EA在資訊系統發展的應用與前瞻
An Overview of Enterprise Architecture in Information System Development

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• Introduction
• Evolution of EA
• How to build an EA system
• EA systems in Taiwan
• Summary
Existing processes are often difficult, expensive and slow to change
Current IT architectures do not adequately support the achievement of business initiatives.

- Flexible Business needs a flexible IT environment
  - Negative impact on time to market, cost base, compliance and competitive position
  - Inflexible and difficult to adapt
  - Complex and heterogeneous
  - Silo Applications
  - Account based
  - Costly to modify and maintain
  - Difficult to respond quickly to changes
The challenge is to link people, process, and information with flexibility
Enterprise Architecture Solutions
EA 規劃就像市政發展需要先規劃出市政藍圖一樣

The blueprint for a city plan and its various components share a common structure.
Service Oriented Architecture aligns both Business and IT Architectures, providing the “city plan” for “building projects”.

SOA is the “city plan” for Enterprise IT
- Standards
- Guidelines
- Exceptions, etc.

Enterprise Architecture
“the city plan”

System Architecture
- functional aspects
- operational aspects
  “the infrastructure and single building design”
Enterprise Architecture

• "enterprise architecture" is a reference to a *business team* that uses EA methods to produce architectural descriptions of the structure of an enterprise.

• **Enterprise Architecture** is the organizing logic for business processes and IT infrastructure reflecting the integration and standardization requirements of the firm’s operating model.[1]

• Enterprise Architecture describes enterprise applications and systems with their relationships to enterprise business goals.
Evolution of Enterprise Architecture

• Enterprise Architecture started with the John Zachman Framework in 1987 which provides a formal and highly structured way of viewing and defining an enterprise.

• Earliest implementation of an EA framework was the "Technical Architecture Framework for Information Management" (TAFIM) in 1991 with the TAFIM Technical Reference Model (TAFIM TRM). The TRM model uses open systems to develop a DoD-wide application.

• The TOGAF TRM was originally derived from the TAFIM, which uses to construct an information processing system, including consumers, system integrators, application developers, system providers, and procurement agencies.
• The first version of the originally called "Information Systems Architecture Framework" presented by John Zachman in 1987.
Zachman Framework with an explanation of its row

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<th>Row 2 – Enterprise Model</th>
<th>Row 3 – System Model</th>
<th>Row 4 – Technology Model</th>
<th>Row 5 – As Built</th>
<th>Row 6 – Functioning Enterprise Evaluation</th>
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• In recent years, EA brings together business models (e.g. process models, organizational charts, etc.) and technical models (e.g. systems architectures, data models, state diagrams, etc.) it is possible to trace the impact of organizational change on the systems, and also the business impact of changes to the systems.

• As this benefit has emerged, many frameworks such as DoDAF, MODAF, or AGATE have adopted a standard meta model which defines the critical architectural elements and the dependencies between them.

TOGAF: The Open Group Architecture Framework
FEAF: Federal Enterprise Architecture Framework
TEAF: Treasury Enterprise Architecture Framework
## Evolution of EA

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<thead>
<tr>
<th>e化政府</th>
<th>2001年1月1日</th>
<th>2002年1月1日</th>
<th>2003年8月1日</th>
<th>2005年1月1日</th>
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<tr>
<td>e化政府之FEA</td>
<td>FEA PMO頒佈</td>
<td>FEA PMO頒佈PRM</td>
<td>FEA開始執行</td>
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<th>聯邦政府</th>
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<th>1999年1月1日</th>
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<th>2004年1月1日</th>
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<td>Zachman Framework</td>
<td>FEAF</td>
<td>Clinger-Cohen Act</td>
<td>OMB A-130發展FEAF</td>
<td>財政部發展TEAF Coast Guard加入EA計畫</td>
<td>Customs &amp; Border Protection發展EA</td>
<td>DHS發展EA</td>
<td>強制發展FEAF</td>
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<th>2002年4月1日</th>
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<tr>
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<td>第一版</td>
<td>C4ISR架構框架</td>
<td>主財管理計畫(FMFP)</td>
<td>FMEA財務管理架構框架</td>
<td>GIG ES辦公室編成</td>
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How can we build a SOA system?
The heart of IBM SOA is business agility. Business process re-engineering and business process management is the first step.

**Assemble**
Assemble existing and new assets to execute and manage business processes.

**Model**
Capture, simulate, analyze, and optimize business processes to reduce risk and increase flexibility.

**Governance & Processes**
Alignment of strategy and operations across business and IT in support of business objectives.

**Deploy**
Deployment of models, policies and assemblies to realize business intent.

**Manage**
Real-time visibility and analysis of business information for timely and coordinated action.
Design and Implementation a SOA system

Phase 0
專案啟動

A. Build Project Team & Plan
B. Confirm L1/L2 Business Process
C. Project Team Orientation

Milestone 1 Steering Committee Review

D. Confirm As-Is Business Process
E. Confirm Business Strategy
F. Confirm IT Strategy
G. Define EA Principles
H. Confirm Current IT Environment

Conduct QA Meeting

Phase 1
現行業務流程規劃

Phase 2
未來業務流程及IT架構規劃

Phase 3
差異分析及轉移計畫

I. Define To-Be Business Process
J. Define App. Architecture
K. Define Data Architecture
L. Define Tech. Architecture

M. Analyze Gap with RFP
N. Define Transition Plan
O. Prepare Final Deliverables

Conduct QA Meeting

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Conduct QA Meeting
SOA以業務導向的規劃方法，逐步設計以服務為導向的企業架構

1. Enterprise Business Process Design
2. Business Components Identification
3. Service Identification and assign to Components
4. Business Object Identification
5. Application Identification
6. Map Components onto Deployment Units (DU) and place on Nodes

Courtesy by IBM
業務流程規劃之結果，產出使用者案例(Use Case)清單，以便作為後續之系統分析與設計工作(System analysis & design)基礎

- 分析 Sub-Process 中所包含之 Activity，定義出 Business Use Case
- 可進一步由 Business Use Case 中分析出一至多個 System Use Case
SOA 規劃之交付成果，將作為各應用系統分析設計之基準以及統一的規範
EA systems in Taiwan

- 註冊、目錄服務
- 領域資料整合
- 入口網站、付費服務
- 資料複製
- 網站整合
- 申辦
- 作業
- 審查
- 檢索
- 管理
- 知識運用
- 行政作業自動化
- Portal e-Filing e-Exam Search e-Publishing KM MIS
- 業務流程管理 (BPM) [SI] 應用系統整合 (EAI) [I3] B2B 電子商務 [LI]
- 業務功能架構
- OMB FEA – Business Reference Model
- 網路整合
- 資料整合
- 知識運用
- 管理
- 規範
- 管理
- 資料複製
- 網站整合
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- 資料整合
- 知識運用
- 管理
- 規範
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- 參考美國「管理暨預算局」（Office of Management and Budget，OMB）所規範之「電子化政府軟體架構」（Federal Enterprise Architecture，FEA）
Thank You