

Funding Model Evaluation and Proposal for eGovernment Implementation in Developing Countries

By

Peter O. Jack

Information and Telecom Industrial Policy

ITPP Program, Seoul National University

Acronyms: BDM, PSPP, PPP, PCSP, PCBOP, SEM,
eGov., CCC, IAC, RIRC, MPTC.

Outline

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Motivation

- | Depleting Resources available to developing economy governments make funding eGovernment Projects challenging if not elusive.
- | The private sector component of pure PPP models make them more profit oriented than is socially desirable, resulting in higher pricing of eGovernment services, thereby negating the general social welfare aim of government
- | Different phases of eGovernment implementation seemingly attract different funding mixes (Information, Forms, Transactions, One Stop Portals, Transformational-change management and Process re-engineering).
- | eGovernment Infrastructures (PPP), Middleware (Government) and Services/ Centres (PSPP, PCSPs, PCBOPs, community based entrepreneurs) also require different partnership and financing models.
- | Access to a broader funding base such as International Grants and Soft Developmental Loans (UN System, World Bank and its Agencies, Country Developmental Agencies like USAID, DFID, CIDA, KOICA, etc).

Abstract

- | eGovernment implementation in developing countries is generally faced with a myriad of challenges, ranging from uncoordinated efforts by stakeholders and a dearth of Strategic Leadership, to severe funding constraints.
- | This work aims to identify, analyze, evaluate and compare the various partnership models available for Strategic eGovernment implementation, namely: Public Private Partnership (PPP), Public Civil Society Partnership (PCSP), Public Social Private Partnership (PSPP), and Social Enterprise Model to ascertain the optimal funding/business model for eGovernment projects in developing economies.
- | The effort will be geared towards proposing effective investment and financing models including consideration of the approaches to the co-ordinated acquisition of ICT, assessment of costs and benefits of e-government, and the roles of the civil society and the private sector.
- | Additionally, regarding operational management, robust and transparent governance and management structures for the implementation of e-government projects involving both private sector firms and civil society organisations will be explored for different levels of service provision, i.e., at the Federal, State, Local Government, and Community levels.

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eGovernment Evolution

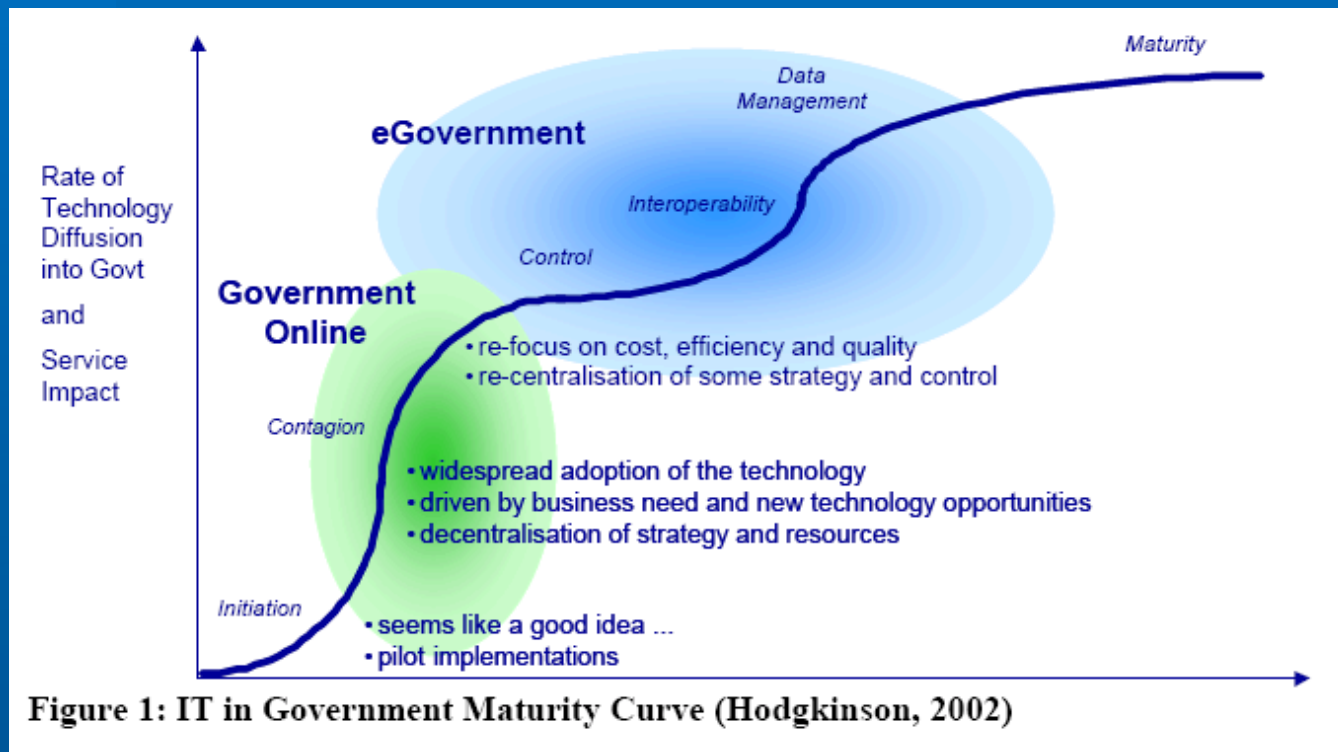


Figure 1: IT in Government Maturity Curve (Hodgkinson, 2002)

Research Focus

- | **The aim is to do a Comparative analysis (Using Cost Modelling or Cost Benefit Analysis) of the partnership models (PPP, PSPP, PCSP, PCBOP, and SEM) to provide the basis for developing optimal business partnership models for layered (Federal, State, LGA) eGovernment services delivery, using Business Dynamics Modelling.**
- | **The research will also examine how low-income groups (rural community dwellers) can be effectively engaged in contributing to local content development as part of the eGovernment business network.**
- | **eGovernment Service Delivery Centre models (CCC, MPTC, IAC, RIRC, eKiosks, etc) will be compared to ascertain the efficient and effective centre deployment mix.**

Research Questions

- | An attempt will be made to answer some crucial questions:
- | What does 'partnership' mean in the e-government context?
- | What role can private sector firms and civil society organisations play in the implementation and provision of e-government?
- | Are there areas and tasks where these players may be more effective than government agencies? Is Outsourcing a viable option?
- | What are the likely benefits, and possible issues, with such involvement?
- | Key Question: Which business models (or Mixed Models) offer the optimal choice for financing, implementing and Operating eGovernment Projects/Services in developing countries?

Methodology (Modeling and Simulation)

- | **Business Dynamics Modeling** based on pioneering work by Prof. Jay Forrester, Germeshausen Professor Emeritus of Management, MIT-Sloan School of Management.
- | Choice of other comparative Cost models such as
 - **Cost Benefit Analysis,**
 - **Value Measuring Methodology**
 - **Cost Modeling**
- | **Cost Data will be based on Nigeria, Ghana, South Africa, Macau, India, UAE, Egypt, Kenya, Uganda, and benchmarking based on Korean eGovernment experience**

Business Dynamics Modelling

- | **Business Dynamics (which evolves from System Dynamics) is a unique MIT-developed framework for understanding and managing complex businesses and organizations.**
- | **The field of system dynamics and the systems thinking and learning technologies that underlie business dynamics were invented and developed at MIT.**
- | **Professor John Sterman, is the developer of many management flight simulators, head of the MIT System Dynamics Group, and the author of the award-winning book, “*Business Dynamics*”.**
- | **Renowned MIT Sloan Senior Lecturer Peter Senge popularized systems thinking in his best-selling book, *The Fifth Discipline: The Art and Practice of the Learning Organization*.**
- | **Professor Emeritus Jay W. Forrester pioneered the field of system dynamics. MIT’s Approach to Diagnosing and Solving Complex Business Problems**
- | **System dynamics is a powerful framework for identifying, designing, and implementing high-leverage interventions for sustained success in complex systems.**

Issues we can address using Business Dynamics Modelling:

- | **Impact of re-organizing or rationalizing Regional/State/Community eGovernment Service/Communication Centres and teams.**
- | **The impact or benefits of a new automated front end to eGovernment Service/Call Centres**
- | **The need to understand the effects on service level after merging or scaling up the service/call centres**
- | **Understanding the effects of becoming a multi-purpose service/call/contact centre**
- | **Are there queues? Do we understand how, why and when they build up and what can we do to reduce them?**
- | **Which improvement or combination of improvements will give us the best service or return?**

Cost-Benefit Analysis: Elements of the analysis

A. Costs

- 1. Pre-implementation: Internal investments for infrastructure and work-process redesign**
- 2. Implementation: Costs of building the portal**
- 3. Operational costs: Portal administration and maintenance costs**

B. Benefits

- 1. Benefits to the governmental agency**
- 2. Benefits to the citizen/customer**
- 3. General/mutual benefits**

C. Risks

- 1. Political risk**
- 2. Organizational risk**
- 3. User risk**
- 4. Technological risk**
- 5. Vendor risk**
- 6. Execution risk**
- 7. Concentration risk**

Snapshot of Value Measuring Methodology (VMM) Techniques and Tools

Outline

Step 1 Develop a Decision Framework

- Task 1 – Identify and Define Value Structure
- Task 2 – Identify and Define Risk Structure
- Task 3 – Identify and Define Cost Structure
- Task 4 – Begin Documentation

Step 2 Alternatives Analysis

- Task 1 – Identify and Define Alternatives
- Task 2 – Estimate Value and Cost
- Task 3 – Conduct Risk Analysis
- Task 4 – Ongoing Documentation

Step 3 Pull Together the Information

- Task 1 – Aggregate the Cost Estimate
- Task 2 – Calculate the Return-on-Investment
- Task 3 – Calculate the Value Score
- Task 4 – Calculate the Risk Scores
- Task 5 – Compare Value, Cost and Risk

Step 4 Communicate and Document

- Task 1 – Communicate Value to Customers and Stakeholders
- Task 2 – Prepare Budget Justification Documents
- Task 3 – Satisfy Ad-Hoc Reporting Requirements
- Task 4 – Use Lessons Learned to Improve Processes

Key Descriptive Elements for each Step

Detailed direction on how to apply VMM to evaluate an e-Government initiative.

Key Concepts – Brief definition of terms and methods

Best Practices – Recommended tools, techniques, and tips for using VMM successfully

VMM in Action – Real-world examples of how VMM is applied

Summary – Synopsis of key information

Required Resources – Staff resources, data resources, and tools required for a step or task

Some eGovernment Matrices

- **Component-Partnership Matrix**
- **Funding-Partnership Matrix**
- **Management-Partnership Matrix**

Partnership Model / Government Component	Government	PPP	PSPP	PCSP	PCBOP	PCP	SEM	Outsource d Service Model
COMSAT	X	X						X
Internet Exchange Points	X			X				
BACKBONE	X	X						
DATACENTRES	X	X						X
MIDDLEWARE	X							
Government Network	X	X	X					
Government Portal	X		X					
Sectoral Solutions/ Services		X	X	X	X			X
Internet Access Centre /CCC/MPTC				X	X	X	X	
eKiosk/ Multipurpose ATMs					X	X	X	
Content Development Partner				X	X	X	X	

Partnership Model Funding Source	Government	PPP	PSPP	PCSP	PCBOP	PCP	SEM	Outsource d Service Model
International Grants UN System	X		X	X	X		X	
Regional Union Grants (EU, AU, ASEAN)	X		X	X	X		X	
Country Development Agencies Aid	X		X	X	X			
Partner Equity		X						
World Bank Aid/ Grants	X							
World Bank/IFC Soft Loans	X							
Short to medium term Commercial Credit		X						X
Long Term Development Loans	X	X						
Charitable Grants			X	X	X			
In-Country Development Grants				X	X	X	X	
02/23/08 Public Project Funding	X							15

Board/ Management Structure	Partnership Model	Government	PPP	PSPP	PCSP	PCBOP	PCP	SEM	Outsourced Service Model
Government Board Government Management Private Board Observer		X							
Government Board Mixed Management		X		X					
Mixed Board Professional Management			X		X				
Mixed Board Mixed Management			X						
Select Committee Mixed Management						X			
Private Board Private Management Government Board Observer								X	X
Entrepreneur Government Monitoring							X		
Charity Board					X				

Country	Partnership Models	Funding Strategies	Funding Sources	Management Structures	Project Description	Project Benefits	General Comments
Nigeria	Government, PPP, PCSP, PCBOP, PCP, OSM**.	Guaranteed by Chinese Government	Contractor Finance (HUAWE)	Professional Management	COMSAT, BACKBONE, eGov. Portal, Sectoral Services .	County-wide (Pervasive) access to Internet Services	\$200m
Ghana	Government, PPP	Developmental Loan	World Bank		eGovernment Project	Citizen Access to Government Services Online	\$40m
South Africa	Government, PPP						
Egypt	Government						
Morocco	Government						
Kenya	Government						
Uganda	Government						
Vietnam	Government						
India	Government						
United Arab Emirates	Government						
Macau*	Government						

Partnership Model Operational Model	Public	Private	PPP	PSP	PCSP	PCBOP	PCP	SEM	Outsourced Service Model
BUILD	X	O Y		X	X	X	X	X	Z
OWN	X	O	Y	X	X	X	X	X	Z
OPERATE	X	O	Y	SP	CS	CBO	C	X	Z
*REGULATE	O X,Y Z								

The highlighted box was obtained from "e-Infrastructure Funding" by Hwang, Altmann, and Bany (Working Paper 2007)

eGov. Admin Layer	eGovt Project Description	Partnership Model	Funding Sources	Governance Structure	Management Structure
Federal	Communication Satellite	Public (now PPP)			
Federal	Backbone	PPP (Now Private)			
Federal/State	Network	PPP			
Federal/State	Middleware	PSPP			
Federal/State	Sectoral Solutions/ Services	PCSP			
Local Government	Community Communication Centre (Telecentre)	PCBOP			
Local Government	Local Content Development	PCP			
Local Government	Web Communities	SEM			
Federal/State/LGA	Various	Outsourcing			

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Country	Management	Level of Centralization	Funding	Comments
Australia	National Office for the Information Economy	Decentralized Collaborative approach	No central fund Expenditure determined by individual Agencies	
Canada	Chief Information Officer Branch, Treasury Board of Canada	Centralized Agencies continue to maintain some authority	Central fund Supplemented by individual agencies	
Germany	Bund Online 2005 initiative, Federal Ministry of the Interior	Decentralized Collaborative approach	No central Fund Expenditure determined by individual agencies	Bund Online funded by Annual contribution from each ministry, taken from IT budget
Iceland	Information Society Task Force	Centralized policy, Decentralized implementation	Task force funds and individual agencies	Heavy use of outsourcing
Ireland	Information Society Policy Unit	Centralized	The Information Society Fund, admin. By Dep. Of Finance	Fund used only for innovative initiatives and not for normal IT activities
Republic of Korea	The Presidential e-Government Committee	Highly centralized	Information Promotion Fund	20

Source: Derived from 2nd OECD Symposium on e-Government, E-Government: Organizing for Integration, Country Papers, September 2003

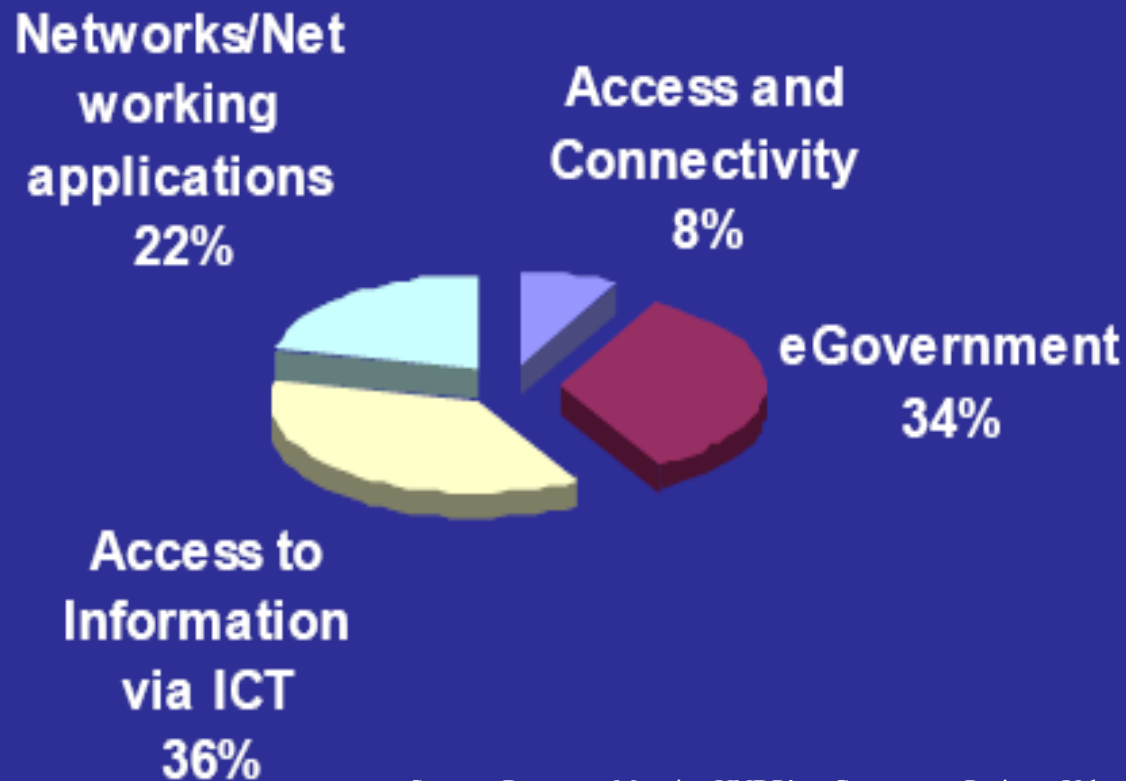
International Agency eGovernance Funding Activities: UNDP Case Study

Methodology of e-Governance mapping

The aims of the e-Governance mapping exercise were as follows:

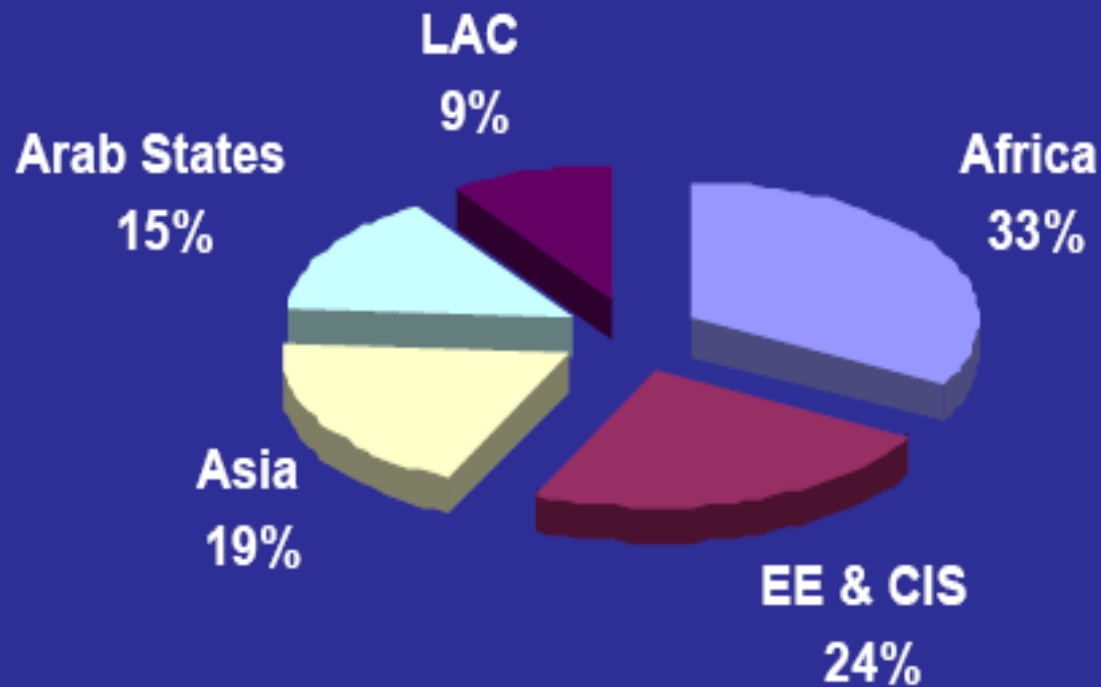
- o To capture how many e-Governance projects are currently being implemented;
- o To assess the funding amounts in terms of UNDP contributions for each of the e-Governance projects;
- o To assess the e-Governance projects by geographical location;
- o To assess the e-Governance projects based on typology (four sub components as follows: Access and Connectivity, Access to Information through ICT, e-Government applications and Networking and networking applications);
- o To update the ICTD yellow pages on the whole, this also including updates of **staff information, pipeline projects, e-assessments and so forth.**

Global overview of eGovernance projects by typology (2005)

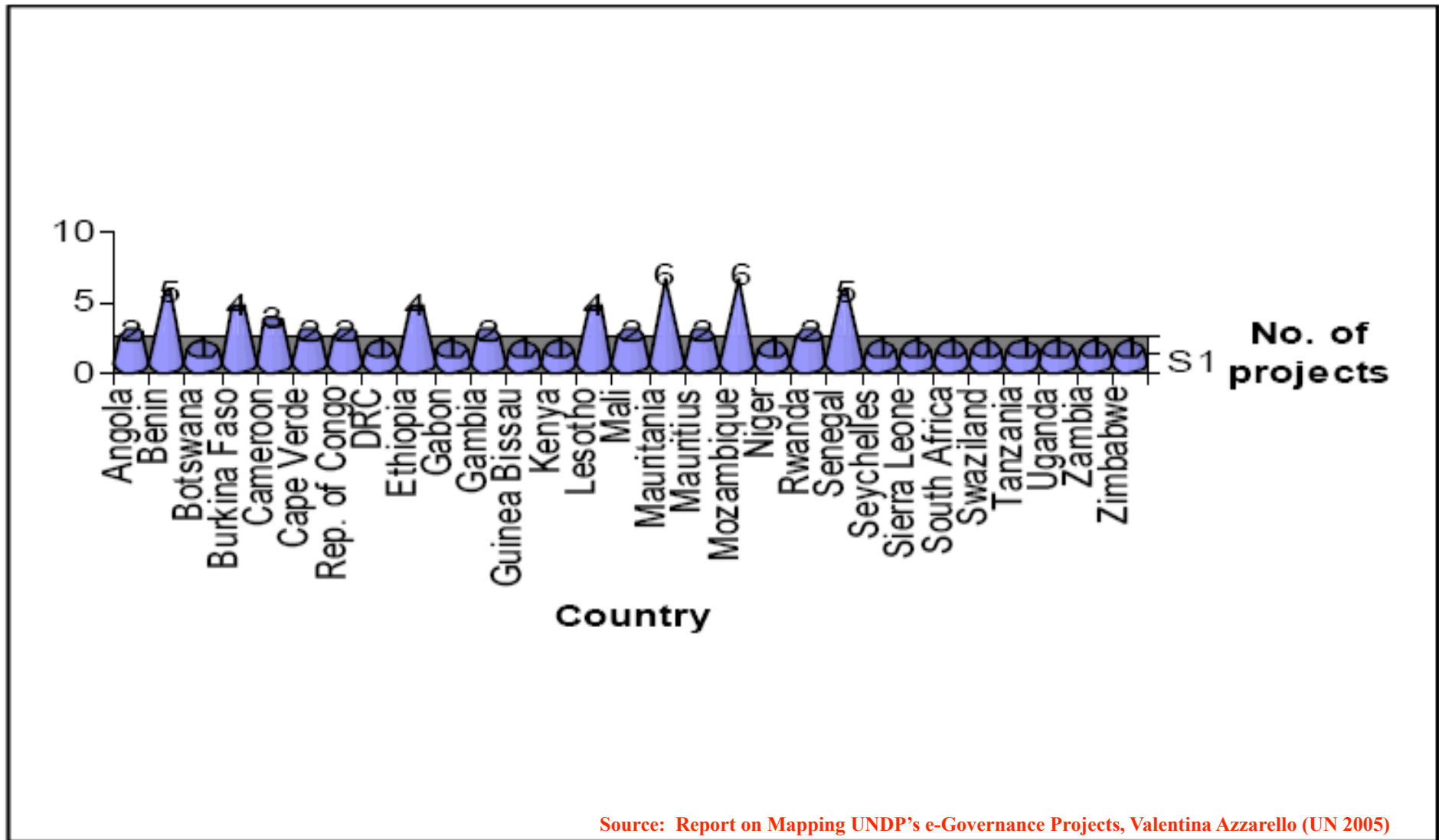


Source: Report on Mapping UNDP's e-Governance Projects, Valentina Azzarello (UN 2005)

Global overview of e-Governance projects by geographical location (2005)



Source: Report on Mapping UNDP's e-Governance Projects, Valentina Azzarello (UN 2005)



How can partners respond to the Broad ICT agenda?

- | Link ICT “push” to existing development projects and communities
- | Promote a more participatory, consultative approach in order to bridge the gap between local realities and the global/policy agenda
- | Develop culturally sensitive networking that can build partnerships and promote capacity-building and skills development at all levels of engagement
- | Encourage donors to work with partners – including civil society – to create an enabling environment for participation by civil society in policy processes and to strengthen the capacity of civil society to work for itself
- | Work with public and private sectors to develop better indicators to monitor the benefits of ICTs and their contribution to reaching the Millennium Development Goals (MDGs)
- | Introduce stronger monitoring and evaluation at both national and international levels to ensure that communication is linked to other processes, especially policy processes
- | Engage with civil society and the private sector for provision of infrastructure

How do we balance investment in technology with investment in content development?

- | Recognize that development is not about technology and not about information
- | Recognize that technology is important, but must be appropriate – and sustainable
- | Focus more on content and less on machines
- | Encourage foundations and donors to invest in developing ICTs' multimedia capabilities to support the needs of communities with strong oral traditions support internationalization of the Internet (beGrid/multilingual/Local Content)

Possible Contributions

- | **A design Methodology and blended business models for eGovernment partnerships and services delivery and Community Business Building.**
- | **A Cook-book/Guide for eGovernment Funding Models in Developing Countries**

WAY FORWARD

- | **Extensively explore the literature on eGovernment in Developing Countries.**
- | **Identify Various Funding Models in actual/practical use as well as proposed by academia for developing countries.**
- | **Organise an International Conference on eGovernment in Nigeria in 2008 inviting all the stakeholders, local and international.**
- | **Propose the Mixed Partnership Models developed for real life applications in the implementation of eGovernment in Developing Countries.**

E-Nigeria 2008: eGov4D

Theme:

eGovernment for Development: Maximising the gains eGovernment Implementation in Nigeria.

Sub-Theme:

Sustainable Funding Models for eGovernment Infrastructure Development and Services Delivery.

Specific Focus:

- Taking Stock of eGovernment Projects
- Unification of efforts, Standardisation, and Integration of Services
- Coordinating and integrating eGovernment, mGovernment, and Innovative Government (iGov.)
- Layered Business Models (Federal, State, Local Government) Business Models for eGovernment Services delivery
- Laying the Foundation for Strategic eGovernment Leadership
- Re-engineering eGovernment for Good Governance
- uGovernment: Planning for Next Generation eGovernment.
- **Repositioning ICT as a credible economic sector in its own right.**
- **Engaging ICT as a catalyst for multi-sector economic development.**

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Stakeholders



- | **Presidency**
- | **Federal Capital Territory Administration (FCTA)**
- | **Federal Ministry of Science and Technology (FMST)**
- | **Federal Ministry of Information and Communication (FMIC)**
- | **National Planning Commission (NPC)/Chief Economic Adviser**
- | **National Information Technology Development Agency (NITDA)**
- | **National Communication Commission (NCC)**
- | **National Space Research and Development Agency (NSRDA)**
- | **National Board for Technology Incubation (NBTI)**
- | **Small and Medium Enterprise Development. Agency (SMEDAN)**
- | **National Poverty Eradication Program (NAPEP) - (PCP)**
- | **Petroleum Technology Development Fund (PTDF)**
- | **New Partnership for African Development (NEPAD)**
- | **Niger Delta Development Commission (NDDC)**

Stakeholders



- | **Lagos State Government**
- | **Ogun State Government**
- | **Enugu State Government**
- | **Imo State Government**
- | **Rivers State Government**
- | **Bayelsa State Government**
- | **Delta State Government**
- | **Cross River State Government**
- | **Kaduna State Government**
- | **Kano State Government**
- | **Niger State Government**
- | **Jigawa State Government**
- | **Bornu State Government**
- | **Sokoto State Government**

Stakeholders



National eGovernment Strategies Limited (NeGSt)

Galaxy Backbone Limited (Galaxy)

Nigeria Computer Society (NCS)

Association of Telecommunications Operators in Nigeria (ATCON)

Computer Professionals Council in Nigeria (CPN)

***Information Technology Policy Program (ITPP), SNU, Korea**

***Seoul Metropolitan Government (SMG)**

***United Nations University (UNU-IIST), Macau.**

***Gulf Cooperative Council (GCC)-Datamatix, Dubai, UAE.**

Prof. Richard Heeks, eGov Specialist, Univ. of Manchester, UK.

Emeritus Prof. Jay Forrester, MIT_Sloans School of Management

International Participants

The image features a blue-toned background with a world map and a grid of latitude and longitude lines. In the foreground, there are silhouettes of several business professionals. On the left, a man in a suit stands with his hands in his pockets. Next to him is a woman in a business suit. In the center, a woman in a long dress is shaking hands with a man in a suit. To their right, two women in business attire are standing together, one holding a briefcase. On the far right, another man in a suit stands with his hands in his pockets.

- | **Korean Embassy in Nigeria**
- | **UN System Member Agencies (UNDP, UNIDO, UNESCO, UNCTAD, etc)**
- | **World Bank and Stakeholder Agencies (INFODEV, GICTD, etc)**
- | **Regional Union Agencies (Commonwealth, EU, AU, ASEAN, GCC)**
- | **Country Aid Agencies (KOICA, JICAD, USAID, DFID, CIDA, etc)**
- | **International Charities (Faith Foundation, Bill & Melinda Gates Foundation, etc,)**
- | **Ghana, South Africa, Kenya, Uganda, Morocco, Egypt**
- | **UAE, India, Vietnam, Macau, South Korea**

Conference Budget Estimate

Budget Item	Unit Cost and Frequency	Base Quantity	Description	Sub-Total
Conference Hall		1	Main Hall for Event	
Session Rooms		3	a) Funding Models breakout room b) ICT4ED breakout Room c) Nigerian Stakeholders' eGov. Harmonization Forum	
Sponsored Participants (Tickets, Lodging, and Meals)		30	ITPP participants, Paper Presenters/Country Representatives	
Conference Materials and Logistics (Bags, Printing, Paper , Pens, Local Travel)		300		
Group Lunches and Dinners		300		
Grand Total				

Project Description:

UNU-IIST will carry out four projects in 2007:

1. Strategic IT Planning for Macao Government
2. Software Infrastructure for e-Government in Macao
3. Standards for e-Government in Macao, and
4. Macao e-Government events.

Project Assessment

All four e-Macao projects executed by the Center are executed as planned.

Project Funding

All four projects are funded by Macao Government through the Public Administration and Civil Services Bureau (SAFP).

Project Collaborations:

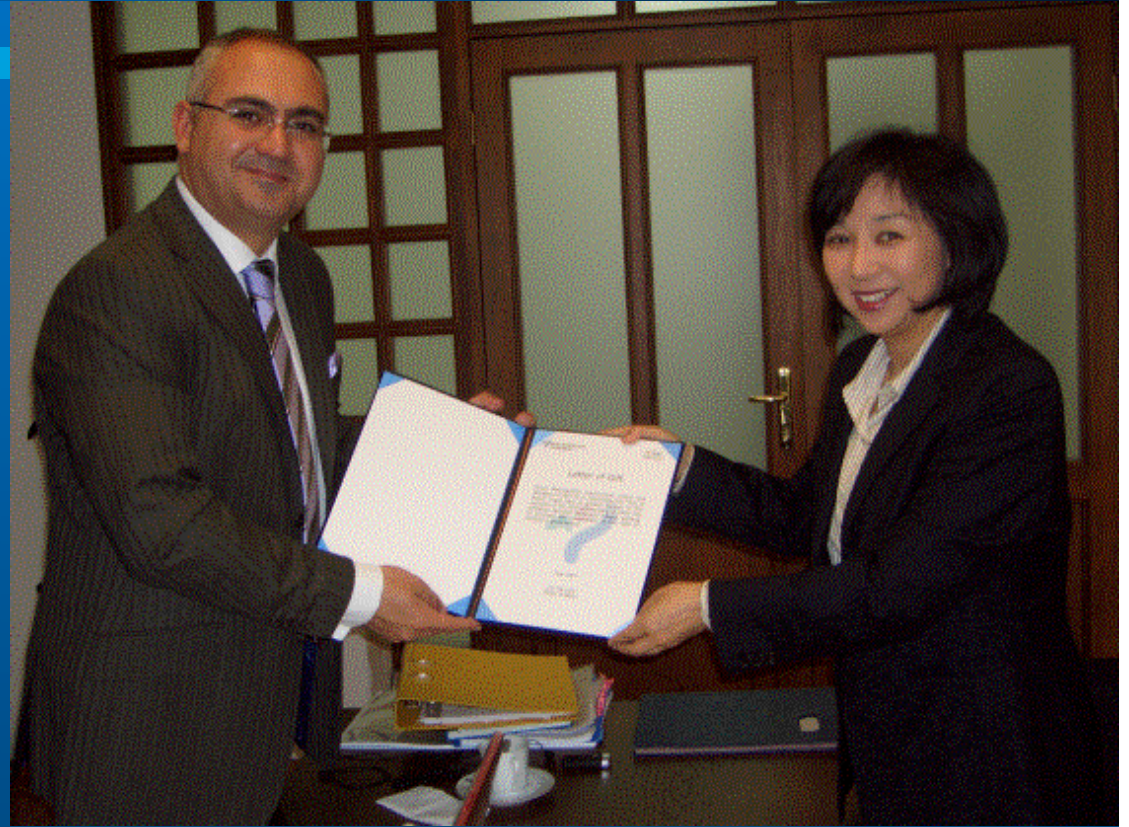
All four projects collaborate with:

One or more of the other cooperation parties of the e-Macao Program, which are the University of Macau, the Institute of System and Computer Engineering - Macau, Macau University of Science and Technology, and Macau Polytechnic Institute.

Selected Macao Government agencies.

SMG's eGovernment Technical Assistance Scheme

Seoul City has now exported the e-Government Model to Ankara, Turkey (May 2007) in addition to Moscow, Russia (November 2004), Hanoi, Vietnam (July 2005) and Ulaanbaatar, Mongolia (September 2005).



CIO (SMG) and Director of Ankara's IT Department

2

Seoul Internet TV

Seoul Internet TV In Tune With Citizens

Seoul Internet TV (TV.seoul.go.kr), launched in September of 2004, provides diverse TV and media services in 6 categories: 「Seoul Now」 「Vision Seoul」 「Art and Culture」 「Seoulite」 「Community」 and 「Wellbeing」. There are 28 programs in each of the categories, and 1,000 contents are streaming and continually updated. Citizens also participate in producing contents on programs such as Citizen VJ (Video Journalist) and Community. Around 5,000 visitors log on to Seoul Internet TV each day.

Seoul Internet TV



3

Citizens' Participation Brings Out the Best

The SMG has employed online and offline programs to engage more citizens in municipal affairs and to make the SMG more responsive and participatory.

"Hi Seoul e-Festival"

The Hi Seoul e-Festival is an on/offline festival to acclimatize citizens to the e-government. An online e-festival was held for a month in April and consisted of an e-Quiz, Hi-Seoul Blog Contests, Web-Community PR, and e-Basketball. In every May, an e-Seoul booth was installed for citizens to experience e-government services. Impressively, more than 280,000 citizens visited the booth.

e-Seoul Booth



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