



AFRICAN DEVELOPMENT BANK GROUP

Briefing Notes for AfDB's Long-Term Strategy

**Briefing Note 9:
UNIQUE OPPORTUNITY FOR AFRICA: ARCHITECTING THE SYNERGY BETWEEN
EXISTING INFORMATION TECHNOLOGIES**

Date: 12 March 2012

UNIQUE OPPORTUNITY FOR AFRICA: ARCHITECTING THE SYNERGY BETWEEN EXISTING INFORMATION TECHNOLOGIES

I. INTRODUCTION

The aim of this Brief is to outline how the coherent use of several existing information technologies can significantly accelerate the achievement of the vision stated in the Bank's Long-Term Strategy (LTS).

II. RELEVANT IT AREAS AND RELATED ISSUES

2.1 Replication of ICT Applications: ICT infrastructure and applications are both needed to deliver services. When planned, some common applications can be created and replicated for countries. Many aspects of applications, such as intellectual property rights, compatibility, flexibility, etc., must be considered before their implementation. Software replication in e-government is particularly common[1]: An estimated 80% of software for e-government applications can be re-used between among regional member countries (RMCs)..

2.2 E-governance Design: The essential element of the re-use of e-government applications is a commonly-agreed reference model that defines a coherent set of technical building blocks, a catalogue of government services and integration mechanisms. Common commercial or open-source tools are recommended for serving as these building blocks to avoid unnecessary duplications.

2.3 E-governance Cooperation: RMCs need different e-government services at different times. Those services can be developed and shared in close cooperation with the countries whose leaders must agree to and support this cooperation, which must be coordinated and monitored.

2.4 Computing Platform for Africa: Creating a good in-house data center is a daunting task. Delivering computing resources over the Internet from a provider's data center (cloud computing [2, 3]) can lower barriers for technology adoption, reduce implementation time and minimize operational burdens. Cloud computing benefits include the items in the table below:

Typical in-house IT environment	Cloud Benefits
Burdened by asset management	Focus shifts from asset ownership to service management (cost containment)
Long procurement practices	Near-instantaneous capacity increases and reductions
Significant IT resources devoted to routine operations	IT more responsive to specific organizational needs
Long learning curve	Quicker access to emerging technologies
Continuity and information security are	Proactive, coherent approach to business continuity/

considered separately and post hoc	information security challenges
------------------------------------	---------------------------------

In-house IT and cloud environments must often co-exist. A new distributed computing platform raises questions such as: which services to move to the cloud, how to integrate in-house and cloud services, how to avoid cloud-provider lock-in.

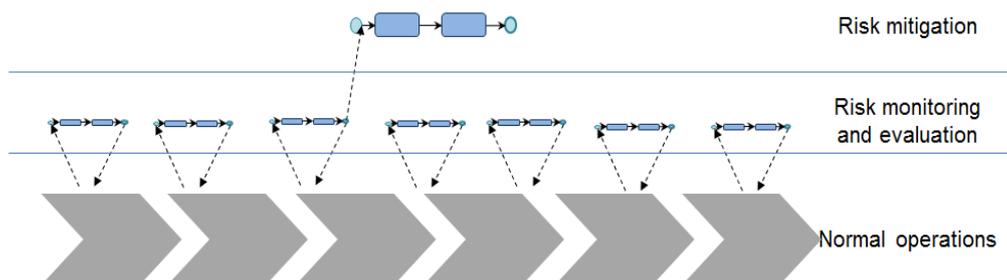
Creating a standardized, modular, dependable computing platform that clearly and openly addresses potential clients' concerns is the way forward. For example, a transparent decision-making assessment can help clients themselves assess the cloud-readiness of their services (e.g. [4]) and taking into account security, risk, availability, data, network capacity, etc.

The majority of RMCs, some big companies, vast numbers of SMEs, and even the Bank are potential users of cloud computing. A pan-African cloud-based computing platform [5] would be the logical extension of "cabling" Africa, and could begin rather soon. Unified platform "pieces" will be deployed where the need is sufficient and the connectivity is available.

2.5 Synergy Between Designing e-government Services and Cloud Computing: A distributed computing platform will speed up the pan-African implementation of e-governmental services. Commonly developed e-governmental software will be designed up front to be cloud and integration ready. As such [6], new e-governmental services can be quickly deployed and, if necessary, intertwined with extant e-governmental services using the e-governance reference model.

2.6 Mitigating the Harmful Impact of Corruption: The synergy between the design of e-government services and cloud computing can significantly improve the speed, quality, and transparency of national procurement processes. Transparent and traceable design of e-government applications, transparent and traceable execution of those applications, transparent and traceable data storing procedures all together increase the transparency of the whole government. In addition, governmental processes can be enriched for proactive risk evaluation and validated by remote experts with secure Internet access to information.

FIGURE 1. RISK MONITORING & MITIGATION



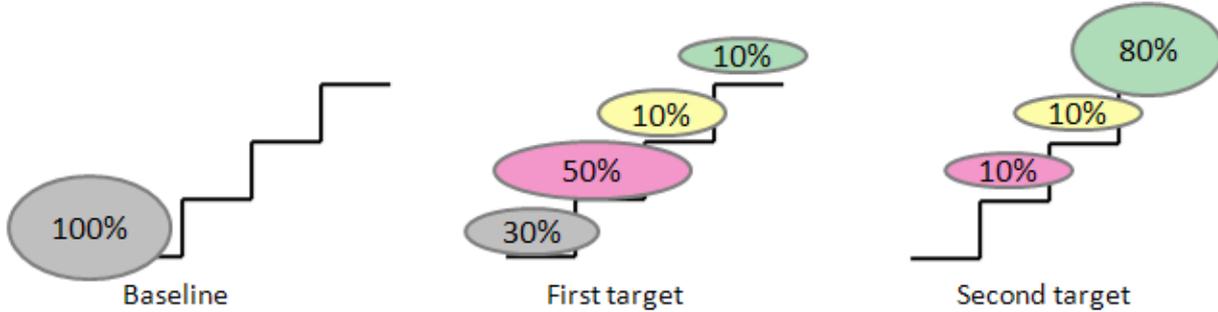
2.7 Building a Supply Chain for African Development Projects: Improved national procurement processes could be linked with the Bank's procurement processes into an integrated supply chain. This would reduce cost and increase the speed of development projects.

2.8 SME-centric Services: With a cloud-based computing platform, SME-centric services such as accounting, banking, taxation, HR, marketing, etc., could be provided for SMEs

through specialized service centers. Furthermore, those centers can offer to SMEs the integration between those services. This will reduce the administrative overhead for running the SME.

2.9 Computerization Ladder: The process of computerization depends on the readiness of each RMC to absorb the benefits of information technologies: each must identify a suitable pace. A “ladder” or “maturity model” (Figure 2) is a metaphor for suggesting how a set of countries with different abilities might achieve common goals and plan their progress. The “ladder” has a few levels of capability from “not able” to “fully capable”. Entities can advance at different paces to the top of the “ladder,” planning their progress as follows:

FIGURE 2: MATURITY LADDER



Allowing RMCs to advance at their own pace obviously implies significant flexibility among information systems to accommodate changes without lengthy and costly additional developments. This must be designed well in advance.

2.10 Integrating the Bank’s IT into a Bigger Picture: In its internal IT environment, the Bank could use outcomes of the pan-African cloud for outsourcing rather than building its own data centers. This potential synergy requires that the Bank better integrate its IT planning into its development agenda.

2.11 Possible Implementation Strategy: An e-government competence center will be needed to provide the leadership and execute the following implementation strategy:

- Formulate a continental architecture: big picture, reference model, standards, reference architectures, nomenclatures of recommended tools, deployment practices, capacity building plans
- Identify first opportunities
- Launch and Assist Pilot Projects
- Monitoring and adjustment

III. CONCLUSION

Any complex, dynamic system that is to be designed for a continent must build synergies among countries, technologies, projects and investments, client capacity and the business-enabling environment. The Bank is ideally placed to lead, coordinate and monitor the achievement of such a synergy.

REFERENCES

1. L'administration en ligne à l'Etat de Genève
http://www.bedag.ch/events/e_participation08/Leclerc.pdf
2. NIST Cloud Computing Program <http://www.nist.gov/it/cloud/index.cfm>
3. Africa's 'father of technology' on sparking a tech revolution
<http://edition.cnn.com/2012/01/26/tech/herman-chinery-hesse-technology/index.html>
4. The Federal Risk and Authorization Management Program
<http://www.gsa.gov/portal/category/102371>
5. The Cloud and Africa – Indicators for Growth of Cloud Computing
<http://theafricanfile.com/academics/usc/the-cloud-and-africa-indicators-for-growth-of-cloud-computing/>
6. 25 point implementation plan to reform federal information technology management
<http://www.cio.gov/documents/25-Point-Implementation-Plan-to-Reform-Federal%20IT.pdf>