MATA KULIAH
ARCHITECTURE & INTEGRATION SYSTEM

#1
Introduction

Presented by : Bambang S, S.Kom, MM, M.Kom

Dosen : Bambang S, S.Kom, MM, M.Kom
(MTCNA, MTCRE, EDRP, ECIH, CBP, CITSM, COBIT, ITILF, LA ISO 27001, Prince2 Agile, CEH)
BNSP : Asesor Kompetensi, Enterprise Architecture , ICT Project Management, IT Audit, IT Network Designer, Metodologi Pelatihan, System Analis

Buku Panduan/ Referensi :

1. TOGAF 11 (The Open Group of Architecture Framework)
2. Enterprise Integration and Information Architecture, Li Da Xu

Aturan & Tata Tertib Perkuliahan Onlie:

1. Mahasiswa melakukan absensi dengan cara mengetik di bangian Chat : FORMAT : Nama Lengkap – NPM – Kelas
2. Pada saat Awal dan Akhir menampilkan Video , pada saat perkuliahan berjalan diperbolehkan mematikan Video
3. Pada Saat perkuliahan berlangsung , mic yang ada di HP/ NB agar dimatikan/ mute
4. Jika ingin bertanya silahkan langsung bertanya dengan cara menggunakan micnya

Tujuan Umum :

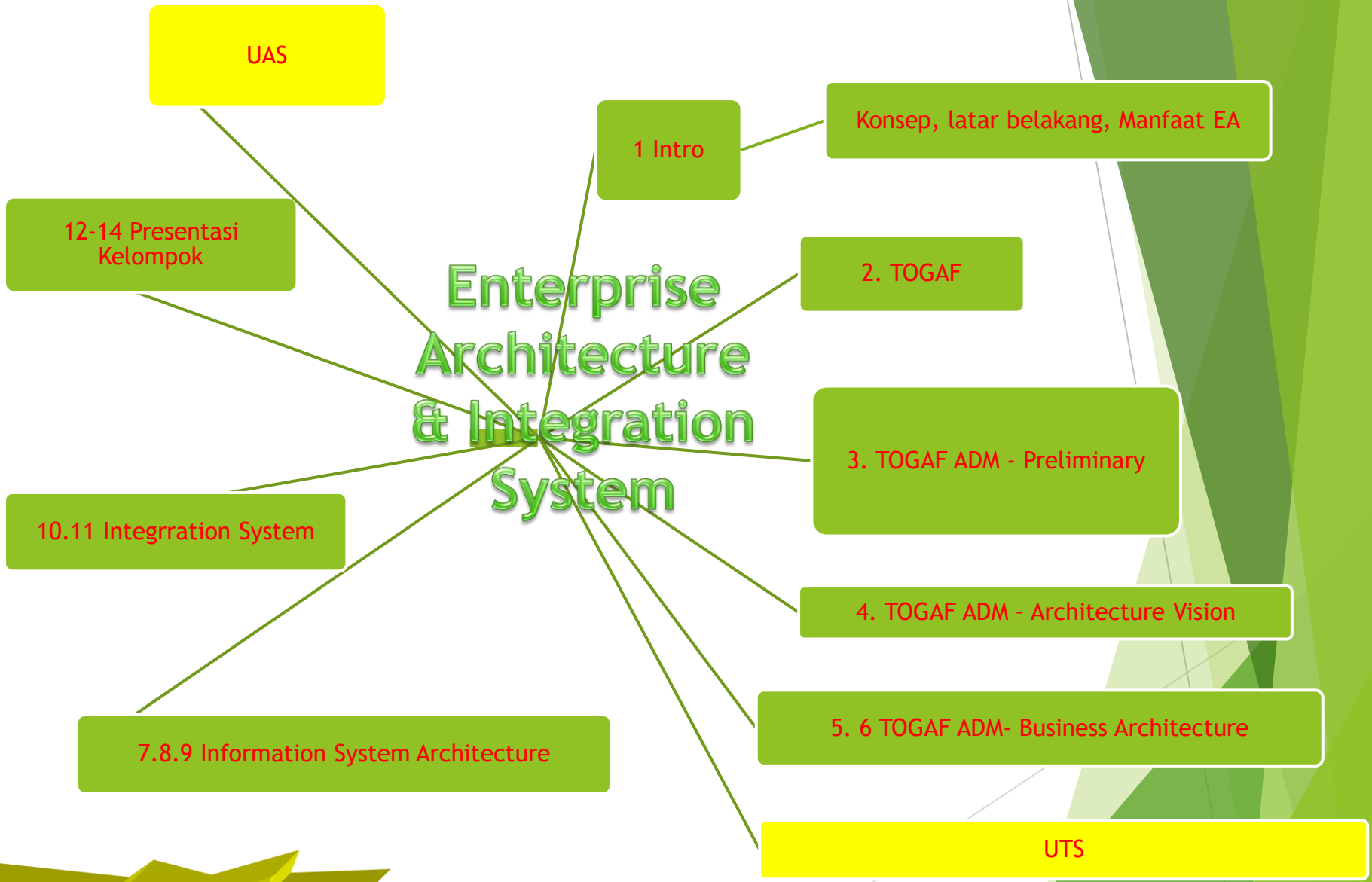
- Mengetahui konsep , latar belakang, manfaat Enterprise Architecture (EA)
- Mengetahui framework-framework EA yang ada
- Mengetahui keterhubungan antara aspek domain Bisnis – layanan – Data – Sistem Informasi dalam konsep EA
- Mengetahui konsep integrasi sistem informasi
- Mampu mengembangkan konsep EA khususnya domain Bisnis , domain layanan dan domain sistem informasi

Sistem Penilaian

- Etika : 10 %
- Absensi : 15%
- Tugas : 20% (Kelompok & Pribadi)
- UTS : 25%
- UAS : 30%

Download materi : www.bambangsuhartono.wordpress.com
www.ecampus.ipem.ac.id

Ada pertanyaan ?


Enterprise Architecture & Integration System
UAS
1 Intro
Konsep, latar belakang, Manfaat EA
12-14 Presentasi Kelompok
2. TOGAF
3. TOGAF ADM - Preliminary
10.11 Integrration System
4. TOGAF ADM – Architecture Vision
5. 6 TOGAF ADM- Business Architecture
7.8.9 Information System Architecture
UTS

THE BACKGROUND OF ENTERPRISE ARCHITECTURE:

THE BACKGROUND OF ENTERPRISE ARCHITECTURE:

LATAR BELAKANG MENGAPA PERLU ENTERPRISE ARCHITECTURE ?

1. Tidak adanya alignment antra strategi Bisnis perusahaan, konsolidasi antara visi, misi, tujuan, dengan proses Bisnis perusahaan, temrasuk uraian jabatan/ job description, KPI, risiko , sehingga menghambat laju adaptasi Perusahaan
2. Adanya perubahan Bisnis, organisasi yang berdampak kepada perubahan strategi perusahaan sehingga berdampak kepada perlu ada nya pemetaan Kembali
3. Tidak adanya perencanaan strategi TI (belum terpetakannya strategi TI) , tModul Risksuk didalamnya Pengembangan sistem (aplikasi, infrastruktur, keamanan, tata Kelola TI), berdampak kepada pengembangan TI tidak sesuai strategi perusahaan sehingga tidak bisa memberikan Value bagi perusahaan
4. Inisiatif kegiatan IT serta investasi IT tidak didasarkan atas strategi Bisnis (Visi – misi – strategi – tujuan perusahaan), tModul Risksuk
5. Banyaknya aplikasi , menyebabkan redundansi aplikasi serta biaya yang tinggi

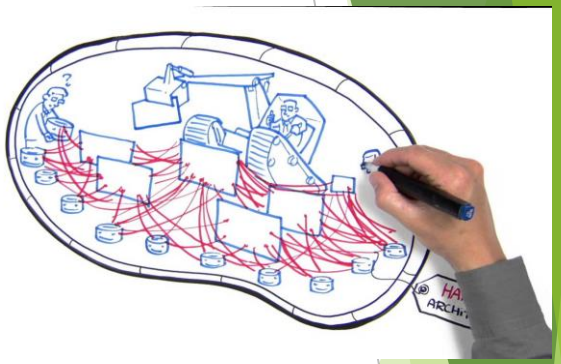
Perusahaan / Organisasi perlu adanya Enterprise Architecture yang menyelaraskan visi dan misi organisasi, serta proses Bisnis (business architecture) dengan teknologi informasi dalam perspektif data (data architecture), aplikasi (application architecture) dan teknologi(technology architecture)

WHAT IS ENTERPRISE ARCHITECTURE:

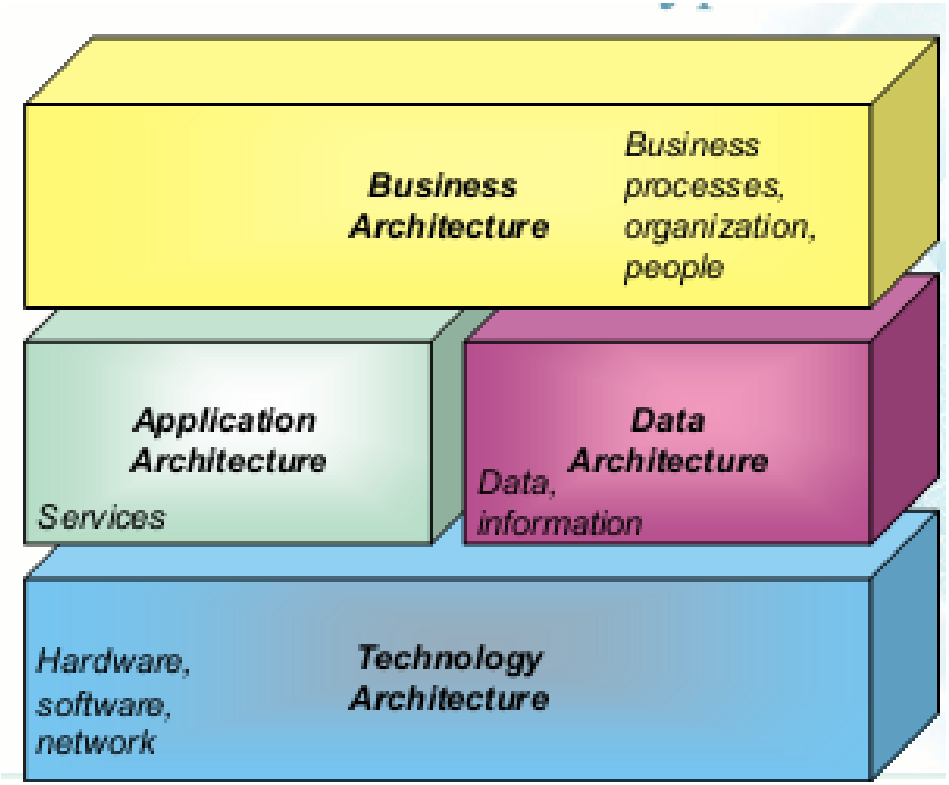
No	Enterprise	Architecture
1	TOGAF ““sebagai kumpulan organisasi yang memiliki seperangkat tujuan bersama”. (‘ any collection of organizations that has a common set of goals”.	Sedangkan menurut Zachman (1997) architecture as “*that set of design artifacts, or descriptive representations, that are relevant for describing an object such that it can be produced to requirements (quality) as well as maintained over the period of its useful life (change)”.*
2	Menurut ISO/IEC/IEEE 42010:2011 dalam Syynimaa N (2013, p.3) Enterprise adalah “ “*The which are defined as “ ..man-made and may be configured with one or more of the following: hardware, software, data, humans, processes (e.g., processes for providing service tousers), procedures (e.g. operator instructions), facilities, materials and naturally occurring entities”.*	Menurut ISO/IEC 42010: 2007 dalam The Open Group (2011,p.9) architecture as “*fundamental concepts or properties of a system in its environment embodied in its elements, relationships, and in the principles of its design and evolution”.*
3	Menurut PEAF (PEAF, 2018) Enterprise di definsikan sebagai “*The word Enterprise should be interpreted as a general noun - the name of something - to refer to any and all of these types of thing; public and private companies, government agencies, charities, universities etc. This is not an exhaustive list but illustrates the point. In addition the word Enterprise should also be interpreted to mean any name give to any of these types of Enterprises, e.g. a private company may be referred to as a Company, Business, Corporation, Conglomerate, Organisation, SME, Firm, Establishment, Group, Multinational, Venture. The word Enterprise refers to them all.*	Menurut The Open Group (2009, P.9) architecture*has two meanings depending upon the context (i) “A formal description of a system, or a detailed plan of the system at component level to guide its implementation” and (ii) “The structure of components, their inter-relationships, and the principles and guidelines governing their design and evolution over time”.*

WHAT IS ENTERPRISE ARCHITECTURE:

No	Enterprise Architecture
1	John Zachman " Generally, architecture is defined by a set of descriptive arguments that are related and intended to develop a new enterprise which contains the basic things in order to make changes after creation of an enterprise architecture"
2	Menurut *Federal Chief Information Officer Council of United States defines Enterprise Architecture as (CIO Council, 2001, p. 5) "..a strategic information asset base, which defines the mission, the information necessary to perform the mission and the technologies necessary to perform the mission, and the transitional processes for implementing new technologies in response to the changing mission needs. An enterprise architecture includes a baseline architecture, targetarchitecture, and a sequencing plan".*
4	Menurut *GERAM (1999) defines Enterprise Engineering as "..the collection of those tools and methods which one can use to design and continually maintain an integrated state of the enterprise".*
5	Menurut Oracle (2010, P.2) Enterprise Architecture *is a method and an organizing principle that aligns functional business objectives and strategies with an IT strategy and execution plan. The Enterprise Architecture provides a guide to direct the evolution and transformation of enterprises with technology. This in turn makes IT a more strategic asset for successfully implementing a modern business strategy.*
6	Menurut EA Community dalam Carla Marques Pereira, Pedro Sousa (2004, P.2) Enterprise Architecture *as is a framework or "blueprint" for how the organization achieves the current and future business objectives. It examines the key business, information, application, and technology strategies and their impact on business functions.(see figure 1).*



WHAT IS ENTERPRISE ARCHITECTURE:



TOGAF®

ZACHMAN INTERNATIONAL®
ENTERPRISE ARCHITECTURE

FEAF
means
Federal Enterprise Architecture Framework

Gartner®

SPBE
SISTEM PEMERINTAHAN BERBASIS ELEKTRONIK

WHAT IS ENTERPRISE ARCHITECTURE:

Trends Applied Sci. Res., 11 (2): 33-43, 2016

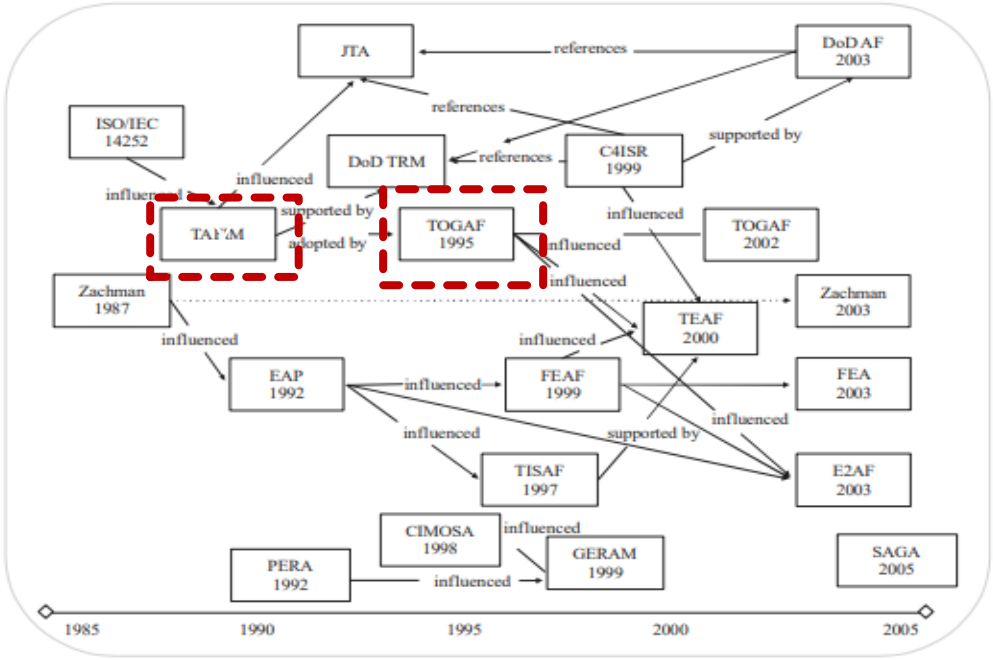


Fig. 1: Enterprise architecture frameworks timeline[8]

Technical Architecture for Information Management (TAFIM), Treasury Enterprise Architecture Framework (TEAF), Department of Defense (DoD) Architectural Framework (DODAF) , Generalised Enterprise Reference Architecture and Methodology (GERAM) , Enterprise Architecture Planning (EAP), FEAF (Federal Enterprise Architecture Framework), Extended Enterprise Architecture Framework (E2AF)

Naif Aljlayel, Review Article Holistic Enterprise Architecture Frameworks (HEAFs)

WHAT IS ENTERPRISE ARCHITECTURE:

Manfaat Enterprise Architecture (berdasarkan Teori)

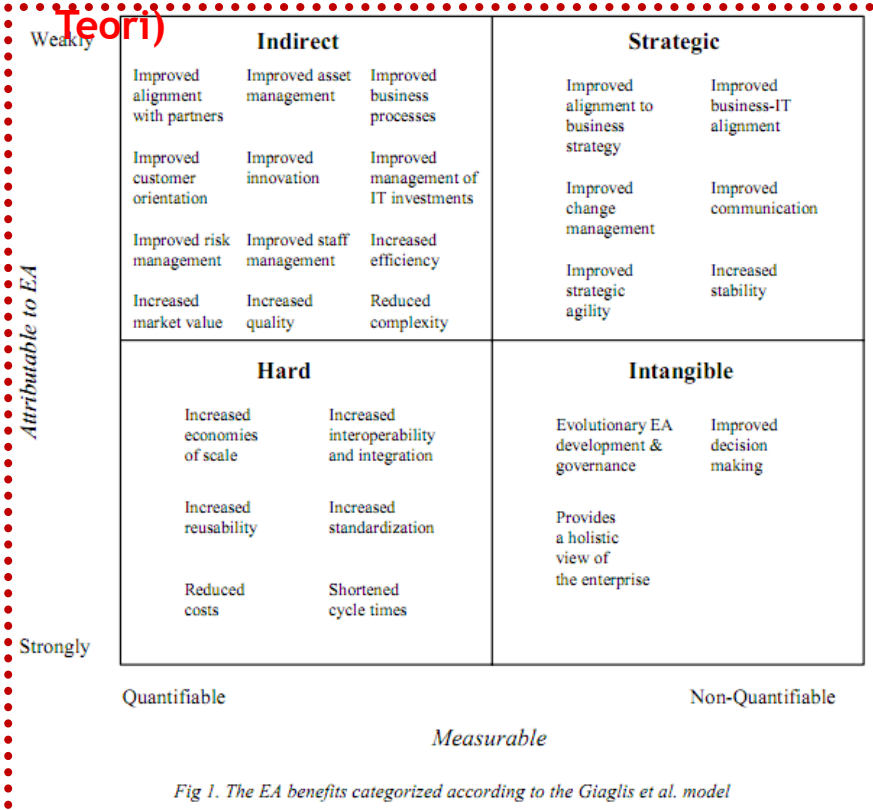


Fig 1. The EA benefits categorized according to the Giaglis et al. model

7 Keuntungan EA :

1) providing a holistic view of the enterprise,
2) More agile organization
3) reduced costs ,
2) improved business-IT alignment ,
3) improved change management,
4) improved risk management ,
6) improved interoperability and integration ,
7) shortened cycle times.

The Open Group

Business Operation :

1) Lower business operation cost
2) More agile organization
3) Improved business productivity

IT Operation :

1) Lower software development, support, and maintenance costs
2) Increased portability of applications
3) Improvedinteroperability and easier system and networ kmanagement
4) Improvedability to address critical enterpr ise-wideissues likesecur ity

Risk for future investment:

1) Reduced complexity in the business and IT
2) Maximum returnoninvestment in existing business and IT infrastr ucture
3) The flexibility to make, buy,orout-source business and IT solutions
4) Reduced risk overall in newinvestments and their cost of ownership
5) Easier upgrade and exchange of system components

Eetu Niemi, University of Jyväskylä, Finland, eetu.niemi@titu.jyu.fi , Enterprise Architecture Benefits: Perceptions from Literature and Practice

WHAT IS ENTERPRISE ARCHITECTURE:

Manfaat Enterprise Architecture (berdasarkan pengalaman implementasi & testimoni User) :

1) Pemetaan Bisnis Proses (fungsi – layanan - proses) , penetapan uraian jabatan, KPI
2) Keselarasan antara Bisnis, data dan juga TI (Aplikasi – Infrastcucture - Security – Tata Kelola TI) tModul Risksuk dialam strategi dan roadmap
3) Memudahkan monitoring (penambahan, update) jika terjadi perubahan pada strategi Bisnis dan juga strategi TI
4) Adanya sistematisasi pengelolaan data (business – data – aplikasi – inftrascture – security – Tata Kelola TI)
5) Pengelolaaan pengadaan (khususnya TI) lebih efisien dan efektif

WHAT IS ENTERPRISE ARCHITECTURE:

Perbandingan Enterprise Architecture

	Ratings			
Criteria	Zachman	TOGAF	FEA	Gartner
Taxonomy completeness	4	2	2	1
Process completeness	1	4	2	3
Reference-model guidance	1	3	4	1
Practice guidance	1	2	2	4
Maturity model	1	1	3	2
Business focus	1	2	1	4
Governance guidance	1	2	3	3
Partitioning guidance	1	2	4	3
Prescriptive catalog	1	2	4	2
Vendor neutrality	2	4	3	1
Information availability	2	4	2	1
Time to value	1	3	1	4

(Roger Sessions, A Comparison of the Top Four EA Methodologies, 2014)

INTRODUCTION TOGAF

COBIT, ITIL, PRINCE, MICROSOFT, JAVA, IEEE, IBM, FICO, OPENGL , SAP, SOFWARE ENGINEEREING INSTITUTE :

- CMMI®(Capability Maturity Model Integration)
- nIPD-CMM®(Integrated Product Development Capability Maturity Model)
- nP-CMM®(People Capability Maturity Model)
- nSA-CMM®(Software Acquisition Capability Maturity Model)
- nSCAMPI®(Standard CMMI Appraisal Method for Process Improvement)
- nSE-CMM®(Systems Engineering Capability Maturity Model)
- nSW-CMM®(Capability Maturity Model for Software)

INTRODUCTION TOGAF

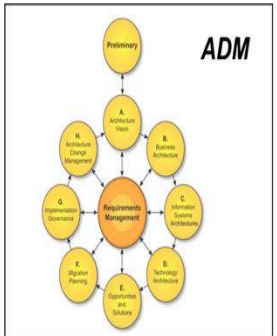
- The Open Group Architecture Framework (TOGAF) is a framework — a detailed method and a set of supporting tools — for developing an enterprise architecture.

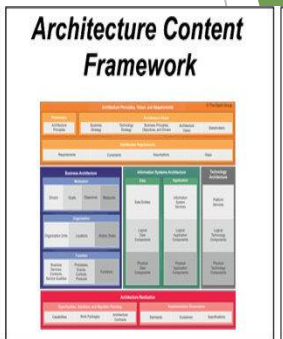
TOGAF Scope

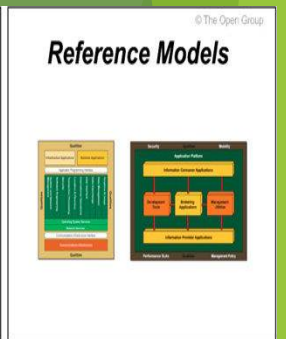
Core Concept TOGAF

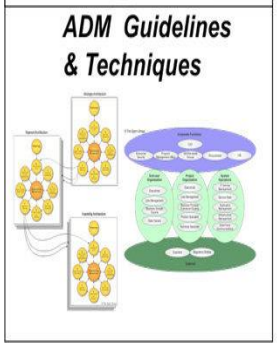
I	Introduction	•Preface, Introduction, Core Concepts, Definitions, Release Note
II	ADM	•Architetecture Development Methode (ADM) Overview •ADM Phase Narative
III	ADM Guideline & Technique	•Guidelines for Adapting the ADM Process •Techniques for Architecture Development
IV	Architecture Content Framework	•Content Metamodel •Architectural Artifacts •Architecture Deliverables •Building Blocks
V	Enterprise Continuum & Tools	•Enterprise Continuum •Architecture Partitioning •Architecture Repository •Tools for Architecture Developme
VI	TOGAF Reference Model	•Foundation Architecture: Technical Reference Model •Integrated Information Infrastructure Reference Model
VII	Architecture Capability Framework	•Architecture Board •Architecture Compliance •Architecture Contracts •Architecture Governance •Architecture Maturity Models •Architecture Skills

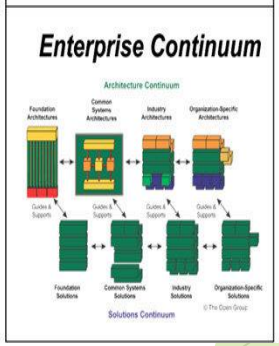
TOGAF 9.1 Components

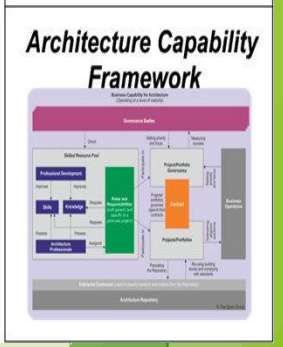






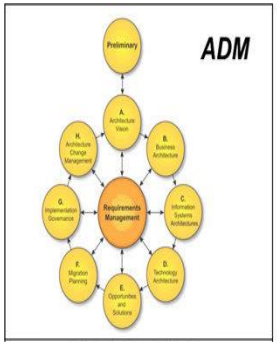


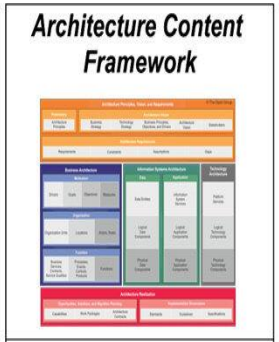


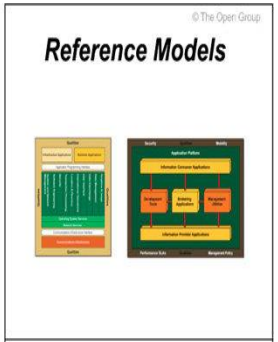


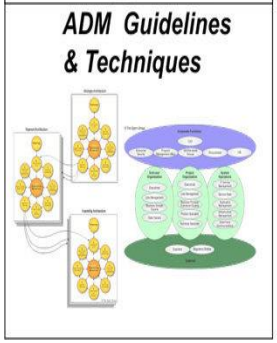
INTRODUCTION TOGAF

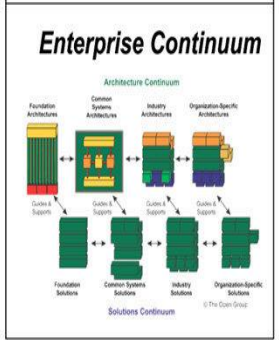
TOGAF 9.1 Components

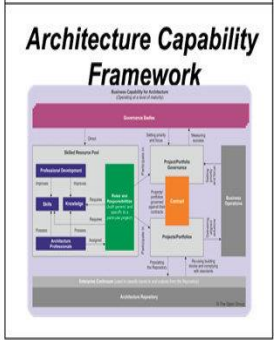












Components	Description
Architecture Development Method (ADM)	An iterative sequence of steps to develop an enterprise-wide architecture
ADM Guidelines and Techniques	Guidelines and techniques to support the application of the ADM
Architecture Content Framework	A detailed model of architectural work products, including deliverables, artifacts within deliverables, and the Architecture Building Blocks (ABBs) that deliverables represent.
The Enterprise Continuum	A model for structuring a virtual repository and methods for classifying architecture and solution artifacts
TOGAF Reference Models	- The TOGAF Technical Reference Model (TRM) - The Integrated Information Infrastructure Model (III-RM
The Architecture Capability Framework	A structured definition of the organizations, skills, roles and responsibilities to establish and operate an Enterprise Architecture.

INTRODUCTION TOGAF

Journey TOGAF

Tahun	Perkembangan TOGAF	Perubahan
1994	Requirement Statement	Proof of Need
1995	Open Architecture Framework v1	Proof of Concept
1996	TOGAF v2	Proof of Application
1997	TOGAF v3	Relevance to Practical Architecture
1998	TOGAF v4	Enterprise Continuum
1999	TOGAF v5	Reorganize extended ADM
2000	TOGAF v6	Integration of Building Block
2001	TOGAF v7	Architecture Patterns, Principles, etc
2002	TOGAF v8	Enterprise Edition
2009	TOGAF v9	Architecture Content Framework
2011	TOGAF v9.1	Architecture Content Framework
2018	TOGAF V9.2	Improved Guidance, document structure, updated Business Architecture, updated content metamodel

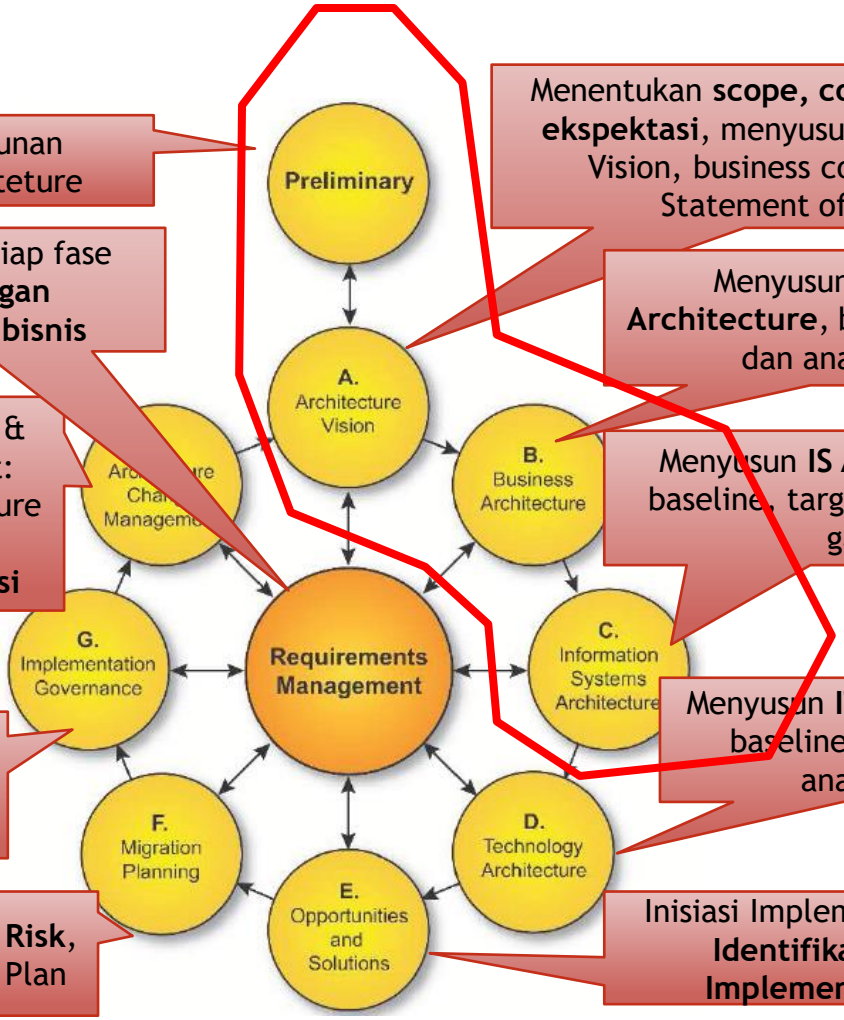
TOGAF ADM

- ADM merupakan metode yang dikembangkan untuk Menyusun Enterprise Architecture berdasarkan kebutuhan bisnis dan IT yang terdiri dari:
  - Set of Architecture View (business, data, application, technology)
  - Guidline untuk menyusun architecture
  - Contoh Deliverables
  - Metode untuk mengelola *requirement*

ADM - Basic Principles

- An iterative method, over the whole process, between phases and within phases
- Every phase is validated against and validates the current requirements of the business

TOGAF ADM



Persiapan penyusunan Enterprise IT Architeture

Menentukan **scope, constraints, dan ekspektasi**, menyusun Architecture Vision, business context, dan Statement of Work

Memastikan setiap fase **sesuai dengan requirement bisnis**

Menyusun **Business Architecture**, baseline, target, dan analisa gap

Continual Monitoring & change management: memastikan architecture **sesuai dengan kebutuhan organisasi**

Menyusun **IS Architecture**, baseline, target, dan analisa gap

Memastikan **implementasi sesuai architecture**

Menyusun **IT Architecture**, baseline, target, dan analisa gap

Analisa **Cost, Benefit, Risk**, Detil Implementation Plan

Inisiasi Implementation Plan: **Identifikasi Proyek Implementasi Besar**

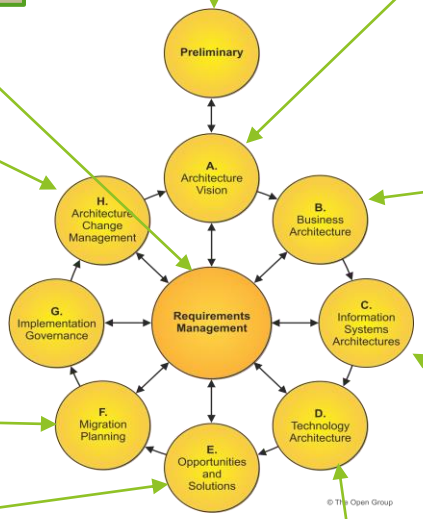
TOGAF ADM

Requirements Management
1. Identifikasi kebutuhan dokumen
2. Identifikasi perubahan kebutuhan dan prioritas
3. Penilaian dan revisianalisis kesenjangan

Preliminary
1. Identifikasi ruanglingkup, timdan jadwalpekerjan
2. Kickoffmeeting

A. Architecture Vision
1. Penentuanprinsipdan tujuan enterprise architecture
2. Transfer pengetahuan tentang enterprisearchitecture
3. Identifikasi visi, misi, strategi, dan program di organisasi
4. Identifikasi struktur organisasi
5. Identifikasi fungsi utamadanpendukungorganisasi
6. Identifikasi model bisnisorganisasi
7. Identifikasi hubunganbisnis, data, aplikasi, teknologi

H. Architecture Change Management
1. Memastikan siklus arsitektur dikelola
2. Memastikan arsitektur enterprises sesuai dengan kebutuhan



B. Business Architecture
1. Penentuanprinsiparsitektur bisnis
2. Transfer pengetahuantentang proses bisnis
3. Pemetaan fungsi utama dan pendukung organisasi
4. Pemodelan interaksi bisnis antar unit kerja
5. Identifikasi aktor dalam organisasi
6. Identifikasi proses bisnis di organisasi
7. Identifikasi risiko pada proses bisnis
8. Identifikasi KPI yang ada di organisasi
9. Identifikasi standar dan regulasi di organisasi
10. Pembaruan solution concept diagram
11. Review dan finalisasi business architecture

G. Implemenation Governance
1. Penetapan Panduan untuk pelaksanaan Implementasi
2. Identifikasi Sumber Daya dan Skill untuk implementasi
3. Implementasi bisnis & Operasional IT
4. Mereview implementasi yang sedang dilakukan

F. Migrations Planing
1. Penetapan Strategi Roadmap Inisiasi kegiatan (tModul Risksuk breakdown masing-masing kegiatan)
2. Konfirmasi ke pihak Management terkait roadmap

C.1. Data Architecture
1. Penentuanprinsiparsitektur data
2. Transfer pengetahuanpengolahan informasi dan data mining
3. Identifikasi data di organisasi
4. Identifikasi hubungan entitas data dan fungsi bisnis
5. Identifikasi model data logical
6. Pemodelan matriks entitas data dan fungsi bisnis
7. Pemodelan matriks data dan aplikasi
8. Pembaruansolution concept diagram
9. Review dan finalisasi data architecture

E. Opportnuties & Solutions
1. Analisa Kesenjangan Bisnis, Data, Aplikasi dan Teknologi
2. Penetapan Pendekatan yang digunakan (Trend Analysis/ Benchmark)
3. Inisiasi kegiatan-kegiatan (Target Arsitektur)

D. Technology Architecture
1. Penentuanprinsiparsitektur teknologi
2. Identifikasi kondisi infrastruktur teknologi informasi
3. Pemodelan matriksteknologi dengan aplikasi
4. Pemodelanspesifikasi server dan lokasi
5. Pemodelankomunikasi jaringan
6. Pembaruansolution concept diagram
7. Review dan finalisasitechnologyarchitecture

Ada pertanyaan ?

Terima Kasih,
Wassalam,
Thanks,
Matur Nuwun,
Tse-se,
Arigato