

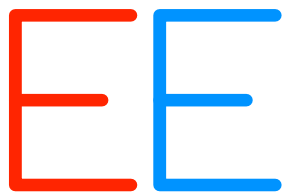
Enterprise Architecture 3.0

Steering Enterprises in Motion

Henderik A. Proper

EE-Team

CRP Henri Tudor, Luxembourg



Radboud University Nijmegen



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA



Contexts



Alex Verrijn-Stuart

Frank Harmsen

Bard Papagaaij

Martin Op 't Land

José Tribolet

Theo van der Weide

Eckhard Falkenberg

Danny Greefhorst

Jan Dietz

People

Roel Wagter

Marc Lankhorst

Stijn Hoppenbrouwers

Denis Verhoef

Bas van Gils

Maarten Waage

Wolfgang Molnar

Hans Bossenbroek

EE Victor van Reijswoud

Len Fehskens

Sources

- H. A. Proper and M.M. Lankhorst. Enterprise Architecture - Towards essential sensemaking. *Enterprise Modelling and Information Systems Architectures*, 2014.
- H. A. Proper. Enterprise Architecture - Informed steering of Enterprises in Motion. In *Proceedings of the 15th International Conference, ICEIS 2013, Angers, France - Revised Selected Papers*, Lecture Notes in Business Information Processing, Heidelberg, Germany, 2014. Springer, Heidelberg, Germany



Agenda

- EA 1.0: Enterprise Wide IT Architecture
- EA 2.0: Co-design of Business and IT
- EA 3.0: Steering Enterprises in Motion



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From Computer Architecture to IS Architecture

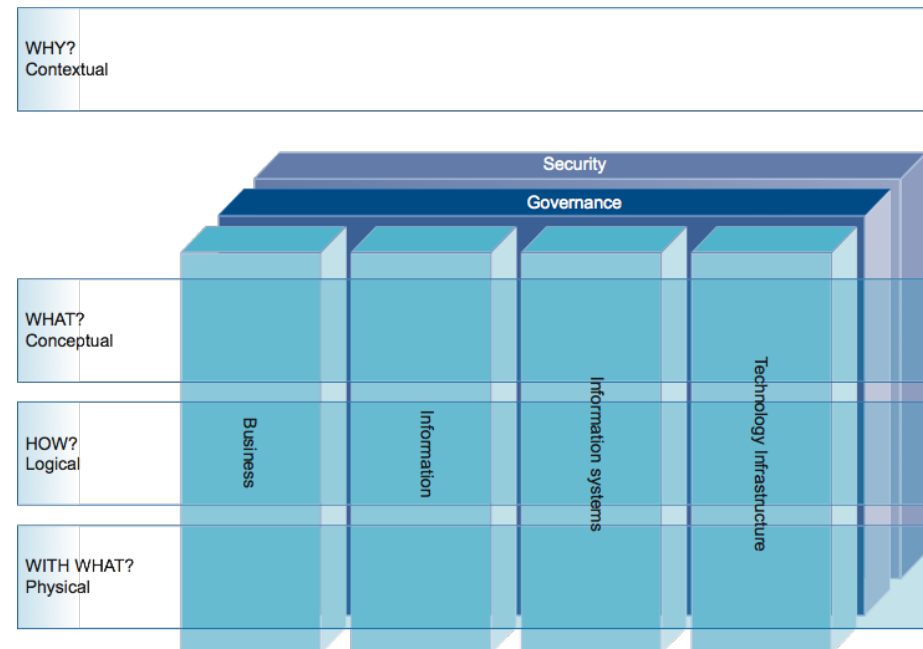
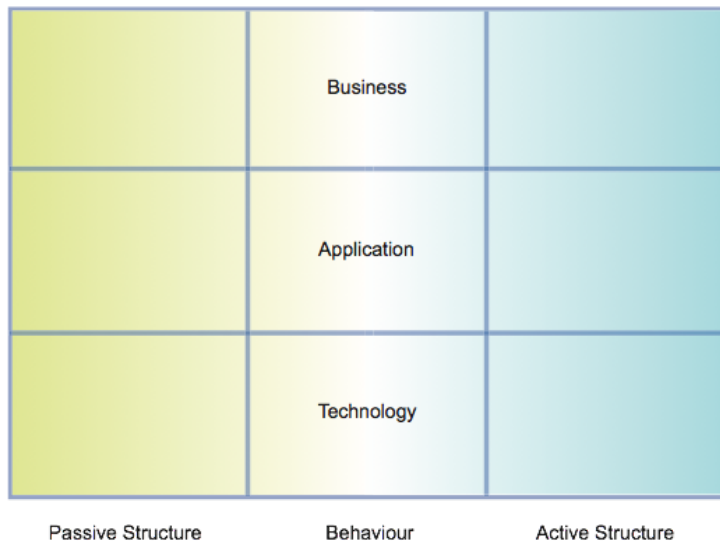
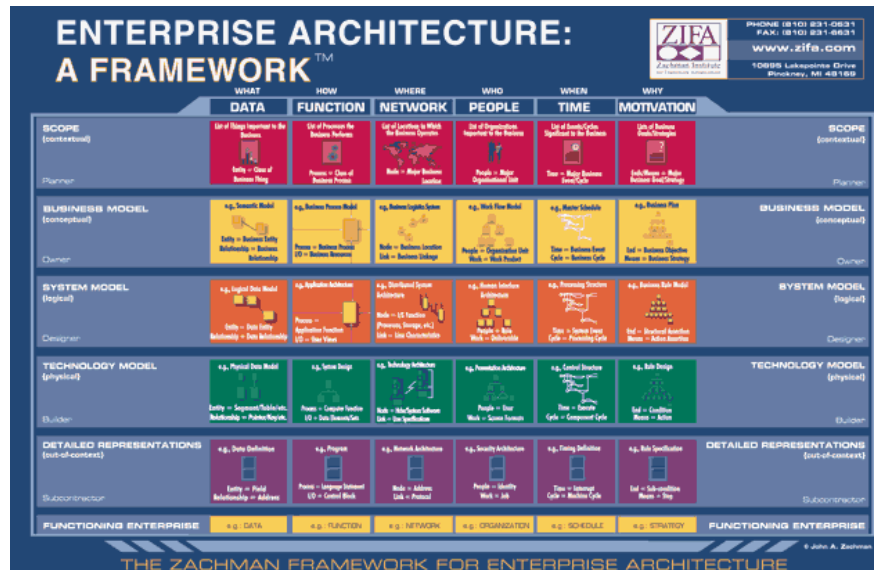
- 1964, Blaauw, Computer Architecture
- 1982-1985:
 - Multiple-perspectives on ISs
 - Multiview
 - CRIS
- 1986 (use of the word Architecture in IS):
 - PRISM, ARIS
- 1987:
 - Zachman framework

From IS Architecture to Enterprise Architecture

- Business / Application / Technology
- Business as a *given*:
 - Early TOGAF
 - Zachman
 - Spewak, Boar 1993-1999
 - TOGAF 8

From IS Architecture to Enterprise Architecture

- Co-design of Business and IT
 - Tapscott & Caston 1993
 - Henderson & Venkatraman 1993
 - IAF
 - ArchiMate
 - DYA
 - TOGAF 9



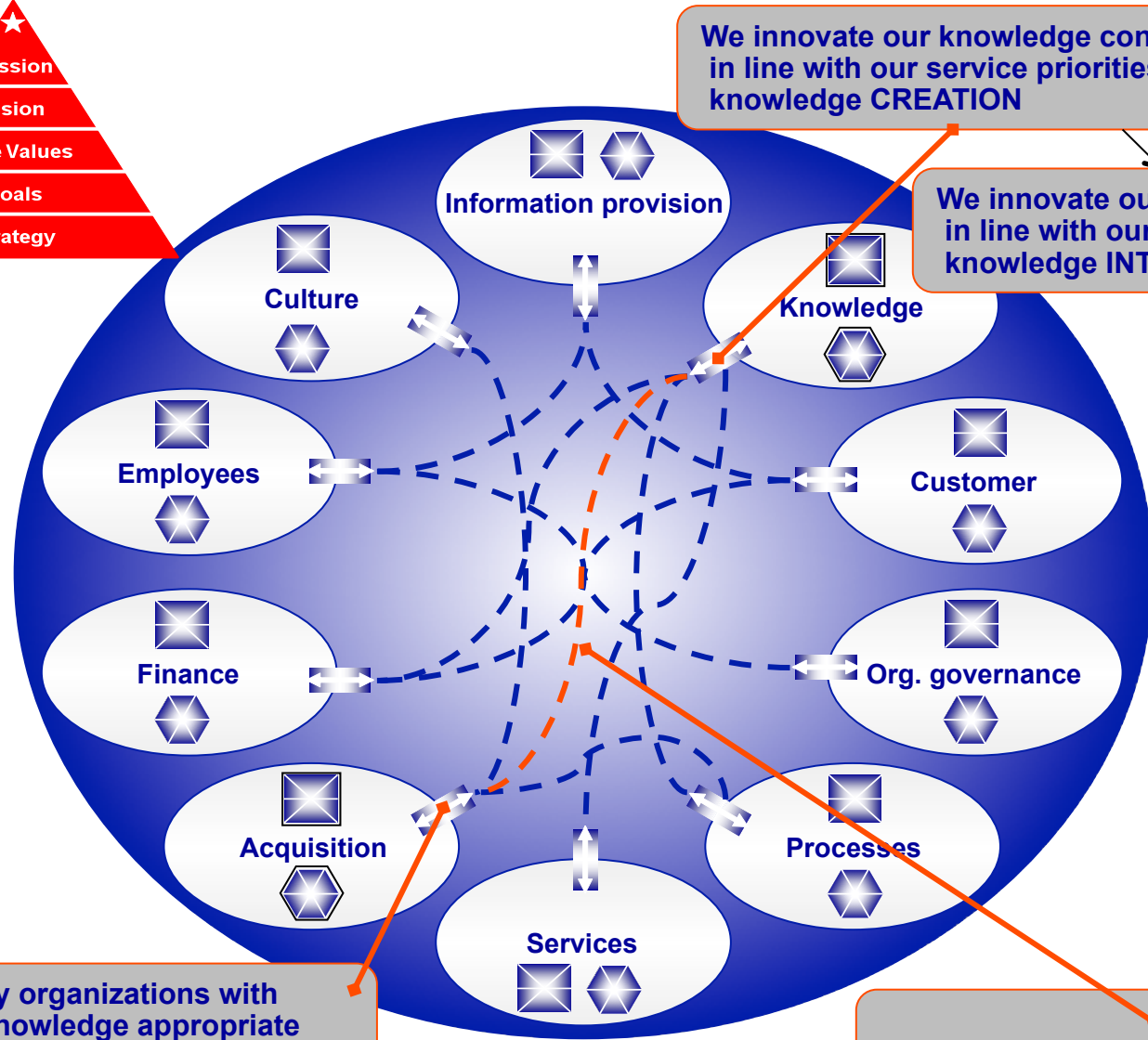


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From Business-to-IT-stack centrality to Enterprise Coherence

- Business-to-IT-stack:
 - Business / Application / IT
- The architecture of the enterprise?
- Other perspectives involved:
 - Graves, Fehskens 2008
 - GEA, 2009
- De Caluwé & Vermaak:
 - Beyond blue-print thinking



We innovate our knowledge concepts in line with our service priorities by knowledge CREATION

We innovate our knowledge concepts in line with our service priorities by knowledge INTEGRATION

We acquire only organizations with cutting edge knowledge appropriate spearheads of our services

Innovation by buying service concepts

From Descriptive Architecture to Prescriptive Architecture

- Meaning of EA:
 - Restriction of design freedom
 - Deduction of design stress
- Primarily a prescriptive notion
- Traditional focus on models (design instructions)
- Now shifts towards design principles

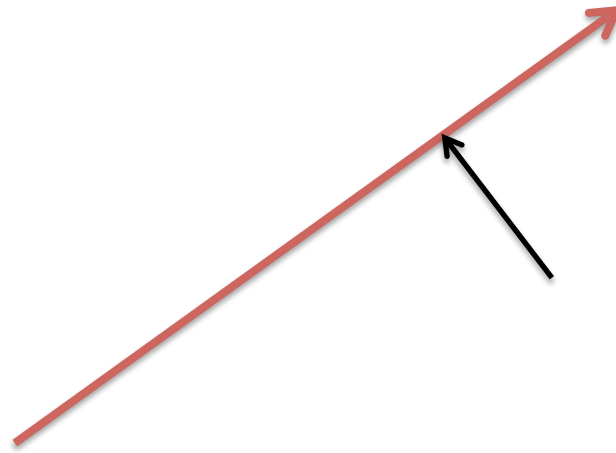
From Implementation to Intervention

- An enterprise is a socio-technical system
- Hard to change in a premeditated direction
- Changes of its own accord
- Drift, emergence, ...

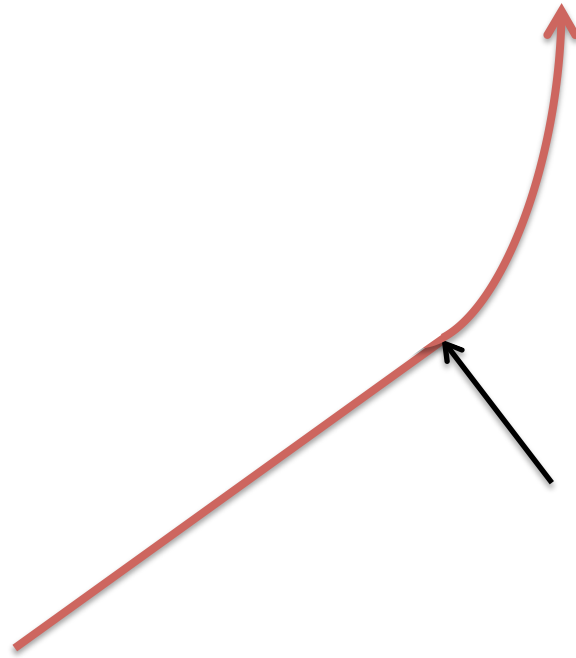
From Implementation to Intervention



From Implementation to Intervention



From Implementation to Intervention





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 - Enterprises in motion
 - Steering motion
 - Role of architecture



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Change drivers

- Compliance
- New markets
- Deregulation
- Reduced protectionism
- Merges & acquisitions
- Globalisation
- Process improvement
- Aging population
- Value networks
- Co-creation
- Security
- Service innovation
- New technologies
 - Mobile technology
 - Nano technology
 - Bio technology

Change drivers

- Lead enterprise to change
- Drivers sometimes contradict each other
- Changes initiated from different angles:
 - Top-down, bottom-up, ...
- Using different rhythms:
 - Pre-meditated, spontaneous, ...
 - Directive, participative, ...
 - Pro-active, re-active, ...

Enterprise change ...

- Service innovation
- Business innovation
- Business transformation
- Technology transformation
- Service innovation
- Bricolage
- Process improvement
- Mergers & acquisitions
- Splitting & outsourcing
- Organisational drift
- Self-organisation
- Emergence

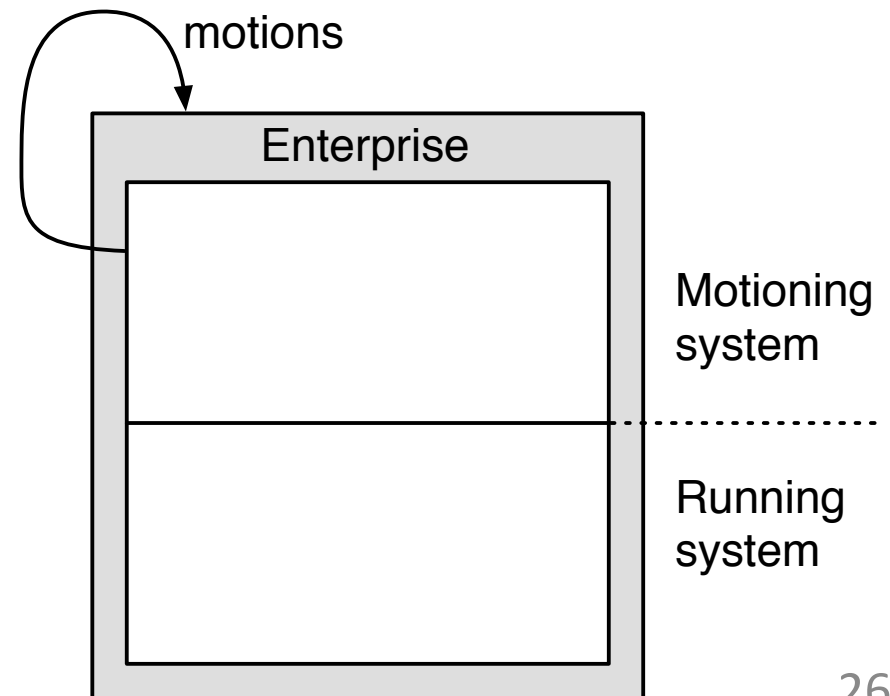
Generalized to: *Enterprises in Motion*

Enterprises in Motion

- Two aspect systems of an enterprise:
 - The running system
 - The motioning system
- Both are likely to be IT intensive
- Aspect systems:
 - One (social or technological) actor can play roles in multiple aspect systems

Enterprises in Motion

- Two aspect systems:
 - The running system
 - The motioning system



Motioning of enterprises

- A core business process
- Should be treated as such
- A 2nd order business process

- Should it be steered?
- IS support?
- IT support?



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Steering motion

- Management
- Governance
- Control
- Guiding
- Stewardship
- ...

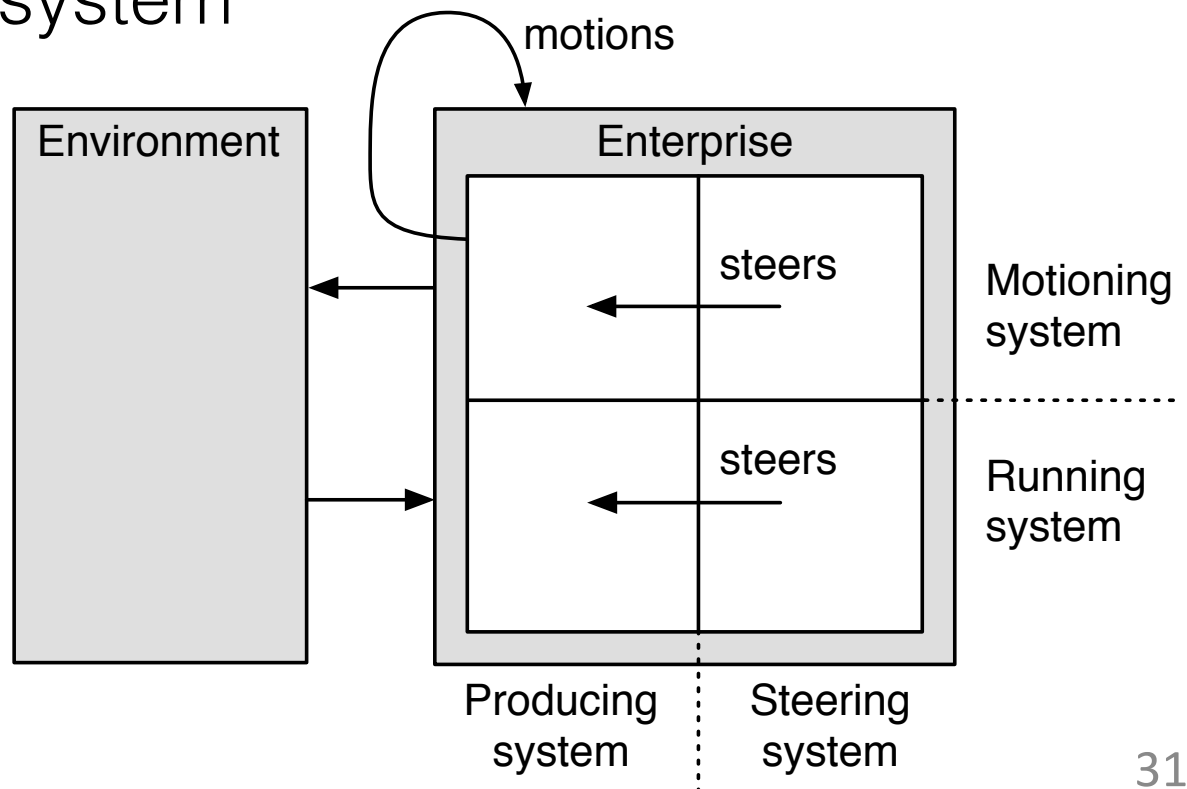
Generalized to: *Steering motion*

Steering motion

- Two additional aspect systems:
 - The producing system
 - The steering system
- Both are likely to be IT intensive as well

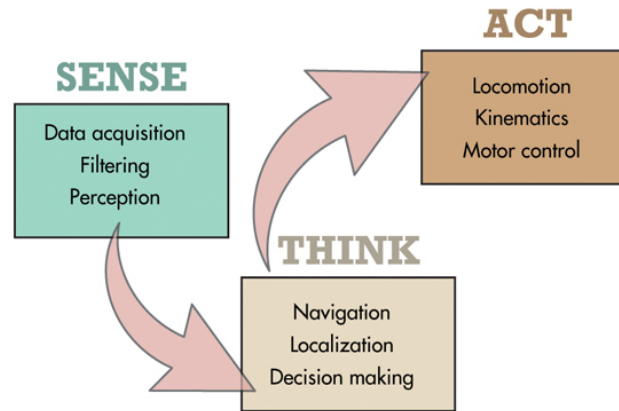
Steering motion

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 - The producing system
 - The steering system

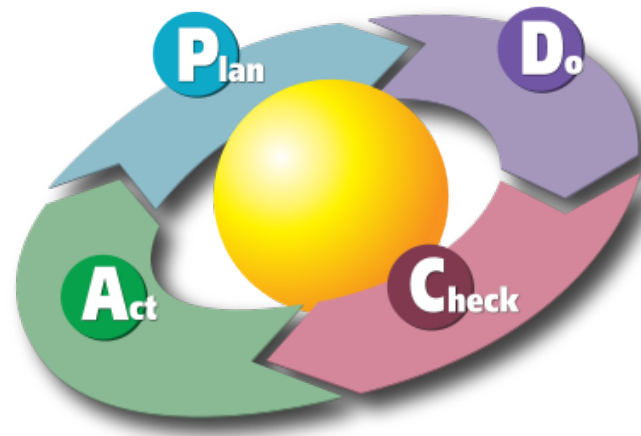


Steering motion

- Control theory

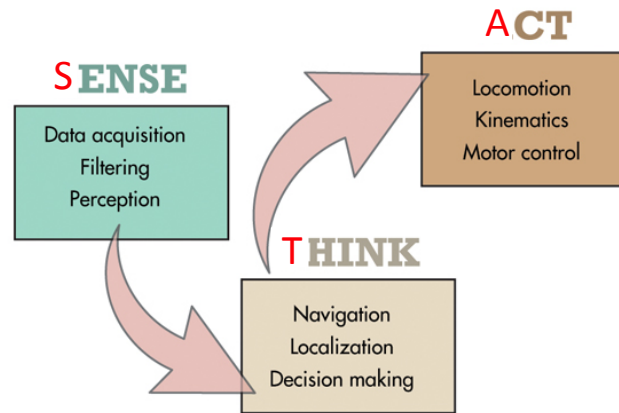


- Rhythm based on Deming cycle

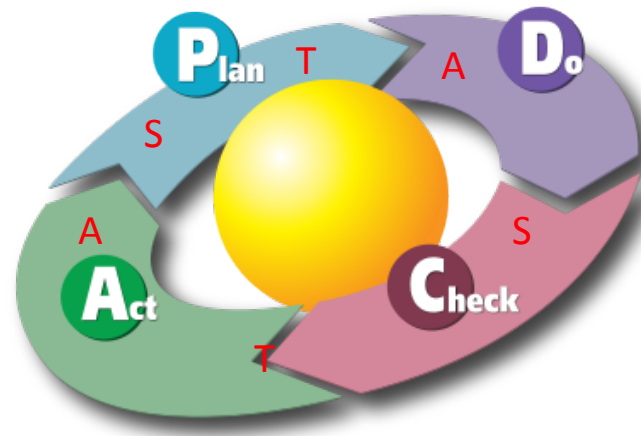


Steering motion

- Control theory



- Rhythm based on Deming cycle



Needs of a steering system

Sense:

- Steering goals
- States & vectors of object & environment
- Effects of earlier steering interventions

Think:

- SWOT on goals vs states & vectors
- Design intervention plan when needed

Act:

- Conduct the intervention

E.g. the enterprise's strategy

Needs of steering system

Models ...

Enterprise cartography

Sense:

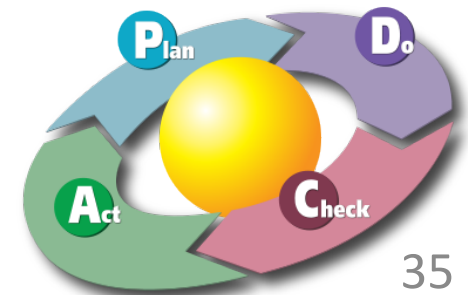
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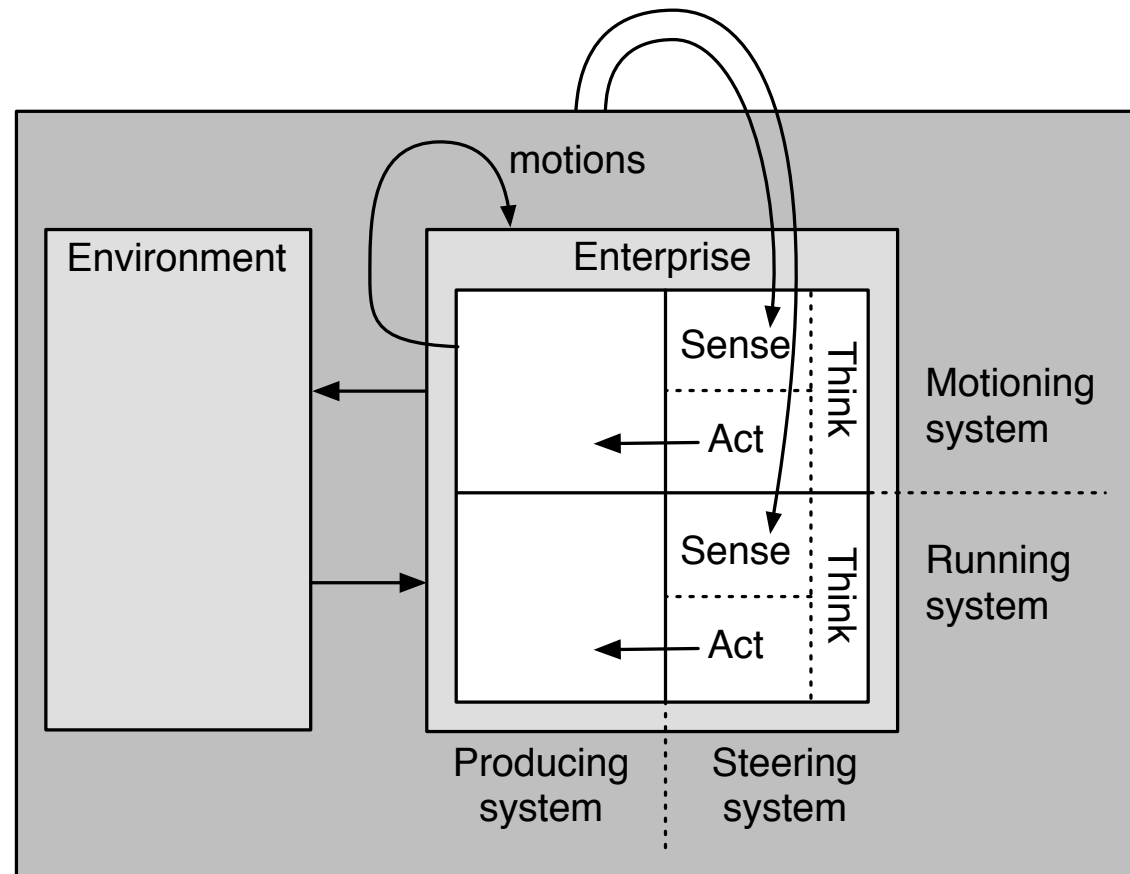


Further aspect systems

Sub-systems of the steering systems:

- Sensing
- Thinking
- Acting

Aspect systems
IT intensive

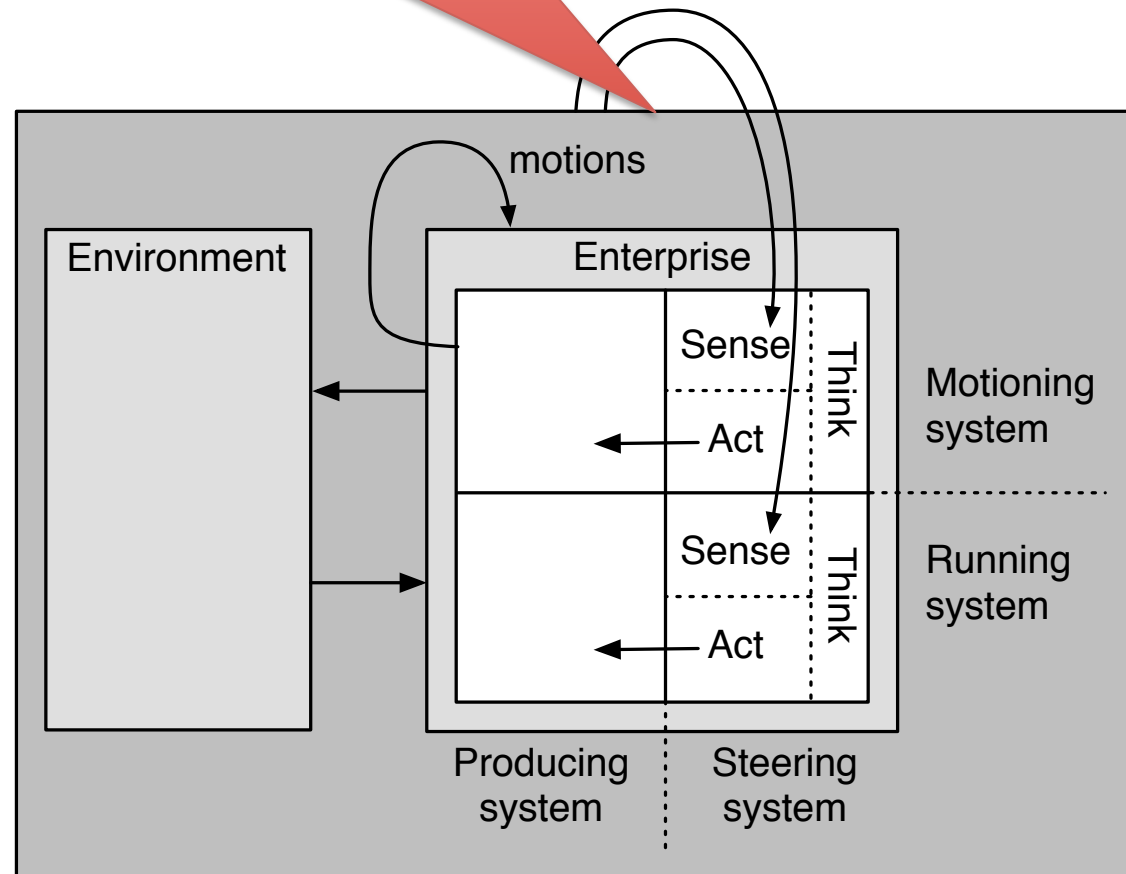


Also includes the monitoring of the running system to see if it behaves as designed. E.g. **compliance** systems

Sub-systems of the steering systems:

- Sensing
- Thinking
- Acting

Aspect systems
IT intensive



Motioning of enterprises

- A core business process
- Should be treated as such
- A 2nd order business process

- Challenge:
 - Bottom up & top down
 - Spontaneous & pre-meditated
 - Changing environment
 - Changing quality priorities

Motioning of enterprises

- A core business process
- Should be treated as such
- A 2nd order business process

- Needs its own information systems
- 2nd order information system
 - Sense / think / act
 - Models, modelling, languages, ...

Motioning of enterprises

- A core business process
- Should be treated as such
- A 2nd order business process

- Needs its own information systems
- IT support for 2nd order IS:
 - CASE tools, MDE, engines, ...
 - Model warehouses, 2nd order BI, ...

Motioning of enterprises

- A core business process
- Should be treated as such
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Enterprise cartography



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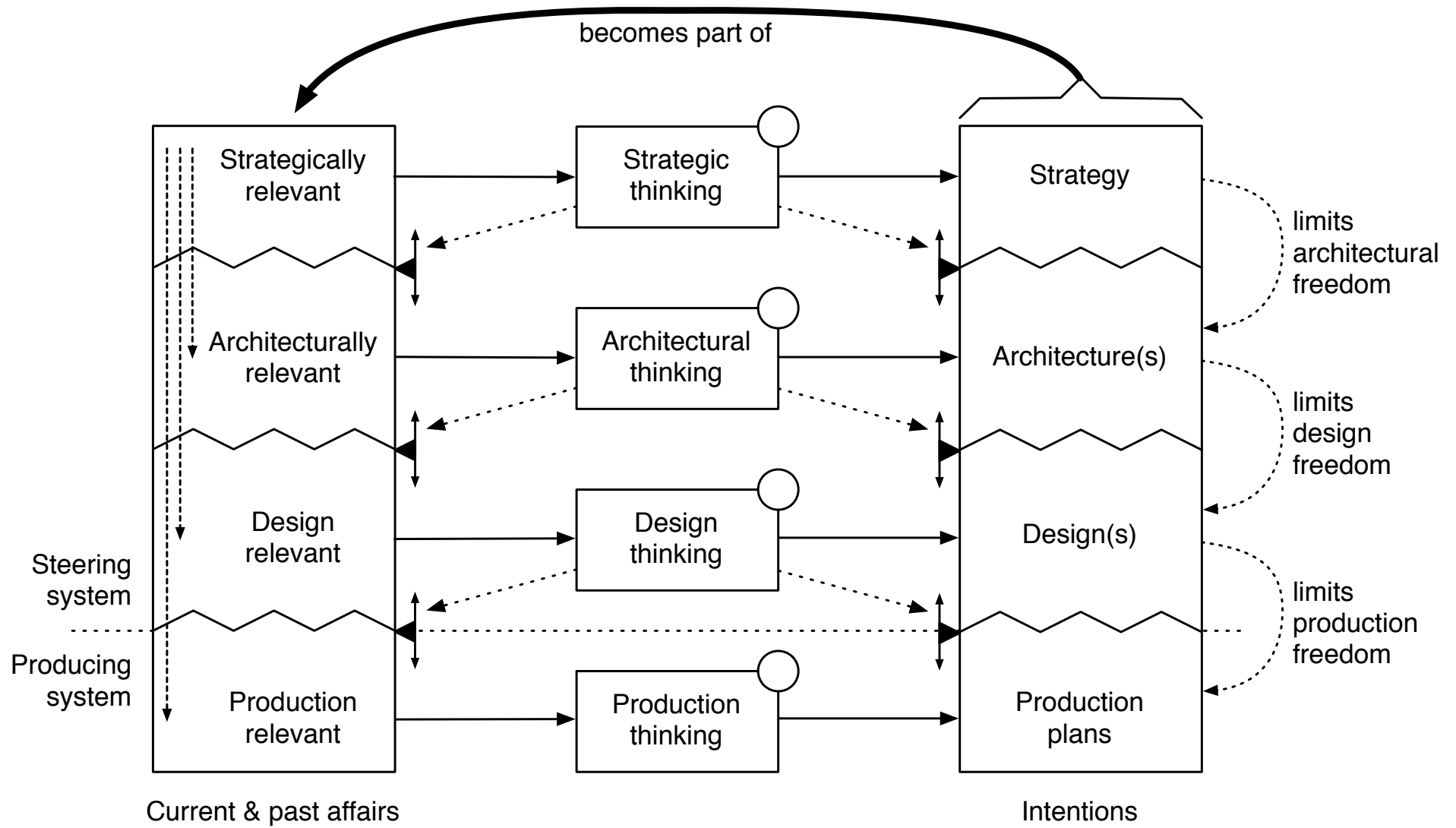
Architecture

Those properties of an artifact that are necessary and sufficient to meet its essential requirements

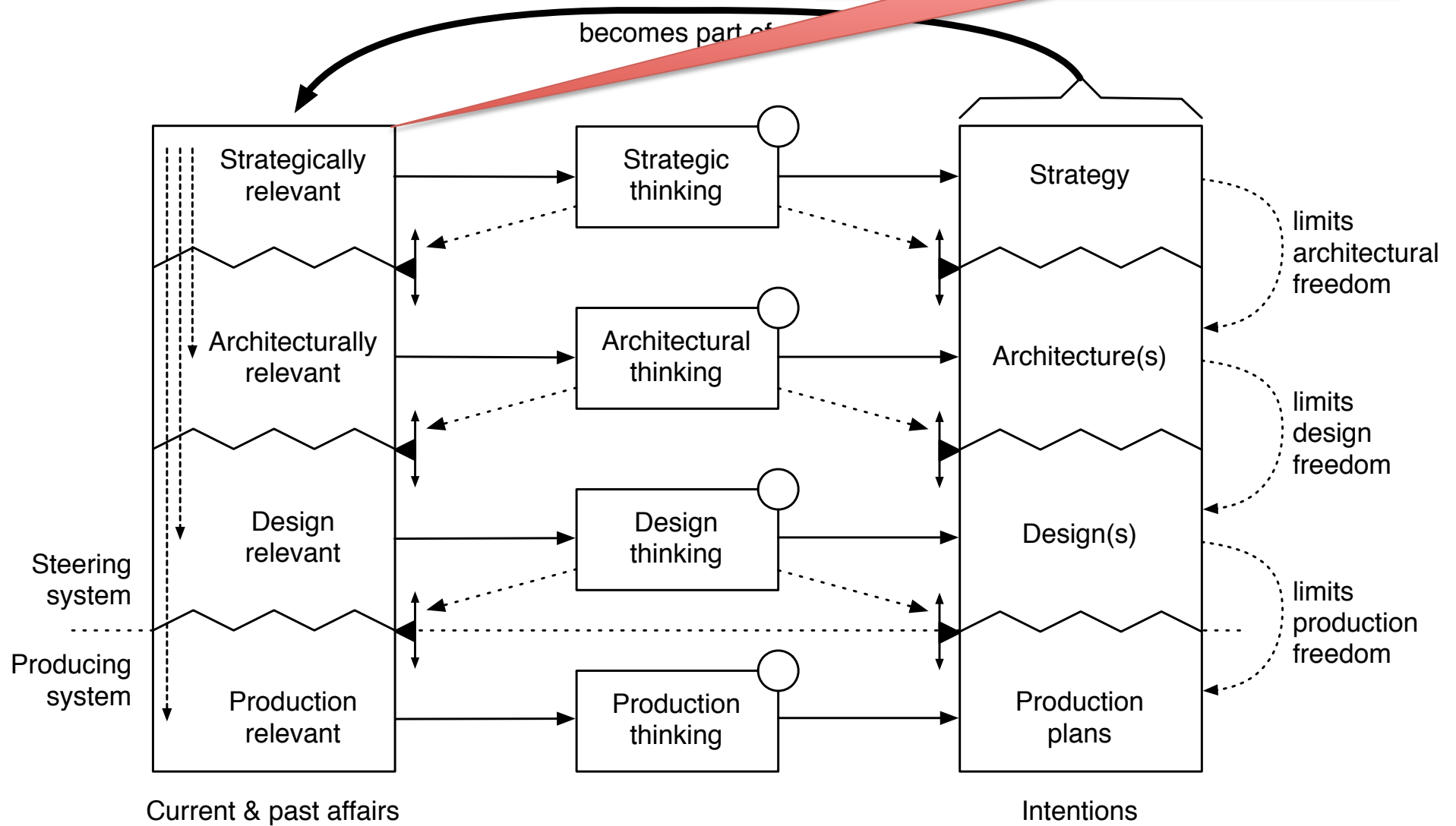
Enterprise architecture

The architecture of an enterprise

- Purpose of EA:
 - Steering the motion of enterprises
 - Focus on essential requirements
- Meaning of EA to senior management:
 - Making sense of past, present & future
- Meaning of EA towards change efforts:
 - Reduction of design freedom / stress



Enterprise cartography



Ingredients of EAing

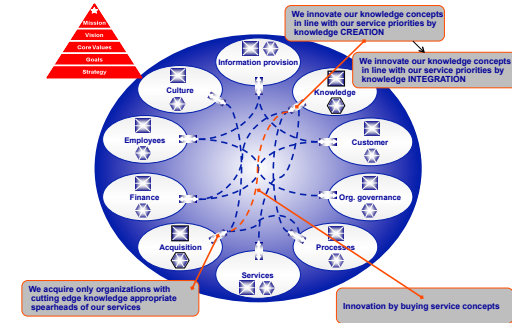
1 Engagement framework
Who to involve?

2 Motivation framework
Main line of reasoning?

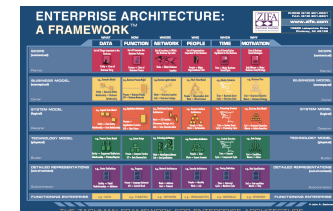
3 Design framework
Way of thinking about an enterprise's design?

4 Communication framework
How to communicate architectures

5 Process framework
How to do all of it?



Needs / Requirements / Design





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