Towards Critical Success Factors for Enterprise Architecture

AISA Project
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Objectives of the Study

- To determine what quality means in the context of enterprise architecture (EA)

- To identify the potential/candidate critical success factors (CSFs) for EA

- To prioritize the potential CSFs for EA: an example of prioritization is given

Enterprise Architecture (EA)

- Identifies the main <u>components</u>[1] of the organization, the ways in which these components <u>work together</u> in order to achieve defined <u>business objectives</u>, and the way in which the information systems support the business processes of the organization

- It takes a <u>holistic view</u> of the enterprise's IT resources rather than an application-by-application view

[1] E.g. Staff, business processes, technology, information, financial and other resources, information systems   (Kaisler et al., 2005)
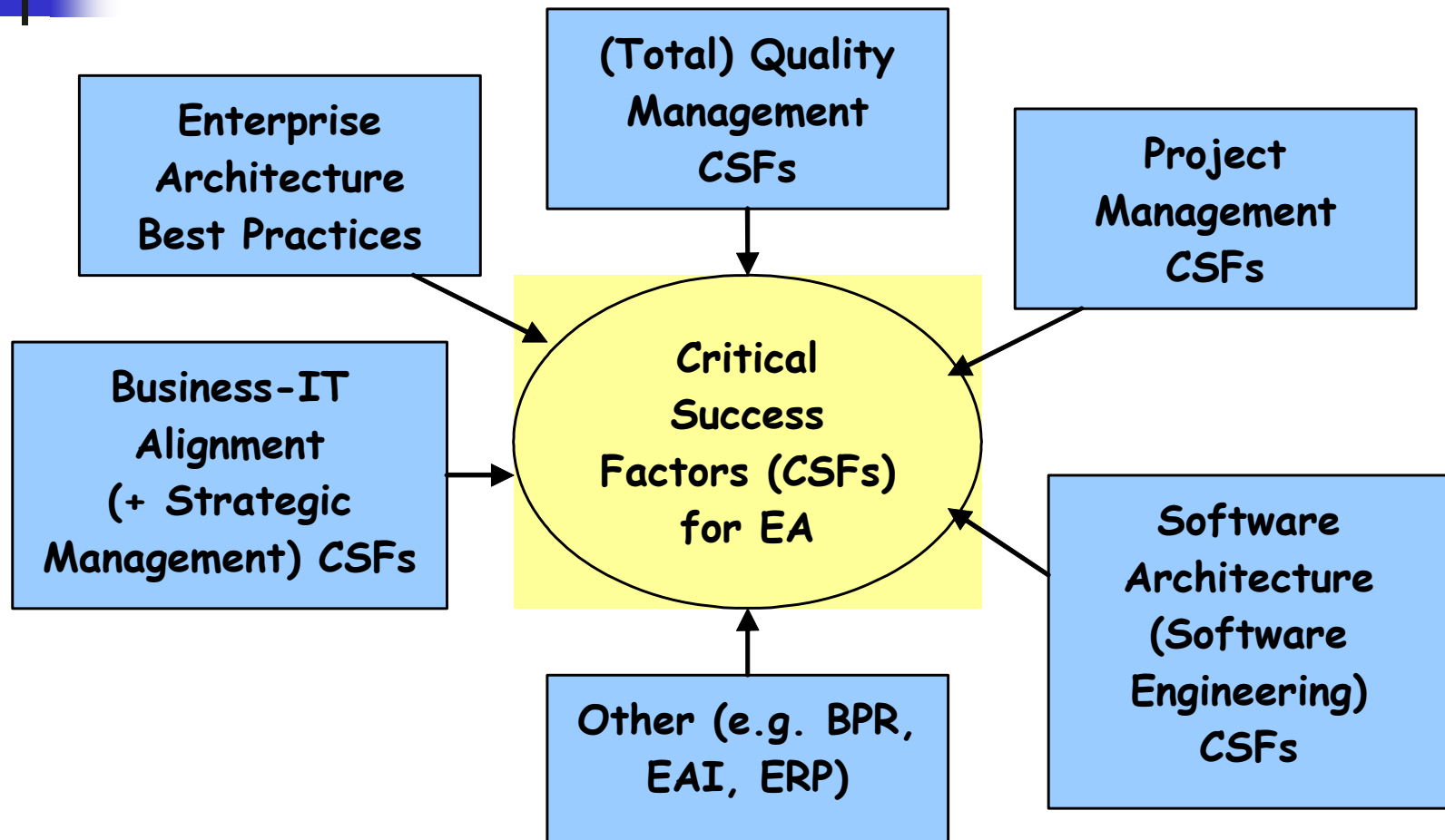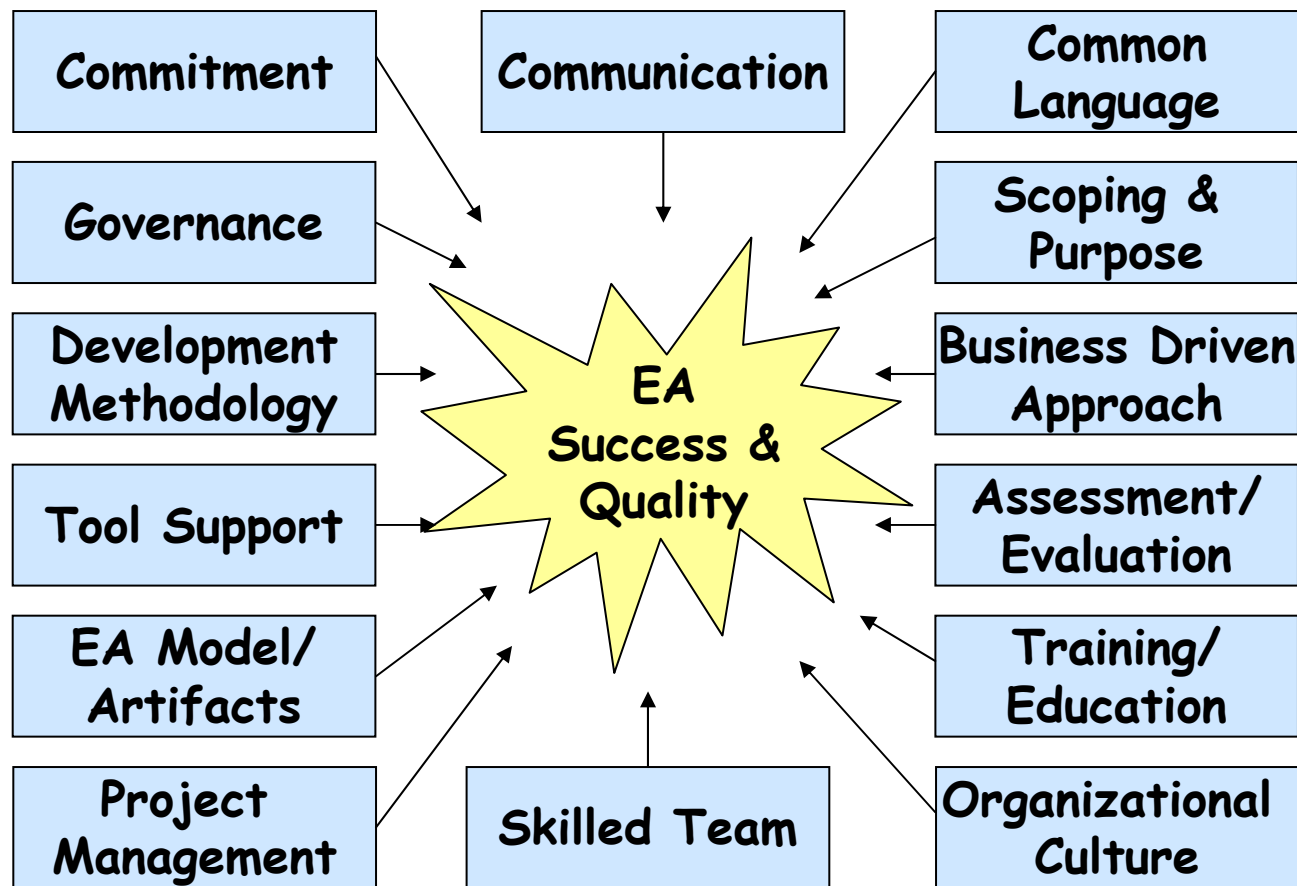
Some Characteristics of an EA of High Quality

- Conforms to the agreed and fully understood business requirements and business strategies
- Fits for the purpose (e.g. more efficient ICT decision making)
- Satisfies the various stakeholder groups' (e.g. the top management, IT management, architects, developers) expectations in a cost-effective way
- Understands both the current needs and the future requirements
- Is understood, accepted and used in every day business functions
- Brings value to the organization

CSFs[1] for EA were derived from…

(Total) Quality Management CSFs

Enterprise Architecture Best Practices

Project Management CSFs

Business-IT Alignment (+ Strategic Management) CSFs

Critical Success Factors (CSFs) for EA

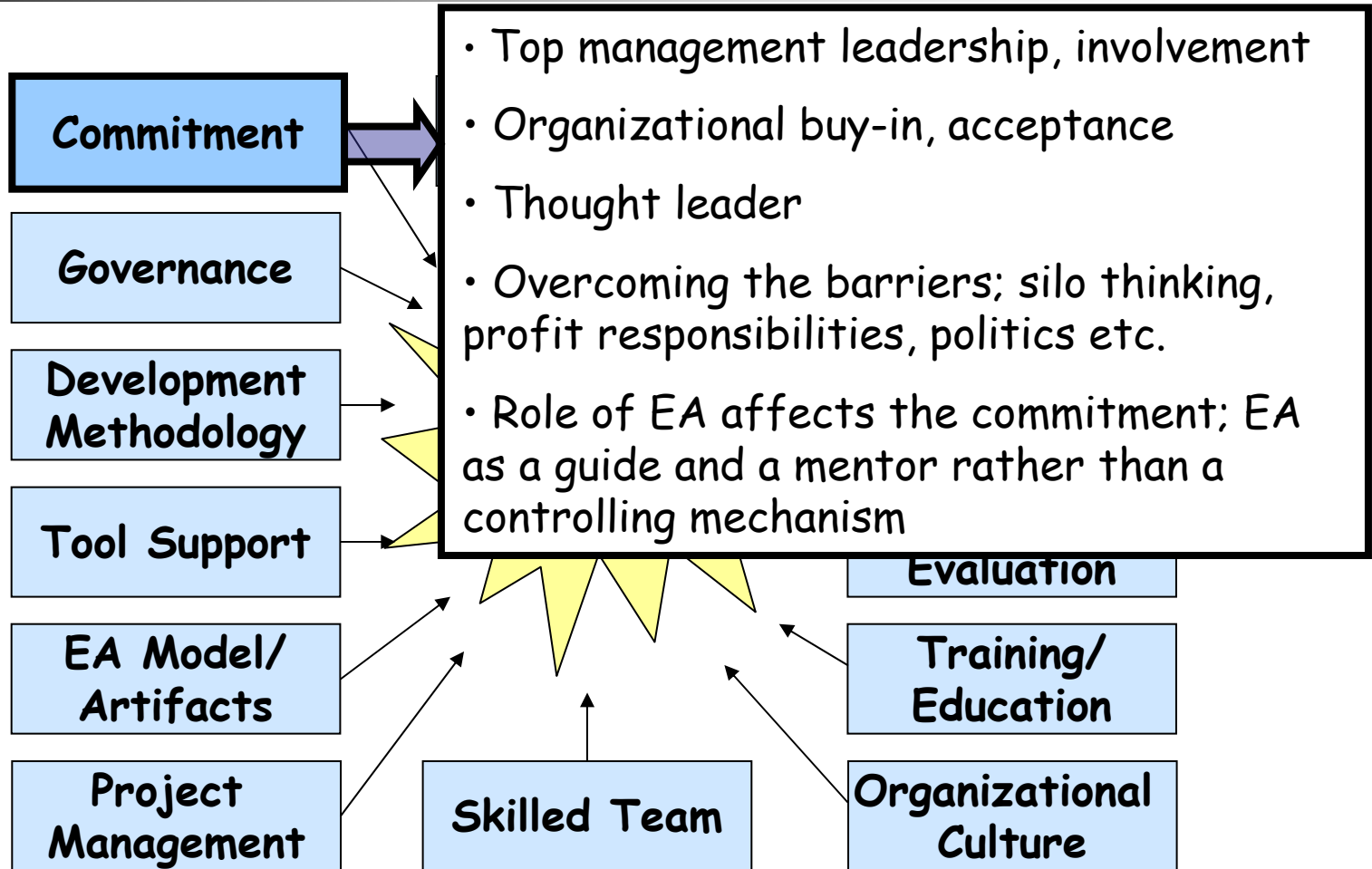Software Architecture (Software Engineering) CSFs

Other (e.g. BPR, EAI, ERP)

[1] Things that must be done exceedingly well in order to gain a successful EA

Potential CSFs for EA

Potential CSFs for EA

Commitment

- Top management leadership, involvement
- Organizational buy-in, acceptance
- Thought leader
- Overcoming the barriers; silo thinking, profit responsibilities, politics etc.
- Role of EA affects the commitment; EA as a guide and a mentor rather than a controlling mechanism

Governance

Development Methodology

Tool Support

EA Model/ Artifacts

Project Management

Skilled Team

Evaluation

Training/ Education

Organizational Culture

Potential CSFs for EA

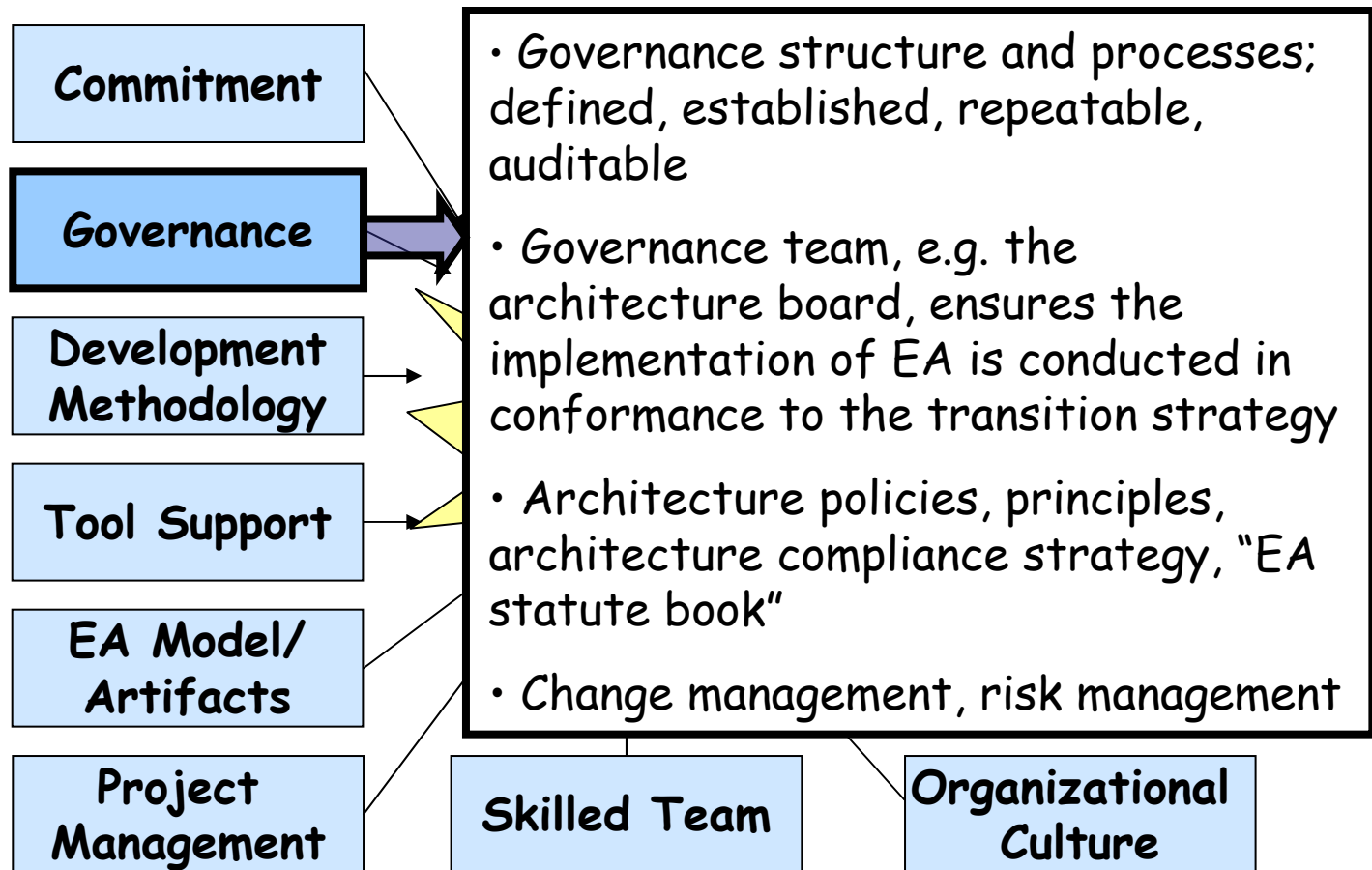| Commitment	Communication	Common Language

- Communication essential in gaining a common understanding, agreement and a shared view → commitment

- Communication is needed between all the diversified stakeholder groups, and projects implementing EA conformant information systems

- Proactive, various channels used, regular, frequent, feedback channels available, ongoing process, documented (communications plan/strategy)

- A common, well-defined vocabulary of architecture terms and concepts to help communication

- Enterprise architect as an interpreter between the various stakeholder groups, also able to speak "business language"

Potential CSFs for EA

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Organizational Culture

- Governance structure and processes; defined, established, repeatable, auditable

- Governance team, e.g. the architecture board, ensures the implementation of EA is conducted in conformance to the transition strategy

- Architecture policies, principles, architecture compliance strategy, "EA statute book"

- Change management, risk management

Potential CSF for EA

• Mission, goals and direction, objectives of the organization, why it wants to apply the EA approach, what is the existing or future problem it wants to solve/be prepared for

→"declaration of will", mission statement

• To get everyone to share the same architectural vision

• EA scope clearly defined; how wide, how deep, how detailed, how fast an EA should be developed

- continuous improvement approach
- prioritization of sub-projects
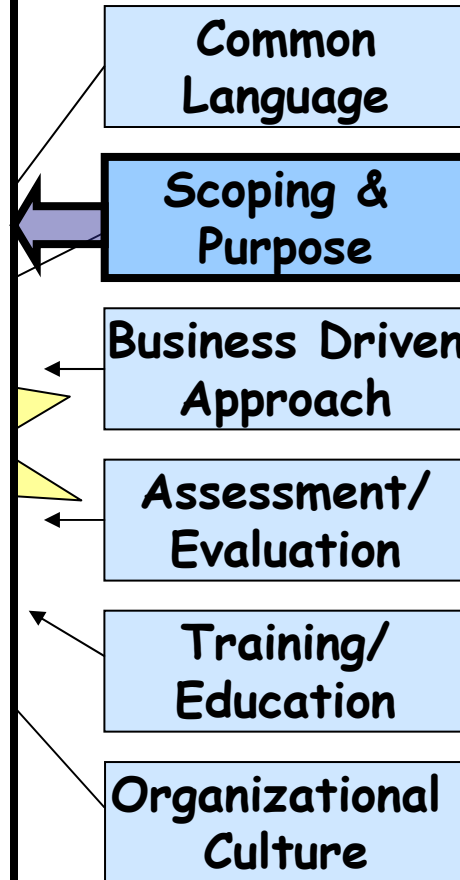- holistic in scope
- specific to the enterprise

Common Language

Scoping & Purpose

Business Driven Approach

Assessment/ Evaluation

Training/ Education

Organizational Culture

Potential CSFs for EA

- Commitment
- Governance
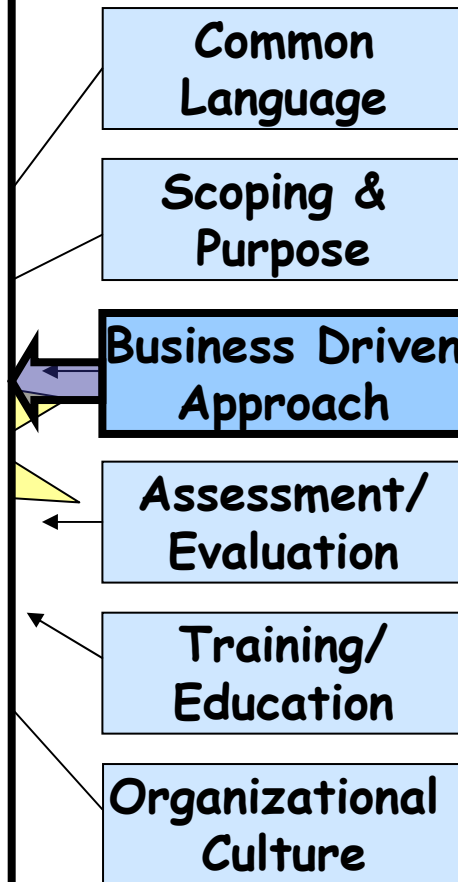- **Development Methodology**
- Tool Support
- EA Model/ Artifacts
- Project Management

• Structured, well-defined and documented incl. e.g. processes, guidelines, best practices, drawing standards

• Business-strategic-driven, customer-focused, practice-oriented, situational, model-based, repeatable, future-oriented, widely usable with reasonable costs

• Architecture principles; simple, direct statements of how an organization wants to use IT, establishing a context for architecture decisions

• Guiding principles provide consistent, shared vision for developing architecture, ensuring the development initiatives to be in line with the organization's strategic goals
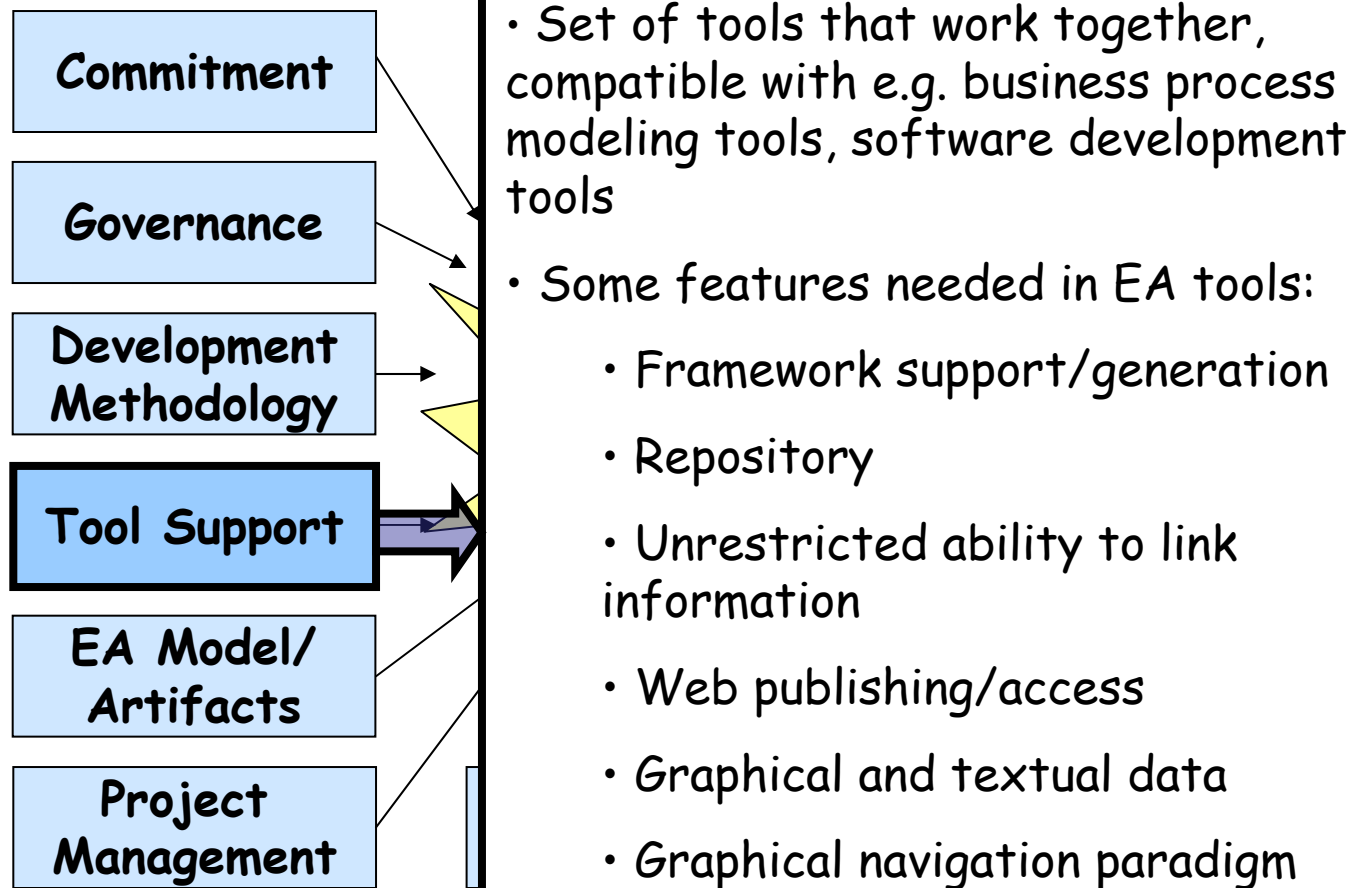
Potential CSFs for EA

- Defining the business requirements and ensuring they are met → clear alignment between business and IT

- EA initiatives traceable to business strategies

- Requirements set by external stakeholders (legislation, standards, business owners, partners) should also be considered and defined

- Architecture visions are needed

  - They should be compatible with the business vision and objectives

  - When the limited resources (time, money, skills) are considered, realistic and realizable objectives are reached

Common Language

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Potential CSFs for EA

Commitment	• Set of tools that work together, compatible with e.g. business process modeling tools, software development tools
Governance	• Some features needed in EA tools:
Development Methodology	• Framework support/generation
Tool Support	• Repository
EA Model/ Artifacts	• Unrestricted ability to link information
Project Management	• Web publishing/access

- Set of tools that work together, compatible with e.g. business process modeling tools, software development tools

- Some features needed in EA tools:

    • Framework support/generation

    • Repository

    • Unrestricted ability to link information

    • Web publishing/access

    • Graphical and textual data

    • Graphical navigation paradigm

Boxes (left to right / top to bottom):
- Commitment
- Governance
- Development Methodology
- Tool Support
- EA Model/ Artifacts
- Project Management

Potential CSFs for EA

- Questions to be asked
  - Why measurement is needed?
  - What is measured?
  - How? Which metrics are used?
  - Who does the work?
- Continuous process, proactive
- Metrics should be developed as early as possible in the development process
- Post-mortem analysis, lessons learned
- No established metrics available

Common Language
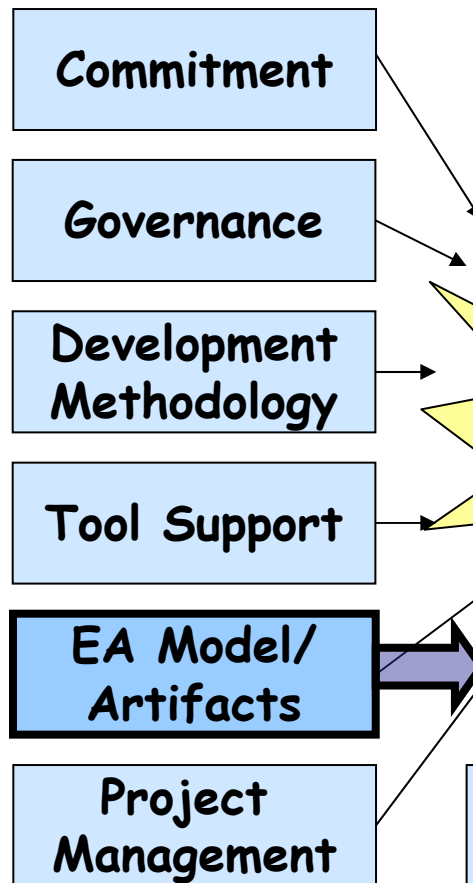
Scoping & Purpose

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Management

Potential C

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┌─────────────────┐
│   Commitment    │
└─────────────────┘

┌─────────────────┐
│   Governance    │
└─────────────────┘

┌─────────────────┐
│  Development    │
│  Methodology    │
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┌─────────────────┐
│  Tool Support   │
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┌─────────────────┐
│   EA Model/     │
│   Artifacts     │
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┌─────────────────┐
│    Project      │
│  Management     │
└─────────────────┘
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- All the necessary levels or views of the architecture are modeled

- Coherent, concise picture of the enterprise

- Current and future architecture, transition plan, architecture decisions

- Other requirements for EA models, e.g.

  - must meet the business requirements

  - traceability between the models and business requirements

  - conformance to standards and business strategies

  - well documented, current and available

  - efficient and complete enough, clear, readable, verified and validated

EA

- Training is an important part of enhancing quality, also a continuous process

- One way of gaining EA awareness and acceptance

- Training is needed e.g. in the following levels:

  - General EA education; frameworks etc.

  - Best-practices, methods, tools for architects

  - Business training for IT people, IT training for business people

  - Education on the possibilities new technologies may offer

- Things architects teach to other stakeholders

- Avoid using the term education when communicating with the top management

| Common Language |
| Scoping & Purpose |
| Business Driven Approach |
| Assessment/ Evaluation |
| Training/ Education |
| Organizational Culture |

Potential C

Commitment

Governance

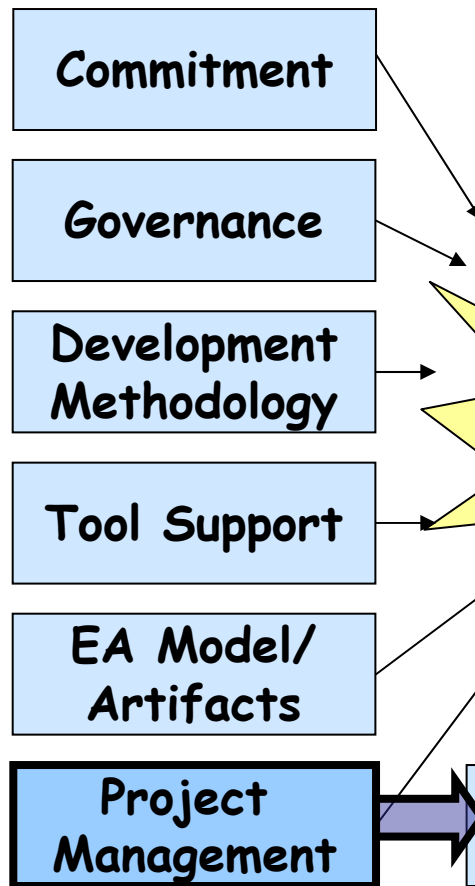**Development Methodology**

Tool Support

EA Model/ Artifacts
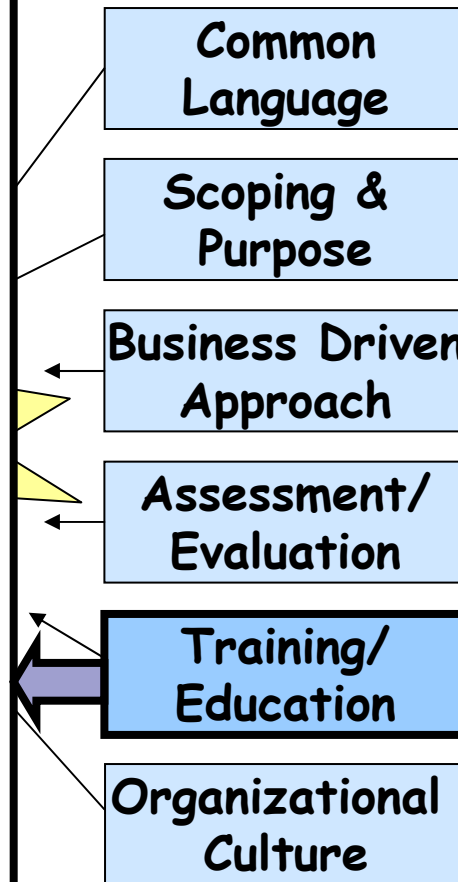
Project Management

- EA development is conducted through projects → project management skills are needed

    - Realistic scope, size, plans, scheduling

    - Requisite financial and human resources

    - Risk management

    - Organizational structure

    - Continuous measurement of project success

   - Leadership, commitment

    - Clear milestones

    - Lessons learned gathered

- Program management; managing, coordinating and supporting several various development projects

Potential CSFs for EA

- Teamwork is essential in EA development

- Representatives from all key stakeholder groups, e.g. business experts, business management, system development experts, data, infrastructure and security system architects, partners

- Chief architect assigned, should be able to work in various roles, e.g. visionary, translator, system designer, auditor, consultant, interpreter

- Various skills needed, e.g. criticism, abstract thinking, courage to question things, able to sell ideas/thoughts, capable of expressing himself/herself both in writing and visually

Artifacts

Education

Project Management

Skilled Team

Organizational Culture
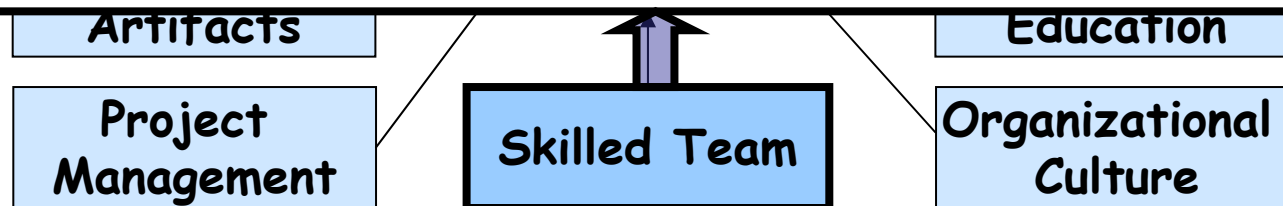
Potential CSFs for EA

• Organization's readiness to develop and use EAs is an essential issue

• Cultural readiness; integration of EA and the company culture

• Attitudes towards change, managing the organizational change

• Organization's structure affects the success of EA; e.g. silo thinking is too narrow a perspective

• Communication environment; should encourage to challenge each others view, especially regarding the architecture, allow everyone to participate and to discuss, debate

Common Language

Scoping & Purpose

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An Example of Prioritization – "Top 10 CSFs for EA"

1. Communication
2. EA Model/Artifacts
3. Commitment
4. Common Language
5. Business Driven Approach
6. Organizational Culture
7. Training/Education
8. Scoping and Purpose
9. Governance
10. Assessment

Vital issues in the initial steps of EA development

Taken into consideration as the EA development advances

Conclusions

- Quality of EA is still an open issue
  - Maturity is a more familiar term in this context
- The success of EA is influenced and enabled by several various and to some extent interrelated factors
  - Dependencies or interactions between the CSFs were not studied
- Prioritization of the factors dependable on the organization's EA maturity?
  - Prioritization example implies that in the beginning of the EA journey it is vital to gain understanding and commitment through effective communication and a common language, utilizing the EA models and other artifacts in this effort