Big Data Governance and Enterprise Architecture
Seminar e-Kerajaan 2014
KOMTAR, Pulau Pinang

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KETUA PERUNDING ICT (STRATEGIS)
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1. Big Data Analytics:
   1.1 Background
   1.2 Maturity Assessment
   1.3 BDA Governance

2. 1GovEA:
   2.1 Background
   2.2 Framework Development
   2.3 Role of CIO

3. Conclusion
Transformation via SMART Government

Social, Mobile, Analytics and big data, Radical openness, Trust

Leadership

Policy/Legal Framework

Technology/Infrastructure

Innovation Financing

Capacity Building

Citizen Engagement

Application and Co-Creation

Institutional
“....the Communications and Multimedia Ministry with the support of the Malaysian Administrative Modernisation and Management Planning Unit and MDeC will jointly implement four government initiated Big Data Analytics (BDA) pilot projects by 2015 to drive ICT services.”

Prime Minister Datuk Seri Najib Tun Razak
The 25th MSC Malaysia Implementation Council Meeting
14 November 2013
National Transformation Plan

VISION 2020

NASIONAL MISSION

RAKYAT DIDAHULUKAN, PENCAPAIAN DIUTAMAKAN

CTI – Cepat Tepat Integriti

PCI - Productivity Creativity Innovative

Value for Money

10th MALAYSIA PLAN

Digital strategy for Malaysia – leveraging existing initiatives and creating new opportunities in the digital economy
**BDA- Public Sector 4 Pilot Projects**

**1. PRICE WATCH**

**WHY?**
To reduce profiteering due to policy changes

**OUTCOME:**
Predict optimal pricing and maintain a price position by analysing price and demand elasticity

**LEAD AGENCY:**
KPDNKK (Ministry of Domestic Trade & Consumer Affairs)

**TIME:**
12-18 months

**2. SENTIMENT ANALYSIS**

**WHY?**
To quickly gauge the public perception and feedback on a certain topic

**OUTCOME:**
Government makes well-informed decisions to address well being of rakyat

**LEAD AGENCY:**
KKMM (MCM)

**TIME:**
12-18 months

**3. CRIME PREVENTION**

**WHY?**
Crime root cause and trend analysis, optimise law enforcement resources

**OUTCOME:**
Reduced crime rate

**LEAD AGENCY:**
KDN (Home Ministry)

**TIME:**
12-18 months

**4. INFECTIOUS DISEASES FORECASTING**

**WHY?**
To predict outbreak probability and locations

**OUTCOME:**
Reduce dengue incidences and fatalities

**LEAD AGENCY:**
KKM (MOH)

**TIME:**
12-18 months

Sumber: MDeC
BERSETUJU:

Semua agensi disarankan supaya bersedia dan mengambil tindakan mengenal pasti inisiatif big data analytics dan data set bagi pelaksanaan open data dalam setiap perkhidmatan teras agensi.
**Big data** is high-volume, high-velocity and high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision making. (Source: Gartner)

**Big data analytics** is the process of examining large amounts of data of a variety of types to uncover hidden patterns, unknown correlations and other useful information. (Source: Whalts.com)

### Data Types
- Structured
- Semi Structured
- Unstructured

### Features
- high-volume,
- high-velocity
- high-variety - information asset

### Strategic Enabler
- Stakeholder Commitment & Skills
- Core competency
- Standard, Policy
- Technology
- CMP
- Governance

### Expected Outcome
Service Delivery Transformation through data; linkages, mining and predictive analytics:
- Decision Management
- Resource Bargain
- Business Impact
BDA Governance

Scenario

What

• Dealing With, High: volume, velocity and variety,
• Data Types: Structured, semi structured, Unstructured,
• How: to devise proper ways and means to collect, and use the data meaningfully.
• Know: what to store and what to discard.

Goals

Data governance combines the disciplines of; data quality, data integrity management, data policy management, business process management, and risk management into a methodology that ensures important data assets are formally managed throughout an enterprise. ... SAS Institute Inc

...to ensure the quality, availability, integrity, security, and usability.
...the ability to leverage trusted data for better service, drive customer loyalty and confidence, and fostering for complying with regulatory policies.
...to bring the promise of increased innovation by optimizing people, technology and processes through creative uses of data.
...to hold the key to both mitigating risk and increasing data value.
Public agencies in **Malaysia** are at **Ad-Hoc stage** in terms of BDA maturity. Malaysian public sector is ahead of other BDA “Starters” in the region, including Thailand, Indonesia, Philippines and Vietnam, but their BDA maturity is below the average of APeJ public sectors.
### BDA Maturity Assessment – Malaysian Public Sector

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Attributes</th>
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</thead>
<tbody>
<tr>
<td><strong>Intent</strong></td>
<td>strategy, capital and operational budgets, performance metrics, sponsorship, and project and program justification.</td>
</tr>
<tr>
<td><strong>Data</strong></td>
<td>quality, relevance, availability, reliability, governance, security, and accessibility of multistructured data.</td>
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<tr>
<td><strong>Technology</strong></td>
<td>appropriateness, applicability, integration, support for standards, and performance of technology and IT architecture to the relevant workloads.</td>
</tr>
<tr>
<td><strong>People</strong></td>
<td>technology and analytics skills, intra- and intergroup collaboration, as well as organizational structures, leadership, training, and cultural readiness.</td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>processes of data collection, consolidation, integration, analysis, information dissemination and consumption, and decision making.</td>
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In terms of BDA maturity:
- Overall public sector agencies in Malaysia are at the Ad-Hoc stage
- Most public sector agencies in Malaysia, except for Technology, still lack of readiness in terms of Intent, People and Process

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**ADHOC**

Experimental
Ad hoc
Siloed proof-of-concept or pilot projects
Undefined processes
Lack of resources
Individual effort
Different data governance rules in the structured world to unstructured/semi-structured data

Different group of people that is in charge of the unstructured data.

How to get everybody talking together — invite the social-media savvy folks and the traditional structured data experts to have a discussion about the common business rules.

Reality of big data is when the cost of keeping information became less than the cost of throwing it away, it is what you do with that data that delivers the real value.

The domain knowledge and data manipulation skills are keys to translating the potential value of these use cases into successful business cases for effective service delivery.
**Public Sector’s Big Data Governance**

- **GITIC**
- **Public Sector CIO Panel**

**Note:**
^ GITIC - Government IT & Internet Committee

**PILOT BDA**
- Price Watch
- Citizen Sentiment
- Crime Prevention
- Infectious Diseases

**MSC ICM**
- Pengerusi: YAB PM

**DIGITAL MALAYSIA**
- Pengerusi: Menteri, KKMM

**JAWATANKUASA PENERAJU**
- BDA MALAYSIA
- Pengerusi: KSU, KKMM

**BDA SEKTOR AWAM (MAMPU)**

**BDA SEKTOR SWASTA (MDeC)**
Introduction

- MAMPU has recently announced the adoption of Enterprise Architecture (EA) as the framework strengthening its IT policies, standards, and practices.
- EA will be leveraged to translate the agency’s business/IT strategy into possible initiatives to realise the agency’s vision.
- This is a continued effort in enhancing the Government’s service delivery and connectivity as the Government move towards establishing S.M.A.R.T Government model.
What is EA?

EA has been defined in many ways but all carries the same essence:

- Aligns business strategy to IT service delivery **proactively**
- An approach to enhance the **predictive capabilities** for agency’s potential business opportunities:
- Translates business and IT strategy cohesively into **possible rationalisation of resource utilisation**

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**The Open Group**

EA is the capture of all behavior that goes on in an organization: the data that is processed, who does what, where everything is, and why everything is done. In a sentence, the who, what, why, when, where, and how of the business at every level from high-level corporate goals to the code of low-level programs that implement business processes used to achieve those goals.”

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“A common framework for systematically understanding, planning, and aligning the relationships between business needs, business information, and IT”. By “IT”, we mean in its widest sense – systems, data, technology, IT delivery, organization / people, costs, standard et al.
Trends On Strategic Planning Engagement

• Organisations commonly initiate **strategic planning studies** to identify possible initiatives to drive towards achieving their vision.

• The current trend looks into **leveraging on EA to translates the vision and business/IT strategy into possible initiatives.**

• This is to ensure a more **cohesive planning and execution of initiatives**.
**Mapping ISP with EA**

**ICT Strategic Plan**

- **Stage 1: Assess**
  - As-Is Business landscape
  - As-Is ICT landscape
  - Strengths and challenges

- **Stage 2: Define**
  - To-Be business landscape
  - Gaps & opportunities /initiatives
  - To-Be ICT landscape

- **Stage 3: Plan**
  - ICT initiatives
  - Prioritisation
  - Implementation strategy & roadmap

**Stage 1 Initiate**
- 1.1 Define Architecture Scope
- 1.2 Confirm Governance and Stakeholders
- 1.3 Define Architecture Vision and Requirements

**Stage 2 Assess**
- 2.1 Assess Current Architecture
- Business Architecture
- Data Architecture
- Application Architecture
- Technology Architecture
- 2.2 Gaps and Opportunities

**Stage 3 Define**
- 3.1 Define Target Architecture
- Business Architecture
- Data Architecture
- Application Architecture
- Technology Architecture
- 3.2 Develop Solutions
- 3.3 Plan Migration

**Stage 4 Build/Operate**
- 4.1 Govern Implementation
- Implementation Delivery Methodology

**Stage 5 Monitor**
- 5.1 Manage Architecture Change
- 5.2 Undertake Knowledge Transfer
- 5.3 Conduct Post Implementation Review
- 5.4 Continuously Monitor Performance

**ongoing Requirements Management**

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1GovEA
As-Is assessment is typically conducted by conducting interview and focus group sessions and documents review to gain general understanding of the business and ICT environment. A “Validation Workshop” is conducted with the stakeholders to present and confirm the preliminary assessment of the organisation business & ICT environment.
Defining the “To-Be” business and ICT landscape often involve deciphering the organisation’s business strategy and identify gaps in the existing landscape that need to be addressed to achieve the said strategy. A “Visioning Workshop” is conducted to confirmed the draft “To-Be” with the stakeholders.
The high-level description of the potential ICT initiatives to be implemented in the next 3-5 years will be documented together with the prioritisation of the initiatives and the high-level implementation strategy and roadmap for implementing the initiatives.

Mapping ISP with EA

Once Target Architecture is confirmed, the planned initiatives will be documented together with the implementation strategy and roadmap. It will become the main reference for building the organisation’s Target Architecture.
A Public Sector EA Capability Maturity Assessment was conducted to gauge the public sector readiness in embracing EA.

- Conducted in Feb - Mac 2014
- Conducted at 24 Ministries and 33 selected Agencies
- Respondents comprised of representatives from Business and IT
- Assessment based on TOGAF Framework phases
- Result of the current EA maturity shall serve as the baseline for future maturity assessment
The assessment revealed that the **Malaysian public sector** is moving towards **Level 2 (Formalised)** in the adoption of EA practices

**Architecture Vision** is the most matured EA area due to the established practice of IT Strategic Plan development
Realising its importance, the Malaysian public sector has also embarked on promoting the adoption of EA through 1GovEA initiative.

- 1GovEA presents a common EA framework for the public sector
- The framework consists of six (6) major components, each designed to promote uniformed method for developing EA practices in the public sector agencies
1GovEA & Transformation Agenda

1GovEA has been initiated with clear objectives of supporting the Public Sector Transformation Agenda.

- Enhancing the public sector delivery capabilities to meet with the public expectations.
- Strengthening the ICT competency development programmes in the public sector to carry out high impact ICT initiatives.
- Fostering sharing and consolidating of ICT resources via strategic collaboration amongst the public sector agencies.
- Enhancing the business capabilities in the public sector through the strategic and holistic consolidation of ICT capabilities.
- Increase the global competitiveness of the Malaysian Public Sector service delivery.
CIOs will play significant roles to steer the adoption of EA based on 1GovEA framework

- The existing GCIO governance structure will be leveraged to include the Central Office of the Architect
- The Central Office of the Architect will be assisting the Office of GCIO in promoting the EA in public sector
- At the ministries/agencies level, the Architecture teams will be reporting to the respective ministry/agency CIO.
Development of 1GovEA Framework is nearing its completion and will be launched by November 2014

**Phase 1**
Development of 1GovEA - Blueprint, Framework, Roadmap and Methodology

Jan – Nov 2014

**Phase 2**
CHANGE MANAGEMENT PROGRAMMES
Awareness, Change Management and Transfer of Technology Programmes

Nov 2014 and Beyond

**Phase 3**
IMPLEMENTATION
To implement 1GovEA at selected public sector agencies in phases

Jan 2015 and Beyond
CONCLUSION

1. Promoting the Adoption of BDA & 1GovEA
2. Enhancing Rigorous Change Management Program
3. Pool of Highly Competence Public Sector Key Personnel
3. Strengthening Role of CIOs in Steering New Initiatives
Thank You

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