ARCHITECTING DIGITAL TRANSFORMATION

Elevating Business Value of Digital through Business Capabilities

PETRONAS - Nurhana Mohd Basri
Arief Budiman Hermani & Selahattin Aksoy

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OUTLINE

ARCHITECTING DIGITAL TRANSFORMATION

START
Why . How . What

ARCHITECTURE
Model . Map

VALUE
Value . Next
The “WHY”… Starting Point

NEW WAY OF WORKING

Business Architecture Model

lay on it the technology dimension and use the model in an innovative manner

DIGITECH vision

TRANSFORM into a digitally enabled business

PRIORITIZE DIGITAL INITIATIVES that integrate workflows, through a structured and agile BUSINESS VALUE estimation methodology
The “HOW”… Architecture Standard

TOGAF Architecture Content Aggregation … EA Model

TOGAF Architecture Development Model (ADM) … ITERATIVE Approach
The “WHAT”… Business Capability Model

1. Strategy & Business Criticality
   *Business Capability Criticality*

2. Business Outcomes & Perform. Metrics
   *Measure business value*

3. Applications
   *Support digitalization & requirement to deliver business capabilities*

4. Data Objects & Interfaces
   *Exchange Data between applications*

5. Processes & Workflows
   *Requires by business capabilities*

6. Business Units & Teams
   *Deliver processes and capabilities, supported by technology*

7. Roles & Skillsets
   *Affected by on-going or planned changes*

8. Digital Opportunities
   *Business efficiency improvement opportunities*

9. Digital Initiatives
   *Approve for development / deployment*

10. Digital Maturity
    *Deliver business capabilities*

**BUSINESS CAPABILITY MODEL**

- 5 Level Business Capability Hierarchy map
- 7 Domain L1 business capabilities
- 450 Business Capabilities (L1-L4)

**CAPABILITY... “Ability to do something”**

Business capabilities represents abilities that an enterprise has at its disposal to run its businesses.
The “MODEL”… Architecture Components

Business Capability (L1-Ln)

- Exploration History Analysis
- Reservoir Analysis
- Drilling and Completion Analysis
- Production and Development Analysis
- Production Management
- Upstream Engineering

Application & Interface

- APM ENGENHEIRNG/HYSYS
- CHD 2022
- ECUPS 2019
- HYSYS
- INTERACT 2019
- GAP
- MIBAL
- MERAK PEE
- OILGE 2020.1
- RPEGA Version 2018.1

Data Objects

- Petroleum

Business Workflow (L1-Ln)

- Project Hopping
- Project Conversion
- Procurement
- Engineering

Business Unit / Team (L1-Ln)

- Engineering
- Procurement
- Operations
- Risk & Assurance
- Exploration
- Production
The “MODEL”... Interconnected Architecture Map
The “MAP”... Application & Team to Bus. Capability

Who is using what application to deliver which business capabilities

UPSTREAM

Reservoir Engineering

Pressure Analysis
Techlog
Petrel
KAPPA

Reservoir Characterisation
Techlog
Petrel
tNavigator

Reservoir Simulation
tNavigator
Petrel
ECLIPSE
Res Eng Plus
tNavigator
INTERSECT

Business Capability
Application
Development
International Asset
Country B
Country A

Data

Business Unit / Team

On-prem
Cloud SaaS

Cloud SaaS

Delphi Petrotechnical Suite

Geology Plus
Geophysics Plus
Oil
Petrophysics Plus
Reservoir Engineering Plus
Techlog

1 Business Capabilities
1 Parents
8 Requires

12 Data Objects
6 User Groups
6 Business Capabilities

EOR/IOR
Resource Management
Petroleum Engineering

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# The “VALUE”….. Project Business Value Estimation

**Project**: RE Vision 2025  
**Objectives**: Improve workflow efficiency & Upgrade to cloud SaaS technology with embedded AI & ML

<table>
<thead>
<tr>
<th>BUSINESS CAPABILITY</th>
<th>Current State</th>
<th>Future State</th>
<th>Business Value²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Objective</td>
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<td>User Count</td>
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<tr>
<td><strong>RESERVOIR ENGINEERING</strong></td>
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<td>Coupled Modelling</td>
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<td>4.3</td>
<td>20</td>
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<td>3D Geomechanical Coupling</td>
<td>5 TopReservoir Software</td>
<td>OnPrem .Net + Oracle DB</td>
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<tr>
<td>Geochemistry Coupling</td>
<td>5 TopReservoir Software</td>
<td>OnPrem .Net + Oracle DB</td>
<td>2</td>
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<tr>
<td>Reservoir Coupling (simulator)</td>
<td>2 TopReservoir Software</td>
<td>OnPrem .Net + Oracle DB</td>
<td>4</td>
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<tr>
<td>Reservoir to Network Coupling</td>
<td>3 TopReservoir Software</td>
<td>OnPrem .Net + Oracle DB</td>
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<tr>
<td>Enhanced Recovery and Storage</td>
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<td>Chemical and Microbial EOR</td>
<td>4 CMI Software</td>
<td>CMI Group SaaS</td>
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<tr>
<td>CO2 and Gas Storage</td>
<td>5 Excel</td>
<td></td>
<td>7</td>
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<tr>
<td>EOR Data Acquisition</td>
<td>5 Excel</td>
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<tr>
<td><strong>Overall Functional Fit¹</strong></td>
<td>2.79</td>
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<td>3.86</td>
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</tbody>
</table>

**NOTE**:  
1) Functional fit is factoring in business criticality scoring for every business capability.  
2) Other potential benefits: enhanced rig time, Facility shutdown avoidance, Improved Production, etc.  
3) Simple model above excludes deployment, software differential costs and any physical device installations.

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The “NEXT”….. Potential EA program extension

Full Architecture Map
includes business outcomes & performance metrics
measuring business value and its relationship to long-term
business targets

Digital Maturity Assessment
uncover value from identified potential area for business
capability efficiency improvement

Auto Generated Dashboards
View information from different persona perspective

Platform Integration
Integration the EA platform to existing systems of records
such as process modeler, data taxonomy portal, infrastructure components database

Automated identity management
Compute authorization profile and assign access in target
systems based on organizational assignment

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THANK YOU

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