E-Government Initiatives in Ethiopia

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2. Status of Ethiopia in ICT International Measures
3. Major ICT Initiatives in Ethiopia
4. Challenges & Opportunities
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Federal Democratic Republic Of Ethiopia (FDRE)
Location: East, Horn of Africa
9 National Regional States and 2 city admin, divided into zones, & Woredas (districts with a average population of 100,000)
66+ Zones and about 600+ Woredas
Land Area: 1.14mil Sq.kms (1.07 million Km² land, seven thousands Km² water)
Population: Total: 80 million; Rural : 83%; Urban : 17%; Density: 59.4/Km²; Population Growth rate is 2.72%
Agricultural Country (coffee, flower, livestock, etc)
Telecom infrastructure is monopoly in Ethiopia
Introduction

• Ethiopian Government has recognized the power of ICT in national development plan, this is indicated by:-
  • Ratification of the National ICT Policy
  • Establishment of organizations like the previous EICTDA and ETA to lead the sector
  • Organizational structure at Regional Level, Agencies and offices in regions
  • Now the establishment at Ministry level, MCIT
  • Allocating of sufficient resources for ICT development
There is a regular assessment done by the UN to measure the E-Readiness of member state. Currently every 2 years there is an evaluation. The evaluation is sub divided in Infrastructure, Human Capital, Web Measure and E-Participation (every component is measured from 0 to 1, where 1 is the maximum). Ethiopia has scored relatively better starting from 2003 until 2010. The improvement in 2010 is far better than the previous years.
E-Readiness Index for Ethiopia

Status of Ethiopia

UN, The African E-Leadership Meeting, Dar es Salaam, Tanzania
## Ethiopia in UN E-Government Survey (2010)

<table>
<thead>
<tr>
<th>Countries</th>
<th>Web Measure index</th>
<th>Infrastructure index</th>
<th>Human Capital Index</th>
<th>E-Participation</th>
<th>Total</th>
<th>Total Ranking from 187 Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Republic of Korea</td>
<td>1.0000 (1)</td>
<td>0.6390 (13)</td>
<td>0.9929 (7)</td>
<td>1.0000 (1)</td>
<td>0.8785</td>
<td>1</td>
</tr>
<tr>
<td>US</td>
<td>0.9365 (2)</td>
<td>0.6449 (11)</td>
<td>0.9691 (20)</td>
<td>0.7571 (6)</td>
<td>0.8510</td>
<td>2</td>
</tr>
<tr>
<td>Canada</td>
<td>0.8825 (3)</td>
<td>0.6799 (10)</td>
<td>0.9708 (17)</td>
<td>0.7286 (8)</td>
<td>0.8448</td>
<td>3</td>
</tr>
<tr>
<td>China</td>
<td>0.3683 (55)</td>
<td>0.1913 (89)</td>
<td>0.8535 (98)</td>
<td>0.3714 (32)</td>
<td>0.4700</td>
<td>72</td>
</tr>
<tr>
<td>Tunisia</td>
<td>0.4825 (30)</td>
<td>0.1942 (86)</td>
<td>0.7710 (126)</td>
<td>0.3000 (39)</td>
<td>0.4826</td>
<td>66</td>
</tr>
<tr>
<td>Mauritius</td>
<td>0.2952 (84)</td>
<td>0.2647 (67)</td>
<td>0.8388 (104)</td>
<td>0.0571 (127)</td>
<td>0.4645</td>
<td>77</td>
</tr>
<tr>
<td>Egypt</td>
<td>0.5300 (23)</td>
<td>0.1256 (110)</td>
<td>0.6973 (138)</td>
<td>0.2857 (42)</td>
<td>0.4518</td>
<td>86</td>
</tr>
<tr>
<td>Kenya</td>
<td>0.2381 (104)</td>
<td>0.0637 (136)</td>
<td>0.7027 (134)</td>
<td>0.2286 (53)</td>
<td>0.3338</td>
<td>124</td>
</tr>
<tr>
<td>Tanzania</td>
<td>0.1746 (121)</td>
<td>0.0337 (160)</td>
<td>0.6731 (144)</td>
<td>0.0429 (135)</td>
<td>0.2926</td>
<td>137</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>0.2000 (111)</td>
<td>0.0073 (187)</td>
<td>0.4027 (177)</td>
<td>0.0429 (135)</td>
<td>0.2033</td>
<td>172</td>
</tr>
</tbody>
</table>
Major ICT Initiatives

- The major initiatives can be divided into infrastructure, application, Standards/Guidelines, and HRD.
  - **Infrastructure**, backbone of ICT activities, capital intensive compared to other activities,
  - **Applications**, automation of the process in the government, data storages, data sharing, information exchange, service delivery, etc
  - **Standards & Guidelines** to be used in implementing ICT assignments (policies, strategies, etc)
  - **HRD** to produce ICT skill in specialized and general level (discussed in separate section)
3.1 Infrastructure

- Mainly focused on **establishing of basic infrastructure**
- In this regard, a number of activities are done, just to list some:
  - Telecom infrastructure mainly connectivity by former ETC (Ethio Telecom)
  - National DC, Regional DC, WoredaNet, SchoolNet, EtHERNet, AgriNet, etc
  - Management and security of the Infrastructure (like NOC)
  - Acquiring different capacity servers, computers etc
## Facts on Infrastructure

<table>
<thead>
<tr>
<th>Services</th>
<th>Number of Users (2011)</th>
<th>Capacity in 5 years</th>
<th>Users per 100 inhabitants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landline Telephone</td>
<td>1 Million</td>
<td>8.5 Million</td>
<td>10</td>
</tr>
<tr>
<td>Mobile Telephone</td>
<td>10 Million</td>
<td>40 Million</td>
<td>50</td>
</tr>
<tr>
<td>Internet Users</td>
<td>200,000</td>
<td>7.17 Million</td>
<td>8.5</td>
</tr>
<tr>
<td>Rural Connectivity (in 5KM radius in %)</td>
<td>49.3%</td>
<td>90%</td>
<td>-</td>
</tr>
<tr>
<td>Wireless coverage of the country</td>
<td>&lt;50%</td>
<td>90%</td>
<td></td>
</tr>
<tr>
<td>International Link Gb/s</td>
<td>3.2</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

Source:- GTP Plan of Ethiopia
Major ICT Initiatives ...... (Fiber Connectivity)
3.1.2 WoredaNet *

- 630+ Woredas Connected
- TIGA 09 award on public service delivery to citizens/communities (local category)
- Objective is to provide ICT services such as video conferencing, directory, messaging, and VoIP and Internet at the federal, regional and lowest level of government throughout the country.
- To build a transparent & accountable government system
- Increase citizen participation in the government.

* Woreda:-districts with a average population of ~100,000; Technology in Government in Africa (TIGA)
Major ICT Initiatives ……

- Ethiopian Government National Information Network Architecture
3.1.3 SchoolNet

- High Schools, 574+, Preparatory Schools, 191+ (total 756+)
- Integrate ICTs into Ethiopia’s educational system
- Provide quality education for all the Ethiopian school
- Support the teaching and learning process,
- Give similar content to all schools (rural and urban)
- Give internet and digital content online to connected schools
3.1.4 EthERNEt (Ethiopian Educational and Research Network)

- 22 public Universities are connected
- MSc and PhD programs through VC with Indian, South African and UK Universities
- Resource sharing. Prof. in one University can teach also in more Universities
- Video conferencing as the main tool in the first phase, for limited Universities, then to all
- Phase one, for 9-universities additional video capability, but all 22 can have E-Library & shared digital content
- High standard equipments are installed in the data center used as a get-way to all connected Universities
- VC rooms arranged in each, class in some universities are already started
3.1.5 The 13 Ministry Network Master Plan Implementation

- 13 ministries and 19 agencies/offices are to be connected to the WoredaNet
- They will have independent servers locally and at national data center and can be used for video conferencing, hosting application, directory service, email, voice over IP, internet service, etc.
- Part II to connect all the remaining Ministry and agencies/offices in progress
3.1.6 Call Center

Objective:-

• Provide up-to-date and accurate information on government services.
• To save customers time and money spent for searching information.

Current Status:-

• Customers can call up to the toll free number, 888
• Accessible both from landlines and cell phones

Registered Government Institutions:-


2.4 Oromia Regional Offices (Oromia Supreme Court, Oromia Justice Bureau, Oromia Industry and Urban Development Bureau, Oromia Investment Commission)
Major ICT Initiatives ……
3.2 Applications

- Applications are done mainly to automate the back-office activities (most are web-based)
- Prioritized and initiated by Ministries and Agencies based on the need
- Ministries/Agencies undergo the Business Process Re-Engineering (BPR) process are the one to be considered in application development
- Some major activities are, just to list some:
3.2.1 Government Portal (www.ethiopia.gov.et)

Objective:-

- Provide up-to-date and accurate information on government services.
- To save customers time and money spent for searching information.
- Access through Single Window

Current Status:-

- www.ethiopia.gov.et is hosted at the National Data Center
- Accessible through web any time anywhere

Government Institutions included in the 1st Phase:-

1. Ministry of Education
2. Ministry of Finance and Economic Development
3. Ministry of Foreign Affairs
4. Ministry of Health
5. Ministry of Trade and Industry
6. Social Security Agency
Major ICT Initiatives ……
3.2.2 The M-Government using SMS (on process)

Objective

• To give SMS based G2C services

Three institutions are selected based on the following criteria:

• priority government sectors
• institutions that affect or are involved with the largest number of citizens

The 3 organization and services are:-

1. EEPCO: - Electricity Bill Information
2. NBE: - Exchange Rates Information
3. National Exam: - Student Result Information
3.2.3 Court Information System (including through VC)
3.3 Policy, Standards, Guidelines (some lists)

- ICT Policy (country level)
- Localization of ICT Terminologies
- Keyboard Standard
- National Disaster Prevention & Recovery Plan, Procedure and Guideline
- National ICT HRD Strategy
- National ICT R&D Strategy and Guideline
- E-Government Strategy
- PKI (Public Key Infrastructure)
- EA (Enterprise Architecture)
Challenges & Opportunities

- ICT offers increased opportunities for economic development and plays a critical role in rapid economic change,
- Improving productivity and enhancing the international competitiveness
- Increase accountability and responsibility
- Increase citizen participation in socio economic development
- Opportunities & Challenges of ICT initiatives are usually common and well defined, but the speed in maximizing the opportunities and in overcoming the challenges is differs.
4.1 Opportunities

- Reduces Cost,
- Improves Quality of Service Delivery to Citizens
- Increases Transparency
- Increases Accountability
- Increases Citizen’s Participation in Decision Making Process,

Next is details with examples
Example of cost reduction: Case Ethiopia

- By using the Video Conference for meeting, training, consultation, etc
  - In 2009-10 (July 2009 to Jun 2010), 1,671 hrs usage of multisession VC is conducted, 100,482 number of people participated
  - In toll-free Gov Call Center (888, between July-September 2010), 43,558 different calls to request services in only 4 Institutions

- This reduce the cost of transportation to centers (Ethiopia one of the 10 largest country in Africa and long distance travel in the country is common),

- People can attend the training/meeting around there working places, the same information/content to all places,

- Same information to all attendees
Example, Improved Quality of Service Delivery:-
Case of Ethiopia

• Drivers & Vehicles Management Information System (web based but currently used as back office application)
• National Records & Library Management Information System (web based system)
• Integrated Health Information System
• Justice Information System (a combination of vice and video, court-case is seen through VC, tracking of the court-case through voice)
Opportunities ……

Example, Increases Transparency & Accountability: -
Case of Ethiopia

• Using VC discussions on issues like new rules/ regulation, 
  new educational policies, new tax regulations, etc
• Political discussions between different level of politicians at 
  different locations
• Forms and office hours on the government portals
• Less corruption because of the system
4.2 Challenges

• Infrastructure
• Qualified Human Resource
• Lack of Standards, Guidelines, Policies and Legal issues
• Leadership Commitment
• Low level working culture,
• High Resistance,
• Weak Private Sector,
• Low level collaboration/partnership between private and public sector
Challenges

**4.2.1 Infrastructure**

- One of the major challenges in ICT/e-Government implementation
- Connectivity, bandwidth, computer penetration, inadequate mobile/landline, computer literacy etc are linked to infrastructure
- High cost, limited resource/finance in developing nations
- The digital divide between developed & developing countries and even between rural & urban internally is high
- Developing countries have another priorities than ICT, poverty, food security, political/democracy, internal conflict,
- Even if the infrastructure exist, under utilized, because of skill, commitment, etc problems
4.2.2 Qualified Human Resource

• Limited (lack of) qualified professionals to install, commission, run, maintain the infrastructure and application
• Limited (lack) of ICT skills in the public sector to use the infrastructure and application
• Lack of hybrid human capacities: technological, commercial and management, etc which is mandatory requirement to be successful in ICT initiatives
• Getting qualified human resource is not possible in short period of time (is a process)
• Inadequate HR training centers and Institutions
• Brain-drain of the qualified professionals, abroad or even from public to private, affects ICT implementations
• Public awareness is also part to make ICT initiatives a success
4.2.3 Lack of Standards, Guidelines, Policies and Legal issues

- Processing of ICT activities and functions requires a range of new rules, policies, standards etc
- ICT policy and E-Government strategy are the major one from all
- Also standards and guidelines like interoperability, PKI, HR strategy, e-government strategy/roadmap, etc
- Example:- in the absence of interoperability standard, a number of systems which don’t talk each other, multiple entry of the same data, multiple sign-on, too expensive to make interoperable, etc
4.2.4 Leadership Commitment

- One of the driving force in making ICT project implementation success
- Leadership commitment in all level of administration is major in ICT application
- ICT initiatives are always accompanied with ↑cost, ↑risk & challenging, hence, committed leadership is required
- The top level commitment is existing, but we need to work hard to bring the same to all levels
4.2.5 Collaboration/partnership b/n Private & Public sector

- Most works, like procuring devices, installing, developing, training, studies, etc are done using outsourcing
- Governments don’t have potential to establish the infrastructure, give qualified trainings, etc
- The indigenous private sector is usually inexperienced in ICT implementation
- Indigenous private sector is required to localize, to provide a strong local support, to be independent, etc
- The PPP model is one solution in the developing nations, to make project successful, to strength the private sector
Conclusion
To be successful in ICT initiatives:-

- The late-comer-advantages in ICT has to be maximized
- Better benchmarks and best practices which are available has to be utilized
- Go from simple to complex in implementation, pilot in small scope, test and go for larger scale (start on informational services and go to transactional service delivery)
Conclusion …….

- Start with e-service roadmap or strategy and concentrate on the prioritized service delivery to citizens.
- Use available channels in service delivery like voice, mobile, etc instead of broadband, PC, PDA, etc.
- Invest in HR capacity building and in applied R&D, to minimize failures and to maximize the opportunities.
- Narrow down the differences between 'where we are now' which is the reality and 'where the e-government project wants to get us' which the design.
I Thank You!