



5th Malaysia Statistics Conference

29 November 2017

Sasana Kijang, Bank Negara Malaysia

2017

From Data to Knowledge : The Journey

Session 2(a): Statistical standard, methodology and application in data management and usage

Enterprise Data Governance for Better Data Management

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5th Malaysia Statistics Conference

Outline of Presentation

- Statistical Information for Decision Making
- BNM's Enterprise Data Governance Framework
- Rethinking Data Governance

Statistical Information and Interlinkages

External Sector Flows and Stock

1. Non-resident Counter Party Profile
 - Name Of Non-residents
 - Non-resident ID
 - Institutional Sector
 - Business Sector
 - Relationship
 - Non-residents
2. Investment Information
 - Type of instrument
 - Original Tenure
 - Date of Issue/Contract
 - Date of Maturity
 - Country
 - Currency
3. External Assets & Liabilities Position
 - Opening Position
 - Transactions
 - Valuation & Other Charges
 - Closing Position
 - Valuation Method
 - Investment Income

Details of Selected Financial Assets and Liabilities

- | | | |
|---|---|--|
| <ol style="list-style-type: none"> 1. Securities <ul style="list-style-type: none"> • Maturity • Financing Concept • Collateral • Lender • Type/Instruments • Rating • Stock • Issuance Date | <ol style="list-style-type: none"> 2. Loans <ul style="list-style-type: none"> • Facility • Sector • Purpose • State • Maturity • Country • Currency • Financing Concept | <ol style="list-style-type: none"> 3. Deposits <ul style="list-style-type: none"> • Customer Type • State • Maturity |
| <ol style="list-style-type: none"> 4. Assets/ Liabilities <ul style="list-style-type: none"> • Fund • Business Class | | |

Financial Assets & Liabilities

- | | |
|---------------|--------------------------|
| 1. Equity | 4. Deposits |
| 2. Securities | 5. Financial Derivatives |
| 3. Loans | 6. Others |

External Sector

Credit

Macroeconomics

- | | |
|------------|-------------|
| • Real | • Financial |
| • External | • Fiscal |

Entity Profiles

- | | |
|-------------------------------------|--------------------------|
| 1. Name | 4. Resident/Non-Resident |
| 2. ID/Registration No. | 5. Corporate Status |
| 3. Nationality/Country of Operation | 6. Industrial Sector |

Credit Information

1. Application Details
2. Loan Details
 - Approval Date/Limit
 - Facility Type
 - Purpose of Loan
 - Financing Concept
 - Repayment Term
 - Interest/Rebate Rate
 - Type of Pricing
 - Maturity Date
3. Account Position
 - Outstanding Balance
 - Months in Arrears
 - Installments In Arrears
 - Amount Undrawn
 - Account Status
 - Loan Sold to Secondary Market under SBBA
 - Amount Disbursed
 - Amount Repaid
4. Provision
 - Impaired Loan Tagging
 - Month In Arrears
 - Principal Outstanding
 - Interest/Income Outstanding
 - Other Charges
 - Individual Impairment Provision
 - Impaired Loan Written-back/Written-off
5. Account Collateral
6. Legal Action

Usage of Statistics for Decision Making

Monetary Policy & Economic Development

1. Promote monetary stability and ensure availability of adequate credit to finance economic activities
2. Provide research support and advice on growth-related issues to the Government

Investment & Operations

1. Manage domestic liquidity and exchange rates
2. Manage external reserves to safeguard its value
3. Provide advice and assistance to the Government in the area of debt and fund management

Regulation

1. Promote and ensure financial stability
2. Provide competitive environment for local financial industry to be resilient
3. Lead initiatives to enhance access to financing
4. Formulate policies and strategies towards building and positioning Malaysia as a premier integrated Islamic Financial Centre
5. Enhance the financial capability of consumers

Payment Systems

Develop policies and strategies to promote reliable, secure and efficient clearing, settlement and payment systems in the country

Supervision

Develop, enhance and implement an effective surveillance framework to ensure safety and soundness of financial institutions and to enforce sound practices in them

What is Enterprise Data Governance?

- Set of policies, procedures and processes and standards to ensure data are formally managed and utilised throughout enterprise
- Convergence of data management, business process management, risk management and change management surrounding the handling of data
- A framework that supports the continuous need to improve the quality, consistency, usability, security and availability of data

Guiding Principles

Principles	Description
Data as an enterprise asset	Data shall be owned and managed like any other assets in the Bank with a lifecycle
Standardised data definition and standards	Data shall be defined in accordance with applicable industry standards and standardised across the Bank
Single data source	Data shall have an identified primary source
Data quality and integrity	Data quality shall be preserved through active management of data accuracy, integrity and consistency
Data ownership	Data ownership shall be clearly designated and the designated owner of data is responsible for its quality, currency and timeliness
Access and security	Authorised users shall be able to access and process data in a controlled and secured manner
Confidentiality	The confidentiality and privacy of information shall be maintained in accordance with relevant legislations and policies of the Bank

Enterprise Data Governance Framework

Quality of Statistics (Value Proposition)

Timeliness

Relevance

Credibility

Coherence

Accessibility

Confidentiality

Auditability

Organisation

- Oversight Committee
- Roles & Responsibilities

Policies & Procedures

- Data Needs Management
- Data Architecture Management
- Metadata Management
- Reference and Master Data Management
- Data Quality Management
- Data Privacy and Security Management
- Data Retention and Archival Management

Standards

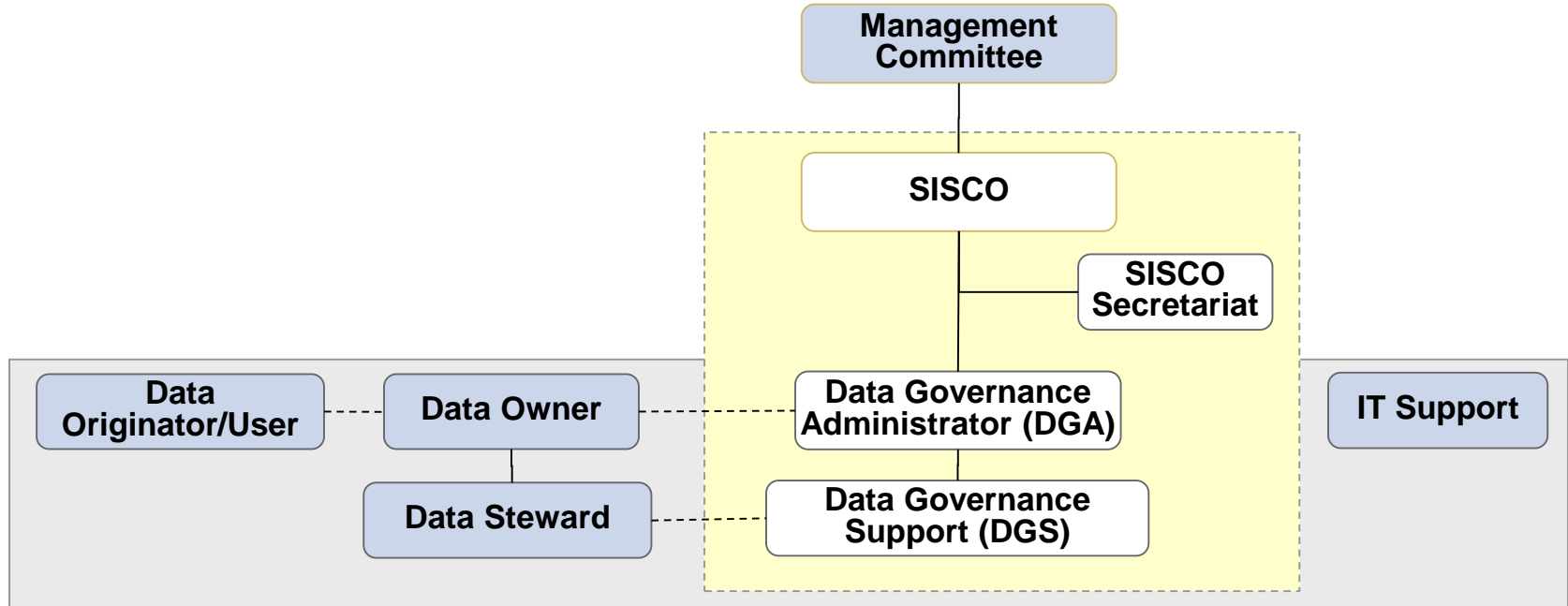
- Metadata
- Reference Codes
- Master Data
- Technology

Technology/Infrastructure/System Integration

Legislation

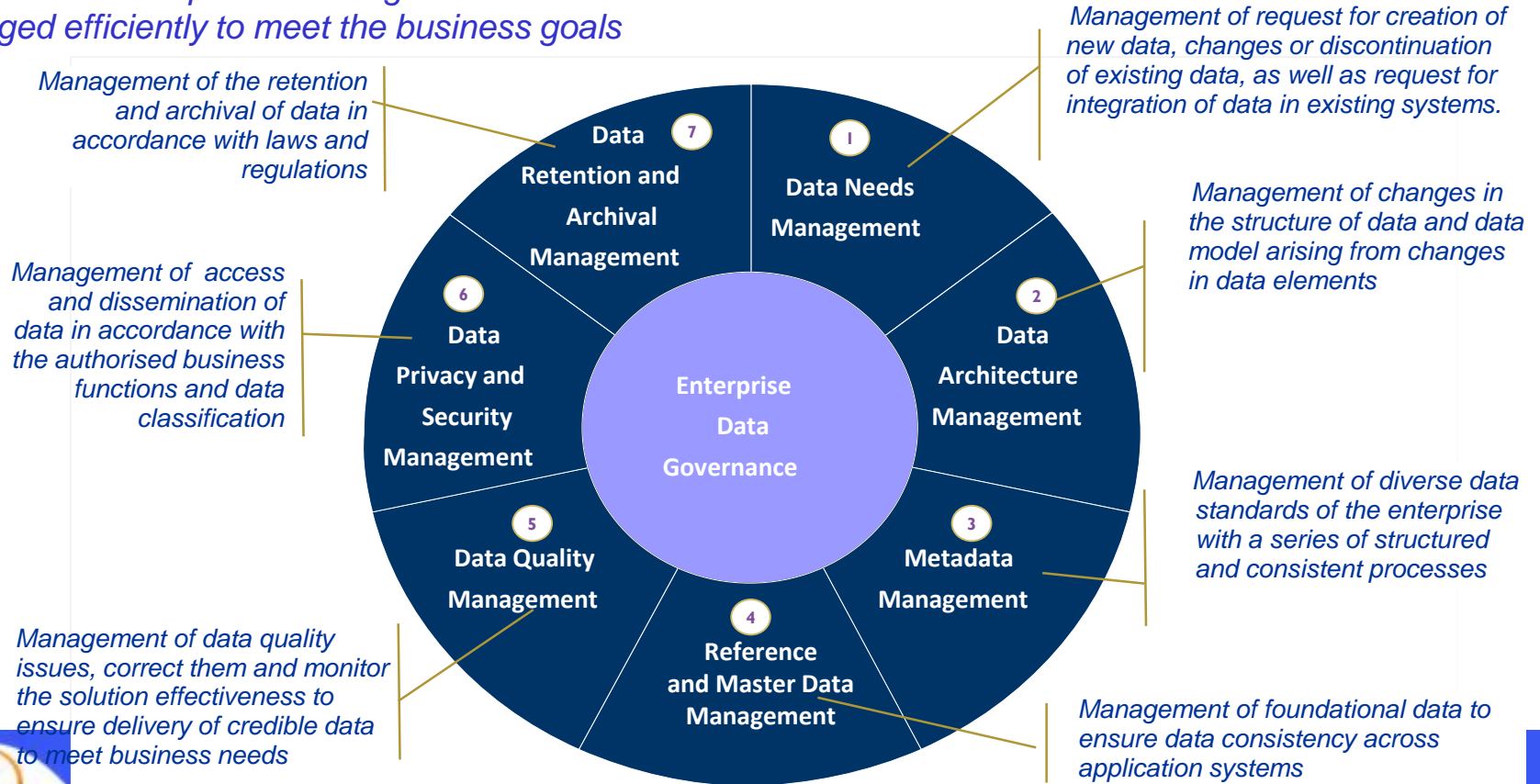
Roles and Organisation Structure

Adopt a centralised data governance structure with clear responsibility and accountability....



Key Components in Data Management

Data Governance provides the guidance to ensure that data is managed efficiently to meet the business goals



Data Needs Management... instil discipline in data requests

Data Needs Management – Data Request

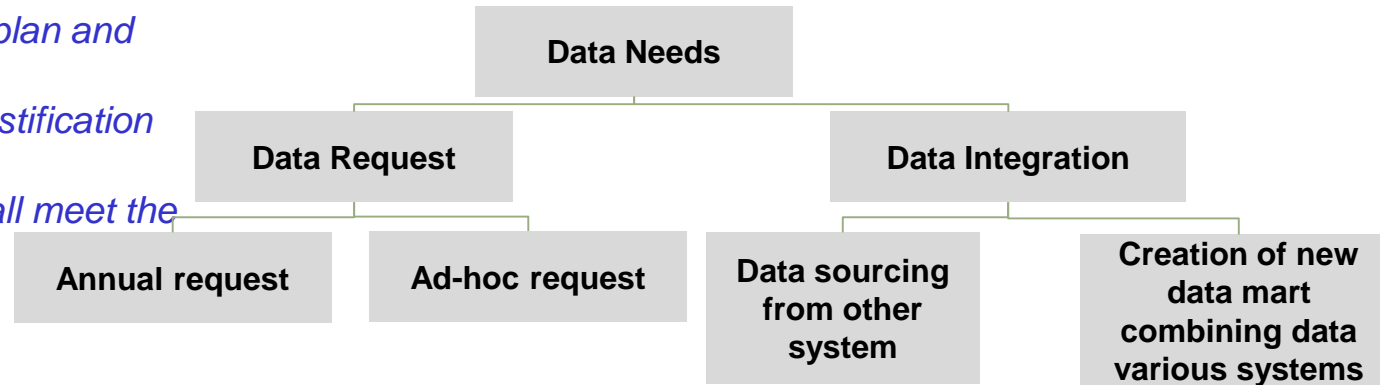
Policy 1 - All data requests shall be aligned with the Business Plans and mandate of the Bank

Data Needs Management – Data Integration

Policy 2 - The integrity and confidentiality of the source data shall be maintained and protected at all times for any data integration

Key highlights on procedures:

- i. DGA and DGS assess, plan and manage data request
- ii. Data request requires justification and relevant approval
- iii. Ad-hoc data request shall meet the specified criteria



Data Architecture Management... establish blueprint of data structure

Data Architecture Management

Policy 3 - Data model shall conform to the underlying data structure, and consistently maintained to ensure accuracy, relevancy and completeness

Key highlights on procedures:

- i. Maintenance of Data Modelling Standards, with reference to Metadata and Master Data*
- ii. DGA and DGS to conduct impact assessment any request on changes or creation of new model*

Frameworks/standards that serve as basis for BNM data modelling:

- Financial reporting standard
- Basel Accord/IFSB Capital Adequacy Standard
- IMF Balance of Payment Manual
- IMF Guides on External Debt Statistics and International Investment Position
- BIS Guide to the International Banking Statistics

Metadata Management... manage business and technical metadata

Metadata Management

Policy 4 -

- a. There shall be one single business vocabulary with consistent data name and definition for all data
- b. Metadata shall be documented, managed and utilised adhering to a set of predetermined standards and control

Components	BUSINESS METADATA				TECHNICAL METADATA
	Data Dictionary	Data Category	Data Code	Business Rules	
Elements	<ul style="list-style-type: none"> • Data Name • Data Definition • Semantics • Data Frequency • Creation Date • Start Reporting Date • End Reporting Date 	<ul style="list-style-type: none"> • Data Classification • iSEC Classification 	<ul style="list-style-type: none"> • Basic Item Code • Common Data Code 	<ul style="list-style-type: none"> • Derived Formulae • Verification Rule • Validation Rule • Mapping Specification 	<ul style="list-style-type: none"> • Application Name • Data Owner • Operating System • Database Type • Server Name • Table Structure

Master Data Management... maintain one set of reference and master data

Master Data Management

Policy 5 -

- a. There shall be one set of reference and master data used across various systems in the Bank
- b. Reference and master data shall be managed and utilised adhering to a set of predetermined standards with structured and consistent controls

Master Data maintained in MDM:

- Business Registration Number (SSM)
- Individual Identification Card Number (NRD)
- Financial Institution Code (standard established by BNM)

Reference Data maintained in MDM:

- Country Code (ISO)
- Currency Code (ISO)
- Sectorial Code (MSIC)

Data Quality Management... produce credible data for stakeholders

Data Quality Management

Policy 6 -

- a. Data Owner and Data Steward shall be responsible for the quality of data disseminated to Data User
- b. Only data with a pre-determined degree of acceptability and quality is allowed into the Bank's environment and accessible by Data User

Data Provider	System	Data Compiler	Data Quality Review Panel	User
<ul style="list-style-type: none"> • Comply with the reporting guidelines provided by Bank Negara Malaysia • Understand system functionalities and reporting requirements • Conduct internal validation to ensure data accuracy and consistency • Rectify data errors identified or rejected by system and Bank Negara Malaysia 	<ul style="list-style-type: none"> • Develop validation rules in submission system • Perform data validation check • Generate data processing and validation result • Return data errors to reporting entities 	<ul style="list-style-type: none"> • Perform data quality checks via micro and macro analysis • Engage and train reporting entities on reporting requirements • Enhance system to incorporate additional validation rules, where necessary • Update reporting guidelines to enhance clarity on reporting requirements 	<ul style="list-style-type: none"> • Provide independent assessment on data quality • Ensure consistency of data with other indicators and economic/financial developments 	<ul style="list-style-type: none"> • Highlight outliers in data compiled during analysis and research • Ensure data align with international reporting standards (e.g. IFRS and BPM) and policy guidelines

Data Privacy and Security Management... manage data access and dissemination

Data Privacy and Security Management – Data Access

Policy 7 -

- a. Confidentiality of data shall be observed at all times and only authorised users shall have access to the data in the application systems
- b. Modification to the data in the application systems shall be effected by authorised users only
- c. Data shall be accessible and available to authorised users whenever required

Data Needs Management – Data Dissemination

Policy 8 - The dissemination of data shall be authorised by the relevant authorities in the Bank to facilitate business functions or any other reasons as deemed appropriate by the Bank

Key highlights on procedures:

- i. Access to data facility or data release to external parties require prior risk assessment*
- ii. Access to data shall be reviewed periodically*



Data Retention and Archival Management... weigh cost vs. value of data

Data Retention and Archival Management

Policy 9 -

- a. All data shall be retained and archived in accordance with an established schedule
- b. All archived data shall be retrievable in a readable format at any time

Key highlight on procedures:

- i. Establishment of Data Retention and Archival Schedule by Data Owner in consultation with Data User*
- ii. Review of schedule on annual basis*

Regulatory references on retention and archival:

- National Archives Act 1966 in particular Section 8
- Limitation Act 1953 in particular Section 6
- Evidence Act 1950
- Income Tax Act 1967 in particular Section 82
- Companies Act 1965 in particular Section 167
- Employment Act 1955 in particular Section 61
- Treasury Circular No.150

Rethinking Data Governance

- Decentralisation (use of clouds etc.) and democratisation of data (through self-service BI, visualisation), with high velocity and variety
- Advanced analytics-driven environment which require fast insight from data
- Maintaining data privacy, quality and integrity with the advent of network storage and new technology trends

Thank You