ACHIEVING ECONOMIC VALUE BY USING ICT TO SUPPORT AND ENABLE BUSINESS

Date: 22/10/2013
Agenda

• Global ICT Impact
• ICT Impact in Singapore
• ICT Impact in Emerging countries – Case Study
Global Impact of ICT

• Despite the continued sluggishness of economies around the globe, digitization boosted world economic output by nearly USD200B and created 6 Million Jobs in 2011.

• Increase in 10% in a country’s digitization score drives a 0.75% GDP growth per capita

• Same 10% boost in digitization leads to a 1.02% drop in a state’s unemployment rate

Source: Insight Report by WEF on The Global Information Technology Report 2013 by Benat Bilbao-Osorio, WEF; Soumitra Dutta, Cornell Univ and Bruno Lanvin, INDEAD
Networked Readiness Index Framework

Source: Insight Report by WEF on The Global Information Technology Report 2013 by Benat Bilbao-Osorio, WEF; Soumitra Dutta, Cornell Univ and Bruno Lanvin, INDEAD
Correlation between NRI 2013 Impact and Readiness

$R^2 = 0.7382$
Networked Readiness Index Map

Source: Insight Report by WEF on The Global Information Technology Report 2013 by Benat Bilbao-Osorio, WEF; Soumitra Dutta, Cornell Univ and Bruno Lanvin, INDEAD
<table>
<thead>
<tr>
<th>Category</th>
<th>2012 Spending (Billions)</th>
<th>2012 Growth (%)</th>
<th>2013 Spending (Billions)</th>
<th>2013 Growth (%)</th>
<th>2014 Spending (Billions)</th>
<th>2014 Growth (%)</th>
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</thead>
<tbody>
<tr>
<td>Devices</td>
<td>676</td>
<td>10.9</td>
<td>695</td>
<td>2.8</td>
<td>740</td>
<td>6.5</td>
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<tr>
<td>Data Centre Systems</td>
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<td>143</td>
<td>2.1</td>
<td>149</td>
<td>4.1</td>
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<td>Enterprise Software</td>
<td>285</td>
<td>4.7</td>
<td>304</td>
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<td>324</td>
<td>6.6</td>
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<td>IT Services</td>
<td>906</td>
<td>2.0</td>
<td>926</td>
<td>2.2</td>
<td>968</td>
<td>4.6</td>
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<td>Telecom Services</td>
<td>1,641</td>
<td>-0.7</td>
<td>1,655</td>
<td>0.9</td>
<td>1,694</td>
<td>2.3</td>
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<tr>
<td>Overall IT</td>
<td>3,648</td>
<td>2.5</td>
<td>3,723</td>
<td>2.0</td>
<td>3,875</td>
<td>4.1</td>
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</table>
The Africa Competitiveness 2009-2013

Note: The constant sample includes the following economies: Algeria, Benin, Burkina Faso, Burundi, Cameroon, Chad, Côte d’Ivoire, Egypt, Ethiopia, Gambia, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Nigeria, Senegal, South Africa, Tanzania, Tunisia, Uganda, Zambia, and Zimbabwe.
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From a colonial outpost to international business hub

The world’s 2nd most competitive country

2nd most innovative country in Asia

The world’s easiest place to do business
Economic transformation since independence

4th highest GDP per capita (PPP)* in the world

*2005 Constant International Prices

Source: World Bank, April 2013
For Singapore, we have focussed on a few key areas in developing our smart city model:

- E-government services
- Jobs Creation
- Investment
- Innovation

Efficient Governance

Citizen Well-Being
- Transport
- Housing
- Education
- Healthcare

ICT Enabled

Economic Viability
- Water and Waste Management
- Energy

Environmental Sustainability
Singapore’s ICT success recognised globally

World e-Government Ranking
5th Consecutive Year Ranked #1

Ease of Doing Business
7th Consecutive Year Ranked #1

Siemen Green City Index
Ranked #1 in Asia

2012 Quality of Living worldwide city rankings – Mercer survey
Ranked #1 for City Infrastructure
Singapore Top Global ‘Ease of Doing Business’ Ranking

ICT Enable Core of Economic Success

- Starting a Business
  - BizFile
- Dealing with Construction Permits
  - CORENET eSS
    - Electronic Development Applications
- Enforcing Contracts
- Resolving Insolvency
- Doing Business Ranking 2013
- Registering Property
  - Intereq System
- Getting Credit
- Paying Tax
  - eFiling
- Protecting investors
- Getting Electricity
  - SP eServices

Singapore
Top Global
‘Ease of Doing Business’
Ranking

Doing Business
Ranking 2013
The use of ICT forms the core of Singapore’s smart city development

iN2015: Realising Smart Cities

The Next Gen NBN will offer broadband speeds of up to one Gigabit per second and beyond.

Wireless@SG is a wireless broadband programme developed by IDA as part of its Next Generation National Infocomm Infrastructure initiative. Users can enjoy free, both in-door and outdoor seamless wireless broadband access with speeds of up to 1 Mbps at public areas in Singapore.

Singapore was one of the first countries in the world to embark on a national effort to draw together commercial Grid Service Providers (GSPs) to offer industry and government consumers on-demand and pay-as-you-use access to high performance computing capabilities, software, and immense data storage capacity.

Source: IDA
And Businesses...

- Online business filing and registration
- All legally prescribed business & statutory company forms
- Multi awards winner

ACRA’s e-filing system (BizFile) was featured in the World Bank’s publication titled "Celebrating Reform 2008" as a case study. The book was launched in Washington DC in July 2008 by the World Bank and USAID.

**Online Business Licensing System (OBLS)**
- Online single integrated license application
- 82 licenses across 18 govt agencies
- Significant savings in time and costs
- Multi awards winner

Almost 99 per cent of the construction related applications are submitted electronically through the CORENET e-Submission System presently.

**World’s First Nationwide Trade Clearance System**
- Single Electronic window
- Paperless environment
- Harmonisation and simplification
- Data collection
- Risk management and profiling

- Central repository for building codes, regulations and circulars published by the various building and construction regulatory agencies in Singapore.
- It provides users with a one-stop access to building and construction related information from anywhere, anytime via the Internet. It also broadcasts events organised for the building and construction industry to its subscribers in a regular and timely manner.
Singapore’s Accounting and Corporate Regulatory Authority (ACRA) – First Stop to Start a Business

Long and tedious Company Registration Process. Too dependant on clerical Staff entering data by hand. Time to Register a Business & Company Incorporation was approx. 14-21 days, leading to Dissatisfaction and Delays.


Leveraging on ICT to Streamline Registrar of Companies and Businesses
Key Transformation

- All transactions online
- Latest Company / Business Information
  - Available
  - Accessible
- Information sharing between government agencies
- Ease of update by company/ business
- Realignment of Organisation and Regulations
- Lower costs to Business/ Company
Change of Focus

Before Reform  
Administrative → Strategic
Enforcement

After Reform  
Strategic
Administrative → Enforcement

More Value-Adding Work
Agenda

• Global ICT Impact
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  – Business Registration
  – Capital Market Automation
AUTOMATION OF REGISTRAR GENERAL’S DEPARTMENT OF GHANA
Survey on Ease of Doing Business
(out of 183 in 2010)

<table>
<thead>
<tr>
<th>Country</th>
<th>Ease of Doing Business</th>
<th>Start Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>New Zealand</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>USA</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>UK</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>Denmark</td>
<td>6</td>
<td>28</td>
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<tr>
<td>Ireland</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Canada</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Australia</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Norway</td>
<td>10</td>
<td>35</td>
</tr>
<tr>
<td>Ghana</td>
<td>92</td>
<td>135</td>
</tr>
</tbody>
</table>

64/185 in 2013  112/185 in 2013
Basic registration system.

Difficulties in obtaining latest real time and up-to-date information for management planning and reporting.

No integration with other system to provide accurate company and business information to investor and public.

GeReg® solution realized efficient business registration process, faster response time for registration and updates

Better enforcement and new revenue generation service results Increased revenue

Statistical and comparative reports has Improved management decision and planning

Easily accessible information Improve interactions with investor and interested parties
The Transformation

Active Engagement With All Key Stakeholders

Adaptation of Best Practices

Improvement in Business Registration Processes

Improvement in Basic Infrastructure

Integration with Regional Offices

Standardization

Training (from general IT to Specific Application Knowledge)
GeReg®: eGhana Case Study

**Funded by the** - World Bank;

**Users** - Internal Revenue Service, Revenue Agencies Governing Board, Value Added Tax Service, Large Tax Payers Unit and the Registrar General Department of Ghana;

**Business Model** - Public-Private Partnership Model for Design, Finance, Build, Operate and Transfer (DFBOT) electronic systems;

**Procurement** – application software, hardware and the re-engineering of the business processes;

**Scope of Services:** End to end – resulting in increased revenue – to be shared with Private Partner

Provisioning of Business Registration System (GeReg®) for the Registrar General’s Department of Ghana; and all Revenue collection
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AUTOMATION OF ROYAL SECURITIES EXCHANGE OF BHUTAN
# Products and Services Catalogue

<table>
<thead>
<tr>
<th>Exchanges</th>
<th>Trading Firms</th>
<th>Services</th>
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<tbody>
<tr>
<td>Trading System</td>
<td>Back Office</td>
<td>Pre-Sales</td>
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<tr>
<td>Depository System</td>
<td>Order Mangmt.</td>
<td>Req./Gap Analysis</td>
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<tr>
<td>Clearing &amp; Settlement</td>
<td>Algo Trading</td>
<td>Implementation</td>
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<tr>
<td>IPO Engine</td>
<td>Asset Mangmt.</td>
<td>Support</td>
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<tr>
<td>Post Trade</td>
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<td>Knowledge Transfers</td>
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<tr>
<td>Reporting</td>
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<td>CM Advisory Service</td>
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<td>Infotech Foundation</td>
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<td>Regulators</td>
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<td>Surveillance</td>
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<tr>
<td></td>
<td>Regulatory Compliance</td>
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</table>
Capizar® Suite for Bhutan

- Capizar® MSS
- Capizar® BBO
- Capizar® IPO
- Capizar® PTRS
- Capizar® ATS
- Capizar® CSS
- Capizar® EDS
Transformation of the Trading System

No integration with other system. Data had to be transferred for using drive. Real time information not available to the investors.

Capizar® ATS, is not only confined to the trading hall but it also allows individual to trade online via internet. It is easy to use and it provides all comprehensive information required to trade in RSEB.
Manual procedure utilized.

Data captured in MS Excel.

No system integration or data transfer to other system.

Capizar® EDS, Electronic Depository System is Self Service Web Portal that links Issuers, Registrars, Brokers, Custodians and Investors, providing a technology for efficient pre-trade validations and post trade settlement for the entire life cycle of securities account management.
Transformation of the Broker Back Office System

No integration with other system.
Data had to be transferred for trading using drive.

Capizar® BBO, is a web enabled system, which will automate the entire business process & workflows of Bhutanese brokerage firms according to international best practices.
The Transformation

Standalone Trading Platform to an Automated Online Trading System

Adaptation of best practices

Bhutanese people residing abroad trades online.

Improvement in basic Infrastructure

From conventional Manual Depository process to Automatic Electronic Book Entry System

Standardization and Integration of systems.

Training (from general IT to specific application knowledge)
More Case Studies....

• **Capital Markets**
  – Ghana Stock Exchange
  – Securities & Exchange Commission of Pakistan
  – Dhaka & Chittagong Stock Exchange
  – Royal Securities Exchange of Bhutan Ltd
  – Capital Market Authority, Kenya
  – Capital Market & Securities Authority

• **Telecom**
  – VAS, Outsourcing etc.

• **Public Sector**
  – Registrar General Department
  – Revenue Management System
  – Ghana News Agency
Industries & Accreditations

Industry Solutions
- Capital Markets & Financial Services
- E-Government (Tax & Revenue, Citizen Services)
- Telecom & Utilities

Industries Served
- Financial Services
- Telecommunications
- Public Sector
- Utilities
- Manufacturing
- Healthcare
- Distribution

Accreditations
- ISO 9001:2008
- ISO/ISMS 27001:2005
- CMMI Level 3 (In Process)
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