ICT for Sustainable Development: Projects and Initiatives
For further information

Please contact:

Mr. Cosmas ZAVAZAVA  
Chief of Department, Project Support and Knowledge Management  
Telecommunication Development Bureau (BDT)  
International Telecommunications Union (ITU)  
Place des Nations  
CH-1211 GENEVA 20  
Telephone : +41 22 730 5447  
Fax: +41 22 730 5484  
e-mail : cosmas.zavazava@itu.int
ITU’s Connect Arab Summit in Doha, Qatar from 5-7 March 2012 will bring together top government leaders and ICT experts from the region and beyond to develop strategies to drive broadband deployment. They will also look to mobilize the human, financial and technical resources needed to bridge the digital divide in countries right across the Arab world.

The Arab world has moved to the forefront when it comes to ICT-based development policies, yet there is still much work to do to ensure all people across the region have the kind of access they need to keep that engine of growth well-fuelled. The Connect Arab Summit provides the top-level platform needed to debate and define the far-sighted policies that will further accelerate growth.

The Summit aims to concretely tackle the connectivity challenges that are holding some countries back from realizing the full benefits of ICT. It offers a unique venue for leaders from the public and private sectors and international and regional financing and development agencies to network face-to-face and forge new initiatives and partnerships. We consider ICT as the engine for sustained and future economic prosperity and sustainable development in the region.

It is my fervent hope that this Summit will bring digital opportunities to all countries in the region as they work towards establishing an Information Society.

Dr Hamadoun I. Touré
ITU Secretary-General
Preface

His Excellency Dr Nabil Elaraby
Secretary General of the League of Arab States

The main role of the Connect Arab Summit is to enable all stakeholders from across the Arab world to work at regional level in order to strengthen cooperation and coordination with a view to formulating joint projects and Arab initiatives designed to employ the information and communications technology (ICT) sector in the service of sustainable development. There are infrastructure development projects which will make universal access a reality and improve the quality of services for Arab citizens. There are projects to integrate Arab networks and increase levels of data and systems protection to build confidence and security in the use of ICT. Other projects are concerned with the enrichment of Arab digital content, while others seek to create an appropriate climate to release the creative and innovative potential of Arab youth, enabling Arab products to compete in world markets.

The projects included on the agenda represent the initial launch of a series of projects designed to create employment opportunities in line with the Millennium Development Goals, particularly those aimed at combating poverty. As such, the Summit will accord particular attention to projects directed at the less-developed Arab States and States which are experiencing special circumstances as a result of current events in the region.

I hope that we will be able to focus our activities and bring all our technical and information technology resources to bear in order to give impetus to economic, social and cultural cooperation in the region and create a competitive market for the Arab information society as part of the global information society.

General reflection on the Connect Arab Summit

by

Dr Nabil Elaraby
Secretary General of the League of Arab States

The Connect Arab Summit provides a fitting space for regional cooperation, the creation of partnerships and the exchange of financial, strategic and executive commitments among all stakeholders in order to maximize the benefits of ICT in driving the wheel of development forward and building an integrated Arab information society.
Introduction

The Connect Arab Summit builds on the success of two such preceding events: Connect Africa 2007 and Connect CIS 2009. The Summit which is organized by the International Telecommunication Union in partnership with the League of Arab States (LAS), and is hosted by Qatar’s Supreme Council of Information and Communication Technology, ICTQatar, comes at an opportune time. First, the fifth World Telecommunication Development Conference (WTDC-10) of the International Telecommunication Union (ITU) which was held from 24 May to 4 June 2010 in Hyderabad, India adopted the Hyderabad Action Plan. The Action Plan adopted five Arab States Regional Initiatives which are intended to address specific telecommunication/information and communication technology (ICT) priority areas, through partnerships and resource mobilization to implement small, medium and large scale projects. The following are the identified priority areas:

- Broadband access networks.
- Digital broadcasting.
- Open-source software.
- Arab digital content and,
- Cybersecurity.

Second, both the review of the implementation of the Millennium Development Goals (MDGs) and the outcomes of the World Summit on the Information Society will be up for review in less than three years i.e. in 2015.

Third, the Arab region has made good progress towards the attainment of universal access to ICTs. As in many other regions, the Arab region is characterized by disparities in terms of income levels, and ICT penetration between the high-income Gulf Cooperation Council (GCC) countries and non-GCC economies that include a number of least developed countries. Although, the number of mobile-cellular subscriptions in the region almost tripled, from 126 million in 2006, to nearly 350 million by the end of 2011, when mobile-cellular penetration reached 97 per cent - ten per cent higher than the world average, Internet usage, and particular broadband Internet access, is still limited. ITU estimates show that less than 30 per cent of the population in the region were online at the end of 2011 and fixed-broadband penetration stood at just above two per cent, well below most other regions and the world average of around nine per cent.

In coming up with this publication, our attempt is to highlight the importance of implementing the priorities of the region and to hasten the region’s pace towards the establishment of an Information Society. Through close consultations with the Member States in the Region and other Stakeholders, I am pleased to submit a number of interesting projects as an input to the Summit. As development partners converge in Doha, these documents will provide an insight or glimpse into investment opportunities in the telecommunication/ICT sector. Based on our experience with the Arab region and other regions, the figures given are not conclusive but rather indicative. It is hoped that development partners will sit to negotiate and conclude bilateral and multilateral arrangements aimed at co-financing some of these projects. Let me assure you that ITU is ready to play a catalytic role to ensure that ICT play a pivotal role in the region’s development agenda.

I thank you.
Connecting the Arab World: Projects and Initiatives was prepared as an input document for the Connect Arab Summit (Doha, Qatar, 5 - 7 March 2012). The publication was prepared by the Project Support and Knowledge Management Department within the Telecommunication Development Bureau (BDT) of ITU, in coordination with the ITU Arab Regional Office and other Departments in the BDT. Project proposals were submitted by ITU Member States from the Arab Region, ITU staff who developed documents in line with the Regional Initiatives for the Arab region that were adopted by the fifth World Telecommunication Development Conference (Hyderabad, 2010), and by other development partners. Although the work was carried out under the overall direction of Ebrahim Al-Haddad and Cosmas Zavazava, Chief, Project Support and Knowledge Management Department of the Telecommunication Development Bureau, a number of ITU staff were directly involved in the preparation of this publication: Ramita Sharma, Andrea Maia-Reboucas, Onder Cetinkaya, Mahmoud Al-Wreikat, Orhan Osmani, and Makrem Mahjoub. A host of other staff in the ITU Regional Office and in Geneva were also involved in the drafting of project documents. Administrative Support was provided by Tamaiti Conde, Mihaela Cekovic, and Rita Murekatete. The cover was designed by ITU’s Publication Composition Service.
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## ICT for Sustainable Development – Projects and Initiatives

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P= Project Documents (13)  
C= Concept Project Papers (38)
1.

ARAB ICT HIGHWAY
Broadband technologies are vital in today’s world in transforming lives and fostering socio-economic development. It is estimated that by the end of 2011, fixed (wired) broadband penetration had reached 2.2% in the Arab States, compared to 6.2% in Asia & Pacific, 15.5% in the Americas and 25.8% in Europe. While active mobile broadband penetration had reached an estimated 13.3% in the Arab States, compared to 10.7% in Asia & Pacific, 30.5% in the Americas and 54.1% in Europe.

As a concerted effort, the Arab ICT Highway is important to target the increase of broadband penetration in the Arab States and harness the potential opportunities for socio-economic development through an Arab information society. A roll-out of national broadband networks and affordable services through the Arab ICT Highway will also increase the uptake of Information and Communication Technologies (ICTs) and expand the opportunities for job creation. One of the focus areas would be to bring access to the underserved areas and bridge the gap between urban and rural areas. Existing access networks can be complemented and extended to ensure connectivity in rural and remote areas, through wired or wireless communication systems.

It is equally necessary to foster the development of an enabling environment aimed at attracting investment in ICT infrastructure, encouraging public-private partnership, harmonizing policies and regulatory frameworks, as well as build human capacity for maintaining and ensuring the sustainability of established backbone and access networks.

The assurance of the availability of spectrum at a national level and the effective use of the digital dividend from a smooth transition from analogue to digital broadcasting is necessary. The development of harmonized transition guidelines and customized roadmaps would therefore be an important aspect of the Arab ICT Highway.

The following projects are presented to mobilize the human, financial and technical resources to contribute to the Arab ICT Highway:

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<thead>
<tr>
<th></th>
<th>Title (Project / Concept Paper)</th>
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1.1 BROADBAND NETWORKS
Annex 1 to the Contribution Agreement dated XXX

Project Number:  
Project Title: Broadband Networks  
Estimated Start Date: 2012  
Estimated End Date: 2016  
Government Coop. Agency:  
Implementing Agency: International Telecommunication Union (ITU)  
Beneficiary Countries: Arab States  
ITU Project Manager:  

Brief Description:
The objective of the project is to provide low cost digital access to public institutions including schools and hospitals, and for underserved populations including those in rural and remote areas in the Arab States by development and implementation of broadband connectivity and ICT applications.

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For the Signature Date Name/Title

ITU:  
_________________________  ___/___/_____  Mr Brahima Sanou, Director of BDT

Partner:  
_________________________  ___/___/_____

ICT for Sustainable Development – Projects and Initiatives

– 6 –
1. **Background and Context**

1.1 **General Introduction**

The goals of the World Summit on the Information Society (“WSIS”), which are aligned with the United Nations Millennium Development Goals (“MDGs”), can be achieved through infrastructure capacity building. We are 3 years away from the 2015 deadline for meeting the WSIS targets of connecting all villages, towns and cities, as well as the MDGs.

In this context, the ITU is supporting broadband network initiatives to foster broadband connectivity and ICT applications development.

1.2 **Relationship to Other BDT Programs/Activities**

This project is related to the Regional Initiatives of Arab States (RI-1) “Broadband Access Network”.

2. **Project Objective**

The objective of the project is to provide low cost digital access to public institutions including schools and hospitals, and for underserved populations including those in rural and remote areas in the Arab States by development and implementation of broadband connectivity and ICT applications.

3. **Expected Results**

The expected results of this Project would be as follows:

- Broadband infrastructure is established for identified areas in Arab States.
- Human resource capacity for the sustainability of the deployed broadband communication network is strengthened.
- ICT applications and services are customized.
- Broadband connectivity and ICT applications are developed and implemented that will provide low cost digital access to public institutions such as schools and hospitals, and for underserved populations including those in rural and remote areas in the Arab States.
- National ICT broadband network plans are developed for the beneficiary countries.
- An impact assessment report is developed.

4. **Indicators**

- Availability of a functioning broadband infrastructure by the end the project.
- Availability of national broadband network plans.
- Number of training sessions held.
- Number of experts trained.
5. Activities

Under this Project the following activities will be carried out:

- Based on preparation / assessment missions and stakeholder meetings carried out by the ITU, the ITU shall enter into a bilateral agreement, and related documents, with the government of each beneficiary country, or its designated national counterpart (hereinafter, each a “Cooperation Agreement”).

- Through evaluation of the existing situation in each country including existing broadband networks, policies, legislation, regulatory processes and procedures.

- Identification of Project site(s) and project team within each beneficiary country for deployment.

- Needs study of each identified Project site to explore the availability and implement the following for Broadband Wireless:
  - Space (availability of premises/land for construction) / collocation of broadband network with existing telecommunication facilities (if any).
  - Electricity; if not available propose alternative solution.
  - Tower for antennas, if not available install a tower.
  - Access to national internet point of presence (PoPs) and/or to an international gateway for IP traffic connectivity.
  - Establishment of point-to-point microwave links for backhaul at appropriate frequency band.
  - Access to and collocation rights on existing towers.
  - Assignment of sufficient bandwidth for the deployment and operation of the broadband wireless network at appropriate frequency band.

- Procurement of required broadband equipment (optical, satellite, wireless etc) and shipment to the Project sites.

- Installation, commissioning and putting into operation of Broadband network.

- Development of ICT applications.

- Provision of low-cost digital access to public institutions such as schools and hospitals, and to underserved populations including those in rural and remote areas in the Arab States.

- Training of local experts working with public service provider institutions.

- Development of comprehensive impact assessment report for the deployed broadband networks.
6. Inputs

6.1 Partner:

| IN CASH CONTRIBUTION | The Partners will provide funding support for the implementation of the project. |

6.2 ITU:

| IN KIND CONTRIBUTION | ITU will provide skills, care and diligence to ensure the success of the project. |

6.3 Beneficiary Country:

| IN KIND CONTRIBUTION | Facility (physical location and related infrastructure) |

7. Risk Assessment

The major risk is that in-country activities may suffer delays due to unforeseen local events and circumstances. This risk will be minimized by closely involving the local staff, ITU field offices and UNDP offices in each beneficiary country.

The availability of required expertise at the local level may also delay project activities and its sustainability. This risk will be reduced by provision of appropriate on-site and group country training courses by the ITU.

The other possible risk is that in some of the countries the project may suffer delays due to the finalization of the service as well as the interconnection or other regulatory aspects. This risk can be reduced by ITU’s close cooperation with beneficiary countries.

8. Sustainability

By the end of the Project, in each beneficiary country, the broadband network is expected to be sustainable. To this end, the ITU shall secure commitment from the government of each beneficiary country the continuity of operation of the deployed network, and to administer such network to provide low cost digital access for schools and hospitals, and for underserved populations in rural and remote areas.
9. Project Management

9.1 Roles and Responsibilities

9.1.1 ITU

ITU will:

- Establish a project team for the management of the Project, including identification, implementation, supervision, monitoring, and evaluation of the Project for each beneficiary country in accordance with its Rules, Regulations Directives and Procedures.
- Carry out the activities described above (under item 4) in close collaboration with the governments of the selected beneficiary countries (or the national counterparts designated by the beneficiary governments) and other project partners.
- Secure the documented commitments of the Government of each country in executed Cooperation Agreement.
  - Each such Cooperation Agreement shall include terms that commit to provide low cost digital access for schools and hospitals, and for underserved populations in rural and remote areas in the beneficiary country.
  - Under no circumstances will the ITU enter into any commitment regarding expenditure of the funds in any beneficiary country before the ITU and the authorized representatives of the beneficiary government (or its designated national counterpart) have executed a Cooperation Agreement.
- Cooperate with local authorities to identify appropriate Project sites in each beneficiary country.
- Cooperate with local authorities to install, commission and put into operation the planned broadband network.
- Be responsible for the shipment and delivery of all equipment.
- Develop an impact assessment report for the network deployment and operation in the identified countries.
- In close collaboration with the designated national counterparts, deploy broadband networks and manage the networks until the transfer of ownership in accordance with ITU rules, regulations and procedures take place. This includes installation, commissioning, putting into operation and transfer ownership. The transfer of ownership will take place in accordance with ITU rules, regulations and procedures.
- Provide technical back-up support and assistance in the operation and maintenance of the networks deployed for a period of one year from the date of transfer of ownership.

9.1.2 Partner

The Partner will:

- Fulfill its commitments in securing and providing its in cash and/or in-kind contributions.
- Maintain open communication with the ITU regarding the implementation (monitoring and evaluation) of the Project.
- Explore the possibility of identifying others who may support the Project.
9.1.3 Beneficiary Countries Contributions

Each beneficiary country will:

- Designate a qualified national counterpart to work with the ITU during the implementation process and to operate and maintain the broadband network after deployment.
- Provide low cost digital access for public institutions including schools, hospitals, and underserved populations including those in rural and remote areas through the deployed network.
- Provide information required for carrying out Project activities.
- Issue all permits required to carry out Project activities.
- Exempt the Project equipment from customs duties, taxes and any other fees.
- Provide administrative support during the Project implementation; and any other assistance to the Project that may be required by the Project management team.
- Provide all regulatory requirements and network services from other operators/ISPs which include, but will not be limited to the following:
  - Access to national Internet Point of presence (PoPs) and/or to an international gateway for IP traffic connectivity.
  - Establishment of point-to-point microwave links for backhaul at appropriate frequency band with sufficient bandwidth.
  - Access to and collocation rights on existing towers.
  - Assignment of sufficient bandwidth for the deployment and operation of the broadband network.
- Following the transfer ownership, ensure that the deployed network is used for provision of broadband connectivity and ICT applications that will provide low cost digital access for schools and hospitals, and for underserved populations in rural and remote areas.

9.2 Steering Committee

The role of the Steering Committee will include but will not be limited to the following:

- Approve the annual action plan as proposed by the Project management team Coordinator.
- Approve all substantial changes to the annual action plan.
- Evaluate and approve periodic progress and Project closing reports.
- Provide advice and directives concerning the progress of the Project.
- Provide comments and all draft Cooperation Agreements between ITU and beneficiary countries.

The Steering Committee will consist of:

- Representative of the Partner;
- Head of ITU Regional Office;
- Head of Projects and Initiatives Department of BDT.

The Steering Committee will meet at least once a year either physically or remotely and all decisions of the Steering Committee will be taken by consensus.
9.3 Project Team and Project Manager

The Steering Committee will oversee the Project, implementation process, and the Project will be managed by the Project team headed by the project manager. The project team will consist of high level professionals to be recruited for the implementation of this project. Under the supervision of the Project Manager the Project management team will:

- Manage the Project;
- Coordinate with Project partners;
- Provide direct assistance to Project Network Building team;
- Monitor the Project activities on a daily basis;
- Prepare the annual action plan and periodic progress reports, and submit them to the Steering Committee for approval.

10. Project Budget

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<td>Missions</td>
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<td>Training</td>
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<td>Subcontracts</td>
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<td>Equipment</td>
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<td>Miscellaneous and Other Costs</td>
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Total: 30’000’000
1.2 TRANSITION FROM ANALOGUE TO DIGITAL BROADCASTING
Project Number:  
Project Title: Transition from Analogue to Digital Broadcasting  
Estimated Start Date: 2012  
Estimated End Date: 2014  
Government Coop. Agency: Ministries of Communications, Regulatory Bodies, Regional Organizations  
Implementing Agency: International Telecommunication Union (ITU)  
Beneficiary Countries: Arab States  
ITU Project Manager: Mr Brahima Sanou, Director of BDT  

<table>
<thead>
<tr>
<th>Description</th>
<th>in billions US$</th>
<th>Total: 4.43</th>
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**Brief Description:**

The project “Support for transition from analogue to digital broadcasting in the Arab States” is designed to assist Arab States in the smoothly transitioning from analogue to digital broadcasting through the development and promotion of harmonized guidelines (policy and regulatory, economic, market and business development, and technologies and networks issues) for the development and implementation of roadmaps for the transition from analogue to digital broadcasting, development of a toolkit for broadcasting policies and regulations, as well as human and institutional capacity building, and provide the necessary frequency plans, transmitters, antennae, set top boxes, studio equipment.

The project will address the regulatory, political, technological and economic challenges which the beneficiary countries will face and support them in implementing the transition. It will bring together governments, regulators, service providers, civil society, private sector, regional and international organizations dealing with broadcasting.

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<th>For the</th>
<th>Signature</th>
<th>Date</th>
<th>Name/Title</th>
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<tbody>
<tr>
<td>ITU:</td>
<td></td>
<td></td>
<td>Mr Brahima Sanou, Director of BDT</td>
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<tr>
<td>Partner:</td>
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</table>
1. Background and Context

Information and Communication Technologies (ICTs) are widely recognized as key drivers for socio-economic and cultural development. More particularly, broadcasting is one of the most economical and influential media to deliver content such as news, education and entertainment.

Over the last 10 years, broadcasting has been experiencing a revolution through the influence of digitalization which also affected other telecommunication technologies. Digital broadcasting not only increases the efficiency in channel performance and offers a great range and diversity of ICT applications and multimedia services. It also contributes to the efficient uses of spectrum and paves the way for countries to take advantage of the digital dividend whereby the released spectrum can be used for promoting wireless broadband communications.

Many developed countries across the world are now in the final stages of converting to digital broadcasting through terrestrial, satellite or cable. However, the transition process is not progressing evenly amongst all countries with most developing countries still only at the stage of considering how the process of transition should be initiated.

1.1 Justification

Broadcasting is one of the most important media for news, education and entertainment because of its ability to reach the majority of citizens within the countries – in comparison with the press which has limited distribution and access and which is dependent on literacy.

The introduction of new digital broadcasting technologies was defined as one of the Regional Initiatives for the Arab States in the recent World Telecommunications Development Conference (WTDC) one of the key activity for the region.

The transition from analogue to digital broadcasting requires decisions to be made on a great number of issues: political, social, economic, financial and technical. Therefore, it is essential for to develop a well-defined roadmap covering regional and national strategies and key decisions.

This project aims to respond to the request from the region for assistance and cooperation to develop, promote and implement harmonized transition policies, legislations, and regulations as well as strategies (project plan – roadmap) that would empower them to implement the necessary reform for transitioning from analogue to digital broadcasting.

2. Project Description

The transition from Digital Terrestrial Television Broadcasting (DTTB) and the introduction of Mobile Television (MTV) services is complex, involving decisions on key topics covering many aspects such as political, technological, economical and consumer aspects.

The project will include the development of harmonized guidelines and roadmaps (plan short-term and long-term goals that indicates main activities to meet these goals) and the implementation of transition from analogue to digital broadcasting in the region, as well as the development of a toolkit on broadcasting policies and regulations, the provision of relevant training, and provide the necessary frequency plans, transmitters, antennae, set top boxes, studio equipments.

Special consideration is given to the methodology which will facilitate ownership of the proposed project by the beneficiary countries. National involvement and participation from the countries as well as from regional organizations will be an important aspect of the project. Thus, deliverables and activities will be
the result of a negotiated process involving the beneficiary countries, institutions and other organizations dealing with broadcasting.

In order to increase efficiency and impact of the project, to avoid/minimize duplication or overlapping and exploit synergies and complementarities, the project will ensure incorporation of past or current regional initiatives/projects (from ITU as well as from other international/regional organizations, etc.) and encourage cooperation with and participation of all concerned organizations/institutions as well as other stakeholders in the region who can provide inputs to the project.

3. Project Objectives

The objective of this project is to assist the Arab States in smooth transition from analogue to digital broadcasting by developing and implementing harmonized transition guidelines and customized roadmaps and by strengthening human and institutional capacity in broadcasting in the region with the over-arching objective to further develop broadcasting infrastructure and applications to maximize economic and social benefits and to serve national priorities in line with the objectives of the WTDC-10, WSIS and MDGs.

4. Expected Results

The following outputs are envisaged:

- Harmonized guidelines on policy and regulatory, technologies, network planning, customer awareness in business planning developed and approved for the development and implementation of roadmap for transition from analogue to digital broadcasting;
- Roadmaps customized and implemented for each country;
- Toolkit for broadcasting policies and regulations developed and available on-line;
- Necessary infrastructure deployed;
- Training curricula developed;
- Capacity on transition issues and broadcasting policies enhanced.

5. Indicators

- Number of guidelines developed, validated and adopted;
- Number of roadmaps customized;
- Number of countries having received direct assistance;
- Necessary infrastructure is in place;
- Number of training courses delivered;
- Number of focal points and professionals trained.

6. Main Activities

The following main activities are foreseen for implementation of the project:

a. Multi-stakeholder (kick-off) meeting
At the start of the project, the project team will identify and contact the stakeholders of the region in order to present the project, review the priorities and prepare an initial assessment to be presented at a multi-stakeholder (kick-off) meeting. This kick-off meeting would be convened with all project beneficiaries to formally launch the project, recall its objectives and solicit views from all segment of the society. It would confirm priorities and agree upon an implementation plan, introduce necessary adaptations within the limits set by the financial partners and establish a consultative mechanism for countries to gain public input. It will also be an opportunity to ensure and formalize the full commitment and participation of all beneficiary organizations and countries, which are essential partners in the successful implementation of the project. Support could also be sought from other UN agencies, international and bilateral organizations dealing with broadcasting. Results and recommendations of this meeting will guide the project staff in the preparation of the training activities and tools to be delivered.

**b. Assessment of the situation**

At the initial stage of the project, information gathering and assessment of the existing situation in each country will be carried out, taking into account results and recommendation of the multi-stakeholder (kick-off) meeting. This analysis will determine areas of commonalities and differences amongst the countries and how to develop the roadmap with time frames for harmonization identifying the areas which could be addressed immediately, areas which can be harmonized with some modification of national processes and areas for future harmonization which will require significant preparatory work. During these studies, materials produced by ITU and by other organizations/institutions on the subjects will be collected and reviewed.

**c. Development and validation of harmonized guidelines for development of roadmap**

From this situation analysis, it is expected that draft recommendations and guidelines, which will facilitate the harmonization be prepared by ITU through a consultative process with the regional and national focal points as well as with other regional stakeholders on the areas selected at the multi-stakeholder (kick-off) meeting, among others:

- **Policy and regulatory:**
  - Technology and standard policies;
  - Licensing regimes;
  - Frequency Management;
  - Digital dividend;
  - Analogue switch over policies (ASO).
- **Market and business development:**
  - Consumer aspects;
  - Business planning.
- **Networks:**
  - Technology and standards applications;
  - Networks architecture and planning.

These draft recommendations/guidelines will then require validation by countries in face-to-face workshops and their transfer to regional organizations for adoption/endorsement by the highest governing bodies.

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1 This list will be reviewed and confirmed or modified at the multi-stakeholder meeting.
**d. National transposition/implementation (customization) and development of roadmap**

Once guidelines have been validated, the project anticipates that direct assistance would be needed by the beneficiary countries to assist them in the transposition of these guidelines at the national level and in the development of their own roadmap (customization).

**e. Development of a Broadcasting policies and regulations toolkit**

In parallel, a toolkit for broadcasting policies and regulations will be developed in order to respond to the beneficiaries’ needs for practical and relevant guidance in the era of digital transition and convergence. Regulators need to manage the transition from old to new environments, which raises a wide range of questions, involving the scope of authority of ICT regulatory institutions, approaches to licensing, competition policy, public broadcasting services and level playing field in the new environment. This Toolkit aims to provide the beneficiaries with reference material than can assist them with the design of effective and enabling regulatory frameworks to harness the latest technological and market advances as well as competition policy, issue of content, and access.

**f. Capacity building**

Capacity building is an important component of this project. Comprehensive training curricula tailored to regional and national needs of the countries will be developed and delivered to national experts in order to equip them with the necessary tools and skills for long-term sustainability and success in the project². Training curricula will cover the aspects of broadcasting regulatory framework but also the development and promotion of the roadmap for the transition to digital broadcasting in the beneficiary region/countries.

**g. Frequency plan and infrastructure**

In line with the roadmap developed the necessary frequency plans will be prepared and based on this the necessary infrastructure will be deployed (including set top boxes and studio equipments).

**7. Inputs**

*ITU:* Staff resources funded by the project for overall project coordination will be managed by the ITU. Information on the current practices concerning broadcasting issues, access to ITU existing materials, including training courses and relevant publications will be provided. ITU will exercise all reasonable skill, care and diligence to ensure the success of the project.

*Partners:* The Partners will provide funding support for the implementation of the project.

*Beneficiaries:* The regional organizations and respective countries of the region will provide qualified and dedicated focal points that will play a key role both for ownership of the project and for effective transfer of the know-how. These focal points will be participating as far as possible in the formulation process, validation and statutory meetings and adapting the project deliverables to the national context of the concerned countries. Commitment and participation from each beneficiary country as well as from the regional organizations will be an important aspect of the project. The beneficiaries are also expected to provide information/data necessary to carry out the work, access to all relevant documents, secured premises to host the project team meetings, workshops and training activities, logistics arrangements and support and any other assistance to the project that may be required by the project staff.

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² Confirmation and adaptation of the type of intervention will depend on the situation of each of the region concerned.
8. Risks

The main advantage of this project, namely the fact that it addresses several countries at a time, can be viewed as a risk factor. In general, the decision process with a large number of countries can be slow and the degree of accountability and interest may be low compared to a single country case. In this project, this risk is reduced by closely linking the project to established regional organizations (that are mandated at the highest political level for achieving economic integration of their respective countries and by benefiting from the dynamism already created in the region).

In-country activities may suffer delays due to unforeseen local events and circumstances. This risk will be minimized as the staff at the ITU Regional Office will be closely involved in this project.

9. Management

The role and responsibilities of the different stakeholders are to be clearly defined. In order to facilitate project implementation, a project team funded by this project will be constituted by the ITU. This project team will work in close collaboration with the personnel of the ITU Regional and Area Offices as well as of Headquarters and will perform the project activities in close relationship with the regional organizations and beneficiary countries’ focal points. The project team will be assisted by subject experts.

10. Monitoring and Evaluation

Regular progress reports will be prepared by the project team. These reports will consist of a narrative part and financial part and will provide a summary of the project progress, the challenges as well as any necessary amendments that may be required for successful project implementation. At the end of the project, a final evaluation will be undertaken to assess its success and a report prepared by the project staff.

11. Sustainability

The project will be conducted so as to ensure that, after its closure, the beneficiary countries and regional organizations have the capacity to sustain the project on their own. Emphasis will be put on beneficiary ownership as it remains a key element to sustainability. However, the regional organizations as well as respective countries will have to allocate appropriate human and financial resources to ensure such sustainability.
### 12. Work Plan

<table>
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<th>Activities</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Multi-stakeholder (kick-off) meeting</td>
<td></td>
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<tr>
<td>2. Assessment of the situation</td>
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<tr>
<td>3. Grouping countries and identify their needs</td>
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<tr>
<td>4. Assisting the group of countries in preparation of the roadmap templates, delivering workshops on the results</td>
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<tr>
<td>5. Selecting countries for individual assistance, preparing roadmaps, delivering trainings</td>
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<td></td>
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<tr>
<td>6. Preparing toolkit for broadcasting policies and regulation and training curricula</td>
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<tr>
<td>7. Delivering trainings on policy and regulation and presenting the roadmaps</td>
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<tr>
<td>8. Frequency plan preparation and infrastructure deployment</td>
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<tr>
<td>9. Holding a common workshop on presenting results and exchanging the views, experiences, setting final report content</td>
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<tr>
<td>10. Final report and project end</td>
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1.3 INTERNET EXCHANGE POINTS (IXPS): KEEPING LOCAL INTERNET TRAFFIC LOCAL
Project Number:
Project Title: Internet Exchange Points (IXPs): Keeping Local Internet Traffic Local
Estimated Start Date: 2012
Estimated End Date: 2015
Government Coop. Agency:
Implementing Agency: International Telecommunication Union (ITU)
Beneficiary Countries: Arab States
ITU Project Manager:

Brief Description:

The project will contribute towards the building of strong Internet Connectivity in all countries of the Arab region. The overall aim is to provide affordable Internet access and connectivity through the implementation of national and regional Internet exchange points plus any other critical infrastructure identified by the partners during the project’s implementation, including technical, policy and regulatory capacity building.

<table>
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<th>Description</th>
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For the
Signature ____________________________  Date ______/____/______  Name/Title Mr Brahima Sanou, Director of BDT

Partner: ____________________________  Date ______/____/______
1. Background and Context

The role of ICTs in stimulating economic prosperity and supporting sustainable development is widely recognized and in this spirit the connectivity targets set by WSIS were designed to support the achievement of the Millennium Development Goals. The goal of the project is to significantly increase access to affordable ICTs in all countries of the Arab region and facilitate a technological environment in which all the people, in both urban and rural areas, are able to gain maximum benefit from the opportunities offered by ICT. The primary objective of the project, therefore, is to strengthen the capacity of the countries of the Arab region by providing cost effective access to the Internet, keeping local Internet traffic local.

1.1 Methodology

In order to maximize the contribution and delivery of specific expertise that would be provided, and particularly to take advantage of the contribution to connect all countries of the Arab region, the project will use existing ITU expertise or consultants and international experts as appropriate and when necessary to implement discrete and specific activities in a timely and cost-effective manner. Under this arrangement, the project implementation is based on the following key actions: identify IXP successful experiences, provide scientific and other expert support, development of IXP policy and framework for the country, exchange of scientific information, establish and straightening a national IXP, train users, workshop and evaluate the impact of the project on the competition on the International Internet connectivity and the costs for end-users.

1.2 Internet Exchange Points (IXPs)

The term network access point (NAP) can also be used to refer to IXPs (Internet Exchange Point). A typical NAP or IXP consists of one or more cabinets that contain routing equipment belonging to the participants, plus a central switch to which all of the routers are connected. Each network operator (ISP) installs a connection to the IXP and exchanges traffic with other networks through the central switch/Router. Redundant equipment is installed in case of a failure.

The project will, in every respect, seek to promote technological transfer, and use of the knowledge, experience, and successful IXPs practices to strengthen all countries of the Arab region’s efforts for Cost effective Internet access. Under this arrangement, the project will:

- Identify successful experiences, especially those experiences that were carried out under circumstances that are similar to many of those currently faced by the countries of the Arab region.
- Provide scientific and other expert support.
- Provide IXP Equipment and put into operation and transfer the IXP to the Local partner institutions.
- Promote public and private sector dialogue and consultations in the development of IXPs policies and for actions.
- Facilitate exchange of technical and policy and economic aspects on IXPs and other information among key players through the establishment of a network.
- Develop IXP joining, management and terminating policies.

The work of experts will be performed under the direction of the ITU Project Manager. The evaluation of the project impacts will be carried out at the end of project implementation, after the service rolls out. For this purpose and taking into consideration of various aspects of impacts such as strategic objectives, cost efficiency, International Internet Connectivity costs, service delivery outcomes and social-economic benefits, a series of key performance indicators are established.
1.4 Beneficiary Countries

All Arab States will be the intended beneficiaries of this project.

2. Project Objective

The objective of the project is to strengthen the capacity of all Arab States by providing cost effective access and implementing competition in the provision of international Internet connectivity to the Internet by keeping local Internet traffic local through Internet Exchange Points.

3. Expected Results

The goal of the project is to significantly increase access to affordable ICTs in all countries of the Arab States Region and facilitate a technological environment in which all the people, in both urban and rural areas, are able to gain maximum benefit from the opportunities offered by ICT. The primary objective of the project, therefore, is to strengthen the all Arab States by providing cost effective access to the Internet.

The expected results include:

- Established IXPs at national levels and regional levels.
- Defined clear Membership policy and Connection to IXP.
- Defined clear responsibilities IXP/ Member Responsibilities.
- Defined IXP Governing Law and Dispute Resolution.

Documents to be delivered

- Policy of IXP;
- Connection agreement;
- Service definition.

Procedures to be covered

- Joining;
- Termination;
- Payment of fees.

The key Indicators are but not limited to:

- Number of ISPs connected to the IXP established in each beneficiary country in the Arab region.
- Policies adopted in each beneficiary country.
- Numbers of ISPs as members of the IXP group in each beneficiary country.
- Traffic volume in each beneficiary country.
- The cost reduction for International Internet Connectivity.
- Number of people trained in each beneficiary country.
4. Main Activities

4.1 Activities related to IXP establishment

- Coordination process,
- ISPs identification and negotiations,
- Needs assessment (international connectivity + IXPs),
- IXP solution design and technical specifications,
- IXP policy formulation and workshop,
- Procurement (RFP, tender evaluation, negotiations and contracts),
- Shipment (IXP equipment, transport and insurances),
- Delivery,
- IXP network and installation,
- Testing and commissioning,
- IXP evaluation and impact analysis,
- IXP operations and cost analysis.

4.2 Activities related to membership policy and connection to IXP

- Draft and formulation,
- Seminar to approve the draft.

4.3 Activities related to define responsibilities IXP/member responsibilities

- Draft and formulation,
- Seminar to approve the Draft.

4.4 Activities related to IXP Governing Law and Dispute Resolution

- Draft and formulation,
- Seminar to approve the Draft.

5. Inputs

In cash: USD 220 Million (10 Million per country x 22)

6. Risks

The major risk is that in-country activities may suffer delays due to unforeseen local events and circumstances. This risk will be minimized by closely involving the local staff, ITU field offices and UNDP if necessary. The availability of required expertise at the local level may also delay project activities. This risk will be reduced by provision of appropriate at site and Group country training courses. The other possible risk is that the project may suffer delays due to the finalization of the service (Joining the IXP) this risk can be reduced by close cooperation of project partners (local ISPs, Government and ITU) with all Arab States and other potential partners.
7. Management

7.1 Roles and Responsibilities

7.1.1 ITU

ITU will:

- provide staff resources for the management of the Project, in accordance with its Rules, Regulations Directives and Procedures.
- carry out the activities described above (under item 4) in close collaboration with the governments in the Arab region (or the national counterparts designated by the government).
- secure the commitments of the beneficiary countries.
- cooperate with local authorities to identify appropriate IXP Project site in the beneficiary country.
- cooperate with local authorities to install, commission and put into operation the planned IXP.
- be responsible for the shipment and delivery of all IXP equipment.
- develop an impact assessment report for the IXP deployment and operation in the country.
- in close collaboration with the designated national counterparts, deploy the IXP. This includes installation, commissioning, putting into operation and transfer ownership. The transfer of ownership will take place in accordance with ITU rules, regulations and procedures.
- provide technical back-up support and assistance in the operation and maintenance of the IXP deployed for a period of one year from the date of transfer of ownership.

7.1.2 Partners

Partners will:

- will support the IXP project by making available funds (USD 220 Million) required.
- will maintain open communication with the ITU regarding the implementation (monitoring and evaluation) of the Project.
- will explore the possibility of identifying others who may support the Project.

7.1.3 The beneficiary Countries

The beneficiary countries of the Arab region will:

- designate a qualified national counterpart to work with the ITU during the implementation process and to operate and maintain the IXP after deployment.
- Provide information required for carrying out IXP Project activities.
- Exempt the IXP equipment from customs duties, taxes and any other fees.
- Provide administrative support and staff required during the Project implementation; and any other assistance to the Project that may be required by the Project management team.
- Provide all regulatory requirements and network services from other operators/ISPs which include, but will not be limited to the following:
  - Access to national Internet Point of presence (PoPs) and/or to an international gateway for IP traffic connectivity.
- Establishment of point-to-point links for the IXP area.

- Following the transfer ownership, ensure that the deployed IXP is used for provision of cost effective Internet access to the population and for underserved populations in rural and remote areas

### 7.2 Project Management

The project will be governed by a Steering Committee (described under 7.2.1) whereas the project team (described under 7.2.2) will be responsible for the implementation of project activities.

#### 7.2.1 Steering Committee (SC)

The Steering Committee will consist of:

- Representative(s) of partners,
- Head of Project support and knowledge management department (PKM) of BDT,
- ITU Project Coordinator,

The role of SC are including, but not limited to, following:

- (a) Approve the annual action plan as proposed by the Project Manager/project coordinator;
- (b) Approve all substantial changes to the annual action plan;
- (c) Evaluate and approve periodic progress and project closing reports;
- (d) Provide advice and directives concerning the progress of the project.

The SC will meet at least once a year and all decisions of the Steering Committee will be taken by consensus.

#### 7.2.2 Project Manager and Project Coordinators

Head of Project Support and Knowledge Management Department (PKM) of BDT will oversee the project, implementation process, he will be assisted by appointed project coordinator stationed in ITU HQ and ITU regional office.

The Project Manager/Coordinator will:

- (a) Manage the project;
- (b) Coordinate with project partners
- (c) Provide direct assistance to project Network Building Team/implementation team
- (d) Monitor the project activities on a daily basis;
- (e) Prepare annual action plan and periodic progress reports, and submit them to the Steering Committee for approval.
7.2.3 Rules and Procedures

The Contribution shall be administered by the ITU in accordance with the applicable ITU Rules, Regulations and procedures. Accordingly, personnel shall be engaged and administered, equipment, supplies and services purchased, and contracts entered into, in accordance with the provisions of such Rules, Regulations and procedures.

(a) The ITU shall establish separate accounting records reflecting expenditures incurred in respect to the Project. All financial accounts and statements related to the Contribution(s) and the Project will be expressed in US dollars and shall be submitted to the Contributor at their simple written request in this regard.

(b) The Contribution(s) shall be subject to internal and external auditing procedures laid down in the Financial Rules, Regulations and Directives of the ITU.

(c) The ITU shall provide Contributor with a final report and a financial statement of the receipt, commitment and expenditure pertaining to the Project, in accordance with ITU accounting and reporting procedures, within three (3) months after the completion of the Project.

7.2.4. Sustainability

By the end of the project, in each beneficiary country, the IXP will be autonomous and self-financing (Contribution of ISPs members). The IXPs will be providing Internet Connectivity services to government within selected countries and cost-based services to ISPs in general and to interested parties such as NGO, SME etc.

8. Monitoring and Evaluation

A close attention of the Project Manager to all details of the Project will allow ITU Project Manager to take corrective measures in due time in case the Project is undesirably affected by internal or external variables. On a quarterly basis, the ITU Project Manager will submit a progress report to the Steering Committee, and other parties as appropriate, containing the summary of the project progress, challenges as well as any recommendations on necessary amendments that may be required for the project implementation.

At the end of the project, the ITU Project Manager will submit a Final Project Report summarizing all project activities, achievements within expected outcomes, lessons learned, and recommendations for future projects of similar type.

And upon the conclusion of all project components, the Project Manager shall be responsible for the preparation of the project closure report with the final evaluation to be accompanied by financial situation for the project’s partner.
## 9. Estimated Budget

<table>
<thead>
<tr>
<th>Description</th>
<th>(in US$ )</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Sub-contracts</td>
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</table>
1.4 SPECTRUM MANAGEMENT
Spectrum Management

Brief Description:
This project aims to strengthen Arab countries in the field of frequency planning and assignments, spectrum management and radio monitoring by fostering regional cooperation through the development and implementation of harmonized policies and practices for spectrum management, the establishment of national spectrum management system by means of advanced automated system and human and institutional capacity building in this field.

The project will address the regulatory and technical challenges facing the beneficiary countries in the field of Spectrum Management with the goal of promoting a common, fair, transparent, stable, predictable and non-discriminatory enabling environment to foster technological and services innovation and encourage investment incentives.

The project will (a) prepare, in close collaboration with regional organizations and respective countries, guidelines for harmonized policies, legislation and regulatory framework, (b) develop National and Regional Frequency Allocation Tables (NFAT and RFAT), (c) provide direct assistance to countries in the establishment of National Spectrum Management System, setting up borderline frequency coordination mechanism (d) develop regional expertise through capacity building expertise and (e) provide the relevant software, hardware for computerized spectrum management and monitoring equipment for assisting the spectrum management licensing and planning activities.

1. Background and Context:
Availability of an enhanced automated spectrum management system is essential for provision of radio based telecommunication services of all kinds such as aeronautical, maritime, space, radio navigation, broadcasting, IMT-2000 and beyond, broadband wireless access, microwave systems and many other Radio-based Terrestrial and space communications services.

Intelligent Spectrum Management and monitoring system aligned with harmonized policy frameworks will support the efficient utilization of spectrum, enable the provision of frequencies for existing and new services while minimizing the possibility of interference between various wireless communication services. In addition, while there have been gains in frequency efficiency due to technological innovations, there is growing challenge of balancing existing with new and varied spectrum uses.

Given the need to promote a regional enabling environment, it is proposed, in close cooperation with Arab Spectrum Management Group (ASMG) to address and update regional spectrum management policies, practices and procedures in light of the new demands for spectrum use. In addition, the project can support the rationalization, strengthening and harmonization of the activities of national regulatory bodies responsible for spectrum management in Arab States.

2. Project Objective:
The proposed project is designed to assist the Arab region in strengthening and streamlining the activities of national regulatory bodies responsible for management of the radio spectrum; assist those countries, which have not yet been equipped with an appropriate automated spectrum management and monitoring system to establish their National Spectrum Management System and to harmonize approaches to spectrum management in the region. In addition this project aims to develop regional expertise, to enhance the competencies of Arab spectrum experts on various aspects of Radio Frequency Spectrum and to establish mechanisms for dealing with cross-border interference, and to develop a regional Spectrum Pricing Policy Framework.
The project will in particular address the following topics:
- Spectrum policies for frequency allocation (including new services) in accordance with agreed policy framework;
- Regional and National Frequency Allocation Table (RFAT and NFAT) preparation;
- Frequency coordination procedures and cross-border interference (e.g. Harmonized Calculation Method, HCM, European borderline frequency coordination agreement);
- Spectrum management regime;
- Spectrum pricing (methods and procedures);
- Advanced automated spectrum management system and monitoring services.

3. Expected Results:
The following outputs are envisaged:
- Recommendations and guidelines on spectrum management policies and practices in the region (including cross-border interference and pricing) developed and approved;
- National and harmonized Regional Frequency Allocation Tables (NFAT and RFAT) developed;
- Advanced automated spectrum management system, based e.g. on SMS4DC (the ITU developed spectrum management system) and monitoring equipment established as required; and
- Capacity/skills on various aspects of spectrum management and monitoring techniques in beneficiary countries and regional organizations enhanced.

4. Potential Partners:
ITU, Ministries of ICT, service providers and operators, Banks, Financial and Telecom Regulators.

5. Estimated Budget:
2,000,000,000 US$

6. Time Frame:
Four years.
1.5 WIRELESS BROADBAND MASTER PLAN
Wireless Broadband Master Plan

Brief Description:
Considering the importance of ICT and its potential in narrowing the gaps, the Arab Regional Initiative - RI 1 “Broadband Access Network” established in WTDC-10, defined a clear priority on broadband implementation and development of Broadband Access Networks in Urban and Rural Areas. While large investments are pouring into laying out optical fiber networks for domestic and international connectivity, access remains a key challenge to connect people, particularly those living in difficult terrains or scattered areas.

Therefore, in order to facilitate building wireless broadband in developing countries, ITU in close collaboration with Member States, propose to implement a project on developing guidelines and master plan for the implementation and development of wireless broadband in the Arab Region. The guideline will cover all aspects of deploying wireless broadband access, providing a broader picture of the current situation and future plan of wireless broadband access policy, regulatory, capacity building, technical and market issues including the potential demand for applications and services that Broadband can offer to end users. The guidelines will also take into consideration the supply side parameters with the involvement of all stakeholders including mobile operators, application providers, government agencies and other upstream providers. The guidelines will be then customized in accordance with the specific requirements and local conditions of the selected Arab countries.

1. Background and Context:
Information and Communication Technologies (ICTs) are widely recognized as key drivers of private sector investment, employment and socio-economic development. However, while industrialized countries are rapidly and effectively leveraging the benefits of ICTs, many developing and least developed countries have yet to realize full potential of ICT, resulting in widening the gaps in socio-economic development including delays in availing potential of ICT and prosperity offered by ICT.

The challenge of connecting the unconnected remains formidable. While mobile coverage has improved significantly across all regions, high speed broadband connectivity required for key business and government applications and services in many developing and least developed countries is either not available or prohibitively expensive. Traditional business models, especially in rural and remote areas often do not support the needed investment. In addition, insufficient local content is available and too few people have training in the required technologies which result in slow broadband uptake, among others. To overcome these challenges, new approaches are needed, including innovative public-private partnerships, involving committed stakeholders working together towards a common goal.

It is in this context that ITU has launched the project with the objective of assisting the governments and operators of the developing countries and least developed countries in the Arab region so that they can build up wireless broadband in an appropriate manner. This will include technical assistance for the countries in developing appropriate policies, regulations and capacity building, including licensing, and planning for building wireless broadband networks.

2. Project Objective:
The objective of this project is to develop suitable guidelines for developing wireless broadband access in Arab Region and to assist the Arab countries in developing their own wireless broadband master plan and in implementing access to broadband supported services and applications at rates that are affordable and comparable to those in developed countries.
3. **Expected results:**
   - Survey results on the status of the broadband connectivity in general and wireless broadband access in Arab Region;
   - General guidelines for wireless broadband access implementation and development or Arab Region;
   - Development of appropriate policies, regulations and capacity building, including licensing, and planning for building wireless broadband access networks;
   - Customized guidelines and Master Plans for development and implementation of wireless broadband access for countries in the Arab Region;
   - Enhanced skills through training for making wireless broadband access master plan.

4. **Potential Partners:**

ITU, Ministries of ICT in Arab countries, Telecom Regulators and Operators, Relative International Organizations, Banks.

5. **Estimated Budget:**

2,000,000 US$

6. **Time Frame:**

Four years.
1.6

NATIONAL BACKBONE NETWORK FOR DJIBOUTI
Project Title:  National Backbone Network
Estimated Start Date:  2012
Estimated End Date:  2013
Contribution Source:  Djibouti
Contact Person:  Kifya Abdo Awad
    kifya@intnet.dj
tel: + 253 878788

Estimated Budget

<table>
<thead>
<tr>
<th>Description</th>
<th>in millions US$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>13</td>
</tr>
</tbody>
</table>

Brief Description:

This document focuses on presenting the Backbone Transmission Network solution for Djibouti. This transmission backbone network intends to cover the main cities. The network support broadband service, data service and voice service access and transmission.

Based on current DWDM, NG-SDH service and latest IP technology, a flexible network construction and customized solution will be designed according to the requirements from DJIBOUTI.

This technical proposal focuses on the equipment part of Backbone Transmission Network.
Technical Proposal for National Backbone Network

Prepared for:
Djibouti

Sep 2011
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1 GENERAL

1.1 Introduction

This document focuses on presenting the Backbone Transmission Network solution for DJIBOUTI. This transmission backbone network intends to cover the main cities. The network support broadband service, data service and voice service access and transmission.

Based on current DWDM, NG-SDH service and latest IP technology, a flexible network construction and customized solution will be designed according to the requirements from DJIBOUTI.

This technical proposal focuses on the equipment part of Backbone Transmission Network.

1.2 Transmission Backbone Network description

The National Backbone Network project covers 5 nodes, from WEA to Border. Total route distance is about 282 Km. The distance of the project is show in the table 1. The network is constructed at two layers, with upper layer DWDM and bottom layer NG-SDH. In the initial stage, DWDM network is designed at a capacity of 40G, and can be upgraded to 3200G in future. When the project is completed, it will cover the main cities along the route and connect with Djibouti. In the meantime, it provides huge bandwidth for other operators, and meet the requirement of service increasing every year.

<table>
<thead>
<tr>
<th>Start Point</th>
<th>End Point</th>
<th>Length(km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEA</td>
<td>Lac Assal</td>
<td>61</td>
</tr>
<tr>
<td>Lac Assal</td>
<td>Kalaf</td>
<td>62</td>
</tr>
<tr>
<td>Kalaf</td>
<td>Tadjouriara</td>
<td>13</td>
</tr>
<tr>
<td>Tadjouriara</td>
<td>Obock</td>
<td>60</td>
</tr>
<tr>
<td>Obock</td>
<td>Border</td>
<td>86</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>282</strong></td>
<td></td>
</tr>
</tbody>
</table>

The network is designed as the linear topology covering 5 nodes. Network route are shown as follow:
Figure 1  Backbone network plan
2 NETWORK SOLUTIONS

2.1 Design Principle
After the analysis of existing network and demand from DJIBOUTI, SUPPLIER plans to adopt DWDM+NG-SDH technology for the backbone network. NG-SDH system could multiplex/de-multiplex the STM-1, E1, GE & FE to 10G. DWDM system could transport SDH 10G by one wavelength. Refer to figure 3 for the network model: DWDM+NG-SDH solution for DJIBOUTI.

In normal condition, the optical transmission network is designed in a multi-layer structure. In this project, it includes backbone layer and access layer both in a linear topology.

2.2 Civil Work Solution for Project
According to the requirement, we plan to construct optical fiber cable for backbone network project as shown in the following Figure 2.

![National backbone network Route](image)

**Figure 2** National backbone network Route

2.2.1 Project scale and main workload
According to the solutions and preliminary survey, we plan to construct a total length of 282 km optical fiber cable for National Transmission Backbone Network. The planning result is listed in the table below.

| Table 2 | Length of the route and the O.F.C |
### 2.2.2 Capacity of optical fiber cable

*Optical cable transmission system of this project adopts ITU-T G.652D optical fiber. As this project aims to build the transmission platform for the telecom services, there exists the possibility of selling or leasing out fibers resources. According to Somaliland economic development situation and potential demand for telecommunication, the OFC (optical fiber cable) is planned as the 24 cores cable.*

<table>
<thead>
<tr>
<th>Section</th>
<th>Route (Km)</th>
<th>O. F. Cable (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Wea—Lac Assal</td>
<td>61</td>
<td>67.1</td>
</tr>
<tr>
<td>2 Lac Assal—Kalaf</td>
<td>62</td>
<td>68.2</td>
</tr>
<tr>
<td>3 Kalaf—Tadjoura</td>
<td>13</td>
<td>14.3</td>
</tr>
<tr>
<td>4 Tadjoura—Obock</td>
<td>60</td>
<td>66</td>
</tr>
<tr>
<td>5 Obock—Border</td>
<td>86</td>
<td>94.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>282</strong></td>
<td><strong>312</strong></td>
</tr>
</tbody>
</table>

### 2.2.3 Solution of optical fiber laying

There are many feasible ways to conduct the ODF installation: directly buried, duct and aerial etc. The route of cable is usually chosen along with the highway convenient for construction and maintenance. ——Directly buried cables, a measure to directly dig a ditch to bury the OFC.

——Duct cables, a measure to lay plastic duct along roadbed, then the cable is put through. Because placing duct on the road will include interrelated establishments; extra expense will be needed to pay for it, and this will make the cost of the project more expensive. Under road construction or reconstruction, cooperating with the company having property right, can reduce the duct cost. Another measure of long distance cable construction is to dig a ditch outside the road, put plastic ducts with silicon core, and then blow the cable into the plastic ducts by the use of high pressure air. When using the latter measure, landform’s undulation should not be very large, and air compressor can work normally at the same time.

——Aerial cables, a measure to set up concrete poles, erect steel strands and then hang the cable. Because of the effect of ultraviolet, the cable life of this style is shorter than that of buried cables. At the same time, the acute change of difference in temperature can influence the transmission capability of these cables.

*Compared with Duct method, The Directly buried OFC is more suitable for backbone and has a relatively lower cost, so SUPPLIER suggests adopting Directly buried OFC in this project.*

### 2.3 Solution of DWDM Network

*After the analysis of current and future demands, SUPPLIER plans the DWDM network as follows:*
2.3.1 Proposed Network Topology

In accordance with the architecture of backbone Network, general topology of the backbone transmission network is as follows:

2.3.2 Selection of the DWDM Equipment

The network design is beginning with the selection of the equipments. The selection of equipment constructing the network should meet the present requirements and the smooth capacity upgrading of future several years. So the equipments adopted must have good expansion ability. Firstly, we consider the actual capacity requirement and the upgrade ability of DJIBOUTI, and we propose ZXWM M920 DWDM system with 40*10G configuration which has great upgrading ability. These upgrading procedures are relatively simple that only addition of optical transponder cards is necessary, and the common cards or the shelves of cabinet needn’t any change.

Once the equipments are decided, then we come to discuss the following issues such as line system design, multiple service access, optical layer protection etc

2.3.3 System Design of DWDM Networks

For the system design issue, it is needed to consider such factors as dispersion limitation, PMD limitation, OSNR limitation of optical transmission system and other non-linear effects, etc

2.3.3.1 Distance Limitation of Dispersion

Dispersion includes light impulse distortion caused by optical line width, and chirping of optical source results in spread of signal spectrum. In this project, we use fiber G.652, whose dispersion per km is normally 20ps/(nm*km), so we can calculate limited distance of dispersion according to the following formula: \[ L_d = \frac{\varepsilon}{D_m} \] (L=800ps/20ps/(nm*km)=40Km)

Limited distance of dispersion = dispersion allowance/dispersion coefficient.

At present, ZXWM M920 provides 10Gbit/s OTU with the dispersion allowance is 800ps/nm, which can support up to 40km transmission without dispersion compensation.

When the span distance is beyond the distance allowance, the dispersion compensation modular (DCM) is employed to increase the transmission distance

Table 4 is about detailed DCM compensation information.

<table>
<thead>
<tr>
<th>Segment number</th>
<th>Start Point</th>
<th>End Point</th>
<th>Dispersion Tolerance of OTU</th>
<th>Dispersion Limited Distance</th>
<th>Dispersion compensation</th>
<th>Actual Distance (km)</th>
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<td>3</td>
<td>Kalaf</td>
<td>TadjouraH</td>
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<td>20</td>
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<tr>
<td>4</td>
<td>Tadjioura</td>
<td>Obock</td>
<td>400</td>
<td>20</td>
<td>66</td>
<td>66</td>
</tr>
<tr>
<td>5</td>
<td>Obock</td>
<td>Border</td>
<td>400</td>
<td>20</td>
<td>94.6</td>
<td>94.6</td>
</tr>
</tbody>
</table>
2.3.3.2 Polarization Mode Dispersion (PMD) Limitations

PMD is caused by random double refraction of the fiber, that is to say the phase shift will be different because the refractive coefficient of the fiber is different, which ultimately expands the waveform of the optical pulse signal.

The PMD-limited distance shall satisfy the following formula according to ITU-T Recommendations (refer to Appendix I in G.691 for details):

\[ B^2 \times PMD^2 \times L < 10^4 \]

When PMD coefficient is assumed as 0.5ps/km\(^{1/2}\), the PMD limited distance of 10Gbit/s OTM/OADM system would be about 400km, thus, the optical multiplexing segments should be designed less than this distance limitation, but which can be improved by applying some popular technologies such as AFEC, RZ etc in this project, the distance between two site is not over 400Km, so we do not consider it.

2.3.3.3 OA Configuration of the DWDM network

According to the technical requirements of tender, SUPPLIER designs all the DWDM parts as 40*10G networks.

Due to the receiving sensitivity of 10G system is lower (about -17dBm), in order to ensure the system sufficiency margin and stable running, the OPA design or configuration often adopts two level amplifiers, which can guarantee the receiving sensitivity of the system well.(now SUPPLIER adopt the new technology which integrate OPA and OBA into EONA, it can realize the former function that OPA and OBA act, at same time EONA only occupy one slot)

Table 3.2.2-2 listed the amplifiers type which applied in the 40*10G system (R-OADM).

<table>
<thead>
<tr>
<th>Amplifier Type</th>
<th>Gain (dB)</th>
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</tr>
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<td>OBA-w2424</td>
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<td>OBA-w2220</td>
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</tr>
<tr>
<td>Optical preamplifier (W band, 25dB(\times)20dBm, EONA)</td>
<td>EONA-2520</td>
<td></td>
</tr>
<tr>
<td>Optical preamplifier (W band, 33dB(\times)20dBm, EONA)</td>
<td>EONA-3320</td>
<td></td>
</tr>
</tbody>
</table>

And the detailed rules of OA configurations are described as following:

The OBA configuration rules of OTM and OADM station:

Normally we adopting OBA-2220, HOBA2424, HOBA2726 amplifier.

The OPA configuration rules of OTM and OADM station:

Line loss<=17dB: configure SDMR + OBA2220

17dB<line loss <=30dB: configure EONA2520 (gain can be adjusted from 25 to 20~30)

30dB<line loss <=38dB: configure EONA3320 (gain can be adjusted from 33 to 28~38)

The line loss mentioned above is the total of fiber loss, line loss and DCM loss etc.

And the detailed information can be referred to the quotation of OA configuration and layout of rack files. The detailed OA configuration please refer to Figure 4
2.3.3.4 System OSNR Calculation

The OSNR of MS span is the key issue of signal transmission quality and due to the EDFA applied in DWDM system, OSNR of signal decreases level by level.

In the configuration, after selecting OA on the basis of each line loss, we must calculate the OSNR of MS span.

The detailed requirements of OSNR can be referred to table 3.2.2-3.

Table 5 The OSNR requirement of system

<table>
<thead>
<tr>
<th>Rate</th>
<th>OSNR(dB)requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5Gb/s, without FEC</td>
<td>&gt;20</td>
</tr>
<tr>
<td>2.5Gb/s, with FEC</td>
<td>&gt;15</td>
</tr>
<tr>
<td>10Gb/s, without FEC</td>
<td>&gt;25</td>
</tr>
<tr>
<td>10Gb/s, with FEC</td>
<td>&gt;20</td>
</tr>
<tr>
<td>10Gb/s, with AFEC</td>
<td>&gt;18</td>
</tr>
<tr>
<td>10Gb/s, with RZ</td>
<td>&gt;15</td>
</tr>
</tbody>
</table>

For the system with optical amplifier, the calculation formula of OSNR at R point is described as below:

\[
\text{OSNR} = P_{\text{OUT}_1} - 10 \log(\hbar \Delta \nu_0) - 10 \log \sum_{i=1-N} 10^{0.1N}\left( G_i - 1 \right) \prod_{j=1-i} \frac{1}{G_{j+1}} L_j
\]

Where: \( P_{\text{OUT}_1} \) is the single channel output optical power (dBm) of number 1 level EDFA, \( G_i \) is the gain of number i level EDFA, \( L_j \) is the line loss between number j-1 level EDFA output and number j level EDFA input, \( \Delta \nu_0 \) is Planck constant, \( \nu \) is optical frequency, the numerical value of \( 10 \log(\hbar \Delta \nu_0) \) is about 58. \( N_f \) is the noise index (dB) of number i level EDFA.

Attention: the unit of G and L is not dB but actual amplified or attenuated multiple. ( e.g. the gain or attenuation of 22dB, \( G_{j+1} =158.5 \), \( L_j =0.0063 \). The bandwidth of optical filter is \( \Delta \nu_o \), \( \hbar \) is Planck constant, \( \nu \) is optical frequency, the numerical value of \( 10 \log(\hbar \Delta \nu_0) \) is about 58. \( N_f \) is the noise index (dB) of number i level EDFA.

As to the only EDFA system, the NF of every level OA are basically similar, able to assume the every level OA might compensate the loss of preceding line, i.e. \( G_{j+1} =1/L_j \), the incoming fiber optical power of single channel is related to the total output optical power of OA and system channel quantity \( P_{\text{OUT}} = P_{\text{OUT}} - 10 \log M \), the above formula may be predigested as:

\[
\text{OSNR} = P_{\text{OUT}} - 10 \log M + 58 \text{dBm} - N_f - 10 \log (G_1 + \Sigma \text{Loss})
\]

Where, \( P_{\text{OUT}} \) is total incoming fiber power, \( M \) is the quantity of channel, \( L \) is line loss, \( N_f \) is the EDFA noise factor (\( N_f \) taking 5.5 dB), \( \Sigma \text{Loss} \) is the loss of each optical fiber section (linear value), \( G_1 \) is the amplified multiple of power amplifier (linear value).
In the system combined dual amplification system (OPA+OBA) with DCM or OADM and mono amplifier, calculate the OSNR with following formula:

\[
\text{OSNR} = \text{Pout} - 10\log M + 58\text{dBm} - N_f - 10\log(\sum G_{OBA} + \sum G_{OPA} \times 100.8 + \sum G_{OLA})
\]

GOBA, GOPA, and GOLA are the amplified multiples (linear value) of power amplifier, line amplifier and preamplifier applied in the system. Because the currently designed OPA output power is 8dB (12dBm output) less than OBA, when calculate Pout according to 20dBm, above formula contains \( \times 100.8 \) term.

For adopting distributed amplification technique, the noise created by Raman amplifier DRA during amplifying is less than the one created by EDFA, and its equivalent \( N_f \) is -2dB. Thus, replace EDFA with DRA in system, which will improve the OSNR, but with higher cost; that’s why it is applied to the longest span of MS generally. At present, our DRA has 10dB gain. Calculate the OSNR of a system with DRA by following formula:

\[
\text{OSNR} = \text{Pout} - 10\log M + 58\text{dBm} - N_f - 10\log(\sum G_{OBA} + \sum G_{OPA} \times 100.8 + \sum G_{OLA} + 0.178 \times L_r)
\]

Where, \( L_r \) is the preceding line attenuation (linear value) of DRA, 0.178=10\((-2-5.5)\).

Table 6 describes system OSNR calculation result of the DWDM network based on WB (Wavelength Blocker) solution.

<table>
<thead>
<tr>
<th>Segment number</th>
<th>Start Point</th>
<th>End Point</th>
<th>Distance (km)</th>
<th>OSNR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wea</td>
<td>Lac Assal</td>
<td>67.1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Lac Assal</td>
<td>Kalaf</td>
<td>68.2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Kalaf</td>
<td>Tadjjioura</td>
<td>14.3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Tadjjioura</td>
<td>Obock</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Obock</td>
<td>Border</td>
<td>94.6</td>
<td></td>
</tr>
</tbody>
</table>

From above OSNR calculation diagrams, we can find the system OSNR of all spans of these DWDM networks are over 15dB, fully meeting the system requirements.

### 2.3.3.5 Wavelength Assignment Design of DWDM Network

The wavelength channels of Link networks are allocated according to the existing state. We propose 1 wavelength at the link.

The detailed wavelength channel (Ch) assignment diagram of DWDM network is shown in Fig.5.

### 2.3.3.6 Capacity Expansion Solution

For the capacity expansion issue, there are two main solutions: one is to decrease channels’ spacing such as decreasing the channel spacing from 100GHz to 50GHz or even to 25GHz, thus we could obtain more channels for transport; the other one is to improve the transport capacity of each channel such as from 2.5Gb/s to 10Gb/s or 40Gb/s.

And for the different network applications, we could select the different capacity expansion scheme.
2.4 Solution of NG-SDH Network

According to the service type we planned, the main service is GE/FE, STM-1/4/16 and E1. At the NG-SDH level, the system will access all the service and convergence to STM-64.

The SDH level topology is shown in Fig 3.

2.4.1 Selection of equipment

SUPPLIER proposes to use the next generation SDH equipment ZXMP S385, which is designed with the concept of multi-service transport platform. ZXMP S385 is a sort of STM-16/STM-64 level advanced SDH equipment. It not only supports the traditional TDM service such as STM-N, E1/E3, but also the data service such as ATM, Ethernet as well. One of the most important features of ZXMP S385 is that it can be smoothly upgraded from STM-16 level equipment to STM-64 level equipment without interrupting the current service.

2.4.2 Optical power budget

The NG-SDH level base on the DWDM system, use DWDM lambdas for transmission. So NG-SDH optical power will not calculate. And SUPPLIER will provide DWDM OSNR value to DJIBOUTI.

2.4.3 Protection scheme

The protection mechanism of the transmission system can provide perfect protection: including hardware unit protection at NE level, and service protection at network level.

2.4.3.1 Protection for Hardware Unit at NE Level

In this protection scheme, the important units are protected through hardware redundancy to enable equipment protection. If a working unit of the equipment fails, the system will automatically switch over from the working unit to the standby units, thus protecting services from being lost. Unit protections at NE level provided by ZXMP S385 equipments include 1:N.
tributary protection including E1, E3 and electrical STM-1. E1/T1 board supports 1:N protection (N<=9), and E3/T3, STM-1 electrical and FE boards support 1:N protection (N<=4) for two groups. Besides the 1:N tributary protection, and ZXMP S385 can support 1+1 protection, that means 1+1 hardware redundancy backup for net control processor unit, cross-connect, synchronous clock and power distribution cards.

![Figure 4] Protections at NE Level

### 2.4.3.2 Protection at Network Level

In the DWDM layer, the system protection is 1+1 protection, with the first wavelength working and the second wavelength protecting.

In the NG-SDH layer, ZXMP S385 can provide all networking features recommended by ITU-T. Protection modes include:

- MSP (Multiplex Section Protection)
- UPSR (Unidirectional Path Protection)
- UPSR (Bidirectional Path Protection)
- SNCP (Subnet Connection Protection)
- LSNP (Logic Subnet Protection)

### 2.4.4 Solution to Synchronization System

Network synchronization is one of the important factors, which should be kept in mind while designing and planning any network. Synchronization plays an essential role in NG SDH network. Optimized synchronization between NEs will not be realized without reasonable network...
synchronization plan. The offered equipment ZXMP S385 provide synchronization solution based on SSM (Synchronization Status Message), which is used to make sure that effective timing sources of high synchronization quality will be selected by NEs, thus guaranteeing timing synchronization performance of the network.

The SDH network synchronization is closely related to the clock unit, and ITU-T stipulates three types of clocks. G. 811 stipulate the master reference clock; G. 812 stipulates clocks of all levels, while G. 813 specifies the slave clock of SDH equipment. The timing of all SDH systems should be traced on the basis of the original reference (PRC) described in G. 811.

The ZXMP series equipments are equipped with at least one external timing reference input. When the selected timing reference is failed, the NG-SDH equipment can automatically be switched to another timing reference input by means of the S1 byte.

NG-SDH network is capable of adding, dropping and re-routing signals, which brings about great flexibility. However, it results in complex network synchronization timing. The SSM enables NE to select effective timing resources of high synchronization quality, which prevents the occurrence of loop and guarantees timing synchronization performance of the network.

The offered NG-SDH equipment in the project can extract the timing signal and can provide this timing signal as a reference for synchronization of the whole network. It has two ports of 2 MHz and 2 Mb/s, 75-ohm (un-balanced) BITS interfaces or 120-ohm (balanced) BITS interfaces through a 75-120 impedance converter to extract the External Clock Signal.

2.5 Network Management Solution

NetNumen T31, the new generation network management system on NE management layer/subnet management layer, is used to manage and supervise NE equipment in the bearer network.

NetNumen T31 adopts the distributed, multi-process and modular design. It can manage all SUPPLIER’s optical transport products. It has such management function as configuration management, fault management, performance management, maintenance management, path management, security management, system management and report management. It supports such services as TDM, ATM, Ethernet, PTN, WDM and intelligent services. While assuring transport equipment functions, it can manage and control NE and regional networks.

The system adopts multiple network management technologies, complies with ITU-T TMN ideas, collects the industry-leading NM software development experience and provides powerful management functions and flexible networking.
**Figure 5**  Netnumen T31 network management hierarchy

**NM-side CORBA interface:** Public interface among T31, T32 and third-party NM.

**NM-side SNMP interface:** Public interface among T31, T32 and third-party NM.

**NM-side FTP and file interface:** Public interface among T31, T32 and third-party NM.

**Equipment-side SNMP interface:** Public interface between NE and third-party NM and the interface between PTN equipment and NetNumen T31.

**Equipment-side CLI interface:** The interface between PTN equipment and NetNumen T31.

**Equipment-side Syslog interface:** The interface between PTN equipment and NetNumen T31.

**F interface:** It is located between Client and Manager and it is the private interface. It adopts the Ethernet mode (emulated in one computer) and TCP/IP.

**Qx interface:** It is located between SDH/MSTP/WDM-OTN equipment and NetNumen T31, and it is the private interface. It adopts the Ethernet mode and TCP/IP

The functions of Netnumen T31 NMS include:

- System management
- Configuration management
- End-to-end service management
- View management
• Fault management
• Security management
• Performance management
• SDH maintenance and management
• Report management
3  

**EQUIPMENT LIST AND DIMENSIONING**

3.1 Dimension of the network equipment

Table 7  

<table>
<thead>
<tr>
<th>Unit Name</th>
<th>Port Density (Interfaces/card)</th>
<th>Maximum Accessibility per Sub-rack</th>
</tr>
</thead>
<tbody>
<tr>
<td>STM-64</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>STM-16</td>
<td>14</td>
<td>14:56</td>
</tr>
<tr>
<td>STM-4</td>
<td>24</td>
<td>56</td>
</tr>
<tr>
<td>STM-1</td>
<td>48</td>
<td>112</td>
</tr>
<tr>
<td>STM-1e</td>
<td>48</td>
<td>64</td>
</tr>
<tr>
<td>E3</td>
<td>6</td>
<td>48</td>
</tr>
<tr>
<td>T3</td>
<td>6</td>
<td>48</td>
</tr>
<tr>
<td>E1</td>
<td>63</td>
<td>630</td>
</tr>
<tr>
<td>T1</td>
<td>63</td>
<td>630</td>
</tr>
<tr>
<td>GE</td>
<td>2</td>
<td>28</td>
</tr>
<tr>
<td>SEC</td>
<td>8FE+6GE</td>
<td>64FE+8GE</td>
</tr>
<tr>
<td>RPR</td>
<td>8FE+2GE</td>
<td>64FE+16GE</td>
</tr>
<tr>
<td>MPLS</td>
<td>8FE+2GE</td>
<td>64FE+16GE</td>
</tr>
<tr>
<td>ATM 155M</td>
<td>8</td>
<td>112</td>
</tr>
<tr>
<td>SAN</td>
<td>(4SAN+4GE) or 8GE</td>
<td>(56SAN+56GE) or 112GE</td>
</tr>
</tbody>
</table>
4 FUNCTIONAL CHARACTERISTICS OF SUPPLIER PRODUCT

4.1 Features of ZXWM M920

Large Capacity and Easy Upgrade
ZXWM M920 can provide 1920/3840 Gbit/s transmission capacity, fully satisfying the ever-growing requirements on bandwidth. The system is designed with modular structure and multi-rack management technology. It can be smoothly upgraded to 192-wavelength. Its good scalability and expansibility can protect user’s investment maximally.

Single 40Gbit/s system
ZXWM M920 can support single 40Gbit/s system, and has following features:
• Support 96 wavelengths

Support 80/96*40G transmission and the capacity of at most 3.84T;

• P-DPSK and RZ-DQPSK modulation for ULH transmission

Improved DPSK coding has good OSNR tolerance and can restrain the non-linear effect well. It can reach 1500KM without the REG with 50GHZ spacing.

RZ-DQPSK coding has good PMD tolerance and can restrain the non-linear effect well. It can reach 2000KM without the REG with 50GHZ spacing.

• Embedded TODC and EDFA and the same dispersion tolerance & power budget as 10G system.

OTU board is embedded with TODC and EDFA, the system allows the biggest dispersion tolerance of -700ps/nm ~+700ps/nm, and the dispersion tolerance & power budget are the same as 10G system.

• Ultra high integration

40G board only needs 2 slots, with high integration and low power consumption. Single rack supports 21×40G wavelengths.

• Smooth network upgrade

The 40G board can plug and play in the legacy equipment because the system is developed on the existing WDM platform. It supports smooth upgrade from 10G to 40G without any service interruption

Super-long-haul Transmission

With different optical transponder units (OTU), EDFA, FEC and AFEC technologies, RZ coding technology, P-DPSK coding technology, distributed Raman amplifier and dispersion management technology, ZXWM M920 can perform super long non-electric relay transmission from several kilometers up to thousands of kilometers

Multi-service Access Mode

ZXWM M920 adopts an open design. The accessed optical signals can be converted to ITU-T G.692 recommendation compliant wavelength signals for output by employing optical/electric/optical conversion technology.

It supports transparent transmission of optical signals in multiple formats, such as STM-N (N=1, 4, 16, 64,256), POS, GbE/10GE, ATM, ESCON, FICON and FC, which protect users’ benefit and provide an ideal means for network expansion.

ZXWM M920 also can multiplex low-rate services into 40G, 10G or 2.5G rates transparently to improve the availability of system wavelength

Flexible networking modes
Functionality of ZXWM M920 can be changed from OLA to OADM to OTM by choosing different combination of functional modules, making it more flexible for complicated network topologies, such as chain, star, cross, tangent-ring and mesh networks.

**Wavelength Add/Drop Functions**

*Filters in the ZXWM M920 can be configured flexibly to implement the adding/dropping of 1 to 80 wavelengths. With this kind of design, the ZXWM M920 supports both the FOADM and the ROADM functions.*

**FOADM:** This function is to implement the adding/dropping of fixed wavelengths.

**ROADM:** With this function, wavelengths to be added/dropped can be reconfigured. Besides, add/drop ports can be assigned to these wavelengths flexibly, that is, the port assignment function. ZXWM M920 supports ROADM function based on WB, PLC and WSS technologies.

**Reliable Protection Functions**

ZXWM M920 can provide multiple and effective protection modes: Optical subnet connection protective switchover (OSNCP); Unidirectional optical line protective switchover (ULSR); Unidirectional optical channel protective switchover (UPSR); Bidirectional optical line share protective switchover (BLSR); Bidirectional optical channel share protective switchover (BPSR); 1:N tributary protection etc. which with the switching time shorter than 50 ms. When ZXWM M920 is configured as OADM node on a ring network, route protection of channels can be accomplished.

**Performance Monitoring Technologies**

ZXWM M920 uses a board performance monitoring unit to capture board performance data, which can be viewed to accurately locate a fault via NMS.

### 4.2 Features of ZXMP S385

*ZXMP S385 is the intelligent optical transmission platform newly released by SUPPLIER.*
S385 targets the backbone or large capacity convergent layer of network and satisfies present and future requirements of networks. ZXMP S385 provides rich service access functions and complete protection mechanism, facilitating its wide applications. ZXMP S385 adopts modular design, incorporating SDH, Ethernet, ATM, PDH, and other technologies. It can transmit voice and data services efficiently on the same platform.

Cross-connection and extension capabilities: CSA board implements high-order and low-order cross-switching functions of ZXMP S385 (V1.10). CSA has a space-division switching capacity of $256 \times 256$ VC4. In which, $224 \times 224$ VC4s are allocated to the space-division cross-connect unit of the system, and the other $32 \times 32$ VC4s are assigned to the time-division cross-connect service unit. The current cross-connect unit completes blockless switching of $2016 \times 2016$ VC12.

Powerful Service Access Ability: ZXMP S385 adopts modular structure, with its hardware including cross-connect card, clock card, control card, service card and service interface card. The service access capacity is shown in following table. A single sub-rack of ZXMP S385 has 14 slots for service boards and 15 slots for interface boards. The equipment can access a large amount of PDH, SDH and data services at one time.

Complete Equipment Protection Ability: Supports 1:N (N ≤ 9) protection of all electrical boards.

Perfect Network Protection Ability: In terms of the network level protection, ZXMP S385 supports multiplex section protection (MSP) ring, linear MSP, unidirectional path switched ring (UPSR) and subnet connection protection (SNCP). ZXMP S385 can implement all networking features recommended by ITU-T. It supports the route reconstruction of Ethernet and IP, and meets IEEE802.3E.

Reliable Timing Synchronization Processing: The clock timing/synchronization unit is composed of Cross Clock board (CSA) and SCI board. The unit completes system timing and network synchronization. A software-controlled or a hardware phase lock circuit is used to implement four working modes: a. Fast pull-in; b. Locked; c. Holdover; d. Free run.

Easy For Maintenance And Upgrade

Perfect EMC and Operation Safety: EMC, operation safety and fire/explosion protection of the equipment are fully considered in the circuit board design.
1.7 DEVELOPMENT OF WIRELESS BROADBAND CONNECTIVITY
DJIBOUTI – Development of Wireless Broadband Connectivity

Project budget USD 1,500,000

1. Background and context
   a. The project “Development of Wireless Broadband Connectivity” is an ITU initiative that aims to improve the capacity of African countries in terms of ICT infrastructure with a view to helping them to achieve the goals of the World Summit on the Information Society (WSIS), which are themselves aligned with the United Nations Millennium Development Goals (MDGs).
   b. The project was launched at the “Connect Africa Summit” which was held in Kigali, Rwanda, in 2007, and attended by many African Heads of State, including our President, H. E. Ismail Omar Guelleh.
   c. Six African countries, the Republic of Djibouti among them, were selected to benefit from wireless broadband infrastructure.
   d. A part of this initiative has to do with rural connectivity.
   e. Djibouti hopes that the Connect Arab Summit will result in coverage for the remaining part of the region.

2. Project objectives

The aim of the project is to provide schools and hospitals, as well as populations in rural and isolated areas that do not have adequate coverage, with digital access to ICT applications, free of charge or at moderate cost.

3. Project description

The project covers:
   ➢ Choice of technology
   ➢ Identification of potential sites in the light of defined objectives (target population, educational and health facilities, etc.)
   ➢ Choice of sites
   ➢ Work needed to bring sites up to standard (available space, masts, power supply, transmission, etc.)
   ➢ Drawing up project specifications and choice of provider
   ➢ Drawing up the frequency plan
   ➢ Choice of antenna parameters (antenna type and height, azimuth, tilt, etc.)
   ➢ Training of technicians
   ➢ Installation of equipment, testing and formal acceptance
   ➢ Establishment of pricing plan for services
   ➢ Connecting schools, hospitals, community centres, rural populations, etc.
4. **Project organization**

Basic project structure:
- **Core project team**
  1. Ministry of Communications, Culture, Posts and Telecommunications (MCCPT)
  2. Djibouti Telecom
- **Extended project team**
  - 1. Ministerial departments concerned, including those for
    - Health
    - Education
    - Others

5. **Funding**

Project budget:
- **Total allocated to the project:** USD 1 500 000
- The budget must cover the following:
  1. Purchase of equipment for the 15 sites (basic infrastructure needed for broadband connectivity)
  2. Work to upgrade chosen sites (masts, power supply, transmission, etc.)
  3. Technicians’ training costs
  4. Supply of computers for schools, dispensaries and hospitals, etc.
  5. Consultants’ fees
  6. Other costs

6. **Project planning breaks down as follows**

**Initial studies**
- Selection of technology
- Selection of sites
- Gathering of Djibouti Telecom commercial data
- Other aspects

**Detailed studies**
- Drawing up specifications
- Choice of provider
- Final selection and upgrading of sites
- Drawing up a business plan
- Other aspects
Installation and testing
- Training of teams
- Installation of hardware
- Tests and formal acceptance of equipment
- Other aspects

Entry into service
- Entry into service and commercialization

Post-implementation review
Project follow-up and evaluation

7. Initial studies

Selection of technology
a. Services proposed: broadband Internet connectivity
   - Applications: Telemedicine, tele-education, e-government, e-commerce, and so on
b. Parameters to consider
   - Wireless coverage
   - Data rate offered and available passband
   - Equipment costs
   - Energy consumption
   - Ease of installation and use
   - Security of access

Wireless broadband technologies
- Wireless networks
  - PAN (IEEE 802.15 standard = Bluetooth etc.)
  - LAN (WLAN standard IEEE 802.11 WiFi etc.)
  - MAN (WMAN standard IEEE 802.16 WiMAX etc.)
  - RAN (WRAN standard IEEE 802.22 etc.)
  - WAN (WWAN standard IEEE 802.20, 3GPP, EDGE (GSM)).
- ITM 2000 mobile technologies
  - 3G+
  - CDMA I, CDMA II, CDMA EDVO, WCDMA
  - WiMAX 802.16m
  - 4G
- Broadband for interactive digital TV broadcasting
  - MMDS
LMDS

Technology adopted
- WiMAX IEEE 802.16m capable of upgrading to future standards
- Site selection
- 15 sites to cover rural areas

Business plan
- Commercial data to be gathered on the various services offered by Djibouti Telecom (charging, customer base with different segments, etc.)

Contact person
Kifya Abdo Awad
kifya@intnet.dj
Tel: +253 878788
2.

E-SERVICES EVERYWHERE FOR A BETTER LIFE
Information Communication Technologies (ICTs) have been playing a critical role in improving the socio-economic development by extending government services such as health, education, safety and security, finance, transport, and other services to citizens. For e-Health in particular, Arab medical universities and hospitals could provide continuing medical education and health expert services to remote hospitals and universities. Through the use of mobile phones, the quality and quantity of healthcare in rural areas and the capacity of community health workers and midwives can be enhanced.

e-Services offered through Public Internet Access Points to communities require careful assessment of user needs and the environment so that the services identified are affordable, provide tangible and measurable benefits and respond to the real on-the-ground needs. Community ownership is a factor that must be addressed. The community in the location where the services are to be provided needs to be consulted. ICTs can also be used to eradicate illiteracy in the Arab States through the use of media and tools.

The project “e-Government for Arab States” aims at enhancing government services through the use of secure and trusted Internet infrastructures and applications for Arab States. The overall objective is to strengthen the capacity of government institutions and its constituents for greater access to information, governance practice and governance reform, transparency, accountability, justice, and integrity of public servants and private enterprises. By extending government services particularly in marginalized locations, citizens can have improved access to information such as birth and death registrations, renewal of national passport/identity cards, filling administrative forms etc.

The following projects are presented to mobilize the human, financial and technical resources to contribute to e-Services Everywhere for a better life:

<table>
<thead>
<tr>
<th>Title (Project / Concept Paper)</th>
<th>Source</th>
<th>Budget (US$ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 e-Government for the Arab States</td>
<td>ITU</td>
<td>1'500 P</td>
</tr>
<tr>
<td>2 Transition from IPv4 to IPv6</td>
<td>ITU</td>
<td>500 P</td>
</tr>
<tr>
<td>3 Arab Mobile Financial Services (m-Payments)</td>
<td>ITU</td>
<td>600 C</td>
</tr>
<tr>
<td>4 Pan-Arab Telemedicine Network</td>
<td>ITU</td>
<td>220 C</td>
</tr>
<tr>
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2.1 E-GOVERNMENT FOR THE ARAB STATES
**Project Number:**

**Project Title:** e-Government for Arab States Region Software

**Estimated Start Date:** 2012

**Estimated End Date:** 2015

**Government Coop. Agency:** Ministries, Regulatory Agencies of Communications

**Implementing Agency:** International Telecommunication Union (ITU)

**Beneficiary Countries:** Arab States

**ITU Project Manager:**

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**Estimated Budget**

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**Brief Description:**

The main goal of the project is to assist Arab States Region by implementing secure e-Government services and applications to further assist countries in providing efficient public services delivery while improving the lives of citizens and to facilitate secure inter-government operations.

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**For the**  

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<th>Name/Title</th>
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<td>Mr Brahima Sanou, Director of BDT</td>
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<td>Partner:</td>
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1. Background and Context

1.1 Context

Information Communication Technologies (ICTs) have been playing critical role in improving the socioeconomic development and stimulating economic prosperity and supporting sustainable development by extending government services such as health, education, safety and security, finance, transport, and other services to citizens.

The World Summit on the Information Society (WSIS) plan of action foresees the establishment of people-centred, inclusive and development – oriented information Society, where everyone can create, access, utilize and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving the their quality of life.\(^1\)

The ITU-led “Connect the World” initiative is an excellent example of the role of multi-stakeholder partnerships in bridging the digital divide. ITU has forged partnerships with some of the leading public and private sector organizations of the world towards the implementation of these initiatives.

“Connect Arab States Region” is a global multi-stakeholder partnership aimed at mobilizing human, financial and technical resources required to bridge major gaps in ICT infrastructure and e-Applications across the Arab States region.

In this context, the ITU is proposing “e-Government for Arab States Region” to enhancing government services through the use of Secure and trusted Internet infrastructures and applications for Arab States.

1.2 Problem Statement

i. Lack of electronic information: it is often the case, that access to certain government services (e.g., birth and death registrations, renewal of national passport/identity cards, filling administrative forms etc.) can only be accessed by the citizens of developing countries through physical presence in administrative offices usually located either in the national or provincial/administrative capital;

ii. Lack of coordination and efficient information flow;

iii. The majority of the information is captured and saved using a paper-based system creating an even larger digital divide between the urban and rural areas. There is also a negative impact on the loss of revenue, cost of transportation and other risks. Sometimes the paper-based filing system is inadequate and the documents are lost or misplaced.

iv. Extending government services to all locations where citizens need these services often require costly infrastructure (e.g., administrative buildings), personnel and time;

v. Lack of governance present an important bottleneck to good governance in terms of an effective and transparent policy formulation and implementation;

vi. For government procurement, in addition, to the above-mentioned problems, there is the need for transparency, accountability and a fair and competitive bidding process.

1.3 ITU Activities Related to e-Government

The objective of Program 2 of the Hyderabad Action Plan is to support ITU membership, in improving access to ICT applications and services contributes to economic and social development, especially in underserved and rural areas, and to attaining the UN Millennium Development Goals (MDGs) and the World Summit on the Information Society (WSIS) targets.

For this reason, Resolution 54 “Information and communication technology applications” was adopted at WTDC-10 and the ITU WTDC Resolution 74 (Hyderabad, 2010) “More effective adoption of e-government services” was adopted and instructs in particular, the Director of the Telecommunication Development Bureau:

i. to ensure that actions will be taken to address and overcome the challenges in implementing projects or activities in e-government;

ii. to create and/or update guidelines, tools, strategies and mechanisms conducive to organizational and administrative simplification, collaboration between government authorities, implementation of user-friendly services, integration and personalization of services, use of multiple channels, improvement of the quality of services on the basis of user requirements, marketing of e-government services, protection of personal data and security of e-government transactions;

iii. to expedite, in close cooperation with relevant organizations, the definition of a model for Member States for on-going monitoring and evaluation of the status, usage, quality and impact of e-government, taking account of relevant work being done by international and regional organizations and by Member States themselves;

iv. to promote the sharing of Member States’ strategies, best practices, technological platforms and applications, among other things, through a global collaborative network based on the creation and/or strengthening of regional e-government networks;

v. to ensure that the necessary resources within the budgetary limits are allocated to the above actions.
2. Strategy

2.1 Overall Project Objectives

The overall objective is to strengthening the capacity of government institutions and its constituents for greater access to information with confidentiality and security, governance practice and governance reform, transparency, accountability, justice, and integrity of public servants and private enterprises. This project pays particular attention to the deployment of e-Government services and application to the various relevant stakeholders.

3. Expected Results

By implementing this project, the following results and benefits are expected:

3.1 Results

Utilizing Internet based technology to provide seamless access to government goods and services. This project focus on the four types of e-Government services:

- **Government-to-Government**
  - Utilizing technology to improve public administration processes for service delivery.
  - [e-Government Gateway- such as e-Tourism and e-Judiciary]
  - [e-secured government documents management -such as Parliament articles]
  - [e-Natural Resource Management] and More

- **Government-to-Citizen**
  - Utilizing technology to integrate public, civil society and private sector interest
  - [e- Citizen Automated Citizen registry]
  - [e- Health]
  - [e- Education]
  - [Social services such as e-Loan and e-Grants]and More

- **Government-to-Employee**
  - Utilizing technology to improve administration processes for employee.
  - [e- Account ]
  - [e-Human Resource Management ] and More

- **Government-to-Business**
  - Utilizing technology to improve the lives of citizen
  - [e- Payments]
  - [e-Filing]
  - [e- Taxation] and [Business services such as e-permits/licenses]

Figure 4.1: Potential e-Government services
3.1.1 Applications and Services

E-government services are not limited to the services listed below. A high-level overview of some of the services that would be incorporated into the project are summarized as follows:

To increase government efficiency, increase security and trust and reduce the cost of transmitting and processing sensitive documents, this service will enable senior level decision-makers within the Telecommunication Sector to use PKI for the secure transmission of documents and emails. By using strong authentication and biometrics, documents can be digitally signed and transmitted securely. Such a service will complement face-to-face meetings by enabling secure virtual meeting and work-collaboration.

Using ICT to provide continuous and interactive access to organized, standardized and exhaustive information on geo-scientific data as well as other data related to exploitation, transformation and commercialization of natural resources by policy-makers, investors and local entrepreneurs includes:

i. Definition of the IT architecture adapted to national references;

ii. Definition of an integrated system of data management;

iii. Definition of technical specifications for data and metadata archiving and digitalization, to increase the interoperability and interdisciplinary;

iv. Definition of standards and systems architecture for an electronic platform that allow access to on-line catalogues, systems interoperability, connection to the Geological Information System (GIS) and definition for e-commerce.
Many government services require citizens to compile documents. Citizens have to physically submit their documents and pay for the services at the government office located usually at the capital city. For example, through the use of electronic currency in the form of pre-paid cards that can be purchased at post offices throughout the country. Citizens can go to public Internet access points (post offices, MCTs, cyber cafés) to access secure government services via the governmental Web portal, submit their forms electronically and pay for these services using an electronic currency.

Through cost assessment (administrative, transportation, cost due to revenue loss), a business model will be developed where the citizens would be provided the desired services through accredited public Internet access locations (preferably Post offices) at a fraction of the average total cost of having the same service through their (the citizens) physical presence in remotely located government office.

To provide effective and efficient communication channel for intra-government communication to reduce costs and improve quality of government administration without financial burden and travel inconvenience.
3.2 Possible Architecture for e-Government Services and Applications Implementation

E-Government strives to provide its constituents with services that are easy to use, interoperable and robust, while ensuring security and confidentiality of information.

One prominent example of next-generation technologies is the Digital Object Architecture (DOA). DOA is designed to enable all types of information, whether public, private, or some combination thereof to be managed in a network environment over a potentially very long time frame. This system has a distributed, scalable service infrastructure, efficient name-resolution and administration protocol, built-in security options for both name resolution and administration, and native support for Multilingualism. Most importantly, this approach is compatible and interoperable with other systems.

Digital Objects each with its own unique persistent identifier, may be stored and accessed, and they may be catalogued to support browsing and searching. Security is offered by an intrinsic “public key infrastructure- PKI” that simplifies the establishment of an identity-management capability. Resources structured as digital objects that are accessed by a party may be authenticated, and those resources can, in turn, separately authenticate the party. Even the system itself, and the information it provides in the form of digital objects, can be separately verified.

In e-government context, DOA could be used for recording, storing, management and exchange of the diverse information generated by multiple e-government systems and services. It is a technology that could be used by end users and their information providers at very low cost, while ensuring data security, robustness and easy-to-use interface. Some of its unique features include:

i. Allows for the inclusion of multiple information types assuring systems interoperability;
ii. Has been tested with over a billion records showing that it is flexible, secure and scalable;
iii. Ability to provide unique identifiers for digital objects. These unique identifiers can remain unchanged irrespective of where the object is located, who owns it, what type it is, what technology it is based on, etc. It provides for long-term persistence identification of information;
iv. Enhanced security features built-in Public Key Infrastructure (PKI) - to ensure a secure information exchange and facilitate secure updates of records. Full supports for multilingual identifiers (native/local scripts).

In that end, DOA could be ideal for achieving various e-government services.

3.3 Benefits

i. To provide citizens access accurate and timely information and knowledge about the services available;
ii. Spur public debates and mobilize support for action and change through processes of consultation, research and report writing;
iii. The promotion and development of good governance practices and related reforms in the Arab states;
iv. The rule of law and transparency and accountability;
v. Data and analysis promote regional partnerships for influencing change and region-specific approaches to e-government.

4. Activities

4.1 Assessment and Study

This includes assessing and studying the needs and user requirements, defining business models for sustainability and providing basic ICT training for the user community. The activities in this phase need to be done first in order to define the scope and the technical requirements necessary for the other phases.

4.2 Services Identification

As a result of the assessment and studies, the appropriate government services and location(s) will be identified. Other activities in this phase include definition of the scope (estimated number of users) of the Project. Elements common to the various e-government services will be identified and taken into account so as to facilitate replication within the same country and in other countries.

4.3 Technology Design

Based on the results of the Assessments and Service Identification this phase includes the definition of the technology strategy, technology design objectives and identification of technology components to meet the objectives.

4.4 Implementation

The main activities in this phase include building the common security and trust e-government platform that will be the same (but scaled appropriately based on 1 and 2 above) for each of the selected countries. The activities in this common layer will provide data confidentiality, data integrity, authentication, access control and non-repudiation required for all online government services implemented in this Project. It also includes the installation, configuration and customization of the e-government applications built on top of the common e-government and secured platform.

4.5 Testing and Services Roll Out

The activities in this last phase include consumer acceptance, quality assurance and service requirement conformance testing. Any further adjustments related to the contents and interface design will also be done in this last phase before the service becomes operational.

The rollout of this Project will take into account the agenda for the World Summit of the Information Society (December 2003) and the goals of the Connect Arab States Summit.
5. Critical Success Factors

Some of the Key elements that are essential for e-government service deployment:

i. Nations’ commitment;
ii. Coordination between various government information systems;
iii. Relevant agency commitment;
iv. End-users awareness.

6. Input

6.1 Partners

- Provide, subject to availability of the necessary fund (As indicated in the Project Budget-Annex 1).

6.2 ITU

- Act as executing Agency;
- Provide human resources for overall project supervision and coordination;
- Provide its expertise and international experience to enable the realization of the project objectives in an effective and efficient manner;
- Provide guidance on national IT strategies and policies;
- Natural and objective advice on e-technology strategies;
- Provide a roadmap for human capacity building and training needs;
- Provide the necessary hardware and software as required.
6.3 Beneficiary Country

- Support the installation and recurring costs for required telecommunication and Internet Infrastructure;
- Cover the costs of Internet connectivity to the user access locations (e.g. post offices), logistical support, physical security for all locations hosting Project’s ICT infrastructure as well as of salaries for local staff operating PKI platform, e-applications client/server and other services.

- Assist the ITU experts in the collection of data necessary to carry out the work and facilitate the access to all relevant documents and information required for the performance of their tasks;
- Assist the ITU experts with respect to immigration and custom formalities;
- Commit the required human resources in order to implement and operate the entire project;
- Provide, at its own cost, equipped office space and access for the experts to existing Internet, fax and telephone facilities;
- Provide the necessary infrastructure to connect the participating government entities and remote locations.
7. Risk

7.1 ICT Literacy

Low level of ICT awareness and ICT literacy are major risk factors in meeting the objectives of ICT projects destined for use by the general public in developing countries. These factors often translate into low usage; and hence, lower chances for sustainability. To deal with the ICT awareness and low ICT literacy within the population, one must envisage public ICT awareness campaigns and basic ICT training targeting the population. Community ownership is a factor that must equally be addressed. The community in the location where the services are to be provided needs to be consulted and be an integral part of the assessment, design and development phases of the Project. The public Internet access locations will have operators to facilitate the use of these services. These risks could also be reduced through carefully assessing user needs and the socio-economic and cultural environment so that the services identified are affordable, provide tangible and measurable benefits and respond to the real needs of the citizens in the region.

7.2 Affordable Internet Access

High cost for Internet access in many developing countries is a risk factor that if not addressed, will negatively impact the long-term sustainability of this Project. This risk applies to end-user access to the Internet and also the monthly cost for the Internet connection in the Post Offices and other public access points. This risk factor can be reduced through the active participation of public and private sector entities (governments, regulatory agency, operators and Internet Access providers) in the host countries. Providing services that are of interest to a large population in order to create a critical mass of frequent users necessary to reduce the recurring costs can also reduce it.

7.3 Facilitating Environment

An inappropriate policy, legal or regulatory environment is also a risk factor that could hinder the successful implementation of this Project. These factors (referred to as environmental factors) are reduced through the selection criteria for countries and on-going activities undertaken by ITU/BDT to address these issues. Environmental risk factors also need to be addressed through government commitment, ownership and its role as a vital partner and facilitator.

7.4 Financial

There are also several financial risks that should be dealt with through well-established accounting procedures, accountability, clear definition of roles, approval process and on-going monitoring and auditing.

7.5 Information Technology Security

Risk factors related to the computerization and online transmission and processing of electronic documents include unauthorized access and misuse of data, data integrity, data confidentiality, non-repudiation and other forms of security risks related to the use of the Internet. These risks can be reduced through the use of public key infrastructure (PKI) and public key applications (PKI) technologies that provide the necessary security and trust for e-transactions on a public network.
They are also reduced through the adoption and implementation of sound security policies and procedures and state of the arts control access solution to IT infrastructure where the computerized data is stored.

7.6 Resistance to Change

Resistance to change due to cultural practices, fear of the unknown and reorganization.

8. Beneficiary Countries

Beneficiary countries in the Arab States will be selected for this Project based on the following criteria:

i. The League of Arab States geographical focus with priority to LDCs in the Arab Region;
ii. Countries that have explicitly expressed the desire for ITU/BDT to assist them in the use of ICTs for the socio-economic benefits of their population (selection must be demand-driven);
iii. Countries that have on-going or planned activities to address the policy, legislative and regulatory requirements for such e-Government activities;
iv. Countries that have started or plan to start projects in these domains and have requested BDT assistance.

9. Capacity Requirements

The implementation of this Project requires the appropriate policy framework and a facilitating environment for using the required technology and providing the support for such services. It also needs human and financial resources, appropriate technology (hardware and software) and efficient management practices. To meet the objectives, there must be on-going monitoring, evaluation to meet the changing user needs and service requirements.

10. Management and Implementation Mode

In this Project, the primary funding organization will be defined, the ITU is the executing organization and the host country is responsible for an enabling environment, on-going operations, recurring costs and for providing the services identified. The Project will use existing ITU procedures for procurement, disbursements and financial management.
## ANNEX 1 - Project Budget

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2.2 TRANSITION FROM IPV4 TO IPV6
Project Number: 

Project Title: IPv4-IPv6 Transition for Developing Countries

Estimated Start Date: 2012

Estimated End Date: 2017

Government Coop. Agency:
Implementing Agency: International Telecommunication Union (ITU)

Beneficiary Countries: Arab States

ITU Project Manager:

**Estimated Budget**

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**Brief Description:**

The main goal of the project is to assist Member States by supporting smooth and well managed transition from IPv4 (Internet Protocol version 4) to IPv6 (Internet Protocol version 6) by appropriated infrastructure, services and applications deployments, raising awareness trough conducting trainings and workshops.

For the Signature Date Name/Title

ITU: ________________/___/_______ Mr Brahima Sanou, Director of BDT

Partner: ________________/___/_______
1. Background and Context

1.1 Context

Information Communication Technologies (ICTs) in general and Internet in particular play a critical role in all aspects of human life: a lot of governmental, business and social services and applications are available in Internet.

The World Summit on the Information Society (WSIS) plan of action foresees the establishment of people-centred, inclusive and development-oriented information society, where everyone can create, access, utilize and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving the quality of life. This can be achieved only by deploying appropriate updated and innovative technologies and solutions in all places around the world.

The ITU-led “Connect the World” initiative is an excellent example of the role of multi-stakeholder partnerships in bridging the digital divide. ITU has forged partnerships with some of the leading public and private sector organizations of the world towards the implementation of these initiatives.

In this context, the ITU is proposing “IPv4-IPv6 transition for Developing Countries” to support providing Internet-based services through the use of IPv6 infrastructures and applications for Developing Countries.

1.2 Problem Statement

- Internet Protocol version 6 is a version of the Internet Protocol (IP) intended to succeed Internet Protocol version 4, which currently directs almost all Internet traffic, but is running out of addresses. IPv6 allows up to 2^128 addresses, a massive increase from the 2^32 (about 4.3 billion) addresses possible with IPv4, and includes several other improvements. To gain the full benefits of IPv6, most hosts on the Internet, as well as the networks connecting them, will need to deploy this protocol—a difficult transition;
- While deployment of IPv6 is accelerating, especially in the Asia-Pacific region and some European countries, areas such as the Americas and Africa are comparatively lagging in deployment of IPv6;
- Extending infrastructure to all locations is mostly outdated and needs replacement that is expensive;
- Lack of expertise in IPv6 issues slows the process of bridging digital divide.

1.3 ITU Activities Related to IPv6

The objective of Program 2 of the Hyderabad Action Plan is to promote fair and equitable access to critical Internet resources (CIRs), by enabling the adaptation of adequate national and/or regional policy processes, specifically for IP-based networks, including the transition from IPv4 and migration to/deployment of IPv6, domain names and their internationalized versions.

For this reason, Resolution 63 on IP address allocation and encouraging the deployment of IPv6 in developing countries was adopted at WTDC-10 and the Resolution 64 of the World Telecommunication Standardization Assembly (Johannesburg, 2008), which encourages the deployment of IPv6 through:

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development of guidelines through Programme 2, as requested for developing countries, to enable adjustment of the organizational frameworks and policies necessary for migration to and deployment of IPv6;
• close collaboration with relevant entities (e.g. IETF, LIRs, RIRs, the Internet Society, in addition to others), to provide human capacity development, training and other assistance in line with Programme 4;
• initiation of the project under Programme 2 to assist developing countries, after having determined regional needs in respect of the transition, taking into account Resolution 64 (Johannesburg, 2008) of the World Telecommunication Standardization Assembly and also the results of the work of Correspondence Group 1 of the IPv6 Group in the ITU Telecommunication Standardization Sector;
• allocation the necessary funds to implement this resolution within existing BDT budgetary resources;
• call upon Member States and Sector Members to provide the necessary support for implementation of this resolution.

1.4 Beneficiary Countries

Beneficiary countries around the world will be selected for this Project based on the following criteria:

• This Project is targeted on Development Countries around the world and LDCs in particular;
• Countries that have explicitly expressed the desire for ITU/BDT to assist them in the use of ICTs for the socio-economic benefits of their population (selection must be demand-driven);
• Countries that have on-going or planned activities to address the policy, legislative and regulatory requirements for IPv4-IPv6 transition;
• Countries that have started or plan to start projects in these domains and have requested BDT assistance.

1.5 Capacity Requirements

The implementation of this Project requires the appropriate policy framework and a facilitating environment for using the required technology and providing the support for such services. It also needs human and financial resources, appropriate technology (hardware and software) and efficient management practices. To meet the objectives, there must be on-going monitoring, evaluation to meet the changing user needs and service requirements.

1.6 Benefits

• Countries’ infrastructure is updated and ready for new IPv6 application, services and solution;
• Knowledge is shared and awareness is raised so countries are no more distinguished from the new ICTs.
2. **Overall Project Objective**

The overall objective is to facilitate IPv4-IPv6 transition in Developing Countries on national level and to put in place modern and robust IPv6 infrastructure with conduction of follow-up trainings and workshops. This project pays particular attention to the development of national policy and strategy on smooth IPv4-IPv6 transition.

3. **Expected Results**

By implementing this project, the following results and benefits are expected:

- smooth transition from IPv4 to IPv6 guaranteed and the new version is applied to all Internet services on the National level;
- at least five professionals to be trained in each country on IPv6 – as well as on deployment strategies and planning;
- the establishment of a national task force on IPv6 deployment by the country’s trained professionals who will become part of the IPv6 Group ITU mailing list community to ensure continued promotion of IPv6 deployment. The national IPv6 taskforce will be responsible for the elaboration of the national strategy on IPv6;
- a national IPv6 task force committed to developing the necessary guides and/or toolkits for IPv6 deployment that are easy to understand and use;
- each task force would be able to share their national IPv6 deployment strategy with the IPv6 ITU group, the group will help by providing constructive ideas and sharing of relevant experiences in regards to IPv6 deployment;
- Regional Forum to be conducted.

4. **Activities**

4.2 **Assessment and Study**

This includes assessing and studying the needs and user requirements, defining business models for sustainability and providing basic appropriate technical training for the user community. The activities in this phase need to be done first in order to define the scope and the technical requirements necessary for the other phases.

4.3 **Service Identification**

As a result of the assessment and studies, the appropriate government services and location(s) will be identified. Other activities in this phase include definition of the scope (estimated number of users) of the Project. Common needs on IPv6 technologies will be identified and taken into account so as to facilitate replication within the same country and in other countries.
4.4 Technology Design

Based on the results of the Assessments and Service Identification this phase includes the definition of the technology strategy, technology design objectives and identification of technology components to meet the objectives.

4.5 Implementation

The main activities in this phase include building the platform that will be the same (but scaled appropriately based on 1 and 2 above) for each of the selected countries. It also includes the installation, configuration and customization of the IPv6 equipment, applications and services; testing on compliance with IPv6; IPv6 certification, trainings, forum and workshops conducted as well.

4.6 Testing and Service Roll Out

The activities in this last phase include consumer acceptance, quality assurance and service requirement conformance testing. Any further adjustments related to the contents and interface design will also be done in this last phase before the service becomes operational.

5. Input

5.1 Partners

The Partners will provide funding support for the implementation of the project.

5.2 ITU

ITU will provide skills, care and diligence to ensure the success of the project.

5.3 Beneficiary Country

- Assist the ITU experts in the collection of data necessary to carry out the work and facilitate the access to all relevant documents and information required for the performance of their tasks;
- Assist the ITU experts with respect to immigration and custom formalities;
- Commit the required human resources in order to implement and operate the entire project;
- Provide, at its own cost, equipped office space and access for the experts to existing Internet, fax and telephone facilities;
- Provide the necessary infrastructure to connect the participating government entities and remote locations;
- Support the installation and recurring costs for required telecommunication and Internet Infrastructure;
• Cover the costs of Internet connectivity to the user access locations (e.g. post offices), of logistical support, physical security for all locations hosting Project’s ICT infrastructure as well as of salaries for local staff operating installed IPv6 solutions.

6.  Risk

6.1  ICT Literacy

Low level of ICT awareness and ICT literacy are major risk factors in meeting the objectives of ICT projects destined for use by the general public in developing countries. These factors often translate into low usage; and hence, lower chances for sustainability. To deal with the ICT awareness and low ICT literacy within the population, one must envisage public ICT awareness campaigns and basic ICT training targeting the population. Community ownership is a factor that must equally be addressed. The community in the location where the services are to be provided needs to be consulted and be an integral part of the assessment, design and development phases of the Project. The public Internet access locations will have operators to facilitate the use of these services. These risks could also be reduced through carefully assessing user needs and the socio-economic and cultural environment so that the services identified are affordable, provide tangible and measurable benefits and respond to the real needs of the citizens in the region.

6.2  Affordable Internet Access

High cost for Internet access in many developing countries is a risk factor that if not addressed, will negatively impact the long-term sustainability of this Project. This risk applies to end-user access to the Internet and also the monthly cost for the Internet connection in the Post Offices and other public access points. This risk factor can be reduced through the active participation of public and private sector entities (governments, regulatory agency, operators and Internet Access providers) in the host countries. Providing services that are of interest to a large population in order to create a critical mass of frequent users’ necessary to reduce the recurring costs can also reduce it.

6.3  Facilitating Environment

An inappropriate policy, legal or regulatory environment is also a risk factor that could hinder the successful implementation of this Project. These factors (referred to as environmental factors) are reduced through the selection criteria for countries and on-going activities undertaken by ITU/BDT to address these issues. Environmental risk factors also need to be addressed through government commitment, ownership and its role as a vital partner and facilitator.

6.4  Financial

There are also several financial risks that should be dealt with through well-established accounting procedures, accountability, clear definition of roles, approval process and on-going monitoring and auditing.
7. Project Management

ITU as the implementing agency will supervise and administer the overall implementation of the project in accordance with ITU rules and procedures. Accordingly, personnel will be engaged and administered, equipment, suppliers and services purchased, and contracts entered into, in accordance with the provisions of such Rules, Regulations and Procedures. Furthermore, the project will be subject to the internal and external-auditing procedures laid down in the financial rules, regulations and procedures of the ITU.

8. Monitoring and Evaluation

The progress of the project will be monitored through periodical reports prepared by the project manager. This report will provide a summary of the project progress, the challenges as well as any necessary amendments that may be required for the project implementation. The financial status and expenditures for the project will also be updated accordingly, and an evaluation report will be prepared at the end of the project to assess the success of the project in terms of meeting its stated objectives and developmental impact based on expected outcomes and pre-identified indicators.

Upon conclusion of the project, the project manager will prepare a final project closure report with future recommendations that will be submitted to ITU.

9. Budget

The ITU project budget is shown in Annex A.

ANNEX A - PROJECT BUDGET

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<th>BUDGET LINE</th>
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2.3 ARAB MOBILE FINANCIAL SERVICES (M-PAYMENTS)
Arab Mobile Financial Services (m-Payments)

**Brief Description:**
This project will provide inclusive mobile financial services to the citizens of the Arab States specially those who live outside of major centers where financial services are often non-existent, expensive or difficult to access. The large penetration of mobile services offers an unprecedented potential to provide financial services to the unbanked to empower them to engage in market economy and strengthening their resilience against economic uncertainties. Additionally, providing easy and affordable cross-border remittances will enable people who are working in countries other than their home countries to send money back to their families and relatives.

1. **Background and Context:**
Services can vary from simple person-to-person remittances (P2P), bill payments, cash deposits and cash withdrawal services to more value-added services such as receipt and payments of micro-loans, interest bearing savings accounts, micro-insurance, and other government-to-person payments (G2P) such as payments of salaries, pension and any type of social transfers (such as unemployment benefits, conditional cash transfers, Vouchers or Conditional aid, etc.). Ensuring security and trust, however, in electronic transactions is a key enabler for higher-value added services.

The project will also facilitate mobile cross-border transfers and international remittances to ensure interoperability among mobile payments systems deployed at national levels through a multilateral approach instead of separate bilateral agreements which will stimulate inter-regional commerce and business transactions.

2. **Project Objective:**
The objective of the project is to provide greater access to financial and mobile electronic services through use of ICTs

3. **Expected Results:**
   - Empowered citizens and SMEs through enhanced access to financial services;
   - Improved commerce and business transactions across the Arab States region;
   - Harmonized policies, regulations and technical standards for mobile financial services across the Arab States Region;
   - Better flow of human and financial resources across the Arab States region leading to more efficient utilization of resources.

4. **Potential Partners:**
Ministries of ICT, Postal Network, Telecom operators, Banks, Financial and Telecom Regulators

5. **Estimated Budget:**
600 million US$

6. **Time Frame:**
Three years.
2.4 PAN-ARAB TELEMEDICINE NETWORK
Pan-Arab Telemedicine Network

Brief Description:

The Pan-Arab Telemedicine Network will enable selected leading Arab medical universities and hospitals to provide continuing medical education and health expert services to remote hospitals and universities that will be provided with a Telemedicine node equipped by medical and video conferencing equipment and a satellite or broadband wireless connectivity.

1. Background and Context:

The core activities will consist of:

- Webcasting of interactive courses by leading Arab medical professionals to university students and young professionals in remote areas in the Arab States Region;
- Tele-consultations using an integrated system capable of managing patients, storing and forwarding medical records and images and providing second opinion to remote patients. The system will comply with international standards in medical imaging and Electronic Medical Records (EMR) facilitating interoperability and exchanging of patient information;
- Any doctor from remote locations can refer the patient’s medical records to any of the specialty hospitals to have an offline second opinion or a consultation video session for live diagnosis and advice on a scheduled time based on experts’ availability and required specialties.

2. Project Objective:

The objective of the project is to improve cooperation and knowledge sharing between Arab medical universities and hospitals as well as to improve healthcare services in remote areas through ICT solutions (tele-consultation) and building capacities of young medical professionals in remote areas through online continuing medical education.

3. Expected Results:

- Empowered local medical professionals through better capacity building;
- Better healthcare provided in remote areas;
- Decrease in medical professionals brain drain.

4. Potential Partners:

- WHO, Arab Ministries of ICT and Health, Arab Medical Universities and hospitals;
- Technical Partners: University of Geneva, Sanjay Gandhi Post Graduate Institute of Medical Sciences and Post Graduate Institute for Medical Education and Research in India.

5. Estimated Budget:

220 million US$

6. Time Frame:

Three years.
2.5 MOBILE HEALTH SERVICES FOR RURAL HEALTHCARE
Mobile Health Services for Rural Healthcare

Brief Description:
The objective of this project is to use mobile phones to increase the quality and quantity of healthcare - especially pre-natal, post-natal, new born and children care - and to improve the capacity of community health workers and midwives in rural areas of the Arab States.

1. Background and Context:
The project will target both patients e.g. women/parents, and community health workers:
- Pregnant women, for example, can receive messages to inform them what to expect during a pregnancy, and to encourage them to make regular clinic visits based on doctor’s advice.

Community health workers, who provide the vast majority of primary care in much of the developing world, can:
- Use mobile phones to enter data such as when they have seen a patient and what kind of treatment these patients received and record patient vital signs data;
- Call specialists for tele-consultations when needed;
- Use a point-of-care decision support system to improve child survival and maternal health, for example, through routine monitoring and early detection and treatment or referral for danger signs;
- Access mLearning courses for continuing education to reinforce knowledge and build capacities;
- Use mobile phone to perform disease surveillance and control and to collect vital statistics on birth and causes of death, especially maternal and child death to provide continuous and reliable intelligence to inform and monitor action and refine public health interventions.

2. Project Objectives:
- Address health professionals shortage especially in rural areas;
- Improve quality and quantity of care provided in remote areas;
- Strengthen country civil registration and vital statistics systems to better monitor births, deaths, and causes of death, especially maternal and child death.

3. Expected Results:
- Better healthcare provided leading to achieving MDG targets specially targets 4 and 5 on maternal and child health;
- Better information collected for proper public health decision making and planning.

4. Potential Partners:
- WHO, Ministries of ICT and Health;
- Technical Partners: Grameen Foundation, mHealth Alliance

5. Estimated Budget:
100 million US$

6. Time Frame:
Three years.
2.6 ICT FOR ILLITERACY ERADICATION (ICT4IE)
ICT for Illiteracy Eradication (ICT4IE)

**Brief Description:**
The project will build on existing successful efforts to use ICT for illiteracy eradication and will expand the use of new media and tools to eradicate illiteracy in Arab States that face the same challenge.

1. **Background and Context:**
New media capabilities are opening up the door for new innovation and new ways of learning. The ICT for Illiteracy Eradication program developed and deployed in Egypt, for example, produced electronic content for teaching Arabic letters and words and elementary mathematics for illiteracy eradication. The program has adopted an innovative mixture of taught and self-study courses that changed the way learners perceive and interact with technology and facilitated the delivery of quality digital learning content to people in underserved areas. The project will also build on the ITU-ALECSO-Arab Women’s Organization project which is developing a set of online training materials in standard Arabic.

The project will:
- Explore the need to adapt existing learning tools to local cultures and dialects in selected Arab countries and especially targeting women and girls;
- Explore and develop a mobile enabled version for illiteracy eradication and to determine whether such materials could be used on the widely-available non-Smart phones in the region or if the mobile training would only be appropriate for smart phones;
- Partner with NGOs, and other government entities to ensure widespread accessibility of the program and to look at issues such as subsidizing mobile phones and broadband access;
- Continuously monitor and evaluate the usage to suggest new ways to improve the deployment of the program.

2. **Project Objective:**
The project aims to foster the use ICT for illiteracy eradication and will expand the use of new media and tools to eradicate illiteracy in Arab States.

3. **Expected Results:**
- Better uptake of illiteracy eradication programs with less drop-outs;
- Better and accelerated outreach of illiteracy eradication programs with less resources;
- Significant improvement of literacy rates after 3 years of deployment.

4. **Potential Partners:**
UNESCO, Arab League Educational, Cultural and Scientific Organization (ALECSO), AWO, Ministries of ICT, government entities responsible of illiteracy eradication.

5. **Estimated Budget:**
20 million US$

6. **Time Frame:**
Three years.
2.7 EGYPT ECONTENT PROJECT 2-ARAB E-SCIENCE RESOURCE MANAGEMENT
Estimated Start Date: June 21 2012
Estimated End Date: June 21 2014
Government Coop. Agency: Ministries of higher education and scientific research in Arab countries
Executing Agency: MCIT
Beneficiary Country: Arab States
Estimated budget: USD 2,000,000

Brief Description:
The Ministry of Scientific Research (MSR) in any country requires the development of a Statistical Data Management System as part of a comprehensive IT solution for the integration and maximization of research resources utilization.

The introduced integrated solution combines functionality for the researchers’ master data (Personal, professional, contacts, experience, awards and qualifications … etc.) administration and management, research resources utilization.

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The introduced integrated solution combines functionality for the researchers’ master data (Personal, professional, contacts, experience, awards and qualifications … etc.) administration and management, research resources utilization.
1. Background and Context
The idea of this project was based on the previous carried out project executed in Egypt by (Egyptian Academy of Scientific Research) ASRT and this project is called E-science. The E-science is an Oracle database application designed, analyzed, and developed to document dynamically all the research resources stating from human resources to research projects, scientific equipment and software, libraries and scientific services that each department introduces to community. Associated to this, web based application screens were developed to allow a dynamic website connected with the established database. A three level authentication security system was established for data protection.

The aim of the project was the establishment of electronic links between research centres, research institutions in different ministries in Egypt on the basis of focal points for each scientific specialization field. The execution of such elastic and dynamic database was the first phase. Provision of unified database index in all focal points, enabling access to focal points resources and information providing decision makers in each scientific field with accurate and timely information that enables effective planning and maximizes resource utilization. The performance evaluation indicators in scientific research in this project were built on the e-science database with modifications according to the new measuring criteria needed. Also Business Intelligence modules were integrated over the database for extracting the required performance indicators reports.

1.1 Justification
The scientific research in Egypt and in other Arab countries are well recognized internationally as they form a cornerstone of development, the research system consists of human resources, scientific materials, sharing projects, research equipment, as well as promoting entrepreneurs. The fact that there are huge production of scientific issues, of papers, projects, etc. generates a need for arrangement, organizing and evaluating. In the same time allowing for research papers to be easily exchanged between different stakeholders in same field.

The solution combines functionality for the researchers’ master data (Personal, professional, contacts, experience, awards and qualifications ... etc.) administration and management, and Business Intelligence features that provide decision makers with the necessary information and KPIs to assess researchers performance, in order to achieve sustainable competitive advantage.

2. Project description
- Complete, integrated and centralized web based solution that links and integrates all the research centers and institutes’ different departments and functions data into one unified database based on the specialization field.

This Database will contain information about:
- HR data “full details about the Staff and the Faculty members”
- Projects data in each research center and institute
- Unified Library includes all the publications of papers, thesis, etc.
- Scientific devices/ equipment
- Scientific Software packages
- Different services that each research center and institute provide to community
- Patent Data
- Prototypes and products data
- Implement a Business Intelligence (BI) solution

- The Ministry of Scientific Research (MSR) is seeking a Decision Support Solution aimed at monitoring and tracking Key Performance Indicators including R&D Indicators, Innovation and Technology Indicators, Knowledge Indicators, and Global Competitiveness Index.
- Therefore, a BI layer is designed and implemented over the database layer to provide the performance evaluation indicators which support decision making.
3. Project Objectives
As stated above, the main objective is to build a complete integrated web based solution that link all research centers with their related resources into one unified database with Business Intelligence (BI) system solution that will be integrated over the database to extract all analysis/evaluation reports with their associated indicators.

The objectives are:
1. Establishment of electronic links between research centers, research institutions and ministries on the basis of specialization field of science.
2. Provision of unified database index in all fields.
3. Enabling access to resources and information
4. Providing decision makers in each field with accurate and timely information that enables effective planning and maximizes resources utilization.
5. Monitoring the Science & Technology performance indicators from different views from quantitative statistical reports to deepen qualitative reports on performance.

4. Expected outputs:
- Tree management system enables for centralized/ decentralized managing of scientific resources at the levels of Institutes/ Departments/ Labs.
- Effective search engine to facilitate efficient and delivering of scientific research information in secure environment.
- Enabler for sufficient key performance Indicators (KPI) and support decision making system in scientific research.
- A way to connect industry with scientific research.

5. Indicators
- Established Oracle database of all scientific resources based on field of science
- Number of researchers in Arab countries in same field of science share and exchange scientific materials
- KPI are extracted from all data entered

6. Main activities
As in the work plan below: the main activities are as follows:
1- Complete analysis of all the components of the system depending on the previous database established in E-science project in Egypt and the set of performance evaluation indicators set by MSR
2- Re-analysis and re-tuning according to the needs of other institutes
3- Development of data base system
4- Development of web logic solution
5- Development of BI layer over DB with required indicators
6- Acquiring Service Level Agreement (SLA) for hosting
7- Training for researchers ’staff and data entry
8- Supervising data entry in selected institutes
9- Project coordination and management
10- Implementation performance Follow up, Monitoring and Evaluation

7. Inputs
Fund of the project: 2 M$ for 2 years project

Partner:
The Partners in each country (Ministry of Scientific Research and/or its affiliates) will provide support for the implementation of the project by affording data of resources.

Beneficiaries:
All research communities in all Arab countries
8. Risks
The persistence from some staff members in different institutes due to lack of potential they feel to share in the project
Challenges faced in encouraging the staff members to put their data (basic & scientific) in the data base system since a lot of them don’t see the fast profit/gain they will have from investing time in editing or correcting in their accounts.
Large number of staff members from several institutes is outside Egypt hence even their institutes can't reach their updated data.

9. Management
The Electronics Research institute in cooperation with the ASRT in Egypt will manage the project implementation based on their previous experience of a similar system for scientific research in Egypt.

10. Monitoring and evaluation
The project will hire an M&E external consultant/company to evaluate the pilot of project implementation in 6 institutes from three countries under 2 focal points as a pilot. His/her job will be:
- Base line study at start to set the qualitative and quantitative indicators for success
- Prepare, distribute and collect surveys from the 6 implanted institutes through and after implementation
- Final impact assessment study with achieved ratios for all indicators, learning lessons and recommendation for sustainability in implemented institutions and scaling up plan in the other institutes and research centres.

11. Sustainability
The solution combines functionality for the researchers’ data and KPIs to assess researchers performance, in order to achieve sustainable competitive advantage.

12. Work plan
The project timeline will extend over the following:

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Role of scientific research team:
1. Complete analysis of all the components of the system depending on the previous database established in E-science project in Egypt and the set of performance evaluation indicators set by MSR
2. Re-analysis and re-tuning according to the needs of other institutes
3. Acquiring Service Level Agreement (SLA) for hosting
4. Training for researchers ‘staff and data entry
5. Supervising data entry in selected institutes
6. Project coordination and management
7. Implementation performance Follow up, Monitoring and Evaluation

Role of the IT development company
1. Database Design, update and build on it any missing modules according to evaluation indicators set
2- Implementation forms will be transformed to ADF web components, covering the scope of:

- Business Components, Logical Modules (Users, staff, projects, library, equipments, software, services and backup modules), new Web pages to be developed according to new evaluation indicators set and Oracle BI dashboard for assessing the performance measures

3- Development of the new requirements from other institutes

4- Product support and datacenter service support

5- Training and Data entry

6- Deliver documentation (Database specification, User manuals, Operation manual)

Contact Person for this Project
Dr. Hoda Baraka

E-Mail Address
hbaraka@mcit.gov.eg

Other Contact Information
Dr. Hesham Farouk
2.8 EGYPT ECONTENT PROJECT 10- ARAB SCIENCE AND TECHNOLOGY PORTAL
Arab science and technology portal aims to be an Arab portal supporting the efforts of Arab scientists and researchers, and in the field of technology and science, through up to date scientific release as well as promoting scientific research through adopting scientific competitions.

1. Background and Context
We have in Egypt science and technology portal which is sponsored by ministry of communications and information technology, and regulated by Egyptian National Scientific and Technical Information Network (ENSTINET) related to scientific research Academy. The portal aims to provide an easy online trusted access to S&T information resources and services, for researchers and practitioners in the major science fields. The portal provide wide public access and a unified search of the Egyptian S&T information, that empowered with advanced search capabilities, alerts, user profiles, categorization by research field, and easy of use interface. The Egyptian S&T Portal is targeted at the research community, investors and industry at large. Our project will target Arab researchers and will concentrate on Arabic research papers and thesis.

1.1 Justification
To be a pool that organizes and combine all scientific research activities, conducted in the field of science and technology in the Arab world.

2. Project description
Portal combines all formats for scientific research such as books, thesis, technical reports and journals, articles in the field of scientific research, adoption of scientific competitions in the Arab world.

3. Project Objectives
1. Dissemination of scientific and technological culture in the Arab countries through the gate with all disciplines of science and technology in Arabic and translated into Arabic.
2. Linking scientific and technological culture, real problems faced by Arab societies.
3. Activating the Arab scientific competitions and hosting through the gate.

4. Expected outputs
- Portal which contains scientific research papers, articles, books, thesis in Arabic.

5. Indicators
- No of uploaded thesis.
- No of uploaded scientific papers.
- No of registered patents.
- No of registered researchers.
- No of registered competitions.
- No of hold scientific degrees.

6. Main activities
   • Collecting the material.
     - Collected all digitized material in Egypt and other Arab countries.
     - Digitize all other available material
   • Developing bibliographic database.
   • Developing the portal.
     - Piddling process
     - Portal Development
   • Launching the portal.

7. Inputs
Potential Partners:
Ministry of scientific research, ITU, MCIT
Beneficiaries:
Organization: ENsTINET, ministry of scientific research
Individuals: researcher

8. Risks
Fund, online payment system

9. Management
Ministry of communication and information technology (e-Content Department)

10. Monitoring and evaluation
The progress of the project will be monitored through periodic M&E procedures.

11. Sustainability
After launching the portal, it can be managed by ENsTINET, and the fees collected for downloaded scientific articles, patents, thesis, could be used for portal upgrading and sustainability.

12. Work plan

<table>
<thead>
<tr>
<th>Activities</th>
<th>2012</th>
<th>2013</th>
<th>2014-2015</th>
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<tbody>
<tr>
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<td>Q1</td>
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<tr>
<td>Launching</td>
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</tbody>
</table>

Contact Person for this Project
Dr. Hoda Baraka
E-Mail Address
hbaraka@mcit.gov.eg
Other Contact Information
Dr. Hesham Farouk Ali
hefarouk@mcit.gov.eg
2.9 EGYPT ECONTENT PROJECT 9 - EGYPTIAN RADIO AND TELEVISION UNION DIGITAL LIBRARY
1. Background and Context
MCIT has led the way to establishing an e-content industry in Egypt through its Arabic e-content Initiative. This initiative aims to enhance the competitiveness of the Egyptian e-content industry by supporting the production, use and distribution of Arabic digital content on global networks. Since ERTU is very rich in Arabic video content MCIT targets to avail this content online.

1.1 Justification
Currently it is very difficult to preserve and maintain the video content on tapes at ERTU, since tapes are badly affected by the ageing and the content is getting distorted. Also we need to enrich the Arabic content online.

2. Project description
This project aims to create a complete system to contain, preserve, manage and to digitize 500,000 Hrs of video content of Egyptian and Arab Heritage available at ERTU, and to publish web editions of it all over the world through the Arabic e-content Initiative, taking into consideration the copyrights and the security regulations to be available for all those interested in the Arabic Media & Art in the world.

3. Project Objectives
- Preserve Arabic video content
- Enrich the Arabic video content online
- Ease of managing and editing the video content at ERTU
- Improve the ERTU productivity

4. Expected outputs
- Digital Video Library System
- 500,000 Hours of digitized Arabic video content
- A team of 60 persons well trained to operate, administer the system and digitize new content

5. Indicators
- Number of video Hours to be digitized monthly
- Number of video Hours availed online monthly
- Number of Internet users interested and watching this content online
- Number of Countries interested and watching this content online
6. Main activities
- Periodical Progress Meetings
- Preparing an RFP including all the technical requirements
- Bedding and contracting a company or a consortium to implement the project
- Implementation and assessment
- Training the ERTU Team
- Testing the System
- Restoration for some damaged tapes
- Digitizing the content and metadata editing
- Publishing the content online

7. Inputs
**Partner:** The Partner will provide funding support for the implementation of the project.

**Beneficiaries:**

8. Risks
- Poor condition of some tapes and restoration necessity
- Unavailability of some of the skilled people required to provide metadata for the digitized content

9. Management
Through a steering committee that meets periodically.

10. Monitoring and evaluation
Ongoing evaluation to the quality of services through the assessment of the service provider in order to work on delivering the best service available.

11. Sustainability
Through the trained team that will operate, administer the system and digitize new content.

12. Work plan

<table>
<thead>
<tr>
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<td>Implementation and assessment</td>
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<td>Restoration for some damaged tapes</td>
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</table>

Contact Person for this Project
Dr. Hoda Baraka
E-Mail Address
hbaraka@mcit.gov.eg

Other Contact Information
Dr. Hesham Farouk Ali
hefarouk@mcit.gov.eg
2.10  EGYPT ECONTENT PROJECT 8- EGYPT NEWS CENTER DIGITAL VIDEO LIBRARY
1. Background and Context
MCIT has led the way to establishing an e-content industry in Egypt through its Arabic e-content Initiative. This initiative aims to enhance the competitiveness of the Egyptian e-content industry by supporting the production, use and distribution of Arabic digital content on global networks. Since Egypt News Center is very rich in Arabic video content and considered essential part of the Arab World History, MCIT targets to avail this content online.

1.1 Justification
Currently it is very difficult to preserve and maintain the video content on tapes at Egypt News Center, since tapes are badly affected by the ageing and the content is getting distorted. Also we need to enrich the Arabic content online.

2. Project description
This project aims to create a complete system to contain, preserve, manage and to digitize 60,000 Hrs of video content of Egyptian and Arab News Content available at Egypt News Center, and to publish web editions of it all over the world through the Arabic e-content Initiative and the Egynews Portal, taking into consideration the copyrights and the security regulations to be available for all those interested in the Arabic News & History in the world.

3. Project Objectives
- Preserve Arabic Video News & History
- Enrich the Arabic video content online
- Ease of managing and editing the video content at Egypt News Center
- Improve the Egypt News Center productivity

4. Expected outputs
- Digital Video Library System
- 60,000 Hours of digitized Arabic video content
- A team of 20 persons well trained to operate, administer the system and digitize new content
5. Indicators  
- Number of video Hours to be digitized monthly  
- Number of video Hours availed online monthly  
- Number of Internet users interested and watching this content online  
- Number of Countries interested and watching this content online 

6. Main activities  
- Periodical Progress Meetings  
- Preparing an RFP including all the technical requirements  
- Bedding and contracting a company or a consortium to implement the project  
- Implementation and assessment  
- Training the Egypt News Center Team  
- Testing the System  
- Restoration for some damaged tapes  
- Digitizing the content and metadata editing  
- Publishing the content online 

7. Inputs  
**Partner:** The Partner will provide funding support for the implementation of the project. 

**Beneficiaries:** 

8. Risks  
- Poor condition of some tapes and restoration necessity  
- Unavailability of some of the skilled people required to provide metadata for the digitized content 

9. Management  
Through a steering committee that meets periodically. 

10. Monitoring and evaluation  
Ongoing evaluation to the quality of services through the assessment of the service provider in order to work on delivering the best service available. 

11. Sustainability  
Through the trained team that will operate, administer the system and digitize new content. 

12. Work plan 

<table>
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**Contact Person for this Project**  
Dr. Hoda Baraka  
E-Mail Address  
hbaraka@mcit.gov.eg 

**Other Contact Information**  
Dr. Hesham Farouk Ali  
hefarouk@mcit.gov.eg
2.11 ARAB E-HEALTH TOOLKIT
Brief Description:

The project aims at developing the Arab Health Information Exchange (HIE) Toolkit to provide the healthcare stakeholders in the Arabic states with the eHealth building blocks. The HIE Toolkit will cover different aspects: strategy, technical guidance (standards and integration profiles), legalizations, ethical and cultural issues, capacity Building (awareness, education, and training), knowledge (case studies, reports, and white papers), related organizations (especially ARMIA), suitable business models, Geographical Information System (GIS) for eHealth surveillance and country profiling), and finally services such as: consultation, technical support, accreditation, workforce brokerage, etc. In this way, the toolkit will support the required process for implementing real-world eHealth systems in the Arab Region. This process will focus on creating taskforces of empowered key persons and entities in each involved country. These taskforces will be assisted by different international and national entities to provide continues guidance and support in adopting eHealth strategies. This process will be fully-integrated into the toolkit in order to ensure highest quality and sustainability.

1. Background and Context

Due to the incredible growth of health related information and emerging of new trends in medicine, there is a crucial need for utilizing various ICT applications in healthcare. Accordingly, the healthcare organizations will not be only enabled to optimally utilize the healthcare information, but also capable to efficiently implement different ICT applications and technologies in all healthcare domains, which is generally called “eHealth”.

Nowadays, there are many valuable literatures on eHealth strategies, current challenges, and future opportunities developed by international organizations, namely, ITU and WHO. On the other hand, the International technical organization developed concrete industrial standards for healthcare interoperability. Thus, there is a golden opportunity nowadays to start in adopting eHealth initiatives in the Arab Region.

Based on that, there is a strong need to comprehensively identify the ecosystem of eHealth in the region spanning from strategies to deep technical implementation, future sustainability and business models, education and capacity building, business models, legalization and regulatory frameworks, etc.

2. Project Objectives

- Providing the healthcare stakeholders in the Arab region with the necessary guidance and support to adapt and implement the international eHealth strategies and guidelines.
- Paving the way for a concrete regional eHealth system and Electronic Health Record aligning with international approaches.
3. Expected Outputs
- Arab Health Information Exchange (HIE) Toolkit, including:
  - HIE interactive map (regularly updated)
  - Strategy assistant toolkit
  - Technical standards for interoperability
  - Consultancy for implementation
  - Awareness, educational, and training materials
  - Accreditation process for systems and educational programs
  - Business models assistance
  - Brokerage services
  - Legal, ethical and cultural considerations
- Real implementation of different eHealth approaches within participated countries.

4. Potential Partners
- Information Technology Institute (ITI)- Ministry of Communications and Information Technology (MCIT)
- International Telecommunication Union (ITU)
- Heinz Nixdorf Institute (HNI) – Paderborn University
- Egyptian Government: Ministry of Health and Ministry of Higher Education
- World Health Organization-Regional Office of the Eastern Mediterranean (WHO-EMRO)
- International Medical Informatics Association (IMIA)
- The International Federation of Health Information Management (IFHIMA)
- Integrating the Healthcare Enterprise(IHE)
- World Bank-InfoDev

5. Estimated Budget and Time Frame
Financial Scale: 10'000'000 USD
Project Time Frame: 2012-2015

Submitted by:

Samia Moussa
smoussa@mcit.gov.eg
rahussein@mcit.gov.eg
Cell: 00201227402257
Tel: 0020235355504
2.12 EL HASSAN ECO TECH PARK PROGRAM
JORDAN - EL HASSAN ECO TECH PARK PROGRAM

Estimated budget  USD 1,000,000

Background

Jordan is facing challenges in meeting water and energy growing demands. Jordan views both water and energy sectors among the highest priorities forming the backbone of integrated social and economic development. Water and energy are constraints to Jordan’s economic development.

Jordan is considered as one of the 4th poorest countries worldwide in water resources. The available renewable water resources are dropping drastically to an annual per capita share of less than 145 m³ in recent years. Factors for such a decrease include the highest population growth, influx of refugees due to political instability in the region, and the rigidity. With the annual growth in water demands, competition between users has been increasingly intensified. Increased urbanization in addition to rising standards of living also is counterparts to widening the gap between supply and demand.

Jordan’s total water demand in 2007 was estimated at 1505 MCM/year\(^1\). Current deficits are being covered through mining of groundwater resources at 130% of their safe yields, and through exploitation of non-renewable groundwater. Overexploitation of aquifers has resulted in the lowering of water tables and degradation of groundwater quality and thus threatens the sustainability of such resources for future use. Overexploitation has also forced agriculture practices to contend with increasing salinity.

Jordan’s demand for energy is to meet the needs for economic development. In 2007, the growth rate was about 3.5% and demand is expected to continue increasing at an average annual rate of 5.5%.

Jordan’s electricity demand is currently growing higher than its energy supply. The country’s total electricity consumption is high due to demand in the domestic sector, and this is expected to increase with in the future. Almost 38% of the country’s electricity is consumed by the domestic sector, which

represented 4,017 kWh in 2007. With Jordan’s growing population and increasing demand for electricity, the potential for energy efficiency program in the domestic sector is high.

According to the NEPCO’s most recent figures, electricity consumption increased from 9,593 GWh in 2006 to 10,553 GWh in 2007, representing a growth rate of 10.1%. Demand is expected to continue to increase up to 2020 with an average annual growth rate of 8.5%. According to the energy strategy for 2007-2020, a national target of 10% of renewable energy in the total energy mix shall be achieved by 2020.

**Rationale**

In view of the limited natural resources of water and energy, it is clear that there is a need for raising awareness to face these challenges. Investment in R&D and awareness are key factors for best utilization of these limited resources, exploring new technologies for energy and water utilization. In addition, we need to introduce the concept of integrated waste management and IWRM.

The Royal Scientific Society (RSS) proposed establishing El Hassan Eco Tech Park, to be a model project to mainstream the principles of environmental sustainability to the local community. The Eco Tech Park aims at increasing the environmental awareness in general application for science to source scarcity.

Hence, Jordan is in need for an interactive science museum site where new technologies can be demonstrated and used by young researchers. The Eco Tech Park will act as an interactive lab where students can experiment, explore and get hands-on training on clean technologies. By doing so, the wider community will not lack the feel and practice of best management of Resources.

The RSS and Greater Amman Municipality (GAM) have reached an understanding to develop El Hassan Forest (288 Donum) located in the Center of Amman to become an Eco Tech Park. The Park will be utilized for recreational as well as environmental awareness purposes as per the Memorandum of Understanding no. (15/2010) dated 18/01/2010 signed between the two parties. Accordingly, both parties agreed on the implementation of the program in four phases where they will start implementing the first project of the program on the allocated part of the park land which was determined by the Mayor of Amman.

**Objectives**

The overall objective of establishing El Hassan Eco Tech Park is to contribute to the national and regional efforts in advancing environmental and socioeconomic sustainability through the advancement of

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2 National Electric Power Company (NEPCO)
3 UNDP Jordan. Report. 2010
awareness and adoption of clean technologies and sound environmental practices. The specific objectives are to provide a forum for experimenting and demonstrating new customized clean technologies, advance applied environmental research for problem solving and addressing proactively new emerging issues for Jordan and the region provide hands-on training for the future eco-leader and professionals, and provide an eco-friendly recreational facility.

Thus El Hassan Eco Tec Park program will consist of four phases; Green Training Center Building Project, Public Exhibition Building Project, Science Museum Building Project, and Research Center Building Project.

**Key Partners**

The Royal Scientific Society represented by, HRH Princess Sumaya Bint El Hassan, inviting all the local sectors to contribute to the success of this national project and realize the benefits for the Jordan society. This initiative received generous responses and was welcomed by many of public and private sectors.

In addition to the competition that the Royal Scientific Society launched, the next step is to target universities students in the field of architecture, for submitting sustainable concept designs that articulate the Eco Tech Park objectives, vision and mission. Other volunteers from public and private sectors will be part of this initiative and bring together a well and clear learning model for the Jordanian community. These sectors involve the Green Building Council and Jordan Engineers Association.

**Outcome Objectives**

*Long-term objectives:*

The long term objective of establishing El-Hassan Eco tech Park is to contribute to the national and regional efforts in evolving environmental and social sustainability through the advancement of awareness and adoption of clean technologies and sound environmental practices. Since Jordan is facing shortage in all water and energy there is a primary need the country to create a culture of conservation, a new behavior and ethic that increases the number of Jordanians who practice water and energy conservation for decreased consumption of dwindling resources. There is also a need to improve solid waste management.
Behavioral Objectives:

The behavioral objective of the Eco Tech Park is to initiate and establish clear and identifiable behavioral changes amongst the Jordanian public and decision-makers, to lead to increased efficiency in the use of water and energy and the concept of green building.

- Raise awareness to children (from ages 6 and up), parents, schools, public and private sectors’ clean technologies for water, energy and green building conservation.
- Help visitors understand the role/consequences of the individual actions and choices each one takes that affects the environment and other individuals at both macro and micro levels.
- Promote innovation, inventive thinking and problem-solving through deployment of the clean technologies at the park.
- Encourage visitors to make ethical decisions, reflecting on the consequences and take corrective action to their environmental conscience.
- Engage and extend visitors’ interaction with clean technologies through the Eco Tech Park Visitors’ center, Research center and Training center.

Contact Person

Eng. Nedal Dudin, Program Manager
nedal.dudin@rss.jo
Tel. +962 6 5344701 Ext. 2593
Mobile: +962 777 482 974
www.rss.jo
3. EMPOWERING PEOPLE: CAPACITY BUILDING INITIATIVE

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<tr>
<th>Image 1</th>
<th>Image 2</th>
<th>Image 3</th>
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<td>Image 10</td>
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<td>Image 13</td>
<td>Image 14</td>
<td>Image 15</td>
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</table>

- 131 -
Information Communication Technologies (ICTs) provide useful tools to strengthen the human, institutional and organizational capacity at all levels.

Low level of ICT awareness and ICT literacy are major risk factors in meeting the objectives of ICT projects destined for use by the general public in developing countries. These factors often translate into low usage; and hence, lower chances for sustainability. To deal with the ICT awareness and low ICT literacy within the population, one must envisage public ICT awareness campaigns and basic ICT training targeting the population.

Low-cost computing devices can enhance the learning of students in Arab schools and empower both students and teachers. Several modalities can be employed to build human capacities - train-the-trainer approach, engagement of various training institutions and universities, re-use and sharing of relevant training programs using both face-to-face and e-learning methods.

Capacity building efforts should be made available to all to promote gender equality and create new opportunities for development. ICTs can provide women, girls, men and boys an education and job training, promote literacy, improve access to health care, enable the exercise of legal rights and participation in government. Investing in all social groups has a multiplier effect. Women reinvest in their families and communities.

Innovation labs can stimulate new ideas relevant to the needs of Arab States. By building a network of innovation centres, new solutions can be shared between countries.

Persons with disabilities must also be amongst those that will be empowered through specialized training programmes. Accessible ICTs can be used by persons with disabilities, educators and employers to create a virtuous cycle of development. Promoting accessible ICTs, inclusive education, the right to work and international cooperation will ensure that the rights of persons with disabilities are fully in line with various international conventions such as the United Nations Convention on the Rights of Persons with Disabilities (UN CRPD).

The following projects are presented to mobilize the human, financial and technical resources to contribute to Empowering People through capacity building initiatives:

<table>
<thead>
<tr>
<th>Title (Project / Concept Paper)</th>
<th>Source</th>
<th>Budget (US$ million)</th>
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<td>1 Human Capacity Building</td>
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<tr>
<td>2 e-Accessibility for Persons with Disabilities in the Arab States</td>
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<td>921</td>
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<tr>
<td>3 Arab Center for Information Society Statistics (ACISS)</td>
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<tr>
<td>4 Low-cost computing devices and e-educational content for Schools</td>
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<td>5 Arab Innovation Labs Network</td>
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<td>6 Arab Women's Digital Literacy and Community ICT center Project</td>
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<td>7 Arab Innovation Exchange Network</td>
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<td>8 Human Capacity Building Plan for LDC Arab States</td>
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<td>9 Egypt eContent project 4- Arab m-literacy</td>
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<td>11 Capacity building of Startup in the Elgazala Incubator and regional cyberparcs in Tunisia</td>
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3.1 HUMAN CAPACITY BUILDING
**Project Number:**

**Estimated Start Date:** 2013

**Estimated End Date:** 2017

**Government Coop. Agency:** Ministries of Communications, Regulatory Bodies, Telecommunication Operators, Training Institutes

**Implementing Agency:** International Telecommunication Union (ITU)

**Beneficiary Countries:** Arab States

---

**Brief Description:**

The aim of this project is to strengthen the Human and Institutional capacity of the countries in the Arab Region, in order to maximize the benefits of ICTs for socio-economic development. The project will build on already existing Human Capacity Building interventions such as the Centre of Excellence, the Internet Training Centre initiative and others, with a view to forge synergies and avoid overlaps. This will be achieved through the strengthening of a self-sustainable capability to provide relevant, high quality training and capacity building for the region.

All Institutions will work regionally and complement each other in order to best create a critical mass of courses, thus setting up a sound and self-sustainable capacity building environment in the Arab region. Training areas will be guided by the priorities reflected in the Arab Regional Initiatives and the projects emanating therefrom.

The project also aims to create a pervasive e-learning culture throughout the entire Region. Therefore, the project will provide the necessary resources to achieve this objective.

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**Estimated Budget**

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**For the Signature Date Name/Title**

ITU:  

______________  ___/___/_____  Mr Brahima Sanou, Director of BDT

Partner:  

______________  ___/___/_____  

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**ICT for Sustainable Development – Projects and Initiatives**

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1. Background Information

The last decade has seen a recorded some remarkable growth in the ICT sector in several Arab countries. There have been significant changes in the regulatory and policy area which has seen the emergence of competitive markets, increased penetration of telecommunications, greater usage of Internet and generally lowering tariffs. These developments have coincided with greater investment in education and institution building, according to the World Economic Forum’s Global Information Technology Report (GITR 2009-2010) and again in their Global Competitiveness Report of 2010-2011, seven Arab nations ranked among the top 50 nations worldwide as compared to only one (Tunisia) in 2002. Four Arab countries were singled out – Bahrain, the United Arab Emirates, Qatar and Kuwait – as being most ready to utilize ICT for the creation of knowledge-based economies or knowledge economies/societies.

In the ITU ICT Development Index (IDI) 2010, the top ranked countries in the region are the UAE, Qatar, Bahrain and Saudi Arabia, all featuring among the top 50 economies worldwide. Three countries from the region (Morocco, Oman and Saudi Arabia) are among the most dynamic countries worldwide in terms of IDI improvements between 2008 and 2010, and they registered the highest rank increase among the countries in the Arab region.

In the telecommunication sector the last few years have seen increasing investments in ICT infrastructure in the Arab region. The bulk of this investment has been on improving mobile infrastructure and access. However, high-speed internet services which are so important for key business, government and consumer applications continue to be either expensive (particularly in relation to average local incomes) or unavailable in rural and remote areas (depending on location).

The number of Internet users is continuing to rise, especially with the introduction of technologies that overcome poor ICT infrastructure that hinders Internet access in the region. A major development in terms of broadband is the increasing availability and data rates of 3G mobile-broadband networks and services. This development puts pressure on the fixed broadband operators. Mobile-broadband markets are growing rapidly in many countries in the region, Lebanon, for example, has recently launched 3G+ services.

The recent developments across the Arab region have led to unprecedented gains both in terms of increased productivity and growth of GDP. A recent ITU study showed that the impact of broadband penetration growth of 10 per cent, in the growth of the per capita GDP is between 0.18 per cent and 0.21 per cent. Broadband has thus had a substantial contribution to GDP growth in the Arab region, ranging from 6 per cent of total GDP growth for Bahrain between 2003 and 2010 to 0.58% between 2005 and 2010 for Libya. This finding confirms the rule of “return to scale” where the contribution of broadband to GDP per capita growth increases with penetration. From a policy standpoint, governments need to fast-forward the deployment of broadband if they want to maximize its economic impact.

However, as the region leaps forward in its fast economic growth and the growth of the ICT sector, this has been accompanied by challenges on the human capital front that needs to be addressed urgently. The economic growth has not coincided with equally buoyant labour and human resource development, raising obvious concerns for sustainable and balanced growth. Survey results reveal that only 38% of Arab CEOs believe that there is an ample supply of qualified national labour, which therefore translates to a heavy reliance on the recruitment of expatriates. Papers from the World Bank and other leading analysts point to the human capital gap existing within the region, and buzzwords that keep coming up are: lack of appropriate skills for employment; low quality education; rising threats of unemployment; low productivity labour. Organisations within the region such as the Arab League Education, Culture and Science Organization (ALECSO) located in Tunis are planning to launch the Arab Regional Agenda for Improving Education Quality (ARAIEQ). One of ARAIE’s Regional programs will focus on Curriculum Innovation, ICT’s and Qualifications.

It is recognised that an important determinant of a country’s competitiveness in the global economy is its human capital, in particular the skills, education and productivity of its workforce. The building of human capital begins at primary schools and extends all the way to universities, research and development centers and trade or ‘applied’ schools.
Many countries in the region have already acknowledged that creating a knowledge society is vitally important to the Arab region. A skilled and educated workforce will enable the region to develop this vibrant knowledge society and respond to the evolving ICT industry.

Therefore it is necessary that all countries in the region seek to make investments in education and skills building at all levels.

The ITU has been working with the Arab region in supporting its capacity building for a long time. The successful Centre of Excellence (CoE) project has also been operating since February 2002. The first phase of the project was closed at the end of June 2007 but was succeeded by a second phase which runs until April 2012.

During the CoE’s first phase of operation, a total of 39 training activities were conducted, resulting in the training of more than 3000 professionals from all over the Arab region. The training covered all the major areas of CoE focus, namely Telecommunications Policies, Regulation, New Technologies and Services, Business Management, and Rural Communications. Within the region, there was a greater bias towards courses in New Technologies reflecting the rapidly changing technical complexity of the Arab Telecommunications market.

To date the second phase has trained around 550 professionals in the region. This project acts as a bridge to support the efforts done so far under the Centre of Excellence project. It also intends to expand the scope of the Centre of Excellence project, to include all social layers of the society and accommodate broader classes so that the benefits of ICT’s can affect different people in different ways. Through this project, ICT’s should enable those without access to education to have it; those with inadequate skills for employability, to build them; that unaware of the benefits of ICT’s to acquire them. In short, the project is extending ICT’s to all as a human right.

2. Overall Objective

The objective of this project is to strengthen the Human and Institutional capacity of the countries in the Arab Region, in order to maximize the benefits of ICTs for socio-economic development. The project will build on already existing Human Capacity Building interventions such as the Centre of Excellence, the Internet Training Centre initiative and others, with a view to forge synergies and avoid duplication of efforts.

Specifically, the project aims at:

- Developing the human and institutional capacity within the ICT sector in the region.
- Raising the awareness and use of ICT tools for socio economic development.
- Supporting ICT sector stakeholders in their efforts to meet the human challenges of a digital economy.
- Establishing a basis for a knowledge economy within the region.
- Develop media rich e-learning content in the relevant areas.
- Equipping existing and new institutions with state of the art learning tools and materials.
- Encouraging a learning culture and use of ICT’s for learning and development.

3. Project Strategy

Based on the above objectives, the project will aim to utilize and develop current and potential training resources within each of the beneficiary countries. These resources may be institutional (training facilities, hardware, etc.), human expertise, or content. This is aimed at tapping into the competencies that each institution has, and exploiting its strength in the process of creating a network of institutions operating in a complementary mode.
Given the very likely scenario that there may not be in existence product offerings or even institutions to contribute, the project shall assist in the creation of new institutions as may be necessary, and the strengthening of existing institutions that show potential to develop in particular areas with the means to do so.

The project will seek to encourage and promote the use of information technologies for training, and in this regard, will make the adoption of e-learning as both a key objective and a strategy. It also provides the opportunity to access the wealth of expertise and content resources that the ITU has in this area.

The focus for the Human and Institutional Capacity Building activities that are implemented under this project will be guided by the Regional priorities reflected in the Arab Regional Initiatives. Accordingly, the priority areas will be the following:

- Broadband Connectivity,
- Digital Broadcasting,
- Open Source Software development and deployment,
- Arab Digital Content,
- Cyber security.

Specific Projects have been proposed to support the Connect Arab summit. Most of these projects reinforce existing Regional Initiatives, but, as they are specific to a particular Output of the Regional Initiative, their human capacity building needs and training interventions have to be identified and planned for, to ensure post project implementation sustainability.

The human capacity building needs of the following projects will be considered:

- Broadband wireless Network,
- Support for transition from Analogue to Digital broadcasting in the Arab region,
- National CIRT establishment,
- Memory of the Arab world (MAW),
- Establishment of a network to support open source software,
- e-Government.

The Project will also introduce and replicate success and best practice Human Capacity Building activities from other Regions. In this regard, it will introduce the wireless networking project which was successfully implemented in Africa, as well as others.

4. Expected Results

- A comprehensive need assessment to identify and quantify the exact resource requirements for supporting the Region’s Human Capacity Building requirements;
- A number of high level training institutions equipped to meet the demands of the Region;
- A library of content developed in all identified priority training areas;
- A quality assurance mechanism established to guarantee excellence of content and delivery;
- Delivery mechanisms defined and established;
- E-learning platforms established;
- Optimizing the use of information technologies applied to training (e-learning should be a priority);
- Incorporation of ICTs into the national curricula of the countries in the Region;
- Accreditation and certification mechanisms established;
- A number of high level training programmes delivered.
5. Indicators

- At least one high level training institute per priority training area established;
- State of the art training laboratories and e-learning facilities (hardware and software) set up in each of the training institutes;
- At least 50% high level multimedia digital content in the identified priority areas developed and tested by end of the year 2014, and 100% by project closure;
- Quality assurance mechanisms verified and tested by an internationally recognized high level institute by end of the year 2014;
- ICT Curriculum for incorporation into the national educational curricula developed by year 2 of the project, implemented by project end;
- At least 3 courses per theme per Institute conducted per year;
- At least 20 participants per course trained;
- At least 50% of training interventions delivered as e-learning by end of the project;
- A core team of regional and local training/subject matter experts for each programme developed.

6. Activities

Successful implementation of the programs in the project will be achieved by focusing on following main aspects: analysis and knowledge of the market with regard to high-level training requirements and expectations encountered by the different players in the sector; decision-making with regard to provision of the most appropriate training; establishment of recognized focal points for each of the thematic areas of the priority training areas; and finally, the enlistment and involvement in plans and programmes of different public and private entities, by means of different formulas of association compatible with the philosophy of the project.

The following key activities will be undertaken:

- Establishment of a project governance structure;
- Recruit project manager and – staff;
- Identification of the training institutions to be supported by the project;
- Identification of the resource requirements to be mobilized under the project;
- Identification of the priority areas for which content needs to be developed;
- Identification and contracting of companies and consultants to develop content;
- Conduct training in the respective priority areas in response to the identified needs;
- Purchase and installation of training equipment (hardware and software);
- Purchase of learning materials;
- Hiring of experts and consultants for content development and training delivery;
- Monitoring and evaluation of project implementation;
- Project closure.

7. Inputs

The project implementation will depend on the successful mobilization of resources (human, material and financial). It is envisaged that the project will require funding to the tune of one billion US $. This amount will go towards setting up the necessary institutional facilities required, purchase of hardware and software equipment, engagement of experts and consultants to develop content and deliver training, and all other related project administration requirements.
Project funding will be raised from private and public sources within the Region, as well as international funding institutions.

ITU:

| IN-KIND CONTRIBUTION | ITU will provide skills, care and diligence to ensure the success of the project. |

Beneficiary Countries:

| IN-KIND CONTRIBUTION | Assist in identifying regional needs; selection of training Centres and institutions to be supported under the project according to their competencies in the identified topics; Identifying experts and consultants in the region to work with; Hosting training programs conducted under the project; Promoting the program in the region. |

Partners:

| IN-CASH CONTRIBUTION | The Partners will provide funding support for the implementation of the project. |

8. Risks

The risks include failure to raise the funding resources required to finance this project. This risk is mitigated by the fact that the ITU has a wide network of partners through which this project could be sold. ITU also has in-house capabilities for fundraising activities and it is the intention to activate these capabilities for this project.

Furthermore, political instability in the Region may militate against resource mobilization efforts or even implementation. Also, lack of support for the project at national and regional level may hamper the implementation.

9. Sustainability

A train-the-trainers component has been incorporated in the project implementation to ensure that an adequate regional capability will be developed within the region.

10. Management

The project shall be managed by a steering committee, comprising the ITU, project partners yet to be identified, as well as representatives from regional organizations and some beneficiary countries.

The steering committee shall be responsible for developing and approving budget plans for the project, monitoring implementation of project activities, reviewing and amending project plans as and when required, and receiving Reports on the implemented activities. The operational aspects of project implementation shall be the responsibility of the Project Manager.
The ITU shall be the implementing agency, and shall be responsible for the recruitment of project staff, including the project manager.

The project steering committee shall meet at least twice a year.

11. Budget

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## 12. Work Plan

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3.2 E-ACCESSIBILITY FOR PERSONS WITH DISABILITIES IN THE ARAB STATES
e-Accessibility for Persons with Disabilities in the Arab States

Estimated Start Date: 2012
Estimated End Date: 2015
Implementing Agency: International Telecommunication Union (ITU)
Beneficiary Countries: Arab States

Brief Description:
This project “e-Accessibility for Persons with Disabilities in the Arab Region” aims to ensure that accessible information and communications technologies (ICTs) and ICT services are available and affordable for persons with disabilities in the Arab region so they may be used to ensure an inclusive education and provide job opportunities for persons with disabilities in line with WSIS Declaration of Principles & Action Plan with the Tunis Commitment, the United Nations Convention on the Rights of Persons with Disabilities Articles 9, 24, 27 and 32 as well as the UNESCO Salamanca Statement and Framework for Action on Special Needs Education.

The main areas of activity include:

1. Development of national e-accessibility policies and regulations for every country in the Arab region; development of model voluntary codes of conduct for ICT service providers in the Arab region and the provision of related capacity building to government and industry stakeholders to implement these policies, regulations and codes. National policies and regulations to cover accessible television, mobile phones and services, web sites, applications and social networks.
2. Development of an open source text-to-speech engine in Arabic for screen readers for websites and mobile phones.
3. Provision of training to government agencies on making their websites accessible for persons with disabilities and training on the role of public procurement in fostering a market for accessible ICTs.
5. Provision of training to teachers on the use of accessible ICTs for inclusive education.
6. Capacity Building for Disabled Persons Organization (DPOs) and National Disability Councils (NDCs).
7. Data Collection.

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<td>/ /</td>
<td>Mr Brahima Sanou, Director of BDT</td>
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1. Background and Context

1.1 General Introduction

There are over 1 billion people worldwide who live with some form of disability according to the 2010 World Report on Disability published by the World Health Organization and World Bank. The majority of these are in developing countries. These numbers are expected to grow as a result of ageing populations and higher life expectancy due to improved health care delivery. In some developing countries, increases in the numbers of persons with disabilities could also arise due to poverty related violence, wars, and disease. Persons with disabilities and children with disabilities are often excluded from education and mainstream employment or income generating activities, leading to a vicious cycle of un-educated, illiterate adults with disabilities unable to be financially secure and live independently.

Accessible ICTs can be used by persons with disabilities, educators and employers to create a virtuous cycle of development. Promoting accessible ICTs, inclusive education, the right to work and international cooperation will ensure that the rights of persons with disabilities are fully in line with various international conventions such as the United Nations Convention on the Rights of Persons with Disabilities (UN CRPD).

The UN CRPD has established a universal framework for disability rights with guidelines for policy makers and regulators. Article 9 of the Convention establishes obligations for States Parties to ensure that the physical environment, transportation and information and communication technologies are made accessible to persons with disabilities, both by public and private entities. As of early 2012, seven countries in the Arab region had ratified the UN CRPD: Algeria, Bahrain, Egypt, Jordan, Oman, Qatar and the United Arab Emirates. Lebanon has signed the Optional Protocol, Libya has signed the Convention while Morocco, Saudi Arabia, Sudan, Syria, Tunisia and Yemen have signed the Protocol.

1.2 United Nations Convention on the Rights of Persons with Disabilities (UN CRPD)

Article 9 of the UN CRPD defines ICT accessibility as an integral part of accessibility rights on par with transportation and the physical environment. Article 9 concerns all ICT products and ICT based applications and services, with a far-reaching implication for industry, governments and civil society. To promote ICT accessibility, ITU and its partner, the Global Initiative for Inclusive ICTs (G3ict) have developed an online toolkit, entitled the e-Accessibility Policy Toolkit for Persons with Disabilities available at: http://www.e-accessibilitytoolkit.org.

Accessible ICTs use assistive technologies that enable persons with disabilities to participate fully in society, including education, job training and full employment. An accessible ICT product or service is one that can be used by all of its intended users, taking into account their differing capabilities. Accessible ICTs have the potential to provide persons with disabilities unprecedented levels of access to education, skills training and employment, as well as the opportunity to participate in the economic, cultural and social life of their communities. This includes mobile phones that have features used by everyone but that can also be used by the hearing and visually impaired persons.

Screen readers are an example of an assistive technology designed specifically for the visually impaired. Screen readers utilize a text-to-speech engine. While screen readers may exist in Arabic, they often use proprietary software or are of low quality. Technical universities in the Arab region could develop high-quality, open source Arabic text-to-speech engines which could be made freely available to mobile service providers as well as website developers to ensure affordable quality screen readers for persons with disabilities.

Article 24 of the CRPD recognizes the right to inclusive education. It calls for State Parties to ensure that persons with disabilities are able to access general tertiary education, vocational training, adult education and lifelong learning without discrimination and on an equal basis with others, including by providing reasonable accommodation to persons with disabilities. It also calls for State Parties to train professionals and staff working in education on the use of appropriate augmentative and alternative modes, means and formats of communication, educational techniques and materials to support persons with disabilities.

Article 27 of the CRPD recognizes the right of persons with disabilities to work, on an equal basis with others; including in a “work environment that is open, inclusive and accessible to persons with disabilities.” Equipping work environments with accessible and assistive ICTs helps to create inclusive and accessible work environments.

1.3 Education and Employment

ITU has developed a module of its Connect a School, Connect a Community toolkit entitled ‘Using ICTs for the Education and Employment of Persons with Disabilities’ (www.connectaschool.org). This module, which is the basis for this section of the project document, demonstrates that persons with disabilities in developing countries face particular difficulties in accessing the most basic forms of education. They face the lowest levels of educational access of any cohort of students. Of the 75 million children of primary school age worldwide who are out of school, for example, one-third are children with disabilities.2

Information and communication technologies (ICTs), and in particular assistive technologies (ATs), can provide persons with disabilities access to traditionally inaccessible educational content through electronic and online learning channels. Connected schools, with the right mix of ATs, can provide children and other persons with disabilities unprecedented access to education. Connected, accessible schools can also be leveraged to create accessible community ICT centers, facilitating job-skills training and even providing employment opportunities for youth and adults with disabilities in the wider community, in line with the goals of the ITU Connect a School, Connect a Community initiative.

There are very few statistical studies that can point to the number of children with disabilities who receive education. Recent reports, such as the Education for All Global Monitoring Report 2010,3 show modest improvements in some countries over some previous reports.4 UNESCO has conducted significant research into the plight of children with disabilities in developing countries. It reports that exclusion from education “is particularly more serious among persons with disabilities, of whom approximately 97 per cent do not have the basic reading and writing skills.”5 Literacy rates are as low as 1 per cent for women with disabilities.6 In its briefing paper, Children out of School, UNESCO states that most children with disabilities in developing countries are not attending school, and there is “no inclusion of those with physical, emotional or learning impairments within the education system.”7

As a result of the low levels of school enrolment and attendance by children with disabilities, the literacy rate for adults with disabilities is just 3 per cent and, in some countries, as low as 1 per cent for women with disabilities.8 Poverty and disability are closely linked. The World Bank estimates that 20 per cent of the

3 http://www.unesco.org/en/efareport
poorest people are disabled. An estimated 30 per cent of the world’s street children have a disability. The
good quality of life of persons with disabilities in developing countries is significantly lower than that of their
peers. In most countries, persons with disabilities tend to be regarded as the most disadvantaged sector
within their society. Women with disabilities experience exclusion due to both their gender and their
disability.

The vast majority of persons with disabilities are cared for exclusively by their families. In developing
countries, persons with disabilities are not expected to work, and many can only receive an income through
begging. According to the International Labour Organization (ILO), some 470 million people with disabilities
are of working age worldwide. Yet, unemployment among the disabled is as high as 80 per cent in some
countries.

How can accessible ICTs and assistive ICTs help? There is need for mouse alternatives and replacements;
keyboard modifications and alternatives, voice recognition, augmentative and alternative communications,
accessible workstations, screen magnification, screen readers, optical character recognition, enhancements
to the visual display of the computer, refreshable Braille display, talking books, DAISY (Digital Accessible
Information System) Digital Talking Book (DTB), accessible HTML and PDF, etc., captioning, mobile phones
compatible with hearing aids, etc.

The clear position of the United Nations, UNESCO and the WSIS Plan of Action is that children with
disabilities should be able to receive an inclusive education through the use of accessible ICTs. National
policies should avoid the development of a two-tier educational system consisting of “normal” schools and
special schools for children with disabilities.

Schools that accommodate the needs of their students with disabilities will likely have more need for
Internet access. Economies associated with bulk purchasing should be realized through centralized
procurement, using appropriate public procurement policies wherever possible. An AT ecosystem is needed
to ensure that the infrastructure, personnel and products are available. Assessment and support services,
such as installation, training and follow-up (to ensure safe and efficient use) are an important part of this
ecosystem.

Accessible ICTs hold the potential to enable persons with disabilities to receive job skills that would
otherwise be inaccessible to them. For example, assistive technologies can enable access to mainstream
office applications commonly used for business management and administration. Traditionally, persons
with a disability such as blindness, were often given specific and somewhat limiting roles within an
organization, such as answering telephones as a receptionist. However, when sufficient and appropriate
training is provided, persons with disabilities can reach their own personal potential once they have
support and the required accommodations.

1.4 Public Procurement

Public procurement has long been used by many governments to achieve social inclusion goals. National
public procurement policy has the potential to positively influence the availability, affordability and quality
of AT and other accessible ICTs such as Braille, DAISY books and accessible websites.

UNESCO reports that in Uganda it is “not uncommon” for children with disability or suspected of carrying HIV/AIDS to be chased away from school.
10 Of the some 70 million persons with disabilities in India, for example, only about 100,000 have succeeded in obtaining employment in industry.
11 Waddell, Cynthia. Meeting information and communications technology access and service needs for people with disabilities: Major issues for
development and implementation of successful policies and strategies. Available at http://www.itu.int/ITU-D/sis/PwDs/Seminars/Zambia/Documents/Presentations/009-Waddell%C2%20Cynthia-Background%20paper.pdf. Where governments insist on
procuring only accessible ICTs, manufacturers respond by producing only accessible ICTs. It is simply too expensive for manufacturers to produce
Public procurement provides educational and school authorities with a means to incorporate accessibility requirements at the earliest stages of developing a school IT infrastructure. This also has an impact on the wider accessible ICT eco-system by creating a demand, and therefore a capacity within the market, to develop, produce and maintain accessible ICTs. The greater the demand, the lower the end cost is likely to be. Public procurement policy can, therefore, act as a means to promote the development and availability of accessible ICTs.

Educational authorities could, for example, include accessibility as a criterion in the purchase of all educational software, such as teaching programs or content management systems. This would help ensure that all users, including persons with disabilities, would be able to use and access content from the start, avoiding costly provision of specialized learning resources for these students at a later date.

2. Relationship to other BDT Programs/Activities

The objectives of this project are in line with the Arab Regional Initiatives RI1 (Broadband access network), agreed by ITU Members States at the 2010 World Telecommunication Development Conference in Hyderabad, India.

ITU Member States have a significant role to play in ensuring that accessible ICTs are 1) available in national markets; 2) that television broadcasting is made accessible 3) that significant awareness of accessible ICTs and television is known; and 4) that commercially provided ICTs such as mobile phones are affordable or subsidized through universal service funds. This project therefore will not only help to develop accessible policies, regulations and industry codes, it will also provide capacity building on implementing these measures.

The project is also directly in line with the objectives of Programme 4 of the WTDC Hyderabad Action Plan, to promote the digital inclusion of women and girls, youth and children, indigenous peoples and persons with disabilities. Best practices from both the ITU-G3ict e-Accessibility Toolkit, the Connect a School, Connect a Community toolkit, the BDT Thematic Reports, Making TV Accessible and Making Mobile Phones and Services Accessible, and the various regional seminars organized by ITU on accessibility and connecting schools will be used to develop training materials and other resources.

3. Project Objective

The objective of the project is to ensure that accessible information and communications technologies (ICTs) are available and affordable for persons with disabilities in developing countries so that they can be used to ensure inclusive education and job opportunities in line with various international conventions as well as United Nations Convention on the Rights of Persons with Disabilities Articles 9, 24 and 27.

4. Expected Results

The following results are envisaged:

1. Development of national e-accessibility policies and regulations for every country in the Arab region; development of model voluntary codes of conduct for ICT service providers in the Arab region and Related Capacity Building
   - Policies, regulations and industry codes developed for accessibility of mobile phones and services, computing devices websites, TV, applications, software and social networks.
measures developed requiring operators and broadcasters to raise awareness among persons with disabilities and disabled persons organizations about the accessible features of their services to ensure that not only accessible ICTs are available in markets, but they are actively targeted at persons with disabilities and that operators’ and broadcasters’ marketing strategies include outreach to persons with disabilities.

- Capacity building provided to ICT regulators, policy makers and operators on implementing policy, regulatory and industry codes to promote accessible ICTs and marketing accessible ICTs.

2. Development of high-quality, open source Arabic text-to-speech engine
   - Arabic technical universities to develop open-source Arabic text-to-speech engines for blind and visually impaired users.

3. Web-Accessibility and Public Procurement Capacity Building
   - Capacity building provided to government officials, regional organizations, UN agencies, Disabled Persons Organizations, and national disability councils (NDCs) on accessible web sites for persons with disabilities.
   - Guidelines on public procurement of accessible ICTs developed for schools systems and ICT Universal Service Funds to ensure that schools and Universal Service Funds only procure accessible ICTs.
   - Training on public procurement of accessible ICTS provided to school administrators and Universal Service Fund administrators.

4. Training of Persons with Disabilities on the use of ICTs for Employment
   - Job training developed and delivered to persons with disabilities using accessible ICTs, with a particular focus on young disabled people and disabled women. For example, young blind people to be trained to use screen readers for back office processing, call centres and other jobs.
   - Training for potential employers on hiring persons with disabilities by using accessible ICTs developed and delivered, including where feasible in partnership with other organizations such as the ILO Global Business and Disability Network.

5. ICTs for Inclusive Education
   - Guidelines for schools on the use of accessible ICTs to achieve inclusive education of children with disabilities developed.
   - Accessible and assistive ICTs provided to schools in beneficiary countries.
   - Training to teachers on using accessible ICTs to educate children with disabilities to ensure the inclusive education of children with disabilities developed and delivered.

6. Capacity Building for DPOs and NDCs
   - Capacity building provided to disabled persons organizations (DPOs) and national disability councils (NDCs) on web accessibility training and the use of ICTs to promote education and employment.

7. Data Collection
   - Data collected on the numbers of people receiving ICT job skills training and receiving an education using accessible ICTs.
5. Indicators

**e-Accessibility Policies, Regulations and Industry Codes**

- Number of e-accessibility policies, regulations developed and implemented.
- Number of industry codes, e.g. on marketing accessible ICTs to persons with disabilities developed and implemented.
- Number and type of accessible mobile phones sold, websites provided and TV broadcasts made in beneficiary countries.
- Number of training sessions provided to ICT regulators, policy makers and operators on implementing policies and regulatory measures to promote accessible ICTs and marketing accessible ICTs.

**Text-to-speech Engine Development**

- Quality of text-to-speech engine developed.
- Number of Mobile phone operating systems text-to-speech engine compatible with;
- Number of service providers and websites using the text-to-speech engine.

**Web-Accessibility and Public Procurement Capacity Building**

- Number of trainees on web accessibility and public procurement.
- Number of guidelines developed on public procurement of accessible ICTs for schools and community ICT centres to ensure procurement of accessible ICTs.

**ICTs for Employment of Persons with Disabilities**

- Number of training sessions delivered to persons with disabilities and employers.
- Number of trainees with disabilities tracked by age and gender and type of disability.

**ICTs for Inclusive Education**

- Number of Guidelines developed for schools on the use of accessible ICTs to achieve inclusive education of children with disabilities.
- Number and types of accessible ICTs provided to schools in beneficiary countries.
- Number of teachers trained to use accessible ICTs to provide education to persons with disabilities including children.
- Number of disabled children using accessible ICTs in schools.

**Capacity Building for DPOs and NDCs**

- Number of disabled persons organizations (DPOs) and national disability councils (NDCs) trained on web accessibility features and the use of ICTs to promote education and employment opportunities.

**Data Collection**

- Number and types of data collected.

6. Main Activities

The following main activities will be carried out:

**e-Accessibility Policies, Regulations and Industry Codes**

- Policies, regulations and industry codes developed.
- Marketing and customer service plans for operators developed to ensure that they actively target and provide outreach to persons with disabilities.
- Meetings organized for regulators, policy makers and operators to review and agree on the regulatory measures and marketing and customer service plans.
Training curricula developed and delivered to ICT regulators, policy makers and operators on implementing regulatory measures to promote accessible ICTs and marketing accessible ICTs.

Organization of events (venues rented, interpreters hired, invitations sent, programmes developed, travel of experts arranged, fellowships provided to participants).

Text-to-speech Engine Development
- Arabic text-to-speech engine developed in Arabic technical university.
- Text-to-speech engine provided for free to web site developers and to mobile phone vendors in the beneficiary countries.

Web-Accessibility and Public Procurement Capacity Building
- Training materials developed and delivered to government officials, regional organizations, UN agencies, Disabled Persons Organizations, and national disability councils (NDCs) on creating accessible web sites for persons with disabilities.
- Guidelines on public procurement of accessible ICTs developed for schools systems and universal service funds.
- Training on public procurement of accessible ICTS developed and delivered to school and universal service fund administrators.

ICTs for Employment of Persons with Disabilities
- Training using accessible ICTs developed and delivered to persons with disabilities, with a particular focus on young disabled people and disabled women, working with networks of DPOs, Ministries of Technical and Vocational Training, etc.
- Training for potential employers on hiring persons with disabilities by using accessible ICTs developed and delivered, working with Ministries of Technical and Vocational Training, and other relevant partners as appropriate.

ICTs for Inclusive Education
- Guidelines for schools on the use of accessible ICTs to achieve inclusive education of children with disabilities developed.
- General training events for Ministries of Education and Teachers organizations held on the use of accessible ICTs to achieve inclusive education of children with disabilities.
- Accessible ICTs procured, shipped, installed, put into operation in schools in beneficiary countries.
- Ownership of equipment transferred to schools.
- In-depth training developed and delivered to teachers on using accessible ICTs to educate children with disabilities to ensure the inclusive education of children with disabilities.

Capacity Building for DPOs and NDCs
- Training developed and delivered to disabled persons organizations (DPOs) and national disability councils (NDCs) on web accessibility and the use of ICTs to promote education and employment.

Data Collection
- Type of indicators and data to collect identified.
- Data collectors trained to collect data.
- Data collectors collect data, e.g. on the numbers of people receiving ICT job skills training and receiving an education using accessible ICTs.

Monitoring and Evaluation
- Development of comprehensive evaluation report for overall project.
7. Inputs

ITU: ITU will be the executing agency. ITU will engage and manage staff resources, funded by the project, for overall project supervision and coordination. ITU will provide information on current practices on policies and regulatory issues, access to ITU existing materials, including training courses and relevant publications. ITU will exercise all reasonable skill, care and diligence to ensure the success of the project.

Partners: The Partners will provide funding support for the implementation of the project.

Beneficiaries: At their own cost, beneficiary countries will provide qualified and dedicated staff and focal points that will play a key role both for ownership of the project and for effective transfer of the know-how.

8. Risks

The major risk is that in-country activities may suffer delays due to unforeseen local events and circumstances. This risk will be minimized by closely involving the local staff, and ITU Arab Region Office. The availability of required expertise at the local level may also delay project activities and its sustainability. This risk will be reduced by provision of appropriate on-site and group country training courses by the ITU in collaboration with beneficiaries.

9. Management

9.1 Roles and Responsibilities

9.1.1 ITU

ITU will:

- Recruit staff resources to be paid by the Project for the management of the Project, including identification, implementation, supervision, monitoring, and evaluation of the Project in accordance with its Rules, Regulations Directives and Procedures.
- Carry out the activities described above (under item 5) in close collaboration with the governments of the selected beneficiary countries (or the national counterparts designated by the beneficiary governments) and/or appropriate regional organizations.
- Secure the documented commitments of Governments in each country and/or regional organizations through a Cooperation Agreement or Exchange of Letters.
- Under no circumstances will the ITU enter into any commitment regarding expenditure of the funds in any beneficiary country or for any regional organization before the ITU and the authorized representatives of the beneficiary government (or its designated national counterpart) or regional organization have executed a Cooperation Agreement or Exchange of Letters.
- Cooperate with local authorities/regional organizations to identify appropriate venues for training events.
- Facilitate local school authorities to install, commission and put into operation the planned accessible ICTs in schools.
- Be responsible for the shipment and delivery of all equipment.
- Transfer ownership of all accessible ICTs procured to schools. The transfer of ownership will take place in accordance with ITU rules, regulations and procedures.
- Undertake a comprehensive evaluation of the project and prepare a report to this effect.
9.1.2 Partner

The Partner will:

- Fulfill its commitments in securing and providing its in cash and/or in-kind contributions.
- Maintain open communication with the ITU regarding the implementation (monitoring and evaluation) of the Project.
- Explore the possibility of identifying other partners who may support the Project.

9.1.3 Beneficiary Countries Contributions

Each beneficiary country will:

- Designate a qualified national counterpart to work with the ITU during the implementation process.
- Provide information required for carrying out Project activities.
- Exempt the Project equipment from customs duties, taxes and any other fees.
- Provide administrative support and staff required during the Project implementation; and any other assistance to the Project that may be required by the Project management team.

9.2 Project Team and Project Manager

The Project will be managed by a Project team headed by the project manager and project coordinators. The project team will consist of one project manager and a project officer responsible for each of the seven main deliverables. 1) e-Accessibility Policies, Regulations and Industry Codes 2) the text-to-speech engine; 3) the web-accessibility and public procurement capacity building; 4) ICTs for the Employment of Persons with Disabilities; 5) ICTs for Inclusive Education; 6) Capacity Building for DPOs and NDCs; and 7) Data Collection. Under the supervision of the Project Manager the Project Team will:

- Manage the Project;
- Coordinate with Project partners and national focal points;
- Monitor the Project activities on a daily basis;
- Prepare an annual action plan and periodic progress reports.

10. Monitoring and Evaluation

Periodic progress reports will be prepared by the project staff. These reports will consist of a narrative part and a financial part and will provide a summary of the project progress, the challenges as well as any necessary amendments that may be required for successful project implementation.

At the end of the project, a final evaluation will be undertaken to assess the project’s success.
## Work Plan

<table>
<thead>
<tr>
<th>Activities</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
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<tbody>
<tr>
<td>1. Project Preparation</td>
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<tr>
<td>2. Coordination Process</td>
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<tr>
<td>- Agreements with regional organizations/national counterparts</td>
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<tr>
<td>3. Experts recruited, training materials developed, meetings organized,</td>
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<tr>
<td>capacity building sessions held (regulatory harmonization; web accessibility and public procurement; ICTs for employment of persons with disabilities; ICTs for inclusive education; capacity building for DPOs and NDCs)</td>
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<tr>
<td>- Procurement</td>
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<tr>
<td>- Shipment &amp; Delivery</td>
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<tr>
<td>- Installation</td>
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<tr>
<td>- Testing &amp; Commissioning</td>
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<tr>
<td>- Teacher training</td>
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<tr>
<td>4. Technical University/ie) identified and experts recruited</td>
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<tr>
<td>- text-to-speech engine developed</td>
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<td>- TTS engine made available to operators, web site developers, etc.</td>
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<tr>
<td>5. Recruit Statisticians and Experts to train data collectors</td>
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<tr>
<td>- collect data</td>
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<tr>
<td>5. Monitoring &amp; Evaluation</td>
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12. **Budget**

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<tr>
<td>Training</td>
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<td>Subcontracts</td>
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<td>Equipment and Supplies</td>
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<tr>
<td>Miscellaneous and Other Costs</td>
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<tr>
<td><strong>Total</strong></td>
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</table>
3.3 ARAB CENTER FOR INFORMATION SOCIETY STATISTICS (ACISS)
Project Number:

Project Title: Arab Center for Information Society Statistics (ACISS)

Estimated Start Date: 2012

Estimated End Date: 2017

Government Coop. Agency:

Implementing Agency: International Telecommunication Union (ITU)

Beneficiary Countries: Arab States

ITU Project Manager:

Brief Description:

The project seeks to enable policy makers in Arab countries to take informed decisions on national ICT policies and strategies, and to encourage and facilitate private investment in the ICT sector, by enhancing the availability of comparable data and indicators on information society developments in the Arab region. In order to achieve this objective, this project proposes to create an Arab Center for Information Society Statistics (ACISS) which will serve as the main regional hub for ICT data and analysis. The ACISS will be closely linked to the ITU Global Observatory for the Information Society and be responsible for the implementation of its activities in the Arab region. The implementation of the project will be carried out by ITU in cooperation with other relevant stakeholder in the area of ICT data and statistics, including members of the Partnership on Measuring ICT for Development, and will build on existing national and regional initiatives.

For the Signature Date Name/Title

ITU: ___________ ___/___/_____ Mr Brahima Sanou, Director of BDT

Partner: ___________ ___/___/_____
1. Background

There is a growing need for evidence-based policy research to support decision-making in the field of Information and Communication Technologies (ICTs). Public actors (regulatory agencies, governments) need indicators to elaborate, monitor and evaluate ICT policies. The private sector (the ICT industry and service providers) needs statistical information to decide on investments and identify market trends. Benchmarking, tracking the digital divide, and conducting research on the impacts of ICT on social and economic development, all require consistent, comparable and up-to-date data — for assessment purposes and for determining the way forward, both nationally and internationally. Furthermore, the achievement of the Millennium Development Goals and the World Summit on the Information Society targets require statistical data able to show trends and detect gaps in the adoption, use and impact of ICTs.

The demand for reliable ICT statistics is high in the Arab States region, both in the high-income economies of the region, where ICTs are a key element for knowledge-based economic development, and in the low-income economies, where ICTs provide vital development opportunities. At the same time, very few governments from the Arab States region regularly collect statistics on ICT usage and when available, national data are often not comparable across borders. Based on ITU research, in 2010, only 3 Arab countries collected official data on the number of Internet users in their country, let alone information on age, gender or social status of users, where they access the Internet and what they use it for. High demand exists for data on infrastructure and access to ICTs, use of ICTs by different public and private actors and societal groups, the economic performance of the ICT sector, ICT investment and ICT-enabled trade, and an increasing demand for ICT data can be foreseen for specific sectors such as health, education, culture and environment.

The production of ICT statistics therefore requires an important push, especially with regard to collecting survey data. Many Arab countries lack a regular programme of household and business surveys able to provide important indicators on the access and use of ICT. In addition, the timeliness of data which is required by a dynamic market such as that of ICTs calls for the production of short-term estimates and forecasts, which are research-demanding tasks.

The Arab Center for Information Society Statistics (ACISS) will significantly enhance the existing data availability on ICT in the region and disseminate high-quality data and forecasts, analytical reports, and tools for evidence-based research. It will also support the statistical capacity of countries in the region to produce and disseminate ICT statistics based on international standards and contribute to the measurement of the impact of ICT on development. In addition, ACISS will contribute to the monitoring and assessment of international goals such as the Millennium Development Goals, and the targets set by the World Summit on the Information Society and the Broadband Commission for Digital Development. The ACISS project will be closely linked to the ITU initiative to set up a Global Observatory on the Information Society, being responsible for its operations in the Arab regions.
2. **Project Objectives**

The main objective of this project is to enhance the availability, quality and timeliness of ICT statistics in countries in the Arab region. The Arab Center of Information Society Statistics (ACISS) will serve as a regional repository and main hub for ICT data and analysis. It will create the most comprehensive database of internationally comparable ICT statistics ever compiled in the Arab region, while laying the groundwork for a sustainable stream of reliable data and analysis. This will enable policy makers in all countries of the region to take informed decisions on national ICT policies and strategies. By providing a more comprehensive foundation for ICT knowledge than has ever been available, it will also encourage and facilitate private investment in the ICT sector. More specifically, ACISS will:

- Significantly enhance existing ICT statistical databases in the region, improving the quantity, quality and timeliness of ICT data.
- Build much-needed ICT statistical capacity in Arab countries.
- Support and co-finance data collection and the conducting of ICT surveys in Arab countries.
- Produce regional high-quality analytical reports (in particular on the economic impact of ICTs) and timely statistical news on the latest ICT developments.
- Strengthen the regional implementation of goals and targets related to the MDGs, WSIS and the Broadband Commission for Digital Development.

3. **Expected Results**

The main expected results of the project are the following:

1. The ACISS will be established and fully operational, including:
   - Facilities necessary for the effective operation of the regional hub, including meeting rooms to host regional and international workshops;
   - Complete staffing (secretarial, managerial, technical, analytical);
   - State-of-the-art IT equipment required to fulfill ACISS’ function as regional hub for information society statistics.
2. A regional ICT statistics database will be established based on international standards, including:
   - Increased availability (quantity) and relevance (based on the needs of users) of statistical data;
   - Improved quality of the available data in terms of international and time comparability, accuracy and coverage;
   - Increased timeliness of data (covering the most recent years);
   - Enhanced compatibility of the regional statistics with those of international data bases, in particular those by the ITU/the Global Observatory;
   - Improved data accessibility for a range of user segments.
3. The institutional and technical capacity of countries will be significantly increased to produce and disseminate ICT statistics, including:
• The establishment of a system for assessing the statistical capacity of countries in the field of ICT statistics and setting up milestones for their progress;
• A technical assistance programme being put in place for a selection of countries and sub-sectors of ICT statistics;
• A repository of technical resources for ICT statistics being set up, including survey materials (questionnaires, manuals), metadata management systems (definitions, classifications) and data analysis tools (open software, data analysis routines, data visualization tools);
• ICT statistics being explicitly considered in National Strategies for the Development of Statistics in Arab countries.

4. All Arab countries will have carried out ICT surveys:

• Annual statistical surveys on access to and use of ICTs will be implemented, supported through ACISS in terms of technical and financial assistance and based on internationally agreed standards;
• The modalities for the collection of ICT data include specific, dedicated surveys and ICT-related modules to be embedded in existing social and economic surveys.

5. Regional, national and thematic ICT statistical reports and analysis will be disseminated to satisfy the needs of a variety of users, including:

• Statistical publications, providing timely updates on the main ICT indicators;
• Analytical publications, providing the latest trends, forecasts, impact analysis; with particular emphasis on the socio-economic impact of ICTs;
• Methodological publications, presenting metadata associated to ICT indicators and guidelines for methodological improvement in the construction of the indicators, in collaboration with relevant technical working groups.

6. Quantitative information to monitor international and regional development goals and targets will be available and disseminated, including:

• ICT statistics necessary for monitoring the MDGs, and their methodological aspects (metadata);
• Statistical indicators for monitoring the WSIS targets;
• Data and statistics necessary for the monitoring and evaluation of the targets of the Broadband Commission for Digital Development.

4. Main Activities

To implement the project the following main activities will be carried out:

1. Establishment of the Arab Center for Information Society Statistics (ACISS)

• Identification of ACISS host.
• Set up of localities, offices, meeting rooms.
• Set up of IT infrastructure.
• Establishment of the technical secretariat.
• Preparation of an annual activity plan.
• Establishment of the Advisory Board for ACISS.

2. Enhancement of ICT statistics availability in the region
   • Collection, verification and harmonization of national data.
   • Implementation of national ICT surveys.
   • Production of estimates for missing years.
   • Development of metadata.
   • Establishment of database and online portal.

3. Design and implementation of technical assistance programme to build ICT statistical capacity in countries
   • Design multi-annual technical assistance plan.
   • Deliver training courses and workshops on ICT statistics and analysis.
   • Create regional working group to enhance statistical capacity.
   • Carry out advisory missions and provide on-site training.
   • Set up an online repository of technical resources in Arabic language.

4. Financial support for ICT statistics in countries
   • Develop multi-annual financing programme to support countries and statistical operations to produce ICT statistics.
   • Finance statistical operations, including stand-alone ICT surveys.

5. Dissemination of ICT statistics and analytical reports
   • Prepare annual dissemination plan.
   • Prepare annual statistical publications.
   • Online dissemination of data and metadata.
   • Prepare regional and thematic analytical reports.
   • Carry out impact analysis (economic, social, cultural, environmental).
   • Prepare annual reports to monitor MDGs, WSIS targets and Broadband Commission targets.
5. **Inputs**

5.1 **ITU**

| IN-KIND CONTRIBUTION | • ITU will provide skills, care and diligence to ensure the success of the project. |

5.2 **Partners (Ministries, private sector, international organizations, academia)**

| IN-KIND CONTRIBUTION | • Expertise on ICT statistics, methodologies and international standards.  
| | • Expertise on quantitative analysis of ICT trends.  
| | • Expertise on capacity building on ICT measurement and analysis. |

| IN-CASH CONTRIBUTION | The Partners will provide funding support for the implementation of the project. |

6. **Risk**

In-country activities may suffer delays due to unforeseen local events and/or circumstances.

7. **Project Management**

ITU as the implementing agency will supervise and administer the overall implementation of the project in accordance with ITU rules and procedures. Accordingly, personnel will be engaged and administered, equipment, suppliers and services purchased, and contracts entered into, in accordance with the provisions of such Rules, Regulations and Procedures. Furthermore, the project will be subject to the internal and external-auditing procedures laid down in the financial rules, regulations and procedures of the ITU.

Day-to-day management and implementation of this project will be implemented by an ITU project manager, and his/her staff, based in the ACISS and working under the supervision of ITU Headquarters, ICT Data and Statistics Division, in close collaboration with the ITU Global Observatory for the Information Society and the ITU Arab Regional office.
8. Monitoring and Evaluation

The progress of the project will be monitored through periodical reports prepared by the project manager. This report will provide a summary of the project progress, the challenges as well as any necessary amendments that may be required for the project implementation. The financial status and expenditures for the project will also be updated accordingly, and an evaluation report will be prepared at the end of the project to assess the success of the project in terms of meeting its stated objectives and developmental impact based on expected outcomes and pre-identified indicators.

Upon conclusion of the project, the project manager will prepare a final project closure report with future recommendations that will be submitted to ITU.

9. Sustainability

Sustainability of the project will be guaranteed by the partners, which will commit themselves to taking necessary measures and allocating resources in order to keep the project in operation.

10. Budget

The ITU project budget is shown in Annex A.

11. Project Work Plan

The project work plan is shown in Annex B.
Annex A: Budget

<table>
<thead>
<tr>
<th>Description</th>
<th>in 1000 US$</th>
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<td>Missions</td>
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<td>Training</td>
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<td>ICT Surveys</td>
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<td>Sub-contracts</td>
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<td>Equipment</td>
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<tr>
<td>Miscellaneous and Other Costs</td>
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<tr>
<td><strong>Total:</strong></td>
<td><strong>500,000</strong></td>
</tr>
</tbody>
</table>
3.4 LOW-COST COMPUTING DEVICES AND E-EDUCATIONAL CONTENT FOR SCHOOLS
Low-cost computing devices and e-educational content for Schools

Brief Description:
The project aims at use of ICT in education through introducing low-cost tablets for students/teachers in schools in pilot Arab countries. Several low-cost tablets are currently available in the market providing the potential to revolutionize the use of educational computing in schools. The use of low-cost, Open Source tablets make content development easier and facilitate the distribution of free and paid educational content.

1. Background and Context:
Many previous examples exist for the use of ICT innovation in Education such as the e-schoolbag project adopted by ictQATAR to install and operate Tablet PC in Qatari classrooms. e-Schoolbag allowed teachers and students to interact using the tablet PC in the classrooms as well as over the Internet from homes to access quality educational content. Other examples of the use of ICT in Education in the Arab world include also Egypt, Jordan, UAE, Saudi Arabia and many other countries which provide a good platform to scale-up deployment.

The project will promote the use of low-cost tablets in schools over the Arab world with an emphasis to exploring how to build sustainable ecosystems for each of the three core pillars in terms of content, access and device:
- **Content**: Arabize tablet interface; adapt existing educational content to tablet environment, stimulate both paid and free educational content generation and applications development for schools tablets; facilitate sharing of Arabic educational content across the Arab World through educational App-store.
- **Access**: Provide connectivity for schools in partnership with operators.
- **Device**: Explore possibilities for local tablet production in the Arab world or bulk purchases at reduced prices.

2. Project Objective:
The project aims to foster the use of ICT in education through introducing low-cost tablets for students/teachers in schools in pilot Arab countries.

3. Expected Results:
- Improved skills and more empowered students and teachers;
- More vibrant and sustainable ecosystem for educational Apps development resulting in better applications available for students and teachers;
- Better coverage and accessibility of ICT and knowledge for students through affordable devices and connectivity.

4. Potential Partners:
UNESCO, Ministries of ICT and Education, Telecom operators, Device manufacturers

5. Estimated Budget:
1.2 billion US$

6. Time Frame:
Three years.
3.5 ARAB INNOVATION LABS NETWORK
Arab Innovation Labs Network

Brief Description:

This project will facilitate the creation of a Network of Arab Innovation Labs. The Innovation Labs will focus on developing innovative social development-oriented applications to address identified local development challenges and needs with a special emphasis on using the mobile channel and interfaces. The lab will provide incubation support to develop and deploy between 5-10 applications/year to constitute a package of “Apps4D”. The Labs will work with entrepreneurs not only to develop innovative applications, but also to ensure that solutions have sound business models.

1. **Background and Context:**

The Lab will provide:

- Technical Capacity building for application development especially for mobile platforms, including SMS applications, feature phones and smart phones, etc.;
- Business and Development capacity building including understanding and assessing social and economic needs and how to convert those into sustainable and scalable value-added services and applications powered by industry partners. This approach will combine business know-how with the desire to improve quality of life (social business);
- Cross-fertilization between different innovation Labs in the Arab States Region and worldwide.

The Lab should be created as a collaborative approach between governments, academic institutions, Telcos, technology providers and other industry partners.

2. **Project Objectives:**

- Stimulate and manage innovation for social development especially using the mobile platform to serve society’s most pressing needs (local solutions by local people to address local challenges);
- Build capable local human resources both on technical and business aspects to ensure quick adoption and adaption of technology;
- Stimulate demand and supply on mobile value-added services and applications for development.

3. **Expected Results:**

- More empowered countries to develop local solutions to address local challenges;
- Faster adoption of technologies and less time from concepts to products;
- Increased number of social entrepreneurs capable of combining business know-how with the objective of addressing development challenges.

4. **Potential Partners:**

- Ministries of ICT, academic institutions, technology providers and other industry partners;
- Technical Partners: Grameen Creative Lab.

5. **Estimated Budget:**

800 million US$

6. **Time Frame:**

Three years.
ARAB WOMEN'S DIGITAL LITERACY AND COMMUNITY ICT CENTER PROJECT
Arab Women’s Digital Literacy and Community ICT Centre Project

**Brief Description:**

The aim of the project is to provide digital literacy training to at least 250,000 women in the Arab region. Training may be provided in existing telecentres or other kinds of community ICT centres, offices of NGOs, schools and libraries connected to the Internet and in other appropriate venues and through the ITU Academy online platform.

Where appropriate venues do not exist, the project will also fund development of community ICT centres for women. 2'200 women’s community ICT centres will be developed (100 in each country).

Digital literacy training, for purposes of this project, includes both basic ICT literacy and the use of ICTs to improve women’s lives, such as training that enables women agricultural workers to obtain market information related to producing higher crop yields and selling their produce at better prices. For home-based women, it may mean becoming a “homepreneur”, finding online livelihood opportunities that increase productivity and family income.

This project will develop relevant training materials, train trainers and deliver training to the beneficiary women. Data on the number of women trained and the type of training delivered will be collected. While some training can be shared among trainers throughout the region, some training materials will be customized to local or national needs.

The project will provide financial support to cover the costs of developing the training materials and delivering the training provided by trainers in participating telecentres, community ICT centres, NGOs, schools and libraries (costs for trainers and for use of the facilities). All women trained through the project will receive a certificate identifying the digital literacy skills achieved.

1. **Background and Context:**

Women play a key role in reducing poverty and promoting social and economic development, for themselves, their families and their countries. ICT is an essential tool for the social and economic development of women and girls. Information and communication technologies (ICTs) can provide women and girls an education and job training, promote literacy, improve access to health care, enable the exercise of legal rights and participation in government. Investing in women has a multiplier effect. Women reinvest in their families and communities. Accelerating broadband and ICT provision to women and girls will promote gender equality, empowerment and social and economic development of both men and women. Indeed, ICT has proven to be life-changing for women. For millions of women, digital literacy is the lifeline to a new future.

In 2011, ITU and telecentre.org Foundation launched a campaign to train 1 million women to become digitally literate by year-end 2012. This Arab Women’s Digital Literacy project will support this campaign and expand beyond the campaign’s time frame. Those providing training within the Campaign timeframe will indicate their commitment on the Campaign website [http://women.telecentre.org/](http://women.telecentre.org/).

Data will be collected by country on (1) the number of women trained; (2) the age of the women trained (in order to report on girls under 18; young women from 18-30 and adult women trained); (3) the kind of digital literacy skills each group acquired (basic digital literacy, agricultural business training, “homepreneur” training; etc) and (4) the location of the women trained (urban versus rural).

Community ICT centres will be developed following the best practices identified in the Connect a School, Connect a Community toolkit module Community ICT Centres for the Social and Economic Development of Women at [http://www.connectaschool.org/itu-module-list](http://www.connectaschool.org/itu-module-list).
2. **Project Objectives:**
   - To train at least 250’000 women to become digitally literate in the Arab region;
   - To create 2’200 community ICT centres for women.

3. **Expected Results:**
   - At least 250’000 women in the Arab region trained to become digitally literate;
   - Arabic language digital literacy training materials developed and disseminated free of charge;
   - Trainers trained to deliver digital literacy training to women;
   - Date on women trained collected;
   - 2’200 community ICT centres for women developed.

4. **Potential Partners:**
   - National telecentre networks and local telecentres belonging to the telecentre.org Foundation;
   - Ministries of Communication, Youth, Employment, Women, and National Regulatory Authorities;
   - Private sector companies;
   - Foundations supporting women’s empowerment;
   - Telecentre.org Foundation.

5. **Estimated Budget:**

<table>
<thead>
<tr>
<th>Project element</th>
<th>Total (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training Material Development</td>
<td>500’000</td>
</tr>
<tr>
<td>Trainer’s Salaries (25’000 training sessions for 10</td>
<td>25’000’000</td>
</tr>
<tr>
<td>women) and including data collection</td>
<td></td>
</tr>
<tr>
<td>Facility Rental</td>
<td>12’500’000</td>
</tr>
<tr>
<td>Project Management</td>
<td>1’000’000</td>
</tr>
<tr>
<td>Community ICT Centre Development</td>
<td>110’000’000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>149’000’000</strong></td>
</tr>
</tbody>
</table>

6. **Time Frame:**

Five years.
3.7 ARAB INNOVATION EXCHANGE NETWORK
EGYPT: Arab Innovation Exchange Network

Source Country: Egypt - TIEC

Brief Description:

In a global, knowledge-based economy, organizations cannot innovate by themselves only; they need to connect actively with new technologies, new products, new insights and new opportunities for growth from external sources, and across boundaries. The Innovation exchange network will employ a model which combines technology, people, and process in delivering new business opportunities based on organizations’ strategic needs. 2 main components need to be developed to establish the network:

Intermediaries: Intermediaries are a team of creative, technically skilled, and PhD or Masters qualified professionals, trained to seek collaborative opportunities across diverse fields of industry. They will be embedded into organizations to understand its technology or other capabilities, and strategic intents that require external collaboration. This will identify gaps and opportunities that are aligned to the organization goals.

An On-line Secure storage of information: that will allow Intermediaries in the Arab region to collaborate and identify areas of collaboration among Arab countries. The Intermediaries will collaborate within the Innovation exchange network, sharing information, researching and analyzing technology, gathering market intelligence and searching for opportunities for business connections. Such connections can be established to improve internal efficiency or to open new doors and opportunities externally. Once a connection is identified, Intermediaries will assist the organization to directly engage with the other party using an appropriate step-wise disclosure process.

It is also suggested to organize a regional conference on yearly basis to foster innovation and collaboration among Arab counties based on the opportunities and challenges identified by the Intermediaries throughout the year.

Relation with the Innovation Background Paper

Submitted by the innovation working group: the project idea tackles the developed framework of the OECD Innovation Strategy that suggests a multi-point strategic and broad-based approach to innovation by governments. The background paper suggested an adaptation of these elements in the upcoming Connect Arab Summit 2012. This project specifically addresses “Promoting regional and international Arab co-operation and partnerships” & “Creating and applying knowledge”.
1. Background and Context
Knowledge is not anymore proprietary to an organization. It resides in employees, suppliers, customers, competitors and universities. Innovation exchange will link companies, research institutes and government agencies with the external resources and capacities required for economic and social innovation and growth through the deployment of a multidisciplinary network of highly creative and technically trained Intermediaries using a well-defined methodology that provides a framework of trust based on which Arab organizations can create and apply knowledge and insure efficient knowledge flows and foster the development of networks and markets which enable the creation, circulation and diffusion of knowledge, along with an effective system of intellectual property rights.

2. Project Objectives
- Collaborate dependably to solve problems and / or create opportunities
- Safely and quickly access new intellectual property (IP), which includes technologies, capacities, and expertise
- Find improved ways to use existing IPs, and know-how
- Accelerate business innovation, product development and joint R&D
- Establish links among domestic innovation programs and R&D and the influence of world innovation networks

3. Expected outputs
- Improving the technical competence of the ICT industry
- Intensify the production and consumption of ICT products and services in the Arab and global marketplace
- Support planning and implementation in the Arab States in order to integrate technology development plans
- Encourage exports and regional marketing of Arab technologies and products

4. Potential Partners
- Funding agencies
- Governmental entities supporting innovation on national level
- Others

5. Estimated Budget and time frame
1 year is estimated to develop the methodology and build the capacity of Intermediaries the budget will mainly cover the following cost items

<table>
<thead>
<tr>
<th>Cost items</th>
<th>Estimated cost in K $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment budget for the first year , assuming 5 countries are participating in the project</td>
<td></td>
</tr>
<tr>
<td>Innovation exchange Methodology development</td>
<td>200</td>
</tr>
<tr>
<td>Intermediaries capacity building/person assuming 5 persons/country</td>
<td>500</td>
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<tr>
<td>On-line platform development</td>
<td>100</td>
</tr>
<tr>
<td>Description</td>
<td>Amount</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Sub-Total</td>
<td>800</td>
</tr>
<tr>
<td>Operational budget/year, assuming 5 countries are participating in the project</td>
<td></td>
</tr>
<tr>
<td>Salaries (for Intermediaries and other supporting staff) / country assuming 5 Intermediaries + 2 supporting staff members)</td>
<td>1250</td>
</tr>
<tr>
<td>Innovation exchange conference On-line platform content development (videos, white papers, articles, interviews)</td>
<td>200</td>
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<tr>
<td>Sub-Total</td>
<td>1450</td>
</tr>
<tr>
<td>Total</td>
<td>2250</td>
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</tbody>
</table>

Submitted by:

Sally Metwally Mohamed  
Innovation Support Manager

Technology innovation & entrepreneurship center (TIEC)  
Smart-Village, Building (B5). Cairo-Alexandria Desert Road  
Giza, Egypt  
T: (+202) 3534 5811  
F: (+202) 3534 5829  
smetwally@tiec.gov.eg  
www.tiec.gov.eg
3.8 HUMAN CAPACITY BUILDING PLAN FOR LDC ARAB STATES
Human Capacity Building Plan for LDC Arab States

Source: Microsoft

Beneficiaries: Least Developed Countries in Arab States

**Brief Description:**

*There is a current need to support employment generation in the least developed Arab States.*

The project aims at focusing on youth in their school-to-work transition period in an effort to match educational background with private sector needs. By providing companies with trained employees who are productive from day one, the training can promote economic growth and as a result job creation for other youth.

Microsoft has over the years played an active role in driving employment programs globally which can be easily applied in these target markets. Some programs are currently ongoing in target countries including Yemen and Gaza.

1. **Background and Context**

The Arab states, have over the years demonstrated a somewhat steady growth and adoption of innovation and global trends towards attaining economic sustainability. However, the region is still plagued by conflict and an ever growing mismatch between youth after education and the employment sector. In this region the growth of the labour force growth is higher than both GDP growth and jobs created, and unemployment is acute amongst youth, especially young women in the region. This mismatch is a major contributor to the levels of unemployment in the region and more so in the Least Developed States in the Arab region.

Microsoft over the years has partnered with local entities and NGOs to support and promote the capacity building of young people in an effort to open up opportunities in the relevant job market base. Microsoft offers a series of curricula that is freely accessible to facilitate for the training of the youth on basic IT and Entrepreneurship Skills. It with this in mind, that Microsoft has sought to develop this capacity building project in collaboration with partners to support the training and skill matching need for the region.

2. **Project Objectives**
1. **Local labor market need assessment/skill demand assessment by Microsoft and partner network Manpower Group and Microsoft Partnership**

   - Work conducted in concert with Local Government, partners and the Microsoft Employment Generation Partnership and a lead NGO.

2. **Identification of target group for training and outreach to youth via Microsoft partner network, Local Government, and Microsoft**

   - We will utilize our current network of partners, universities and employment centers to identify, recruit and screen young people. The following criteria will be applied to select beneficiaries:
     - **Economic need.** Priority is given to youth (in their pre-family lifecycle) who are living in a household with a middle to low average family income level. In order to assess family income applicants are asked to indicate on an application form their annual household income, family size, number of family income contributors, location of residence, and other indicators.
     - **Outside of mainstream service programs.** Priority will be given to those youth that have been unable to tap into other sources of social and workforce services. These are youth in need of a program with a results-driven model.

3. **Establish partnership arrangement with employers to build commitment for recruited youth**

   - We will partner with local and international companies that commit to hiring graduates trained in the skills they need. Securing commitments prior to program commencement, provides youth with the motivation to complete the training, as there is a tangible opportunity awaiting them.

4. **Curricula customization and training program delivery**

   - We will partner with lead organizations in target countries (or willing to work in target countries) with experience in delivering soft and hard skill training with Microsoft and related training packages. These include, at the very least, the Microsoft Digital Literacy Curriculum.
   - Microsoft certified Trainers and IT platform developers from the Microsoft MS Learning and Developer Product Evangelist Teams can also provide support, live or virtual at more advanced levels of training.

5. **Virtual program delivery mechanism through the Microsoft employability portal**

   - Localized tailoring of an Employability portal built by Microsoft for Egypt is a cost effective means to provide a permanent site for program curricula and a means for graduates and employers to communicate. This site can be expanded to the target countries and provide a means for training, counseling, social communication and SMS-based job search capacity based on the Souktel model pioneered in Palestine.

6. **Sustained support via the Microsoft Employability Portal and Alumni Networks**

   - The program will offer an Alumni Network system. To a large degree this will be housed on the Microsoft Employability portal. The portal also includes also includes social networking features to keep youth connected with each other and potential employers.
7. **Monitoring and Evaluation of graduates after placement**
   
   To ensure accurate and ample assessment of program impact, the program will conduct periodic Monitoring and Evaluations through regular surveys, interviews and focus groups that include: job placement and retention rates, employer satisfaction, and alumni contributions to society. The resulting data will be used to refine and retool the program.

3. **Expected outputs**
   
   1. 50% of the graduated participants will get jobs within the first 6 months post training.
   2. Active Employability portal as a cost effective means to provide a permanent site for program curricula and a means for graduates and employers to communicate. Targeting 1000 new youth utilizing the portal in the first year.
   3. 1000 youth going through training in each country.
   4. Job employment creation placement of 100 students in jobs after the first year of training.

4. **Potential Partners**

   Current under discussion with potential partners, however, possible collaborations with the NGO, Education for Employment (EFE), and Manpower Group and Host Local Governments.

5. **Estimated Budget and Time Frame**

   Estimated Budget: 5 million USD (estimated as 1 million USD for each country).

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Basic entry level IT Literacy training

Soft Skill Training

Entrepreneurship Skills Training

Optional Intensive/ Specialised Trail

- IT Skills Training: Mobile, Application Development etc.
- Vocational focused eg: Textile, Manufacturing, Banking, etc.
3.9
EGYPT
ECONTENT
PROJECT 4-
ARAB
M-LITERACY
1. Background and Context
In 2008, the Arab League Educational, Cultural and Scientific Organization (ALECSO) was warning that, the illiteracy problem in Arab states is still dangerous. By the end of 2008, ALECSO estimates the illiterate people in Arab states by 100 million people. Among the Arabian illiterate, there are 99.5 million people who are greater than 15 old. The literacy rate in the Arab region is reached 29.7%. According to Gender, the illiteracy is increasing in the Arabian women. That is, 46.5% of the Arabian women are literate.

1.1 Justification
The effects of illiteracy on social, political, and economical are very dangerous. Illiteracy is one of the most important factors facing the progress of the Arab region. To solve the problem, many efforts have been evolved. Most of these efforts are related to the obligation of basic education and the continuous education parties. However, still now, these efforts aren’t effective as the illiterate people is increased.

Simultaneously, a large mobile penetration is noticed in the Arab region. Statistics show that, mobile subscribers are increasing at an annual rate of 55 %. The mobile penetration is reaching 63 % of the population by the end of 2008. This encourages the idea that, mobile applications and services could be used efficiently to solve the problem since it is the most effective tool used by all beneficiaries.
2. Project description

The proposed project has the following features:

1- The project uses smart phones as a platform. These phones have a wide spreading in the Arab region.
2- Illiterate people can use the proposed applications for literacy.
3- The applications have many levels ranges from reading, writing, and forms filling.
4- Voice based applications are used to learn illiterate how to read letters, words, and sentences.
5- The proposed applications use OCR to recognize the written letters, words, and sentences (both grammatically and spelling), and basic computation.
6- Literacy tests will be provided in the applications.
7- Literate people could be awarded by a prize and will be added to the job queue.
8- The project is also provided by additional services such as entertainment, whether status, advices, and daily news.
9- The applications are freely provided to citizens in order to encourage them.
10- The applications are also provided by tools suitable for deaf and blind people.

3. Project Objectives

1- Literacy of the Arab Region by the end of 2015.
2- Encourage self education as there is no need for a teacher, a class, or assets. The overall process is resource saving.
3- Facilitate the education process by designing a time, age, gender, and place independent applications.
4- Encouraging use of mobile applications for all Arabian people.
5- Facilitate the daily life of the illiterate people.

4. Expected outputs

1- By the end of the project, it is expected that, all illiterate Arabian people, who has a smart phone, will be literate.
2- The employment will be enhanced as the illiterate are decreased.
3- The daily life will be easier following literacy of the Arab people.

5. Indicators

1- No. of literate people every year.
2- No. of tests passed.
3- Employment indicator.
4- Participating in the political life.
5- No. of visitors to the web site and the content material.

6. Main activities

In the first two quarters, periodical meetings will be held to determine the required S/W applications. Mobile operators will be met to determine the best methodology to carry out the project.

7. Inputs

**Partner:** The Partner will provide funding support for the implementation of the project.

**Beneficiaries:** The beneficiaries include the entire Arab region.
8. Risks
The risk includes the advertising and media related purposes about the project. The project should be clearly announced.

9. Management
The project will be managed be a project Manager in each Arab country. A global steering committee is responsible for monitoring and tracking the overall advancement of the project.

10. Monitoring and evaluation
Every quarter, the project advancement is evaluated by the project manager, hence taking a suitable action according if needed. The holding of the steering committee will be executed annually.

11. Sustainability
The project will be extended to three years from starting. After the project is finalized, the overall project will be evaluated. The project may be extended to another three years to achieve the overall goal regarding the Arab literacy.

12. Work plan

<table>
<thead>
<tr>
<th>Activities</th>
<th>2012</th>
<th>2013</th>
<th>2014-2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
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<tr>
<td>Advertising and announcement</td>
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<tr>
<td>Building mobile applications</td>
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<tr>
<td>Training</td>
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<td></td>
<td></td>
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<tr>
<td>Using the service</td>
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<tr>
<td>Providing tests</td>
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<tr>
<td>Registration of literate on the portal</td>
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<tr>
<td>Project evaluation</td>
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</table>

Contact Person for this Project
Dr. Hoda Baraka

E-Mail Address
hbaraka@mcit.gov.eg

Other Contact Information
Dr. Hesham Farouk
hefarouk@mcit.gov.eg
3.10 ARAB CENTER OF EXCELLENCE NETWORKS FOR PEOPLE WITH DISABILITIES
Arab Center of Excellence Networks for People with Disabilities

Source Country: Egypt

**Brief Description:**

ICT is one of the most powerful tools to increase the ‘Abilities’ of people with disabilities. The project aims at establishing Virtual Arab Center of Excellence (CoE) Networks for People with Disabilities (PwD). The targeted CoE will have virtual networks of excellence for different impairments in the Arab region using the maximum benefits of the experience of different Arab countries in order to improve the conditions of PwD using ICTs, open up new opportunities for PwD to share equally in shaping their future as well as building their communities, help share knowledge, success stories, promote assistive technologies solutions, provide necessary training, raise the Arab local communities’ awareness about the importance of ICT for disabilities, especially in education and communication to include all impaired persons in their communities with equal opportunities, and help thus Arab governments implement the UN Convention for PwD. Bridging the socio-economic gap for PwD, the Arab Center of Excellence Networks for PwD can absorb PwDs’ energy and creativity, realize their independence, and lead active and purposeful lives within our community. The project will draw on the pedagogical, psychological, social and technical expertise of the key partners and their broad network of specialists.

The Virtual Arab Center of Excellence Network will have its nodes in the different sub-regions of the Arab Region and will be connected to relevant regional and international organizations as well as relevant entities in other countries outside the Arab Region. Each node will identify entity/entities in the sub-region it represents and its specialized areas and expertise.

1. **Background and Context**

The world has in recent years focused increasingly on the importance of development. Most countries have been committed to support and meet the Millennium Development Goals (MDGs) by 2015\(^1\). While human development is the core of all these goals; and disability, as a development theme, cuts across all the MDGs.

In developing countries, approximately 10-15% of the population is disabled\(^2\). In the Arab region, disabled are approximately 30 million. Excluding individuals with disabilities from social and economic

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\(^1\) The MDGs are: i) eradicate extreme poverty and hunger; ii) achieve universal primary education; iii) promote gender equality and empower women; iv) reduce child mortality; v) improve maternal health; vi) combat HIV/AIDS, malaria, and other diseases; vii) ensure environmental sustainability and viii) develop a global partnership for development.

\(^2\) WHO estimation.
activities led to negative consequences not only on the individuals concerned, but on their families and community. Empowering PwD aligned with raising public awareness of prevention, symptoms, diagnoses, and treatments of disabilities could dramatically decrease this figure. Provided with adequate support, people with disabilities can live full, rich and independent life in our society and contribute positively to it.

Strengthening the benefits and potential of ICT applications and building capacities of PwD, populations should be a key priorities in the strategic plans of many developing countries, as per the UN convention on the rights of PwD, March 2007, ICT provides convenient, increasingly low-cost innovative channels permitting “real” and synthetic sound to be used with symbols and pictures to create highly interactive communication tools.

However in most countries PwD, are unable to benefit from such innovations and mainstream education does not cater to their needs. The onus is placed on families to provide the interactions that will open their social horizons and bring them into contact with other young people of their own age. Yet research shows that the cloak of anonymity offered by ICT can provide remarkable opportunities to let them communicate with “mainstream” peers. The potential of (ICT) in all forms of development (health, education, poverty alleviation,...etc) has been well recognized. Using ICT is one of the most powerful tools to increase the ‘Abilities’ of PwD. Based on our belief that those living with disabilities have the right to lead active and purposeful lives within our community, the Egyptian Ministry of Communications and Information Technology (MCIT) has a vision to enable all people live with disability to serve the society and participate fully as equal citizens, using ICT. In line with this vision and under the auspices of MCIT, below are some of the projects that were implemented:

   This project aims at Promoting ICT access on the deprived, remote rural areas of Sohag Governorate (Upper Egypt) where there is computer scarcity and difficult access to IT services. Through this project 2 labs in 2 special needs primary schools (one for Blind and one for Deaf ) where established; and 77 student with disabilities where trained on IT and Multimedia skills at the first year of the project. The project was implemented in partnership with MAIS NGO in Egypt.

   This project helps the Hearing impaired to communicate with each other and with the outside community through a multimedia CD for Egyptian Sign language. The deaf communication CD is a multimedia CD aiming to help eradicating illiteracy; and promoting communication with each other and with the community. Moreover, their parents, friends and relatives can easily acquire their sign language and become capable of communicating with them. Ideally, with the limited supply the deaf communication CD can be considered a magic solution for such sufferings as it will provide the sign language for all Arab hearing impaired individuals. The project was implemented in partnership with Vodafone Foundation.

3. **Erada portal (2010- ~ )**
   Erada Portal, http://erada.kenanaonline.com/, addresses the significant needs related to the knowledge and information empowerment for people with disabilities in order to ensure their full participation and inclusion at all levels of society.
   It focuses on catering knowledge, needs, concerns, and questions to disabled in all categories (hearing impairment - visual impairment - Physical impairment - mental retardation - autism) and covers important information.

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1 Richardson J, *IT - a new path to creativity in education*, Eska, Paris 1996
topics such as terms of disabilities and definitions, disabled rights, the provisions of legitimacy for the disabled, how to care of disabled people, available technologies, behavioral and emotional disorders...etc. The content of the portal is greatly dependent on the contribution of the specialized NGOs, users, experts, and professionals and PWD themselves. It is worth mentioning that Erada portal was awarded the World Summit Award (WSA) first prize for best E-inclusion project (WSA 2011).

4. **Supporting E-Learning for hearing and visually impaired student in Egypt (2011-2012)**

   The main goal of this project is to contribute to improving the living conditions and social inclusion of the hearing and visually impaired students in the last two grades of primary education in Egypt, using ICTs. This project supports enhancing the educational system for deaf and blind students in Egypt. The project is being implemented by Egypt ICT- trust fund in partnership with Islamic Development Bank (IDB).
2. Project Objectives

The virtual Arab Center of Excellence Networks will have one Central Station and 4 sub-regional nodes/focal points in the different Arab sub-regions. These nodes will be connected to relevant regional and international organizations as well as relevant entities in other countries outside the Arab Region. Each node will identify entity/entities in the sub-region it represents and its specialized areas and expertise.

Figure 1 shows a block diagram for the suggested structure of the CoE and its connected virtual networks for PwD in the Arab Region.

Fig 1: The Arab Center of Excellence Virtual Networks for People with Disabilities

The Arab Center of Excellence for PwD Activities:

- Gather information and establish a database that includes the different types of disabilities and the number of disabled in each Arab Country.
- Coordinate/ integrate all Arab countries’ efforts in the fields of PwD (mainly in 4 main impairments as First Phase: Visual, hearing, mental and physical impairment).
- Develop virtual cooperation networks, through the nodes in different sub-regions to integrate efforts from different countries in the region serving the Arab Disabled in its specialized impairment. Each node will be specialized at least in one impairment as illustrated in figure1. There will be 12 networks in following impairments: (Speech and languages impairment, Visual Impairment (all types), Cognitive Impairment, Intellectual Impairment, Deaf-Blind Impairment, Dexterity Impairment, Hearing Impairment, Elderly Disabilities, Learning Disability, Mobility Impairment, Mental Health and Emotional Disability and Non-visible Disability). The project first phase may concentrate on 4 main impairments of (Visuals, Hearing, Mental and Movement).
- Develop Roadmap to provide PwD with the enabling environment empowering them. This will include development of strategies that will improve the learning effectiveness for PwD using ICTs in the Arab Region.
- Develop and deliver capacity building programs for skills improvement of PwD and in the different types of assistive technologies. Training programs will include Train-the-Trainers (ToTs) and will target as well their close surrounding communities (parents, relatives, teachers, etc.).
- Modernize education for PwD.
- Find proper solutions for assistive tools using ICTs in each of the impairments.
- The head quarter will link the Arab Region with relevant worldwide institutions and UN Specialized agencies to share experience and information.
- Hold relevant/regular meetings, workshops, and conferences on the regional and sub-regional levels for knowledge sharing, changing experience and know-how transfer tackling relevant issues related to PwD.
- Get technical support of relevant regional and international entities, and NGOs.
- Promote the COE and its networks activities in the media.

3. Expected results
- Baseline study on PwD in the Arab countries and their related needs (starting with 8-12 impairments in the First Phase)
- Baseline study about the efforts already exist in all Arab countries
- Signed 2 MoUs per focal point with key partners in the Arab world
- At least one equipped center in each Arab country
- ICT4PwD Strategy for the upcoming 5-years
- Interactive multimedia CDs of the basic educational series (such as Arabic, Science, Math, IT, and English) for each impairment (especially for students in primary education to allow early interventions
- At least 2 Assistive tools for each impairment
- Around 20 Awareness sessions and knowledge sharing
- Capacity Building (ToTs and training for PwDs)
- Portal for promoting and sharing the project news and outputs
- Final evaluation Report

4. Partners
- International Telecommunication Union (ITU)
- World Health Organization (WHO)
- Egyptian Ministry of Communications and Information Technology (MCIT) represented by the Information Technology Institute (ITI), the National Telecommunication Institute (NTI), and the ICT Trust Fund
- United Nations Development Program (UNDP)
- Others
  - Relevant government entities in Arab countries (especially those specialized in education and social solidarity)
Universities, Regional NGOs, Research Centers, Experts, PwD families, relatives, and friends

5. Estimated Budget and time frame

- **Estimated Budget:**
  $15.000.000 for the 5 main stations (central + 4 sub-regional) in the First Phase (36 months) and will include: Experts, travel, Local staff salaries, Offices rent (5), Logistics Fellowship, Equipment, and Miscellaneous. Budget could be distributed during the 36 months as follows: 50% local contribution from host countries (in kind + cash); 25% NGOs contributions from the whole region, 25% external contribution (regional and international bodies).

- **Duration:**
  3 years (July 2012 – June 2015)

**Contact Person for this project**

Samia MOUSSA  
Assistant ITI Chairman for International Relations  
Ministry of Communications and Information Technology (MCIT)  
Tel: 00202-35355504  
Cell: 002-012-7402257  
Fax: 00202-35372121  
Address:  
Smart Village, B148, Km 28, Cairo/Alex Desert Road, 6th of October City,  
P.O. Box: 12577 Egypt
3.11 CAPACITY BUILDING OF STARTUP IN THE ELGAZALA INCUBATOR AND REGIONAL CYBERPARCS IN TUNISIA


Ministry of Information Technology – Tunisia

Presentation of Elgazala Techno-park

Elgazala Techno-park was founded in 1999, is located in the vicinity of the Tunis-Carthage Airport.

It offers an ideal environment for the development of activities related to the ICT sector for more than 3000 persons focusing on this field.

The Techno-park assures a total synergy between research, training and private sector (100 SMEs and multinationals), it’s recognised as a field for the exchange of ideas among engineers, scientists and researchers from all over the world specialized in communication systems, communications networks, as well as other ICT related issues.

It offers:

- Services and systems of an effective and modern telecommunications system
- A business center (three conference rooms, Internet access, WIFI, Visio conf...)
- Abundant and protected energy sources
- A landscape installation including surfaces of relaxation and parking areas

Its mission consists on:

- To accommodate innovating companies
- To promote the innovating ideas
- To animate the techno-park (seminars, business breakfasts, workshops...)
- To establish an international network of cooperation
- To ensure the technological survey

Elgazala Techno-park contains also a project incubator, a business incubator and 15 cyber-parks through all the republic

Recently (in October 2011) we have inaugurated the first expansion of Elgazala: Manouba Techno-park with the same model of Elgazala, the second expansion is under construction and will be ready by the end of this year.
**Project title:** Capacity building of Start-up in the Elgazala Incubator and regional cyber-parcs in Tunisia.

Elgazala Technopark has identified areas of cooperation to carrying the main objective of promoting the private sector in the field of Communication Technologies summarized as follows:

### Priority 1: support Tunisia's efforts in terms of regional development and the development of SMEs, a key factor in the growth of employment:

**Actions to be held:**

- Strengthen tools for business development of SMEs housed in incubators (Elgazala and Manouba) and especially in the regional cyber-parks (in 15 different governorates within the Tunisian territory /about 100 startup)
- Strengthen the technical capacity of entrepreneurs by providing technical training to develop solutions in close collaboration with the prerogatives of national and international markets.
- Strengthen the managerial skills of entrepreneurs by providing special training in management, marketing, business law, .. any discipline deemed necessary for them to successfully manage their structures;
- Strengthen the internal and external communication tools,
- Develop and implement a support process for export

### Priority 2: promoting partnerships between companies in the Gulf countries / Arab and Tunisian companies:

**Actions to be held:**

- Organization of business days: B to B meetings between Tunisian SMEs / start ups and Arab counterparts to meet supply / demand partner companies of both countries.
- Sponsorship of Tunisian SMEs by large organizations with Arab and / or multinational companies operating in the Arab region (in the form of outsourcing or sub-contracting).
- Develop a twinning program between the incubation structure in Elgazala/ Manouba, and their similar structures in the Arab States Region.
4. EMPLOYMENT CREATION: UNLEASHING FUTURE ICT GENERATION
Knowledge and skills in Information Communication Technologies (ICTs) can create employment. With more than half of the Arab States population being young, the creation of jobs is critical.

A youth entrepreneur incubator fund is one way to encourage innovation among the young to unleash the future ICT generation. Young Arab ICT innovators can compete for start-up funding to launch their ICT businesses. In addition, sponsorship and scholarships to young students studying ICT-related fields could be offered, particularly to promote internships for both male and female students, mentorship and participation in active online social networks.

By establishing a network of open source software support centers in the Arab region, it will lead to the development and uptake of open source for local-context ICT development as many other developing countries have done. The introduction of open-source curriculum courses and industry-recognized certification, specifically Linux skills, will enhance opportunities for employment. In addition, training centers for the development of soft skills and entrepreneurship modules are also important to facilitate self-employment.

The following projects are presented to mobilize the human, financial and technical resources to contribute to Employment Creation aimed at unleashing future ICT generations:

<table>
<thead>
<tr>
<th>Title (Project / Concept Paper)</th>
<th>Source</th>
<th>Budget (US$ million)</th>
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<tbody>
<tr>
<td>Establishment of a network to support open-source software</td>
<td>ITU</td>
<td>547</td>
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<td>Establishment of training centres in Linux curricula and certification</td>
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<td>Arab Youth employment project</td>
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<td>Egypt eContent project 7- Arab Vocational and handcrafts Portal for marketing and training.</td>
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<tr>
<td>The Arab ICT Innovation Award for SMEs</td>
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<td>Egypt eContent project 3- Egyptian GIS System for Chambers of Commerce</td>
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<td>Egypt eContent project 11- Arabic shared digital Video collection for vocational training.</td>
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<td>Egypt eContent project 1- Regional Competitive Center for Digital Arabic Content Innovation</td>
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<td>Youth Connection Day</td>
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**ICT for Sustainable Development – Projects and Initiatives**
ESTABLISHMENT OF A NETWORK TO SUPPORT OPEN-SOURCE SOFTWARE
**Project Number:**

**Project Title:** Establishment of a Network to Support Open-Source Software

**Estimated Start Date:** 2012

**Estimated End Date:** 2016

**Government Coop. Agency:** Ministries, Regulatory Agencies of Communications

**Implementing Agency:** International Telecommunication Union (ITU)

**Beneficiary Countries:** Arab States

**ITU Project Manager:**

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**Estimated Budget**

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<td>Missions</td>
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<td>Training</td>
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<td>Equipment</td>
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<td>External Services</td>
<td>260,000</td>
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<tr>
<td>Miscellaneous and Other Costs</td>
<td>1,000</td>
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<tr>
<td><strong>Total:</strong></td>
<td><strong>547,000</strong></td>
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</tbody>
</table>

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**Brief Description:**

This project is part of the Arab Regional Initiative for “Open Source Software” (hereafter referred to as “FOSS”) development. The project aims to establish a network of open source software support centers in the Arab region. Open source software development in the Arab region has lagged other regions. ITU support for open source software centers will help the Arab countries to utilize FOSS for ICT development as many other developing countries have done. The center main activities will be to disseminate FOSS and manage a portal to provide FOSS users with a link to FOSS resources and relevant news in the Arabic language. The center will also provide e-learning to potential FOSS users. The project will be implemented in close cooperation between ITU/ARO and partner.

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**For the**

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<tr>
<th>Signature</th>
<th>Date</th>
<th>Name/Title</th>
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<tbody>
<tr>
<td>ITU:</td>
<td></td>
<td>Mr Brahima Sanou, Director of BDT</td>
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<td>Partner:</td>
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1. Background

Free Open Source Software (“FOSS”) is one of the most important mechanisms developed in the last twenty years at the global level to induce an integrated development in the ICT industry. FOSS is being used by hundreds of millions of users around the globe. FOSS includes all types of software from operating systems (desktop and servers) to office applications to enterprise applications (ERP, CRM, etc.) to manufacturing to many others. A list of over 500 sites have been identified and visited during the Project planning phase. These sites were then ranked by their popularity and are included Appendix 1. These sites include some for products, some for repositories (some have hundreds of thousands of products), some for communities; some are national, some are regional, some are international.

Many developing countries have adopted the use of FOSS as a policy including Malaysia, Brazil, South Africa, Thailand, Peru, China, India, Vietnam; in addition to many other countries including USA, UK, Spain, South Korea, Russia, Portugal, Norway, Holland, Italy, Germany, France, Denmark, France, Australia, Hungary, Israel, and others. A good source of international initiatives is: www.csis.org/files/publication/100416_Open_Source_Policies.pdf. This includes a list of 364 initiatives from 64 countries on the use of FOSS. The Arab Regional Office developed, conducted and analyzed a survey for Arab Countries and has received responses from 7 countries that showed interest. This includes Egypt, Jordan, Oman, Qatar, Saudi Arabia, Tunis, and UAE. Other countries have many activities usually carried out at the community and academic level. Saudi Arabia and Oman have recently started national programs. Others are proceeding in formulating their policies. We have contacted many of these including a FOSS support center in Lebanon www.ma3bar.org, established in Balmand University with support from UNDP and UNESCO. Since 1999, Tunisia started considering the place that should be dedicated to open source software in the national information and communication technologies strategy. This strategic direction has been formulated in July 2001 through a National Open Source Software Plan. The Open Source Software Unit, www.opensource.tn, was created in June 2003 to follow up and to ensure the successful achievement of the aforementioned plan, and to update its action programs accordingly.

FOSS allows many advantages including technical, economic, social, and developmental ones. Some of the most important studies was done in 2006 by EU: http://ec.europa.eu/enterprise/sectors/ict/files/2006-11-20-flossimpact_en.pdf and another American study http://www.dwheeler.com/oss_fs_why.html. FOSS is not unlicensed software, in fact there are several licenses and the legal issues are important. We have identified a good site on the subject of FOSS laws and licenses www.ifosslawbook.org.

Despite sporadic effort in many Arab countries, it was noticed that the use of FOSS in the region is lagging. Some of the most striking data can be seen http://people.gnome.org/~jdub/random/GnomeWorldWideHuge.jpg. This shows that the Arab region needs a fundamental process of change to develop this important sector. This Project is part of an initiative which was proposed by Saudi Arabia in the Arab Regional Preparatory meeting held in Damascus, and approved by the 2010 World Telecommunication Development Conference (WTDC-10) in Hyderabad, and the ITU Plenipotentiary Conference 2010 (PP-10) that took place in the city of Guadalajara (Mexico). This is the first time an ITU region has adopted an initiative or project in FOSS.

Use of FOSS involves many decisions starting from government policy, to awareness campaigns, to training of individuals (developers, supporters, users), to dissemination of software to support and maintenance. Country policies can be classified as per www.csis.org/files/publication/100416_Open_Source_Policies.pdf as R&D, advisory, preferential or mandatory for adoption of FOSS. Rates of success for these four classifications range from 98% to 96% to 91% to 69% in order.

This project supporting the establishment of such a center is expected to help in building trust and confidence and increase awareness and also help in dissemination as many Arab countries are banned from accessing many sites repositories of FOSS for political reasons.
2. **Project Objective**

The main objective of the Project is to provide to the Arab States Region a sustainable well-managed platform to enable the ICT society to know, obtain and utilize open-source software as a main tool for development.

3. **Expected Results and Indicators**

3.1 **The expected results of this project are:**

- Roadmap developed for project based on studies to be conducted;
- FOSS Centers established and ready for operation;
- Software packages for each software category are hosted by the center;
- Accessibility of the site by the ICT community in the Arab Region;
- Training courses developed by e-learning;
- Conferences and awards.

3.2 **Indicators**

- All computing H/W and software procured and installed;
- Percentage of top software hosted;
- Reach of customers to the Arab ICT community;
- No. of courses developed;
- No. registered participants;
- Organization of an annual event in the Arab Region.

4. **Activities**

In order to deliver the expected outputs, the following main activities will be carried out:

- Preparation and studies;
- Center is ready for operation;
- FOSS hosted;
- System accessibility;
- Training courses for e-learning;
- Final report and project closure report.

5. **Inputs**

5.1 **<Partner>**

The Partners will provide funding support for the implementation of the project.

5.2 **ITU**

ITU will provide skills, care and diligence to ensure the success of the Project.
5.3 Beneficiary Countries

Full national staff involvement throughout the entire process from all beneficiary countries will be important for the success of the project.

Beneficiary countries are expected to provide:

- Information required for carrying out project activities;
- Appointment of qualified experts (focal points) to work with the ITU experts on the FOSS;
- All permissions required to carry out project activities, if required;
- Meeting and working facilities including arrangements for logistics, if required;
- Administrative and other assistance to the project that may be required by the ITU.

6. Risk Assessment

The primary risks and proposed solutions in the project are:

An extensive study of the FOSS landscape has been carried out by ITU/ARO to investigate the industry and see what the current situation is. This work included meetings, sites surveys, countries surveys and trials of some software packages. This will help to reduce the risks in implementing the Project which is the first in this field in the ITU.

The main risk lies in the fact that FOSS is traditionally pushed by communities and academia. The role of government is limited to policy and initiatives. Cooperation with such entities needs a lot of work and has not been traditionally done by ITU. This is however needed with the changing landscape of the ICT industry.

The second risk is that FOSS is a dynamic industry and this will require a lot of interactions in dealing with it. This will require that Project management will need to consider using all the new communication technologies to interact with the stakeholders.

Lack of enthusiasm from Arab administrations and the expected friction with main PROPS vendors are the last main risk considered. These two factors are closely linked. On the other hand, it has been noticed that many of the main PROPS suppliers are moving into recognition of the FOSS role. Microsoft (Interoperability) was the diamond sponsor of open source convention this year. http://www.oscon.com/oscon2011. Recognition of the economic and social gains of FOSS is expected to develop a balanced policy regarding FOSS vs. PROPS.

All of the above risks will be mitigated by providing modern management skills and dissemination of information to all stakeholders with the proper analysis and clear recommendation to maximize gains and reduce any relevant risks.

7. Management

7.1 Project Management

The project will be managed by the Steering Committee Project Manager. The Steering Committee (SC) will consist of:

- Representative(s) from the <Partner>;
- ITU Representatives including the Regional Director, ITU Regional Office for Arab State; and
- Relevant administrations and communities.
The role of the SC will include, but not limited to, the followings: e.g.

- Approve the annual action plan as proposed by the Project Manager;
- Approve all substantial changes to the annual action plan;
- Evaluate and approve periodic progress and Project closing reports;
- Provide advice and directives concerning the progress of the Project.

The SC will meet at least once a year or/and by teleconference, while all decisions of the SC will be taken on a consensus. The SC will oversee the Project for its implementation process, whilst the Project will be managed by the ITU appointed Project Manager. Project will be managed by a project team composed of the Experts, the Project Manager and staff from Arab Regional Office as appropriate.

The Project Manager will manage the project in accordance with the current ITU-BDT rules and procedures as well as manage the project as following:

- Coordinate with Project partners;
- Provide direct assistance to countries;
- Monitor the Project activities on a daily basis;
- Prepare the annual action plan and periodic progress reports, and submit them to the SC for approval.

7.2 Roles and Responsibilities

ITU will act as the implementing agency and provide the following:

- Act as the implementing agency and provide staff resources for the overall project supervision and coordination;
- Provision of an Project Manager for the project;
- Provide neutral and objective advice on technological strategies for building wireless broadband access; and
- Establish and coordinate the Steering Committee;
- Provision of technical expertise;
- Coordination with all stakeholders including relevant ITU members in the region and international organizations;
- Hosting expert meetings;
- Support staff for the overall project administration.

Hosting country/center will contribute to the project the following:

- Provision of a coordinator for the project;
- Providing of required personnel to manage and operate the center;
- Assist in managing of the regional website;
- Exempt the equipment from customs duties, taxes and any other fees, if any;
- Assist in the development of required e-learning courses.

Beneficiary countries participating will be responsible for:

- Nomination of a one focal point that would be either from the Ministry/Regulator/Academic Institutions/NGO (according to each country) that would have a full and detailed information of the FOSS in his country;
- Providing appropriate communication/internet facilities to all nominees;
- Provision of information required for carrying out the activities;
Exempt the equipment from customs duties, taxes and any other fees, if any;
Logistics and administrative support for project admin and during the training and meetings; and
Provision of any other assistance to the project that may be required by ITU staff including subcontractors engaged under this Project.

Further, Regional and International Organizations; UNESCO, ESCWA, AICTO and others will be invited to participate in the following:

- Provision of expertise for assessment, evaluation and planning;
- Organization, hosting and conduction of training workshop.

<Partner> will:

- Provide input as specified in the input Section;
- Participate in the Steering Committee.

8. Monitoring and Evaluation

8.1 Monitoring, Evaluation, Validation and Reporting

The ITU Manager will regularly report on the overall status of the project, including the progress of each activity, in consultation with the ITU experts, will be responsible for interim evaluation of the results.
At the completion of the project, the ITU Manager will submit final project report, providing details of all activities implemented under the project. The final project report will include a summary of all project activities, achievements toward expected results, lessons learned, and recommendations for future support.

The definitive and certified financial statements will be provided no later than 6 months after the closure of account of the year within which each project was completed.

8.2 Project Closure

When closing the Project, the Project Manager will be responsible for preparation of the project closure report and submission of the final document and the project closure report.

9. Budget Breakdown

The estimated budget is shown at Annex A.

10. Work Plan

The work plan of the project is shown at Annex B. The work plan for the project will be reviewed during project implementation, as required.
### Annex A: Estimated Project Budget

<table>
<thead>
<tr>
<th>Description</th>
<th>in US$</th>
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<tbody>
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<td>4,000,000</td>
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<td>Missions</td>
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<td>Equipment</td>
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<td>Miscellaneous and Other Costs</td>
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**Total:** 547,000,000
Annex B: Work Plan

The work plan for the project will be reviewed during project implementation, as required.

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4.2 ESTABLISHMENT OF TRAINING CENTRES IN LINUX CURRICULA AND CERTIFICATION
**Project Number:**

**Project Title:** Establishment of Training Centres in Linux Curricula and Certification

**Estimated Start Date:** 2012

**Estimated End Date:** 2015

**Government Coop. Agency:** Ministries, Regulatory Agencies of ICT, Sector and academia members

**Implementing Agency:** International Telecommunication Union (ITU)

**Beneficiary Countries:** Arab States

**ITU Project Manager:**

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**Estimated Budget**

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**Brief Description:**

The introduction of open-source curriculum courses and industry-recognised certification, specifically Linux skills in this project, will enhance the training offerings of the ITU, through the Internet training centre initiative, to Member countries.

In keeping with the WSIS outcomes as well as the WTDC resolutions, this project supports both the Arab regional initiative for “open source software” development and the crucial aspect of capacity building for development. This project leverages formal training and certification in Linux skills to enhance employability of the participants as a means to technological empowerment of an individual towards economic and social development of a country.

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<table>
<thead>
<tr>
<th>For the</th>
<th>Signature</th>
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<th>Name/Title</th>
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<tr>
<td>ITU:</td>
<td></td>
<td></td>
<td>Mr Brahima Sanou, Director of BDT</td>
</tr>
<tr>
<td>Partner:</td>
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1. Background

The Internet Training Centre (ITC) is an ITU initiative started in 2001 to contribute to the Information Society plans in developing countries by enhancing the human capacity building in their government and public administration, in the field of computers, networking and the internet. The project assisted non-profit training and educational institutions in establishing various computer literacy and networking training programs. The global network is today approximately 80 institutions supported through partnerships with Cisco Systems, Microsoft Corporation, European Commission and Inveneo Inc.

Free/Libre/Open source software (FLOSS) has risen to great prominence in the last decade both for the quality of products, which is relatively lower cost, more reliable and secure and for its model of development, which is collaborative, distributed and community based. The open development enables more dynamic education models that support innovation and knowledge transfer, all key objectives for promoting development.

Despite sporadic effort in many Arab countries, use of FLOSS in the region is lagging. And during the Arab Regional Preparatory meeting held in Damascus promotion use of FLOSS was recognised as a priority, which was then approved by the 2010 World Telecommunication Development Conference (WTDC-10) in Hyderabad, and the ITU Plenipotentiary Conference 2010 (PP-10) in Guadalajara (Mexico).

To engage in such a move, besides supportive government policies and awareness campaigns, training and skills development (developers, supporters, users) is a core requirement. As one of the most successful open source projects, Linux skills are considered foundational. Thus, for the ITU Internet training centre initiative to now be involved in the training and certification of Linux curriculum in the Arab region naturally follows.

Training Programme: Description

The Linux Professional Institute Certification (LPIC) program is designed to certify the competency of IT professionals using the Linux operating system and its associated tools. It is designed to be distribution neutral, following the Linux Standard Base and other relevant standards and conventions.

The LPIC program consists of three levels of certification: LPIC-1, LPIC-2 and LPIC-3. A brief description of each LPIC level is as follows:

LPIC-1: Junior Level Linux Professional

LPIC-1 is globally recognized as the entry-level certification for Linux professionals. It consists of LPI-101 and LPI-102 exams. It tests on work at the Linux command line, perform basic maintenance tasks, user support, backup & restore, shutdown & reboot, and installation and configuration of a workstation.

LPIC-2: Advance Level Linux Professional

LPIC-2 is an advanced Linux certification widely recognized as an industry “HOT CERT”. It consists of LPI-201 and LPI-202, and it tests on administering small- to medium-sized sites, plan, implement, maintain, keep consistent, secure and troubleshoot a small mixed (MS and Linux) network, as well as supervise assistant and advise management on automation and purchases.

LPIC-3: Senior Level Linux Professional

LPIC-3 is an advanced Linux certification widely recognized as an industry “HOT CERT”. It consists of LPI-301 core exam and a number of specialty exams for candidates to choose. Areas of specialty include Mixed Environment, Security, High Availability and Virtualization, Web and Intranet, and Mail and Messaging.
2. **Project Objective**

The main objective of the Project is to set up 5 training centres in each of the 22 countries in the Arab region providing Linux training and certification at a minimum of LPIC1, and one training centre in each country providing up to LPIC 3.

This distribution allows for a total of 6 centres per country, where the advanced centre will also function as training and support centres for five LPIC1 centres. This generic topology might change depending on the size and profile of the country once determined.

Participation of women is encouraged, and preference is given to them both during selection of instructors and during student enrollment. Centres that provide plans for the promotion of women participation through special classes, fee reductions etc. will be given preference during the selection.

3. **Expected Results and Indicators**

3.1 **The expected outputs of this project are:**

- 110 centres established with the LPIC 1 certification program;
- 22 centres established with the LPIC 3 certification program;
- At least 2 qualified instructors trained per LPIC 1 centre;
- At least 5 qualified instructors trained per LPIC 3 centre;
- Training lab bundles provided to all 132 centres for the first 100 students.

3.2 **Indicators**

- No. of centres established successfully;
- No. of instructors trained and number of exams passed;
- No. of students registered per class;
- No of classes held per year;
- Number of student certification exams per year;
- No. of students passed the exams successfully;
- No. of women as instructors, as students and exams passed.

4. **Activities**

In order to deliver the expected outputs, the following main activities will be carried out:

- Identification of countries;
- Identification of training centres according to suitability;
- Instructor training;
- Instructor examinations;
- Provision of student training lab/curriculum;
- Delivery of student classes;
- Evaluation;
- Organization of meetings/seminars to promote collaboration among the ITCs;
- Visibility to project achievements and partners.
5. Inputs

5.1 ITU

The project as is being described here was piloted this year. In 2011, ITU worked with LPI to successfully set up the LPIC 1 training and certification in 3 countries in the Arab region - Syria, Palestine and Yemen. This provided the contextual experience whereby this project can now be confidently proposed for relevant replication. ITU will provide guidance and skills gained from this experience.

5.2 Beneficiary Countries

Full national staff involvement throughout the entire process from all beneficiary countries will be important for the success of the project.

Beneficiary countries are expected to provide:

- Information required for carrying out project activities;
- Identification of appropriate centres with the ITU;
- Appointment of a High Level Facilitator (HLF) for this initiative whose mission will be to provide appropriate high level support for the project in the selected country. He/she will champion of the project and able to mobilize local resources that are required to implement the project;
- All permissions required to carry out project activities, if required;
- Meeting and working facilities including arrangements for logistics, if required;
- Administrative and other assistance to the project that may be required by the ITU.

5.3 Partners

The Partners will provide funding support for the implementation of the project.

6. Risk Assessment

Three training centres, one each in Syria, Yemen and Palestine have already been established in 2011. This project document is drafted along those lines. This will help to reduce the risks in implementing the Project.

The primary risks and proposed solutions in the project are:

The main risk lies in the number of students who will enrol for this training course and certification. The Arab region is lagging in adoption and use of open sources solutions and this environment is not the most suitable nurturing demand-driven courses.

This risk could be mitigated by:

- The large percentage of youth in the Region (more than 60% under 15 years) calls for an optimistic view since youth are more driven by the collaborative culture and the opportunities therein.
- The provision to acquire industry-certification after the training, which is recognised in the IT employment world, could provide an incentive for a region where unemployment is considered highest in the world.
The support of ITU for its Arab regional initiative, both by the ARB regional office and by the FOSS project being proposed, could raise the awareness both in the governmental levels and in wider public of the importance of such training programmes.

The budget is devised for having 6 centres per country in each of the 22 countries in the effort at equanimity regardless of size and development of country. However, if appropriately equipped computer centres and qualified instructors cannot be found for all 6 centres in some countries, then the Project manager will have the right to negotiate with the country representatives to jointly decide upon a suitable number for each country, perhaps reducing the total number in some while increasing it in others.

And finally the security situation in some Arab countries must be considered force majeure and dealt with accordingly.

7. Management

7.1 Project Management

The project will be managed by the Steering Committee which will consist of:

- ITU Representatives from Regional Office and HCB;
- Representative(s) from the <Partner>;
- Relevant administrations and communities.

The role of the SC will include, but not limited to, the followings: e.g.

- Approve the annual action plan as proposed by the Project Manager;
- Approve all substantial changes to the annual action plan;
- Evaluate and approve periodic progress and Project closing reports;
- Provide advice and directives concerning the progress of the Project.

The SC will meet at least once a year or/and by teleconference, while all decisions of the SC will be taken on a consensus. The SC will oversee the Project for its implementation process, whilst the Project will be managed by the ITU appointed Project Manager.

The Project Manager will manage the project in accordance with the current ITU-BDT rules and procedures as well as manage the project as following:

- Coordinate with Project partners;
- Directly liaise with countries;
- Monitor the Project activities on a daily basis;
- Prepare the annual action plan and periodic progress reports, and submit them to the SC for approval.
7.2 Roles and Responsibilities

7.2.1 ITU will act as the implementing agency with responsibilities as follows:

- Act as the implementing agency;
- Provision of an Project Manager for the project;
- Provide guidance and advice;
- Establish and coordinate the Steering Committee;
- Coordination with all stakeholders including partners, relevant ITU members in the region and international organizations;
- Support services for the overall project administration.

7.2.2 Hosting country will be responsible for:

- Appointment of a High Level Facilitator (HLF) according to ITU criteria described in (7.2.3);
- Exempt the material provided by ITU from customs duties, taxes and any other fees, if any;
- Identification of appropriate centres with the ITU;
- All permissions required to carry out project activities, if required;
- Administrative and other assistance to the project that may be required by the ITU.

7.2.3 Beneficiary centres participating will be responsible for:

1) Nomination of instructors: Will provide at least two eligible instructors (known as “LPI Certified Instructor” or “LCI”) to run the program. The prerequisites for LCI include:

   - LCI must be certified at the minimum for the level and specialty of exam they teach.
   - A minimum of two LCI must remain on staff of ITC.
   - LCI must have a thorough understanding of the LPI program and procedure necessary to take LPI exams.

2) Implementation of the program:

   - Recruit students, market the course and deliver the training to them, keeping to the set goals in teams of achieving number of annual certifications.
   - Ensure that the training provided is delivered to as many students as possible and actively encourage participation by women, both as instructors and student.

3) Communication

   Will provide quarterly progress reports about LPIC courses in their institution. The focal point will present the following to ITU:

   - An integration plan of the LPIC course;
   - The course schedule;
   - Post course report on the number of students and results;
   - Promotional activities;
   - Feedback from the students or LCIs on the LPIC program.
<Partner> will:

- Provide inputs as specified in the input Section (5.2);
- Participate in the Steering Committee.

8. Monitoring and Evaluation

8.1 Monitoring, Evaluation, Validation and Reporting

The Project Manager will regularly report on the overall status of the project, including the progress of each activity, in consultation with the centres, will be responsible for interim evaluation of the results. At the completion of the project, the Project Manager will submit final project report, providing details of all activities implemented under the project. The final project report will include a summary of all project activities, achievements toward expected results, lessons learned, and recommendations for future support.

The definitive and certified financial statements will be provided no later than 6 months after the closure of account of the year within which each project was completed.

8.2 Project Closure

When closing the Project, the Project Manager will be responsible for preparation and submission of the final document and the project closure report.

9. Budget Breakdown

The estimated budget is shown at Annex A for 132 centres in time period of 3 years.
## Annex A: Estimated Project Budget

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<td>Academy partner licenses for 2 years (110 LPIC1, 22 LPIC3 centres)</td>
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4.3 YOUTH EDUCATION SPONSORSHIP AND SCHOLARSHIP PLAN (ARAB YESS)
Youth Education Sponsorship and Scholarship plan (Arab YESS)

Brief Description:
This project will provide sponsorship and scholarships to young students studying ICT-related fields of study which attend ITU-D Academic Sector Member universities in the Arab region. The sponsorship aspect of the project is a program of internships and, for women students in particular, mentorship and participation in active online social networks of women and girls in ICT. Through the project:

- ITU-D Academic Sector Members will identify the eligible top students to receive scholarships based on selection criteria established by ITU with which the academic institutions would agree to comply;
- Students will receive scholarships to complete a three- or four-year Bachelors Degree and/or a one- or two-year Masters program; non-university track students will receive scholarships for online or certificate courses that teach sought-after tech skills;
- ITU-D Academic Sector Members will arrange internship opportunities for the participating students;
- The companies and government agencies offering internships will provide feedback to the Universities in order to enable the Universities to revise their curriculum to meet the needs of the ICT sector, creating a win-win-win situation for students, universities and private sector companies and government agencies;
- ITU-D Academic Sector Members will nominate their best students to participate in TELECOM Young Innovators programs in coordination with the Arab Regional Office, ensuring that at least 50 per cent of the nominees are women;
- As participants in the Young Innovators program, the identified students will have the opportunity to discuss their innovations, business plan or development projects and receive feedback from key industry players on their projects;
- ITU will mobilize the women participants of TELECOM, including members of the Global Network of Women in ICT Decision Makers (WITNET), developed pursuant to ITU Plenipotentiary Resolution 70 (Guadalajara, 2010), to mentor the female students at TELECOM and will establish a social network site (e.g. on Facebook) where the female students and their mentors can stay in touch after TELECOM;
- In return for the scholarship and internship opportunity, all participating students will serve as student mentors for the next class of scholars, under the supervision of the ITU-D Academic sector member;

1. Background and Context:
Research conducted for the development of the ITU Girls in ICT Portal (www.girlsinict.org) makes clear that there is an expected skills shortfall for qualified professionals with science, technology, engineering and math skills to work in the expanding ICT sector. Brazil, Europe and the United States alone have predicted a skills shortfall of 1.7 million jobs. There is therefore a need to prepare a new generation of young people to take up a rewarding career in the ICT sector. In order to achieve goals of empowering women, many policy makers and private sector companies seek to ensure that qualified women professionals are particularly targeted to address the skills shortfall.
Many young people seeking to pursue studies to prepare them for the ICT sector require financial assistance in the form of a grant. In addition, based on the research conducted to develop the ITU Girls in ICT Portal, young women in particular also require a “sponsorship” support mechanism that brings the student and ICT sector players closer together through a program of mentorship, on-the-job training or internships and participation in active online social networks of women and girls in ICT. Because all young people benefit from internships, this project will ensure that both men and women students are placed as interns; women students, in addition, will benefit from mentoring by women professionals and participation in women’s online networks to provided additional support as a new generation of women professionals navigates a sector which is currently male-dominated.

Internships provided through the sponsorship program -- to be arranged by the academic partners either in private or public sector organizations -- also has a feedback benefit for the education institution involved as it refines its curricula to better cater to sector needs which are constantly changing. A combined scholarship and sponsorship program creates a win-win-win situation for students, academic institutions and the ICT sector as a whole.

ITU and its Connect Arab Summit partners have an opportunity to lead by example in implementing such a program. By working closely with ITU-D Academic Sector Members in the Arab Region, ITU-D and the Arab Regional Office will further develop meaningful partnerships with its Academic Sector Members. This project is also of great value to ITU Administrations and Sector Members from the private sector seeking to develop a growing number of ICT skilled professionals.

2. **Project Objectives:**
   - To provide sponsorship opportunities and scholarships to students in the Arab States region preparing for a career in the ICT sector;
   - To improve the level of ICT education provided in the Arab region to best respond to industry and government needs;
   - To prepare Arab youth for jobs in the growing ICT sector;
   - To empower women in the Arab region through education and career development.

3. **Expected Results:**
   - 10’000 students obtain bachelors or masters level degrees in an ICT-related field, at least 50% of them women (each receives a scholarship of USD 10’000 = 100’000’000);
   - 10’000 students complete an internship program, at least 50% of them women;
   - 100 students participate in a TELECOM Young Innovators program, at least 50% of them women;
   - 50 women mentored at TELECOM;
   - 100’000 students obtain a certificate for an ICT-related field (e.g. a Cisco network academy certificate) (each receives a scholarship of USD 1’000 = 100’000’000);
   - Feedback provided to universities in the Arab region enabling them to revise their curriculum to meet the needs of industry and government stakeholders in the ICT sector;
   - A new generation of young professionals trained to meet the demands of the Arab region ICT sector.
4. **Potential Partners:**
   - Ministries of Education, Communication and National Regulatory Authorities;
   - ICT private sector stakeholders in the Arab region with a vested interest in ensuring a new generation of qualified young workers;
   - Academic institutions (in addition to current ITU-D Academic Sector Members, other academic institutions will be incentivized to become ITU members);
   - Private industry in general. All industries rely on a highly-developed ICT sector which provides them broadband connectivity, services and applications to grow their own businesses;
   - Private foundations whose goals are to promote education, youth employment and women’s empowerment.

5. **Estimated Budget:**

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6. **Time Frame:**

   Five years.
4.4 ARAB YOUTH EMPLOYMENT PROJECT
Arab Youth employment project

Brief Description:
In coordination with the Arab Youth Education Sponsorship and Scholarship plan project (ARAB YESS), and the Arab Innovation Labs Network project, this project will fund a youth entrepreneur incubator fund. Young Arab ICT innovators will compete for funds, to encourage innovation. Those selected for funding will receive start-up funds to launch their ICT businesses. Generating youth employment opportunities will be a key selection criteria for funding incubator projects.

The project will also fund mentoring events where young entrepreneurs pitch their ideas to potential investors and receive mentoring to improve their business plans.

The project will further create a youth employment fund to subsidize salaries for young ICT professionals working for private sector companies and other organizations implementing the Connect Arab Summit projects such as those related to “Launching the Arab ICT Highway,” “E-Services Everywhere for a Better Life,” “Empowering People: Capacity Building Initiative,” “Securing the Cyber-Highway: Protecting People,” and “Memory of the Arab World: Preserving Arab Heritage.”

The Arab Youth Employment Project provides a political framework for the Connect Arab Summit, addressing one of the key issues facing the Arab region: Youth Unemployment.

- The Arab YESS Project will educate and train the next generation of skilled ICT professionals;
- The incubator fund will encourage youth innovation and job creation while its mentoring events will support young entrepreneurs;
- The youth employment fund will incentivize Arab ICT stakeholders to hire skilled young people;
- The youth employment fund moreover, may provide the necessary incentives to political leaders to invest in expanding the ICT sector to ensure that networks, e-services, applications and Arab digital content are developed in a secure environment.

1. Background and Context:
Sixty percent of the region’s population is under the age of 15, while unemployment levels in the region are among the highest in the world. The World Bank has suggested that 100 million new jobs need to be created in the region before the year 2020.

At the same time, there is a need in the Arab region to foster a dynamic business sector and a culture of healthy risk-taking and creative activity that enables entrepreneurs to experiment, invest and expand creative economic activities. This means fostering innovation in small and medium-sized firms, in particular new and young ones as well as spurring innovation as a tool for development; including affordable access to modern technologies. New and young firms are particularly important, as they often exploit technological or commercial opportunities that have been neglected by more established and conservative companies.

1 These events could be modeled on Start Up Weekends, like the event held in Cairo on 19 January 2012. http://cairo.startupweekend.org/ or the one planned for Aman, Jordan for 16 February 2012 amman.startupweekend.org
In addition to the Connect Arab States project to fund scholarships and internships for ICT students (Arab YESS project), this project will support young entrepreneurs focused on job creation and development activities and young workers in the ICT sector building the necessary infrastructure, applications, digital content and other vital services that will connect the Arab world to broadband services.

2. **Project Objectives:**

- Fund youth-led ICT start-ups, in particular those designed to generate employment and use ICTs for social and economic development;
- Create jobs for young people in the funded start-ups;
- Mentor young entrepreneurs to create a culture of healthy risk-taking and develop their economic activities successfully;
- Employ young people to work in the ICT projects funded by the Connect Arab Summit;
- Provide incentives for ICT stakeholders and political leaders to fund investment in the ICT sector.

3. **Expected Results:**

- At least 100 youth-led ICT start ups per country funded (2200 start ups);
- At least 22,000 young people employed by the funded start-ups (10 per company);
- At least 10,000 young entrepreneurs mentored;
- At least 100,000 young people employed for the period of the project;
- Increased investment in the ICT sector

4. **Potential Partners:**

- Ministries of Communication, Education, Employment, Youth, Vocational Training, Innovation and National ICT Regulatory Authorities;
- Academic institutions;
- Research & Development institutions;
- Venture capitalists;
- ICT private sector companies;
- Advisory and seed investment programs, e.g. Tahrir2, Flat6Labs, Ebda2 and Start Up Weekends

5. **Estimated Budget for a five year Time Frame:**

- 2.2 million start up fund (USD 100’000 per start up)
- 1 million to organize start up mentoring weekends
- 20 million youth salary subsidies
- 5 million project staff
- 3 million Misc.

**31.2 million Total**
EGYPT ECONTENT
PROJECT 7- ARAB
VOCATIONAL
AND
HANDCRAFTS
PORTAL FOR
MARKETING AND
TRAINING
**Egypt eContent project 7 –**  
**Arab Vocational and handcrafts for marketing and training**

<table>
<thead>
<tr>
<th>Estimated Start Date:</th>
<th>March 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated End Date:</td>
<td>March 2014</td>
</tr>
<tr>
<td>Government Coop. Agency:</td>
<td>Ministries of Communications,</td>
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<tr>
<td>Executing Agency:</td>
<td>MCIT</td>
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<td>Beneficiary Country:</td>
<td>Arab States</td>
</tr>
<tr>
<td>Estimated budget:</td>
<td>US$ 2,000,000</td>
</tr>
<tr>
<td>Source country:</td>
<td>Egypt</td>
</tr>
</tbody>
</table>

**Brief Description:**

*The main objective behind the first dimension is to implement a portal for offering versatile technical and professional trainings on both products and crafts all over Arab States. This portal is also capable of marketing these products inside and outside Arab States through its existence on the internet.*

---

1. **Background and Context**

Arab States has a lot of handicrafts and technical workers, which began thousands of years ago, many of the citizens works in these industries using materials available in their own lands and environment, but we lack a unified reference (website) that gather all the data available about them and marketing their products and services to make it easy for the whole community to find what they want easily.

1.1 **Justification**

Lack of such websites that offers vocational and handcrafts technical and professional training which also capable of marketing the handicraft’s products and services of the vocational workers.

2. **Project description**

- Developing an interactive website using the latest currently available technologies, to make it a basic platform that allows building an educational content with high quality for the handicrafts and vocational workers, also it will allow the possibility of interacting through mobile phones
- The Vocational-Craft Market portal will be kicked-off with 2 main languages enabled, Arabic being the default language. The two supported languages will be English and Arabic
- Linking the site services with the mobile operators to take the advantage of the broad base of the mobile users in Arab States
- Creating a call center for serving members of community who do not have internet service or mobile phone
- Providing all necessary data about the handicrafts and vocational workers and opening channels of communication between providers and beneficiaries of these services from the community
- Training the workers in the field of handicrafts as well as graduates of industrial schools for providing a higher levels of quality crafts and services that helps them for finding new job opportunities
- Continuous assessment of the quality of services provided through the service seekers by evaluating the service provider to be able to make an ongoing evaluation of service providers and work on their development of continuous training
3. Project Objectives
- Increase the sales of Arab States handmade product via internet
- Reduce unemployment rate
- Protect the environment via encouraging the environmental friendly materials
- Increase the youth skills
- Increase the product quality
- Increase the quality of services introduced by vocational workers

4. Expected outputs
- Supporting crafts by opening new channels of communication with the Internet and through mobile networks.
- Assessing the highest quality levels in the handcrafts
- Reducing unemployment rate by encouraging a new generation of young people (especially graduates of industrial schools) to learn the craft
- Give young people the skills needed to enter the labor market in the field of crafts

5. Indicators
- Number of handcrafts to be added to the database of the project
- Number of vocational workers added to the data base
- Number of users that use our website
- Number of handcrafts that took training

6. Main activities
- Bidding and contracting with the company responsible for developing the website
- Preparing the data needed about the handcrafts in Arab States
- Preparing the training material
- Data base development
- Website development
- Launching the site

7. Inputs
Partner:
- NGO’s
- Industrial companies
- Centers concerned with developing rural women who are related to the ministry of social solidarity existing in civil associations
- Funding agencies that support for the implementation of the project

Beneficiaries:
- Private Associations who are dealing with these kind of products
- Crafts training centers existing in the societies
- People and individuals who own small workshops
- Centers concerned with developing rural women who are related to the ministry of social solidarity existing in civil associations
- Social civil associations and institutions who are working in this field
- Reports, studies, and statistics that are mentioned regarding this issue
- Handcraft Producers
- Youth who wants to learn these crafts
- Information Technology companies
- The society and economy in general

8. Risks
- Availability and collecting the data for the crafts may be some how difficult
- Availability of courses for training the crafts workers
9. Monitoring and evaluation
Ongoing evaluation of the quality of services through the assessment of the service provider in order to make an ongoing evaluation of service providers and work on developing them through ongoing training.

10. Sustainability
   - Internet: Through the project site, where a user can search on the site for the type of required service and the nearest geographical service and his/her contact details
   - Mobile Phone: By sending a message (SMS) to a certain number including a code number to be allocated to each service associated with service requester. Then the response message (SMS) contains the requested data of service provider (phone, address if any)
   - Fixed telephone: (Call Center) Service requester calls call center and requests service providers’ details in order to contact them
   - Fixed-line: (0900) Service requester calls number specialized for the project (0900) and enters the code required for requested service and its place in order to have a reply with all the details of the service provider according to the geographical area of service requester

11. Work plan

<table>
<thead>
<tr>
<th>Activities</th>
<th>2012</th>
<th>2013</th>
<th>2014-2015</th>
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<tbody>
<tr>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
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<tr>
<td>Bidding and contracting with the company</td>
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<tr>
<td>responsible for developing the website</td>
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<tr>
<td>Preparing the data needed about the</td>
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<tr>
<td>handicrafts in Arab States</td>
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<tr>
<td>Preparing the training material</td>
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<td>//</td>
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<tr>
<td>Launching the site</td>
<td>//</td>
<td>//</td>
<td>//</td>
</tr>
</tbody>
</table>

Contact Person for this Project
Dr. Hoda Baraka

E-Mail Address
hbaraka@mcit.gov.eg

Other Contact Information
Dr. Hesham farouk
hefarouk@mcit.gov.eg
4.6 THE ARAB ICT INNOVATION AWARD FOR SMES
EGYPT: THE Arab ICT Award for SMEs

Source Country: Egypt-TIEC

Brief Description:
The award will recognize Arab innovations developed by Arab small and medium enterprises (SMEs). Such innovations should go beyond marginal improvements in existing products and services, and have a real added value to their target customers, as well as have a social or economic impact. The innovation could be product, service, business model or process innovation. The purpose of this award is to create a culture that celebrates innovation and recognizes key achievements.

The award is rewarded in 2 levels. National Level where each Arab country participating in this award is executing a competition on its county level, then top 3 winners on each county are participating in the finals on the Arab region level.

The award will raise awareness of ICT and its positive benefits for the Arab countries. Although a small cash prize may be appropriate, the real benefit for recipients is positive publicity and recognition of their efforts. It would also raise awareness of what ICT does the type of people that are involved in entrepreneurship, and potentially create role models that people entering the workforce may aspire to emulate. Awards can be a money prize for each winning company. In addition to a Cup to be handled in a celebrating ceremony covered by media channels, a short movie can be developed for each winning company for promoting its successful innovation experience. Also the employee who was the key driver behind the innovation can be awarded finally the innovation responsible team can be awarded recognition medals.

Relation with the Innovation Background Paper
The project idea tackles the developed framework of the OECD Innovation Strategy that suggests a multi-point strategic and broad-based approach to innovation by governments. The background paper suggested an adaptation of these elements in the upcoming Connect Arab Summit 2012. This project specifically addresses “Unleashing innovation in firms”.

1. Background and Context
Many successful ICT companies (Microsoft, Apple, Cisco, Google, Facebook etc) have been created by students or college dropouts. Around the world, however, many similarly creative people regularly get discouraged because they lack the supportive intellectual, institutional or financial environment that exists around Silicon Valley. Celebrating innovation in the Arab region is hence a valuable objective, which can be pursued through the awarding of prizes. Arab governments need to play an effective role
in supporting Arab ICT companies. Recognizing Innovative firms and offering a package of awards to help them grow innovation management capabilities would be important to fuel the next phase of future innovations that would compete in different markets and add to national competitiveness and economic growth.

2. Project Objectives
- Recognize the successful innovations of Arab ICT companies.
- Provide support to enhance and develop the innovation management capabilities for top companies.
- Drive the community attention to the value of innovation in developing the economy.
- Provide role model examples to inspire the youth and the young startup companies.
- Show to investors and the international technology players the best innovative players of Arab ICT industry.

3. Expected outputs
- ICT innovators are recognized on each Arab country level and on the Arab region level.
- Winners are supported to develop their next innovation and strengthen their innovation management capabilities.
- A platform is developed that recognize innovators and connect them with different components of the ecosystem including investors, governmental supporting organizations, citizens and young entrepreneurs.

4. Potential Partners
- Funding agencies.
- Governmental entities supporting innovation on national level.
- Multinational corporations like Microsoft, IBM and Google.
- Others.

5. Estimated Budget and time frame
The competition is to be held on yearly bases. Each country manages the competition on the national level following an agreed standard process and judging criteria developed by project partners. The finals are to be organized each year in a country that is selected among partners. The budget will cover cost items related to the following activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Estimated cost in K US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-line platform, social media channels development and integration and competition related processes development</td>
<td>100</td>
</tr>
<tr>
<td>On-line platform content development (videos, white papers, articles, interviews)</td>
<td>50</td>
</tr>
<tr>
<td>Competition execution on each country including awards on the country level</td>
<td>500</td>
</tr>
<tr>
<td>Finals execution</td>
<td>250</td>
</tr>
<tr>
<td>Total assuming the participation of 5 countries</td>
<td>900</td>
</tr>
</tbody>
</table>
Submitted by:

Sally Metwally Mohamed
Innovation Support Manager

Technology innovation & entrepreneurship center (TIEC)
Smart-Village, Building (B5). Cairo-Alexandria Desert Road
Giza, Egypt
T : (+202) 3534 5811
F : (+202) 3534 5829
sметwally@tiec.gov.eg
www.tiec.gov.eg
4.7 EGYPT ECONTENT PROJECT 3-EGYPTIAN GIS SYSTEM FOR CHAMBERS OF COMMERCE
GIS System for Chambers of Commerce

Source Country: Egypt

**Brief Description:**

GIS is one of the main powerful tools used to visualize data thematically and create dynamic reports with capabilities of business intelligent tools.

Arab countries Electronic map can be created with different scales to support needs of organization integrated with activities plotting vertically on base map and do a lot of analysis using GIS.

The main target from system Build GIS UNIT for Arab countries in chambers of commerce and implement the System to help Merchants/ Traders to do a lot of spatial data analysis.

According to main target from system can it used in Arab countries.

System also generates a lot of statistics and numbers of reports that help decision makers to estimate the current status of activities in country and determine the future vision and trend also distribution of different activities.

System used to determine the best way to deliver services to the merchant also helps him to increase the performance and work flow.

**Some of spatial analysis for system:**

- GIS routing (best path direction) it can help chamber to collect bills from merchant.
- Distribution of specific business on Maps and visualize data with flow chart and reports or business intelligent tools (OLAP Tools).
- Determine the best location for investment according to some criteria.
- Facilitate dealing with the investor with support him with maps and data.

1. **Background and Context**

   Information system
   Computer engineering
   GIS Concept
   Database analysis and design
   System Analyst
   GIS Developer
   GIS Data Collection Expert

2. **Project Objectives**

   - Drive economic growth through the development of the use of e-commerce.
- Increase the efficiency of the services performed by the Chamber to its members of traders and businessmen, as well as staff
- Based on GIS technology System generates specialized maps/reports that consolidate the gathered information to support strategic level
- Support investors (traders) with relevant information about the most suitable/profitable places for commercial activities
- Identify the distribution of various business activities
- The distribution of commercial activities in the different sections.
- Determine numbers of specific activities on the thematic maps with buffer distance
- Determine the paths with distance and direction on the map according to some criteria
- Defining the status of a particular business activity
- Connecting & Empowering Arab countries Community by Using Innovative ICT Tools
- Using powerful of GIS using Analysis Tool

In the nearest future (Phase II) we are planning to activate the "e-business Model services" to get more benefit from portal for example at link [www.gis.alexcham.org](http://www.gis.alexcham.org)

3. Expected outputs
   1. Reduce waste receipts.
   2. Providing advisory services of how to start a new activity/project.
   3. Providing convenient and efficient training for all staff, external customers, partner agencies and community groups which empowers merchants to improve and develop their productivity to serve the Arab countries.
   4. Determine best location for specific activities with recommendation and advise according to criteria.
   5. Base map accurate with point of interest can be used in any application digitized on system and integrated with forms of activities.
   6. Facilities the work flow of organization through using GIS Tools and advanced Technology.
   7. Build capacity building for organization working in this project because it will support them with new trend in information system and new technology through web based application.
   8. Portals for different Arab countries can linked together and build huge system support decision maker globally.

4. Potential Partners
   - Ministry of Communication and information technology.
   - Ministry of commerce in Arab countries.

5. Estimated Budget and time frame
   3 Million EGY pound (estimated as US$ 500,000) for 2 years or more according to number of activities and coverage area for base map.

Contact Person for this Project
Dr. Hoda Baraka
E-Mail Address
hbaraka@mcit.gov.eg

Other Contact Information
Dr. Hesham Farouk /hefarouk@mcit.gov.eg
EGYPT ECONTENT
PROJECT 11-
ARABIC SHARED
DIGITAL VIDEO
COLLECTION FOR
VOCATIONAL
TRAINING
Shared digital video collection for vocational education

<table>
<thead>
<tr>
<th>Estimated Start Date:</th>
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<tr>
<td>Estimated End Date:</td>
<td>July 2014</td>
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<td>Project description:</td>
<td>2 years</td>
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**Brief Description:**

*Media and video in particular, are in a period of profound transition, rivaling any we have ever seen. YouTube, by posting 13 hours of video every minute, is one such player; Wikipedia, about to make video available in its entries online will be another. Future with widespread access to large digital libraries of video with a great deal of learning and teaching is currently focused on many areas related to digital video. The Project is to collect and make available a repository of digitized video content for technical and vocational sector. Technician /student can use the video to gain a wide range of experiences, such as tests of problems, hands on, and learning by watching. The project will also offer to schools digital teaching aids that would invoke student engagement while helping teacher’s focus on addressing the students individually based on their orientations of understanding. Digital Aids to promote engagement and to improve on the concept-clarity as this provides for audio as well as visual engagement. Complex concepts like detailing of vehicle mechanic or the digestive system, that are difficult to describe, are best elaborated by taking students through the movie and showing them the process instead of instruction on the process. They connect theoretic concepts to real life events where these concepts can be applied for handling the situation more effectively.***

1. Background and Context

1.1 Justification

The philosophy of content promoting learning by engaging students in entertainment-based educational content is an innovation in itself. The multimedia content focuses on developing understanding of the concepts than merely encouraging them to solve technical problems. The content will be designed with consideration to the preferences and comprehension levels of a particular section in the vocational sector. There is a shortage in skilled graduated students from vocational education, along with a huge number of students joining this sector.

The project will work to reduce the gap between the labor market and the vocational education through enhancing the student’s skills. The content will be designed with due consideration to localization along
with a standardized mechanism. Media resources like videos, animations and presentations have interactive incorporated in the resources itself. Concepts are instructed not just from the theoretical perspective but the application of the same are asserted. This helps technicians/students in understanding how the concept fits in the broader perspective. This content will bring virtual Laboratory within the reach of students.

2. Project description
The project tries to find a new relationships between educations, the world of work and the community as a whole, technical and vocational education should exist as part of lifelong learning adapted to the needs of Egypt market, the worldwide market and to worldwide technological development. This system should be directed to abolishing barriers between levels and areas of education through:

- Technical and vocational education as preparation for an occupational field should have the foundation for productive and satisfying careers. They should have skills that lead to the acquisition of broad knowledge and generic skills applicable to a number of occupations within a given field. The individual is not limited in his/her choice of occupation. he is able to transfer from one field to another during his/her working life; at the same time offer both a thorough and specialized preparation for initial employment, including self-employment, and also training within employment;

Video content is a teaching method used to promote enhancing skills and interactions. Using this approach, the student observes a video of a peer, adult, or expert engaging in a targeted skill. The project will be also very useful when the technicians/students have mastered individual skills but do not know how to combine them. The basic concept of video content is learning through observation and watching. One of its benefits is that a student can learn without actually being in the various situations.

The project will have a channel on the internet of video content specialized in vocational sector. The channel will be available to be used in vocational education or it can be used in for public community. The content on this channel will be initiated by the project through creating a valuable set of video content. The community will participate in enriching these contents through their contribution.

3. Project Objectives
1. Build a library of digital video content for vocational sector;
2. Revive the joy of learning and engaging technicians /students who are digital natives using ICT;
3. Revolutionize the way subjects are learnt by bringing to life, abstract and tough concepts and making it easier to grasp and retain;
4. To provide a platform for Collaboration and Content Co-creation / Sharing amongst the community;
5. Empowering technicians /students with Training and Development;
6. Continuous support to vocational schools to enable its education ecosystem and generate positive results.

4. Expected outputs:
- A national vocational video content developed in co-operation with stakeholders and non-governmental organizations;
- Competence-based modular programs which have been developed in accordance with the indicators developed by national qualification system and which include both vocational education at beginners level and lifelong vocational education at other levels;
- A new vocational education management system which meets the local requirements of the labour market.

5. Indicators
- No. streamed video content on CMS
- No. of users access the system per day, week, month and year
- Availability of the content from different access points
- Loading time of contents
- No. users uploaded content to the portal
- No. of downloaded content from the portal
6. Main activities
The following steps are used when implementing video content:

1. Determine the target audience and target skills to be developed;
2. Decide who should demonstrate the video content – expert, adult, or peer;
3. Publish content management system (CMS);
4. Record the video content and host it on CMS;
5. Market the video content channel;
6. Encourage the target audience to practice and contribute;
7. Monitor and sustain the operation process of the channel.

7. Inputs
**Partner:** The Partner will provide funding support for the implementation of the project.

**Beneficiaries:**

8. Risks
- The availability of funding resources
- Hosting environments
- ICT skills of Technicians and students
- Dissemination and contribution of social community.

9. Management
The project will be organized and structured based on a matrix structure. In matrix structure employee will be organized by job function, this job can be applied in different product. The matrix structure will facilitate sharing of human resources across products.

<table>
<thead>
<tr>
<th></th>
<th>Decoration wood yarn and fabric</th>
<th>Refrigeration and Air Conditioning</th>
<th>Construction</th>
<th>Mechanics Vehicles, tractors, Iron, Metal and Furniture</th>
<th>Electricity, Electronics and computers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producer manager</td>
<td></td>
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<tr>
<td>Script manager</td>
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<tr>
<td>Video manager</td>
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<td>Shooting groups manager</td>
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<tr>
<td>Director of montage</td>
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10. Monitoring and evaluation
A monitoring and evaluation strategy for a development program is concerned primarily with a set of questions that evolve around expected results. As accountability for results has been recognized as a key legitimate feature for effective programs, requests for results-based monitoring and evaluation have increased more than ever before.

Video content development will adopt an interlocking design by which interventions are complementary of each others to create a web of effect on direct and indirect beneficiaries whom vocational sector interacts with. This project a well-framed results-based monitoring and evaluation strategy that calls for greater accountability and transparency in monitoring and evaluating program effectiveness.
11. Sustainability

1. Subscriptions
2. Advertising
3. Marketplace
4. Building a sustainable workable model

12. Work plan

<table>
<thead>
<tr>
<th>Activities</th>
<th>2012</th>
<th>2013</th>
<th>2014-2015</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
</tr>
<tr>
<td>Develop detailed work plan</td>
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<td>x</td>
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<tr>
<td>Design a portal to host the content</td>
<td>x</td>
<td></td>
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<tr>
<td>Record a high quality lectures in specific</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>sector</td>
<td></td>
<td></td>
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<tr>
<td>Purchase a content management system</td>
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<td>x</td>
<td>x</td>
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<tr>
<td>Lease a hosting mechanism</td>
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<tr>
<td>Publish a content management system (CMS)</td>
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<tr>
<td>Host the content on the CMS</td>
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<tr>
<td>Market the channel to the target audience</td>
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<tr>
<td>Monitor and evaluate the production process</td>
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</table>

Contact Person for this Project
Dr. Hoda Baraka

E-Mail Address
hbaraka@mcit.gov.eg

Other Contact Information
Dr. Hesham Farouk Ali
hefarouk@mcit.gov.eg
EGYPT ECONTENT PROJECT 1 - REGIONAL COMPETITIVE CENTER FOR DIGITAL ARABIC CONTENT INNOVATION
1. Background and Context

The second decade of the 21st century is the age of the Broadband, which relies to a large extent on availing digital content catering to consumers’ needs. This decade will witness data revenues exceeding by far voice revenues. Unfortunately and as experts asserted, “the content divide” is becoming an increasing threat to those regions whose language has become gradually dominated by other living languages. Arabic is facing this threat. Based on the World Summit on The Information Society’s recommendations, as well as on the Millennium Development Goals, the Arab states issued a strategic plan for ICTs where digital content occupied a central place. A number of Arab countries launched national projects and initiatives, including Egypt, Saudi Arabia, Qatar, Bahrain. However, the increase of Arab content on the internet and the re-establishment of the Arabic language as a leading cultural communication tool are two challenges that would require more than national initiatives.

1.1 Justification

In response to such pressing and imminent threat to the Arabic language and the culture it serves, there is a need for an overarching project that responds to the magnitude and complexity of the challenge. The Arabic Digital Content Challenge consists of a number of problems that require a coordinated effort. These problems include the following: Limited innovation in applications related to content creation, lack of awareness and clarity with respect to IPR issues, limited trust in protection solutions and absence of such solutions in Arabic related applications, limited academic studies in the field, limited business models and return on investments, piracy issues.

To scale up Arabic content internet hosts, content, cctlds, applications and address the challenges of availing content online in its different forms, as well as the infrastructure and financial issues, there is a need for a new approach that combines the human resources and financial potential of as many Arab countries as possible, and that looks at strategies and policies relevant to e-content.
These needs become more pressing with the enormous rise in Arabs’ usage of social media and the lack of mechanism that exploits the potential of Arab youth in what is generally known as User Created Content.

2. Project description
The project aims at establishing a Regional Competence Center in Innovation in Digital Arabic content to serve the Arab region. The center will focus on developing innovation in the field, but would also address the development of the industry in its audio, video, text and image forms through essentially state-of-the art technology. The center will incubate a number of Arab innovators in digital content technologies and applications through innovation labs. It will also incubate promising SMEs in the field and will offer model legislations, regulations and business solutions that address the challenges faced in the Arab region in general. In addition, the center will accelerate the development of Arab content, keeping a repository of the efforts done on the national levels and keeping track of the different best practices. The center will also offer strategies to address digital content creation in key fields such as creative industries, entertainment, journalism... etc. Most importantly, the center will offer certification in digital content creation, forming a young generation of professionals in the region.

3. Project Objectives
- Preserving the Arab language, culture and status among other living languages by increasing Arabic content online and applications serving the Arabic language.
- Developing relevant policies and strategies.
- Stimulating innovation in digital content technologies and applications, customization and tailoring of existing technologies.
- Developing digital content in specific areas: such as journalism, the social and political participation, small and medium businesses, entertainment and games, learning, and electronic commerce.
- Following up development of e-content applications and dissemination in the Arab world.
- Keeping abreast of international standards, policies and legislations for digital content.
- Forming highly qualified staff from the region.
- Supporting the development of micro and small business working in the field of Arabic digital content.
- Connecting Arab innovators in the field of Arabic digital content.

4. Expected outputs
- Increasing Arabic content on the internet in different forms.
- Increasing digital content innovators from the region.
- Increasing SMEs working in Arabic digital content.

5. Indicators
- Number of certified professionals
- Number of incubated projects
- Number of registered patents in e-content technologies and applications
- Number of consultations offered
- Size of joint projects initiated

6. Main activities
- Incubation
- Professional Training
- Consultancy
- Innovation labs
- Managing digital repository of e-content projects and initiatives in the Arab world
- Availing accurate statistics about e-content industry in the Arab world
- Managing network of e-content innovators
- Partnering with similar institutions
- Producing model strategies, regulations and policies in e-content
- Developing plans for e-content enhancement in key areas, conducting pilots and knowledge transfer
- Conducting professionals exchange and offering research grants
- Security solutions for Arabic language applications

7. Inputs
In cash contribution:
- Purchasing equipment
- Purchasing software
- Hiring required specialists
- Training
- Traveling expenses

In Kind Contribution:
- Location
- Human resources
- 3 experts
- Training

8. Potential Partner(s)
ICTQatar, Saudi Arabia, Bahrain, ITU, MCIT-Egypt, ESCWA and others
(The Partner will provide funding support for the implementation of the project).

Beneficiaries: All Arab States

9. Risks
The main risk could be in sustaining the work of the competence centre which is largely based on Arab countries’ belief in its necessity.

10. Management
The center will be managed by a board from participating Arab States and organizations. Leadership of the board would be by rotation.

The board will be assisted by the executive team composed of: Director and Innovation Manager, Incubation Manager and training manager, in addition to the financial team.

The director reports directly to the management board of the center.

11. Monitoring and evaluation
The progress of the project will be monitored through periodical M&E procedures prepared by an independent team of assessors. This report will provide a summary of the project progress, the challenges as well as any necessary amendments that maybe required for the project implementation.

The financial status and expenditure for the project will also be updated accordingly, and an evaluation report will be prepared at the end of the project to assess the success of the project in terms of meeting its stated objectives and developmental impact based on expected outcomes and pre-identified indicators. An independent accounting firm should be reviewing the center’s revenues and expenditures and raise its report to the board of directors.

12. Sustainability
Sustainability for the center can be partially achieved from the digitization and translation of content, training programs provided and the consultations that the center can provide for different stakeholders.
### 13. Work plan

<table>
<thead>
<tr>
<th>Activities</th>
<th>2012</th>
<th>2013</th>
<th>2014-2017</th>
</tr>
</thead>
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<tr>
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<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
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<td>Analysis of current situation and establishing the</td>
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<td>framework of the center.</td>
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<td>Consultations on Design of programs strategies and</td>
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<td>work mechanisms</td>
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<tr>
<td>Awareness &amp; Training Program</td>
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<td>X</td>
<td>X</td>
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<tr>
<td>Develop relevant Policies</td>
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<td>X</td>
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<tr>
<td>Pilots</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Incubation Program</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Innovation Lab</td>
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<td>X</td>
<td>X</td>
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<tr>
<td>Arab digital repository Initiative</td>
<td>X</td>
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</tr>
</tbody>
</table>

**Contact Person for this Project**
Dr. Hoda Baraka

**E-Mail Address**
hbaraka@mcit.gov.eg

**Other Contact Information**
Dr. Hesham Farouk
hefarouk@mcit.gov.eg
4.10 YOUTH CONNECTION DAY
Youth Connection Day

Source: Microsoft

Brief Description:
*Microsoft has refreshed focus on youth and on developing youth entrepreneurship in the Arab world. In light of the recent Arab spring, there is a need to have a voice of positive change and hope among the youth. As a result, Microsoft will be organizing an event to be held in April will bring together young entrepreneurs from throughout the Middle East and Africa and work to form networks of exchange and opportunity to be supported at the regional and national level by Microsoft and its expansive partnership network. The plan calls for an innovative 3 day event with inspirational speakers and leaders from the region and creative work in the form of networking and business brainstorming. This regional event is envisaged as the harbinger of national initiatives throughout the region in FY13 and will be the first phase where we will roll out this approach throughout the region using the invitees to these first events to spark growth in other countries.*

1. **Background and Context**
The winds of change have gusted across the Middle East and Africa region, toppling long-standing regimes and opening the door to large-scale economic, social and political upheavals with the voice of youth as the main driver. Egypt lies at the heart of this transformation, playing influential roles for both the Middle East and Africa in its own transition.

2012 marks a year of constitution-building following the Arab spring, and opportunities to harness and nurture the talent of youth are the way of the future. Similarly, technology has been a crucial factor in facilitating these transformations, both in a political context but also socio-economic, as more and more youth are discovering how technology can be a catalyst to achieve social good. With these considerations in mind, the moment is ripe for Microsoft to deliver a youth-oriented event which aims to “harness change for good in the wake of the Arab Spring”.

2. **Project Objectives**
   2. Utilize Employability portal to foster networking across the region post event.

3. **Expected Outputs**
   1. Attendance of 150 youth at the first youth connection conference in Egypt.
   2. Cross Sector Collaboration with public and private sectors in the region.
   3. Increase of use of the ‘Masr Works’ Employability portal as a cost effective means to provide a permanent site for program curricula and a means for graduates and employers to
communicate. Upon agreement with the local governments and potential partners, we hope that at least 50% of the attendees in Egypt will sign up to the portal.

4. Registration of 60% of the participants to use the Build your Business Entrepreneurship Curriculum for Micro Scale Enterprises.

4. **Potential Partners**
   Current under discussion with existing NGOs and organizations promoting youth entrepreneurship.

5. **Estimated Budget and Time Frame**
   Estimated Budget: 120,000 USD
   Time Frame: 3 Day Conference in April 2012.

Submitted by:
Jeffrey Avina
javina@microsoft.com
Microsoft Middle East and Africa
5. SECURING THE CYBER-HIGHWAY: PROTECTING PEOPLE
Most governments have recently developed ICT legislations (e.g. related to e-commerce, e-transaction) with less focus on cybercrime legislation. In recent years, cyber threats spanning over several domains ranging from economic crimes such as computer-related fraud to targeted attacks against critical infrastructure and illegal content have emerged. In order to effectively investigate and prosecute such crimes, a comprehensive approach is required. A harmonized regulatory framework to fight global cyber threats is key. It is also important to develop and implement awareness campaigns to educate users, law enforcement and policy makers about cyber laws, the impact of cybercrime and measures of combating it.

Some Arab countries have actively addressed the issues of protecting children online and started activities to promote online safety at the national level. Some other countries in the region, however, still need to develop their national strategies on child online protection, such as proactive measures, common standards, legislation or raising awareness.

Within the framework of ITU’s Child Online Protection (COP) Initiative, the project of the COP Global Initiative for the Arab Region seeks to execute in the region a strategy designed to prevent online threats, coordinate actions on the part of relevant players or stakeholders from the public and private sectors, and ensure that children and young people can access the Internet safely.

The following projects are presented to mobilize the human, financial and technical resources to contribute to Secure the Cyber-Highway to protect people:

<table>
<thead>
<tr>
<th>Title (Project / Concept Paper)</th>
<th>Source</th>
<th>Budget (US$ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 National CIRT Establishment</td>
<td>ITU</td>
<td>415 P</td>
</tr>
<tr>
<td>2 Child Online Protection (COP)</td>
<td>ITU</td>
<td>650 C</td>
</tr>
<tr>
<td>3 Building National and Regional Regulatory Policies and Frameworks For Data Privacy and Fight Cybercrimes</td>
<td>ITU</td>
<td>450 C</td>
</tr>
<tr>
<td>4 Pan Arab CIRTs (PAC) Network</td>
<td>Egypt</td>
<td>6 C</td>
</tr>
<tr>
<td>5 Arab Clean DNS</td>
<td>Egypt</td>
<td>10 C</td>
</tr>
<tr>
<td>6 Arab Computer Forensic Research and Development Center</td>
<td>Egypt</td>
<td>4 C</td>
</tr>
<tr>
<td>7 Arab Anti-virus</td>
<td>Egypt</td>
<td>3 C</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1'538</td>
</tr>
</tbody>
</table>
5.1 NATIONAL CIRT ESTABLISHMENT
Project Number: National CIRT Establishment
Estimated Start Date: 2012
Estimated End Date: 2015
Government Coop. Agency: International Telecommunication Union (ITU)
Implementing Agency: International Telecommunication Union (ITU)
Beneficiary Countries: 15 Arab States
ITU Project Manager: Mr. Brahima Sanou, Director of BDT

Brief Description:

The main goal of the project is to assist Arab States to establish its national CIRT (Computer Incident Response Team), to serve as a trusted, central coordination point of contact for cybersecurity, aimed at identifying, defending, responding and managing cyber threats.

ITU will assist in building and deploying the technical capabilities and related trainings necessary to establish its national CIRT. Thus it is expected to lead to development of national cybersecurity capacity while moving forward on enhancing regional and international collaboration.

<table>
<thead>
<tr>
<th>Description</th>
<th>in US$</th>
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<tbody>
<tr>
<td>Purchase of Services</td>
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<tr>
<td>Project Staff</td>
<td>1,500,000</td>
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<tr>
<td>Missions</td>
<td>1,000,000</td>
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<tr>
<td>Training</td>
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<tr>
<td>Equipment</td>
<td>225,000,000</td>
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<tr>
<td>Miscellaneous and Other Costs</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>415,000,000</strong></td>
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<tbody>
<tr>
<td>ITU:</td>
<td></td>
<td>Mr. Brahima Sanou, Director of BDT</td>
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<tr>
<td>Partner:</td>
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ICT for Sustainable Development – Projects and Initiatives

– 266 –
1. Background and Context

1.1 General Introduction

Many countries and governments are using the dynamic and inter-connected environment of today’s networked information systems to improve communications, provide control, protect information, and encourage competitiveness. Computers have become such an integral part of daily activities that computer-related risks cannot be separated from general business, health, and privacy risks. Valuable country assets and critical national infrastructures are now at risk over the Internet.

Overall reliance on the Internet continues to increase. Unfortunately, in this dynamic, distributed, and interconnected environment cyber attacks occur rapidly and can spread across the globe in minutes without regard to borders, geography, or national jurisdiction. As a result, there is a growing need to be able to communicate, coordinate, analyze, and respond to cyber attacks across different business sectors and national borders. The Internet itself has become a critical infrastructure to many nations, businesses and people that must also be protected.

It is important for governments to create or identify a national organization to serve as a focal point for securing cyberspace and the protection of critical information infrastructure, and whose national mission includes watch, warning, response and recovery efforts and the facilitation of collaboration between government entities, the private sector, academia, and the international community when dealing with cybersecurity issues.

Therefore, collaboration at the national and international level is necessary to effectively align capabilities and expertise to manage incidents and raise awareness of potential incidents and steps toward remediation. Governments have the key role in ensuring coordination among these entities.

The establishment of a national CIRT is needed to help to ensure the protection of the nation’s critical information infrastructures, assist in drafting the overall plan on the country’s approach to cybersecurity related issues, and thus can serve as a focal point for further building and implementing the national culture of cybersecurity.

1.2 Problem Statement

The national CIRT has a key role to play in supporting the Government in addressing cybersecurity related issues at the national level as this pertains to preparing for, detecting, managing, and responding to cyber incidents if and when they occur. However, implementing an incident management mechanism requires consideration for funding, human resources, training, technological capability, government and private sector relationships, and legal requirements.

Taking the foregoing into consideration, developing countries, with limited human, institutional and financial resources face particular challenges in elaborating and implementing national policies and frameworks for cybersecurity and critical information infrastructure protection.

1.3 Justification

This project focuses on assisting countries to organize and equip themselves to better respond to cyber-threats. It pays particular attention to improving cybersecurity to ensure better protection of a country’s ICT infrastructure, including critical information infrastructure, and the availability of dependent services.

\[^{1}\text{http://www.cert.org/archive/pdf/NationalCSIRTs.pdf}\]
\[^{2}\text{http://www.itu.int/ITU-D/connect/flagship_initiatives/impact.html}\]
\[^{3}\text{http://www.itu.int/md/D06-SG01-C-0249/en}\]
\[^{4}\text{http://www.itu.int/md/D06-SG01-C-0249/en}\]
provided to government agencies, citizens and businesses. Many of these services are part of daily life and have a direct impact on a country’s economic well-being and progress.

A national CIRT is a key component of a national approach to cybersecurity and is a solid building block onto which other cybersecurity related activities could be linked. The establishment of a national CIRT, and development of related processes on the national level, can also serve as a foundation for the development of the following activities:

- building a knowledgebase that supports the country’s development and implementation of a national cybersecurity strategy as well as a national approach for the protection of critical information infrastructures;
- supporting the building of a national culture of cybersecurity, and related awareness raising initiatives;
- supporting the development of related national cybersecurity platforms, for example: the national PKI, e-Government framework and approach, national identity and access management framework, combating SPAM, botnets, etc;
- assisting in planning/development of a national strategy on child online protection;
- further enabling the country to develop and enhance its national incident response and management capabilities.

1.4 Relationship to BDT Programs/Activities

The objective of Programme 2 of the Hyderabad Action Plan is to support the ITU membership, in particular developing countries, in addressing the issues identified by WTDC-10 among others on establishing organizational structures, such as computer incident response teams (CIRTs), to identify, manage and respond to cyberthreats, and cooperation mechanisms at the regional and international level.

For this reason, Resolution 69 “Creation of national computer incident response teams, particularly for developing countries, and cooperation between them” was adopted at WTDC-10.

As lead facilitator for WSIS Action Line C55, ITU is responsible for assisting stakeholders in building confidence and security in the use of Information and Communication Technologies (ICTs)6 at national, regional and international levels.

In addition, ITU Resolution 130 (Guadalajara, 2010) on “Strengthening the role of ITU in building confidence and security in the use of information and communication technologies”; in particular instructs the Director of the Telecommunication Development Bureau to support Member States in their effort towards protection against cyberthreats at national, regional and international levels, as appropriate, by establishing mechanisms, such as CIRTs, to identify, manage and respond to cyberthreats, and cooperation mechanisms at the regional and international level.

WTDC-10 also calls on assisting Member States in establishing organizational structures, such as CIRTs, to identify, manage and respond to cyberthreats, and cooperation mechanisms at the regional and international level.

In this framework, the Global Cybersecurity Agenda (GCA) was launched by the ITU Secretary-General as ITU’s framework for international multi-stakeholder cooperation towards a safer and more secure information society, and focuses on the following five work areas:

5 http://www.itu.int/osg/csd/cybersecurity/WSIS/
6 http://www.itu.int/wsis/docs/geneva/official/poa.html
• Legal measures,
• Technical and procedural measures,
• Organizational structures,
• Capacity building,
• International cooperation.

Within the GCA’s framework and as part of efforts to achieve global coordination and international cooperation on cybersecurity, ITU, in September 2008, signed a Memorandum of Understanding with the International Multilateral Partnership against Cyber-Threats (IMPACT).

2. Strategy

2.1 Overall Project Objective

The objective of this project is to assist 15 Arab States in establishing and further developing its cybersecurity capabilities, including the establishment of a Computer Incident Response Team with national responsibility.

2.2 Project Strategy

The overall strategy is to facilitate the process towards the establishment of a global cybersecurity strategy for each of the involved Member States. As such the aim is to initially equip Member States with functioning CIRTs, to be extended to other interested Member States in the future. This project will:

• Facilitate the establishment of watch-warning and incident response capabilities to better identify, respond to, and manage cyber-threats;
• Assist the Member State in identifying its national critical information infrastructure sectors and establish a foundation on the national level to be able to further elaborate and implement a national cybersecurity strategy;
• Build the national capacity and transfer know-how required in order to facilitate further development within the area of national critical information infrastructure protection, such as establishing sector CIRTs, etc.

3. Expected Results

By implementing this project, the following primary and secondary outcomes are expected:

3.1 Primary Result:

• A functioning national CIRT able to provide its constituents with a basic set of services.
3.2 Secondary Results:

- Enhanced national expertise on cybersecurity and reduction of the human capacity gap in cybersecurity.
- Improved national preparedness on the identification, prevention, response, and resolution of cybersecurity incidents (preliminary assessment and post implementation assessment required).
- Utilization and operation of the CIRT by building an effective/efficient capable CIRT that is ready to respond to cyber attacks targeting the national critical information infrastructure. The national CIRT will be the trusted advisor to the government on matters concerning cybersecurity.
- National awareness training programmes are developed to result in improvements in cybersecurity procedures, to defend and protect infrastructures and government agencies.
- Increased ability to enact effective security measures and instill mature responses when such true threats occur.

4. Indicators

Indicators are:

- National CIRT established and put into operation by the end of the project;
- Trainings delivered to the staff involved.
- Drafting of roadmap on the building of a national culture of cybersecurity as a part of national cybersecurity strategy within the framework of national CIRT enhancements.

5. Activities

To meet the objectives of this project, a number of activities will be undertaken by the Parties, as presented below:

5.1 ITU Activities

The project activities undertaken will be in synergy with Programme 2 of the Hyderabad Action Plan and ITU planned regional activities, to ensure effective implementation of the project.

ITU specific activities for the project will include:

- Prepare terms of reference of the subcontractor and contracting with the latter as per the Administrative Agreement.
- Site assessment and preparation for project start.
- Provide and update project plan and roadmap with feasible dates throughout the project.
- Provide capacity building and training based on gaps in the areas identified during the project implementation.
- Customize training materials that meet beneficiary countries’ goals on cybersecurity capacity building.
- Train experts – further developing of existing skills available in the country.
- Customize and develop processes to run CIRT operations.
- Customize CIRT software to meet countries’ needs and be in line with the relevant processes and strategy.
• Install CIRT software tools – all activities involved in software installation.
• Start the operation and conduct an assessment of the operations/implementation of the CIRT project for Quality Assurance.
• Prepare together with the country team the awareness creation materials to conduct national activities on awareness rising.

5.2 Beneficiary Country Activities

Member State specific project activities include:

• Assisting site preparation for CIRT Installation.
• Procuring the recommended equipment - hardware/basic OS software configuration for the CIRT solution deployment.
• Assisting the project team in terms of logistics for training sessions.
• Preparing together with the Project team the awareness creation materials to conduct national activities on awareness rising.

6. Inputs

6.1 ITU:

IN-KIND CONTRIBUTION ITU will provide skills, care and diligence to ensure the success of the project.

6.2 Beneficiary Countries:

IN-KIND CONTRIBUTION

1. Financial Commitment on CIRT sustainability.
2. Human Resources to implement and run the entire project (min. 3 resources).
3. Facility (physical location and related infrastructure).
4. Hardware and basic software (servers, clients, operating system, network, etc.) – estimate costs in the annex of this document at in-kind contribution section.

6.3 Partners:

IN-KIND CONTRIBUTION The Partners will provide funding support for the implementation of the project.

Beneficiary countries will provide a project team comprising of its own staff (minimum three (3) officials) to implement and coordinate the project on-site with ITU; mobilize local partners; host project team meetings; train the trainers, comprising CIRT manager and analysts; provide local logistics including deployment of equipment and human resources; Internet connection, computer hardware, promote the project among stakeholders in the governmental agencies, etc. Beneficiary countries will oversee the involvement of required national entities and be responsible for the promotion of the project among the national media and local communities with a view to getting stakeholders’ continued involvement and knowledge about the project and its importance. The stakeholders’ involvement plays a key role in the overall success and effectiveness of the project.
7. Risk Management

- The primary risk for this project is that in-country activities may suffer delays due to unforeseen local events and circumstances. Getting the commitment from the government in early stages of planning will minimize this risk of failure.
- Another factor of risk for the project is the possibility of inadequate human resources assigned to the project, which would increase the time for completion. This risk will be reduced by provision of appropriate site and country training courses by ITU.
- As a first step, BDT has conducted a feasibility assessment in advance for on CIRT Establishment to further manage risks of possible project delay or additional costs.

8. Project Management

The project will be implemented by the assigned ITU Project Manager in close coordination with Beneficiary country Focal Point(s) and Subcontractor.

ITU as the implementing agency will supervise and administer overall implementation of the project in accordance with ITU rules and procedures.

9. Roles and Responsibilities

9.1 International Telecommunication Union (ITU)

ITU will:

- Provide staff resources for the coordination and management of the project and be responsible for the overall management of the project implementation, supervision, monitoring, coordination and evaluation.
- Provide its expertise and international experience to enable realization of the project objectives in an effective and efficient manner.
- Allocate the experts for the project as per contract and terms of reference.
- Correspond with the relevant parties to make sure that project is successful.
- Provide advice and assistance to the project team, when it is required pre-, during and after project implementation.
- Provide the solution/software source code and related development documentation to the country at no additional charge as a part of the project.
- Procure and deploy the necessary equipment for the establishment of the national center in each of the beneficiary countries.
- Identify country’s needs and assist in the development of a roadmap for National CIRT evolution.
- Provide a roadmap for human capacity building and training needs for the development of the National CIRT services.
- Transfer the know-how to beneficiary countries on CIRT and cybersecurity defense against attacks on national critical information infrastructure.
- Produce periodic project progress reports.
- Produce project closure report with financial statement at the completion of the project.

9.2 Beneficiary Country

Beneficiary countries will:

- Provide physical access to the CIRT facility allocated and provide network access.
• Cooperate with ITU in the purchase the recommended equipment - hardware/basic OS software configuration for the CIRT solution deployment.
• Provide project facilities and resources where the project office can be located and training sessions can be conducted.
• Designate national counterparts (qualified technical personnel) that will assist in hosting project team, provide local logistics including deployment of equipment. The national counterparts designated by beneficiary countries will, in particular, assist ITU and the selected subcontractor by providing accurate information relevant to the project.
• Provide information required for carrying out the planned and agreed project activities.
• Provide human resources to efficiently operate the CIRT.
• Provide physical space, hardware and software facilities as properly required by the project nature and for the establishment of the CIRT.
• Provide administrative support required (including with a view to issuing and delivering visas to the members of the project team and facilitating tax, duty and customs clearance/exemptions of any necessary equipment, materials, etc.,) required during the project implementation and any other assistance that may be required for the successful project implementation.
• Collect cyber-attacks data, outline statistical trends, attack patterns, build intelligence on top of them and reach effective knowledge sharing.
• Commit necessary resources to keep the national CIRT facilities in operation after completion of the project.

10. Project’s Sustainability

Cyberthreats are increasingly affecting the daily lives of ICT users therefore the national CIRT is considered to be a sustainable solution due to its capabilities against cyberthreats. Furthermore sustainability of the established NCIRT will be guaranteed by beneficiary countries. As described in section 9 of this project document, beneficiary countries commit themselves to take necessary measures in order to keep the NCIRT in operation.

11. Monitoring and Evaluation

The Project Manager will prepare periodic progress reports, which will provide a summary of the achievements and activities as well as challenges faced in a given period.

ITU together with beneficiary countries will, at the end of the project, prepare a final report to assess the success of the project in terms of meeting its stated main objectives, expected outcomes and impacts on the beneficiary country’s future development.

For the evaluation of the project, post-implementation feedback from each CIRT country could be requested in order to provide useful lessons in planning and replicating similar implementation projects in future and customization of the training materials.

12. Budget

The Budget is contained in Annex A.

13. Work Plan

The work plan is contained in Annex B.
Annex A. Project Budget  (for 15 countries)

<table>
<thead>
<tr>
<th>Description</th>
<th>in US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase of Services</td>
<td>180,000,000</td>
</tr>
<tr>
<td>Project Staff</td>
<td>1,500,000</td>
</tr>
<tr>
<td>Missions</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Training</td>
<td>4,500,000</td>
</tr>
<tr>
<td>Equipment</td>
<td>225,000,000</td>
</tr>
<tr>
<td>Miscellaneous and Other Costs</td>
<td>3,000,000</td>
</tr>
</tbody>
</table>

Total: 415,000,000
Annex B. Work plan (per country)

<table>
<thead>
<tr>
<th>Task Name</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>National CRT Establishment</td>
<td>47 days</td>
</tr>
<tr>
<td>Onsite Project Kick-off Meeting</td>
<td>2 days</td>
</tr>
<tr>
<td>Pre-Planning &amp; Design Stage</td>
<td>25 days</td>
</tr>
<tr>
<td>Onsite</td>
<td>5 days</td>
</tr>
<tr>
<td>CRT Awareness Workshop</td>
<td>1 day</td>
</tr>
<tr>
<td>CRT Implementation Requirements Workshop</td>
<td>4 days</td>
</tr>
<tr>
<td>Offsite</td>
<td>20 days</td>
</tr>
<tr>
<td>Pre-CRT Implementation Plan</td>
<td>3 wks</td>
</tr>
<tr>
<td>Submit and Review Pre-CRT Implementation Plan</td>
<td>1 wk</td>
</tr>
<tr>
<td>End of Pre-Planning &amp; Design Stage</td>
<td>0 days</td>
</tr>
<tr>
<td>Planning &amp; Design Stage</td>
<td>40 days</td>
</tr>
<tr>
<td>Onsite</td>
<td>10 days</td>
</tr>
<tr>
<td>Create &amp; Approve User Requirement Specification (URS)</td>
<td>3 wks</td>
</tr>
<tr>
<td>Offsite</td>
<td>30 days</td>
</tr>
<tr>
<td>Design CRT According to URS</td>
<td>6 wks</td>
</tr>
<tr>
<td>Network Design according to URS</td>
<td>6 wks</td>
</tr>
<tr>
<td>Pre-Installation &amp; Preperation Step by Step Guide for Network &amp; Hardware</td>
<td>6 wks</td>
</tr>
<tr>
<td>End of Planning &amp; Design Stage</td>
<td>0 days</td>
</tr>
<tr>
<td>Implementation &amp; Testing Stage</td>
<td>20 days</td>
</tr>
<tr>
<td>Offsite</td>
<td>10 days</td>
</tr>
<tr>
<td>Remote Installation &amp; Testing</td>
<td>2 wks</td>
</tr>
<tr>
<td>Onsite</td>
<td>10 days</td>
</tr>
<tr>
<td>Fine-tuning of CRT Application &amp; Training</td>
<td>2 wks</td>
</tr>
<tr>
<td>End of Implementation &amp; Testing Stage</td>
<td>0 days</td>
</tr>
<tr>
<td>Operation Stage</td>
<td>40 days</td>
</tr>
<tr>
<td>Offsite</td>
<td>40 days</td>
</tr>
<tr>
<td>Service Desk Support for CRT Operations</td>
<td>6 wks</td>
</tr>
<tr>
<td>Final Project Handover Documentation Preparation</td>
<td>6 wks</td>
</tr>
<tr>
<td>End of Operation Stage</td>
<td>0 days</td>
</tr>
<tr>
<td>Project Handover</td>
<td>1 wk</td>
</tr>
<tr>
<td>Project Closute</td>
<td>3 wks</td>
</tr>
</tbody>
</table>
## CIRT Methodology Overview

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Planning &amp; Design</th>
<th>Implementation</th>
<th>Operations</th>
<th>Collaboration</th>
</tr>
</thead>
</table>
| • Current State Assessment (questionnaires)  
• Obtain Management Support and Buy-In through Trusted Communications  
• Capacity Building through Awareness and Training on the need to establish a National CIRT  
• Recommendation Report | • Determine & Confirm Constituency  
• Define & Confirm Mission Statement  
• Determine CIRT Services  
• Determine Reporting Structure, Authority & Organisation Model  
• Define CIRT Processes & Workflow  
• Develop Policies, Procedures and Documentations | People:  
• Trainings | • Incident Handling Activities  
• Information Dissemination | • Cooperation Between Other CIRTS |
| | • Identify Interactions with Key Parts of the Constituency  
• Define Roles and Responsibilities for Interactions  
• Determine Technology Requirements (HW, SW, Tools, etc.) | Process:  
• Finalised CIRT Processes & Workflow  
• Finalised Policies, Procedures & Documentations | | |
| | • Human Resource Requirements  
• Capacity Building  
• Communications Approach  
• CIRT Facilities | Technology:  
• Assess Infrastructure for the Constituency  
• Hardware & Software Installation | | |
| | | Others:  
• Legal Issues  
• CIRT Announcement | | |
5.2 CHILD ONLINE PROTECTION (COP)
The Child Online Protection (COP)

**Brief Description:**
The “Child Online Protection (COP) Initiative for the Arab Region” is intended to develop a cybersecurity strategy for children and young people, and deliver significant national and societal benefits in the region. This project focuses on five main areas: i) establishment of a general framework for action which coordinates existing efforts and ii) a series of training and prevention initiatives which are focused on children, schools and communities aimed at reducing the risks involved in accessing the Internet. Under the framework of ITU’s COP Initiative, the strategies fall within five work areas: i) Legal measures, ii) Technical and procedural measures, iii) Organizational structures, iv) Capacity Building, and v) International cooperation.

1. **Background and Context:**

Some Arab countries have actively addressed the issues of protecting children online and started activities to promote online safety at the national level. These countries have set up an inter-institutional committee or working group, composed of different stakeholder groups: government; industry; the legal profession; relevant NGOs; child welfare organizations; academia, to ensure implementation of the national child online protection strategy. In some countries, their national CERTs take the leading role to carry out the national strategy to promote the culture of ICTs security in the society, introduce Internet safety standards, raise awareness about the ethics of propose use of ICTs for children, and so on.

Some other countries in the region, however, still need to develop their national strategies on child online protection, such as proactive measures, common standards, legislation or raising awareness. The very nature of the Internet means that there are no borders and successful online safety will recognize this and harness the best from around the world. Effective online protection strategies, therefore, will learn from the successes and mistakes of others, especially neighbor countries in the region, and will keep a watchful eye on global development and emerging trends.

On these bases, below are recommended which discussed and agreed at the ITU Regional Workshop on Policy Advocacy & Capacity Building in Child Online Protection for the Arab Region, held in Muscat, Oman on 30-31 October 2011, to consider in the national framework for the Arab countries to protect children online.

- To encourage all Arab countries to support the ITU initiative on Child Online Protection (COP);
- To unify and coordinate all the awareness efforts for the Child Online Protection (COP) in the region;
- To establish an “Arab Child Portal” as a project funded by ITU and the League of Arab States and to post it on the website of the Pan Arab Observatory for Safety and Cybersecurity;
- To encourage the Arab countries to set up policies and strategies that would protect children in cyberspace and promote their safer access;
- To share best practices in particular the experience of Bahrain and to sign a MoU with the TRA in Bahrain regarding the use of their experience for the benefit of other countries;
- To promote regional/international cooperation and to unify the efforts for sharing advice and information;
- To encourage the Arab countries to set up legal procedures for promoting and supporting local manufacturers for creating special software and Arabic content for the Child Online Protection;
- To set up mechanisms to promote the partnership between Governments and the software manufacturers to provide the safer solutions for Child Online Protection;
- To promote protective measures for the internet cafes in all the Arab countries to use the Minors Web Browsers for the child online protection.
Within the framework of ITU’s Child Online Protection (COP) Initiative, the project of the COP Initiative for the Arab Region seeks to execute in the region a strategy designed to prevent online threats, coordinate actions on the part of relevant players or stakeholders from the public and private sectors, and ensure that children and young people can access the Internet safely.

2. **Project Objectives:**

“Emphasize the importance of Child Online Protection (COP) and safety of children and youth, through awareness programmes and establishment of technical measures”

- Formulating a strategy to enhance national/regional cooperation in online child safety among key public and private actors in the country/region;
- Contributing to the fostering of public policies aimed at improving the protection of children online;
- Promoting the empowerment of young people for full and positive online participation and a safe use of digital tools;
- Fostering a better understanding among caretakers and teachers as well as children and adolescents of the risks involved in Internet-use to minimize harm.

3. **Expected Results:**

i) **Legal Measures: Enhancing public policies in the field of online child safety**

“The COP Initiative calls upon all stakeholders to promote the adoption of policies and strategies that will protect children in cyberspace and promote their safer access to all the extraordinary opportunities online resources can provide.” (COP Guidelines for policy makers)

Key members of the ICT industry in a country, governmental institutions dealing with the issue of child and adolescents’ online safety as well as representatives of the NGO sector and International Organization based in the country will be invited to join the Inter-institutional Commission. This will ensure an effective cooperation among all sectors involved at national level.

- **Inter-Institutional Commission:** This Commission will serve as leading expert group and, as such, will contribute to the definition of national policies, additional activities and strategies that could complement the deliverable stated in this project.

Provisions will be proposed by the Inter-Institutional Commission on internet safety related issues to look at actions that can be pursued at the national level, and efforts that can be made in conjunction with international entities, such as other UN organizations.

ii) **Technical and Procedural Measures: Fostering the cooperation with the ICT industry leaders**

“Convergence is now an established reality in many countries, and there is no doubt that it is bringing with it a host of new challenges. Cooperation and partnership are the keys to progress. No one sector of the industry has a monopoly on knowledge or wisdom. We can all learn from each other.” (COP Guidelines for industries)

In order to formulate a national and international strategy focusing on child online protection, it is essential that communities, including ICT industry leaders, become more involved and develop innovative industry codes of practice to support the ICT infrastructure in becoming more sustainable, flexible and adaptable for children.
- **Code of Conduct/Practice**: The Inter-institutional Commission will invite participants from different sectors, including broadcast, Internet and mobile, to identify the commonalities for developing a “Code of Conduct” required to regulate the national/regional market. It will evaluate what existing models are already available in other countries. It will develop common rules to create a widely shared approach to protecting children online, to be promoted across whole industries. (i.e. User complaint systems, User friendly Terms and Conditions, Safety information and reporting mechanisms, etc.).

- **Financial coalition against Child Pornography**: The Inter-institutional commission will invite the national/regional financial and banking sector to form an alliance in order to copy the model of financial coalitions against child pornography active in several countries such as the ones implemented in the USA, the UK or in Brazil.

- **Technical tools available to enhance the protection of children online**: There are technical tools that are available to address the risks that young people may face in the Internet. These tools will be a complement to the educational strategies mentioned in the above paragraphs. Some examples are anti-grooming engines, memo sticks, age verification instruments, filter software, spam filter, antivirus software, etc. Some of these tools will be installed in the computer laboratories in primary and high schools depending on technical requirements and funding available.

iii) **Organizational Structure: Establishing report mechanisms and channels**
- **Hotline**: The project will collaborate with ITU’s COP Members and other international organizations to establish a national hotline to rapidly and effectively respond to reports of illegal and/or harmful content for children, and also to improve international cooperation in this field.
  - It will utilize a well-established and widely promoted mechanism to provide a readily understood means for reporting illegal content found on the Internet.
  - Internet and/or Content service providers (ISPs) are also invited to join the “International Hotline”, for example, by providing a “Report Abuse Button” in their services to children.

- **Children/Youth International Cyber peers**: In collaboration with ITU’s COP Members or any other interested stakeholders in the region, the project will set up an international Youth/Children Peer Group to encourage young people to voluntarily and actively advise and inform their peers on how to protect themselves on the Internet.

- **Cybersecurity School Peers**: Schools and educators will also be invited to set up their own student patrols in their schools. They could extend their mandate to the community and attend reports of abuse from members of the communities.

iv) **Capacity Building: Implementing educational and awareness-raising strategies**

> “Many parents and guardians adhere to the common misconception that their children are safer if they are at home using a computer [...] This is a dangerous misconception because the Internet can take children and young people virtually anywhere in the world [...].” (COP Guidelines for parents, Guardians and Educators)

> “Children and young people also need to be aware of some of the potentially negative aspects of
Education and training is critical for parents, guardians and/or educators to help children have a safe and positive experience on the Internet. It is crucial for them to understand what children and young people are actually doing online as opposed to what adults think they are doing.

At the same time, whilst all stakeholders should do whatever they can to make the Internet as safe as it can be for children, the first and best form of defence in protecting children would be empowering them through education and awareness of all potential risks as well as possible solutions.

- **Online tutorials for parents, teachers and children and young people**: The project will provide e-media educations and digital literacy along with the relevant cybersecurity messages. To create a participative online care and safety network, it is essential that communities, especially parents and/or educators, become involved. This platform will be designed to also foster the participation of young people and the construction, together with them, of actions in favour of the community through the promotion of local awareness-building and management networks.

- **Enlisting the aid of the mass media and online social media in promoting awareness messages**: This will develop a series of TV and radio spots which will promote the new online tutorials aimed at informing parents and children about proper and safe uses of the Internet.

- **Children/Youth-Oriented Educational Strategies**: The project will include student-oriented educational strategies designed to build awareness and foster discussion. Through national governmental agencies, a series of pedagogical actions aimed at fostering a safer use of the Internet among children and adolescents will be implemented.
  - The campaign will promote education and training towards various targets, such as students from high schools and primary schools, children and adolescents out of classrooms, national educational advisors and teachers. Also, it will provide for distribution of posters and other message-bearing items urging students to think and talk about safe use of the Internet.
  - For example, a “digital banner on Child Online Protection (COP)” will be used when children turn on their computers or access the Internet.

- **Children/Youth Express - Competitions**: Through social networks or other popular websites, children will be encouraged to participate in express competitions relating to the creative use of digital child-protection technologies.
  - The winning proposals will be published in the form of announcements in virtual locations most frequently visited and sought out by children and young people.

- **Child Online Protection (COP) Expo-Fair**: By bringing together players and stakeholders working in the sphere of online safety on the celebration of the World Telecommunication and Information Society Day (WTISD, 17 May). This event enables the drawing up of an inventory of initiatives, thereby enhancing the actions undertaken and providing for the promotion of any other actions deemed necessary.

v) **International Cooperation: Harness the power of global multistakeholder collaboration**

- **Arab Child Online Portal**: The project will establish an “Arab Child Online Portal” as a project funded by ITU and the League of Arab States and post it on the website of the Pan Arab Observatory for
Safety and Cybersecurity. It will help the region harness the power of global multistakeholder collaboration by sharing advice and information.

4. **Potential Partners:**

Through the COP Global Initiative, these deliverables across the five strategic pillars will be achieved by ITU, ITU’s [Child Online Protection (COP) members](#), and any interested countries and stakeholders in the Arab region.

5. **Estimated Budget:**

<table>
<thead>
<tr>
<th>Project element</th>
<th>Total (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal Measures: Enhancing public policies in the field of online child safety</td>
<td>160,000,000</td>
</tr>
<tr>
<td>Technical and Procedural Measures: Fostering the cooperation with the ICT industry leaders</td>
<td>100,000,000</td>
</tr>
<tr>
<td>Organizational Structure: Establishing report mechanisms and channels</td>
<td>250,000,000</td>
</tr>
<tr>
<td>Capacity Building: Implementing educational and awareness-raising strategies</td>
<td>100,000,000</td>
</tr>
<tr>
<td>International Cooperation: Harness the power of global multistakeholder collaboration</td>
<td>40,000,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>650,000,000</strong></td>
</tr>
</tbody>
</table>

6. **Proposed Time Frame:**

Three to five years.
5.3 BUILDING NATIONAL AND REGIONAL REGULATORY POLICIES AND FRAMEWORKS FOR DATA PRIVACY AND FIGHT CYBERCRIMES
Building National and Regional Regulatory Policies and Frameworks for Data Privacy and Fight Cybercrimes

**Brief Description:**

The “Building National and Regional Regulatory Policies and Frameworks For Data Privacy and Fight Cybercrimes” is intended to set up the existence of a reliable legislative framework able to regulate and if needed enable law enforcement to effectively investigate and prosecute violations of the misuse of ICTs as well as a holistic approach involving cooperation between the private sector and government, international cooperation, awareness raising and crime prevention. Governments, private sector and NGOs need to coordinate their efforts and work together on the establishment of this framework. Most developed countries, as well as some developing countries have already updated their legal and regulatory frameworks in line with the needs created by the adoption of new technologies, however, the development of regional directives that promote the harmonization of ICT legislation and regulations both within the region as well as with international best practices sets the foundation of an enabling environment by facilitating and accelerating the use of ICT applications. Despite approaches in past – such as the Arab Guiding Law – a harmonization within the Arab region never took place. Most Arab countries have set up a regulatory framework which does not fully enables the participation in the global fight global cyber threats nor is it harmonized regionally.

1. **Background and Context:**

Most governments relatively recently have developed ICT legislation (e.g. related to e-commerce, e-transaction) but not necessary cybercrime legislation. Unfortunately in recent years, cyber threats span over several domains ranging from economic crimes such as computer-related fraud to targeted attacks against critical infrastructure and illegal content. In order to effectively investigate and prosecute such crimes a comprehensive approach is required.

Other countries need to start at an earlier point and first of all develop related polices that serve as a foundation for the development of legislation, develop or strengthen institutional capacities and coordinate the work of different national agencies involved security and cyber related activities. In some of them, there is no comprehensive cybersecurity law enacted or adopted yet. Cybercrime is usually treated with the existing penal codes, thus many times they are not updated or aligned to more recent developments. A legislative vacuum has emerged in the field of ICT related crimes and offences, making it inevitable for the legislator to intervene in order to promulgate national legislations which include legal texts that guarantee the criminalization of activities resulting from the new technology in light of the traditional texts which have become inadequate to apply in the field of ICT. Furthermore countries are faced with the fact that according to international standards, legislation to effectively address cybercrime needs to go beyond substantive criminal law (i) and the related establishment of provisions criminalizing certain conduct. In order to effectively fight cybercrime the procedural law (ii) needs to be updated to ensure that law enforcement agencies have sophisticated instruments to investigate cybercrime, provisions establishing jurisdictions (iii) need to reflect the rather borderless nature of the Internet, electronic evidence (iv) needs to be admissible and procedures defined to protect the integrity of such evidence, the important role of ISPs requires a discussion about their liability (vi) and finally regulations and procedures related to international cooperation (vi) in fighting cybercrime need to reflect the need for urgent requests – even outside of business hours.

In the Arab countries, regional cooperation is critical to fight these crimes, as they originate from different locations with modern techniques. The Arab region desperately needs to consolidate regional cooperation mechanisms to fight these types of crime already spreading in the region, under the absence of any special laws to counter them. This goes beyond the need for specific instruments for
cooperation in criminal law matters and includes the need to harmonize cybercrime legislation in a broader way as differences in the national legislation can seriously hinder investigation and create ‘safe havens’ for criminals. Nonetheless, serious efforts are deployed to adopt a special convention on Arab regional cooperation to fight computer-related crimes or cybercrimes, which so far is still a mere attempt; furthermore, an Arab Guiding Law was also adopted. Lastly, incorporation of international standards is important in national legal systems (some countries may say that existing offences are adequate) to facilitate international cooperation (such that all countries operate with similar offence elements) and avoid the de facto evolution of legal ‘safe havens’ within the region.

2. **Project Objective:**

The project aims to establish national legal frameworks harmonized at the regional level in all Arab countries that reflect existing best practices in the region, specific demand and legal traditions but also international best practices. It also aims to develop a pan-arab agreement on cybersecurity and cybercrime, harmonized with existing international norms and principles, and in support to global cooperation on the topics.

3. **Expected Results:**

i) **Legal Measures: Enhancing cybercrime legislation and normative frameworks**

The project will assess the existing policy and legislation in Arabic countries, determine the region specific needs and – in cooperation with an expert group consisting of international practitioners - produce a compendium on global best practices in cybercrime policies and legislation that address those needs. An effective fight against Cybercrime does not only require policies and legislation. Issues like strengthening institutional capacities as well as training of law enforcement, prosecutors and judges is of equal importance. Therefore the project will in parallel coordinate the strengthening of institutional capacities and training programs to counter cybercrime. Working with UNODC/ITU, the project will assess institutional capacities and national normative frameworks applicable in the fight against cybercrime. The review of existing structures and capacities can focus on specific aspects (e.g. the capacities of high tech crime units) or be carried out as a full review including all relevant areas of cybercrime prevention, investigation and prosecution as well as strengthening public-private-partnership.

ii) **Technical Assistance and Procedural Measures: Fostering the cooperation with the ICT industry leaders**

The project aims to facilitate the cooperation among countries of the Arab Region to build and/or strengthen national and regional capacities to counter cybercrime. Working with UNODC/ITU, the project can range from support in setting up institutional capacities to providing equipment, software and training for law enforcement agencies. In collaboration with UNODC/ITU partnership, countries will encourage the work of national industry players that frequently make computer-related tools available free of charge for developing countries.

iii) **Capacity Building: Implementing educational and awareness-raising programmes**

The project will provide capacity building and training related to various aspects of cybercrime for different audiences and over a range of timescales. Training sessions can range from short introductory presentation on the regional and global situation of cybercrime to in-depth training courses for law enforcement, judges and prosecutors. Such training sessions cover legal as well as
technical aspects of fighting cybercrime. The project also builds upon close cooperation with academic institutions that provide certified training and academic degree programs.

4. **Estimated Budget:**

<table>
<thead>
<tr>
<th>Project element</th>
<th>Total (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal Measures: Enhancing cybercrime legislation and normative frameworks</td>
<td>150,000,000</td>
</tr>
<tr>
<td>Technical Assistance and Procedural Measures: Fostering the cooperation with the ICT industry leaders</td>
<td>100,000,000</td>
</tr>
<tr>
<td>Capacity Building: Implementing educational and awareness-raising programmes</td>
<td>200,000,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>450,000,000</strong></td>
</tr>
</tbody>
</table>

5. **Proposed Time Frame:**

Three to five years.
5.4 PAN ARAB CIRTS (PAC) NETWORK
1. Background and Context
Some Arab countries have already launched their national Computer Incident Response Centers (CIRTs), in order to become national focal centers for addressing cybersecurity threats and for handling cyber incidents. Moreover, a few countries have drafted comprehensive Cybersecurity strategies, which often include international cooperation roles for the national CIRTs.

The aim of this project is to provide a platform that supports pan Arab cooperation in the area of Cybersecurity and in handling cyberthreats and cyberattacks. We propose establishing a Pan Arab CIRTs (PAC) network which will motivate, empower, facilitate, and coordinate cooperation in the area of cybersecurity and incident handling among Arab countries, and between them and other relevant international bodies and stakeholders.

2. Project Objectives
The objective of the project is to establish a Pan Arab CIRTs (PAC) network that includes the national CIRTs from across the Arab countries, as well as official representatives from the countries which do not currently have a national CIRT. PAC may accept academic as well as commercial CIRTs in the Arab Region as associate members, subject to PAC members’ approval. NGOs and cybersecurity companies may be accepted as observers.

3. Project description
The PAC network will consist of three main nodes:

- Node 1: Covers the western Arab countries (Morocco, Algeria, Tunisia, and Mauritania)
- Node 2: Covers the Gulf countries
- Node 3: Covers the rest of the Arab countries.

Each node will be hosted by an experienced national CIRT that acts as a regional hub whose responsibilities include:

- Organize training workshops and events.
- Assist in establishing new CIRTs in their region, as well as in expanding the scope of activities of existing CIRTS.
- Create a regional (Who is who) database of CyberSecurity organizations, experts and officials.
- Support regional cooperation in CyberSecurity priority areas including malware analysis, digital forensics, anti-botnet activities, etc.
- Promote and encourage internships between CIRTs, in order to enhance exchange of experiences and to strengthen cooperation.
- Coordinate efforts amongst partners and other PAC nodes.

A PAC Steering Committee will be established to oversee PAC initiatives and programs, and the PAC headquarters will be hosted by one of the three PAC nodes, in a rotational manner.

4. Expected outputs
- PAC network covering Arab CIRTs.
- One annual PAC meeting and regional cybersecurity workshops (at least three regional workshops per year).
- A comprehensive who is who database for Arab Cybersecurity organizations, officials, and experts.

5. Potential Partners
- ITU
- IMPACT
- Arab Telecom regulators
- Arab ISPs (Internet Service Providers)
- Cybersecurity companies

6. Estimated Budget and time frame
- Estimated Budget: USD 6m
- Estimated project time frame: 36 months

Contact Person for this Project
Dr. Sherif Hashem

E-Mail Address
shashem@mcit.gov.eg

Other Contact Information
Dr. Sherif Hashem
Senior Advisor to the Minister of Communications and Information Technology for CyberSecurity
Executive Vice President, Information Technology Industry Development Agency (ITIDA)
Building B121, Smart Village, Giza, Egypt 12577
Mobile: +20-1223199355
Office: +20-2-35345151, +20-2-35345152
Fax: +20-2-35345150
E-Mail: shashem@mcit.gov.eg
Web: http://www.mcit.gov.eg/
5.5 ARAB CLEAN DNS
EGYPT: Arab_Clean DNS

**Source Country:** Egypt

**Brief Description:**

DNS is an important component of the internet infrastructure, and despite its importance, it is overlooked, simply because it is just working.

Hackers are making full use of the DNS to achieve their attacks against users and enterprise; lots of websites are defaced using “DNS Hijacking”, users are deceived using “DNS cache poising”, and many other attacks.

Now, it is the time for the security professionals to use DNS too to protect their networks, business and users. Here comes the idea of “Clean DNS”.

1. **Background and Context**
The idea is to use the DNS as a first line of defense against malwares and botnets, to protect the users through making a clean DNS, that is able to check the requested URLs against a database that contains all malware URLs and malicious domain names and corresponding IPs, if the requested URL is malicious, then the user is redirected to a warning page that describe the threat and give him tips on how to fix the problem, if the URL is good, the user is given back the requested.

2. **Project Objectives**
- Enhance the home users’ protection with minimal end user overhead (just point to the DNS IP).
- Having a real statistic about the malware and botnets in the region.
- The idea can be extended to support business use.
- Fight spam, botnets, malware and mitigates their risks.
- Provide end users with the required awareness about how to secure themselves online (through the message that will appear in case of a malicious URL requested).

3. **Expected Results**
- Free (in the first stage) DNS servers that can provide home users first line of defense against malwares and botnets.
- The service could be enhanced to provide content filtering service to small and medium businesses, which require outsourcing their DNS.
- Develop a Cyber security awareness site based on the DNS queries statistics.

4. **Potential Partners**
- Arab CERTs (Computer Emergency Response Teams).
- Arab ISPs (Internet Service Providers).

5. Estimated Budget and Time Frame

Estimated Budget: 10,000,000 USD
Time Frame: 5 years

Submitted by:

Dr. Samir Abdel Gawad
sgaber@tra.gov.eg

Ms. Shahira Selim
shahiras@tra.gov.eg

Mr. Ahmed Helmy
ahmed@tra.gov.eg

Mr. Mahmoud Nasr
m.nasr@tra.gov.eg
5.6 ARAB COMPUTER FORENSIC RESEARCH AND DEVELOPMENT CENTER
Arab Computer Forensic Research and Development Center (ACFRDC)

Source Country: Egypt

Brief Description:

Throughout the past decade, the number of electronic crimes increased rapidly. These crimes vary from simple network attacks to massive attacks which often affect countries, and these range from harassment on the personal level to huge numbers of identity theft and money stealing. Knowledge about the techniques and tracking methods about these attacks must be presented and discussed with entities that are responsible to fight such crimes. Moreover, there is an increasing need to develop the techniques, methods and professional software of digital evidence analysis due to the rapid development in computer systems and software which could include evidence in some cases.

From this point on, the importance of the Arab Computer Forensic Research and Development Center (ACFRDC) appears obviously in facing the increase of the electronic crimes.

1. Background and Context
The Arab Computer Forensic Research and Development Center (ACFRDC) will provide the Arab world with the needed studies and research capabilities of new software and computer systems to know how it works and to develop techniques and software that will help in tracking the electronic fingerprints of what has been done with the available evidence whether it was device, system or software, this will need knowledge of computer systems, concepts of digital forensic, software development skills and a solid background in information security.

The ACFRDC can also provide professional training courses to the law enforcement agencies in Arab world on how to collect and analyze the digital evidence, and create a community between these agencies for consultation and experience transfer programs.

2. Project Objectives
- Establish an Arab computer forensic advisory committee
- Establish a professional computer forensic and data recovery lab
- Establish a cooperation channel between Arab CERTs, and Arab ISPs
- Start an exchange program between Arab entities
- Provide professional training to computer forensic examiners and developers

3. Expected outputs
- Developed programs for digital forensic and data recovery.
- Expert examiners and developers.
- Professional trainers and training programs in digital forensic and data recovery.
- Professional research reports and papers in digital forensic and data recovery.

4. Potential Partners
- Arab CERTs (Computer Emergency Response Teams)
- Arab ISPs (Internet Service Providers)

5. Estimated Budget and time frame
- Estimated budget: 4,000,000$
- Time frame: in 24 months

Contact Person for this Project
Dr. Samir Abdel Gawad

E-Mail Address
sgaber@tra.gov.eg

Other Contact Information
Shahira Selim shahiras@tra.gov.eg
Ahmed Helmy Ahmed@tra.gov.eg
Mahmoud Nasr m.nasr@tra.gov.eg
5.7 ARAB ANTI-VIRUS
Arab anti-virus project

Source Country: Egypt

**Brief Description:**

Malware is appearing on a daily rate using different strategies, techniques and for different goals. It has become clear by the Stuxnet, DU-QU examples that very high technical Malware is built targeting specific regions for certain goals. This means that the Arab region is under a real threat of being targeted by Malware developed to destroy sensitive infrastructure, gather sensitive information, steal bank accounts, and create an Arab based Botnets.

Our goal is to have a trustable anti-malware project that puts complete concentration on monitoring Malware trending and rising in the Arab world, analyzing this Malware and writing signatures for detection.

1. Background and Context

The main goal of the project is to protect the Arab cyber space against different threats specially Malwares by building a strong anti-virus products with a big up-to-date database of Malware signatures.

Developing this project can be categorized into 3 main contexts.

- **Cyber Security:**
  The project will depended mainly on cyber security professionals who will define threats, ways to face them and develop new protection techniques. They will put the theories on which the products are going to be developed.

- **Application development & System Administration:**
  We will be in need for good application developers to develop a very good anti-virus engine and to manage communication between anti-virus clients and our servers to update the client software or signatures database.

- **Malware Analysis & Reverse Engineering:**
  Deploying honey-nets to collect Malware samples trending and rising in the Arab cyber-space, analyzing Malware samples using static and dynamic Malware analysis techniques to define the Malware characteristics and to develop signatures for Malware detection.
2. Project Objectives
- Building an anti-virus engine capable of finding different types of Malware using different types of scanning methodology.
- Building our own database of Malware signatures.
- Deploying Malware honeynets & sensors on the Arab network to discover new Malware species and spreading techniques.
- Having an anti-virus product suitable for all Arab.
- Preparing highly trained professional Malware analysis Arab consultants.

3. Expected outputs
- Anti-virus program.
- Malware database.
- Professional Malware analysts.

4. Potential Partners
- Arab CERTs (Computer Emergency Response Teams).
- Arab ISPs (Internet Service Providers).

5. Estimated Budget and time frame
- Estimated budget: USD 3,000,000.
- Estimated time frame: 24 months.

Contact Person for this Project
Dr. Samir Gaber

E-Mail Address
sgaber@tra.gov.eg

Other Contact Information
Shahira Selim - shahiras@tra.gov.eg
Ahmed Helmi - Ahmed@tra.gov.eg
Mahmoud Nasr m.nasr@tra.gov.eg
6. MEMORY OF THE ARAB WORLD: PRESERVING ARAB HERITAGE
To further strengthen the cultural and preserve the Arab heritage, it is important to use technology to capture the Memory of the Arab World. By use of Information and Communication Technologies (ICTs), particularly the Internet, the Arab heritage on human civilization, particularly its wealth in archaeological sites, architecture, arts, scientific, cultural, musical, manuscripts, folklore and many others, where Arab scientists and scholars have made notable contributions can be documented and disseminated widely. It is critical to engage the national and international specialized organizations in the Arabic World for this purpose. Capacities of professionals in the fields of conservation and documentation of cultural and natural heritage could be further enhanced. By using state-of-the-art technologies in Virtual Reality such as 3D Projection, Holograms and Natural Interaction, a virtual museum of the Arab heritage can also be shared. An effort to digitize books on Arab heritage can be undertaken while taking into account copyright issues to increase Arabic content on the Internet.

The following projects are presented to mobilize the human, financial and technical resources to contribute to the Memory of the Arab World aimed at preserving Arab heritage:

<table>
<thead>
<tr>
<th>Title (Project / Concept Paper)</th>
<th>Source</th>
<th>Budget (US$ million)</th>
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<tbody>
<tr>
<td>Memory of the Arab World (MAW) Phase II</td>
<td>Egypt</td>
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<tr>
<td>Egypt eContent project 12- Arab civilization virtual museum</td>
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<td>Egypt eContent project 5- Documentation of arab heritage books</td>
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<td>Egypt eContent project 6- Documentation of Arab handcrafts</td>
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<td><strong>Total</strong></td>
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6.1 MEMORY OF THE ARAB WORLD (MAW) PHASE II
MEMORY OF THE ARAB WORLD
PHASE II

Estimated Start Date: 2012
Estimated End Date: 2015
Government Coop. Agency: Ministries of Communications & Information Technology – Egypt
Implementing Agency: Center for Documentation of Cultural and Natural Heritage (Cultnat)
Beneficiary Country: Arab States
Estimated budget: 3,150,000 US Dollars

Brief Description: “Arab digital content” is one of the 5 Regional Initiatives for the Arab region, and “Memory of the Arab World” is one of the designated projects that aim at documenting and connecting Arab heritage in addition to diffusion it on the internet phase one started 2007-2011.

Phase two aims at adding new heritage elements, digital documentation of each in every Arab country and launch the portal in both Arabic and English after implementing the training needed for the capacity building of the Arab specialists and setting the standards and the specs for all procedures and work flow (2012-2015)

1. Background and Context:

The project of Memory of the Arab World “MAW”, aims at preserving the Arab heritage and make it available, through the best possible IT, to the whole world. The project targets heritage in all areas of knowledge such as scientific, cultural, musical, manuscripts folklore and many others, where Arab scientists and scholars had appreciable contribution. This achievement would strengthen the cultural relations between the Arab countries, high-lighting the contributions of the Arab nation to the humanity, and creating a sense of pride between the Arab nations.

Arab countries in cooperation with CULTNAT, started the project in July 2007 held several meetings in different Arab countries, trained the specialists in every country, designed the worksheet of data collecting and collected about 3,000 records from 17 Arab countries. In 2010 a portal in Arabic has been developed and a proof of concept that all Arab contributing countries can add to the portal from their own institutions with CULTNAT acting as a coordinating unit managing and administrating the portal will be presented in March in the Doha conference 2012 of connecting Arab world.
2. **Justification**

This project is related to the regional initiatives of Arab states (R1-4) “Arabic Digital content”, also directly related to “Cyber security & ICT application & internet related issues” building on phase one of the project of memory of Arab world.

- Beneficiary from all the above documentation since CULTNAT was able to design and construct different data bases for all entries. Inter-logical relationships have been set. A user friendly back-end module is now available for partners to load, by themselves, their records directly on to the database. A website designed, launched and ready to accommodate all types of data and information, maps, documents, photos, descriptive can be seen on [www.memoryarabworld.net](http://www.memoryarabworld.net) in 2012.

- To strengthen the cultural relations between the Arab countries, high-lighting the contributions of the Arab nation to the humanity, and creating a sense of pride between the Arab nations. Also to promote the use of ICT and increase the Arabic content in the internet by documenting and connecting Arab heritage in addition to diffusing it on the internet.

3. **Project description**

To establish gateway for the MAW project for collecting and disseminating Arab heritage to the world, such as scientific cultural, musical, manuscripts folklore and many others, where Arab scientists.

4. **Project objectives**

To strengthen the cultural relations between the Arab countries, high-lighting the contributions of the Arab Nation to the humanity, and creating a sense of pride between the Arab nations. Also to promote the use of ICT and increase the Arabic content in the internet by documenting and connecting Arab heritage in addition to diffusing it on the internet.

5. **Expected outputs**

- Database will be created for the collective memory of the Arab heritage.
- Digitization and use of IT in documenting heritage will be encouraged.
- Arabic content on the internet increased.
- Encourage the new generation to use the Arabic content and to know more about their heritage
- Disseminate through the internet, electronic and paper publication the contribution of Arab scholars to human civilization.
- Back-up for all the Arab documents on the website.
6. Indicators

- Number of Records in all disciplines to be documented, these include
- Number of entries including historical eras, cities, events and characters.
- Number of folk entries.
- Number of musical heritage including unique notes and tones.
- Number of manuscripts.
- Number of historical and critical articles in various fields.
- Number of trainers trained for the project.
- Number of visitors for the website per day.

7. Main Activities

- Meeting for orientation.
- Capacity building.
- Data collection and digitization.
- Validation.
- Development of the portal in Arabic and English.
- Launch of the portal.

8. Inputs

**Partners:** The partner will provide funding support for the implementation of the project.

**Beneficiaries:** Arab countries

- **Risks**
  Unavailability of fund.

- **Management:**

  Cultnat (The Center for Documentation of Cultural and Natural Heritage) Egypt, which was the project manager of phase one will continue to be the manager and the coordinating unit between Arab countries.

- **Monitoring and evaluation**
  (MCIT – Arab countries)
- **Sustainability**

  Cultnat will work as the main coordinator of the site and one of the fund raisers entities.
  - E-Commerce function
  - Contribute in kind to the project
  - Fund raising

- **Work plan**

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EGYPT ECONTENT PROJECT 12-ARAB CIVILIZATION VIRTUAL MUSEUM
THE Arab Civilization Virtual Museum

**Estimated Start Date:** July 2012  
**Estimated End Date:** June 2016  
**Government Coop. Agency:** Ministry of Communication and Information Technology (MCIT)  
**Executing Agency:** Center for Documentation of Cultural and Natural Heritage (CULTNAT)  
**Beneficiary Country:** Arab States  
**Estimated budget:** USD 5,000,000

**Brief Description:**

The Arab Civilization Virtual Museum (AVM) is a Virtual Reality (VR) application that enables the virtual visit experience to the most important Islamic Heritage in the Arab world. The application will be delivered using state-of-the-art technologies in VR field like 3D Projection, Holograms and Natural Interaction. The AVM will be physically available in all participating Arab countries-in different forms of setups- and also through the Internet making it easy for all the Arab population to learn about their civilization contribution to the human race.

1. Background and Context

Virtual Museums (VM) are a new model of communication that aims at creating a personalized, immersive, interactive way to enhance our understanding of museums. The term “VM” is a short-cut that comprehends various types of digital creations such as: Multi-touch Tables, CAVE’s, Panoramic Displays, and Planetariums.

CULTNAT has gained a lot of practical experience in developing VMs for Egyptian Heritage. With its in-house developed panoramic display, called CULTURAMA, CULTNAT is ready to take Egyptian Heritage-based VM into wider level that can include the Arab Civilization.

1.1 Justification

For nearly 15 centuries, Arabs have been continually contributing to the human civilization in all fields. One of the most notable fields of their contribution – by nature- is of course the Islamic Architecture, but other as important fields are Astronomy, Chemistry, Medicine and Mathematics. However, unfortunately, new generations, even in the Arab world, are less knowledgeable about these contributions. Now with the emerging of the VM technology, new methods are possible for disseminating knowledge about the Arab civilization in the region and worldwide.

This project will aim to strengthen the cultural relations between Arab countries and to highlight the contribution of Arab civilization to humanity in the field of science, and create a sense of pride between Arab nations.

2. Project description
One of the key factors of using VMs is the fact that visitors of VMs are introduced to a deeper level of interaction with the museum content. For example: a virtual visit to an archaeology museum will enable visitors to see displayed objects from all directions instead of typically one-view available in museums. VMs are also a non-destructive way of interacting with in-danger objects. In this sense, we can see that VMs are complementary instruments, more than being a substitute, to traditional museums.

This project ultimate goal is to build a VM setup in all participating Arab countries that will enable the unlimited interaction experience with the contributions of Arabs to humanity in general. This includes: 1) being able to virtually visit heritage sites all over the Arab world using 3D vision and Natural Interaction interfaces, 2) use timelines and maps to discover relations between different heritage sites based on several factors like the architectural school or political era, 3) deeply investigate a specific time segment (era) for contributions in a specific field (Astronomy), 4) the possibility of conducting advanced searches based on the CIDOC Conceptual Reference Model (CIDOC CRM).

VM setups, planned to be located in each participating country, can take different forms ranging from fully immersive setups to kiosk installations. All of these setups will be connected together to ensure constant updating of content among them. Content will also be available online through the project portal that will ensure easy access to all available content but in a lower quality (low-resolution).

Project will be implemented through four main phases. In the first phase, deep technology survey will be conducted to suggest required equipments and software. After that, in phase two, the digitization of selected heritage sites and objects will be executed in different participating countries. The process of 3D digitization can take place in more than one country in parallel to save time. In the third phase the application development including the pilot setup. And finally, all setups will be built possibly in parallel to save time.

To ensure project sustainability, a Competence Center (CC) will be composed at the last year of the project with the main aim of further promoting the use of technology in heritage. The CC will also provide maintenance services to all built VM as well as technical advice to newly planned ones.

3. Project Objectives
- Digitally preserve tangible Arab Heritage
- Promote the Arab Heritage in the region and worldwide
- Raise local awareness of the Arab contributions in human civilization
- Build a new channel for Inter-Arabs relations
- Create a Competence Center for further research and development into VM technology

4. Expected outputs:
- VM setups in participating Arab countries
- Web interface to the VM content
- Competence Center (CC)

5. Indicators
- Number of visitors of built VMs in participating countries
- Feedback and surveys collected from visitors and specialists

6. Main activities
- Analysis and surveys to determine the best selection of content and setups
- 2D and 3D Digitization of tangible objects
- 3D modeling of tangible objects that are not possible to digitize
- VM Application development
- Installation phase including prototype installation before mass installations in participating countries
- Establishment of the Competence Center
7. Inputs

**Partner:** In cash USD 5,000,000 for:
- Purchasing equipment
- Purchasing software
- Hiring required specialists
- Training
- Traveling expenses

**CULTNAT:** In Kind Contribution (know how) for:
- Technology survey
- 2D and 3D digitization
- 3D modeling
- Application development
- VMs setups

**MCIT:** Technical and financial support

Participating Arab countries:
- Locations for VM installations
- Architectural preparation for the setups
- Heritage content

8. Risks

In-country activities may suffer delays due to unforeseen local events and/or circumstances. In addition to the lack of local funds.

9. Management

It is envisaged that ITU will work with CULTNAT in the implementation of the project. CULTNAT will assume the technical coordination. CULTNAT will also provide training for participating countries who needs to do in-house development of their VMs.

10. Monitoring and evaluation

The progress of the project will be monitored through periodical reports prepared by the project manager. This report will provide a summary of the project progress, the challenges as well as any necessary amendments that maybe required for the project implementation. The financial status and expenditure for the project will also be updated accordingly, and an evaluation report will be prepared at the end of the project to assess the success of the project in terms of meeting its stated objectives and developmental impact based on expected outcomes and pre-identified indicators.

11. Sustainability

A Competence Center will be established in Y4 of the project with the main goal of further promoting the use of technology in heritage. The CC will also provide maintenance services to all built VM as well as technical advice for newly planned ones.
### 12. Work plan

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<thead>
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<td>3D modeling</td>
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<td>Application development</td>
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<td>VM prototype</td>
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<td>Installation</td>
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<td>Competence Center</td>
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**Contact Person for this Project**
Mohamed Farouk Badawi

**E-Mail Address**
mfarouk@mcit.gov.eg

**Other Contact Information**
Address:
CULTNAT
Smart Village
Cairo-Alex Desert Road
Giza, Egypt
Tel: 35343040
Fax: 35392929
6.3 EGYPTICONTENT PROJECT 5-
DOCUMENTATION OF ARAB HERITAGE BOOKS
Egypt eContent project 5- Documentation of arab heritage books

Estimated Start Date: March 2012
Estimated End Date: December 2013
Government Coop. Agency: Ministry of Communication and information technology-Egypt, Ministries of culture of Arab states, digitization companies, development companies
Executing Agency: MCIT
Beneficiary Country: Arab States
Estimated budget: USD 5,000,000

Brief Description:
This project aims to create a complete database and to digitize books of Arab heritage all over the Arab States, and to publish all over the whole world through the Arabic e-content initiative, taking into consideration the rights of the author and the security systems to be available for all those interested in Arabic language content in the world.

1. Background and Context
MCIT has led the way to establishing an e-content industry in Egypt through its Arabic e-content initiative. This initiative aims to enhance the competitiveness of the Egyptian e-content industry by supporting the production, use and distribution of Arabic digital content on global networks.

1.1 Justification
Given the lack of Arabic content on the Internet, this industry will provide significant export opportunities as Arabic content-producing businesses develop.

2. Project description
This project aims to create a complete database and to digitize books of Arab heritage all over the Arab States, and to publish all over the whole world through the Arabic e-content initiative, taking into consideration the rights of the author and the security systems to be available for all those interested in Arabic language content in the world.

3. Project Objectives
1. Restoration of the Arabic identity
2. Recapture the spirit of research and innovation
3. Creation of an educated generation
4. Development of publishing industries
5. Maximizing the use of the Internet
4. Expected outputs
1. Creating a complete database for the Arab heritage books.
2. Creating a digital books library for Arabic books.

5. Indicators
1- Number of books to be created.
2- Number of Arab States to participate in the project.
3- Number of end-users visiting the site.

6. Main activities
1- Determine the representatives of Arab countries in the project.
2- Preparing a complete list of Arabic heritage books all over the Arab states to be included in the project scope.
3- Obtaining approvals needed to use the selected books in the project.
4- Digitization of books.
5- Uploading of digitized books.
6- Launching.

7. Inputs
**Partner:** The Partner will provide funding support for the implementation of the project.

**Beneficiaries:**

8. Risks
The poor condition of old books
Not possible to digitize books due to its bad state

9. Management
Ministry of communication and information technology-Egypt

10. Work plan

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<th>Activities</th>
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ICT for Sustainable Development – Projects and Initiatives
Contact Person for this Project
Dr. Hoda Baraka

E-Mail Address
hbaraka@mcit.gov.eg

Other Contact Information
Dr. Hesham Farouk
hefarouk@mcit.gov.eg
6.4 EGYPT EC ON TENT PROJECT 6- DOCUMENTATION OF ARAB HANDCRAFTS
1. Background and Context
The Arab nation has a lot of handicrafts, which began thousands of years ago, many of the Arab citizens work in these industries using materials available in their own lands and environment. And Arab nation has no unified reference for these industries there is no reference documenting it.

Also these industries could be promoted to be a major source of national income as it unique all over the world. It will also be a reference for these industries to maintain the Arab identity.

1.1 Justification
Given the lack of Arabic content on the Internet, this industry will provide significant export opportunities as Arabic content-producing businesses develop.

2. Project description
This project aims to create a complete database and to document of handicrafts all over the Arab states, and to publish it all over the whole world through the Arabic e-content initiative, to be available for all those interested in the Arabic handicrafts in the world.

3. Project Objectives
1. Restoration of the Arabic identity.
2. Increase the national income of Arab states.
3. Creation of a skilled workers generation.
5. Maximizing the use of the Internet.

4. Expected outputs
Creating a complete database for the Arab handicrafts.
5. Indicators
1- Number of handcrafts to be added to the database of the project.
2- Number of Arab states to share in the project.
3- Number of end-users visiting the site.

6. Main activities
1- Determine the representatives of Arab countries in the project.
2- Preparing a complete list of Arabic Arab handcrafts all over the Arab states to be included in the project scope.
3- Documentation of all handcrafts through selected sources.
4- Database development.
5- Website development.
6- Launching

7. Inputs
Partner: The Partner will provide funding support for the implementation of the project.

Beneficiaries:

8. Risks
Unavailability of handcrafts documentation.

9. Management
Ministry of communication and information technology-Egypt.

10. Sustainability
Through the gate the products can be marketed all over the world and a percent from the income will be used to ensure the sustainability of the project.

11. Work plan

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Contact person for this project
Dr. Hoda Baraka
E-Mail Address
hbaraka@mcit.gov.eg

Other contact Information
Dr. Hesham Farouk
hefarouk@mcit.gov.eg
ICT for Sustainable Development
Projects and Initiatives

Connect Arab Summit 2012
Connecting the unconnected by 2015...