Agenda

1. Outcome Based Budgeting – An Overview
2. Key Challenges
3. MyResults – An Integrated Solution to address challenges
4. Technology Stack
5. National Budget Book 2021
6. Monitoring & Analytical Dashboards
7. World Bank Report
8. Quick Demo
9. Q&A
Outcome Based Budgeting - Overview

OBB shifts planning paradigm by focusing on achieving outcome at **LOWEST** cost and at **SHORTEST** possible time.

Good budgeting is a way of ensuring limited resources are allocated only where there are priorities.

**Situational Analysis**
Political, Economical, Social, Technological
**Outcome Based Budgeting - Overview**

**Figure 1. Results Framework and Performance Agreement Under OBB**

- **National Level Results Framework**
  - National Strategic Thrusts
  - National Key Results/Focus Area
  - National Outcome
    - Key Performance Indicator

- **Ministry Level Results Framework**
  - Ministry’s Outcome
    - Key Performance Indicator
    - Program (of intervention)

- **Program Level Results Framework**
  - Program Outcome
    - Key Performance Indicator
    - Activity

- **Activity Level Results Framework**
  - Activity Outcome
    - Key Performance Indicator
    - Activity Output

- **Malaysia’s 5-Year Development Plan**

- **Ministry Executive Summary (MES)**

- **Programme Performance Management Framework (PPMF)**

- **Activity Performance Management Framework (APMF)**

**National Strategic Thrust**
- Enhancing Inclusiveness Towards an Equitable Society

**Key Results/Focus Area**
- Uplifting B40 Households Towards a Middle-class Society

**National Outcome**
- Size of Middle-class Households Increased

**MINISTRY**
- Ministry of Agriculture and Agro-based Industry
- Ministry of Rural and Regional Development

**Ministry’s Outcome**
- Competitive and Sustainable Agrofood Development
- Sustainable Rural Development

**PROGRAM (of intervention)**
- Agropreneur Development and Agrofood Industry
- Rural Economic Empowerment

**ACTIVITY**
- DE (coordinated DE & OE)
  - Construct irrigation
  - Construct farm access roads
  - Agriculture R&D

- OE
  - Training to farmers
  - Provision of inputs
  - Emoluments

- DE
  - Construct rural roads
  - Provide skills training

- OE
  - Rural Economy Funding Scheme
  - Rural utilities provision

Key Challenges

Capture & Monitor Performance & Budget Plan Data from 27 Ministries

To link & View Visually
- Performance Indicators (KPIs)
- Budget Allocation
- Actual Expenditures
- Outcomes & Outputs

Link Ministry Outcomes to National Outcome

Short Budgeting Cycle
Feb to Oct (6 - 8 months)
- Ensure Accessibility of System on 24 x 7
- 1 Month to Capture Data

• 19 National Outcome
• 27 Ministry - 64 Outcome
• 234 Program - 159 Outcome
• 1066 Activities - 1058 Outcome
• 6400 Projects

• Capture & Monitoring Performance Results
• Aggregation of Financial Data in near Real Time
• Integrated with Actual Expenditure
• Track Development Projects

• Transparency
• High Security
• Data Accuracy
• Reporting & Dashboarding
• Online Approval Workflow
3 Dimensions Of The Budget Transformation System

• **Budget Model And Framework** program-activity structure, vertical and horizontal linkages;

• **People And Stakeholders** involved in the budget process – change management, capacity building, enhanced accountability through greater empowerment to the KSUs; and

• **Management Information System** to complement M&E, as well as the Decision Support System through which OBB is applied and managed
Solution To Address Key Challenges

- Efficient Algorithm To Aggregate Data
- In-memory Architecture To Ensure Speed
- Graph Database To Link KPI, Output & Outcomes
- Ensure Bidirectional Linkage Topdown & Bottomup
- Accessible 24 hours/7 days a week
MyResults Modules – 12 Integrated Key Modules

Results Framework
- National
- Sector
- Ministry
- Program
- Activity
- Sub-Activity

Budget Submission
- Sub-Activity
- Activity
- Program
- Ministry

Budget Review
- Budget Review officer
- National Level

Integration
- National Project
- Real Expenditures

Budget Management
- Sub-Activity
- Activity

Reporting
- National
- Sector
- Ministry
- Program
- Activity
- Sub-Activity

Automated Budget Book Generation
- Designer
- Templates
- Generation

Cash Flow
- Sub-Activity
- Activity

Dashboard
- National
- Sector
- Ministry
- Program
- Activity
- Sub-Activity

Amendable Budget Book
- Operating Expenditures
- Development Expenditures
- Establishment

Admin Management
- User & Role Management
- Ministry, Program, Activity
- Outcome & Output
- Stakeholder
- Vision & Mission
- Year End Processing

Monitoring
- National
- Sector
- Ministry
- Program
- Activity
- Sub-Activity

Cash Flow
- Sub-Activity
- Activity
MyResults Technology Stack

UI Rendering
Presentation Layer & Business Logic

CACHE
Better & faster Performance

Business Intelligence
Large Data & Dashboarding

GRAPH DATA STORE
In Memory – ThinkerPop for Data Relationship

Object Relationship Mapping
What is ORM?

- Relational Database
- Objects
- Mapping between Relational Database and Objects
National Expenditure Disbursement Forecast 2021

Monitoring & Analytical Dashboards
“MyResults is an online application that is intended to eventually serve as a complete, integrated results and budget management information system.”

“MyResults system as a way to automate production of the annual budget book, and to reduce many of the heavy manual processes”

“Malaysia’s OBB is a good example of how a country can successfully link high-level national strategies to specific budget programs and activities using a common results framework to define accountability”

“The design of a comprehensive IT system to support OBB reflected foresight”
Budget Overview - Malaysia’s Budget Reform Initiative

1957-1968

Traditional

- Detailed Control & Discipline

1969-1990

Program Performance Budgeting System (PPBS)

- Program & Performance
  - Program Performance
  - Program-Activities
  - Performance Indicators
  - Evaluation

1990-2012

Modified Budgeting System (MBS)

- Accountability, flexibility & delegation
  - Disaggregated Budget
  - Budget Ceilings
  - Program Agreements
  - Exceptions Reporting
  - Evaluation

2012-

Outcome Based Budgeting (OBB)

- Integrated approach
  - Integration
  - Alignment
  - Budgeting for Results
  - Results Reporting
  - Evaluation
Outcome Based Budgeting

OBB links national transformation pillars from implementation to results
<table>
<thead>
<tr>
<th>Type</th>
<th>Technology</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>UI Rendering</td>
<td>HTML5, JavaScript, Jquery</td>
<td>Render all UI client side into HTML 5 and CSS 3 from server side JSON objects.</td>
</tr>
<tr>
<td>REST API</td>
<td>Tomcat, with Spring MVC</td>
<td>Provides JSON APIs to manage the data as well as administration APIs.</td>
</tr>
<tr>
<td>Middleware Services</td>
<td>JBoss, Stateless EJBs</td>
<td>All middleware services are deployed as J2EE services in JBOSS, leveraging the reliability of the J2EE infrastructure</td>
</tr>
<tr>
<td>ORM</td>
<td>Hibernate</td>
<td>Manages the storage and retrieval of data from relational databases</td>
</tr>
<tr>
<td>Caches</td>
<td>Redis and Memcache</td>
<td>MyResults components use Memcache distributed cache. ETL uses Redis as a working store</td>
</tr>
<tr>
<td>Workflows</td>
<td>Activiti</td>
<td>Scorecard &amp; Budget planning and monitoring workflows</td>
</tr>
<tr>
<td>Event Distribution</td>
<td>JMS – ActiveMQ</td>
<td>Used for dispatching event notifications across components</td>
</tr>
<tr>
<td>Relational Data Store</td>
<td>Oracle</td>
<td>Stores all the metadata, organization data, strategy data and KPI data</td>
</tr>
<tr>
<td>Graph Data Store</td>
<td>Oracle for persistence TinkerGraph (in-memory)</td>
<td>Stores the org structure, user relationships, strategy cascade relationships</td>
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