



Does software architecture  
research have any impact on  
software architecture practice?

Eltjo Poort

# Eltjo Poort

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Logica NL Lead Expert Architecture

- Reviewing Bids & Projects
- Standardising & Improving Architecture Practice in Logica NL

Logica Architecture Community of Practice lead

Researcher

- Improving Architecture Practices
- With Universities (VU, Twente, Utrecht, Eindhoven)
- Member if IFIP WG 2.10 Software Architecture



# This is Logica / CGI

72,000

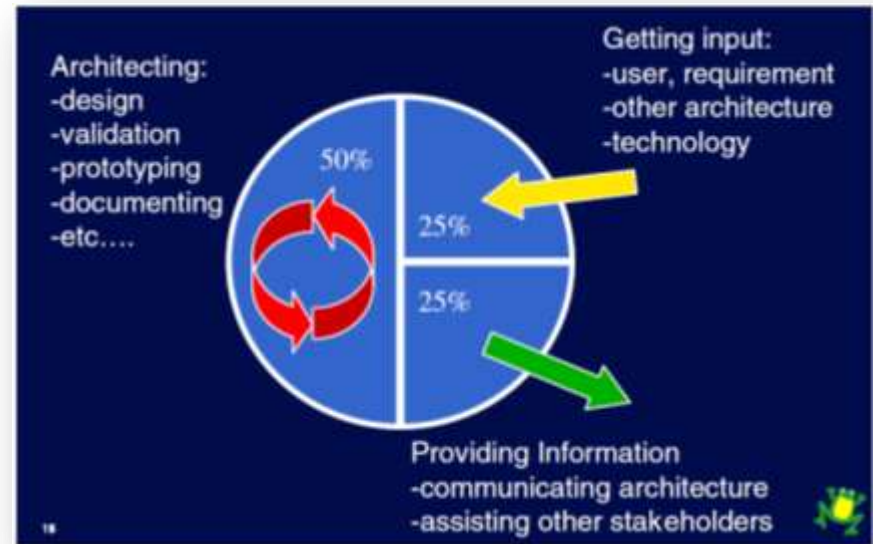
- Leading Business and technology service company, employing ~~39,000~~ people  
**CN\$10.4 billion**
- Revenues of ~~£3.7~~ billion in 2010
- Providing business consulting, systems integration and outsourcing to clients around the world, including many of Europe's largest businesses
- Creating value for clients by successfully integrating people, business and technology
- Committed to long term collaboration, applying insight to create innovative answers to clients' business needs
- ~~Listed on both the London Stock Exchange and Euronext (Amsterdam)~~

# What do architects really do?

P. Kruchten, 2008

## Outwards

- Listening to customers and users
- Watching technology
- Developing a long-term vision



## Inwards

- Driving development teams
- Spending time to make the right design choices
- Validating and documenting design choices

“A metastable equilibrium”

# Duties, skills and knowledge of software architects

P. Clements, R. Kazman, M. Klein, 2007

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## Duties

- architecting
- managing/interacting with life-cycle phases other than architecture
- technology related
- interacting with stakeholders
- management
- organization and business-related issues
- leadership and team building

## Knowledge

- computer science
- technologies and platforms
- organizational context and management

# Duties, skills and knowledge of software architects

P. Clements, R. Kazman, M. Klein, 2007

## Duties

- architecting
- managing/interacting with life-cycle phases other than architecture
- technology related

“We realized, from our many interactions with practicing architects, that their jobs are far more complex than just making technical decisions.”

- computer science
- technologies and platforms
- organizational context and management

# Improving Solution Architecture Practices

## E. Poort, PhD Thesis 2012

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Three surveys among hundreds of practicing architects.  
Looking for correlations between methods, techniques, challenges and project success.

*"Good solution architecting is not so much a technical problem, but rather a socioeconomic one. The most important observations [...] revolve around **non-technical** keywords like **trust, emotions, risk and cost, responsibility and authority.**"*



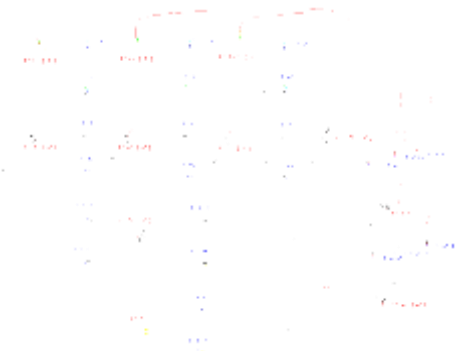
# Does software architecture research have any impact on software architecture practice?

## The good news:

- Some good cooperation projects between industry and academia



- More accessible papers in conferences



$$E[e^{-sX_{+,i,u}} | A(X_{-,i,u}) = k] \text{Prob}(A(X_{-,i,u}) = k)$$
$$= \sum_{i=1}^k \left[ \frac{1}{2\bar{L}i!} \frac{d^i}{dz^i} \Big|_{z=0} \left( \frac{G_p^*(-\lambda_{i,u})}{G_p^*(-\lambda_{i,u})} \right) \right]$$
$$+ \frac{1}{2\bar{L}(k-i)!} \frac{d^{k-i}}{dz^{k-i}} \Big|_{z=0} \left( \frac{G_p^*(-\lambda_{i,u})}{G_p^*(-\lambda_{i,u})} \right)$$



# Does software architecture research have any impact on software architecture practice?

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Solutions that architects work on are getting more heterogeneous:

- Hardware
- Middleware
- Application software
- Scripting & parameterization
- (Business) services
- Wetware

Pure **software** architecture is becoming less relevant.  
There is an emerging **solution architecture** practice.

- *Solution architecture research anyone?*



# How software architecture research can increase impact on software architecture practice

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Need **more holistic, less silo-oriented** research.

- Gap between RE and SA research is ridiculous – RE and SA cannot be separated, but academic communities hardly talk to each other.
- Don't leave the integrating job to industry –we just don't have the time to integrate 3 tools and 4 methods from 5 research communities.

Need more research into the **socio-economic** side of software architecture.

- Also requires cross-discipline academic research: economics, psychology.

Make conferences more attractive for practitioners.

- Allow papers that ask questions without giving answers.
- Allow diversion from highly theoretical papers.



Thank you

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