

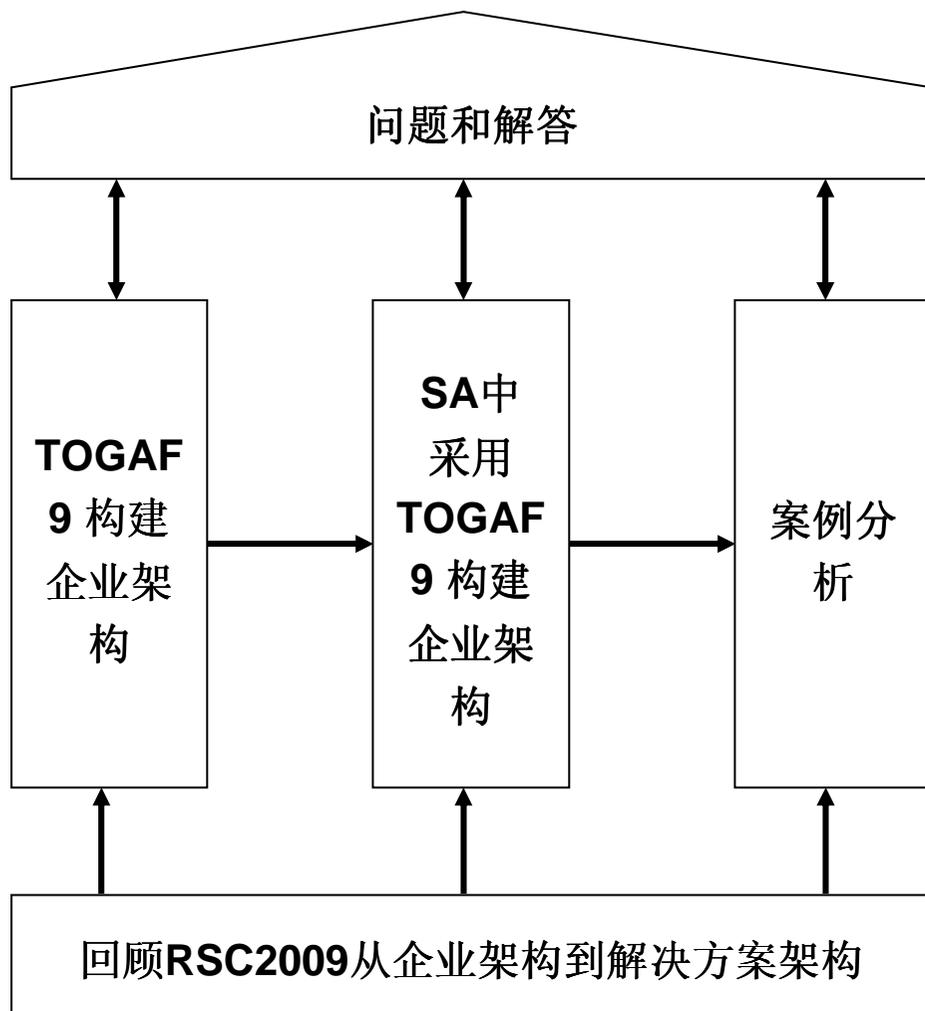
SA中采用TOGAF 9构建企业架构

李先华, TOGAF Certified
Rational China, IBM Software
xianhli@cn.ibm.com

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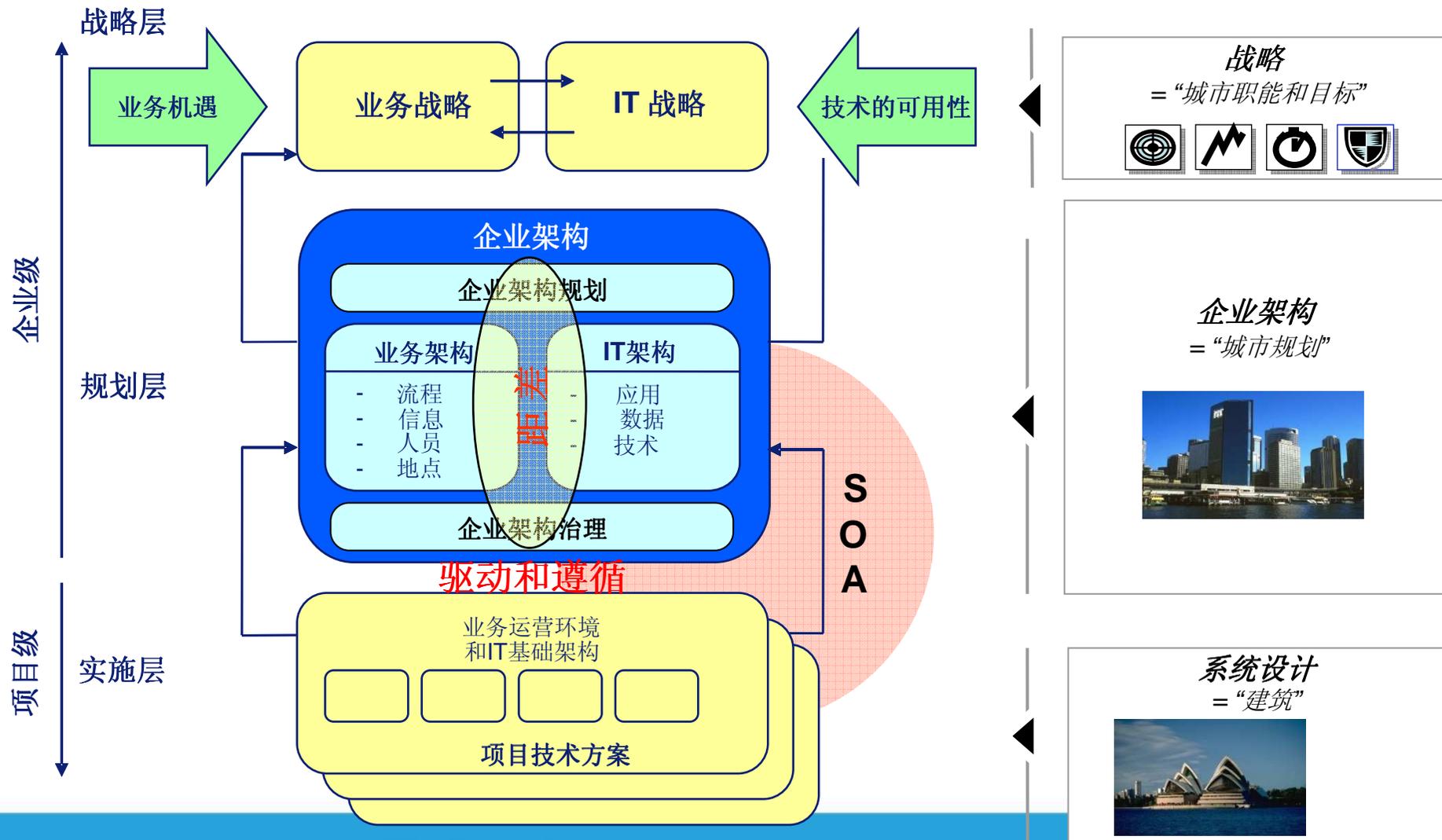
本次演讲的架构



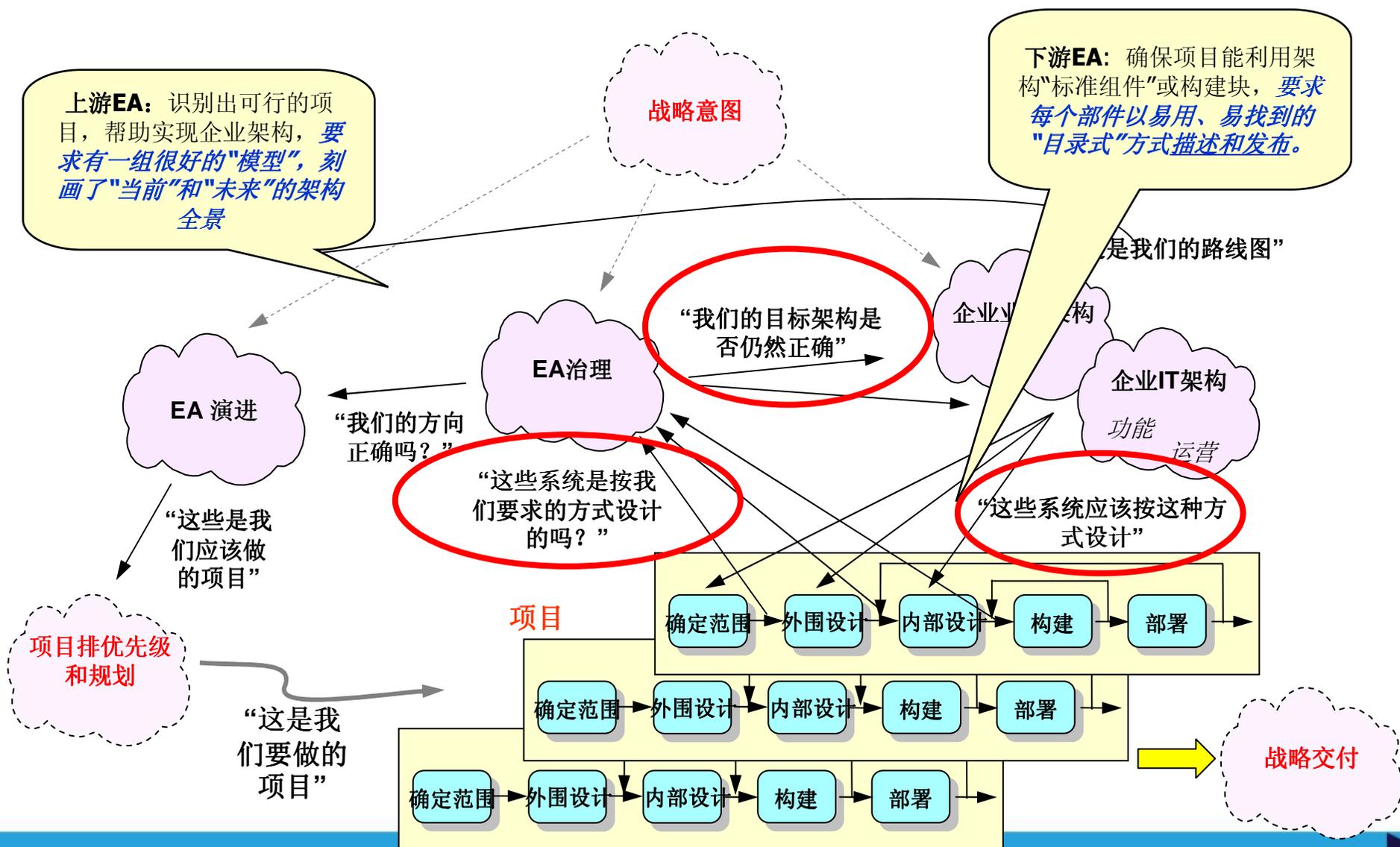
AGENDA



RSC 2009 从企业架构到解决方案架构 —— 通常，我们定义 EA 是企业战略和项目实施之间的“规划”功能



RSC 2009 从企业架构到解决方案架构—EA 生命周期



RSC 2009 从企业架构到解决方案架构—总结

*“I need something
of everything”*

so that I can

“do the right things”



**Enterprise Architect /
Business Architect**

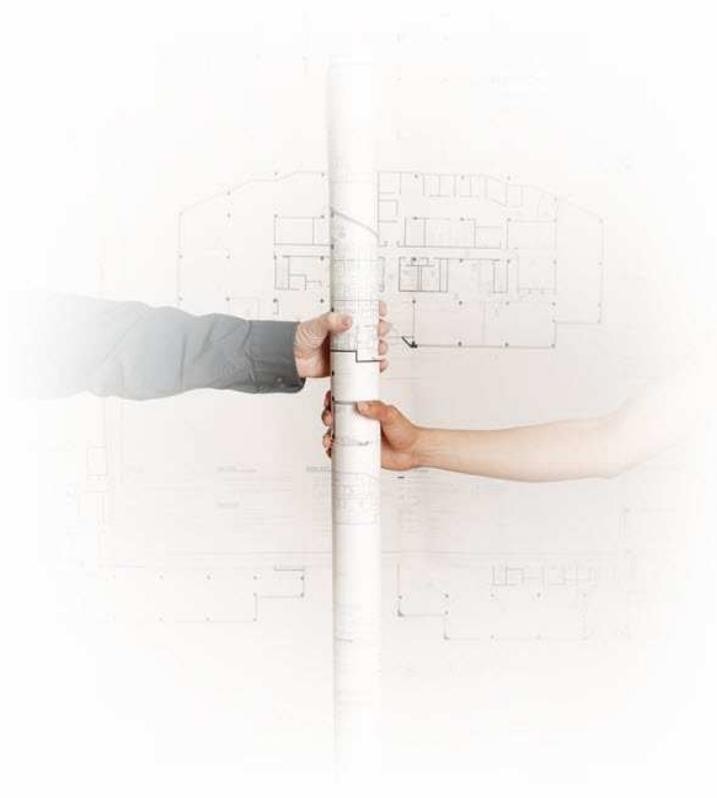
*“I need everything
of something”*

so that I can

“do the things right”



**Solution Architect /
Software Architect**



Provide information on the basis of
“the need to know”
to those that are aware of
“to know the need”

20th 世纪 “技术驱动”

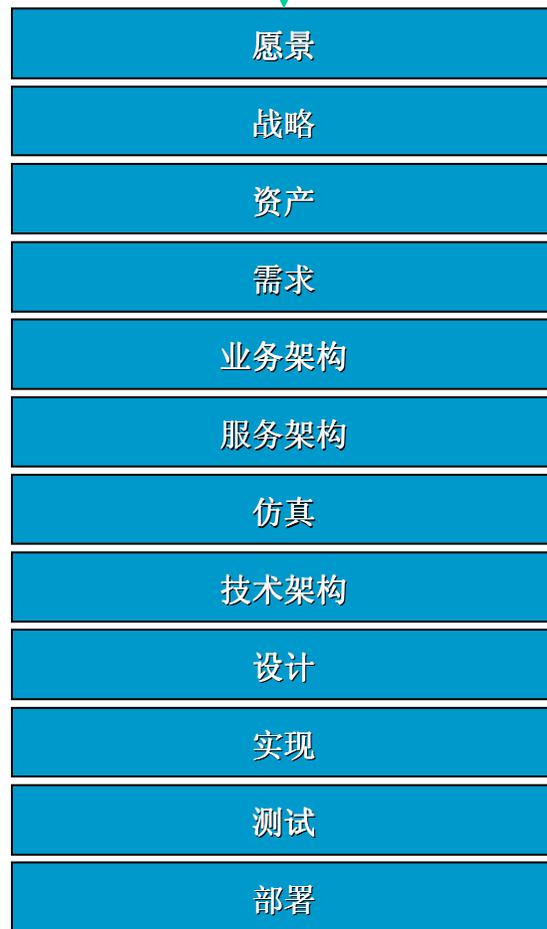
- 烟囱式
- 架构移交
- 设计移交
- 瀑布式
- 相互推卸责任
- 变更管理

企业架构师

系统工程师

?

生命周期



反馈

21st 世纪 “灵活业务”

- 投资服务
- 业务架构
- 治理
- 业务/IT 一致
- 监测反馈
- 迭代式

企业架构师

系统工程师

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Let's build a smarter planet.

TOGAF 9 构建企业架构

TOGAF – The Open Group Architecture Framework

- TOGAF 是一个架构框架，开放组织架构框架，是一个全球标准，帮助架构的接受、建立、使用和维护。它基于一个迭代的过程模型，包含构建架构的一些最佳实践和可复用的架构资产，在实践中广泛应用，并得到验证。
- TOGAF处理下面四种架构。

业务架构



业务战略，治理、组织和关键业务流程

数据架构



组织的逻辑和物理数据资产，数据管理

应用架构



应用系统的蓝图，它们之间的交互，和关键业务流程之间的关系

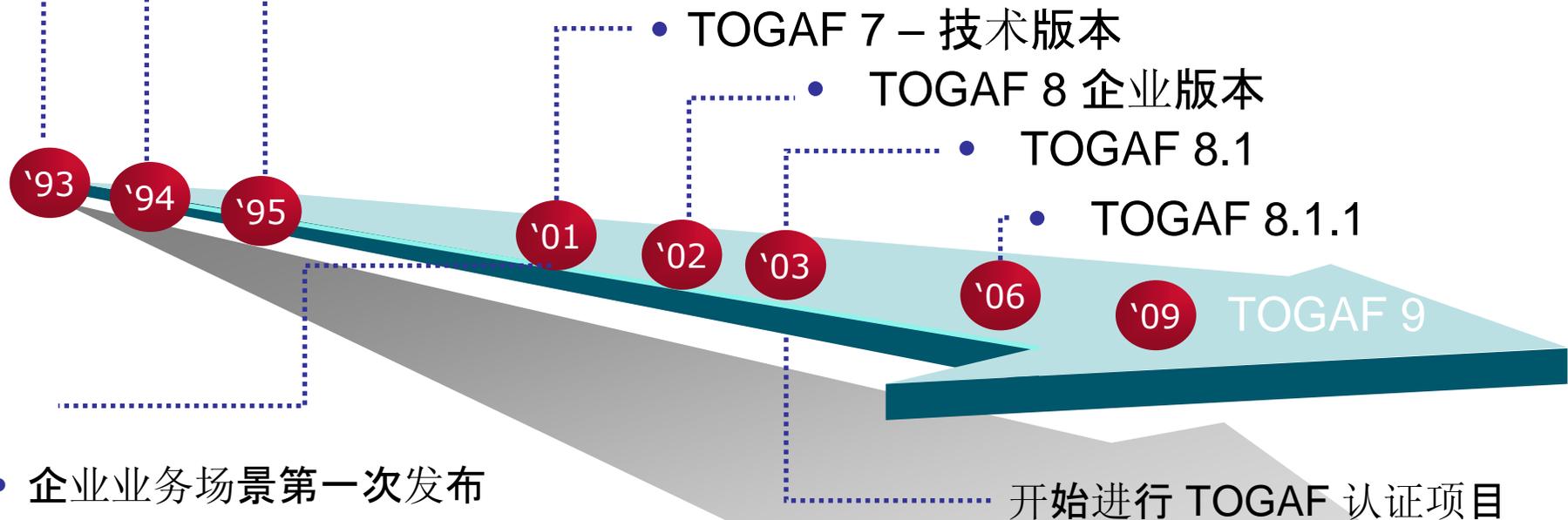
技术架构



部署业务、数据和应用所需的软件和硬件能力，包括IT基础设施、中间件、网络、通信、处理和标准。

TOGAF 形成过程

- 客户成员要求有架构标准 ...
 - 客户成员选择 TAFIM, Technical Architecture Framework for Information Management 做为起始点 ...
 - DoD Information Systems Agency (DISA) 捐赠 TAFIM
 - TOGAF 第一个版本

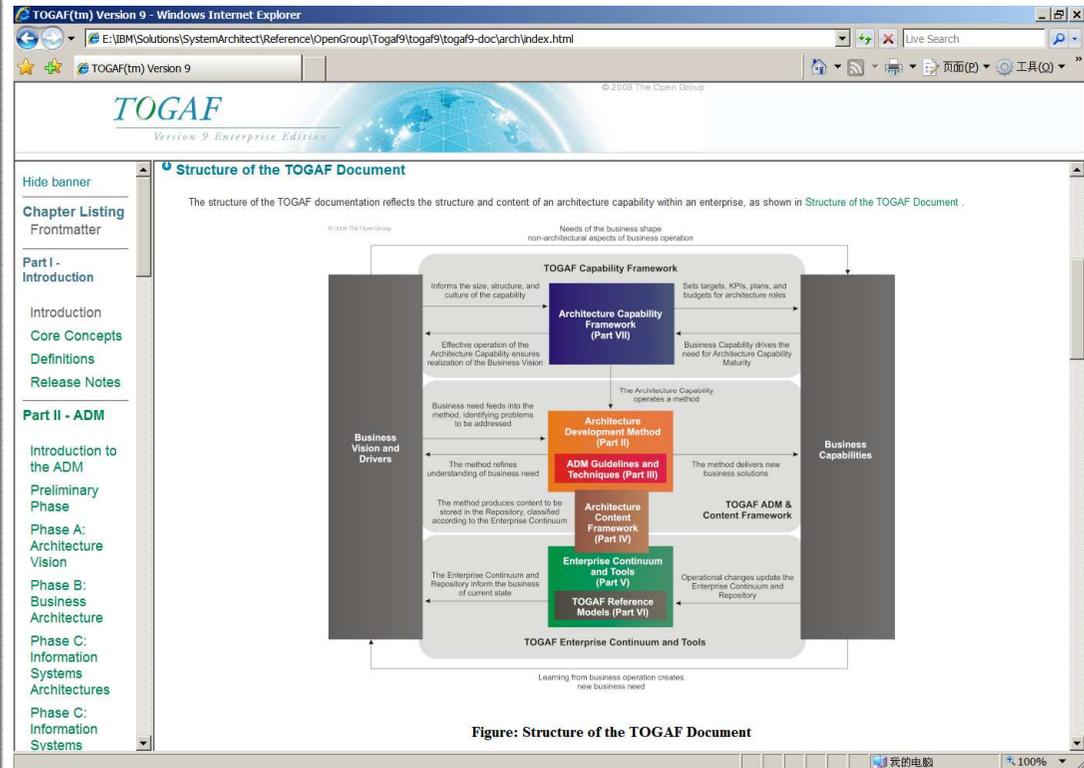
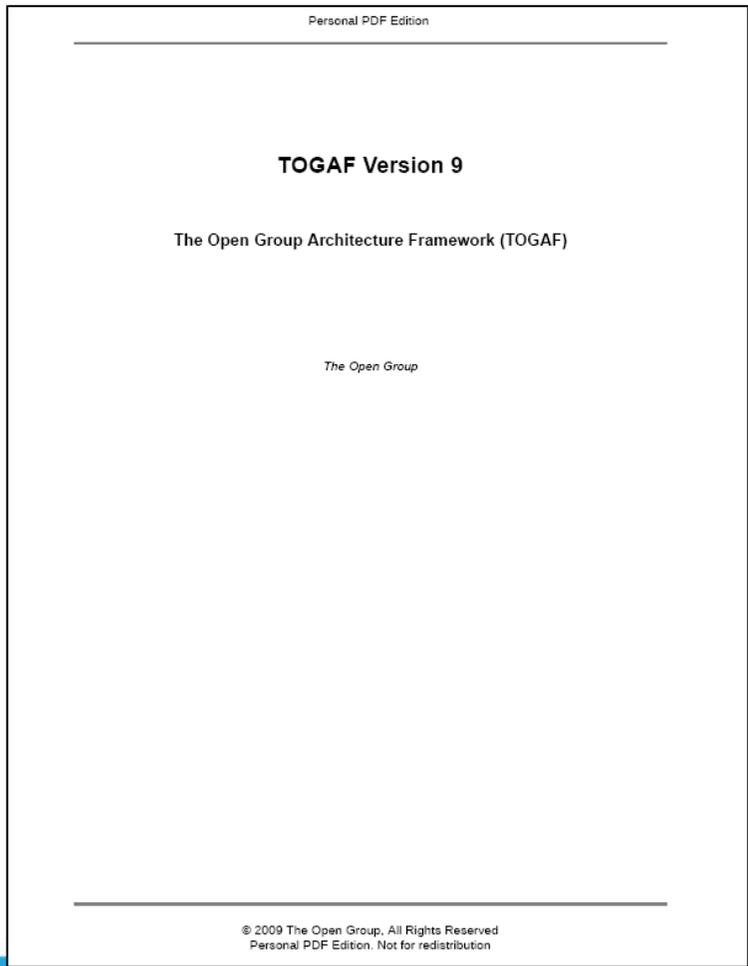


• 企业业务场景第一次发布

开始进行 TOGAF 认证项目

TOGAF 9 – Available Free, On-line

- TOGAF 9 Personal PDF Edition and HTML pages
- A wealth of great information!



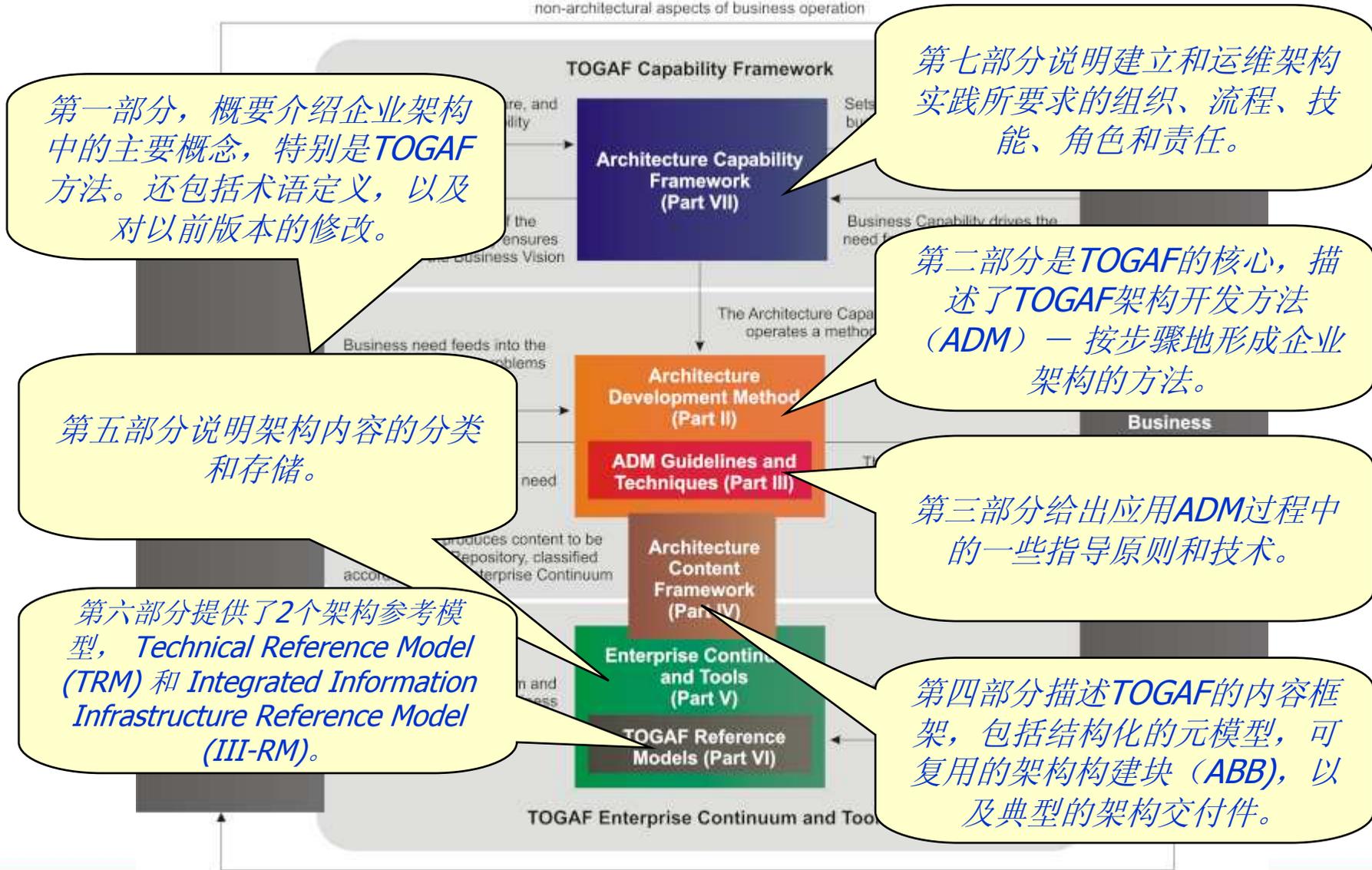
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Let's build a smarter planet.

TOGAF 内容结构—将业务驱动力转化为能力

© 2008 The Open Group

Needs of the business shape
non-architectural aspects of business operation



第一部分，概要介绍企业架构中的主要概念，特别是TOGAF方法。还包括术语定义，以及对以前版本的修改。

第七部分说明建立和运维架构实践所要求的组织、流程、技能、角色和责任。

第五部分说明架构内容的分类和存储。

第二部分是TOGAF的核心，描述了TOGAF架构开发方法(ADM) — 按步骤地形成企业架构的方法。

第六部分提供了2个架构参考模型， Technical Reference Model (TRM) 和 Integrated Information Infrastructure Reference Model (III-RM)。

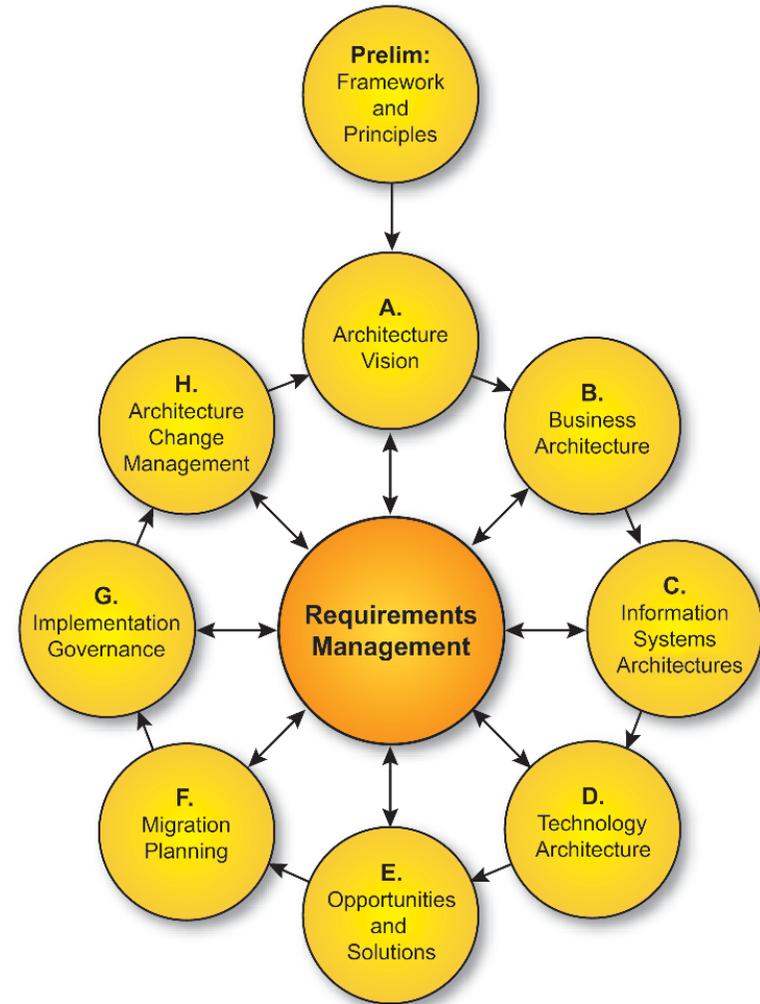
第三部分给出应用ADM过程中的一些指导原则和技术。

第四部分描述TOGAF的内容框架，包括结构化的元模型，可复用的架构构建块(ABB)，以及典型的架构交付件。

ADM - Architecture Development Method, 架构开发方法

ADM 描述了如何根据业务需求，推导出企业架构，为架构师提供以下指导。

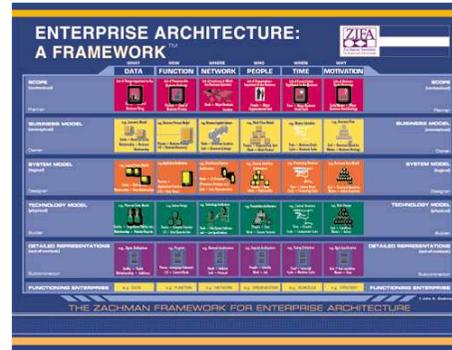
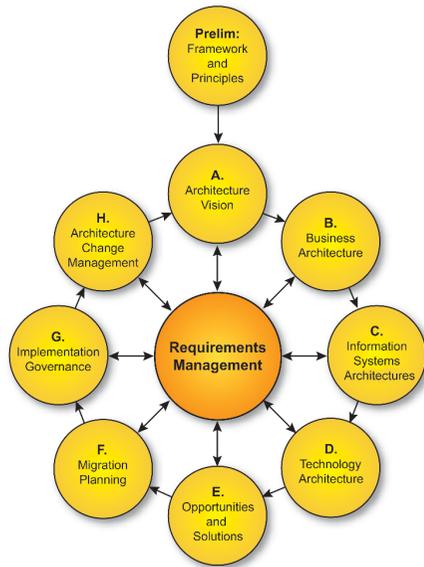
- 形成循环的一系列的架构开发阶段（业务架构、信息系统架构、技术架构），做为架构开发活动的过程模板。
- 详细描述每个架构阶段，包括目标、方法、输入、步骤和输出。输入输出部分给出架构内容结构和交付件。（更详细的输入输出内容在架构内容框架中描述）
- 跨阶段的汇总，需求管理阶段。



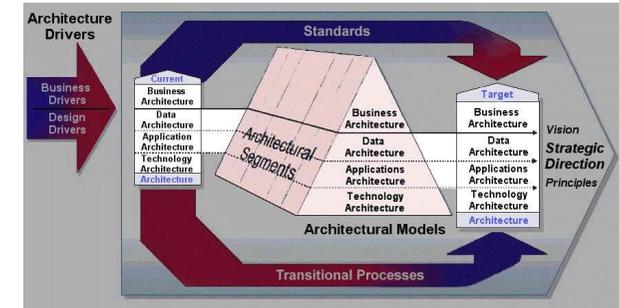
ADM各阶段



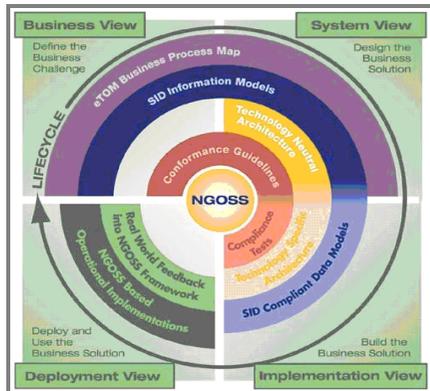
和其它架构框架和方法结合使用



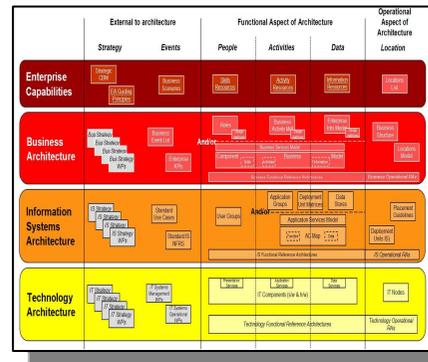
Zachman



FEAF

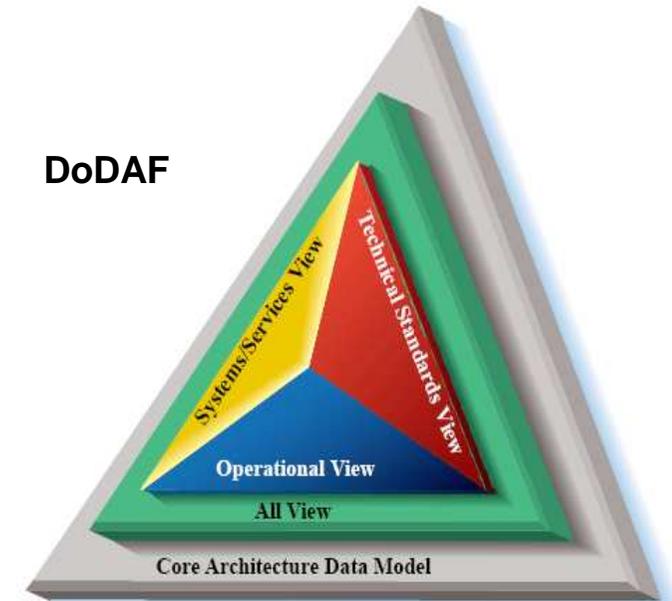


NGOSS



IBM EA Method

DoDAF

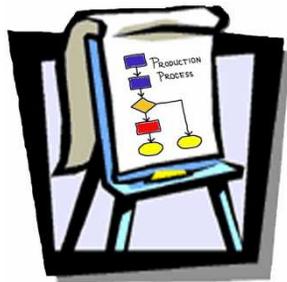


SA 中采用 TOGAF 9 构建企业架构

IBM企业架构管理工具，Rational System Architect

——建模、分析和发布企业架构

建模



分析



发布



- SA建立企业架构模型，管理海量、复杂的企业架构信息。并建立不同架构（业务、应用、数据、技术）之间的关联关系，全面地展现企业架构资产

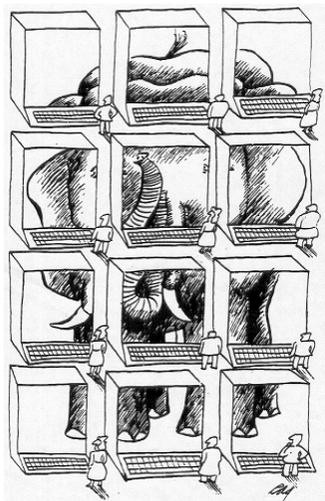
- SA通过结构化的数据管理企业架构信息，便于进行企业架构级的统计分析（应用覆盖分析、应用变更影响分析）

- SA通过信息发布建立企业战略层次、企业架构层次和具体解决方案的沟通渠道。可以更好的驱动和约束项目，并及时的得到项目的反馈

基于模型库的企业架构, **Repository-based EA**

- 建立一个组织的蓝图, 包括以下方面: 战略、业务、应用、信息和技术。
- 模型信息记录在数据库中, 大家共享
- 蓝图的价值来自于建模对象中的信息以及这些建模对象间的关系。
 - 在**System Architect**中, 图形不仅仅是简单的图片, 每个图形和其中的建模对象可含有更详细信息, 描述和关联关系。
 - 关联关系可以可视化跨领域的的影响和差异, 比如系统或基础架构的故障可能会中断哪些关键业务流程。

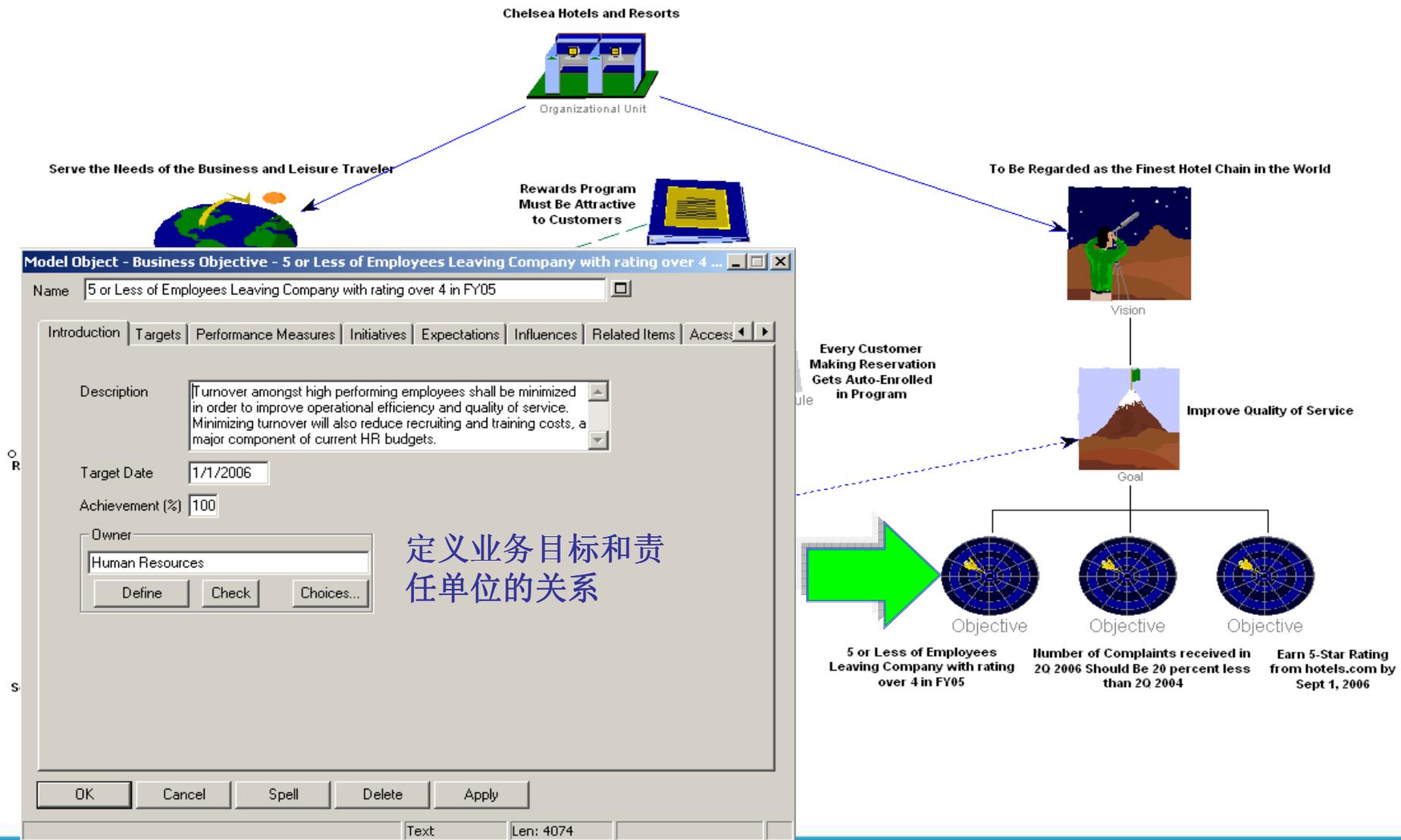
基于单点工具的EA



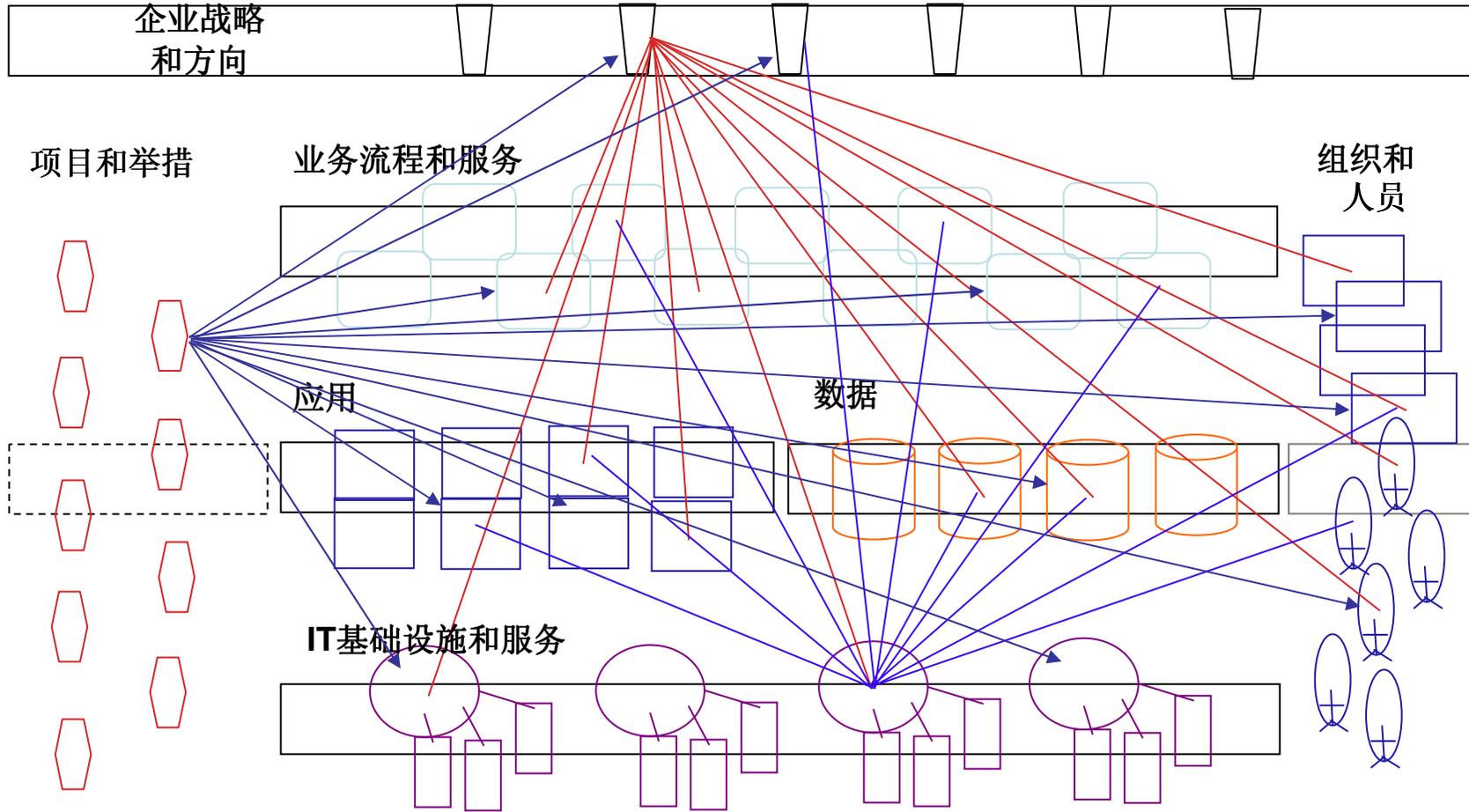
基于模型库的EA



架构建模，架构数据结构化并建立关联



关联所有数据，亦可进行影响分析



企业战略和目标由哪些组件支撑
基础架构资产支撑哪些业务
项目和举措会影响组织哪些方面

发布EA数据库到网站

- 按角色发布信息，在整个组织范围共享信息

The screenshot shows a web browser window displaying the SA Information Publisher website. The browser title is "SA Information Publisher - Windows Internet Explorer" and the address bar shows "http://www.doi.gov/ocio/architecture/documents/metamodel/default.htm". The website content includes a navigation menu on the left, a main content area with a "DEAR" logo and "DEAR Metamodel Introduction" text, and several tables of views categorized under "Entire Model Views", "Inventory Views", "CIO Intergration Views", and "Reference Model Views".

Panel Reports Homepage

- Diagram
 - Entity Relation
 - Flow Chart
- Definition
 - Attribute
 - Data Domain
 - Data Element
 - Data-Collection-Reason
 - DEARS_Data_Rqmnt
 - Description
 - Entity
 - Non-specific Relation
 - Project Data Model
 - Relationship
 - Report Requirement
 - Super-sub Relation

DEAR Metamodel Introduction

Information is for official use only - Last update 07/15/2010 23:28:20

A metamodel is essentially the Logical Data Model for what is stored in a Metadata Repository. The DEAR Metamodel describes all entities, ATTRIBUTES, and metadata about such. Below are the most common views requested when reviewing the metamodel. There are over 50 views to the metamodel depending on what you are searching for. These additional views can be seen.

IF YOU CANNOT see a diagram, please be sure to install the Browser plug-in "Adobe SVG Viewer" which allows you to view and interact with the diagrams.

If you would like a GLOSSARY or DATA DICTIONARY View, visit the [Metamodel Glossary Section](#) and click on the Glossary Reports

Entire Model Views

Key Metamodel Views	Description
Common Entity Overview	Review the Common Entities across all Domains in the Metamodel WITHOUT ATTRIBUTES
Common Entity and Attribute Overview	Review the Common Entities across all Domains in the Metamodel WITH ATTRIBUTES

Inventory Views

Key Metamodel Views	Description
System Overview	Review the ATTRIBUTES tracked on a System Inventory Record and System Architecture Hierarchy
System Relationships	Review the relationships between System and all domains
Organization Relationship Overview	What is captured based on the methodology in the EA Repository
Data Quality Overview	What data quality scores are captured based on the methodology in the EA Repository

CIO Intergration Views

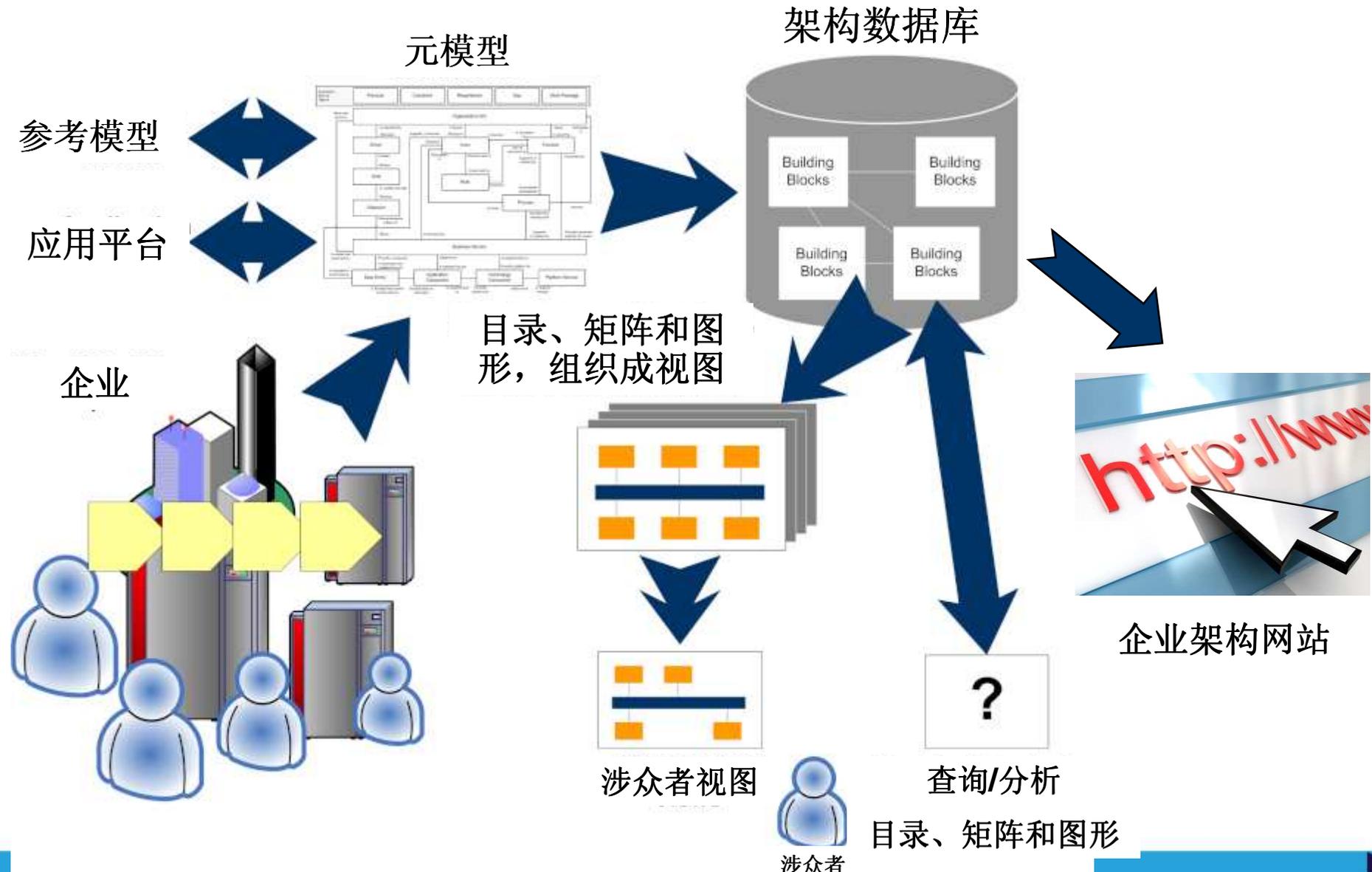
Key Metamodel Views	Description
Capital Planning Overview	Review Investment-Project ATTRIBUTES captured from a Federal Business Case Document in the EA Repository
Capital Planning Relationships	Review the RELATIONSHIPS to Investments
Security and Privacy Overview	Review the RELATIONSHIPS and ATTRIBUTES for maintaing Security Status and Privacy Status Information and Inventory alignment

Reference Model Views

Key Metamodel Views	Description
Performance Reference Model	Review the PRM Entities, Attributes, and Relationships
OMB Performance Reference Model	Review the OMB PRM Entities, Attributes, and Relationships
Business Reference Model Overview	Review the BRM Entities, Attributes, and Relationships
Data Reference Model Basic	Review the Basic DRM Entities, Attributes, and Relationships
Data Reference Model Detail	Review all the DRM Entities, Attributes, and Relationships
Service Reference Model Relationship	Review the SRM Entities, Attributes, and Relationships
Technology Reference Model Relationships	Review the TRM Entities, Attributes, and Relationships
Technology Reference Model v3 Relationships	Review the TRM v3 Relationships to System, Deployment, and SRM
Deployment Architecture Overview	Review the Deployment Processing and Location Node ATTRIBUTES and RELATIONSHIPS

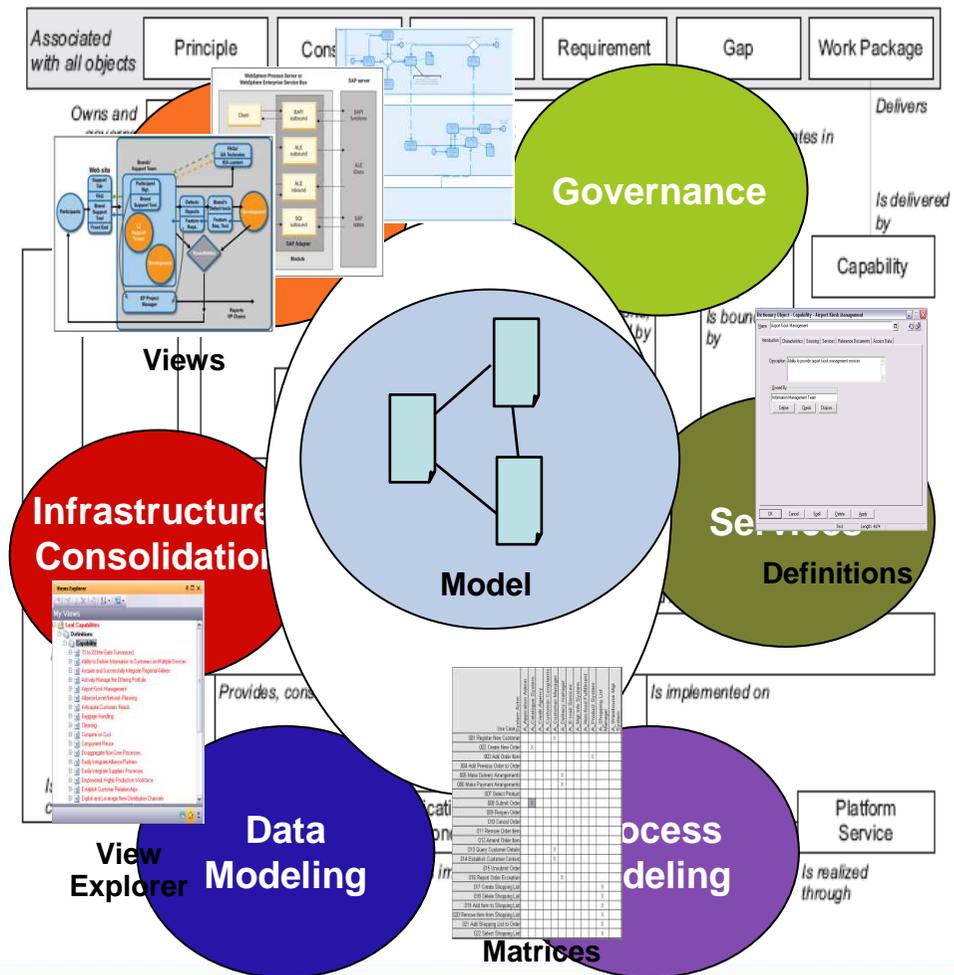
已完毕，但网页上有错误。

SA中采用TOGAF 9构建企业架构过程

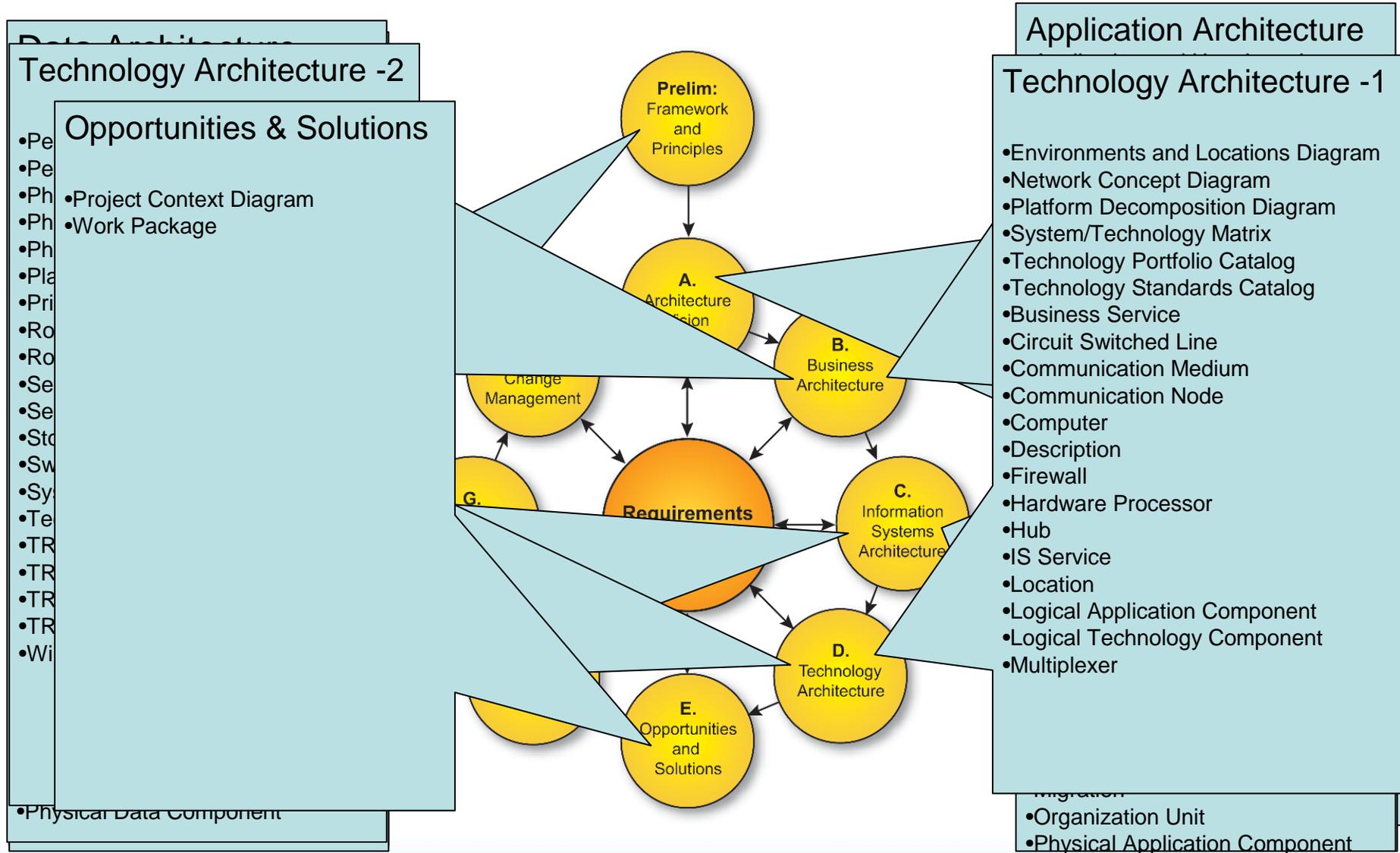


直接支持 TOGAF 9 实施

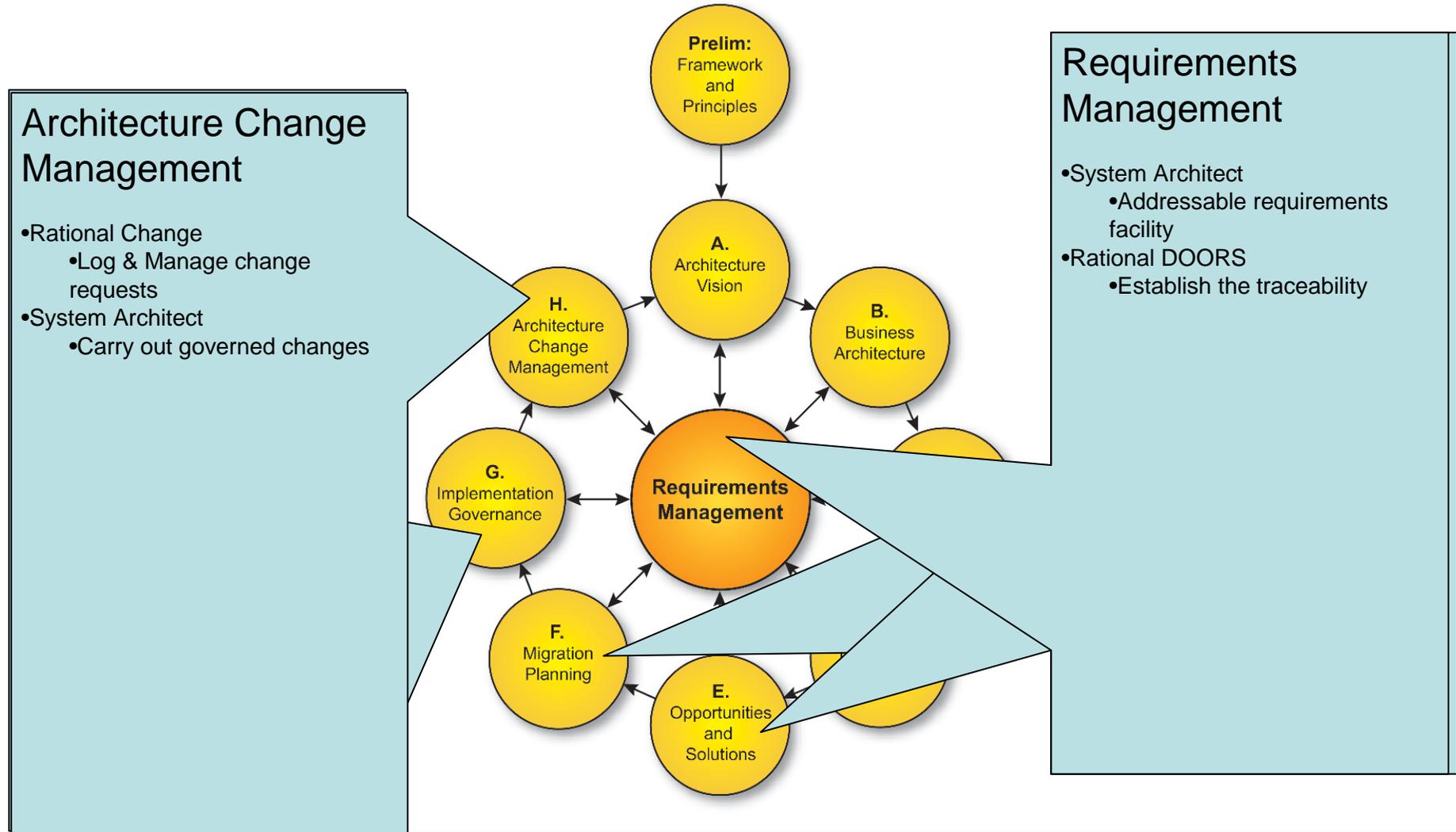
- 目录、矩阵、视图
- 内容核心元模型
- 打开选项，支持扩展元模型



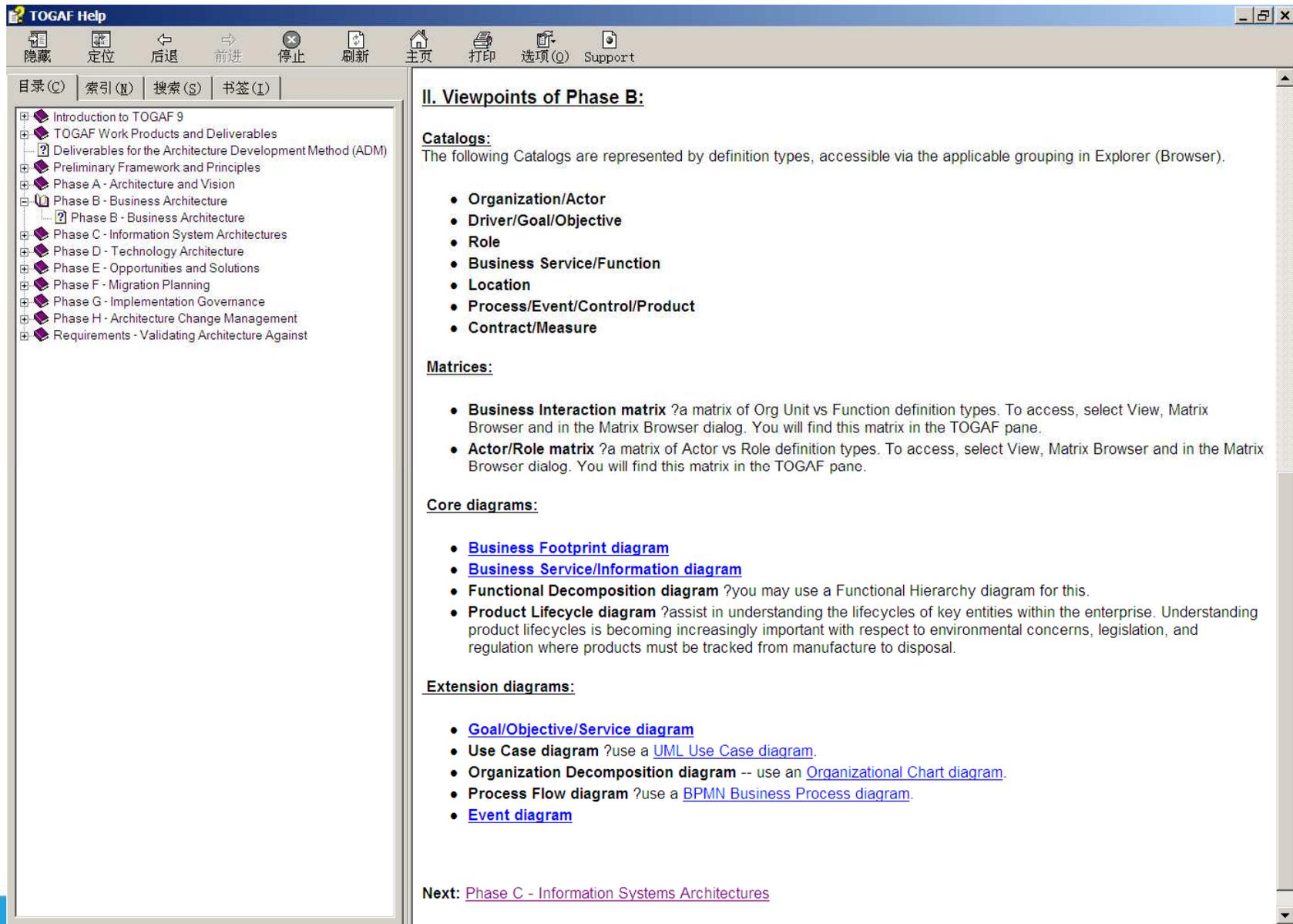
支持TOGAF ADM 各阶段



支持TOGAF ADM 各阶段



详尽的Help文档指导



The screenshot shows the TOGAF Help application window. The title bar reads "TOGAF Help". The menu bar includes "隐藏", "定位", "后退", "前进", "停止", "刷新", "主页", "打印", "选项(O)", and "Support". The navigation pane on the left contains a tree view with the following items:

- Introduction to TOGAF 9
- TOGAF Work Products and Deliverables
 - Deliverables for the Architecture Development Method (ADM)
 - Preliminary Framework and Principles
- Phase A - Architecture and Vision
- Phase B - Business Architecture
 - Phase B - Business Architecture
- Phase C - Information System Architectures
- Phase D - Technology Architecture
- Phase E - Opportunities and Solutions
- Phase F - Migration Planning
- Phase G - Implementation Governance
- Phase H - Architecture Change Management
- Requirements - Validating Architecture Against

The main content area displays the following text:

II. Viewpoints of Phase B:

Catalogs:
The following Catalogs are represented by definition types, accessible via the applicable grouping in Explorer (Browser).

- **Organization/Actor**
- **Driver/Goal/Objective**
- **Role**
- **Business Service/Function**
- **Location**
- **Process/Event/Control/Product**
- **Contract/Measure**

Matrices:

- **Business Interaction matrix** ?a matrix of Org Unit vs Function definition types. To access, select View, Matrix Browser and in the Matrix Browser dialog. You will find this matrix in the TOGAF pane.
- **Actor/Role matrix** ?a matrix of Actor vs Role definition types. To access, select View, Matrix Browser and in the Matrix Browser dialog. You will find this matrix in the TOGAF pane.

Core diagrams:

- [Business Footprint diagram](#)
- [Business Service/Information diagram](#)
- **Functional Decomposition diagram** ?you may use a Functional Hierarchy diagram for this.
- **Product Lifecycle diagram** ?assist in understanding the lifecycles of key entities within the enterprise. Understanding product lifecycles is becoming increasingly important with respect to environmental concerns, legislation, and regulation where products must be tracked from manufacture to disposal.

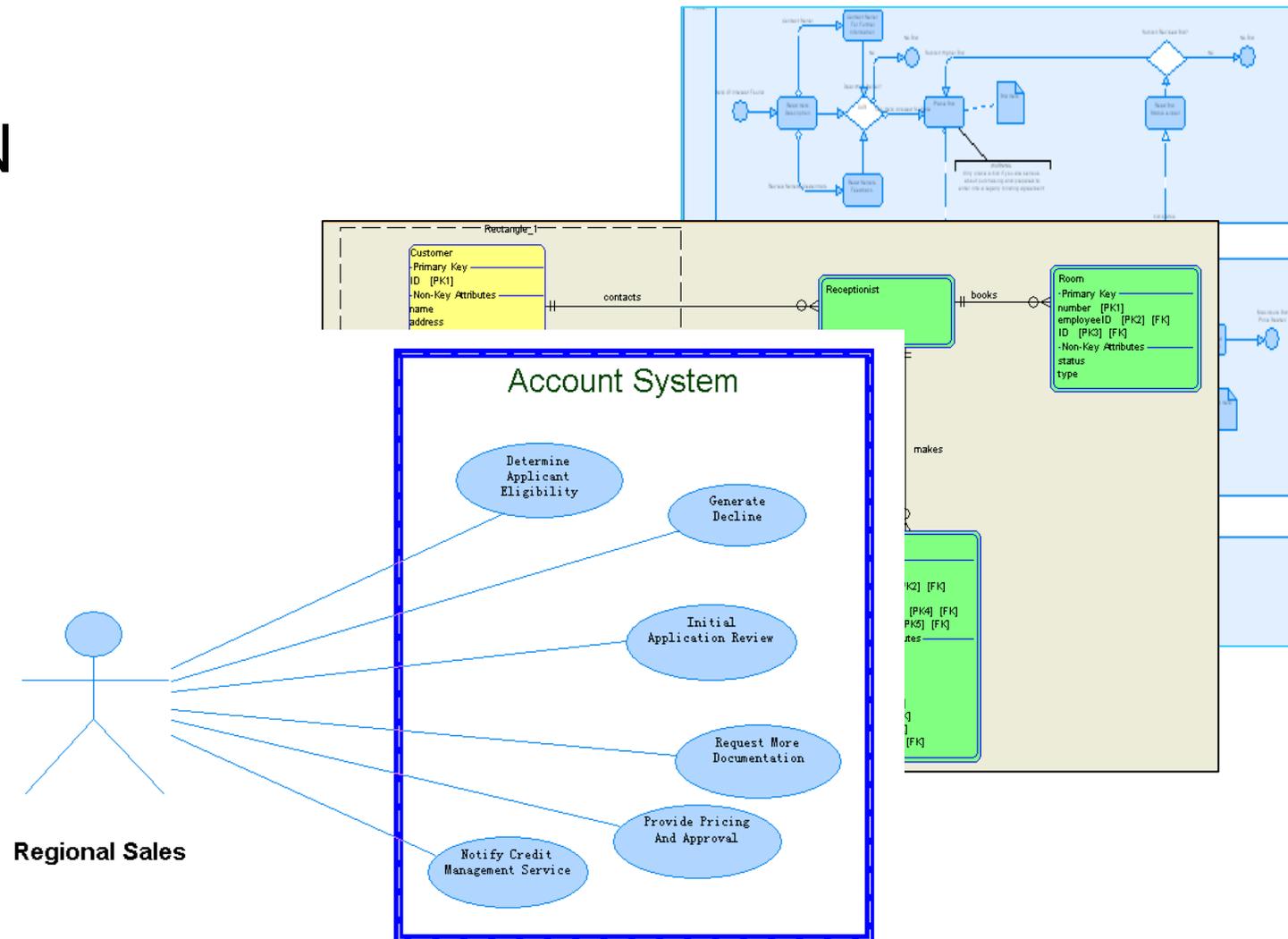
Extension diagrams:

- [Goal/Objective/Service diagram](#)
- **Use Case diagram** ?use a [UML Use Case diagram](#).
- **Organization Decomposition diagram** -- use an [Organizational Chart diagram](#).
- **Process Flow diagram** ?use a [BPMN Business Process diagram](#).
- [Event diagram](#)

Next: [Phase C - Information Systems Architectures](#)

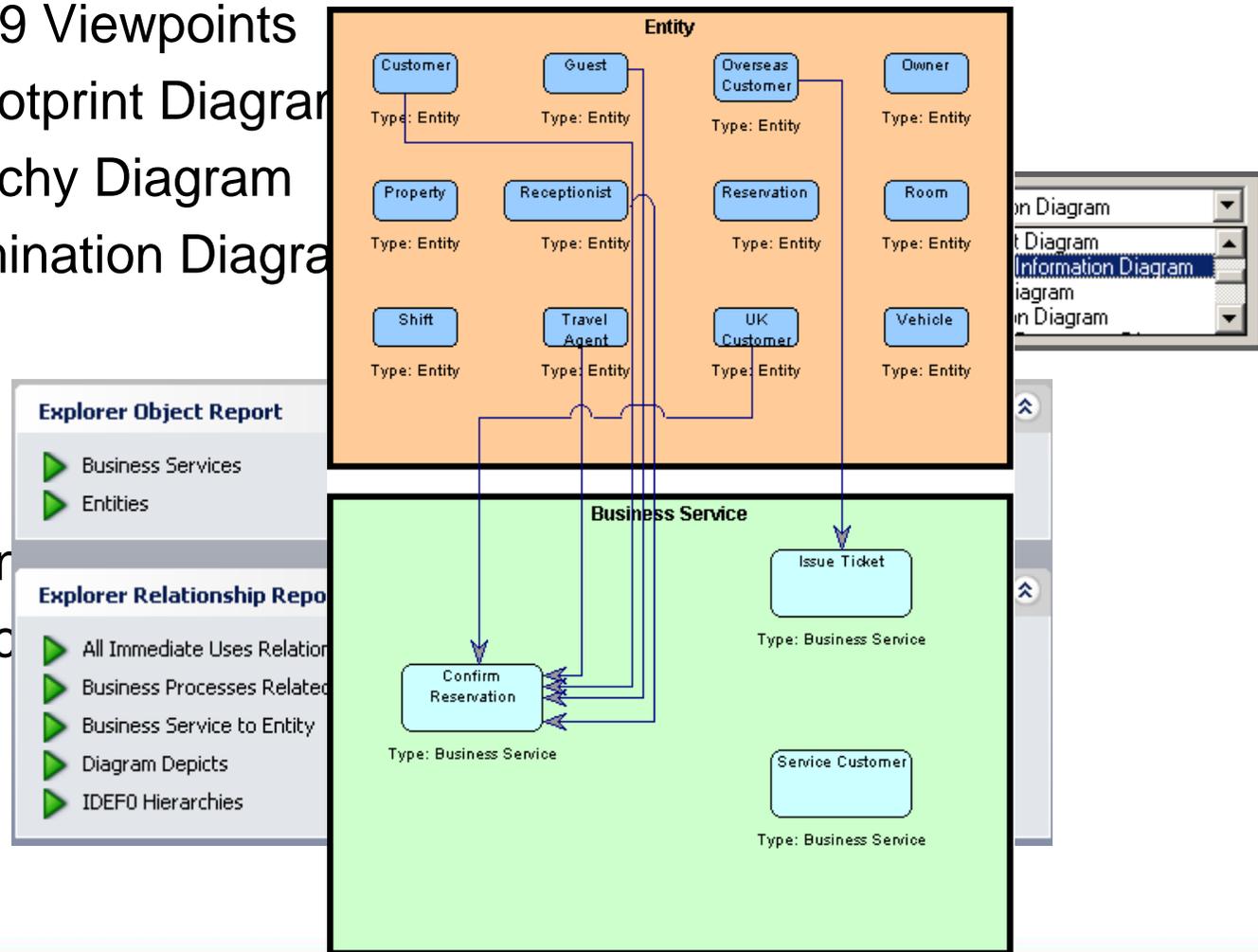
采用通用的建模表示法

- BPMN
- ER
- UML
- ...



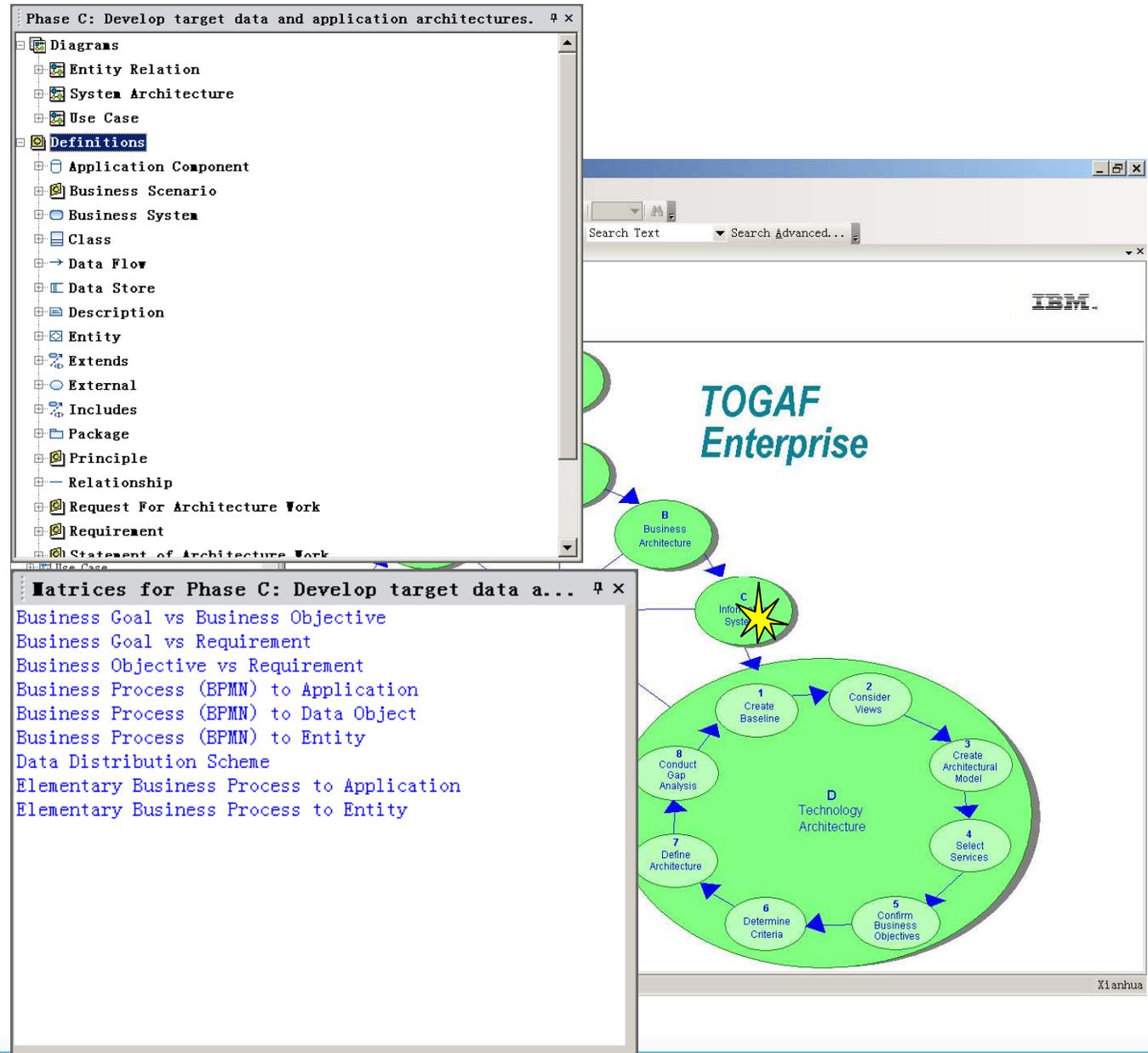
定制的浏览视图

- 对应于 TOGAF 9 Viewpoints
 - Business Footprint Diagram
 - Class Hierarchy Diagram
 - Data Dissemination Diagram
 - ...
- 视点也可以是：
 - Matrices
 - Explorer listing
 - Diagrams etc



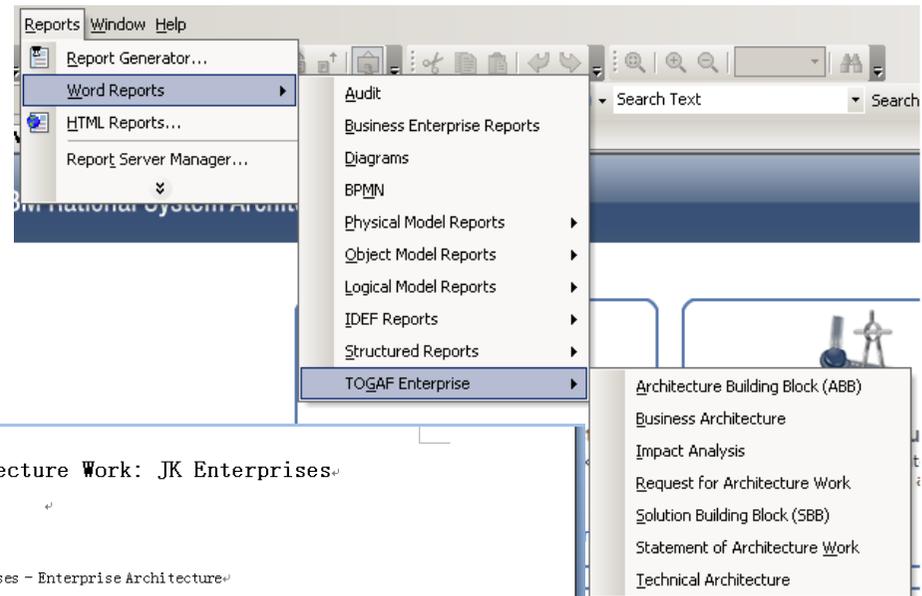
框架管理

- 增强交互性
- 可定制



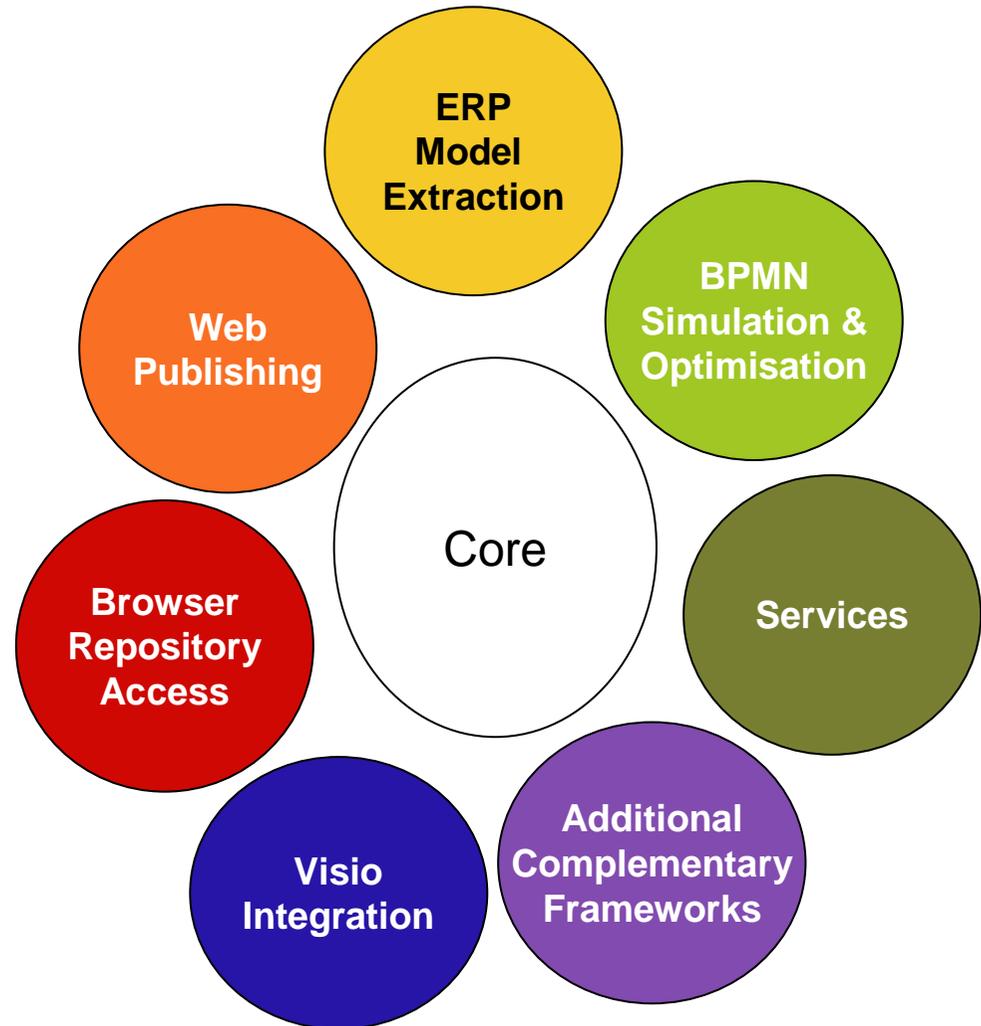
生成文档

- IBM Rational Publishing Engine
- WYSIWYG Editor
- Multiple Data Sources
- Consistent SDLC Publishing



更多的扩展功能

- SA/ERP
- SA Simulator III
- CSV Import
- Process Integrator
- SA/XT
- SA/Publisher
- ...



SA应用TOGAF 9示例

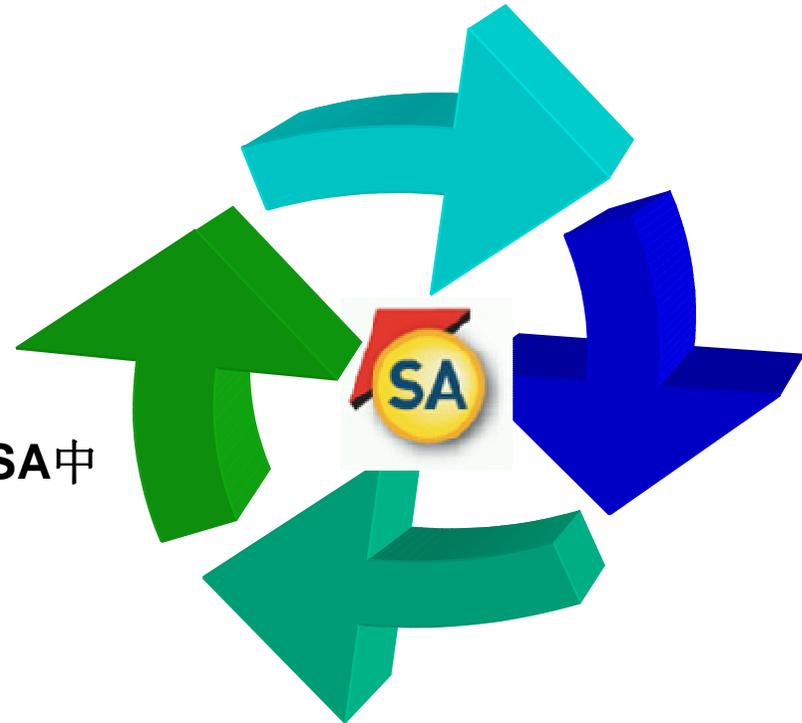
Contributors: LiuYunfeng, IT Manager of
ENN

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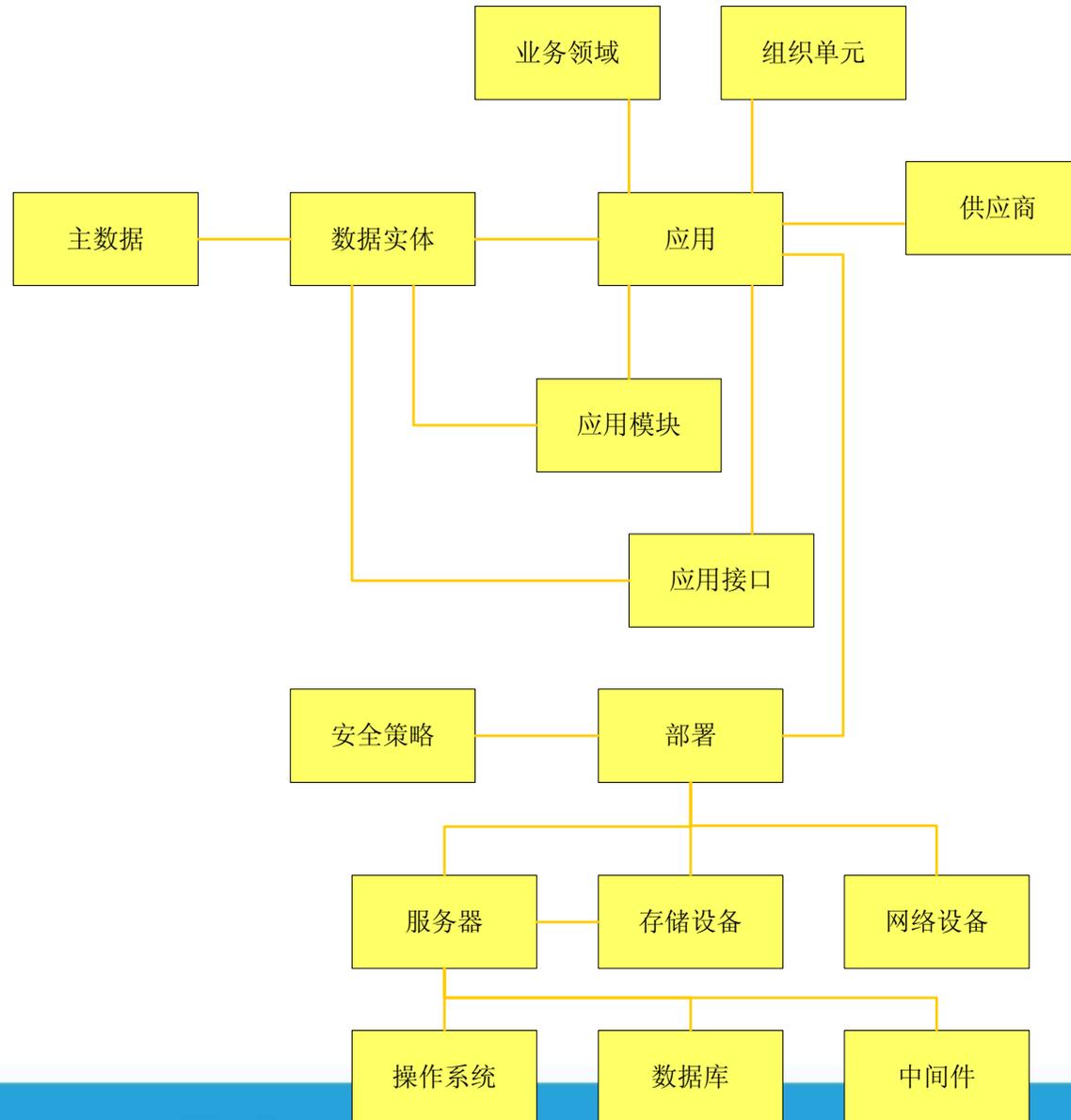
Let's build a smarter planet.

采用SA的典型企业架构项目实施过程

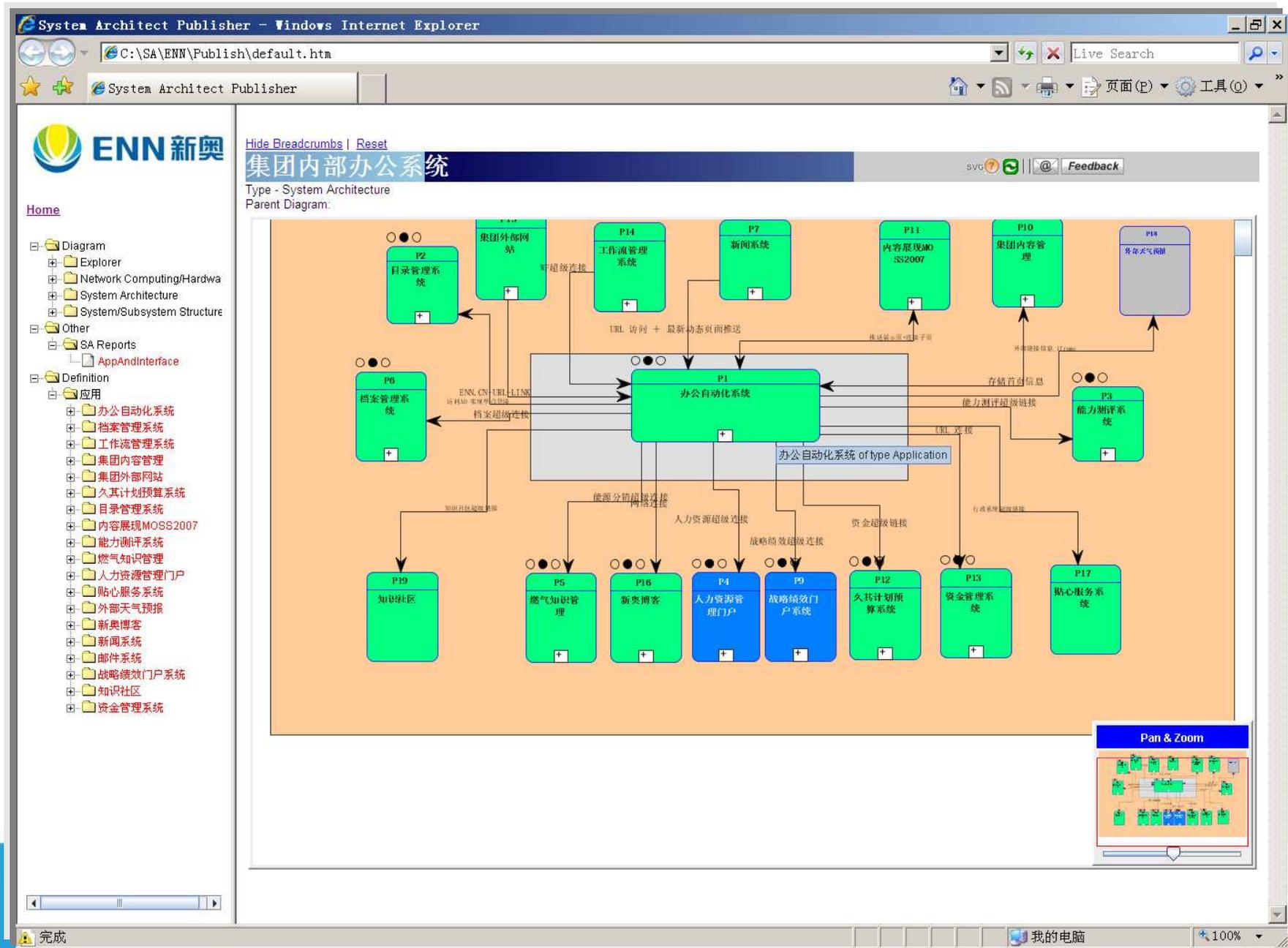
1. EA人员确定，建立SA环境
2. 设计企业架构元模型
3. 企业架构元模型在SA中实现
4. 企业架构典型场景在SA中实现
5. 培训与指导
6. EA梳理的结果及时同步录入/导入到SA中
7. 建立企业架构各分析视图
8. 发布架构资产
9. 维护更新EA数据，SA与已有系统集成，数据自动收集
10. 建立架构管控流程，明确部门人员职责，发挥SA中EA成果作用



新奥企业架构元模型示意—参考TOGAF 9



应用架构图



应用的详细描述

The screenshot displays the 'System Architect Publisher' application window. The left sidebar shows a tree view of project folders, with '应用' (Applications) expanded to show '办公自动化系统' (Office Automation System). The main area contains a detailed description of this application, organized into sections: metadata, implementation details, and related diagrams.

备注:	
部署方式:	
操作系统 (名称+版本):	WINDOWS 2003 Enterprise KOA系统部署架构
对应的部署:	
访问方式:	
构建方式:	商业套件
技术负责人:	刘云峰
技术接口人:	孟海英
开发语言:	NET
上线时间:	2004-8-1
实施商:	品高 元恒
数据库 (名称+版本):	MS Sqlserver 2000
所支持的业务领域:	企业办公系统
网址:	KOA.XINAOGROUP.COM
业务接口人:	韩扬
应用编号:	22
应用负责人:	文化中心
应用概述:	
应用平台/软件包 (名称+版本):	Share point 2003 + IIS
英文名称:	KOA
硬件平台 (厂商+型号):	IBM PC SERVER
运维商:	IBM
运维支持水平:	
主导业务部门:	文化部门
组织范围:	集团

关联的应用架构图 Count:2

- 应用架构图
 - 集团内部办公系统
 - KOA应用系统

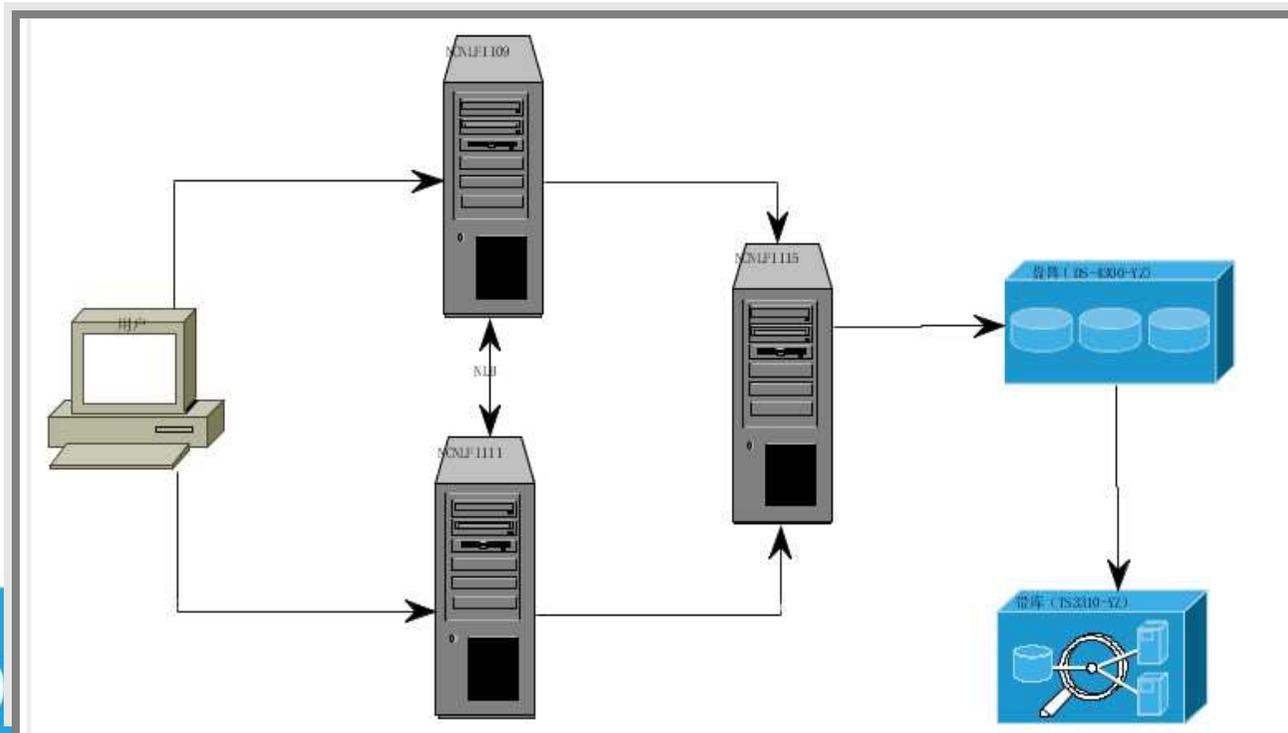
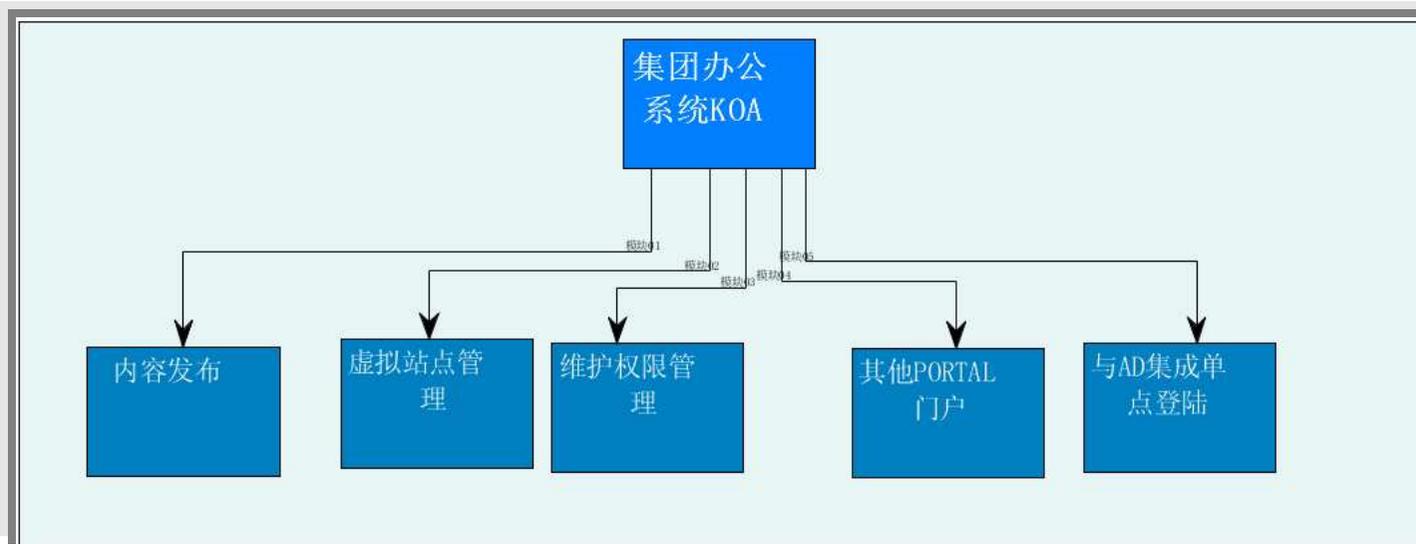
应用功能模块图 Count:1

- 应用功能模块图
 - 集团办公平台_KOA

应用部署结构图 Count:1

- 应用部署结构图
 - KOA系统部署架构

应用功能模块图和应用部署图



总结—好的架构师

“The ideal architect should be a person of **letters** (文学), a **mathematician** (数学), familiar with **historical** (历史) studies, a diligent student of **philosophy** (哲学), acquainted with **music** (音乐), not ignorant of **medicine** (医学), learned in the responses of **jurisconsults** (法学), familiar with **astronomy** (天文学) and astronomical calculations”

Marco Vitruvio Pollione,

Roman architect and engineer, 1st century BCE (Before the Common Era)



.... and also be a practitioner in **System Architect!**

Xianhua Li, TOGAF certified

Enterprise Architecture and System Architect Technical Specialist, 21st century CE (Common Era)



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