



Driving Innovation Through ICT Maturity Assessment in Public Sector

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30 November 2011

The Current Malaysian Public Sector ICT Environment



- A Public Sector ICT Study conducted in 2010 concluded that agencies are aware that comprehensive ICT Planning is essential in achieving sound ICT Management Practices.

Feedback management processes via ICT are utilised and managed as a daily practice;

Main reasons given for outsourcing are lack of in-house expertise and time saving;

Enterprise Architecture is still at its infancy among agencies;

Agency's disaster recovery plan is still at its early stages;

Levels of tools and automation in ICT infrastructure management vary amongst agencies.



OVERALL AGENCIES PROCESS MATURITY LEVELS

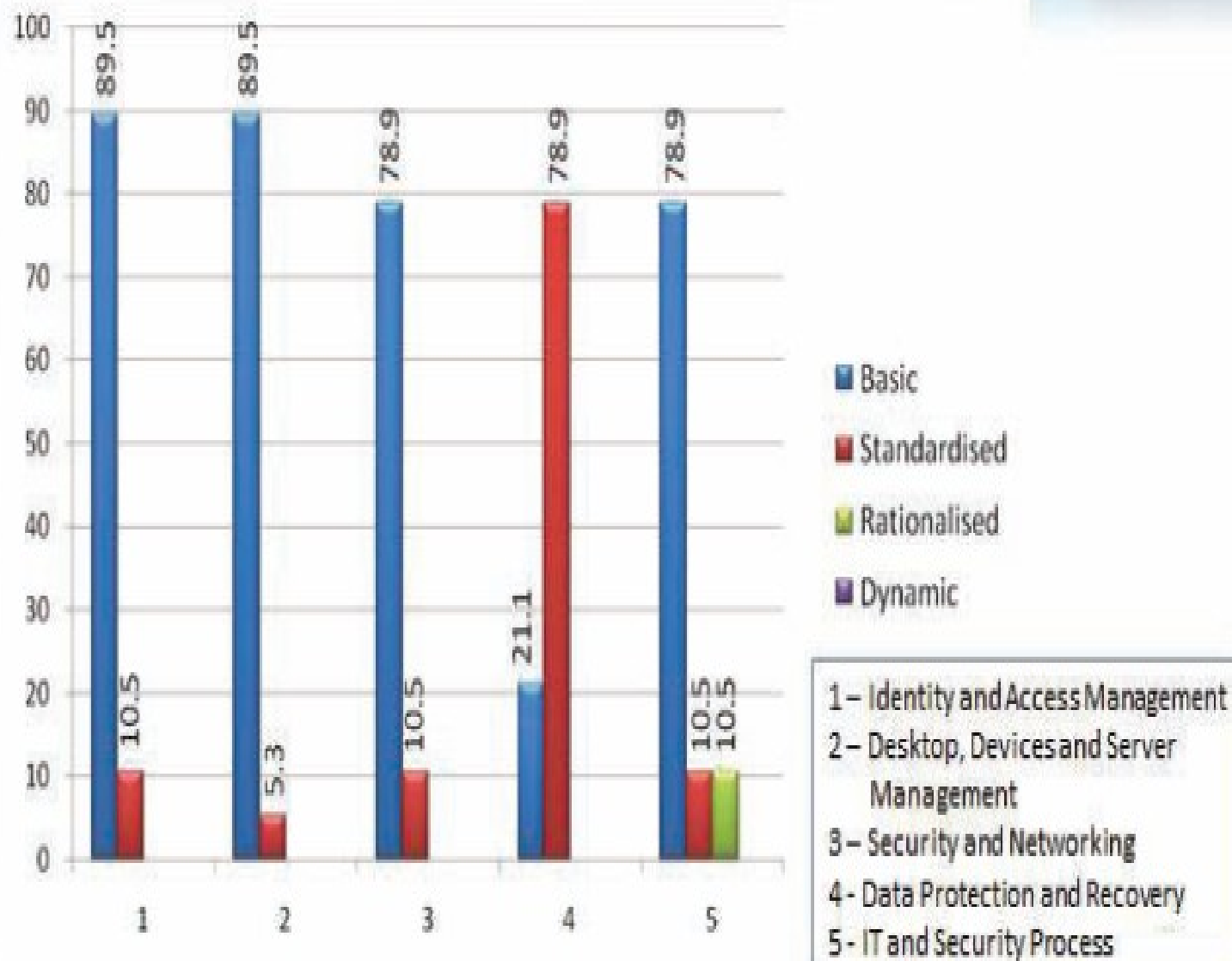


The process selected for this assessment was based on ITIL (Information Technology Infrastructure Library) Service Management processes. The Acculturation & Capacity building was included in this assessment to assess the human element of agencies from a skills and capacity perspective

(Source: The Malaysian Public Sector ICT Strategic Plan)



Infrastructure Optimisation (IO) of Government Agencies



(Source: The Malaysian Public Sector ICT Strategic Plan)

Gartner on External Assessments



By 2015, most external assessments of enterprise value and viability will include explicit analysis of IT assets and capabilities.

Enhancing Organisational Performance



- **ICT can support business process improvement.**
- **But, how well does ICT support business needs?**
- **There is a need for a measurement driven framework to assess ICT performance.**

Elements of A

Proposed Framework for ICT Assessment



- **Alignment with business**
- **Optimisation of IT resources**
- **Process orientation**
 - **ICT Planning**
 - **ICT Implementation**
 - **ICT Support**
 - **Knowledge Sharing**
- **Project and risk management controls**
- **Benefits realisation**

Established Industry ICT Control Frameworks



- **COBIT**- Control Objectives for Information and Related Technology
- **PRINCE2** - Projects in Controlled Environment 2
- **ITIL** - IT Industry Library
- **TOGAF** - The Open Group Architecture Framework

PRINCIPLES OF ICT CONTROL



SOBIT

PRINCE 2

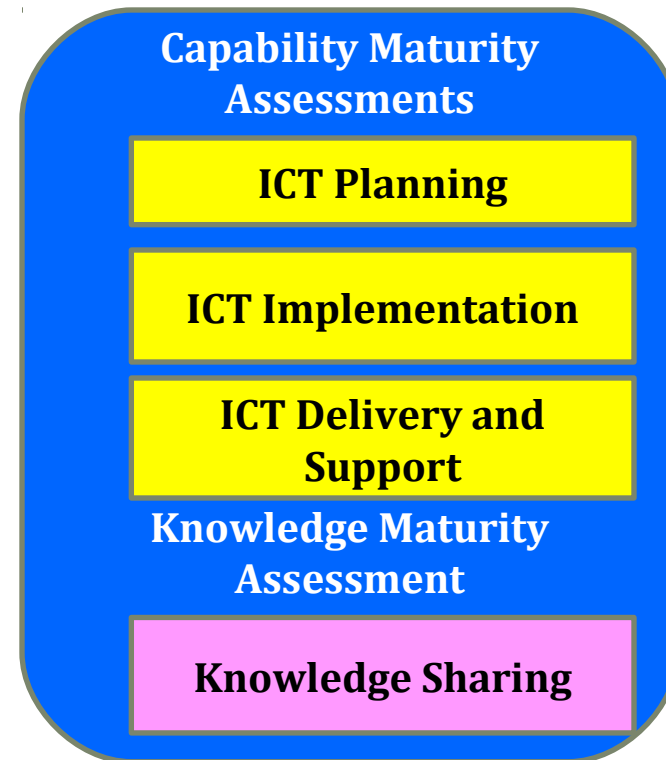
PRINCIPLES OF ICT CONTROL



IN

TO

BUILDING ON COBIT CRITERIA FOR ICT GOVERNANCE



**A Proposed
ICT Process Maturity Assessment Framework**



MEASUREMENT-DRIVEN

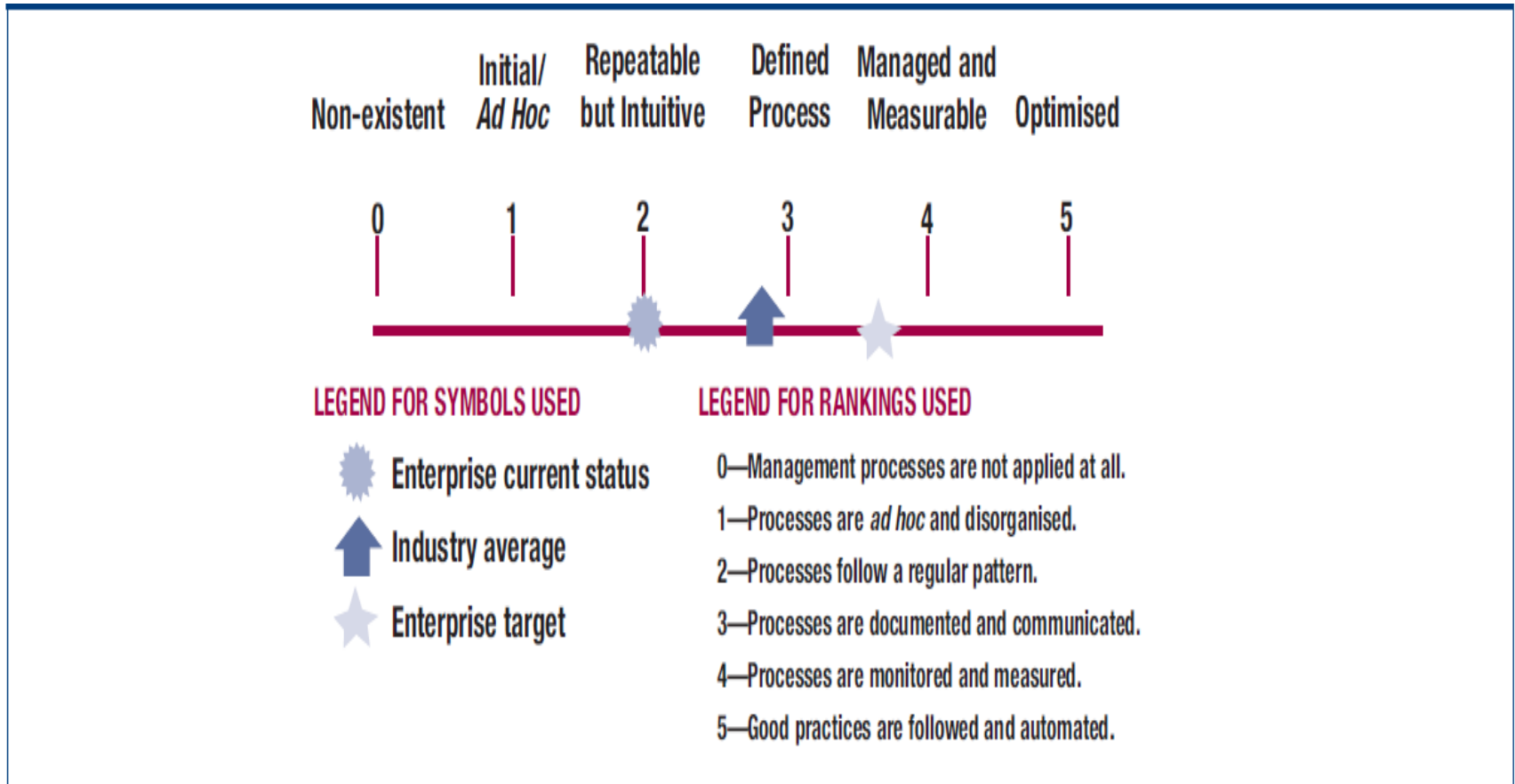
Where are we? Where is improvement required?

COBIT provides:

- **Maturity models**
 - Benchmarking
 - Capability improvements
- **Performance goals and metrics**
 - How processes meet business and IT goals
 - Internal process performance
 - (balanced scorecard principles)
- **Activity goals**
 - Enabling effective process performance



MATURITY MODELS



Graphic Representation of Maturity Models

MATURITY MODELS



- 0 Non-existent**—Complete lack of any recognisable processes. The enterprise has not even recognised that there is an issue to be addressed.
- 1 Initial/Ad Hoc**—There is evidence that the enterprise has recognised that the issues exist and need to be addressed. There are, however, no standardised processes; instead, there are *ad hoc* approaches that tend to be applied on an individual or case-by-case basis. The overall approach to management is disorganised.
- 2 Repeatable but Intuitive**—Processes have developed to the stage where similar procedures are followed by different people undertaking the same task. There is no formal training or communication of standard procedures, and responsibility is left to the individual. There is a high degree of reliance on the knowledge of individuals and, therefore, errors are likely.
- 3 Defined Process**—Procedures have been standardised and documented, and communicated through training. It is mandated that these processes should be followed; however, it is unlikely that deviations will be detected. The procedures themselves are not sophisticated but are the formalisation of existing practices.
- 4 Managed and Measurable**—Management monitors and measures compliance with procedures and takes action where processes appear not to be working effectively. Processes are under constant improvement and provide good practice. Automation and tools are used in a limited or fragmented way.
- 5 Optimised**—Processes have been refined to a level of good practice, based on the results of continuous improvement and maturity modelling with other enterprises. IT is used in an integrated way to automate the workflow, providing tools to improve quality and effectiveness, making the enterprise quick to adapt.

Generic Maturity Model



A Proposed ICT Process Maturity Assessment Framework



ICT PROCESS MATURITY ASSESSMENT

Capability Maturity Assessments

- 1 ICT Planning**
 - 1.1 Define a Strategic IT Plan
 - 1.2 Define the Information Architecture
 - 1.3 Manage the IT Investment
 - 1.4 Manage Projects
- 2 ICT Implementation**
 - 2.1 Acquire and Maintain Application Software
 - 2.2 Acquire and Maintain Technology Infrastructure
 - 2.3 Enable Operation and Use
- 3 ICT Delivery and Support**
 - 3.1 Define and Manage Service Levels
 - 3.2 Educate and Train Users
- 4 Knowledge Sharing**

Capability Maturity Assessments

ICT Planning

ICT Implementation

ICT Delivery and Support

Knowledge Maturity Assessment

Knowledge Sharing

ICT PROCESS MATURITY ASSESSMENT



Examples for ICT PLANNING - Define a Strategic IT Plan

- Sample questions:

Level 2 - Updating of the IT plans occurs in response to requests by management.

Level 3 - IT strategic planning is discussed at business management meetings.

Level 4 – Management is able to monitor the IT strategic planning process, make informed decisions based on it and measure its effectiveness.



ICT PROCESS MATURITY ASSESSMENT

Examples for ICT PLANNING – Manage Projects

- Sample questions:

Level 2 - Senior management gains and communicates an awareness of the need for IT project management.

Level 3 - Senior IT and business management are beginning to be committed and involved in the management of IT projects.

Level 4 – There is strong and active project support from senior management sponsors as well as stakeholders.

Example of ICT Planning Assessment Criteria : Strategic IT Plan



No.	Statement	Exceeded
Level 0 – Non-existent		
1.	IT strategic planning is not performed.	Yes/No
2.	There is no management awareness that IT strategic planning is needed to support business goals.	Yes/No
Level 1 – Initial/Ad Hoc		
3.	The need for IT strategic planning is known by IT management.	Yes/No
4.	IT planning is performed on an as-needed basis in response to a specific business requirement.	Yes/No
5.	The alignment of business requirements, applications and technology takes place reactively rather than by an organization wide strategy.	Yes/No
6.	The strategic risk position is identified informally on a project-by-project basis.	Yes/No
Level 2 – Repeatable but Intuitive		
7.	IT strategic planning is shared with business management on an as-needed basis.	Yes/No
8.	Updating of the IT plans occurs in response to requests by management.	Yes/No
9.	Strategic decisions are driven on a project-by-project basis without consistency with an overall organisation strategy.	Yes/No
10.	The risks and user benefits of major strategic decisions are recognized in an intuitive way.	Yes/No
Level 3 - Defined		
11.	A policy defines when and how to perform IT strategic planning.	Yes/No
12.	IT strategic planning follows a structured approach that is documented and known to all staff.	Yes/No
13.	The IT planning process is reasonably sound and ensures that appropriate planning is likely to be performed.	Yes/No
14.	However, discretion is given to individual managers with respect to implementation of the process, and there are no procedures to examine the process.	Yes/No
15.	IT strategic planning is discussed at business management meetings.	Yes/No

Example of ICT Planning Assessment Criteria : Strategic IT Plan



Level 4 – Managed and Measurable		
16.	IT strategic planning is standard practice and exceptions would be noticed by management.	Yes/No
17.	IT strategic planning is a defined management function with senior-level responsibilities.	Yes/No
18.	Management is able to monitor the IT strategic planning process, make informed decisions based on it and measure its effectiveness.	Yes/No
19.	Both short-range and long-range IT planning occurs and is cascaded down into the organization, with updates done as needed.	Yes/No
20.	There is a well-defined process for determining the usage of internal and external resources required in system development and operations.	Yes/No
Level 5 – Optimised		
21.	IT strategic planning is a documented, living process; is continuously considered in business goal setting; and results in discernible business value through investments in IT.	Yes/No
22.	Risk and value-added considerations are continuously updated in the IT strategic planning process.	Yes/No
23.	Realistic long-range IT plans are developed and constantly updated to reflect changing technology and business-related developments.	Yes/No
24.	Benchmarking against well-understood and reliable industry norms takes place and is integrated with the strategy formulation process.	Yes/No
25.	The strategic plan includes how new technology developments can drive the creation of new business capabilities and improve the competitive advantage of the organization.	Yes/No



ICT Process Capability Maturity Assessment Toolkit

Toolkit as Innovation



- Toolkit available on the web for self assessment by agencies.
- Assessment criteria derived from COBIT (9 out of 34 ICT COBIT processes were selected)
- Knowledge sharing assessment added to the toolkit.
- Cluster the interpretation of the criteria.
- Determination of level based on %(pre-determined) of criteria complied.
- Automatic computation of level achieved.
- Agencies results can be displayed individually, e.g. dashboard.
- Maturity levels indicate capability gaps.
- Recommendations provided to agencies to remedy gaps.
- Gap analysis helps agencies benchmark against best practices.
- ICT benchmarking can enhance performance and service delivery.

TOOLKIT WEB INTERFACE



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http://arcadia.mampu.gov.my/esurvey_cmm_v1/index.php

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INSTRUMEN PENILAIAN KEMATANGAN KEUPAYAAN ICT
ICT CAPABILITY MATURITY ASSESSMENT INSTRUMENT



BORANG MAKLUM BALAS PESERTA

Perkara : Anne
Tarikh : 2011-11-25
Tempat : MAMPU Cyberjaya

Teruskan >>

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EVALUATION CRITERIA : IT STRATEGIC PLANNING (EXAMPLE)



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INSTRUMEN PENILAIAN KEMATANGAN KEUPAYAAN ICT ICT CAPABILITY MATURITY ASSESSMENT INSTRUMENT



B. ICT Planning - Define a Strategic IT Plan

IT Strategic planning is required to manage and direct all IT resources in line with the business strategy and priorities. The IT function and business stakeholders are responsible for ensuring that optimal value is realized from project and service portfolios. The strategic plan improves key stakeholders' understanding of IT opportunities and limitations, assesses current performance, identifies capacity and human resource requirements, and clarifies the level of investment required. The business strategy and priorities are to be reflected in portfolios and executed by the IT tactical plan(s), which specifies concise objectives, action plans and tasks that are understood and accepted by both business and IT. Please answer the following with regards to capability in defining a Strategic IT Plan.

		Respon
1	Perancangan Strategik IT tidak dilaksanakan <i>IT strategic planning is not performed.</i>	Not Complied
2	Pihak pengurusan tidak menyedari kepentingan perancangan strategik IT dalam menyokong fungsi bisnes <i>There is no management awareness that IT strategic planning is needed to support business goals.</i>	Not Complied
3	Pihak pengurusan IT memahami kepentingan perancangan strategik IT <i>The need for IT strategic planning is known by IT management.</i>	Complied
4	Perancangan IT di buat secara ad-hoc atas keperluan bisnes tertentu <i>IT planning is performed on an as-needed basis in response to a specific business requirement.</i>	Complied
5	Pensejajaran keperluan bisnes, aplikasi dan teknologi adalah secara re-aktif dan bukan secara strategi organisasi menyeluruh <i>The alignment of business requirements, applications and technology takes place reactively rather than by an organization wide strategy.</i>	Complied
6	Risiko dikenal pasti secara tidak formal berdasarkan projek <i>The strategic risk position is identified informally on a project-by-project basis.</i>	Complied
7	Perancangan strategik IT dikongsi bersama pihak pengurusan hanya apabila dirasakan perlu <i>IT strategic planning is shared with business management on an as-needed basis.</i>	Complied
8	Pengemaskinian perancangan IT hanya akan dilakukan atas permintaan pihak pengurusan <i>Updating of the IT plans occurs in response to requests by management.</i>	Complied
	Keputusan strategik dibuat secara tidak konsisten berdasarkan projek dan tidak mengambil kira strategi	

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EVALUATION CRITERIA : INFORMATION ARCHITECTURE (EXAMPLE)



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**INSTRUMEN PENILAIAN KEMATANGAN KEUPAYAAN ICT**
ICT CAPABILITY MATURITY ASSESSMENT INSTRUMENT

C. ICT Planning - Define the Information Architecture

The information systems function creates and regularly updates a business information model and defines the appropriate systems to optimise the use of this information. This encompasses the development of a corporate data dictionary with the organisation's data syntax rules, data classification scheme and security levels. This process improves the quality of management decision making by making sure that reliable and secure information is provided, and it enables rationalising information systems resources to appropriately match business strategies. This IT process is also needed to increase accountability for the integrity and security of data and to enhance the effectiveness and control of sharing information across applications and entities. Please answer the following with regards to defining the Information Architecture.

		Respon
1	Tiada kesedaran akan kepentingan arkitektur maklumat untuk organisasi <i>There is no awareness of the importance of the information architecture for the organisation.</i>	Not Complied
2	Pengetahuan, kepakaran dan tanggungjawab yang penting untuk membangunkan arkitektur tidak wujud dalam organisasi <i>The knowledge, expertise and responsibilities necessary to develop this architecture do not exist in the organisation.</i>	Not Complied
3	Pengurusan menyedari keperluan arkitektur maklumat <i>Management recognises the need for an information architecture.</i>	Complied
4	Pembangunan beberapa komponen arkitektur maklumat berlaku secara ad hoc <i>Development of some components of an information architecture is occurring on an ad hoc basis.</i>	Complied
5	Definasi merangkumi data berbanding maklumat dan dipacu oleh perisian aplikasi yang ditawarkan oleh pembekal <i>The definitions address data, rather than information, and are driven by application software vendor offerings.</i>	Complied
6	Wujud komunikasi yang tidak konsisten dan bertaburan bagi keperluan arkitektur maklumat <i>There is inconsistent and sporadic communication of the need for an information architecture.</i>	Complied
7	Kemunculan proses arkitektur maklumat dan serupa, walau pun tidak formal dan intuitif, prosidur dituruti oleh individu yang berbeza-beza dalam organisasi <i>An information architecture process emerges and similar, though informal and intuitive, procedures are followed by different individuals within the organisation.</i>	Complied

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ICT CAPABILITY MATURITY DASHBOARD





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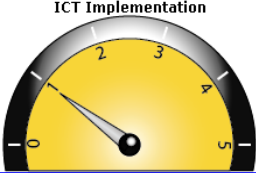
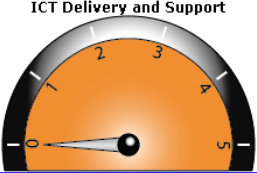

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 **INSTRUMEN PENILAIAN KEMATANGAN KEUPAYAAN ICT**
ICT CAPABILITY MATURITY ASSESSMENT INSTRUMENT 

ICT CM LEVEL ANALYSIS SUMMARY
Agensi A

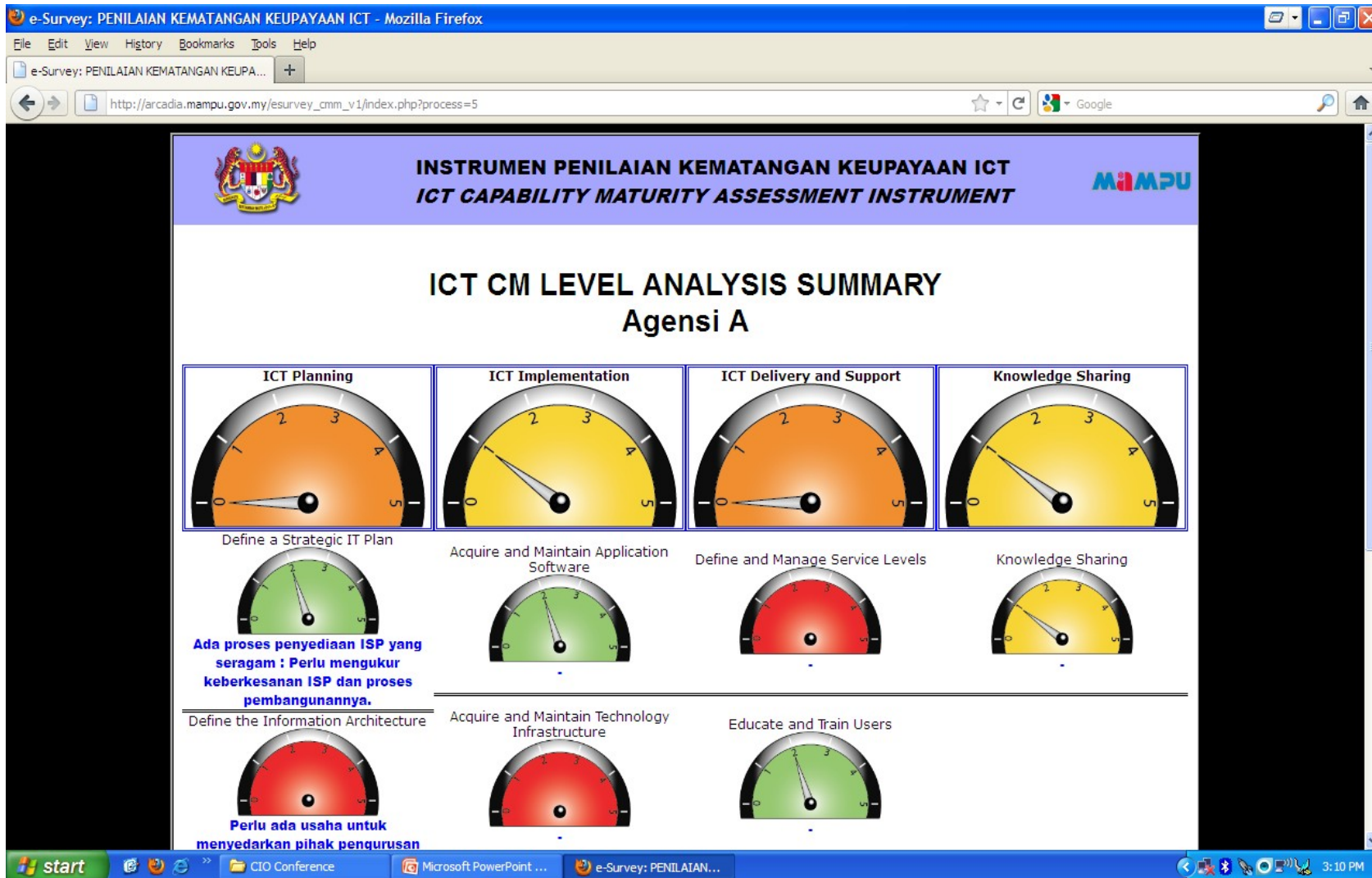
ICT Planning	ICT Implementation	ICT Delivery and Support	Knowledge Sharing
			

Tamat

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ICT CAPABILITY MATURITY GAP ANALYSIS AND RECOMMENDATIONS





TOOLKIT NOW AVAILABLE

URL:http://arcadia.mampu.gov.my/esurvey_cmm_v1/login.php?

Project developed as a seamless collaboration between

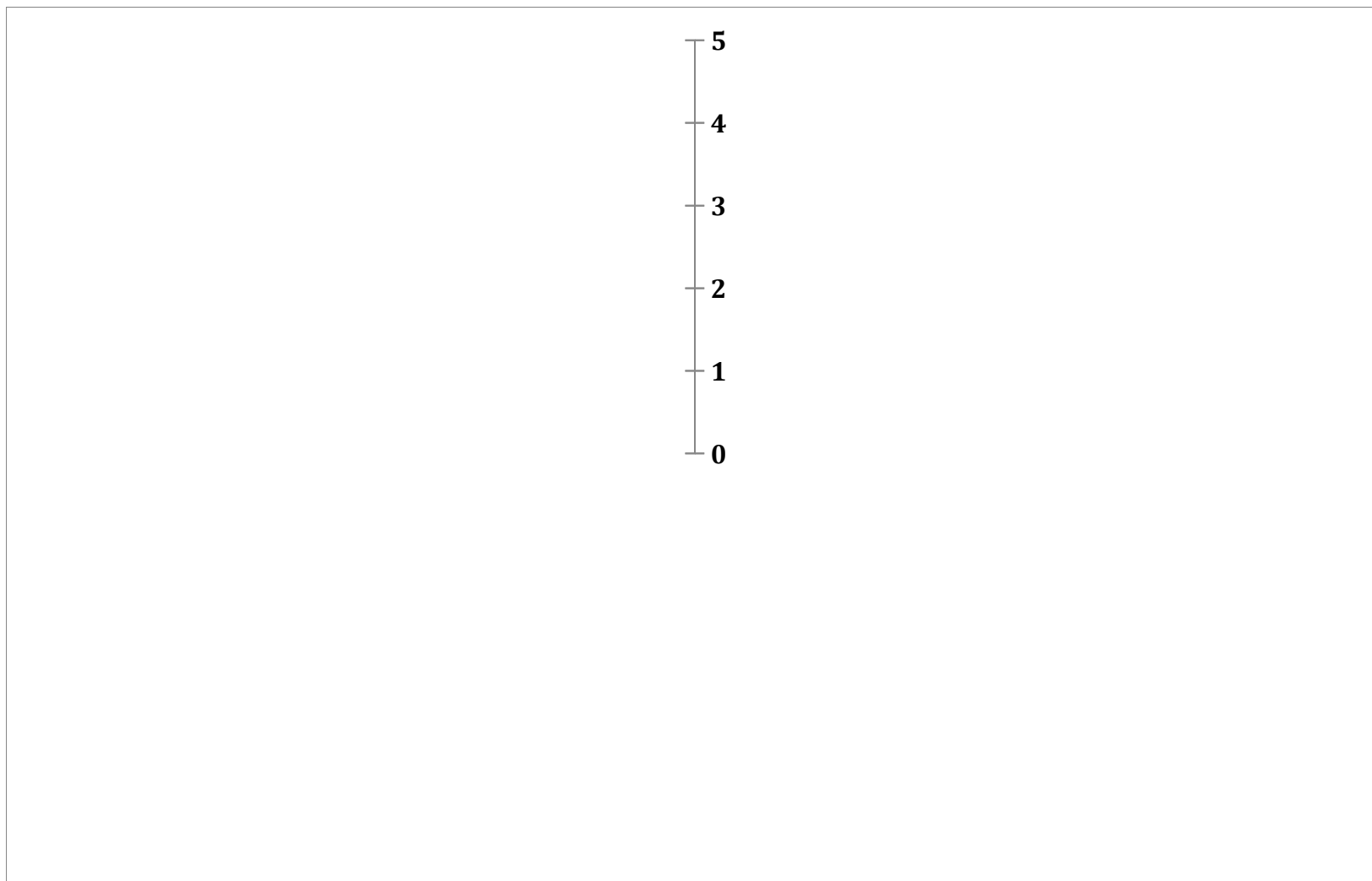
PPICT and STM, BKPSM, MAMPU



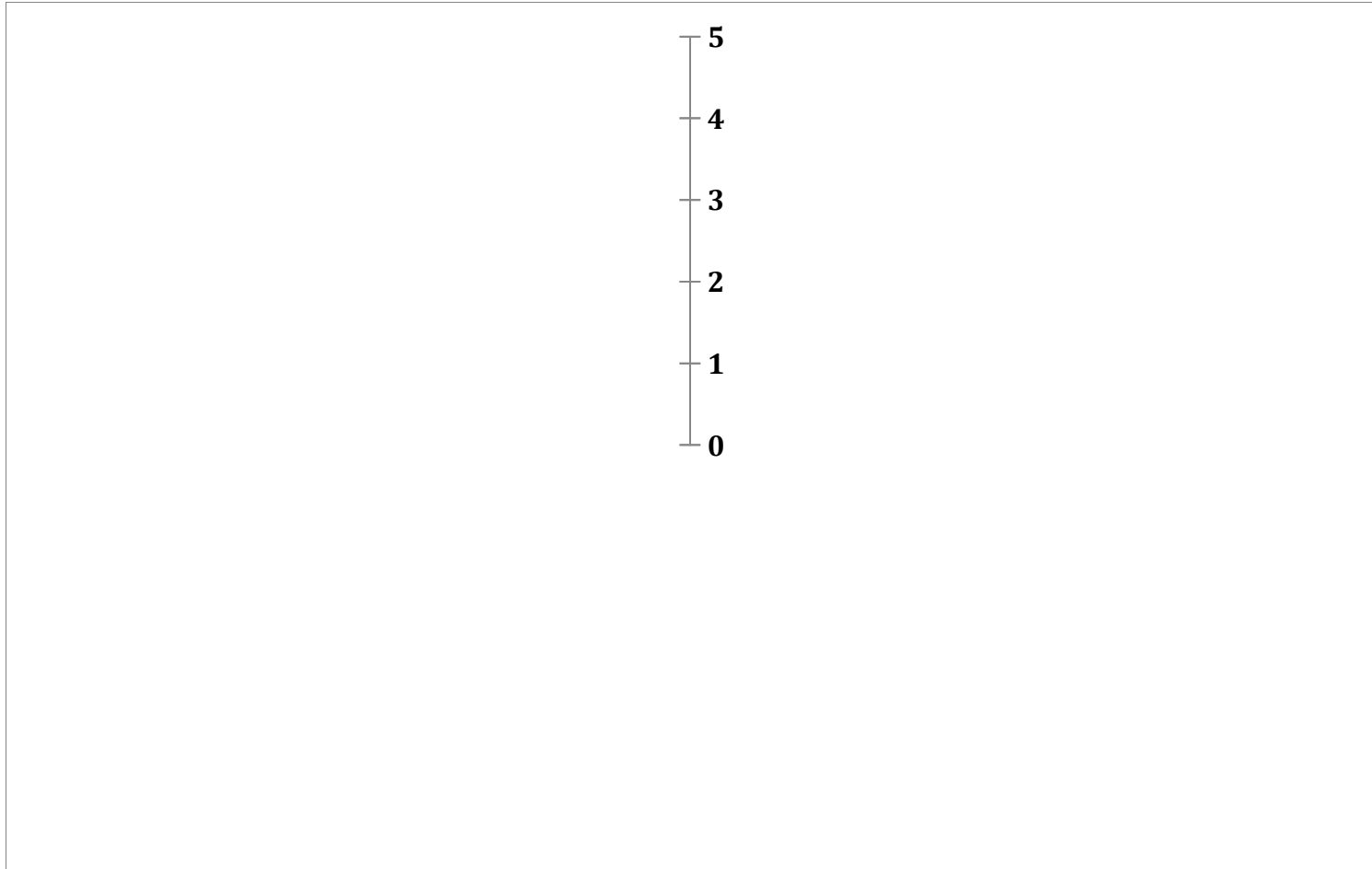
Pilot Assessment: ICT Capability Maturity Criteria Assessment MyGDI Geospatial Agencies



GEOSPATIAL RELATED AGENCIES : FEDERAL



GEOSPATIAL RELATED AGENCIES : STATE



Implications of Toolkit for CIOs



CIOs need to consider evaluating ICT processes:

- **Assess ICT alignment to business**
- **Analyze gaps**
- **Recommendations for ICT process improvement**



Conclusion

- **ICT is a tool that supports business performance.**
- **However, ICT processes also need to be measured to ensure optimum performance enhancement.**
- **Hence, toolkit represents an innovation in the self -assessment of ICT performance.**



TERIMA KASIH
“TOGETHER WE TRANSFORM”