AVU has a mandate to increase access for tertiary education and training using Open Distance and eLearning (ODeL) methodologies. The AVU headquarters is situated in Nairobi, Kenya and a regional office is based in Dakar,
	26th Jun, 2002	**European Schoolnet is legally established**	European Schoolnet (EUN) is a network of 31 Ministries of Education in Europe and beyond. EUN was created more than 10 years ago with the aim to bring about innovation in teaching and learning to its key stakeholders: Ministries of Education, schools, teachers and researchers. European Schoolnet's activities are divided among three strands of work: o Policy, research and innovation o Schools services o Learning resource exchange and interoperability
	19th Jan, 2003	**EASSy cable system project initiated by the World Bank**	
	12th May, 2003	**McKinsey publishes GESCI feasibility study for UN ICT Task Force**	This important recommendation is based on a 4-month study carried out by McKinsey on behalf of the UN ICT Task Force. A team of 15 McKinsey consultants conducted interviews with over 300 people, including educators, ICT experts, executives in private sector companies, government officials, donors and foundation leaders. McKinsey has determined educational needs and related ICT potential in five representative developing countries: Bolivia, Ghana, India, Namibia and South Africa.

Event Date:	Event Title:	Event Description:
12th Jun, 2003	**NEPAD e-Schools is launched**	The NEPAD e-Schools Initiative was publicly launched in Durban at the Africa Summit of the World Economic Forum on June 12, 2003. The NEPAD e-Schools Initiative has been adopted as a priority continental undertaking aimed at ensuring that African youth graduate from African schools with the skills that will enable them to participate effectively in the global information society. The aim of the initiative is to impart ICT skills to young Africans in primary and secondary schools
10th Dec, 2003	**Phase I WSIS Geneva**	The objective of the first phase was to develop and foster a clear statement of political will and take concrete steps to establish the foundations for an Information Society for all, reflecting all the different interests at stake.
12th Dec, 2003	**The UN & ICT Task Force launches GESCI**	The UN ICT Task Force launches GESCI at WSIS. Please see press release issued by the UN on December 12 2003
1st Jan, 2004	**EASSy Submarine Cable MoU meeting held in Nairobi Kenya**	TheEASSy cable is a fully integrated multi-technology network. It is an undersea fiber optic cable that will link the countries of East Africa to the rest of the world. As the term implies, the EASSy project secretariat is the administrative center of the EASSy project and is located at the Telkom Kenya premises in Nairobi, Kenya .
19th Jun, 2004	**Partnership on Measuring ICT for Development is formed**	The Partnership on Measuring ICT for Development is formed in June 2004. Its members include Eurostat, ITU, OECD, UNCTAD, UNDESA, the UNESCO Institute for Statistics (UIS), UN Regional Commissions (UNECLAC, UNESCWA, UNESCAP and UNECA) and the World Bank.
7th Jun, 2005	**GESCI signs MoU with Namibia**	

Event Date:	Event Title:	Event Description:
16th Nov, 2005	**Phase II WSIS Tunis**	The objective of the second phase is to put Geneva's Plan of Action into motion as well as to find solutions and reach agreements in the fields of Internet governance, financing mechanisms, and follow-up and implementation of the Geneva and Tunis documents.
16th Nov, 2005	**UbuntuNet Alliance launched at WSIS**	Established and emerging NRENs (National Research and Education Networks) in Kenya, Malawi, Mozambique, Rwanda and South Africa came together as the Founders of a new grouping: the UbuntuNet Alliance for Research and Education Networking. The vision of delivering very high speed - gigabits (Gb/s) connectivity instead of the current kilobits (kb/s) between African Universities and Research Institutions is driving the Alliance forward at a rapid pace.
23rd Jan, 2006	**GESCI signs MoU with Bolivia**	GESCI signs its first Memorandum of Understanding (MoU) with the Ministry of Education and Culture (MoEC) in Bolivia in January 2006. The Programme is targeted specifically at upper level primary and secondary rural schools and teachers and students within rural communities.
1st Mar, 2006	**GESCI signs MoU with Ghana**	GESCI places a Country Programme Facilitator in the Ministry of Education and firmly establishes its operations in the country. The Ghanaian e-Schools and Communities Initiative is serving as the framework in which all ICT in Education initiatives in Ghana will be planned.
28th Mar, 2006	**GAID is approved**	The Global Alliance for Information and Communication Technologies and Development (GAID), an initiative approved by the United Nations Secretary-General in 2006 is launched after comprehensive worldwide consultations with governments, the private sector, civil society, the technical and Internet communities and academia.

Event Date:	Event Title:	Event Description:
19th May, 2006	**A 2006 survey on the state of ICT infrastructure in African universities sums up the situation regarding access to ICT infrastructure as "too little, too expensive, and poorly managed."**	
24th May, 2006	**First e-Learning Africa Conference held in Addis Ababa**	832 participants from 80 countries gather at the first „eLearning Africa" conference from May 24 – 26 in the United Nations Conference Center in Addis Ababa, Ethiopia, making it the largest event on educational technologies and development ever taking place on the continent.
1st Sep, 2006	**Namibia launches Tech/Na! with GESCI's support**	Tech/Na! is Namibia's ICT4E Implementation Plan, detailing the comprehensive strategy for the integration of ICTs across the education sector.
1st Jan, 2007	**36 African countries have a national ICT policy in place**	
19th Mar, 2007	**MPESA launches in Kenya**	
20th Mar, 2007	**GESCI signs MoU with Rwanda**	GESCI is supporting Rwanda as it focuses its efforts on ICTs for Education. This support is led by GESCI's recently engaged Rwandan Country Programme Facilitator, based in-country for the duration of GESCI's direct engagement with Rwanda.
1st Apr, 2007	**GESCI partners with India**	Education Secretary approves a proposal for GESCI to assist Dept of Education, MHRD in developing the National Policy for ICT in School Education
1st Oct, 2007	**InfoDev publishes Survey of ICT and Education in Africa**	This report synthesises the findings from a survey that was initiated by the Information for Development Program (infoDev), a multi-donor partnership housed at the ......to finish

	Event Date:	Event Title:	Event Description:
	1st Nov, 2007	**OLPC Production begins**	The One Laptop Per Child Association, Inc. (OLPC) is a U.S. non-profit organization set up to oversee the creation of an affordable educational device for use in the developing world.
	1st Jan, 2008	**Independent Evaluation of TechNa!(Namibia) finds that 'GeSCI successfully played a neutral role while enabling the MoE to take ownership as GeSCI's partner throughout the planning process'.**	
	25th Mar, 2008	**GESCI signs MoU with CSDMS**	GESCI begins working with the Centre for Science, Development and Media Studies in India to facilitate its partnership with the Ministry for Human Resources and Development.
	18th Apr, 2008	**Independent Evaluation of GESCI finds that 'Against a background of technologies failing to achieve their potential in education in general, this evaluation finds that GESCI is carving out an important niche'.**	
	13th May, 2008	**GESCI publishes 1:1 Technologies/Computing in the Developing World: Challenging the Digital Divide**	The 1:1 paper is developed by GESCI to spark a discussion on the issues and challenges related to introducing 1 to 1 devices (laptops, PDAs) initiatives in educational systems in development contexts.
	18th May, 2008	**The UNESCO ICT Competency Framework is launched**	
	18th Jun, 2008	**First draft of Indian's National ICT4E Policy presented to government by GeSCI and partners**	

	Event Date:	Event Title:	Event Description:
	23rd Jun, 2008	**AKE Part II held in Kigali, Rwanda**	The AKE Part II is held in Kigali on June 23 – 26, 2008. The workshop brings together participants from nine African countries (Uganda, Kenya, Senegal, Namibia, South Africa, Rwanda, Tanzania and Ghana) to develop, identify, test and share emerging practices on the integration of ICTs in education/e-learning. Representatives from Ministries of Education, research institutions, and non-for-profits attend the four-day event.
	19th Sep, 2008	**Rwanda Launches OLPC Project**	
	7th Oct, 2008	**GESCI publishes OLPC Regional Case studies**	The OLPC Regional Case Study series describes some of the steps involved in the development of 1:1 projects in terms of planning, monitoring and evaluation. It is one of the first to be published on OLPC.
	13th Dec, 2008	**GESCI develops widely acclaimed Total Cost of Ownership (TC) Toolkit**	The TCO toolkit is designed to help identify and cost the range of possible ICT solutions at the school, regional and national level for small to large scale deployments. It is specifically designed with examples for 1:1 educational models, but can be used for any ICT4E deployment.
	1st Jan, 2009	**GESCI develops organisational capacity audit tool**	This tool is developed with the following objectives in mind: • To create a common understanding internally of what constitutes an organizations' capacity • To provide structure for GESCI's staff in auditing the capacity of the organizations and units it chooses to work with in order to offer targeted capacity building support • To provide a tool to be used by GeSCI during the country selection process to audit the capacities of MoE and subsequently help in developing appropriate engagement
	1st Jan, 2009	**GESCI assists Ghana MoE to create its first ever Curriculum Framework**	A major achievement is the development of the first ever Ghanaian Curriculum Framework which outlines the rationale, philosophy and goals for pre-tertiary education. A document describing this framework development process is

	Event Date:	Event Title:	Event Description:
			published by UNESCO in 2009.
	1st Jan, 2009	**16 million female children not in primary school in SSA**	
	8th Jan, 2009	**UNESCO publishes ICT Compentency Standards**	Developed in cooperation with Cisco, Intel and Microsoft, as well as the International Society for Technology in Education (ISTE) and the Virginia Polytechnic Institute and State University (Virginia Tech), the ICT Competency Standards for Teachers are designed to help educational policy-makers and curriculum developers identify the skills teachers need to harness technology in the service of education.
	1st Apr, 2009	**GESCI publishes Research Report for GeSCI Meta-Review of ICT in Education**	GESCI Meta Review on ICT in Education. This second phase of a comprehensive meta-review of educational ICT research and practice addresses global developments reflected in the research and development literature appearing since 2006. Completed in April 2009, the Phase One (P1) report comprised a synopsis of research related to GESCI five thematic inquiry priorities. Preliminary findings identified in the initial P1 report were presented
	1st Apr, 2009	**GESCI holds a North/South Research Partnerships Workshop**	In order to disseminate and brainstorm the initial findings of the meta-review, GESCI holds a North/ South Research Partnerships Workshop in April 2009. More than 50 ICT in Education representatives gathered to share existing experiences of partnerships in the area of ICT in Education research in general and the potential opportunities for developing and enhancing research efforts that are relevant to the issues and challenges of GESCI's partner countries in the developing world.
	13th May, 2009	**GESCI presents at the WSIS m-learning session with UNESCO**	

	Event Date:	Event Title:	Event Description:
	18th May, 2009	**WSIS Forum 2009 Geneva**	
	1st Jul, 2009	**Third African Knowledge Exchange (AKE) Workshop held in Accra, Ghana**	The third African Knowledge Exchange (AKE) workshop on 21st century skills, ICTs, Curriculum and Assessment is held in Accra. The three-day workshop is held under the theme: "Setting the scene for 21st century learning: ICT, Curriculum & Assessment".
	19th Jul, 2009	**GESCI supports working group meeting in Ghana on IE**	GESCI supports a Working Group Meeting on IE in which representatives from the university sector, the divisions and agencies of the MoE/GES, UNESCO and GESCI meet to clarify progress, identify gaps and plan a way forward for IE development in Ghana.
	1st Aug, 2009	**GESCI creates e-content evaluation tool**	
	15th Aug, 2009	**GESCI launches its first Research Facilitation for ICT4E integration Framework**	For research to have any impact, the results must inform and shape policies and programmes and be adopted in practice. It is our understanding that research alone cannot effectively develop education practice if research results are not understood at policy level. GESCI's research framework is developed to address this gap.
	17th Oct, 2009	**GESCI ICT TPD Matrix trialled in Tanzania Workshop**	
	16th Dec, 2009	**GESCI launches bespoke Curriculum & Assessment intervention in Ghana**	GESCI develops a tailor-made C&A intervention in Ghana in 2009, bringing together C&A change agents from over 15 African Countries.

	Event Date:	Event Title:	Event Description:
	1st Jan, 2010	**Mobile phone subscriptions in developing countries reach 3.7 billion**	
	15th Feb, 2010	**GESCI pilots e-content development costing tool in 10 African countries**	Costing e-content is identified as an issue of concern by the African Knowledge Exchange community. In response to the needs of Ministries of Education as represented by the AKE community, GESCI develops an e-Content Development Costing Tool to assist National Curriculum Development Centres (NCDCs) to identify and assess the components that may lead to either adopting, adapting or acquiring digital content.
	10th May, 2010	**WSIS Forum 2010 Geneva**	
	13th May, 2010	**GESCI and the Rwandan MINEDUC develop the ICT Teacher Professional Development Matrix**	ICT TPD MatrixThe MINEDUC-GeSCI partnership developed a problem definition document in the area of ICT in Teacher Professional Development (ICT TPD) and followed this with a data collection from Pre and In-service Teacher Training Colleges and Institutions. The findings from these processes have been discussed and analyzed in a multi-stakeholder workshop conducted in April 2009. As a result of the workshop discourse and on the basis of the UNESCO ICT Competency Standards for Teachers, the Rwanda ICT TPD matrix
	27th May, 2010	**GESCI's research underpins ELA Ministerial Roundtable 2010**	The 5th eLearning Africa Conference in Lusaka, Zambia, sees ministers, diplomats and government officials from Angola, Finland, Kenya, Liberia, the Netherlands, Malawi, Mali, Namibia, Rwanda, Senegal, Uganda, Zambia and Zimbabwe, gather for the 3rd Ministerial Round Table to discuss and explore key issues related to the following theme: Leadership for Creating Inclusive Education Systems for Inclusive Knowledge Societies: The Role of ICT.

	Event Date:	Event Title:	Event Description:
	1st Jun, 2010	**GESCI assists Rwandan MINEDUC to undertake a capacity audit of the NCDC's e-content development capacity**	GESCI assists Rwandan MoE to assess its capacity to develop e-content.
	1st Jun, 2010	**Phase 1 of the African Leadership in ICT Programme commences**	Phase 1 covering 12 months starts in June 2010 and focuses on participatory design, planning, piloting and testing of appropriate models for capacity building and preparation for implementation.
	16th Jun, 2010	**The Kenya MoHEST, MoYAS and GESCI identify lecturer/instructor ICT competencies for effective integration of ICT in education.**	The Ministry of Higher Education Science and Technology (MoHEST) and the Ministry of Youth Affairs and Sports (MoYAS) in collaboration with GESCI, hold a three day workshop with the goal of identifying the lecturer/instructor ICT competencies for effective integration of ICT in education.
	16th Jun, 2010	**GESCI supports the completion of the first draft of the ICT Competency Framework for Lecturers and Instructors in Kenya**	
	16th Jul, 2010	**The East African Submarine Cable system (EASSy) enters service**	The Eastern Africa Submarine Cable System (EASSy) is an undersea fibre optic cable system connecting countries in Eastern Africa to the rest of the world. EASSy runs from Mtunzini in South Africa to Port Sudan in Sudan, with landing points in nine countries and is connected to at least ten landlocked countries — which will no longer have to rely on satellite Internet access to carry voice and data services. EASSy is the highest capacity system serving sub-Saharan Africa, with more than 10 tera
	16th Aug, 2010	**Development of joint ICT in Education plan between GESCI and the MoYAS Kenya**	
	15th Oct, 2010	**The African Union Commission, Finland and GESCI sign momentous**	On Friday, the 15th of October 2010 at the African Union Headquarters, a Memorandum of Understanding (MoU) to

	Event Date:	Event Title:	Event Description:
		partnership agreement for ICT and Leadership in Africa	support the implementation of the African Leadership in ICT (ALICT) program is designed by the African Union Commissioner for Human Resources, Science and Technology, H.E. Jean-Pierre EZIN, The Finnish Ambassador to Ethiopia, H.E. Leo Olasvisrta, and the CEO of the Global eSchools and Community Initiative.
	18th Oct, 2010	The African Leadership in ICT Programme is officially launched by GESCI	
	1st Nov, 2010	GESCI publishes Guide to the conscientious purchase, use and disposal of ICT.	Guide to responsible use and disposal of e-waste GeSCI's objective in producing the Green ICT Guide is to provide ICT stakeholders, including teachers, students, principals and policy makers with access to up-to-date information on the responsible acquisition, use and disposal of ICT.
	16th Nov, 2010	Institutionalisation of the National Environment Management Agency (NEMA) and GESCI partnership	
	19th Nov, 2010	The GESCI Rwandan MINEDUC Partnership Evaluation completed successfully.	
	19th Dec, 2010	Final Draft ICT in Education Policy developed by GESCI and Rwandan MINEDUC.	
	21st Dec, 2010	First draft ICT in Education Strategic Implementation Plan developed by MINEDUC with support from GESCI.	
	19th Jan, 2011	There are 29.8 million out of school children of primary age in SSA	

Event Date:	Event Title:	Event Description:
18th Apr, 2011	**GESCI completes the first ever baseline study on the use and extent of ICT integration in technical and vocational tertiary institutions in Kenya.**	This baseline study informed the ICT integration strategy for the Ministry of Higher Education in Kenya by providing them and other stakeholders with access to current data required for planning and prioritisation. This study was used to informed the ICT in Education strategy.
16th May, 2011	**WSIS Forum 2011 Geneva**	
1st Jun, 2011	**Phase 2 of the African Leadership in ICT Programme starts**	Phase 2 covering 24 months starts in June 2011, and focuses on the implementation of the model and building the capacity of selected African leaders.
18th Jun, 2011	**GESCI publishes Assessment of Environmental, Institutional and Individual Leadership Capacity Needs for the Knowledge Society in Africa: A Situational and Needs Analysis in Four Countries - Mauritius, South Africa, Tanzania, Zambia.**	This four paper series which documents the state of the knowledge society in the East and Southern African regions is widely disseminated by GESCI and adds decisively to the knowledge base on KS in Africa. The purpose of the study is to define the learning needs and capacity gaps of African leaders in ICTs and the Knowledge Society.
31st Jul, 2011	**The Kenya Ministry for Higher Education Science and Technology in partnership with GESCI conclude Kenya's first ever baseline survey of ICT use in TIVET institutions.**	GESCI strategic advice is supported by data. In terms of teacher, lecturer and instructor standards and competencies for ICT, we undertake a series of measures before we advise our partners. We use our own bespoke ICT in Education capacity audit, and undertake a situational analysis and baseline survey to determine partners' needs and abilities in a variety of ICT in Education contexts. The Kenya Ministry for Higher Education Science and Technology in partnership with GeSCI is conducting a basel
18th Aug, 2011	**GESCI completes its technical assistance and capacity building programme with the Ghana Ministry of Education (MoE)**	In August 2011 GESCI successfully completes its technical assistance and capacity building programme with the Ghana Ministry of Education (MoE) after it assisted the MoE and the Ghana Council on Technical and Vocational Education and Training (COTVET) to secure for them funding of USD$100 million from the

	Event Date:	Event Title:	Event Description:
			World Bank and African Development Bank, for a largescale technical, vocational and skills development programme.
	25th Sep, 2011	**GESCI becomes an International Organisation hosted by the Kenyan Government.**	
	7th Nov, 2011	**UN targets 60% global internet penetration by 2015**	
	18th Feb, 2012	**ALICT course implementation begins in 5 countries with 110 participants.**	
	14th May, 2012	**WSIS Forum 2012 Geneva**	
	1st Jun, 2012	**250 million additional people come online in 2012.**	
	18th Jun, 2012	**ALICT is awarded academic accreditation by Dublin City University (DCU).**	Dublin City University (DCU), following intensive talks with GESCI and a thorough vetting of the ALICT course, award ALICT academic accreditation. Successful participants are eligible for the award of *Postgraduate Diploma in Leadership Development in ICT and the Knowledge Society* by DCU.
	19th Jun, 2012	**Over 650 applications are received for the African Leadership in ICT course.**	
	18th Aug, 2012	**GESCI begins working on the Ghana Senior High Schools Connectivity Project.**	The Ghana Senior Highschools Connectivity (SHS) Project is created for the sole purpose of increasing senior highschool students' access to information and communication technology by providing and supporting internet

	Event Date:	Event Title:	Event Description:
			connectivity to senior highschools. USAID, the Ghana Ministry of Education (MoE), the Ghana Education Services (GES), Vodafone and GESCI are the project's implementing partners.
	19th Oct, 2012	**Second round of African Leadership in ICT course commences.**	
	1st Nov, 2012	**African Knowledge Exchange Digital Creative Media course is launched by GESCI.**	Nairobi's Kenya Institute of Education (KIE) is the setting for the launch of the African Knowledge Exchange Digital Creative Media course. Here15 aspiring young digital creatives gather daily with experts and tutors in animation, graphic design, gaming and apps development, and digital music production for 12 weeks to be furnished with the kind of digital creative media skills that knowledge intensive industries now demand, both in Kenya and beyond .(www.culturalindustriesafrica.org)
	30th Nov, 2012	**Republic of Korea tops ICT ranking for 3rd year in a row**	
	31st Dec, 2012	**The Rwanda Govt. has deployed 210000 laptops to schools**	
	19th Jan, 2013	**GESCI hosts AKE Innovation Policy Forum in Nairobi, Kenya**	In January 2013 at Nairobi's Kenya Institute of Education (KIE), policy makers and researchers convened to meet some of the great talent driving Africa's creative digital media industry to discuss how policy can be better developed and implemented to nurture innovation, entrepreneurship and enterprise in Africa.
	19th Jan, 2013	**An independent evaluation of GESCI finds that very important changes can be attributed to GESCI.**	In 2012 GESCI underwent an evaluation by a team of independent evaluators who are familiar with GESCI outputs, have extensive experience of the development sector and are experts in ICT for development. The evaluation measured

	Event Date:	Event Title:	Event Description:
			relevance, effectiveness, efficiency, sustainability, impact, accountability and transparency. The evaluation found that very positive changes could be attributed to GESCI activities. These included causal relationships between GESCI programme activities and the recipient
	18th Feb, 2013	**Cisco announces that Mobile data traffic to grow 66% a year to 2017 - World.**	
	19th Feb, 2013	**AKE Digital Creative Media Students graduate.**	After three months of collaborative and innovative work on gaming and apps, digital music production, graphic design and animation, the students gather at Alliance Francaise, Nairobi, to show-case an impressive display of work.
	19th Apr, 2013	**51 percent of young women and 43 percent of young men are unemployed in Sub-Saharan Africa.**	
	15th May, 2013	**GESCI successfully delivers all outputs for Intel's Spark the Child Project.**	Intel is researching best practices, policy implications and the value of ICT transformation through its Education Transformation Research project that studies the integration of technology into educational settings across Intel deployed eLearning settings. Intel requested GESCI's technical assistance with ethnographic / qualitative research to work in collaboration with Intel country teams, to carry out Phase 1 of its project in Kenya.
	1st Jun, 2013	**Kenya announces Laptop for Schools programme.**	Kenya announces an ambitious plan to deliver 1.3m laptops to schoolchildren. The project will cost more than $600m (53bn Kenyan shillings/£400m) and implementation will begin this year. GESCI provides ongoing advise to the MOEST on preparations for roll-out.
	19th Jun, 2013	**Strengthening Innovation and Practice in Secondary Education (SIPSE) project is launched by the MasterCard Foundation and GESCI.**	Poor student performance in Science Technology, English and Mathematics (STEM) is in many developing countries one consequence of poor teaching in these subjects. Education must be made relevant

	Event Date:	Event Title:	Event Description:
			to the needs of a 21st century society, and teachers are key to realising this objective. The SIPSE project, which was launched in June 2013 pilots the innovative use of ICTs to train secondary school teachers to improve their pedagogical skills and ability to integrate ICT into their teaching practice.
	5th Jul, 2013	**213 of Africa's future leaders graduate from the African Leadership in ICT (ALICT) Course at Kenya's Great Rift Valley.**	213 future leaders graduate from the African Leadership in ICT Course On Friday 5th July 2013 in one of the largest African Union Commission initiatives in professional development. 213 government and public sector officials from 12 African countries (and the AUC) graduated from a bespoke leadership course implemented by GESCI and titled African Leadership in ICT (ALICT) and Knowledge Society Development.
	19th Jul, 2013	**Ghana Senior High Schools Connectivity Project successfully concludes.**	The Ghana Senior High Schools Connectivity Project was created with the sole purpose of increasing access to information and communication technology education for students in Ghana by providing and supporting internet connectivity to SHS in Ghana. The project concluded successfully in July 2013 having achieved the following: • Internet connectivity has been installed in 377 schools out of 400 (94%) • 400 servers were deployed in all the 400 schools • 336 (84%) out of the targeted 400 ICT school
	19th Oct, 2013	**58% of countries and territories around the world do not have enough teachers in classrooms to achieve Universal Primary Education (UPE) reveals the UNESCO Institute for Statistics.**	
	19th Oct, 2013	**For every 100 primary school-age children today, there will be 143 in 2030 reveals the UNESCO Institute for Statistics.**	

	Event Date:	Event Title:	Event Description:
	19th Oct, 2013	**The numbers of pupils enrolled in primary and lower secondary education have soared by 66% and 123% respectively since 1999 in SSA reveals UNESCO Institute for Statistics.**	
	19th Nov, 2013	**UNESCO Institute for Statistics predicts chronic teacher shortages over the next 15 years**	The world will need an extra 3.3 million primary teachers and 5.1 million lower secondary teachers in classrooms by 2030 to provide all children with basic education.
	31st Dec, 2013	**40% of the world is online.........**	– but 1.1 billion households – or 4.4 billion people – remain unconnected
	5th Feb, 2014	**Sub-$50 Android smartphone hits South Africa as MTN launches Steppa.**	
	14th Feb, 2014	**Africa's International Bandwidth Growth set to lead the world.**	According to new data from Tele-Geography's Global Bandwidth Forecast Service, Africa is expected to lead the world in international bandwidth demand growth in the coming years. Africa's international bandwidth demand is projected to grow at a compound annual rate of 51% between 2012 and 2019. At this rate, African demand would outpace that of both Latin America and the Middle East, which are each projected to rise 37% annually. Countries in sub-Saharan Africa, especially, will contribute to the
	1st Mar, 2014	**Brazil now home to 273.58m mobile subscriptions**	
	1st May, 2014	**GESCI launches third round of the ALICT course across 13 African countries.**	310 place offered from an application of 750 mid to senior level government officials. The African Union Commission validates the programme as one of their flagship initiatives for Africa.