

Science & Technology Cooperation Opportunities in the ICT Field between Uganda & Europe

Introduction

Today the world has realized that Information and Communication Technology (ICT) is a major component for economic development. This is in relation to what ICT can do for the citizens as they try to achieve the Millennium Development goals stipulated by the United Nations. ICT can be used in several aspects such as reducing poverty, improving people's health, teaching, learning and economic development. Many countries all over the world are advocating for the implementation of ICT in all sectors of both government and business through ICT policies. The Government of Uganda is extremely committed to an ICT social economic development strategy. In order to realize the strategy, the government set up a Ministry of ICT to coordinate all ICT related activities in the country. Further still the government requests all stakeholders such as educational institutions and all development partners to contribute to this initiative of ICT for social economic development. There are many opportunities which Uganda can explore out of this S&T cooperation with Europe in the field of ICT. Such opportunities include:

1. Human Resource Development

With the increasing cooperation between Europe and Uganda in ICT related sectors, it's envisaged that the digital divide will be reduced. Many collaborative projects have been initiated under umbrella organisations such as NUFFIC, SIDA SAREC to strengthen ICT education and use in the country. The European Commission (EC) also supports Uganda through mainly the private sector foundation. There is need to support higher education in Uganda since the private sector can not exist without highly qualified human capital. This highly qualified human capital can be developed through a sustainable educational system that is internationally competitive. A vision begins with a dream hence as an educator, I am confident that in the near future Ugandan ICT experts will be internationally recognised in both private and public sectors all over the world. I also envisage Ugandan scholars dominating several Universities in Africa as visiting scholars in a few years time. Fifty years ago who knew that Indians would today be all over the world as IT experts? Who knew that China would worry about high economic growth? India, China and Japan have the highest science and technology human capital and as result many American and European companies have relocated their industries to India and China due low cost of production as a result of abundant science and technology human capital.

In this particular case therefore, the S & T cooperation between Europe and Uganda can benefit Uganda's higher institutions of learning. Possibilities for Joint Degrees/Collaborative Distance Programmes among the European and Uganda Universities can be promoted. Ugandan Universities

partnering with European universities can lead to development of the required human resource in championing Uganda's ICT-Led socio-economic development strategy. Uganda has five public universities and over 15 private universities which can benefit from such a cooperation venture. These joint degree programs could be undertaken in the following ways:

- a. **Joint Academic programmes:** it is possible for Ugandan Universities to singly or jointly offer joint academic programmes with European Universities in a bid to internationalize the education system in Uganda. Students in Ugandan Universities planning to undertake PhD/masters training in any of the science and technology disciplines can be matched with the European Universities. This training could be undertaken in a sandwich format where students spend a given period of time in a specific University. At the end of the study period, the students can be awarded joint degrees/a degree from any of the stipulated University. For example for students from Makerere University the degree could be a joint award between Makerere University and a European University. Makerere University provides supervisors/teachers complemented by staff from Europe. Such joint ventures are already underway with Makerere University and the University of Groningen, Radboud University and Eindhoven University of Science and Technology in The Netherlands and London South bank in the UK. The joint degree awards will therefore strengthen collaboration among the European and Ugandan Universities and encourage the spirit of pooling resources to build human resource capacity in Uganda.
- b. **Staff and Student Exchange:** The cooperation can also offer Ugandan universities opportunities of exploring avenues for staff and student exchange. This can strengthen relations and collaboration between the ICT academic units of the Ugandan and European Universities. Ugandan lecturers can be called upon for further teaching practice, training within any European University. This provides an avenue for learning other pedagogical aspects necessary for today's teaching and learning. Lecturers from European countries can also act as visiting professors to any Ugandan university for the purpose of training, supervision and undertaking cooperative research. Working together and sharing ideas will help both parties learn from each other on how to better improve their services. Students can also be exchanged by the different Universities to undertake certain courses in European countries where expertise is more available. The reverse is also true for any of the European University interested in exchanging their students.

2. Research Collaborations

The S & T cooperation also provides an opportunity for Joint Research in ICT. Collaborative research is emerging as the principal route to securing substantial research funding. Large-complex projects require financial investments that may exceed the capacity of a single academic unit or company especially for universities in Uganda. Large grant proposals require up front investments to cover such expenses as travel and meeting costs for planning purposes, grant writing, cutting-edge equipment,

infrastructure and other professional services that may not be available in-house, and pilot projects leading to larger collaborations. Such costs could discourage faculty from exploring collaborative projects if assistance is not available. Having European universities/companies partnering with Ugandan Universities/companies can strengthen research collaboration. Besides, Uganda can benefit from Europe's competitive advantages such as key ICT technologies, successful industrial clusters and business sectors. Europe has a lot of expertise in undertaking research of different kind related to science and technology which could be of great advantage to many young researchers in Uganda.

3. ICT Support Services

The S&T cooperation can also improve the investment climate and increase Foreign Direct Investment (FDI) inflows to Uganda in the area of ICT support services hence ICT-lead socio-economic development. ICT enables organizations to better provide services of different types. Such ICT enabled services include: Education - e-learning; Outsourcing; Software industry: Software development and customization; E-government; E-Commerce among others.

a. E-Governance

The collaboration can also promote E-Governance in Uganda. E-Government refers to the e-services and e-applications used by the government in carrying its services. Through ICT governments have been able to better manage most of their services they provide to the citizens. ICT has been implemented for government services to disseminate information, create visibility, manage variety of information through systems, and enhance transparency. The collaboration between Europe and Uganda under the umbrella project 'EuroAfrica-ICT' can use ICT tools in different districts to enhance good governance through the development of training modules for local decision-makers in Uganda. Modern service provision and training developed in Europe could be utilized in Uganda too for better governance.

b. E-Commerce

E-Commerce relates to all business services provided electronically most especially through the internet. In most of the developing countries the urge of E-Commerce is so high but with little knowledge on how it can be effectively undertaken. Cooperation with Europe could create avenues where business partnership can be developed between different countries hence improving the provision of services. Many African countries are faced with the problem of lack of the appropriate knowledge to undertake E-Commerce such as security precautions, expertise and skills. Europe needs to partner with Uganda's private and public sectors to provide internationally recognised services ubiquitously.

c. E-Learning

E-learning which is synonymous to electronic learning describes any form of learning that can be carried out ubiquitously (any place, any time, and at learner's wish). Online degrees and diplomas is an avenue that can cater for all the population of learners currently in the Universal Primary Education to receive tertiary education. However there are currently no models in Uganda for providing such online degree programs in the African context. Europe can provide good experience and expertise in providing such an urgent service to Uganda. Uganda can learn from the case studies of the Open University in trying to set up such initiatives. Collaboration between European universities and Makerere University Faculty of Computing and Information Technology could take lead in the implementation of these online degrees and diplomas

d. ICT Outsourcing

This is the provision of ICT services outside the geographical country one resides in due to the existing expertise. Uganda has the potential of providing outsourcing services to several countries within Europe in the areas of Software Engineering, Call Centre services, Business Process Modelling etc. Better education provided by cooperation between Europe and Uganda will generate enough expertise that could provide the outsourcing services all over the world. Today Mauritius provides a lot of outsourcing services due to the competitive expertise it has developed over the years. Uganda needs such cooperation with Europe where outsourcing services can be easily provided under a cooperation treaty. Through setting up numerous incubation centres in collaboration with European software development partners and mentors can greatly increase Uganda's potential to outsource.

e. E-Health

E-Health is the provision of health services through electronic means such as the internet and telephone. A lot of research has been undertaken in this area of e-health in Europe but lagged in African countries. Uganda tapping such useful information from Europe through collaborative research, provision of ICT gadgets and expertise will improve health management, improve care service delivery, lead to collaboration amongst health workers, promote effective health research and dissemination of research findings. Hence this will lead saving lives, resources and direct improvement in health of the Ugandan citizens.