



Engineering Management Methods

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Basic concepts of Enterprise Architecture

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For Digital Transformation We Need Enterprise Architecture

**9 out of 10 CIOs see
Enterprise Architecture Management
as critical for digital transformation success**



Source: Enterprise Architecture Insights Report 2019, LeanIX Study

n = 176

City-analogy to Enterprise Architecture

- Goals, organization, function, processes, vision, etc.
 - Buildings ~ applications
 - Roads ~ infrastructure
 - People & goods ~ data
- Domains – layered
 - **Business**
 - **Application**
 - **Data/information**
 - **Technology**



Architecture domains: Business Architecture

- Business functions
 - To meet goals
- Organization structure
 - Business roles involved
- Business processes – „how”
 - Goal, trigger, outcomes



Application Architecture

- Applications ~ physical buildings
- Ent. Applications -> digital representations
~ buildings -> construction
- Applications -> Functionality
~ buildings -> functions
- SW technology ~ construction materials
- IT Platforms ~ building equipment
- IT Concepts (e.g. SOA) ~ building styles



Data / Information Architecture

- Data and information – **key assets**
- **Data**: gathered, maintained, stored, exchanged
- Structured, organized, presented
-> **Information**
- Data ~ (the capabilities of) humans and goods
- Information ~ combined humans and goods to utilize capabilities



Instant replication – a difference 😊

Technology (Infrastructure) Architecture

- Technology required **to enable** the applications and data exchange
- ~ land with water- and power supply and roads



Enterprise Integration

- Exchange of data between enterprise applications
- ~ People and their competences/skills may be exported between buildings
- Middleware ~ roads, trains, metro and telephone
- Interfaces ~ doors, mailboxes, telephone-connections to enter or exit the buildings



Architecture roles: Business Architect

- Translates the **goals** into functions, organization and processes
- Process involves **multiple functions**
~ sport-events: police, public transport, public services, hospitals etc.



Application Architect

Responsible for all **buildings** in the city:

- buildings for all **required functions** are in place
- **roadmap** with all renovations or new buildings, in line with the enterprise and BA visions



Technology (Infrastructure) Architect

- Responsible for planning and designing city's **infrastructure**
- The land has sufficient connections to water and power-systems, sewer etc.
- Infrastructure is used by **multiple buildings**
- Provides a **vision** about the future uses
 - Should anticipate and account with the city vision and building roadmap



Standardization

Efficiency

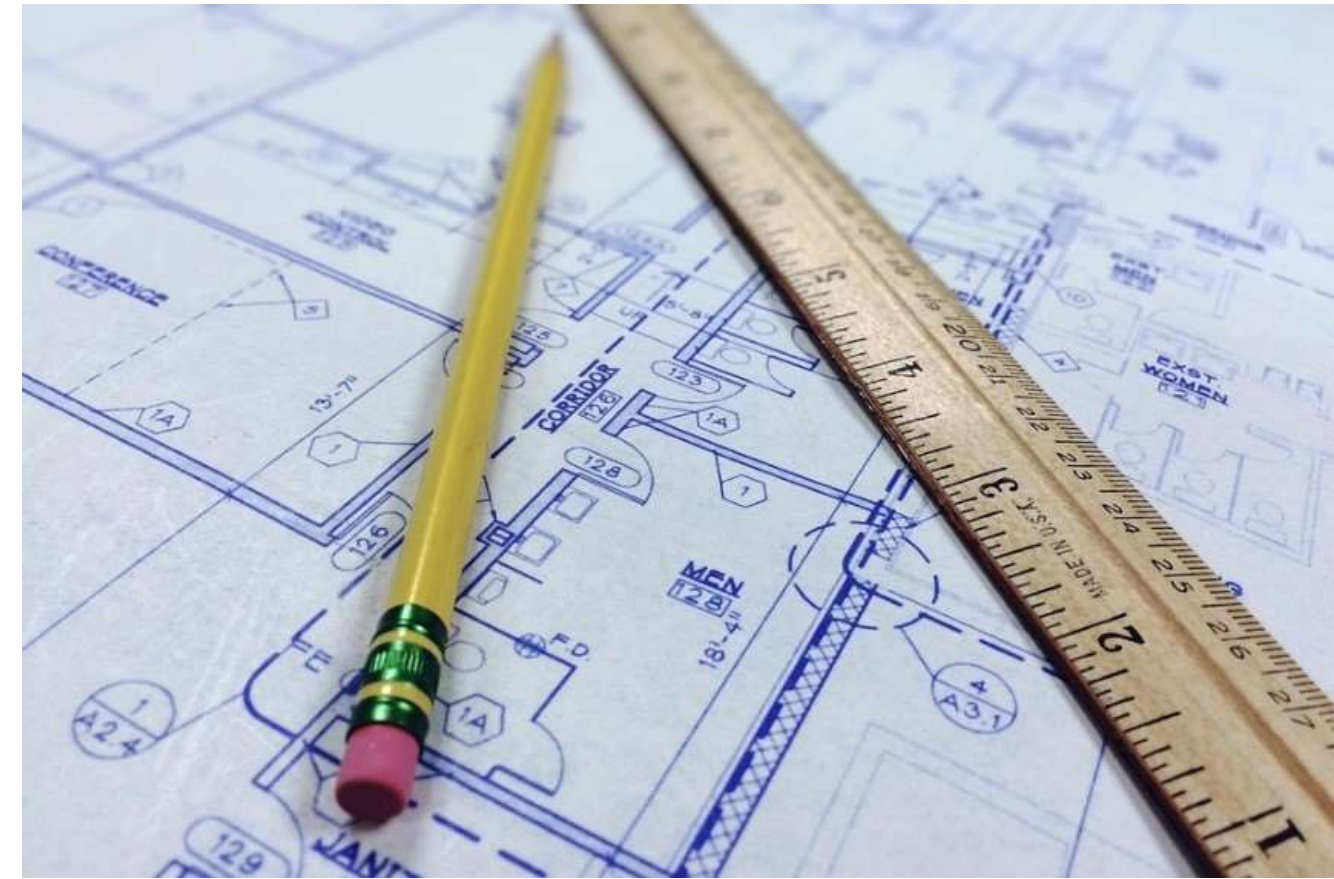
Standardization in transport
and interfaces

IT example: common data model



Solution Architect

- Responsible for the design of a **project** issued by the city
- A project has a “business” **driver**, usually formulated by the BA
- Example: *collect separated waste*
 - Business goal: “improve recycling”
 - Goals (e.g. lower costs), functions (e.g. processing plastic), processes (e.g. collect waste)
 - formulated by BA
 - SA corporates closely with all other architects to define a solution
 - Agreed with other architects involved

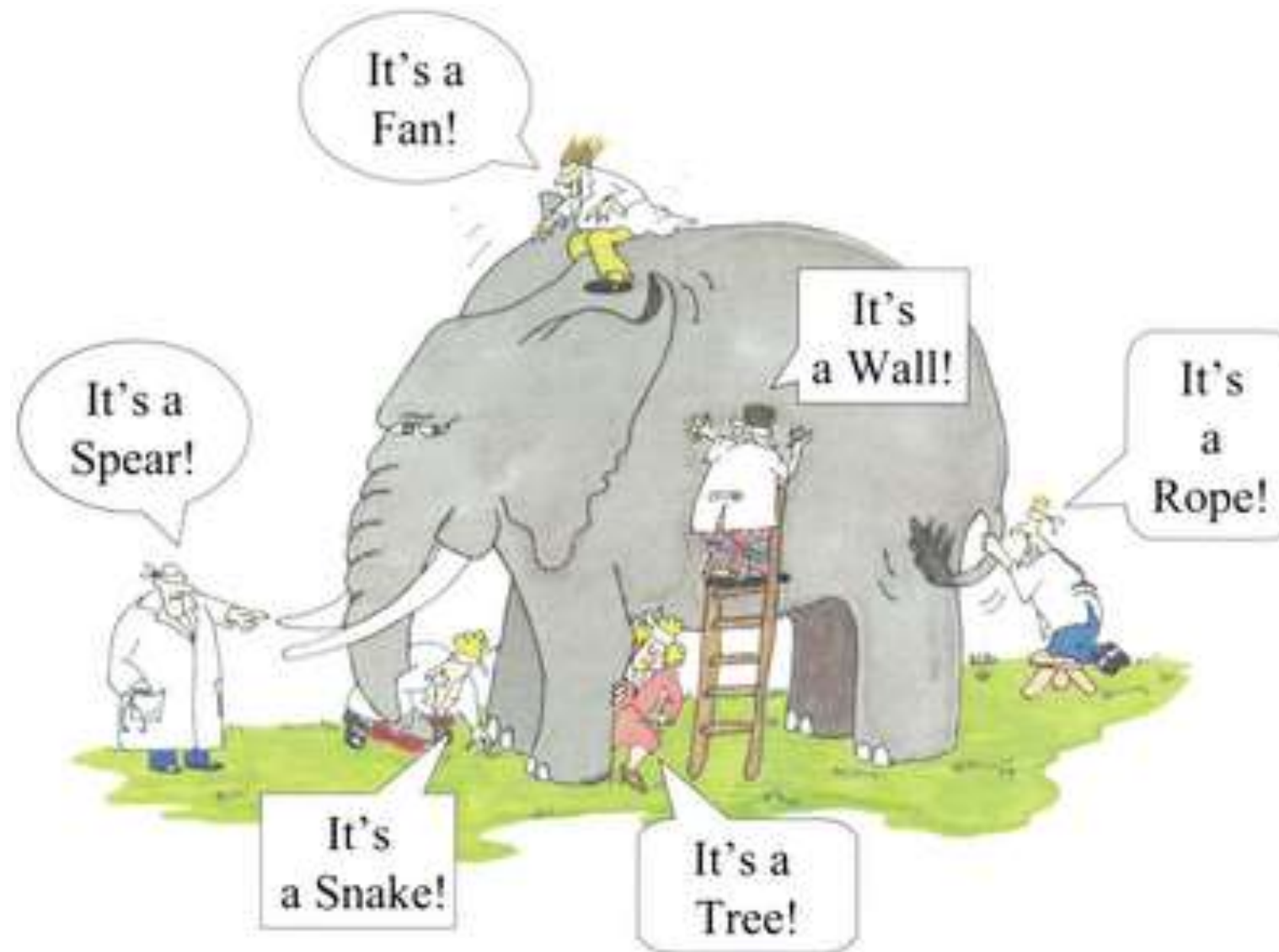


Enterprise Architect

- **Overall responsible** for the architecture
- ~ **chief city planner**
- team of architects is responsible of the complete development and future of the city



The root of the problem



You can't change what you can't see

- Companies struggle with aging, redundant, or underused **IT applications**
 - How to improve the value and efficiency of the **IT portfolio**?
 - How can organizations better understand the **relationships** between
 - business processes and
 - IT resources?
 - **Enterprise architecture (EA) is a proven practice that addresses these needs in today's businesses**
 - **EA can help to gain more visibility into your business**

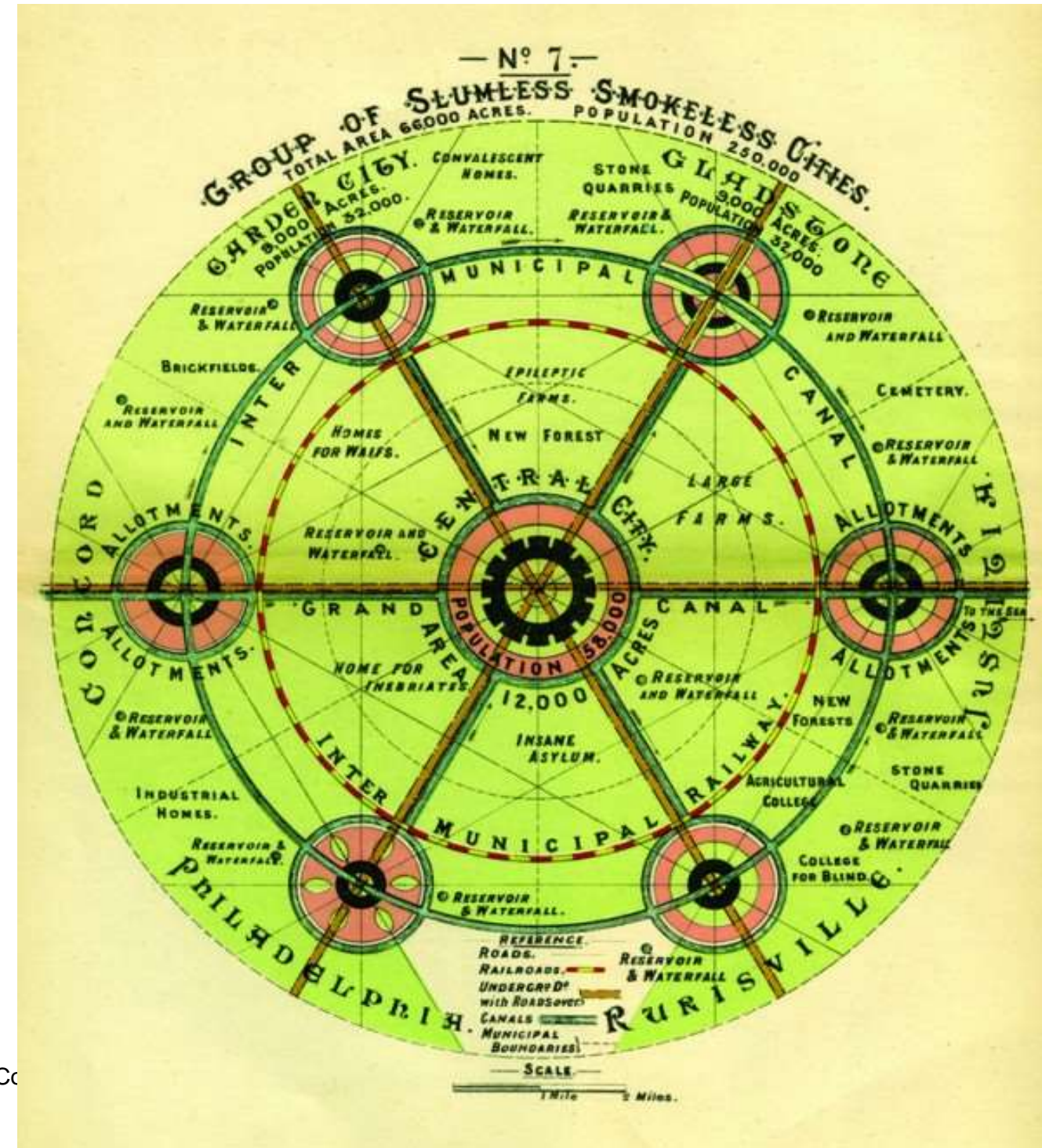
From strategy to solutions



Enterprise Architecture

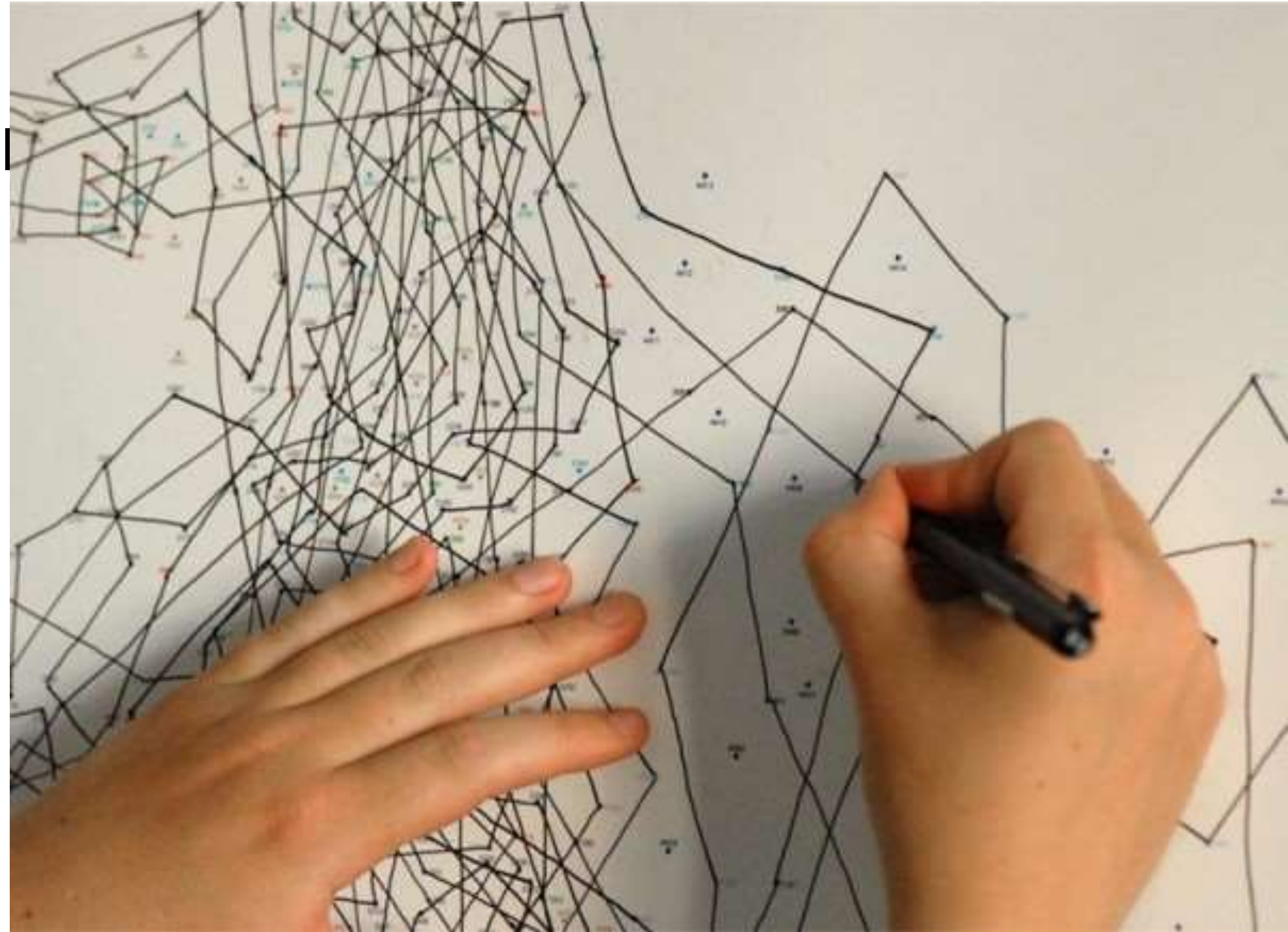
Common Metaphors - Enterprise Architecture

- More Like City Planning – High Level



Common Metaphors - Enterprise Architecture

- More Like City Planning – High Level
- “Connect the Dots”



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- More Like City Planning – High Level
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Common Metaphors - Enterprise Architecture

- More Like City Planning – High Level
- “Connect the Dots”
- The “glue” that connects Business and Technology



Common Metaphors - Enterprise Architecture

- More Like City Planning – High Level
- “Connect the Dots”
- The “glue” that connects Business and Technology
- A “bridge” between business problems and technology solutions



Importance of Enterprise Architecture (EA)

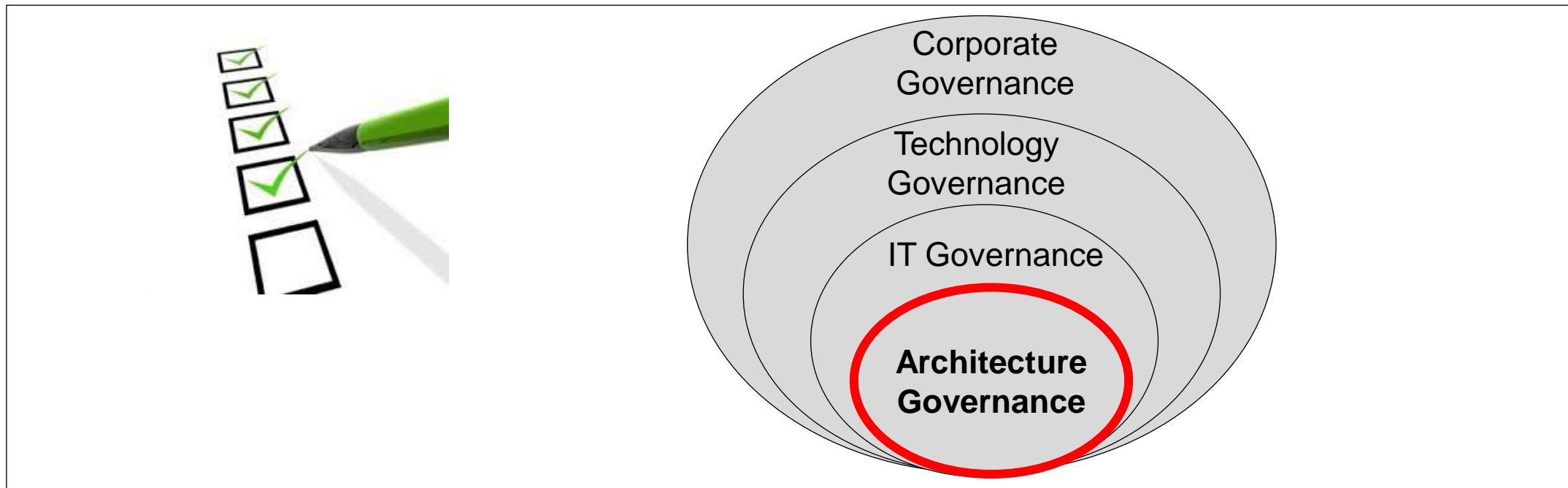
- Facilitates **transformation goals** of the enterprise
- Enables
 - **cross-division** analysis
 - identification of **gaps**
 - opportunities for **collaboration**
- Saves time and money by **reusing** business processes, data, and IT components
- Ensures proposed **investments are not duplicated** within and among divisions

Enterprise Architecture

An Enterprise Architect should be able to transform an idea to operation (realization)

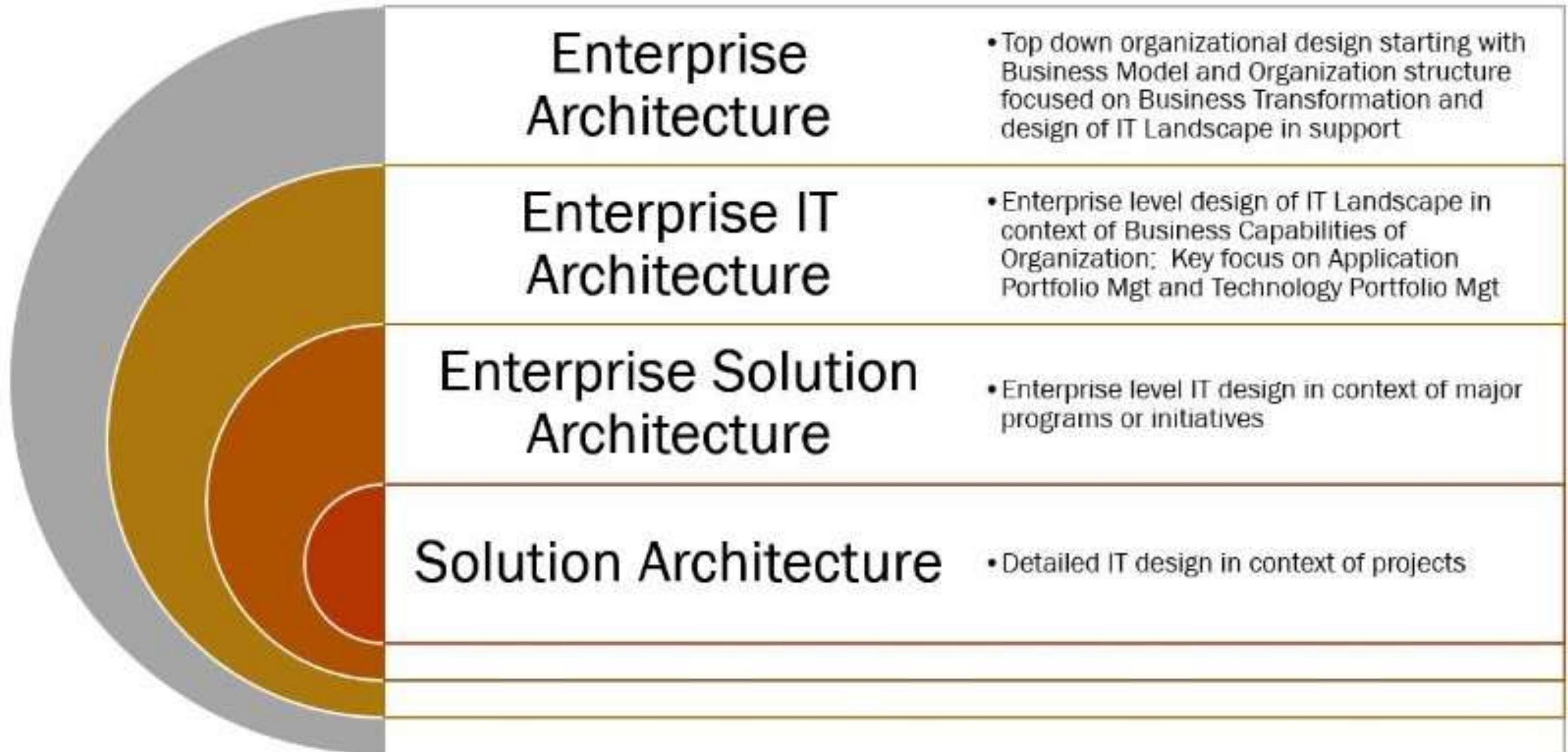


Planning

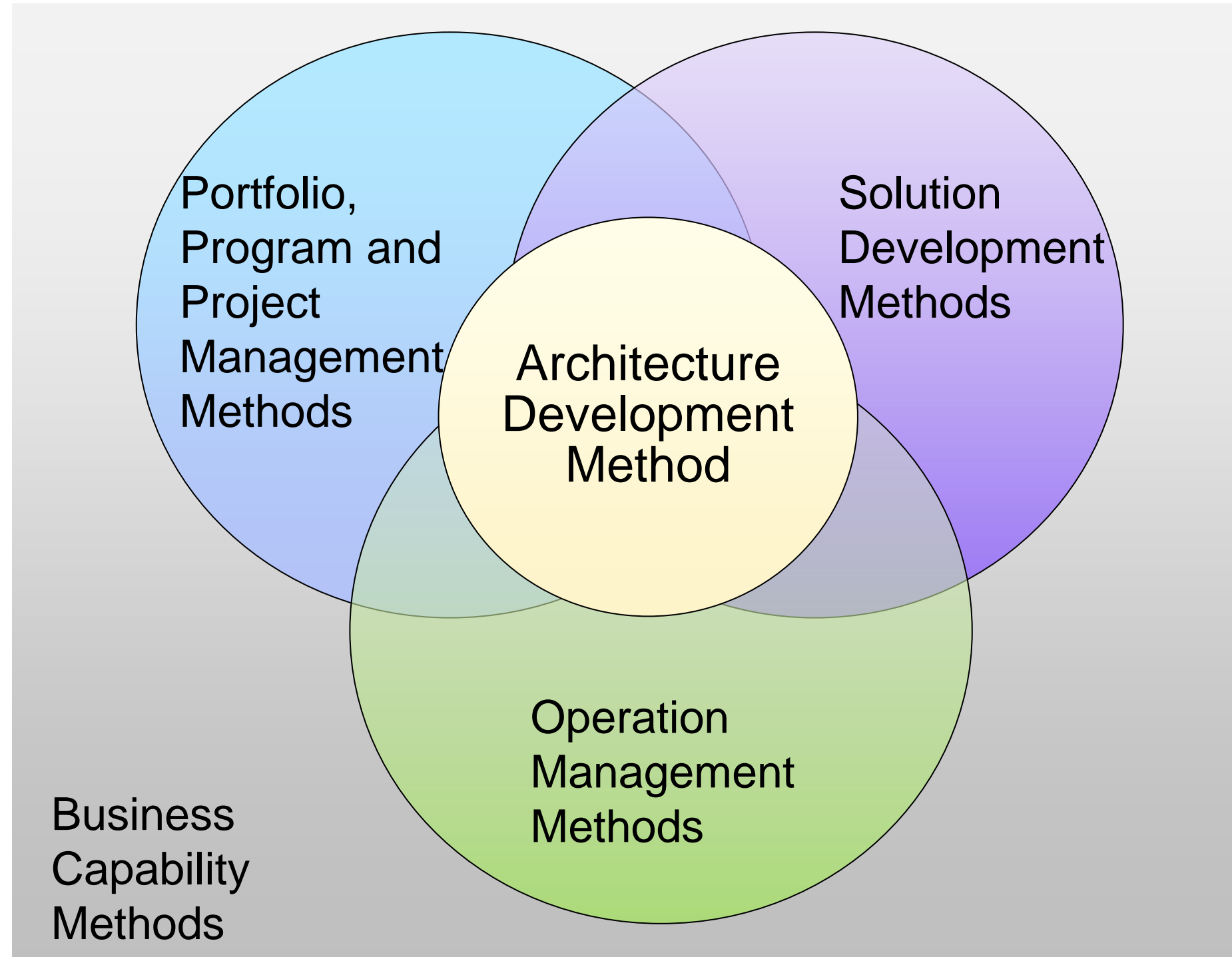


Implementation
governance

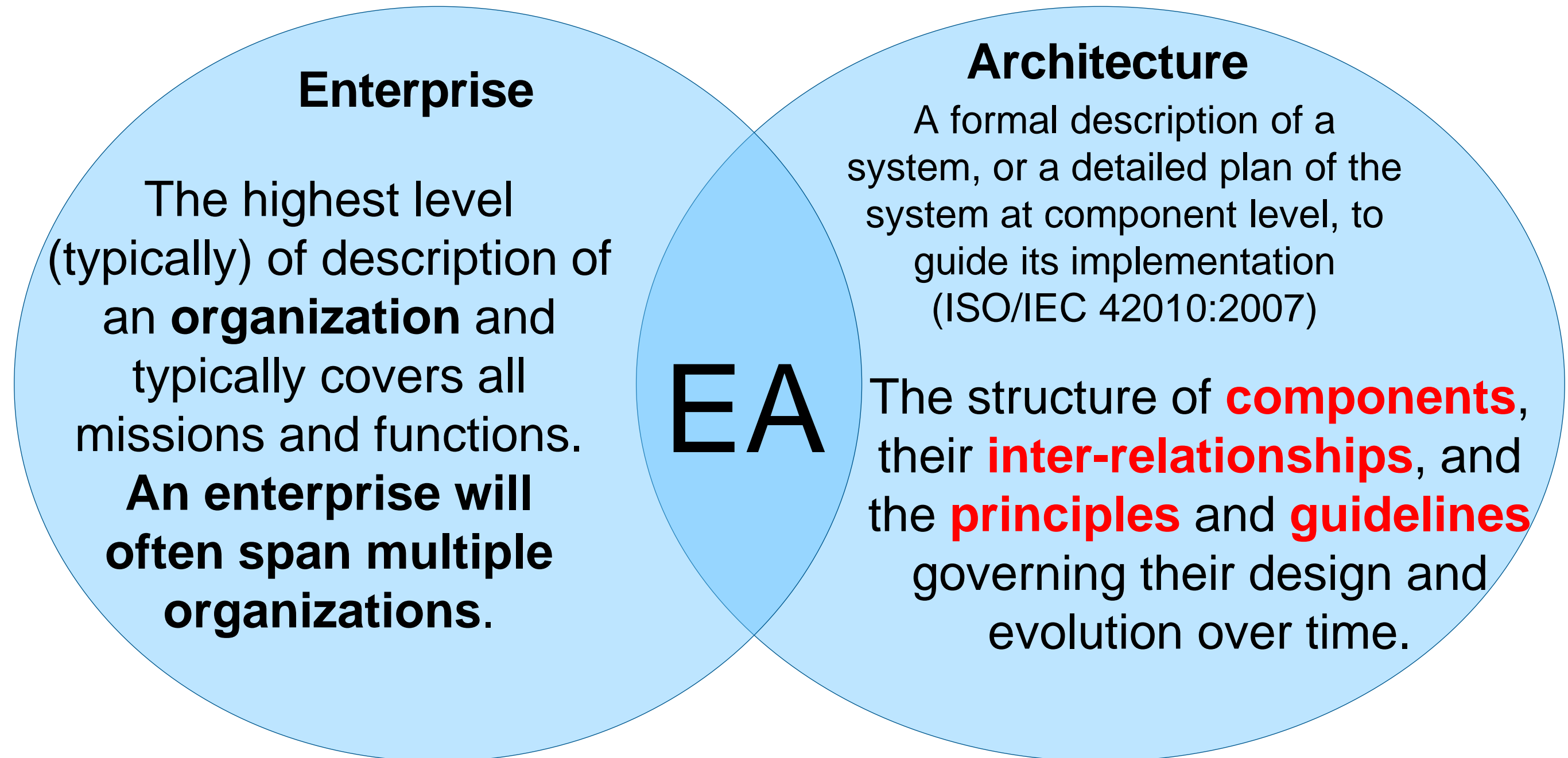
Architecture scope



Management frameworks



What is an enterprise architecture?



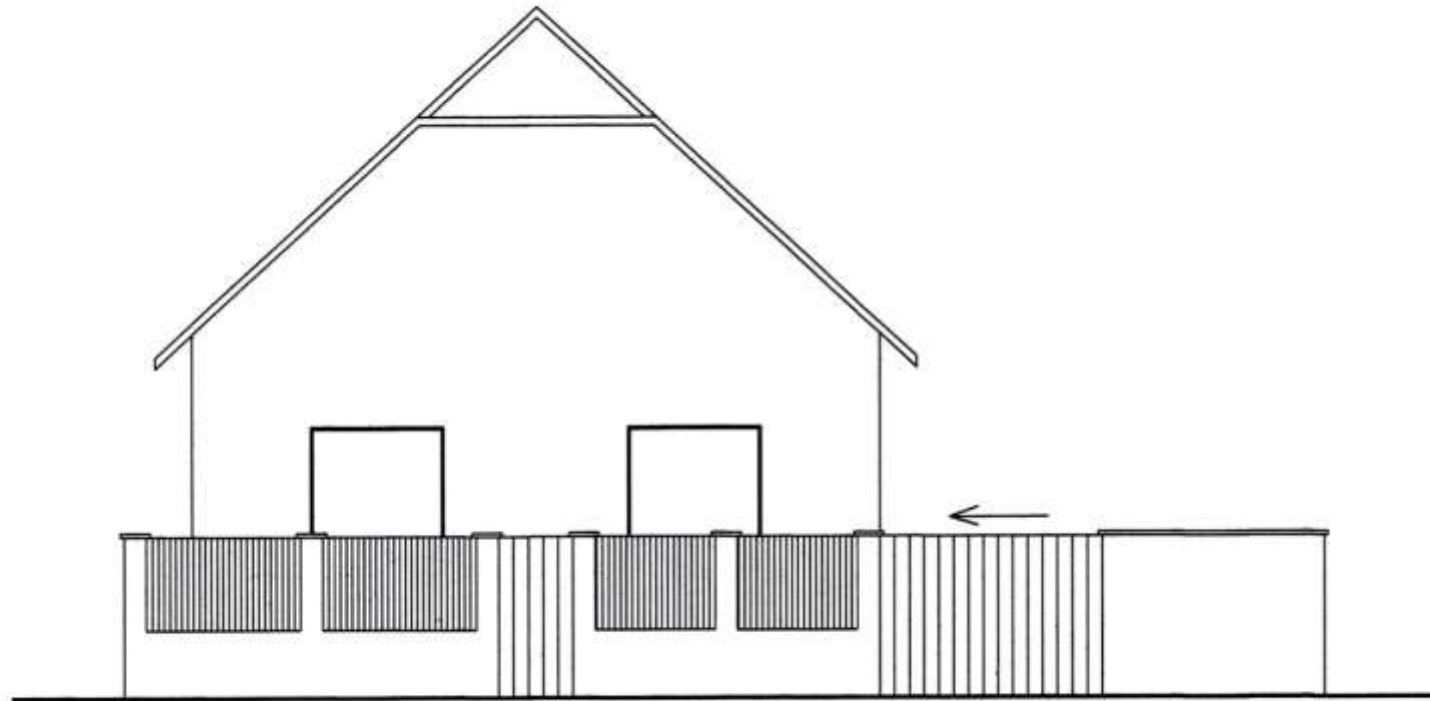
What is an enterprise architecture framework for?

**Architecture Framework =
a set of methods and tools for developing architectures**

Benefits:

- Provides a practical **starting point** for an architecture project
- Provides **common language**
- Enables architects to **design, evaluate, and build the right architecture**
 - Reduces **costs** (planning, designing, implementing architectures)
 - Implementations based on **open** systems solutions
- Helps to manage the **scale and complexity**
 - Tools, methods, best practices

A riddle – 2 pictures



Integrity and completeness

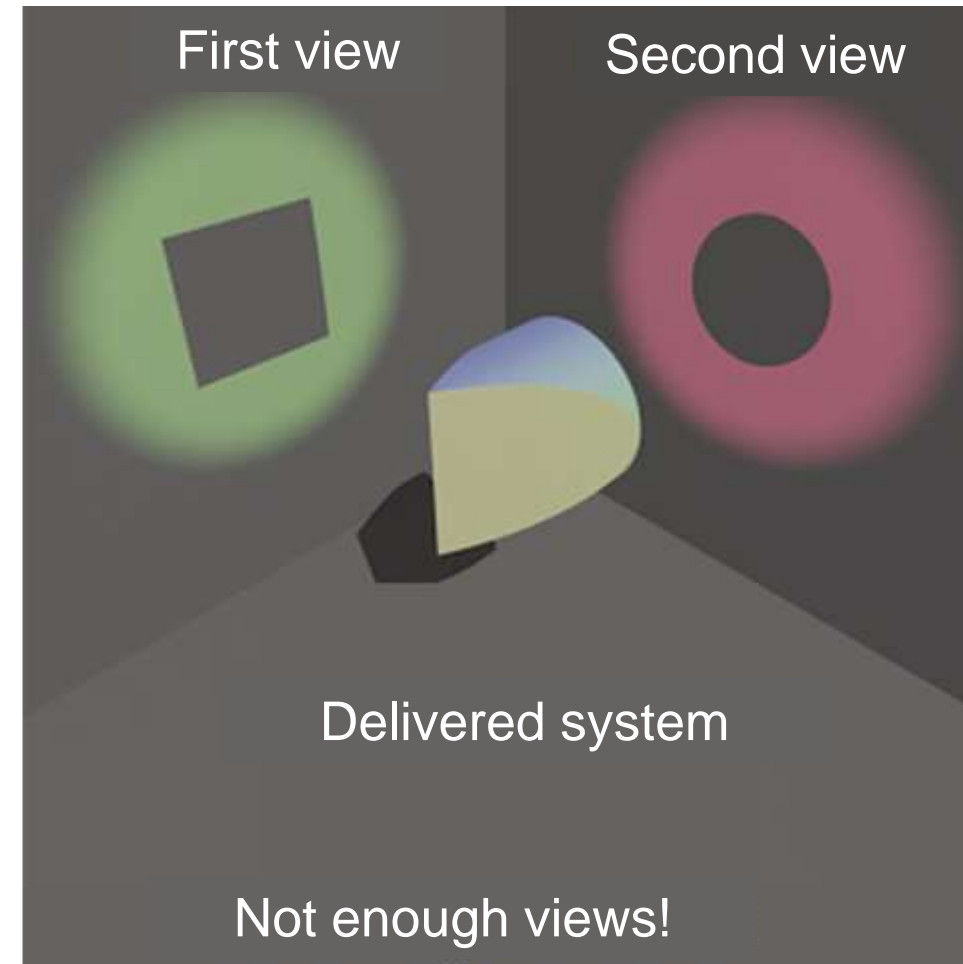
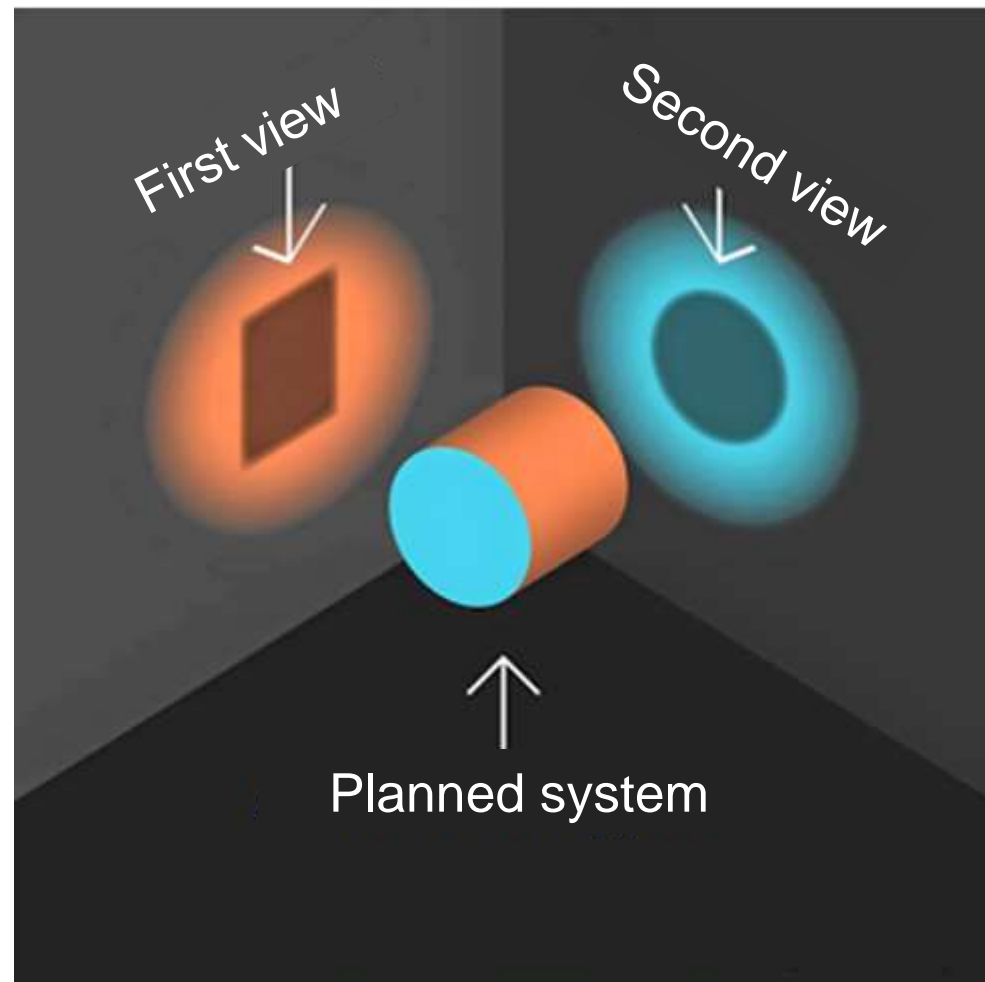
A coherent view of the whole system

The harmony of the different views

Perfect fit of detailed views



Architect's responsibility: necessary views



Architecture domains

Business Architecture
(Business processes, Organizations, People)

**Application
Architecture**
(Services)

Data Architecture
(Data, Information)

Technology Architecture
(Hardware, Software, Network)

Who would benefit from using EA?

- **Organizations**
 - Medium to large organizations
 - Banking and finance, insurance and telecommunications
 - EA consultancies
- **Certification**
 - Individuals: become certified
 - Organizations: certified products (tools, training courses, services)

Architect knowledge, skills

Have a passion for learning and love to deal with complexity and ambiguity

Necessary knowledge

- Knowledge of the strategy
- Knowledge of the portfolio
- Knowledge of methods and processes
- Understanding the full "technology stack"
- (Customer) industry and business priorities
- Knowledge of management processes

Necessary skills

- "Interpersonal skills"
- Effective communication (oral, written, presentations)
- Some commercial knowledge
- Ability to find a solution
- Project Life Cycle Experience
- Quality Assurance and Evaluation Capabilities
- Ability to express technological problems in business language
- Keep balance in scope and depth

Certifications

100 000+ TOGAF® certifications



Professional Certifications

Knowledge based
certifications



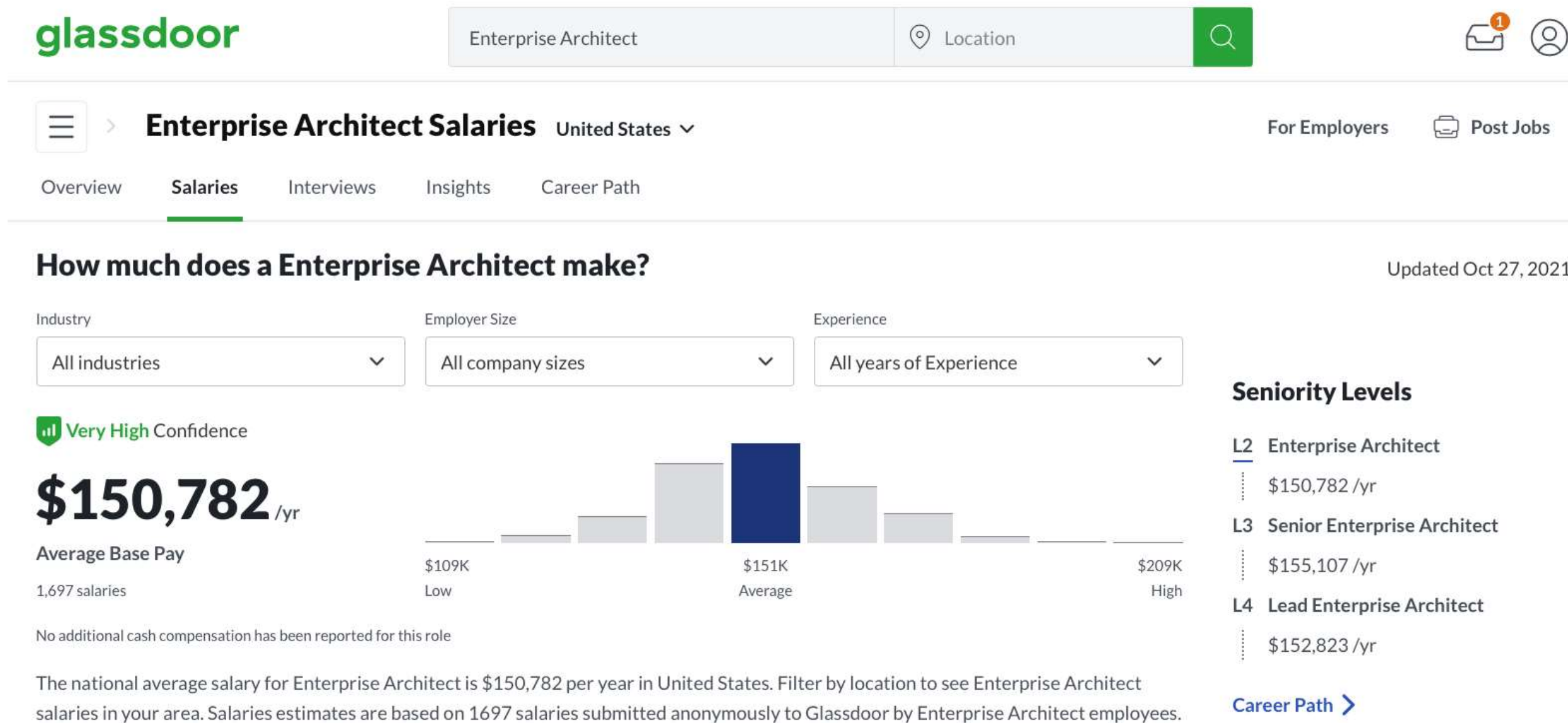
Experience based
certifications



Product and service certifications

- Software Tools
- Trainings

One more reason



Source: <https://www.glassdoor.com/Salaries/>

The Open Group

Leading the development of open, vendor-neutral IT standards and certifications

- **Global** consortium
- **400+** member organizations
- **Requirements, policies, best practices**
- **Interoperability, specifications, open source** technologies
- **Certification** service



Activities

ArchiMate® Forum

Architecture Forum

Exploration, Mining, Metals & Minerals™ (EMMM) Forum

Healthcare Forum

IT4IT™ Forum

Open Footprint™ Forum

Open Process Automation™ Forum

OSDU™ Forum

Real-Time & Embedded Systems Forum

The Open Group Platform Forum

Open Trusted Technology Forum

Security Forum

Work Groups

Work Groups Open to All Members of The Open Group

The Open Group Government EA Work Group

The Open Group Commercial Aviation Work Group

Consortia

Future Airborne Capability Environment™ (FACE)

Sensor Open Systems Architecture™ (SOSA)

Data Science Community



Association of Enterprise Architects

The definitive professional organization for Enterprise Architects



• Goals

- increase **job opportunities** for all of its members
- increase their **market value** by advancing professional excellence, and to raise the status of the profession as a whole
- advancing professional excellence

• An Enterprise Architect's skills have to be based on:

- An accepted professional structure
- High **standards** of expertise
- Recognized **best practice**
- An assurance that the skills are **transferable between enterprises**

• AEA in numbers

- 60,000+ registered members, 37 chapters

• AEA Hungarian Chapter

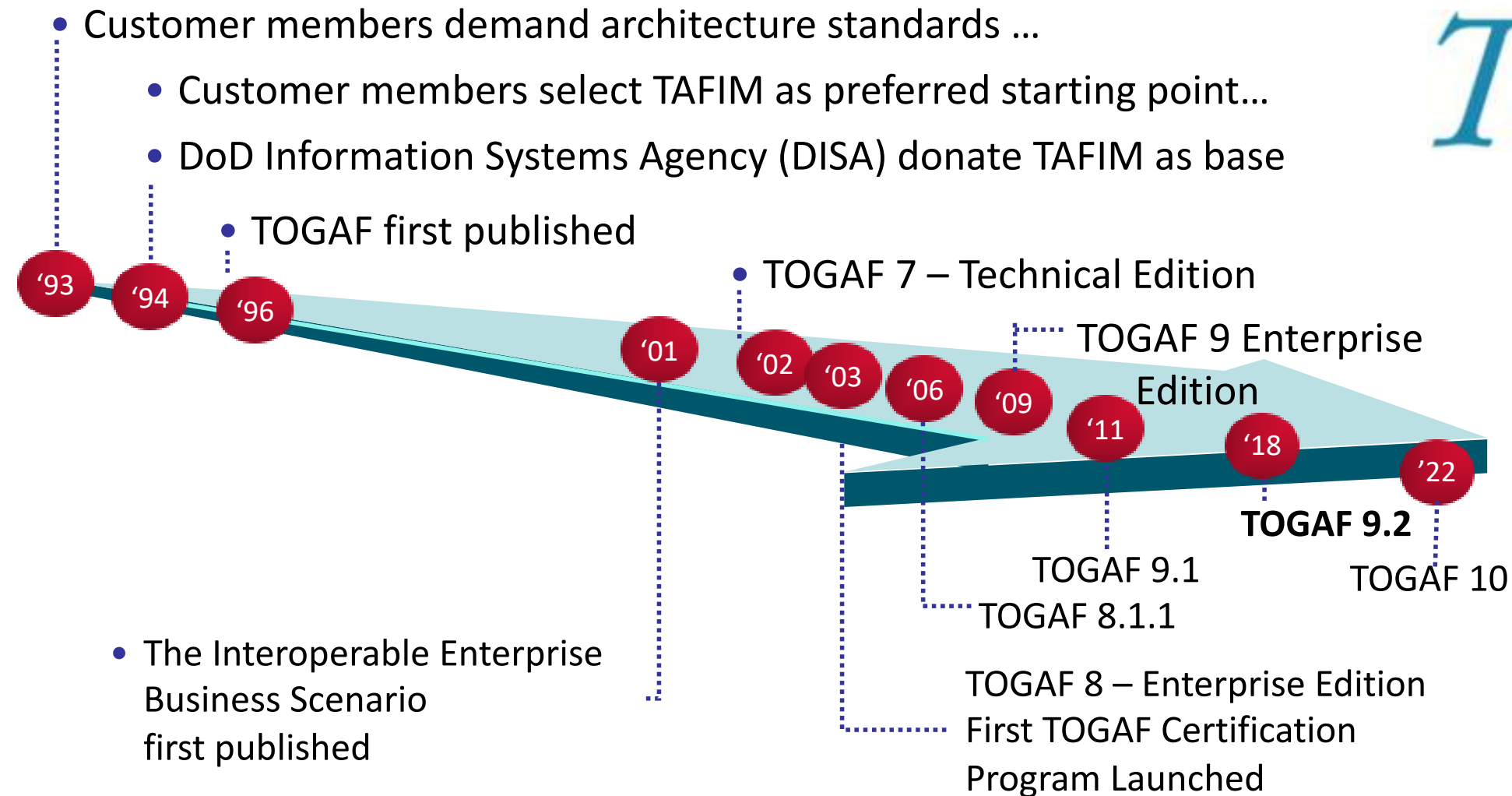
- Established in 2012, translation, knowledge sharing, training
www.aeahungary.org



TOGAF – The Open Group Architecture Framework

Member (End User) Driven

TOGAF®

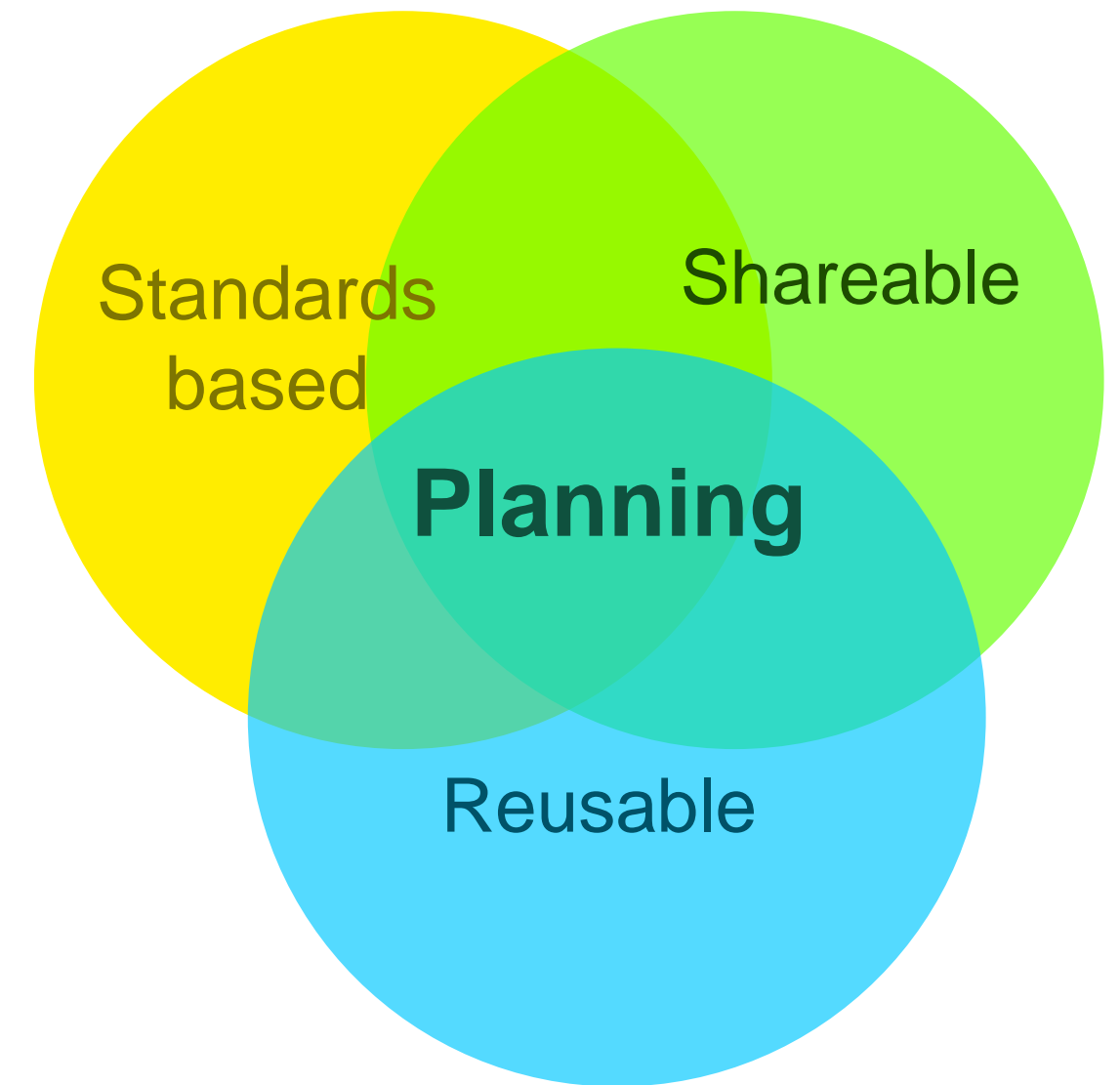
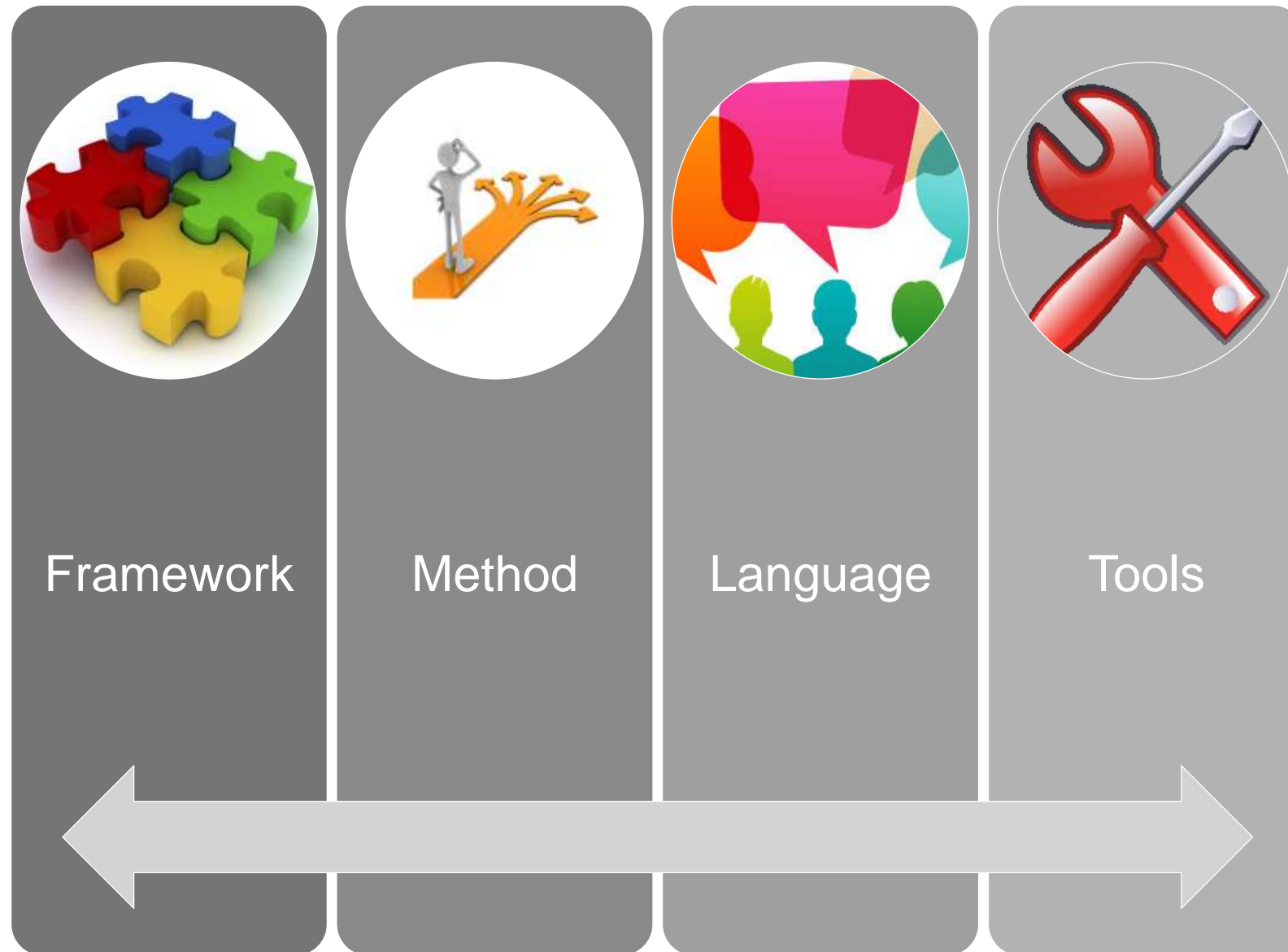


The Open Group announced the release of the 10th edition of the TOGAF Standard on 25 April 2022

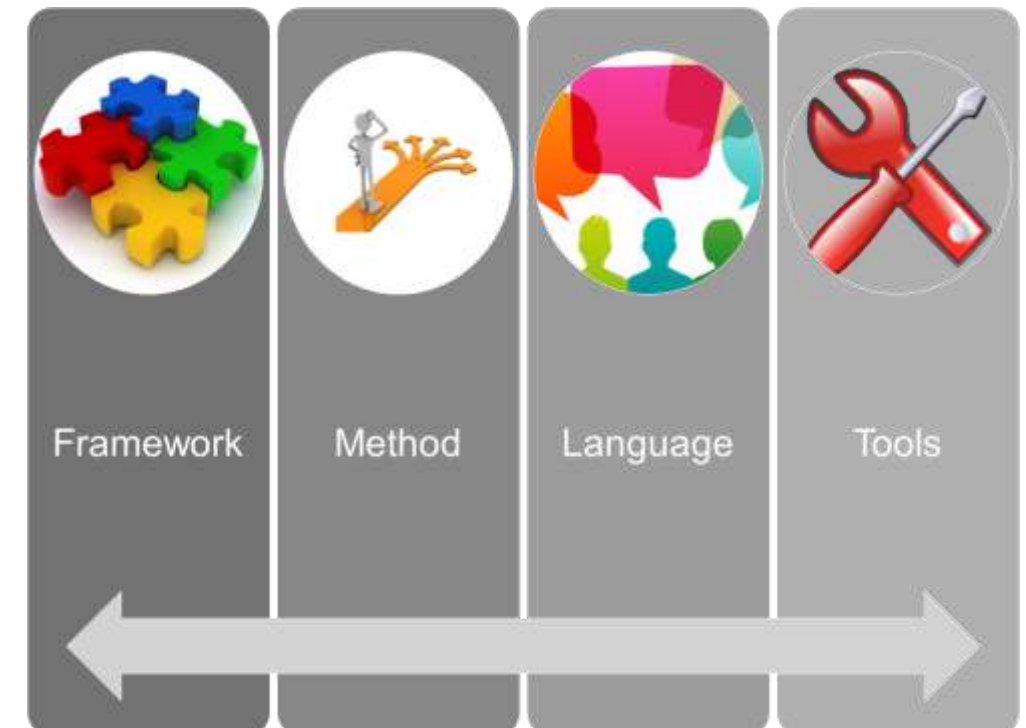
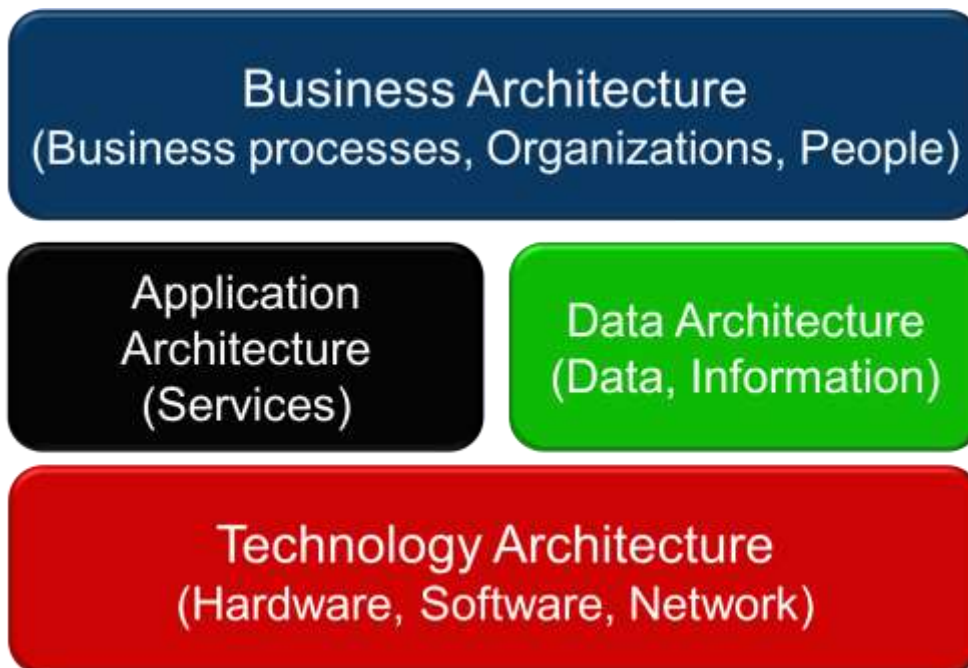
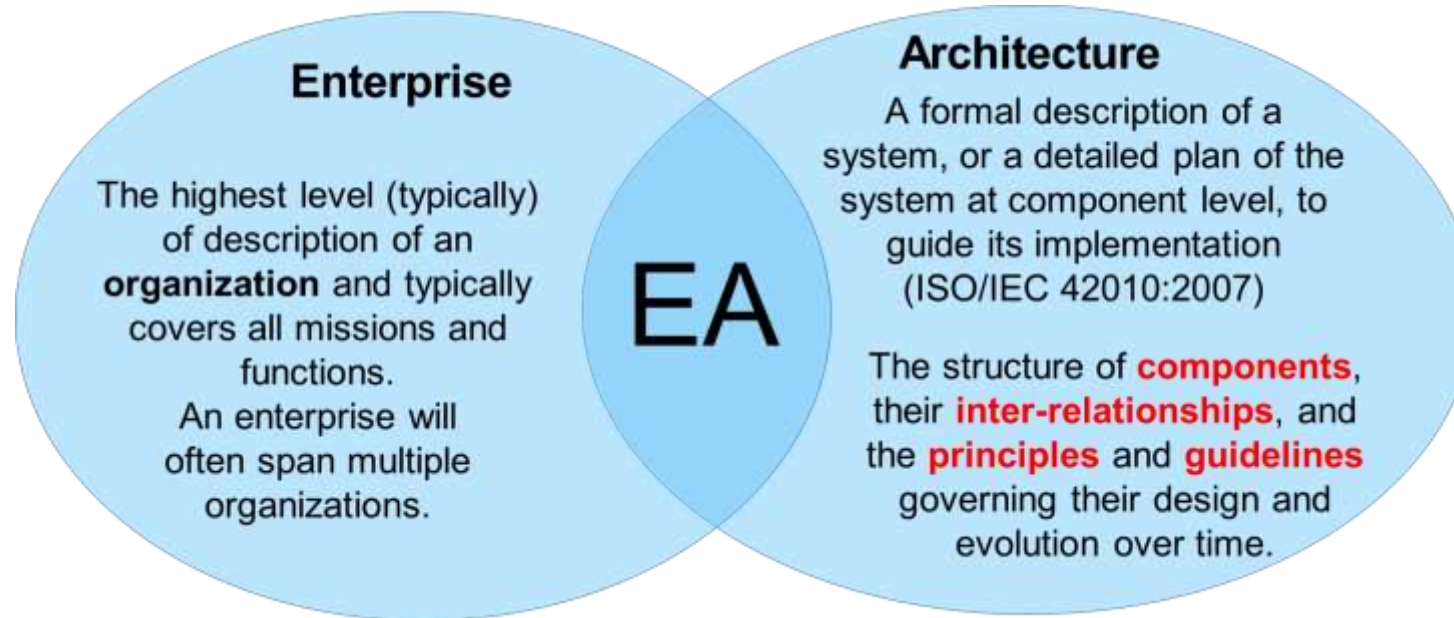
No trainings, exams, certifications are available for TOGAF 10th edition yet.

Information on additions to the certification portfolio to incorporate the TOGAF Standard, 10th Edition will be announced in the coming months.

Enterprise Architecture Approach



Summary



Conclusions

- **Well-planned and well-executed Enterprise Architecture a necessity for business success and survival**
- **TOGAF®** (as the world's leading EA framework) provides:
 - the essential **methods, best practices, and supporting tools**
 - to achieve **effective and transformative** enterprise architectures,
 - all in a **flexible** manner
 - that builds on, integrates, and more fully leverages your **existing project and IT management frameworks**

Let's Do Enterprise Architecture the Smart Way!

Useful links

- About EA and standards: www.opengroup.org/subjectareas/enterprise
- Official TOGAF site: www.opengroup.org/togaf
- The Open Group Standard: The TOGAF® Standard, Version 9.2
ISBN: 1-947754-11-9, Document Number: C182
- TOGAF Version 9 body of knowledge
<http://www.opengroup.org/architecture/togaf9-doc/arch/>
- Association of Enterprise Architects (AEA): www.globalaea.org
- AEA Hungarian Chapter: www.aeahungary.org
- EA blog in Hungarian: <http://viraghtamas.blogspot.com>

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