Agile Enterprise Architecture Management

Strategic IT Management in Turbulent Times

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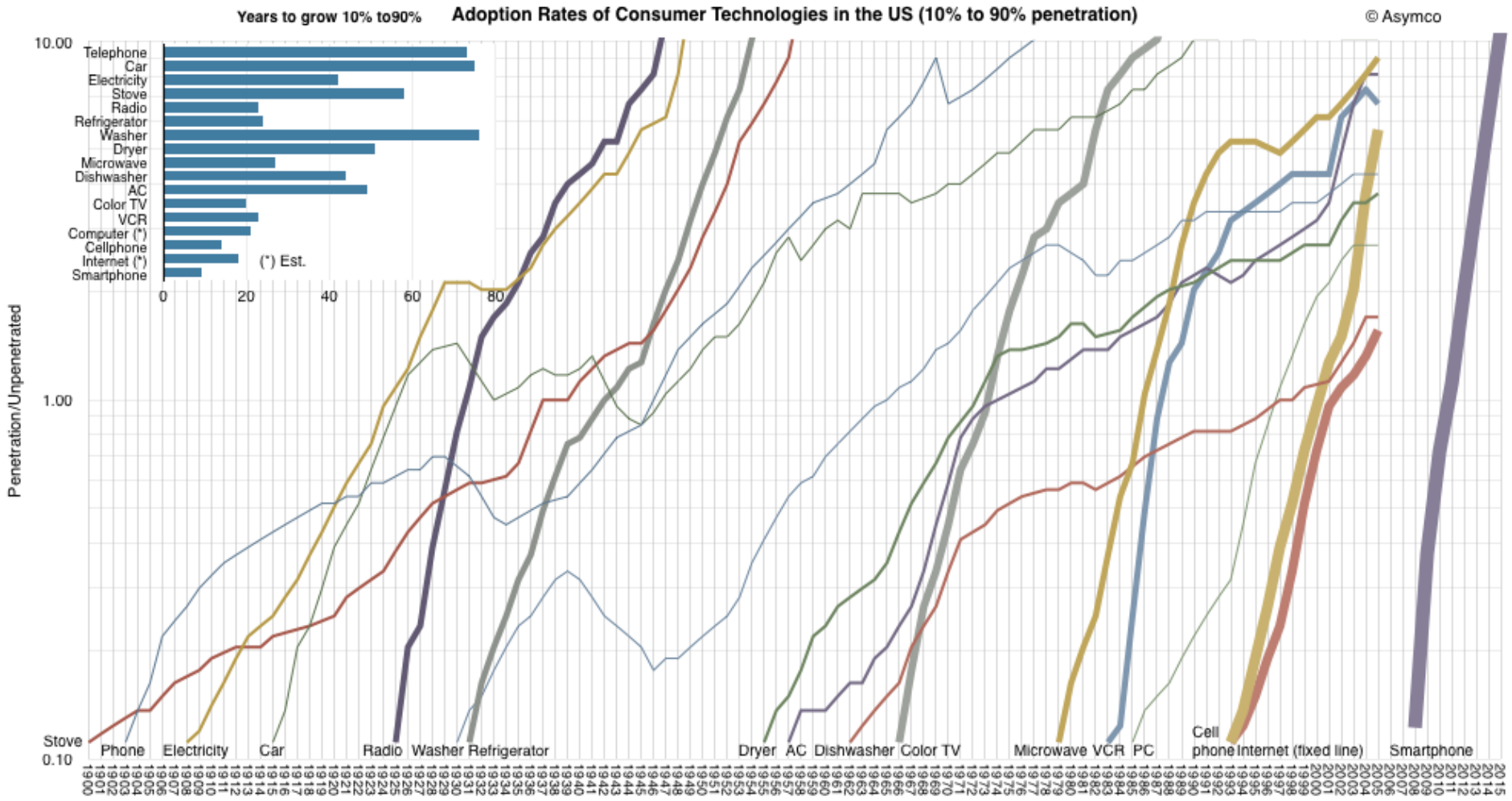
Overview

1. **Turbulent Times**
   - Accelerating growth, heterogeneity, connectedness and change

2. **Enterprise Architecture & Enterprise Architecture Management**
   - Clarity, coherence and agility despite complexity
   - Business capability modeling

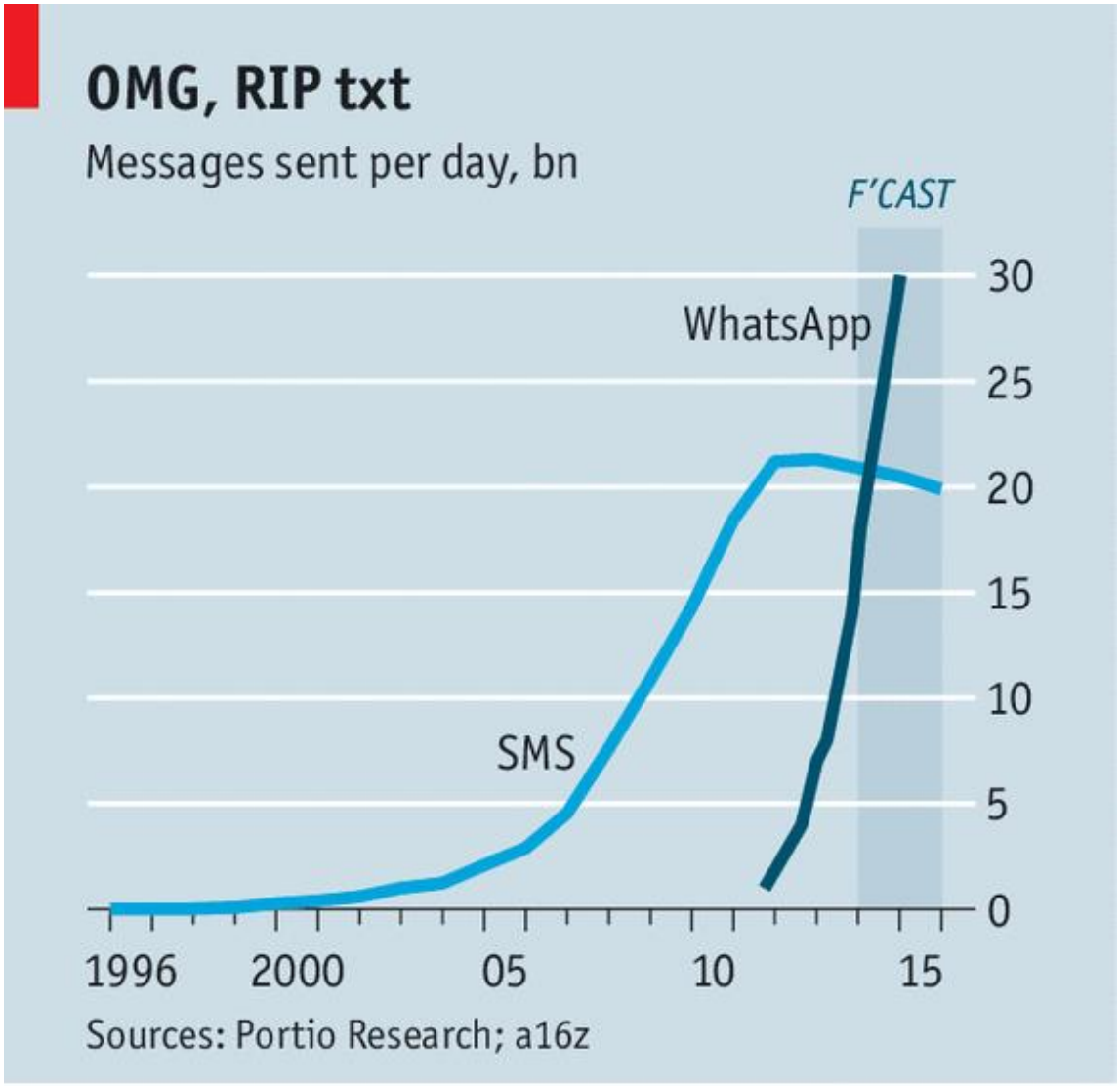
3. **Agile Enterprise Architecture Management**
   - Principles
   - Empirical results
   - Implementation using patterns and building blocks

Accelerating adoption rates for new technologies

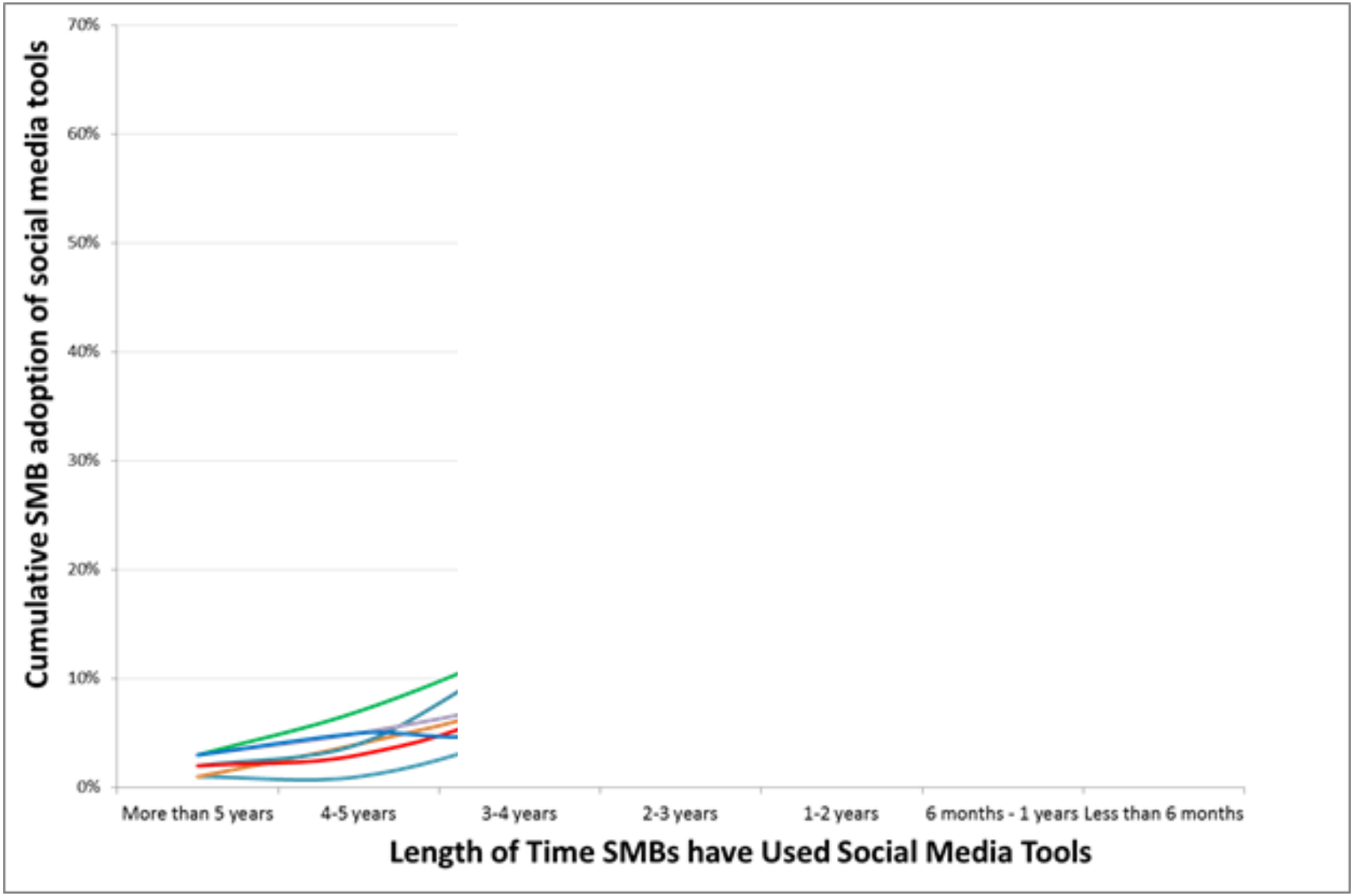


Tablet, Sensors, …

Example of a disruptive technology



Exponential growth starts inconspicuously, and humans are not used to reasoning about non-linear processes.



Source: *2012 Small and Medium Social Business Study, SMB Group*

The legal complexity of international markets keeps growing.

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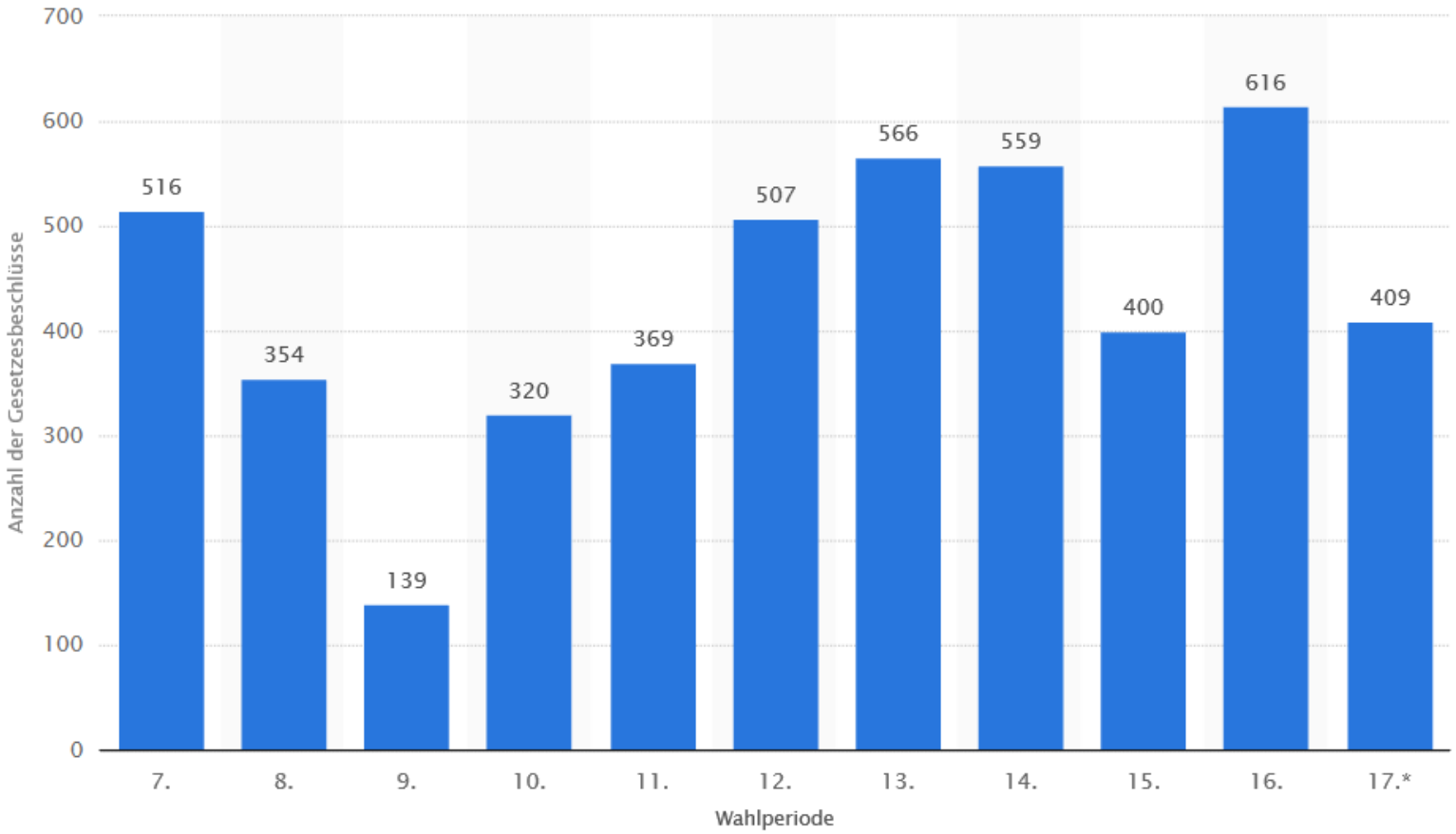
Anzahl der vom Bundestag verabschiedeten Gesetze von 1972 bis 2013 (7. Wahlperiode bis 17. Wahlperiode)



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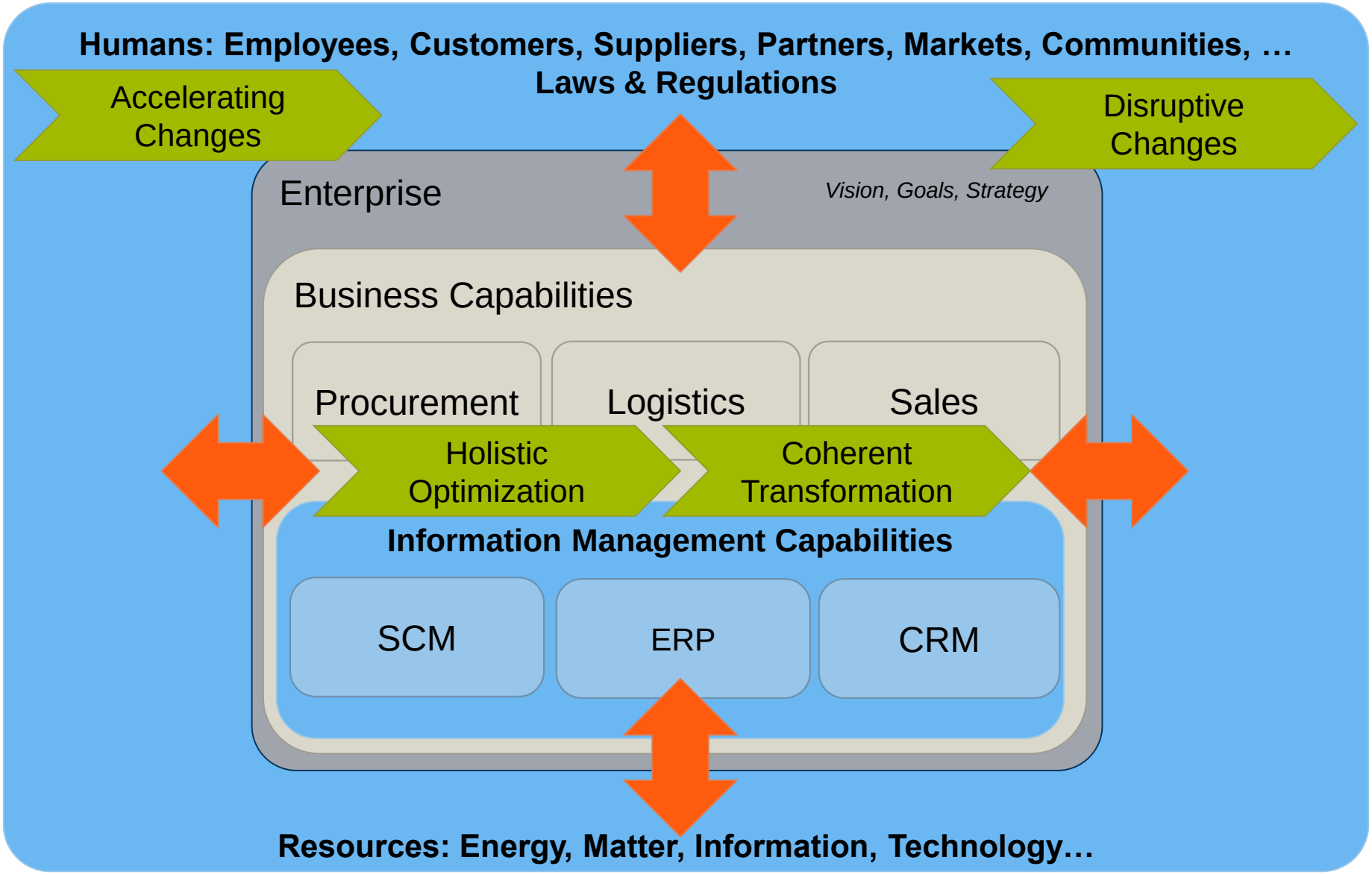
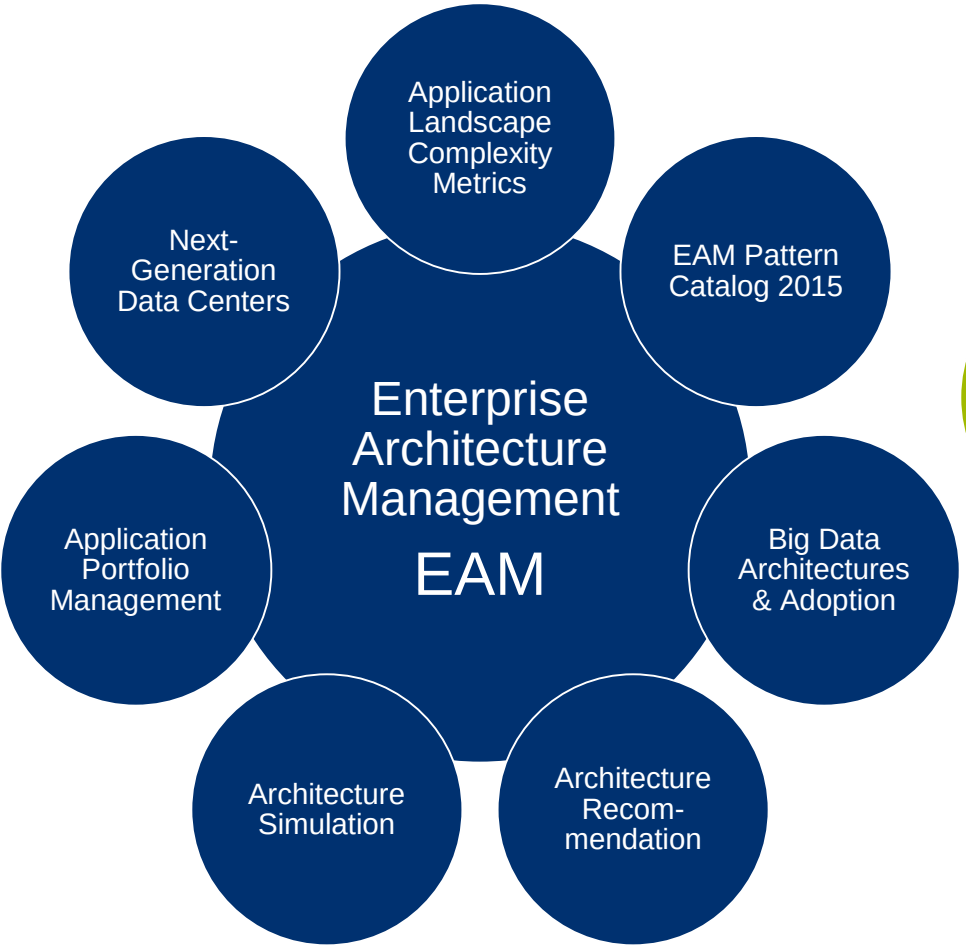
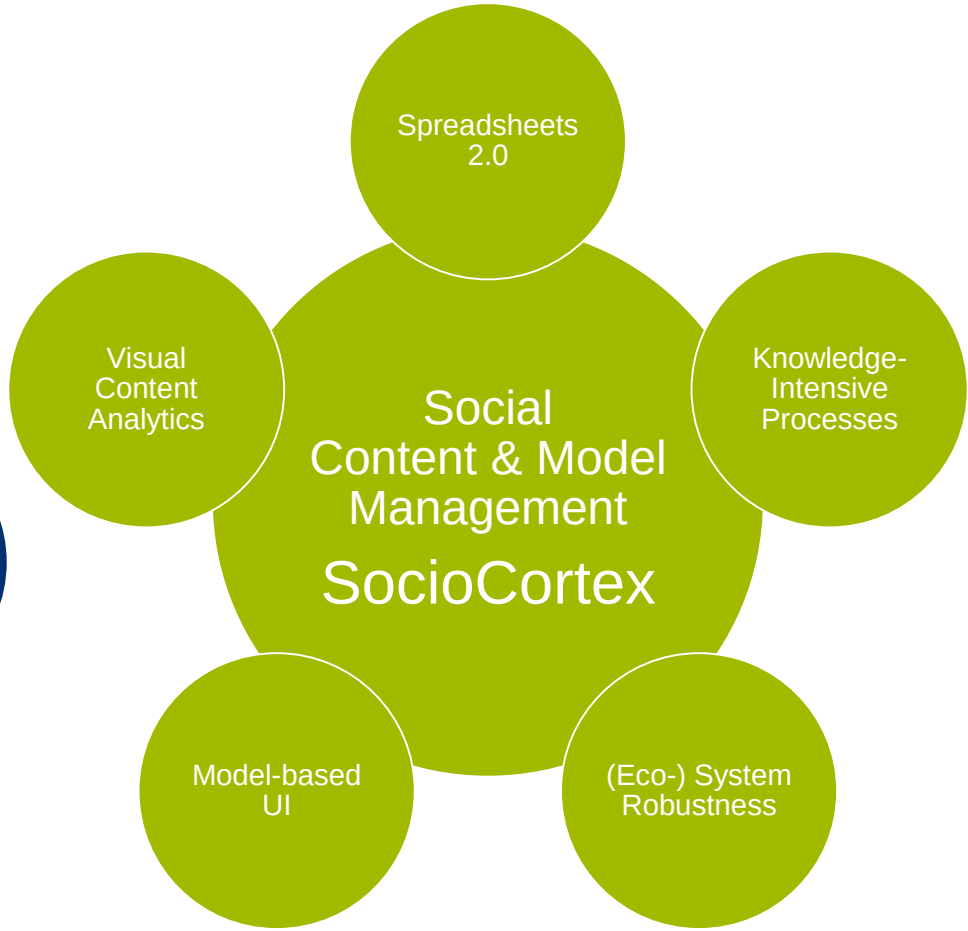
Enterprises have to adapt their business capabilities to an increasingly turbulent environment.



Research areas and ongoing projects





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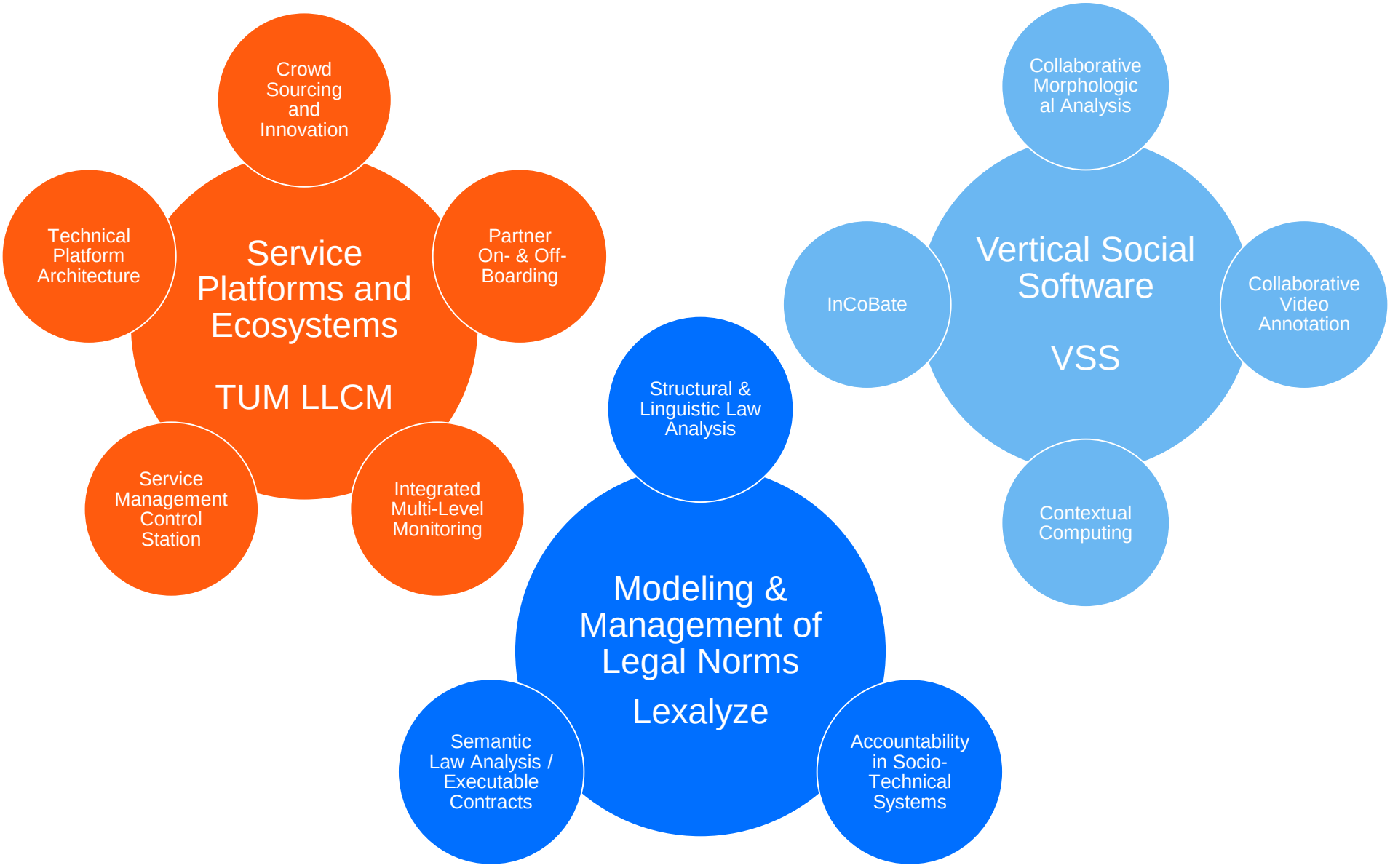

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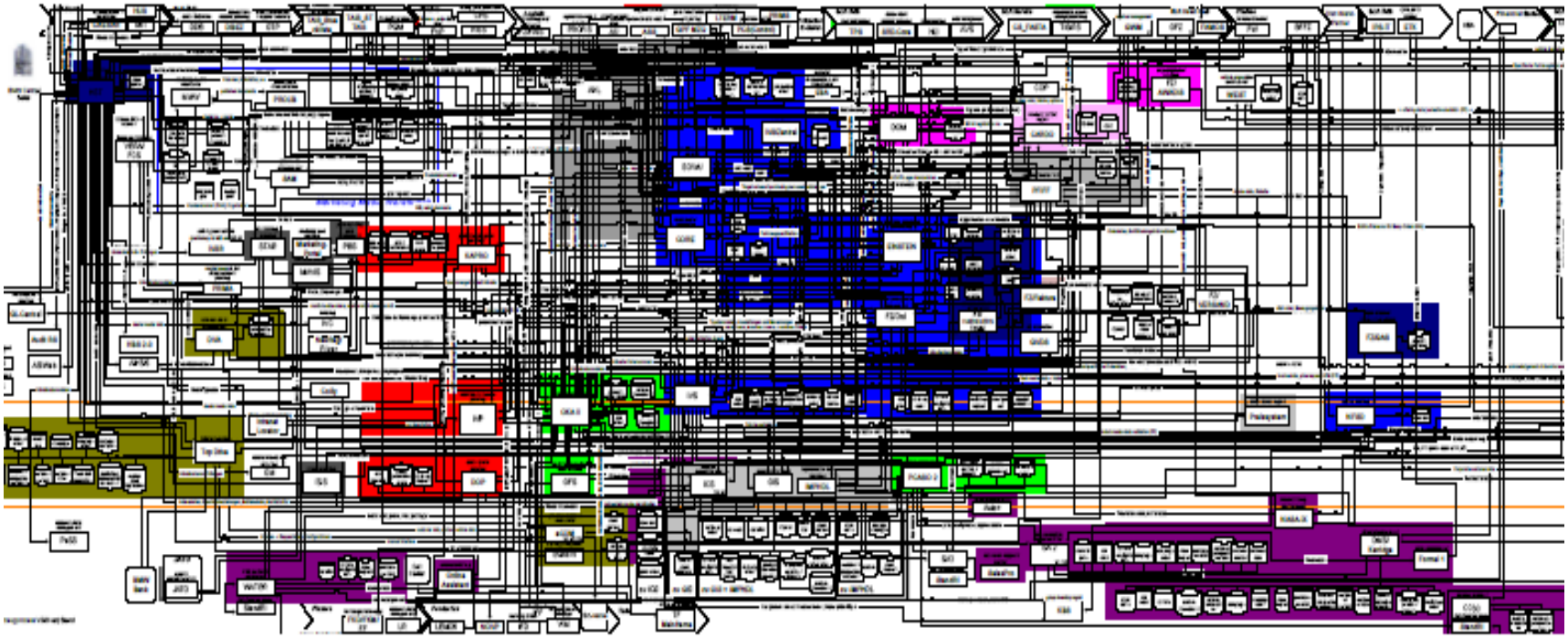
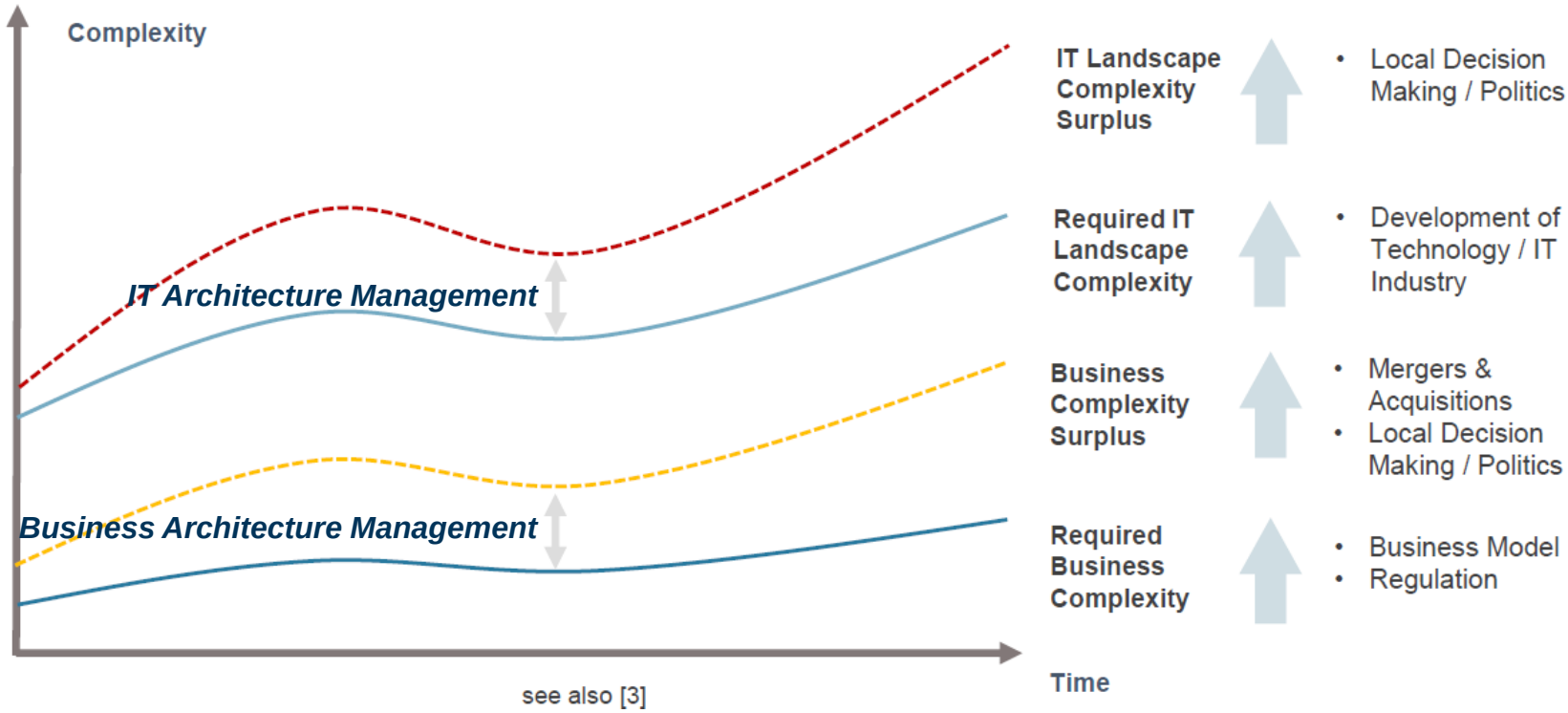
Application landscape complexity

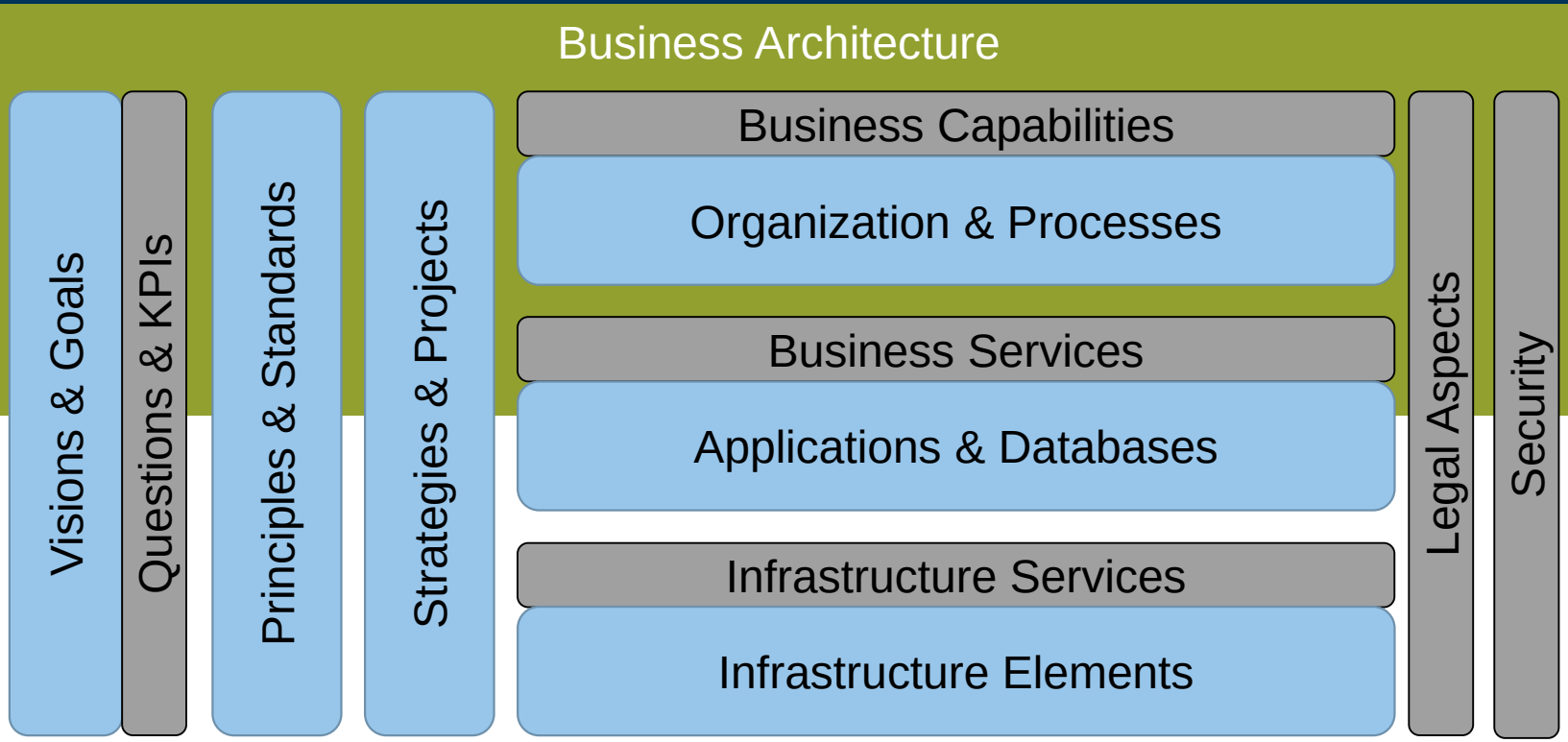


- 10^2 – 10^3 networked and highly diverse information systems
- Complexity ~ number of relationships between systems
- IT does not keep pace with accelerating speed of business
- Maintenance costs *eat up* IT budget and limit ability to transform

System complexity ~ number, variety and dynamicity of elements and their dependencies



The BEAMS Enterprise Architecture Framework

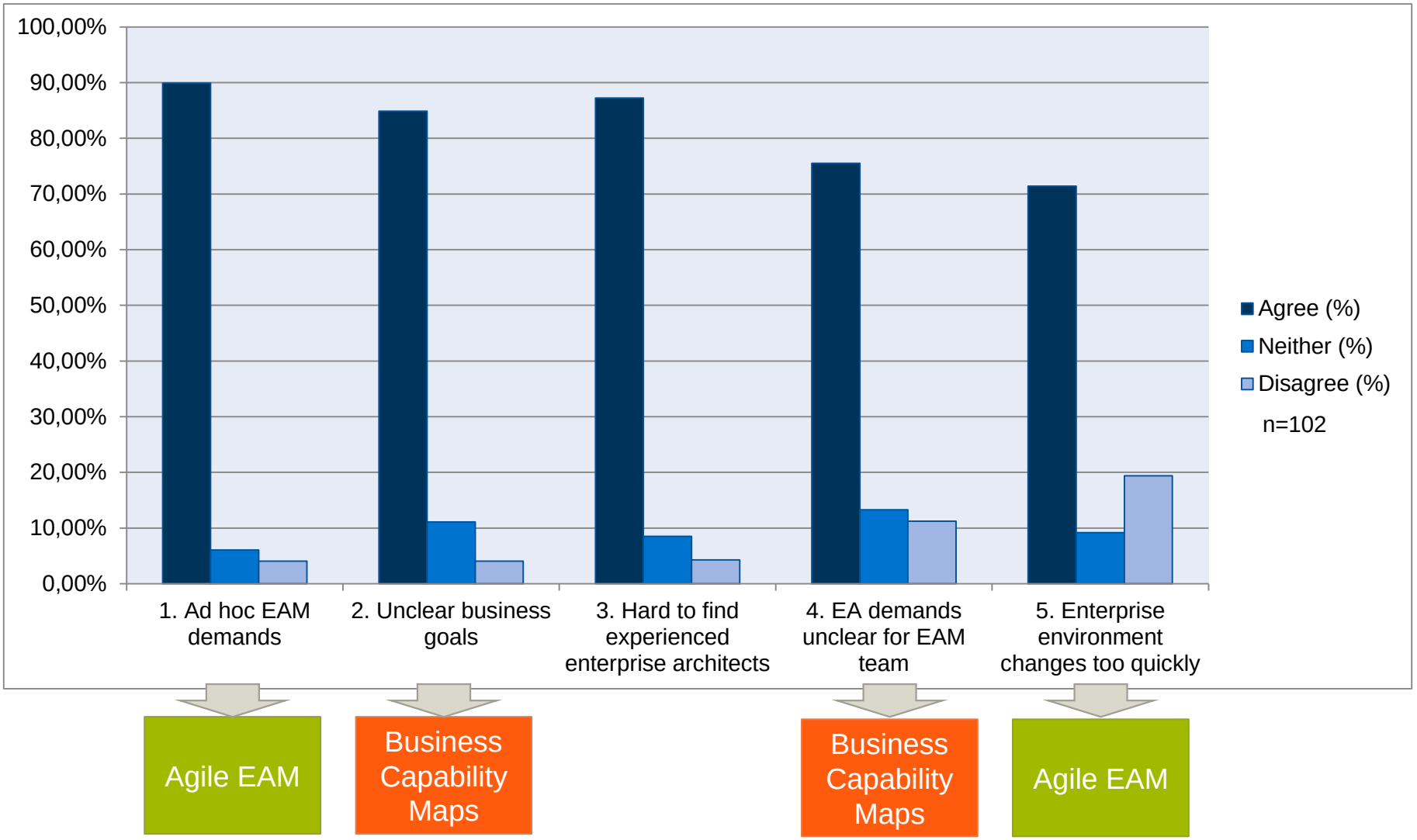


Common language for business and IT

- Technical, social, economic and legal aspects
- Layers and crosscutting concerns
- Static and dynamic relationships more important than element details
- Current, planned and target architecture

BEAMS , EAM Pattern Catalog and EAM KPI Catalog

Most frequent EA challenges



Hauder, M., Roth, S., Schulz, C., Matthes, F.: Organizational Factors Influencing Enterprise Architecture Management Challenges, 21st European Conference on Information Systems (ECIS 2013), Utrecht, Netherland, 2013.

Business capability

Definition	A functional building block of the business architecture that supports the business model and the business strategy. It defines the organization's capacity to successfully perform a unique business activity.

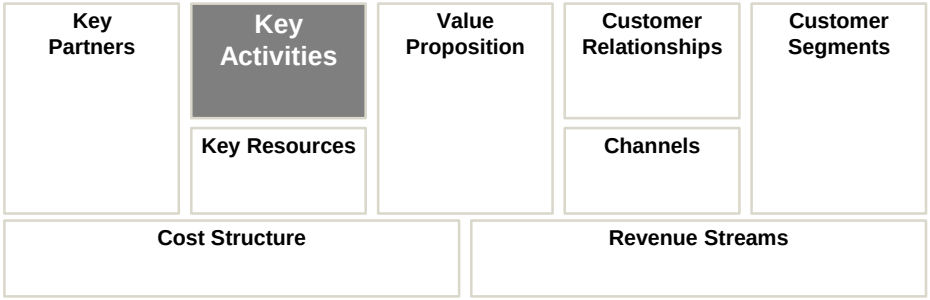
Characteristics	■ Stability
	  • independent from the organizational model, technologies, and vendor solutions
	■ Abstraction
	  • encapsulate and abstract from any explicit resource, business process, or IT
	■ Horizontal Structure
	  • a complete and non-overlapping functional decomposition of the enterprise
	■ Vertical Structure
	  • can be broken down into more granular business capabilities

Dimensions	■ People Dimension: knowledge, skills, and experiences of the enterprise's staff ■ Process Dimension: concepts, business processes, and information management ■ Material Dimension: underlying assets, such as infrastructure, IT, and equipment

Business capabilities in context

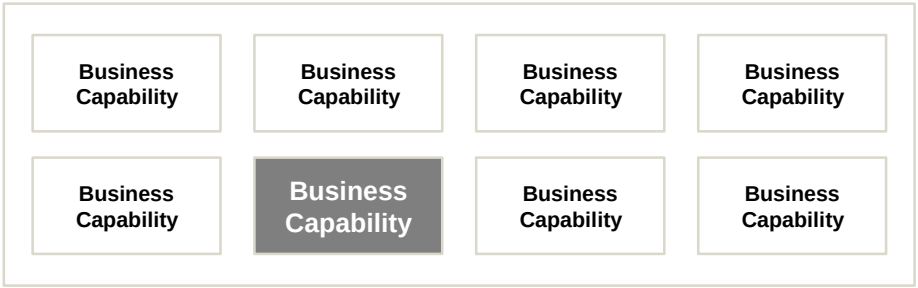
Business Model

Complete view on value creation



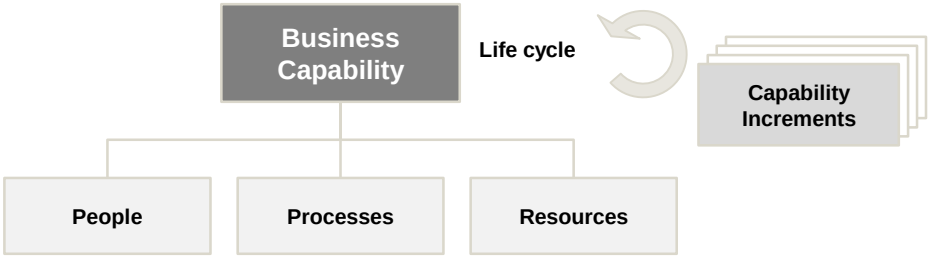
Business Capability Map

Complete and non-overlapping view on the enterprise's business capabilities



Business Capability

View on one business capability with its dimensions and lifecycle

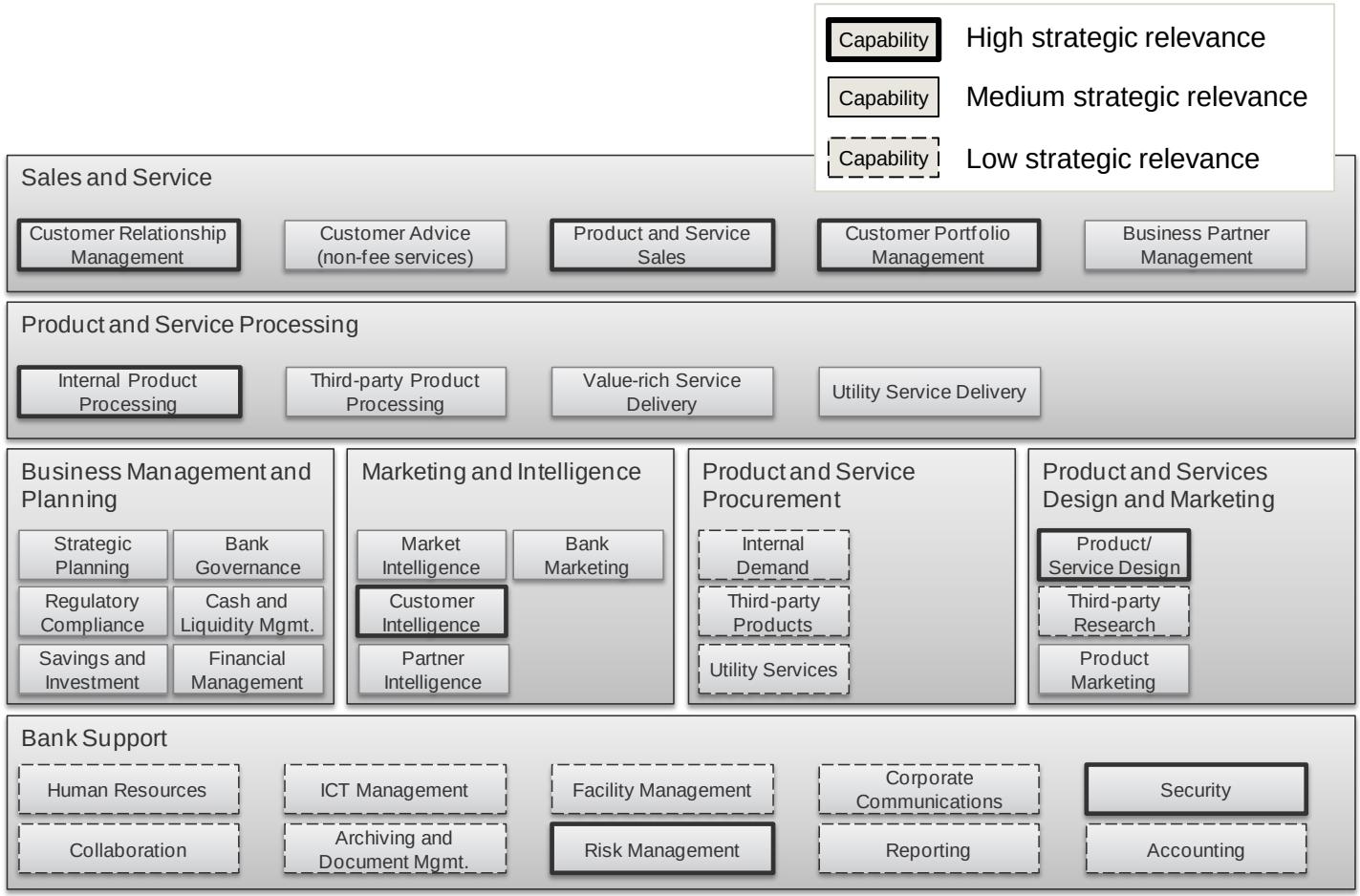


Using a business capability map to communicate business goals.

SR-Map **Strategic Relevance Map**

CC-Map Capability Condition Map

SG-Map Strategic Gap Map



Using a business capability map to assess the current capabilities.

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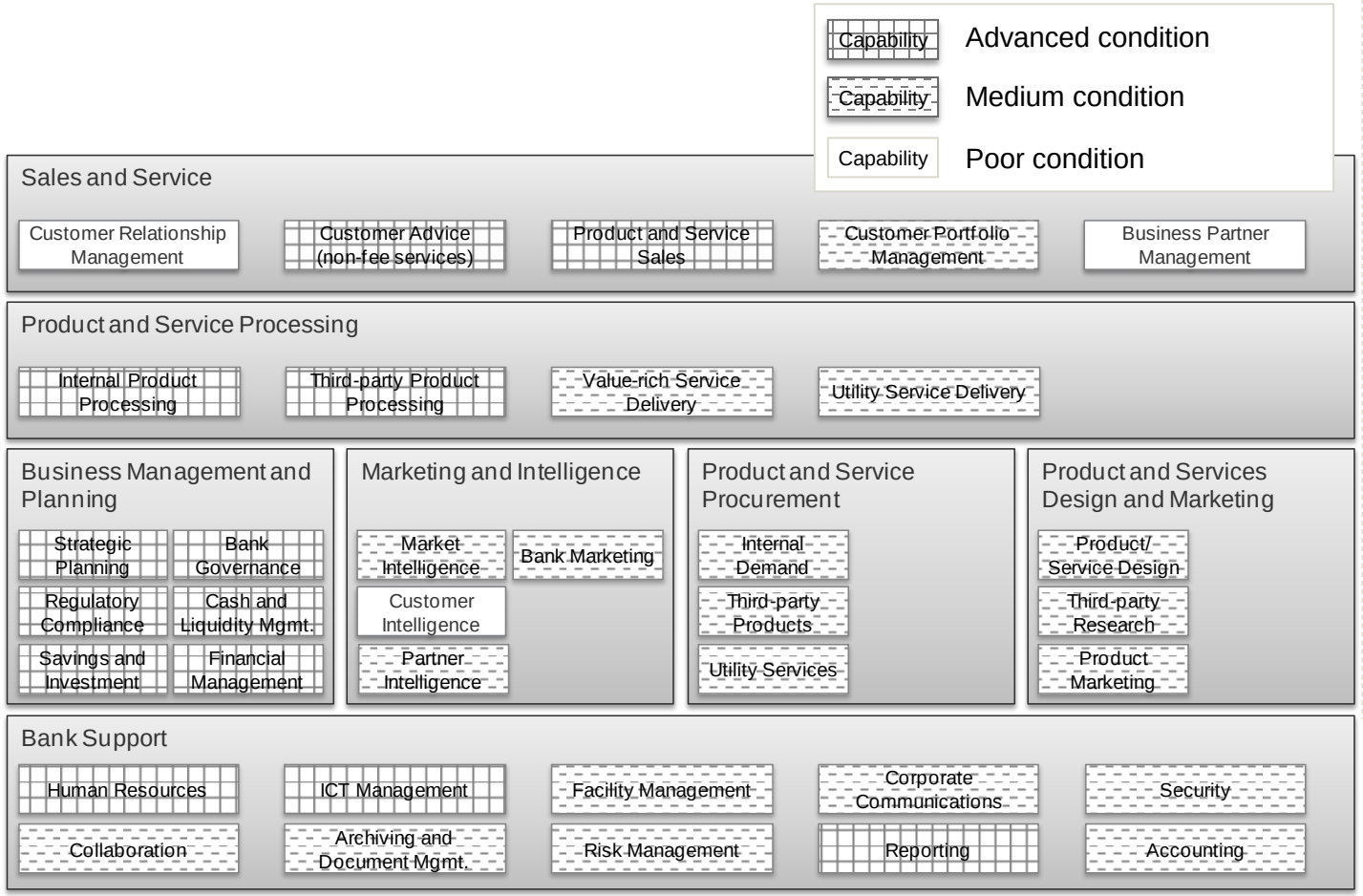
SR-Map Strategic Relevance Map

CC-Map **Capability Condition Map**

SG-Map Strategic Gap Map

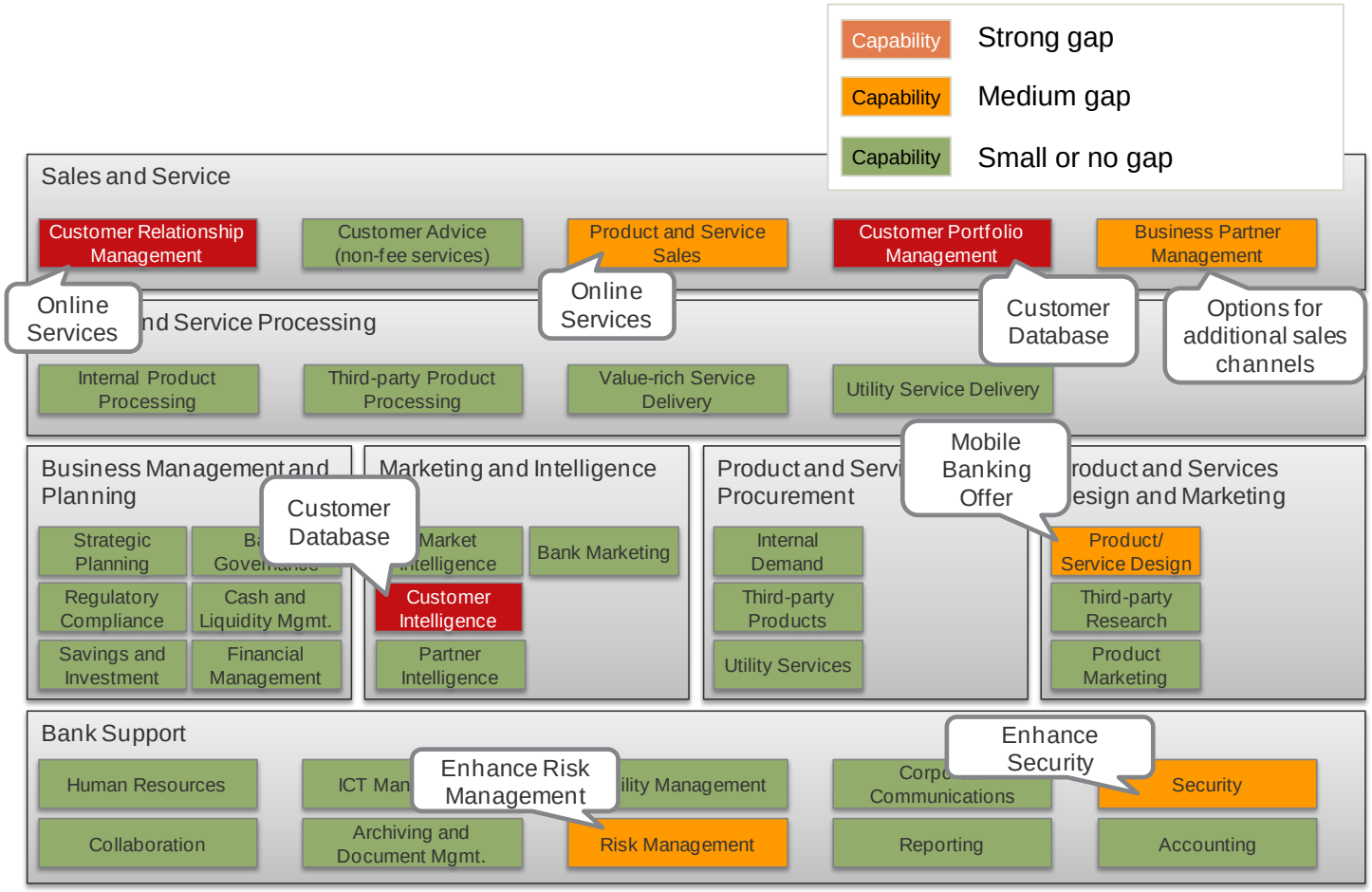


Using a business capability map to identify EA demands.

SR-Map Strategic Relevance Map

CC-Map Capability Condition Map

SG-Map **Strategic Gap Map**



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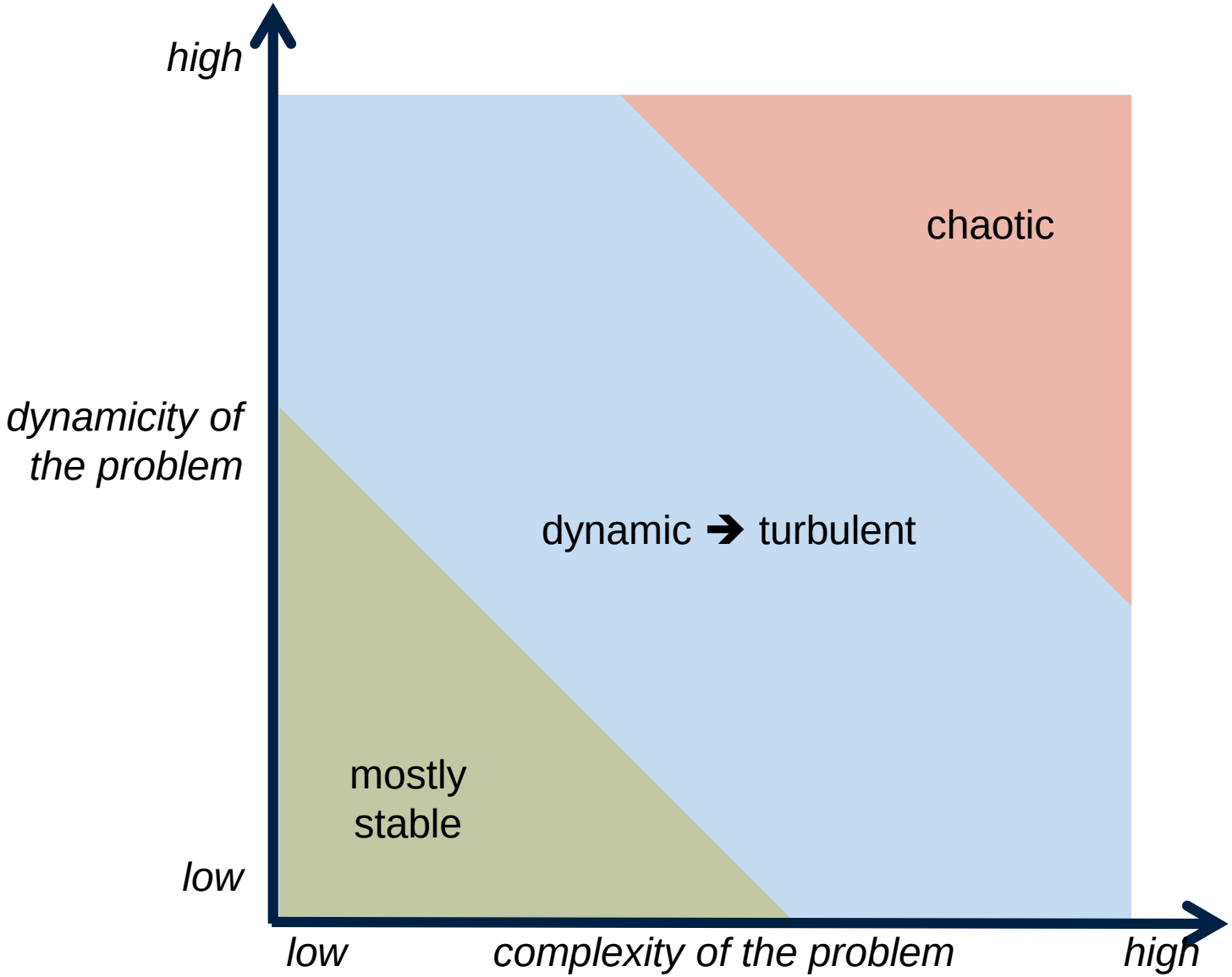
The management approach has to fit the problem at hand.



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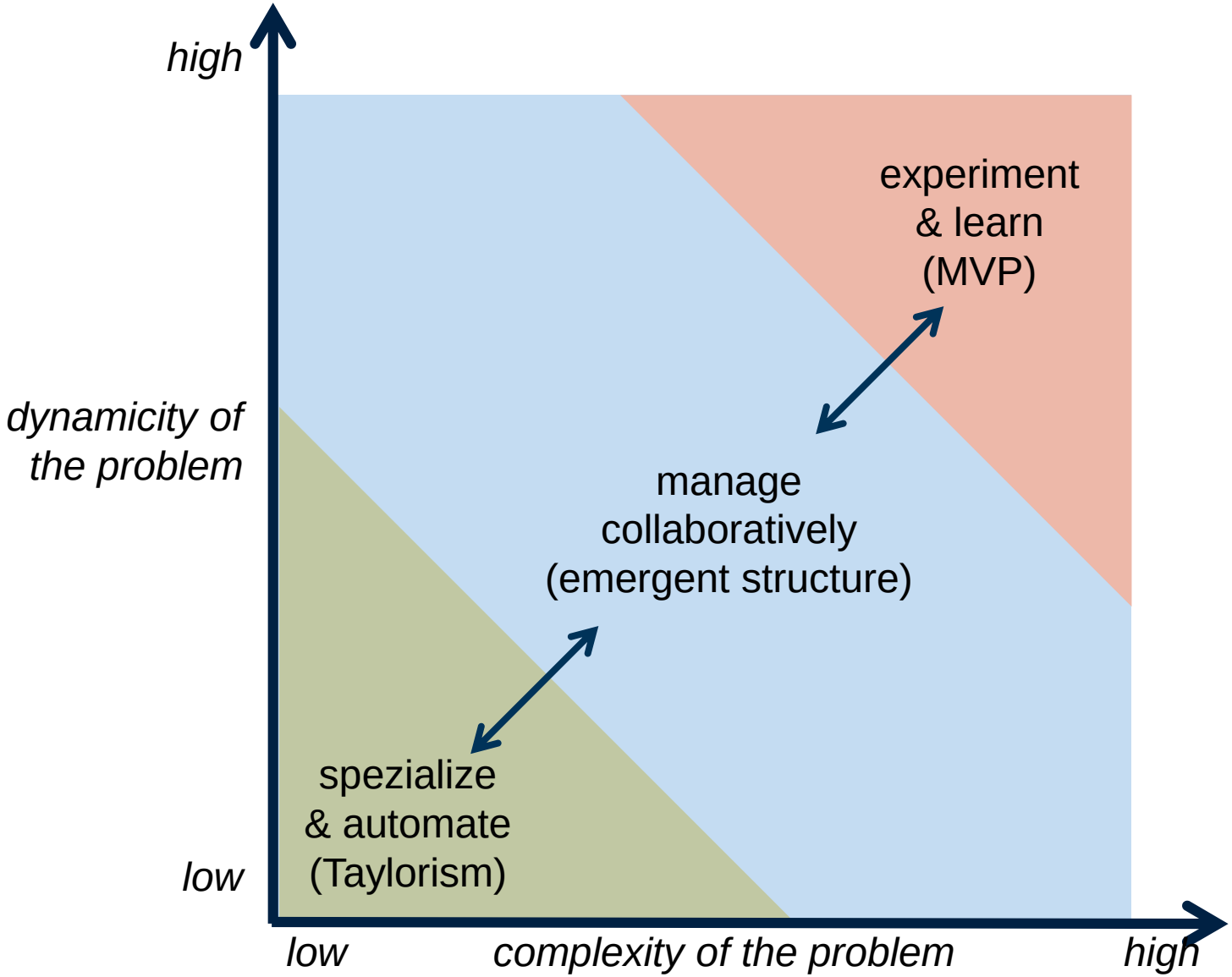
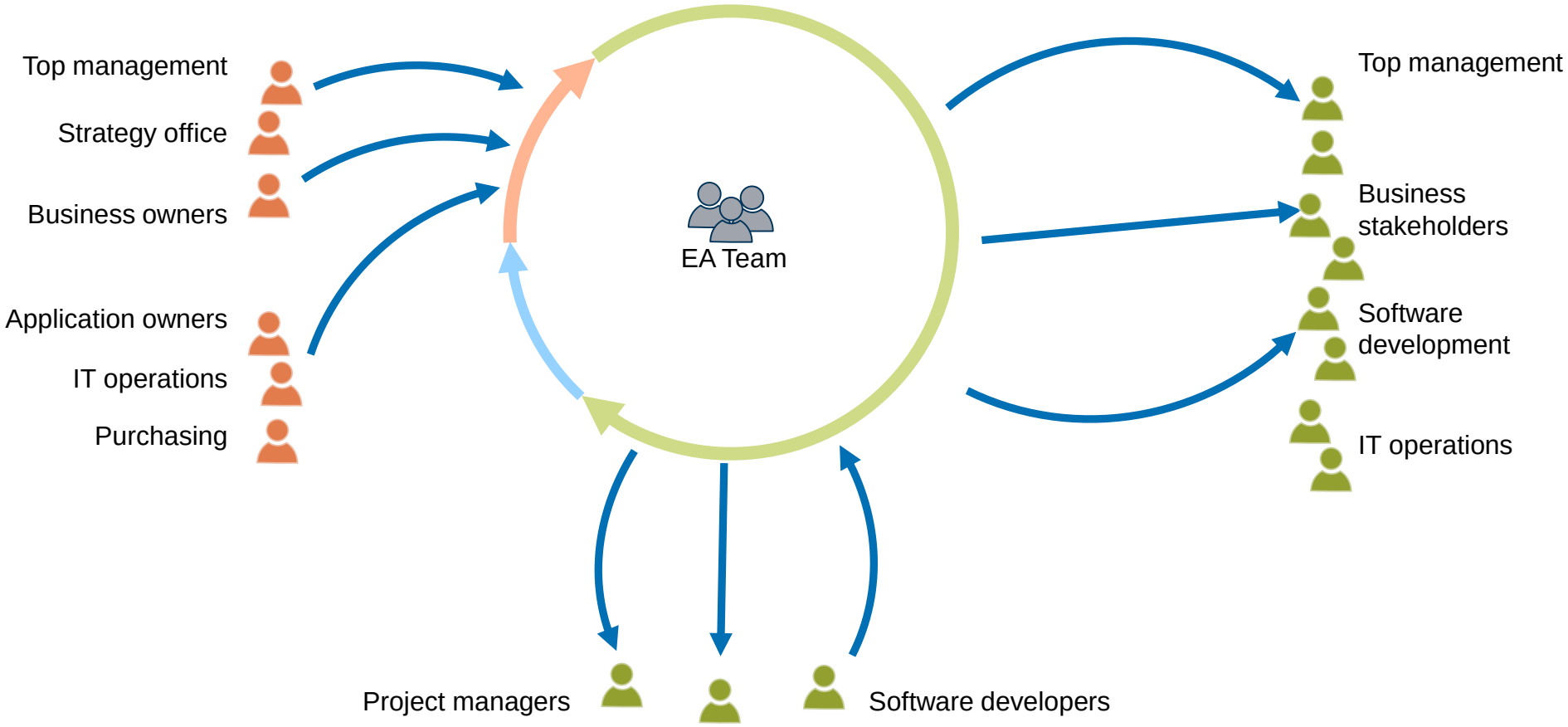


Agile EA management principles

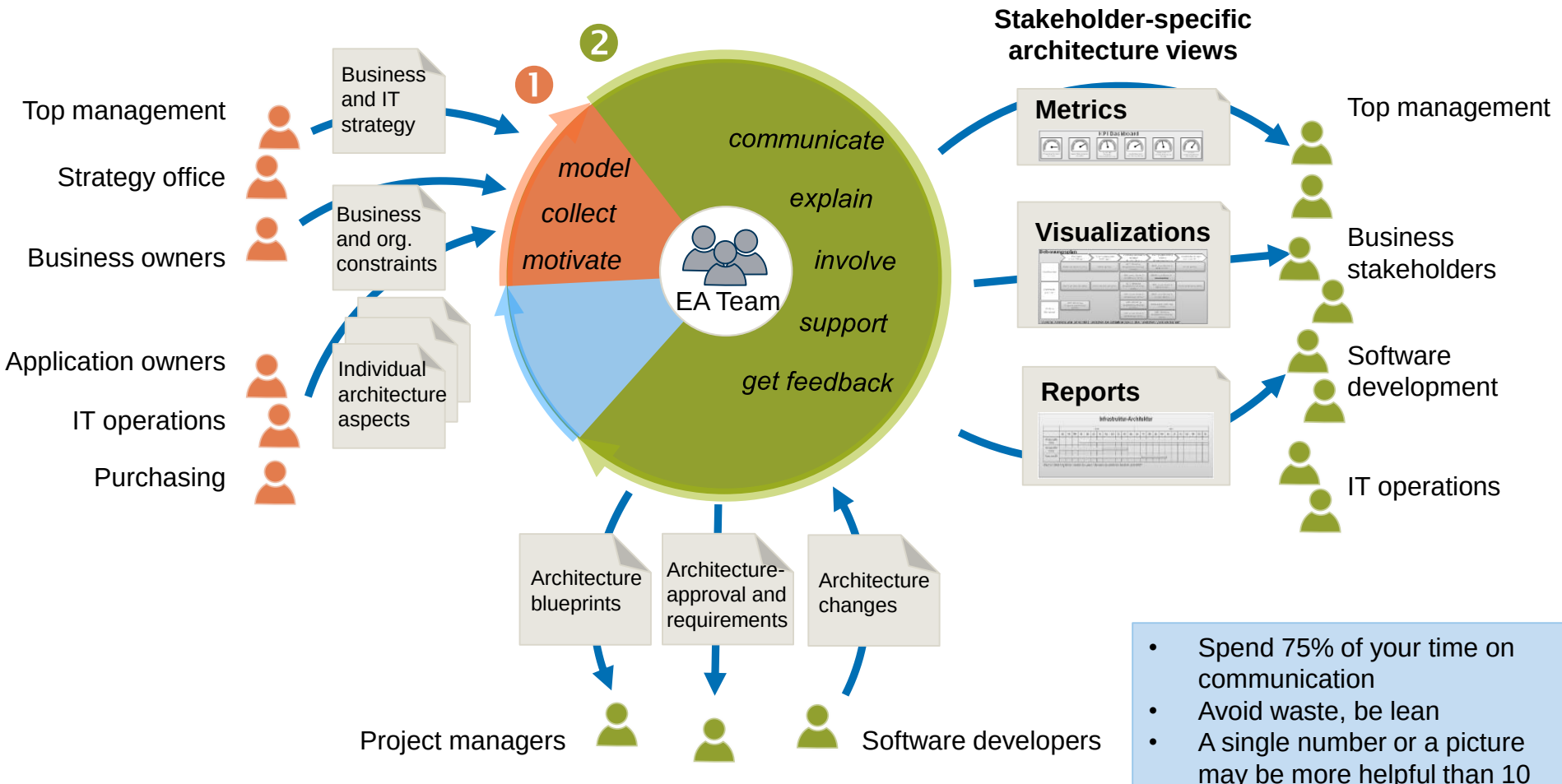
Individuals and interactions over formal processes and tools



- Ensure top management support
- Maintain a good relationship to people form other management areas

Agile EA management principles

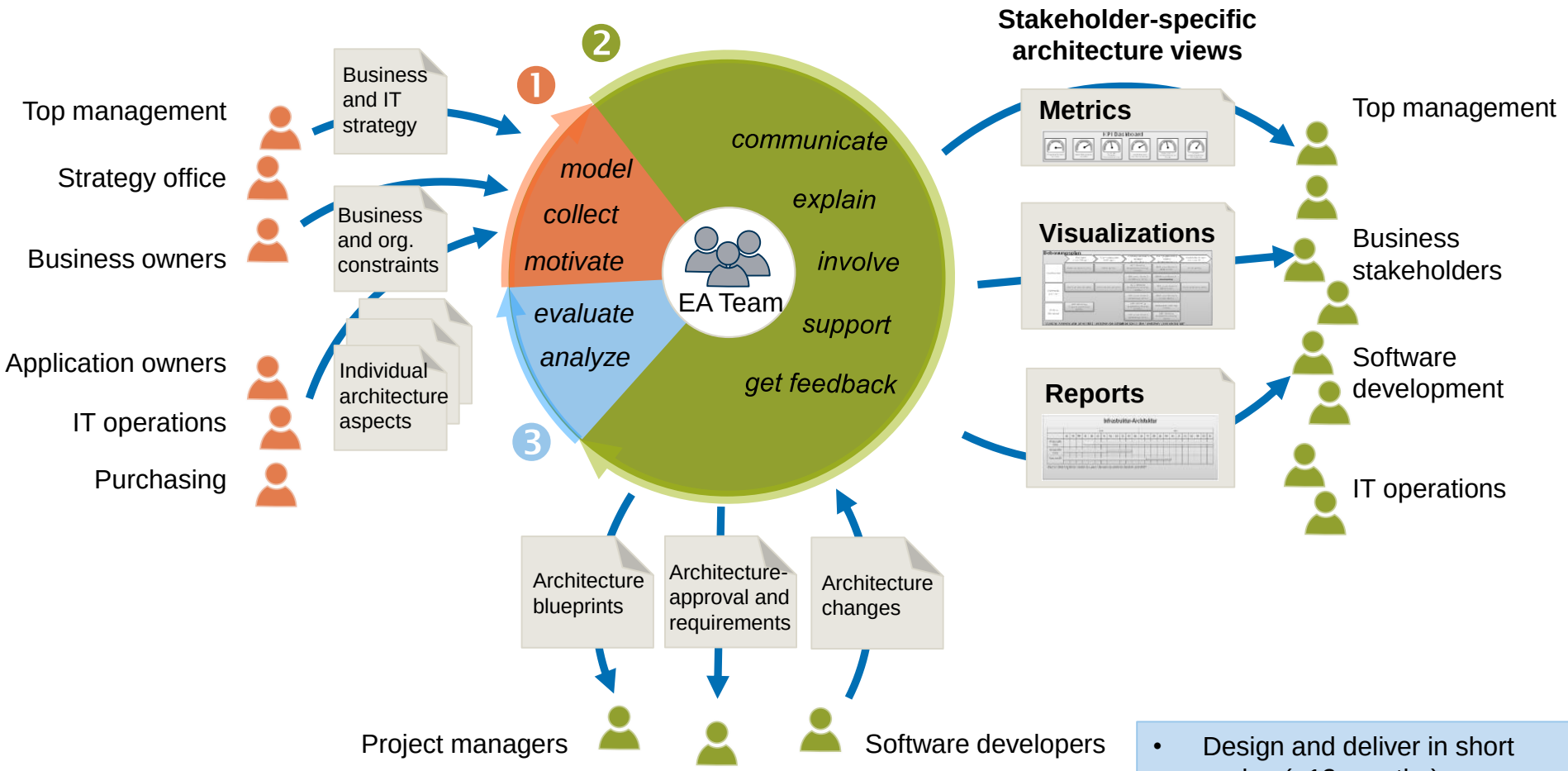
Focus on demands of top stakeholders and their language(s)



- Spend 75% of your time on communication
- Avoid waste, be lean
- A single number or a picture may be more helpful than 10 reports
- Work towards a shared language
- Clarify relationship to existing modeling activities

Agile EA management principles

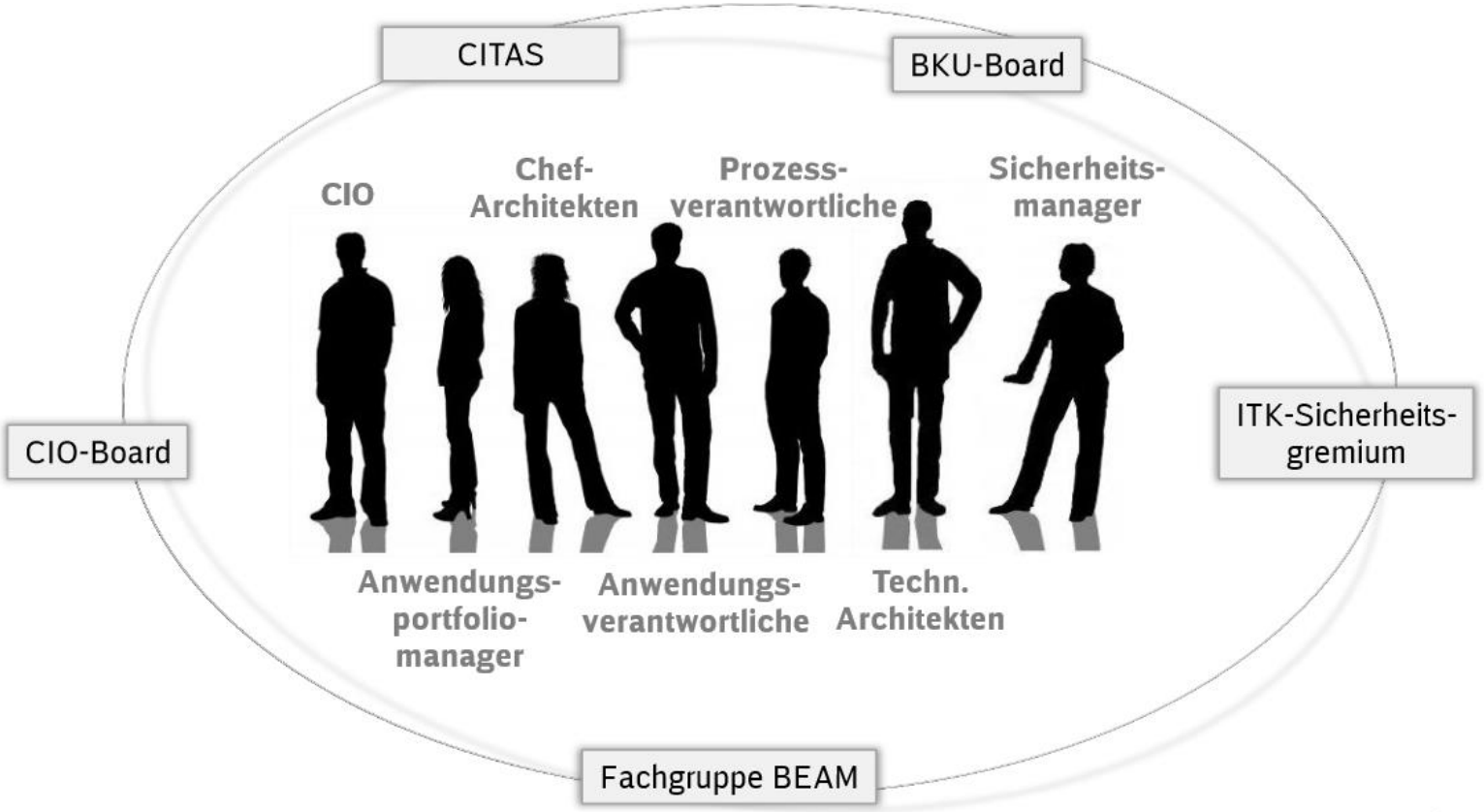
Reflect behavior and adapt to changes



- Design and deliver in short cycles (~12 months)
- Continuous collaboration
- Use best practice building blocks and patterns
- Request 360° feedback
- Adapt models and processes

Example: DB Mobility Logistics

Eine lebendige Community ist ein wesentlicher Erfolgsfaktor.



Example: ABN AMRO

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How to become “buddies of war” with stakeholders?
How to convince and co-operate?

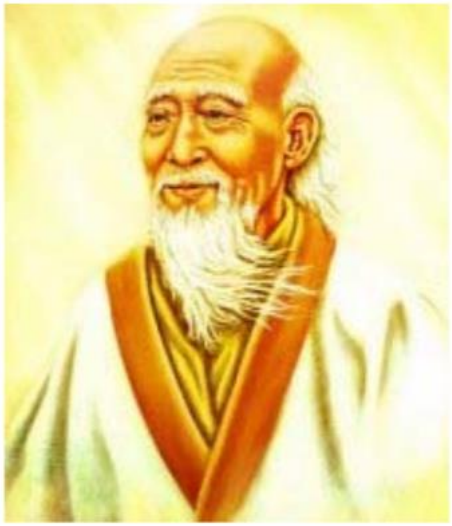
TOPS 2020

Tell me and I will forget

Show me and I will remember

Involve me and I will understand

(Enforce me and I will resist)



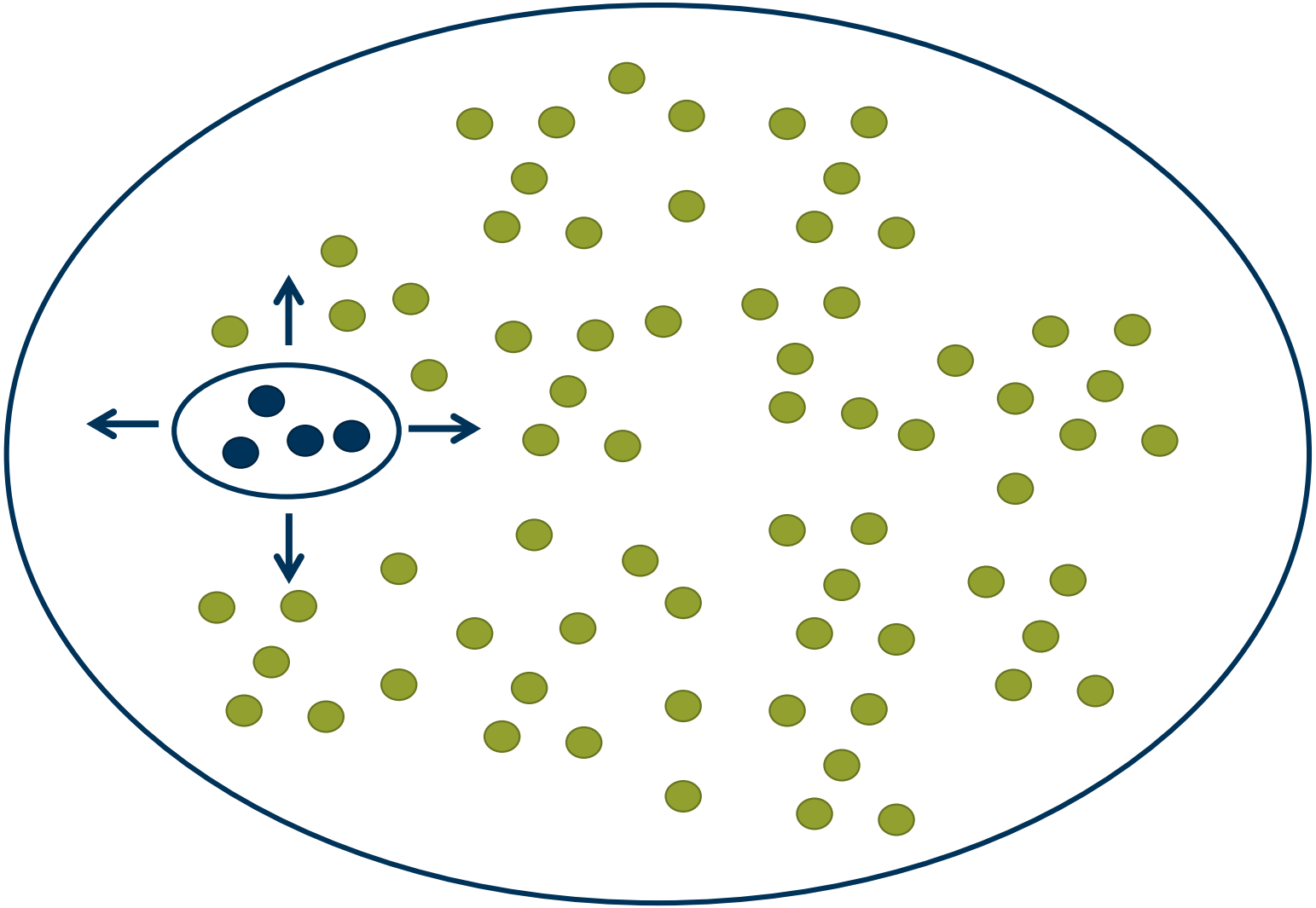
ABN·AMRO 7

Example: ABN AMRO

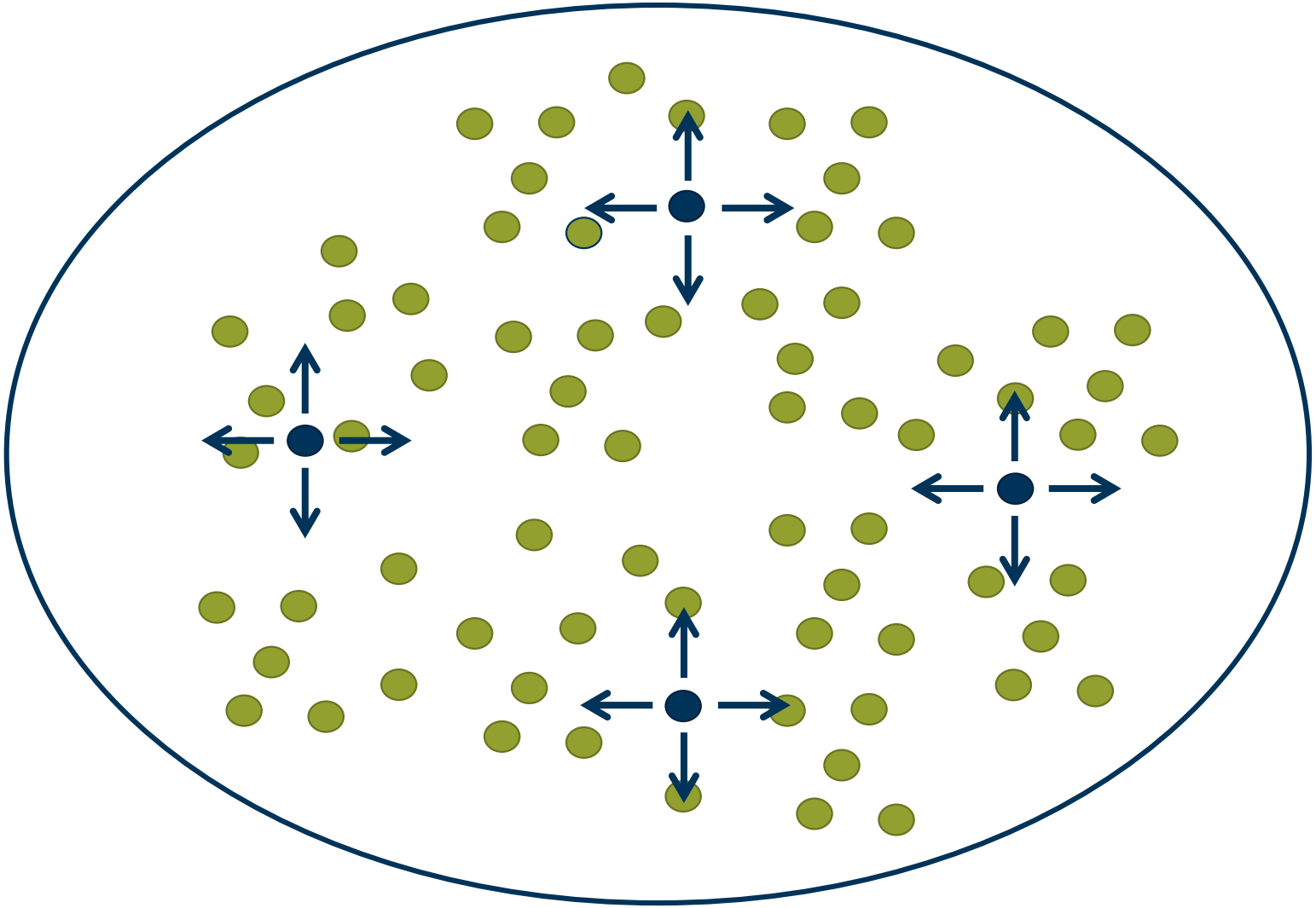
Redeveloping the entire systemset is quite an investment.
Do they dare to jump with you into the deep?

TOPS 2020

A transformation unit



A transformation network



Example: Evonik

Jede BU durchläuft den EAM-Prozess in ihrer individuellen Detailtiefe und Geschwindigkeit.

Grund: Die BUs haben einen unterschiedlichen Reifegrad in Bezug auf EAM.

Incorporating Lean, Agile, and Enterprise 2.0 in Enterprise Architecture Management

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Establish a lean set of processes and rules…

…instead of overloading the stakeholders with bureaucratic processes and unsolicited artifacts

→ **Lean**

Adopt evolutionary problem solving…

…instead of blueprinting the whole future rigidly on a drawing board

→ **Agile**

Foster and moderate open participation…

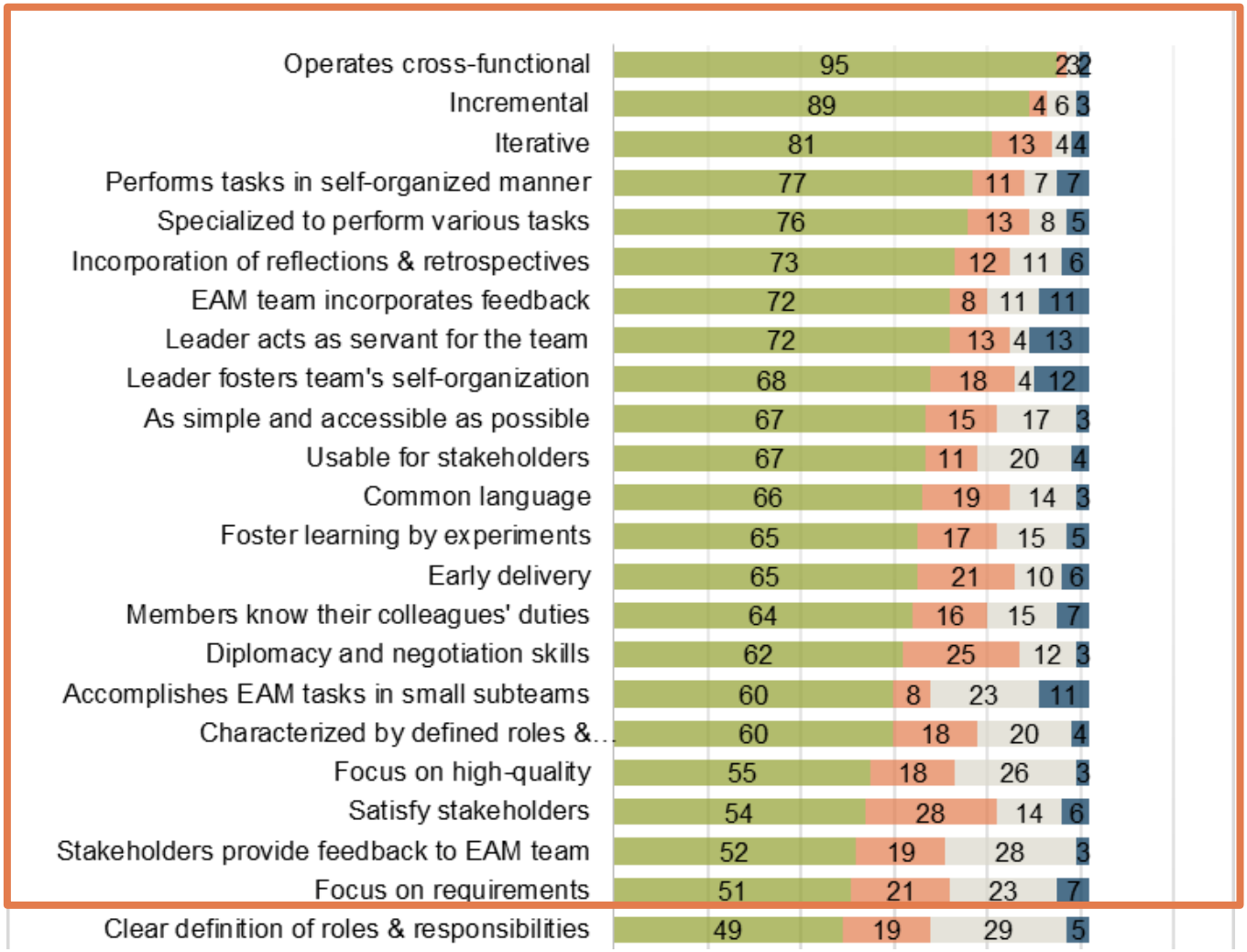
…instead of relying only on experts and top-down wisdom

→ **Enterprise 2.0**

Bente, Stefan, Uwe Bombosch, and Shailendra Langade. *Collaborative Enterprise Architecture: Enriching EA with Lean, Agile, and Enterprise 2.0 Practices*. Newnes, 2012.

Adoption of agile management principles

Survey among European enterprise architects (Q4 2013, n=105)



Agile Enterprise Architecture management: Empirical analysis on the application of agile principles [to appear 2014]

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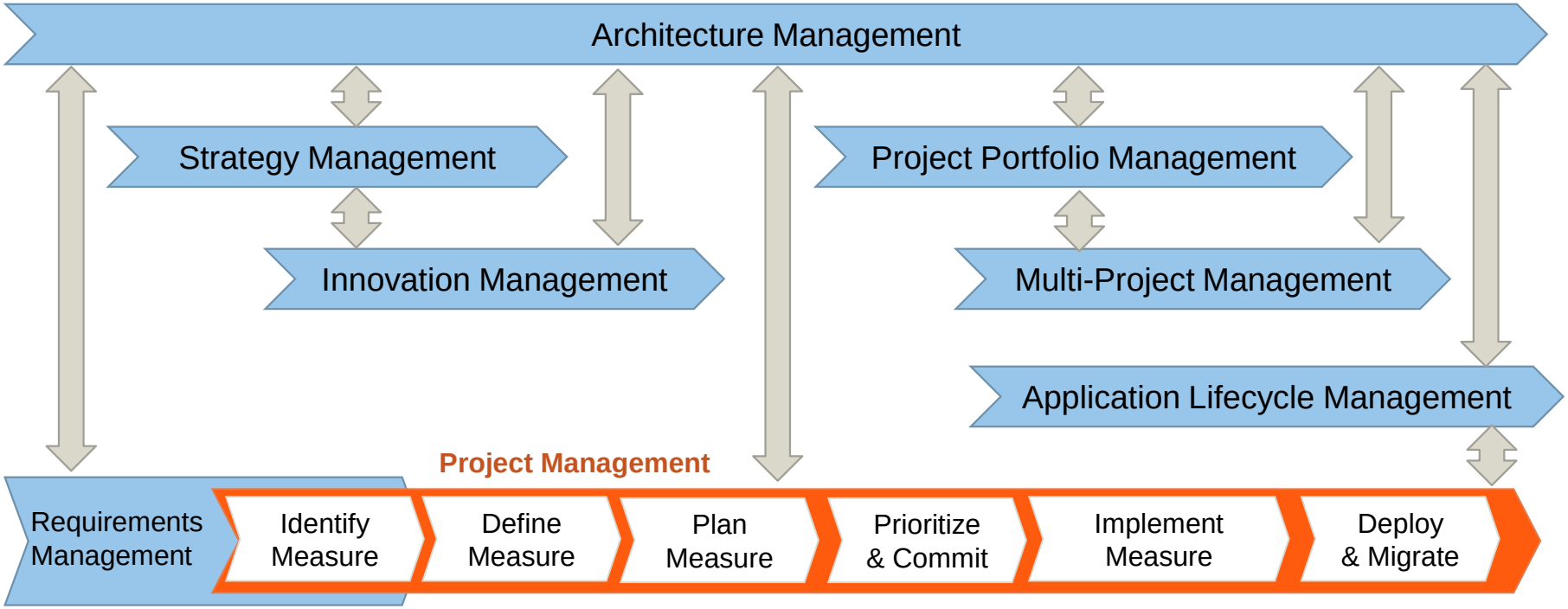
Architecture management has to be integrated with other management functions.



Architectural changes are performed through a coherent set of projects.

Example of a mature IT organization

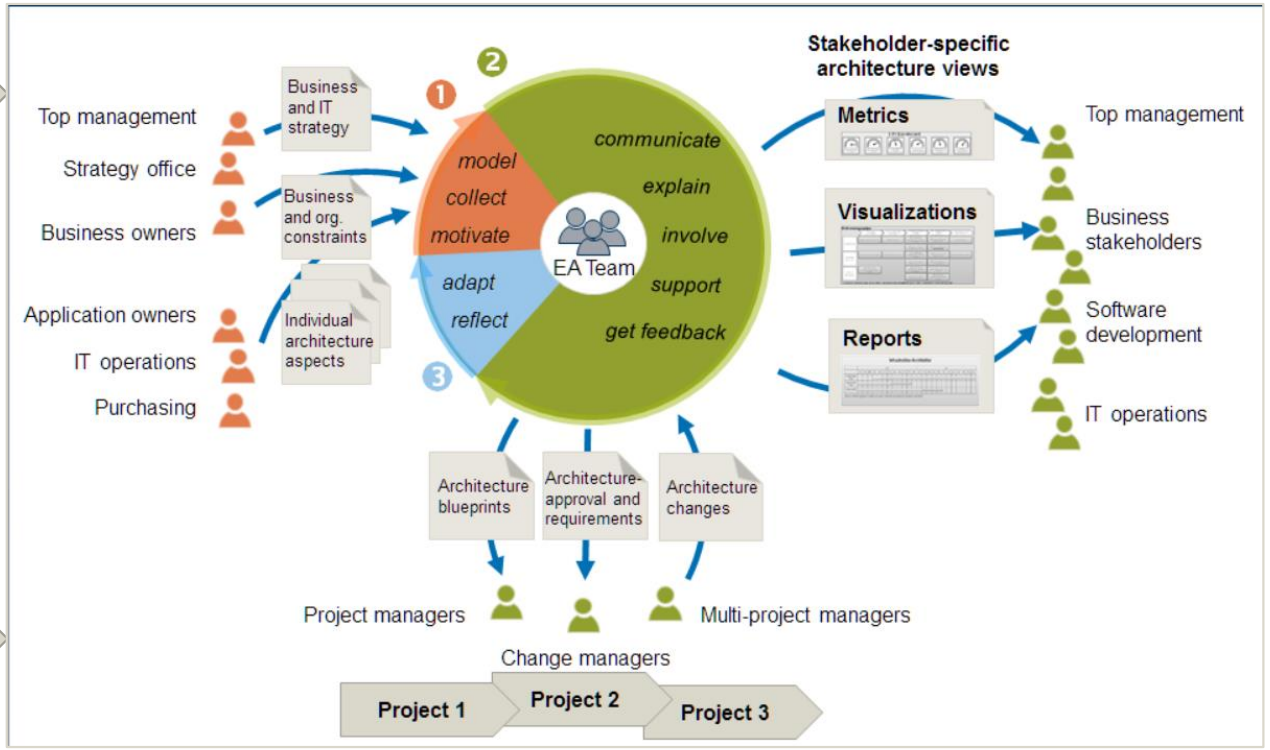
Influence factors for EAM

Enterprise Context

Organizational Context

EAM Goals

EAM Questions



Influence factors
changing over time

Maturity of other (IT) management functions

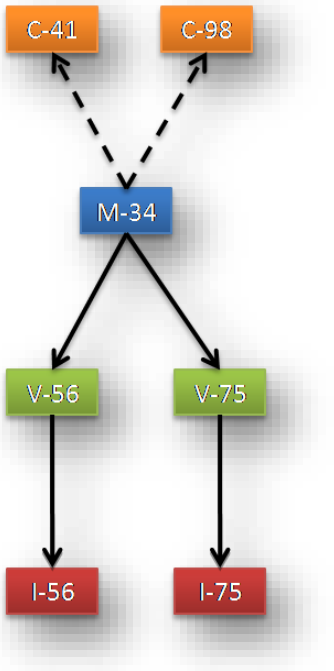
[More >]

The idea behind the EAM pattern catalog 1.0

Tailor the EAM to the specific situation (*pains*) of the enterprise and follow an incremental strategy based on **EAM patterns** representing proven practices.

Systematically document the dependencies between

- Individual management concerns,
  Which concern is relevant for which stakeholder?
- Methodology patterns (M-Pattern),
  Which activities are required to address a concern?
- Viewpoint patterns (V-Pattern) and
  Which viewpoints help stakeholders to collaboratively perform the activities?
- Information model patterns (I-Pattern)
  Which information has to be available to generate a view?

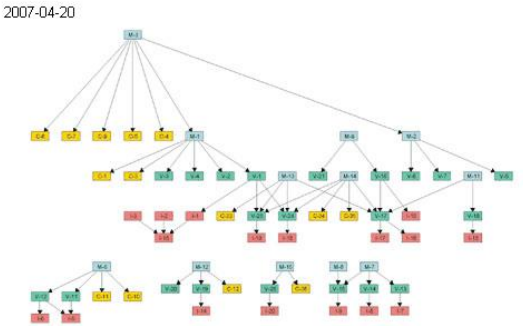


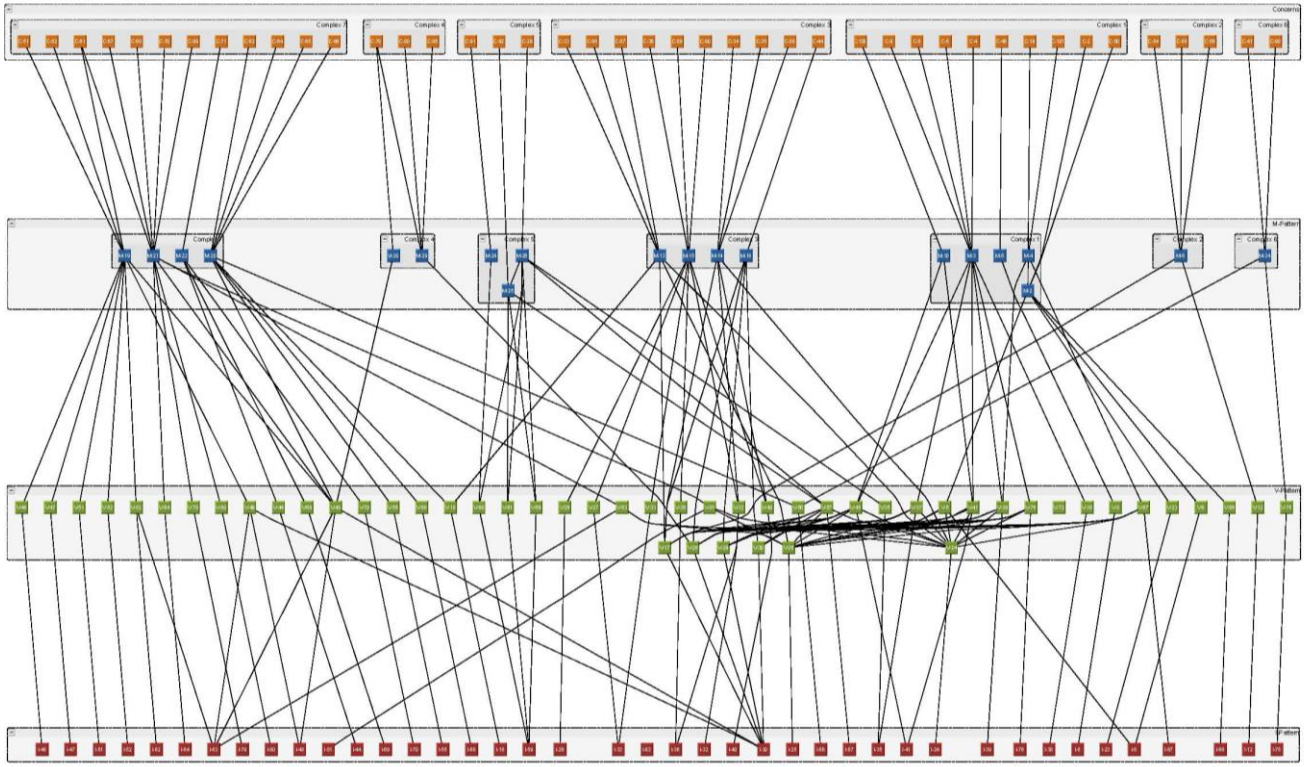
Draw attention to the consequences implied by a pattern (labor, required information, *political* resistance, …)

Overview of the pattern catalog version 1.0

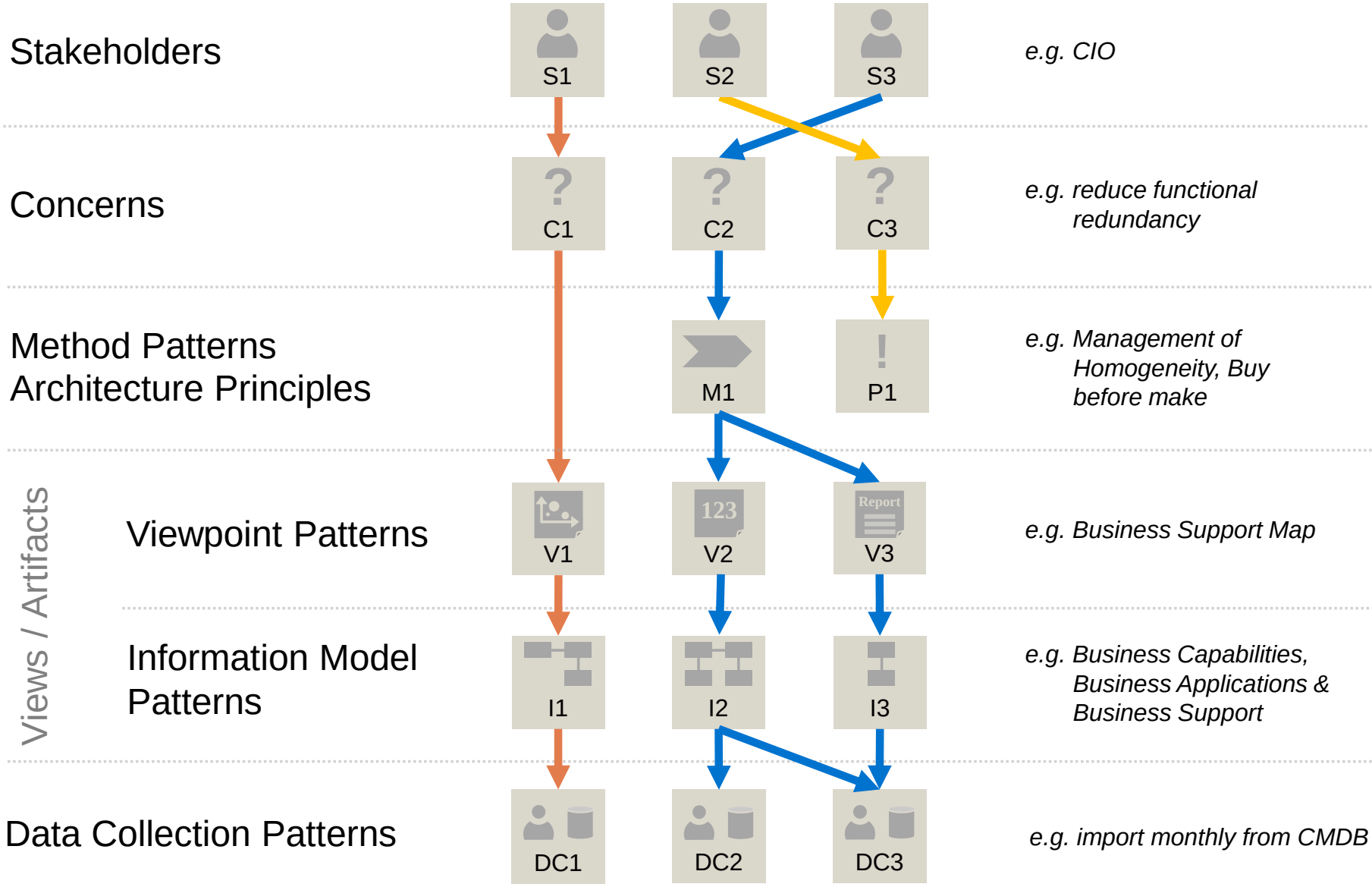
- Basis: literature, experience from *sebis* research projects, structured interviews of 25 enterprise architects
- Selection based on relevance and adoption by an extensive online questionnaire

➔ 43 concerns, 20 M-Patterns, 53 V-Patterns, and 47 I-Patterns





EAM PC 2015: Conceptual overview



Summary and conclusion

1. Increasing business complexity and environmental volatility create a demand for **holistic optimization** and **coherent transformation**.

2. **Business capabilities** and business capability maps provide (black-box) abstractions beneficial and accessible for many stakeholders and enterprises of various sizes.

   They provide **a stable architectural reference** for strategic modeling tasks in turbulent environments.

3. Enterprise (business, domain, IT, software, …) architects should
   - **adapt their management approach** to the dynamicity and complexity of the problems at hand
   - apply **agile principles**
   - utilize practice-proven **patterns and building blocks**

Thank you for your attention. Questions?

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Enterprise architect education and certification

Enterprise architect should become a profession and not just a job title.

TUM	Master Course Business Informatics Strategic IT Management and EAM
euro CIO – The European CIO Association	Euro CIO Professional Programme Business and Enterprise Architecture
NETACAD Wissen im Wettbewerb	EAMKON Conferences & Workshops
Softwareforen Leipzig	User Group Architekturmanagement
Softwareforen Leipzig	EAM Grundlagen für die Praxis
GI Gesellschaft für Informatik	GI Arbeitskreis Unternehmensarchitektur Leitung Fachgruppe Architekturen,