SASG-75, THE EARLY DAYS

Ben Pronk

17-10-2022

An initiative of industry, academia and TNO

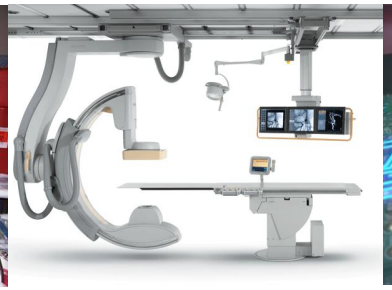
ESI

SASG

System Architecture Study Group

The System Architecture Study Group (SASG) is an active group of approximately 200 system architects. Members exchange experiences during regular meetings on system/software architecture.

ABOUT ME




ESI 20 YEARS

ESI

- 1978: Physics Delft
- 1984: Physics University Leiden
- 1987: Philips Medical System, Magnetic Resonance Imaging (MRI)
- 1995: Philips Medical System, Interventional X-ray
- 2002: Philips Semiconductors, NXP
- 2009: Trident Microsystems, Sunnyvale
- 2011: Philips Innovation Service
- 2016: Philips Lighting Research
- 2019 Eindhoven Medical Robotics
- 2021 TNO Embedded System Institute

THE ARCHITECTURE ODYSSEY

Complexity

Economics

Technological development

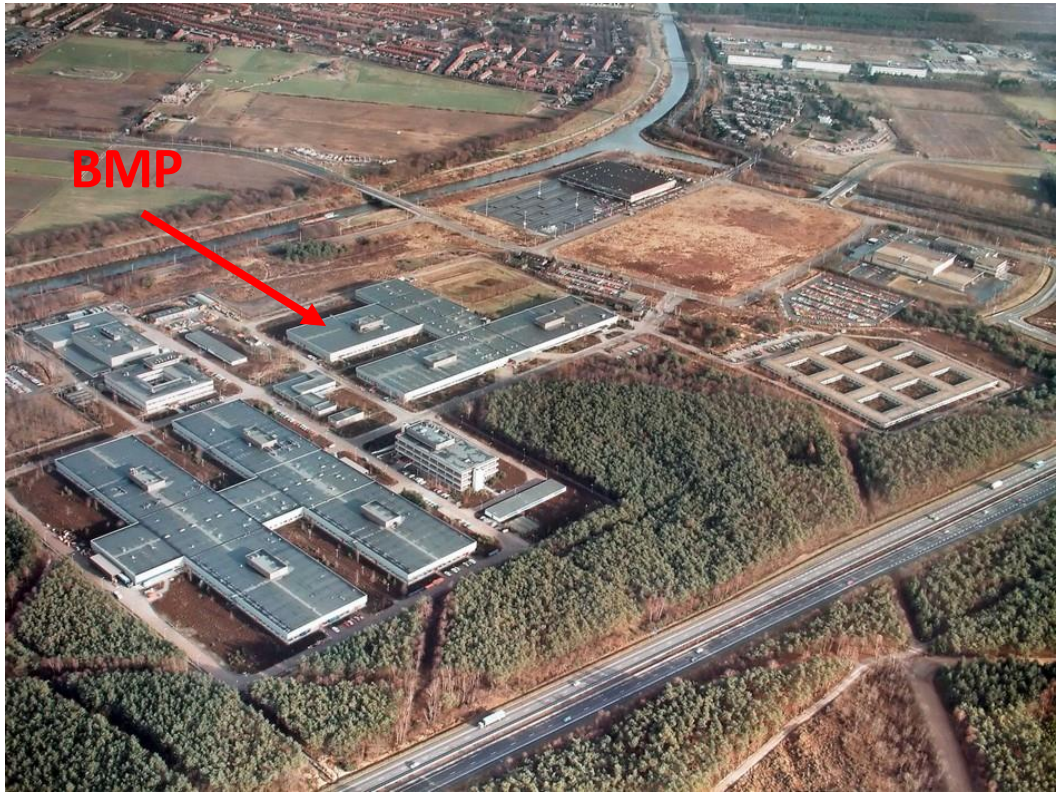
THE EARLY DAYS

- SASG-history
  - Membership, meetings, speakers, etc.
- SASG-topics
  - What did we talk about, did topics change or even return
- System Engineering (or Architecting?)
  - Systems, complexity, technology, process, people, profession, organization

Did we actually make any progress?

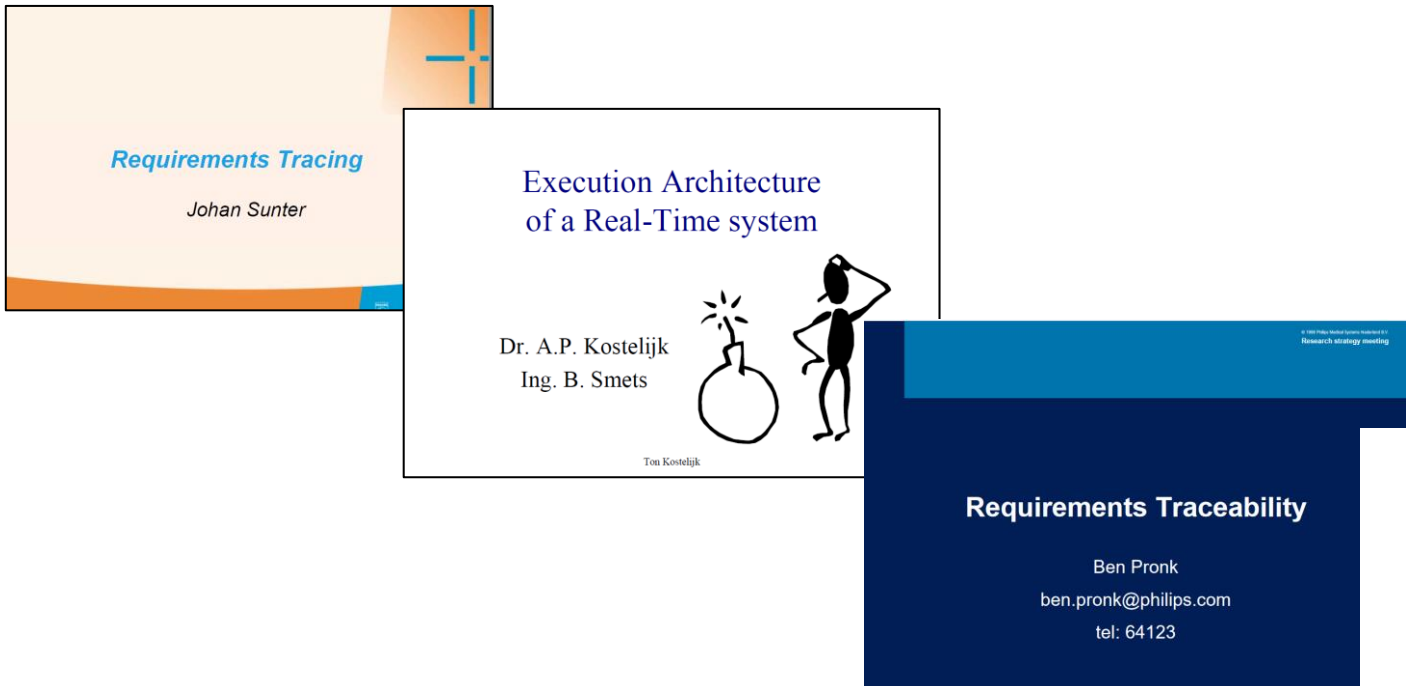
SASG-HISTORY

- Increasing focus on System Architecture in the 90's
  - System complexity increasing
  - Software explosion in all products
  - Philips wide theme, even managerial attention
  - Bottom-up initiatives Operating System Study Group



SASG-TOPICS

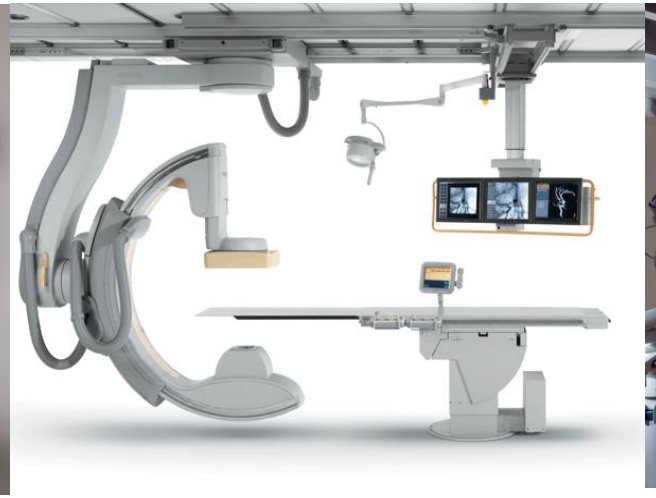
- Topics overview from first meetings



- Very software centric
- Embedded played a major role
- “One” Philips

SYSTEM ENGINEERING (OR ARCHITECTING?), SYSTEM CONTEXT

- Systems Complexity growth



Simple product
Dominant technology

Software and digital electronics
Multiple disciplines, integration

Islands of automation connected, 3rd party devices, ad hoc integration

Mobile devices, cloud, AI, big data

SASG-HISTORY

- The SASG quickly grew from 0 – 60 participants from all Philips departments.
- From OSSG to SASG
- Three times a year a fixed place on the agenda
- However the Philips iceberg started to melt

- OCE Venlo as first “external member”

SASG-TOPICS

Big Data in ASML

HW emulation in MRI development

System Architecting Agile

Graceful Degradation

Design for Testability - experiences from the DVD domain

Get into control?

Facts and fiction in architecting

Managing Software Assets in Product Population

A good practice is to be complete - Preventing incompleteness problems in software architectures

Experiences with 'Enterprise Architect

The Fei Koala Architecture - & why we hope it is future proof

Making Architectures Future-Proof Using Scenarios

Experiences with architectural patterns in component placement machines

Experiences with RUP at Philips TASS

Storage Product Family Architecture

Component Based Production of Software

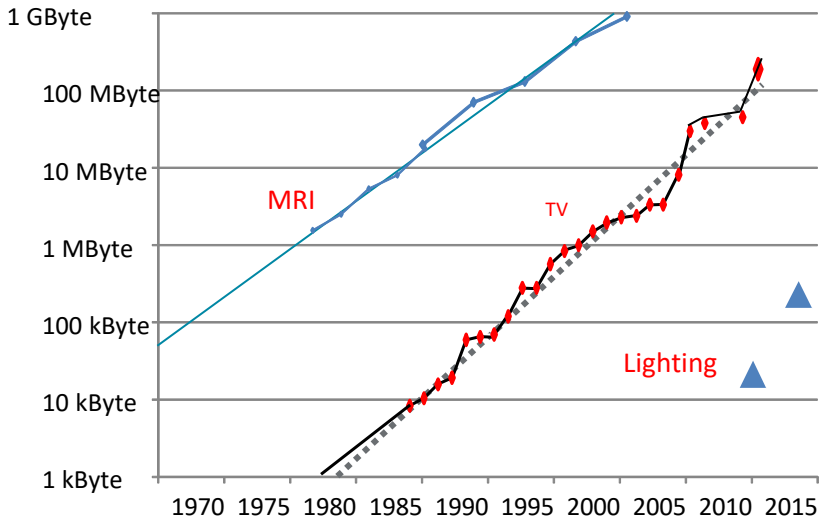
Execution Architecture of a Real-Time system

SYSTEM ENGINEERING (OR ARCHITECTING?), TECHNOLOGY TRENDS

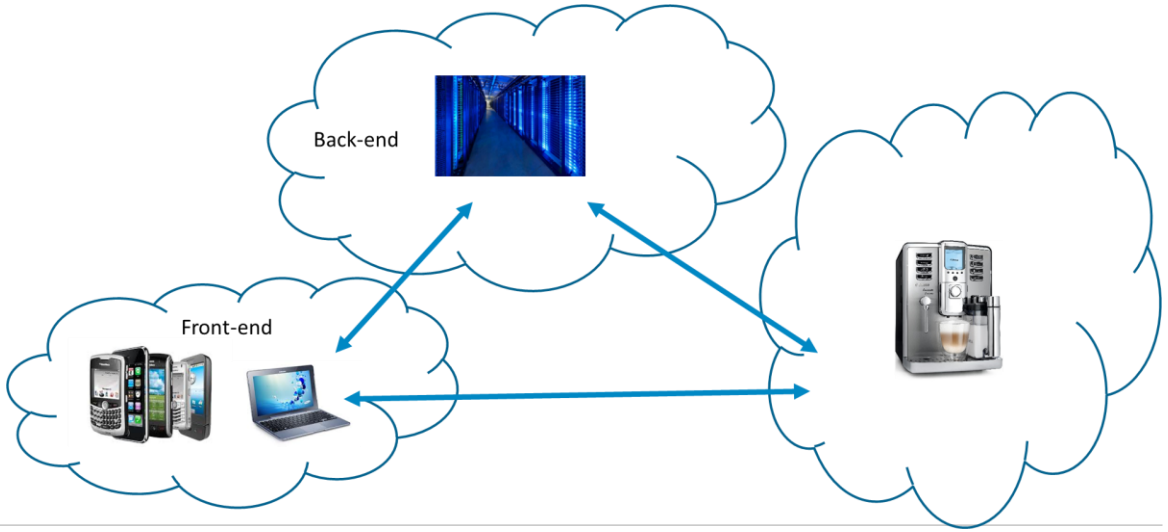
- Moore, Moore and Moore:
  - More CPU, memory, band-width
  - Drives down costs and opens new markets
- Moving functionality
  - From analog to digital hardware to software for cost reduction and increased flexibility
- Increased functionality
  - Through software and integration of devices

SYSTEM ENGINEERING (OR ARCHITECTING?) , TECHNOLOGY TRENDS

- Software growth



- Ubiquitous network capacity
  - Distribution of functionality
  - Optimal allocation of functions
  - Remote service and monitoring

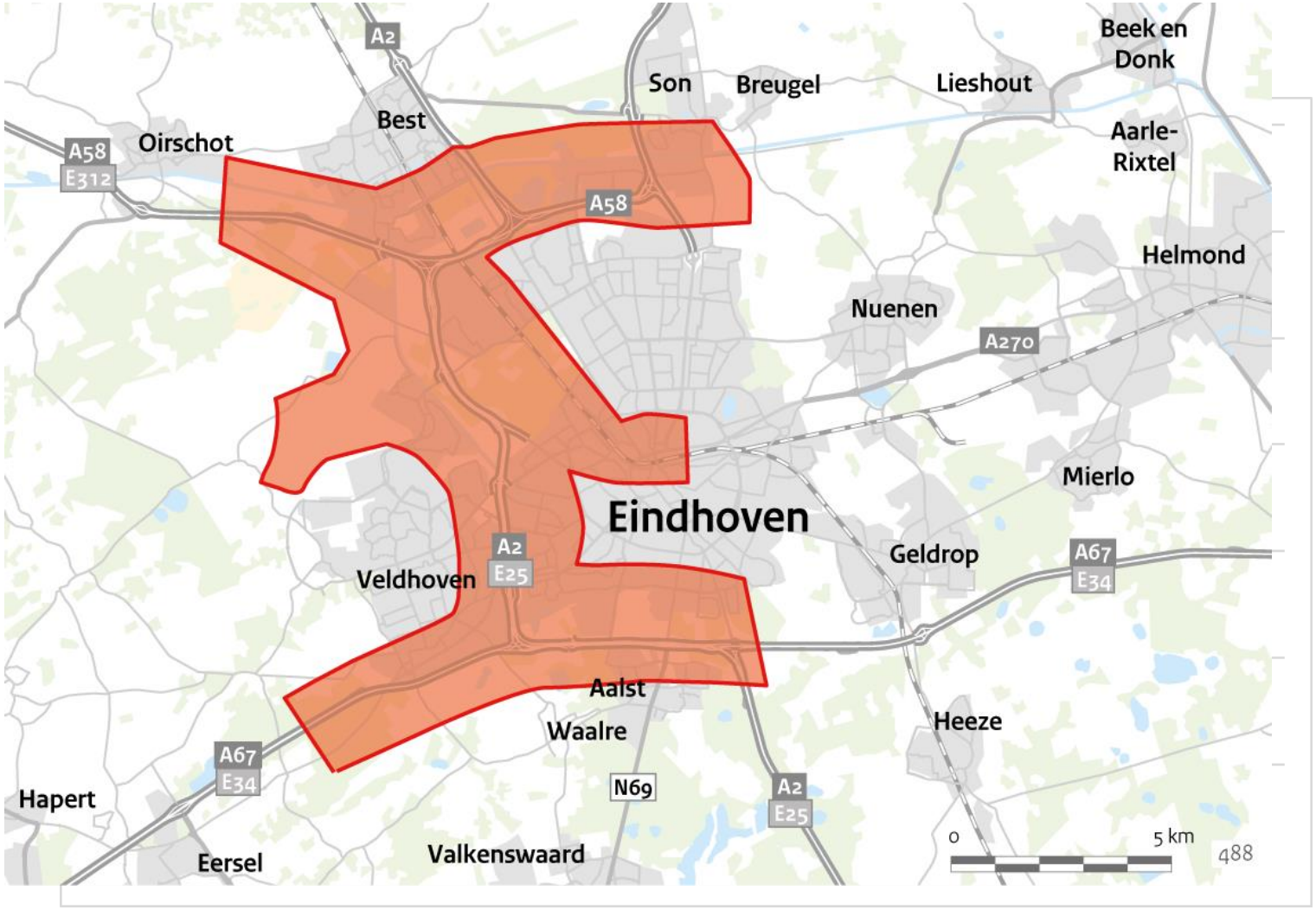


SYSTEM ENGINEERING (OR ARCHITECTING?) , TECHNOLOGY TRENDS

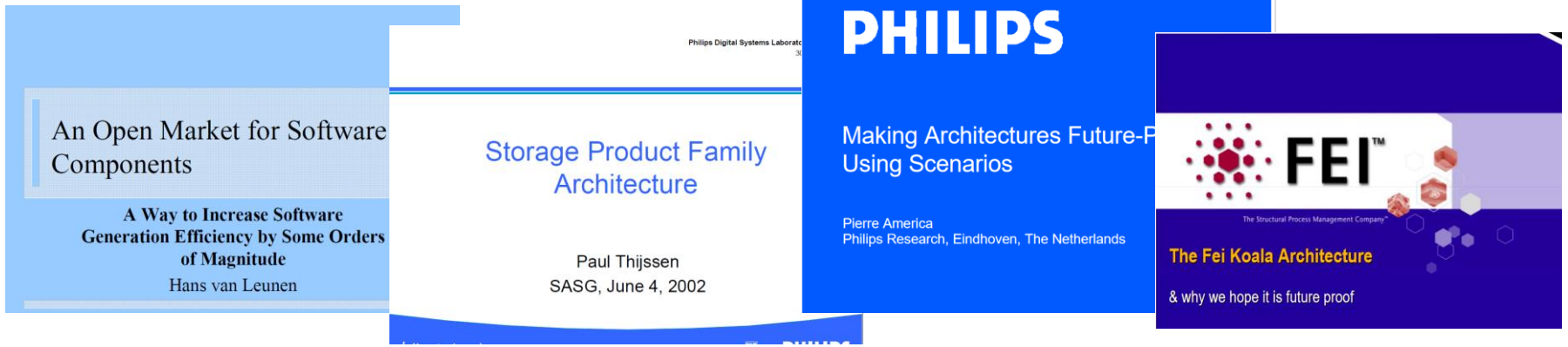
- Moving to established digital platforms (HW&SW) and technology for efficient R&D-execution and cost reduction

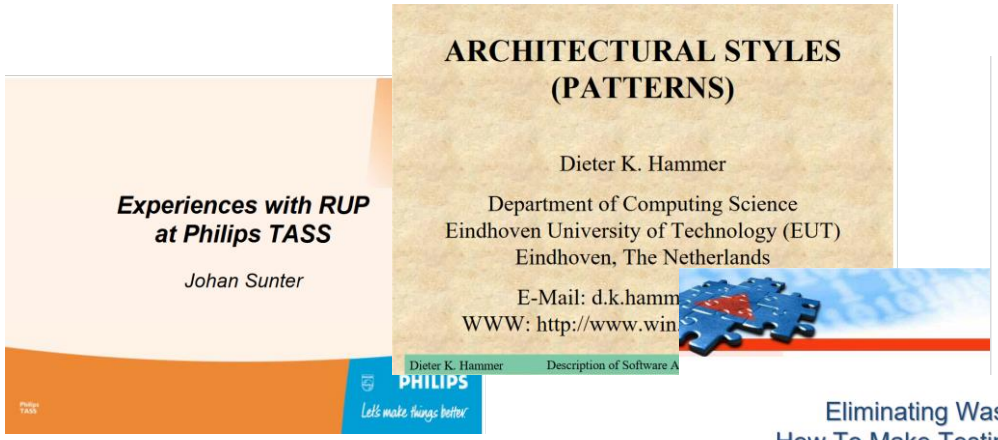
SASG-HISTORY

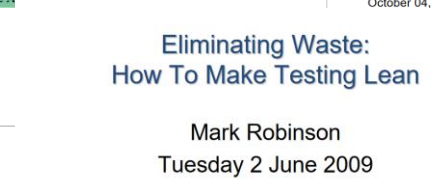
- SASG moved to TNO-ESI
  - As linking pin in high tech
- From meeting 50 to 75
  - Membership, who what where?
  - The growth of ASML
- Yet
  - Still Eindhoven centric
  - Where are the suppliers
  - Start-up, new entrants

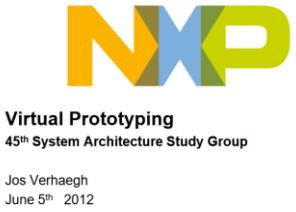


SASG-TOPICS, SOME EVERGREENS, SOME HYPE





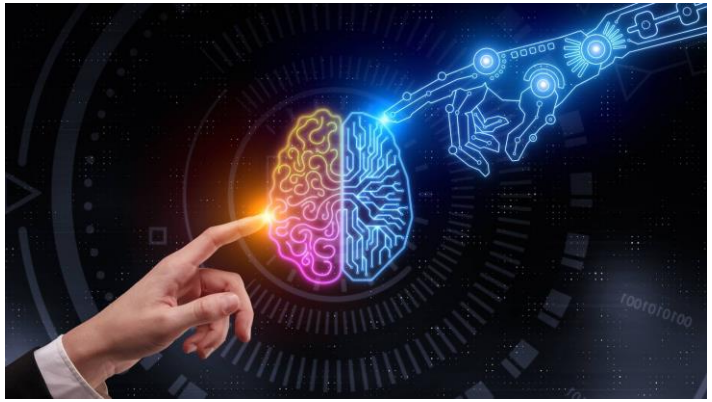




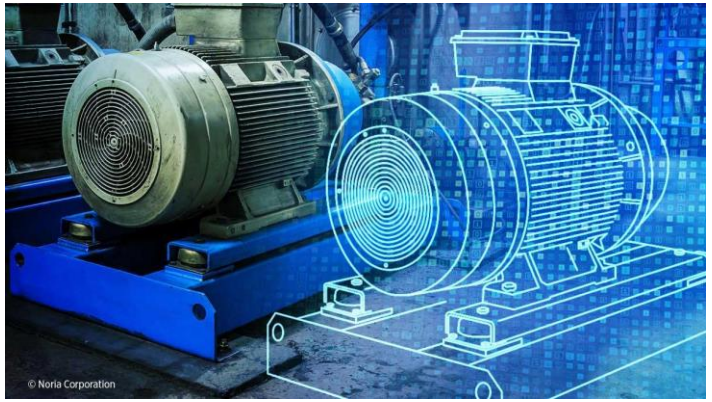
SYSTEM ENGINEERING (OR ARCHITECTING?)

- The data revolution

Big data



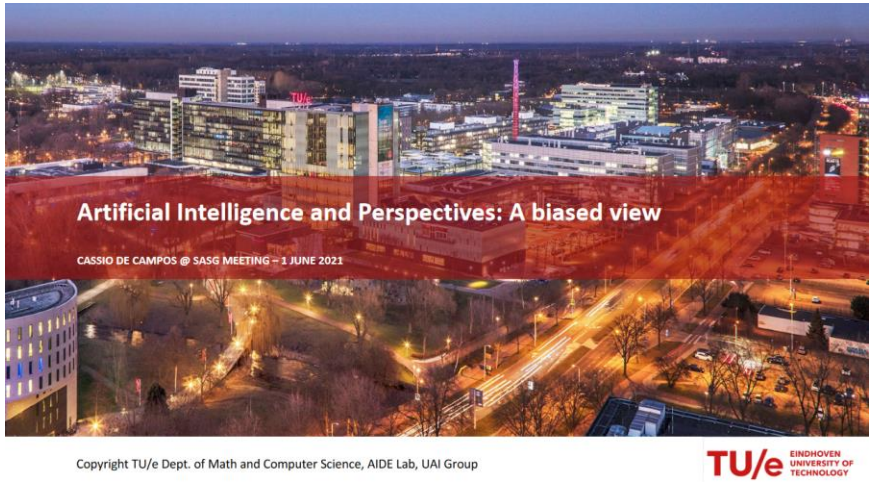
AI



Digital Twin

SASG-TOPICS


Digital data under the law
Arnoud Engelfriet, IT lawyer & partner at ICTRecht BV / European patent attorney
A.Engelfriet@ictrecht.nl / 020 – 663 1941


Artificial Intelligence and Perspectives: A biased view
CASSIO DE CAMPOS @ SASG MEETING – 1 JUNE 2021
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prespective
digital twin platform
Guido van Gageldonk
CTO | Co-Founder

SYSTEM ENGINEERING (OR ARCHITECTING?)

- The process
  - Architecture recognized as a major process in most organizations.
  - Architecture as an established discipline, having their organization.

  - Any automation, a standard way of working, patterns, modelling, an automated downward flow and links to the domains is still being worked on.

SYSTEM ENGINEERING (OR ARCHITECTING?), SOME WORDS OF WISDOM

PHILIPS

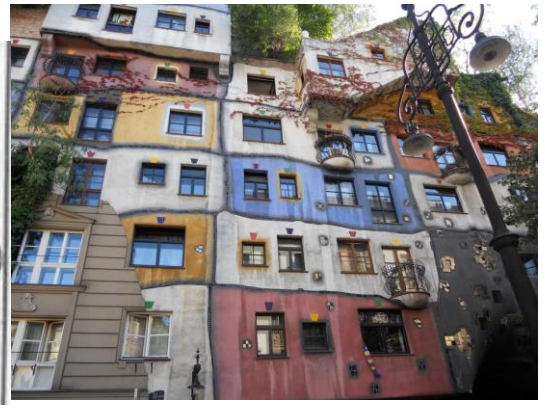
Statements

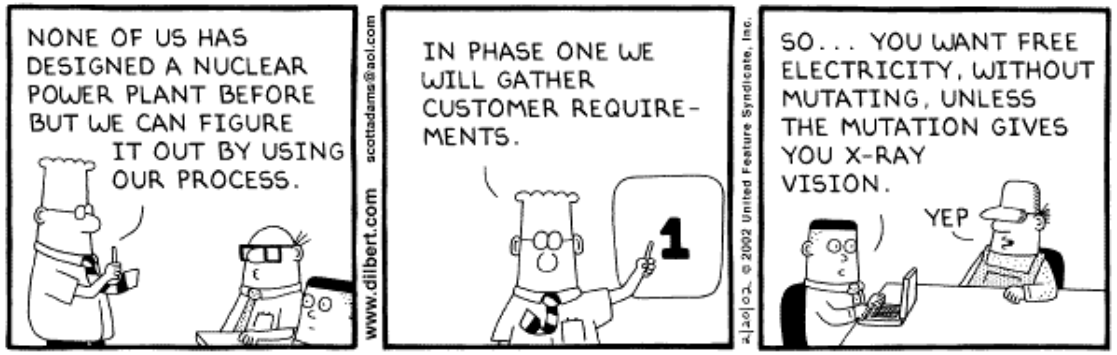
Architectural decisions are NOT based on functional requirements, but on non-functional requirements.

Functional SW architecting is more about selecting one from several possibilities, than creating a possibility from a start of none. ⇒**Economics.**

Composition phase is at least as important as decomposition phase.

Most so-called development projects are actually integration projects. This trend is growing.





A process can prevent you from failing, it can not make you succeed"

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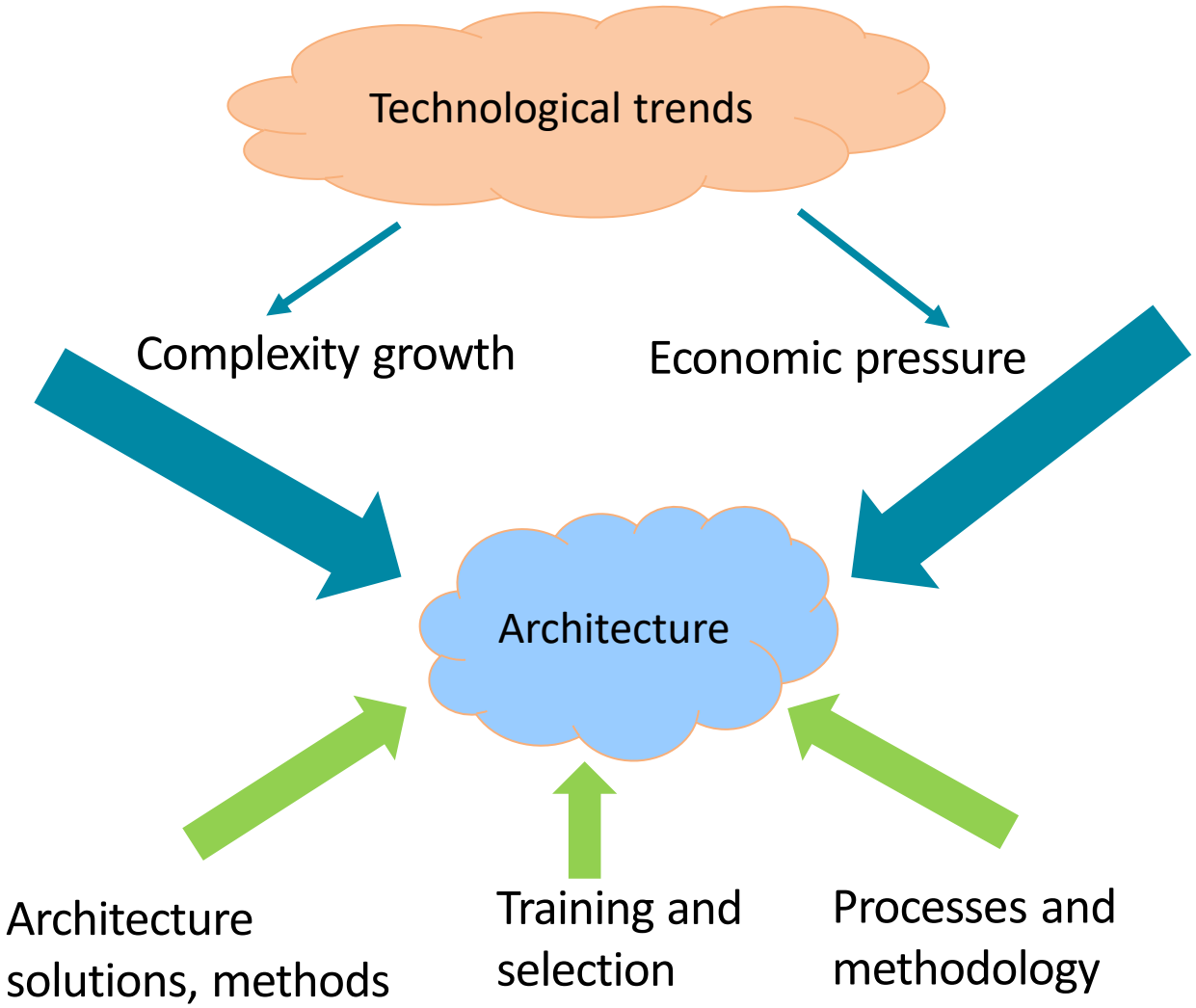
DID WE MAKE ANY PROGRESS AT ALL

- We are still floating
  - Ever more complex machines
  - Large scale connected application
  - Ever higher integrated SOC's
  - Etc.

- However:
  - Pen and paper, visio and excel are still our best friends
  - Courses and training, have we moved beyond the good old CAFCR course?



SASG-75, THESE ARE DAYS

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THANK YOU FOR YOUR ATTENTION

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