

Role and Task of the System Architect

by *Gerrit Muller*

Philips Research IST-SWA-IA

Abstract

The role and the task of the system architect are described in this module.

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The role of the system architect is described from three viewpoints: deliverables, responsibilities and activities. This description shows the inherent tension in this role: a small set of hard deliverables, covering a fuzzy set of responsibilities, hiding an enormous amount of barely visible day-to-day work.

4th January 2002

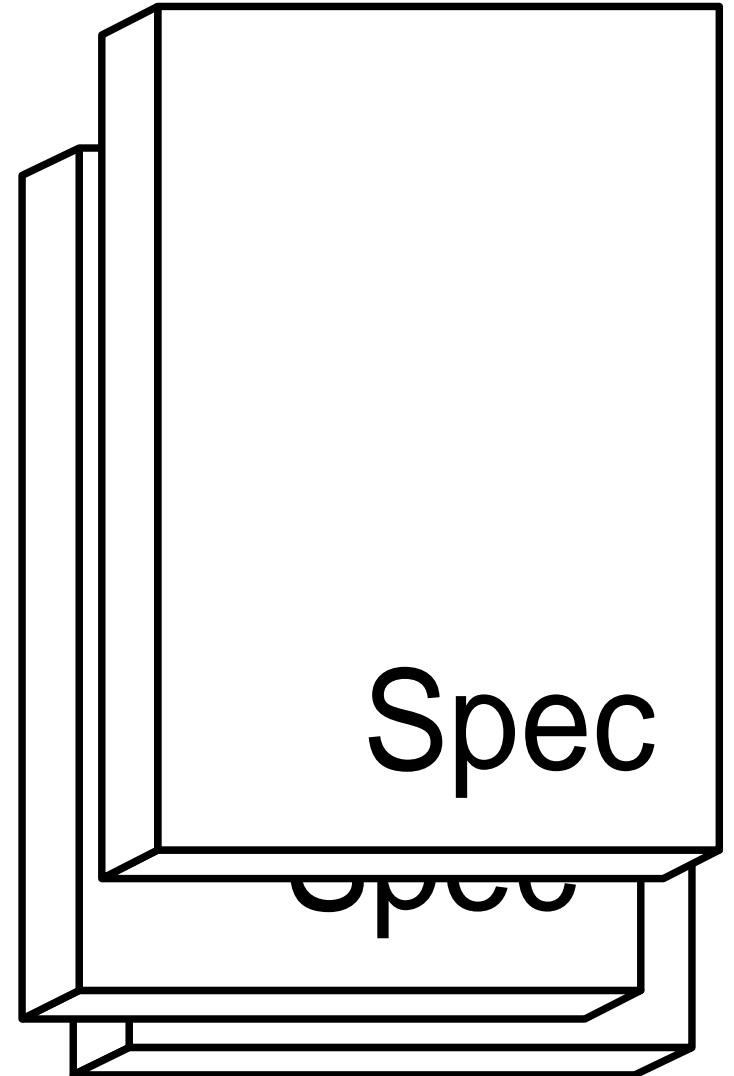
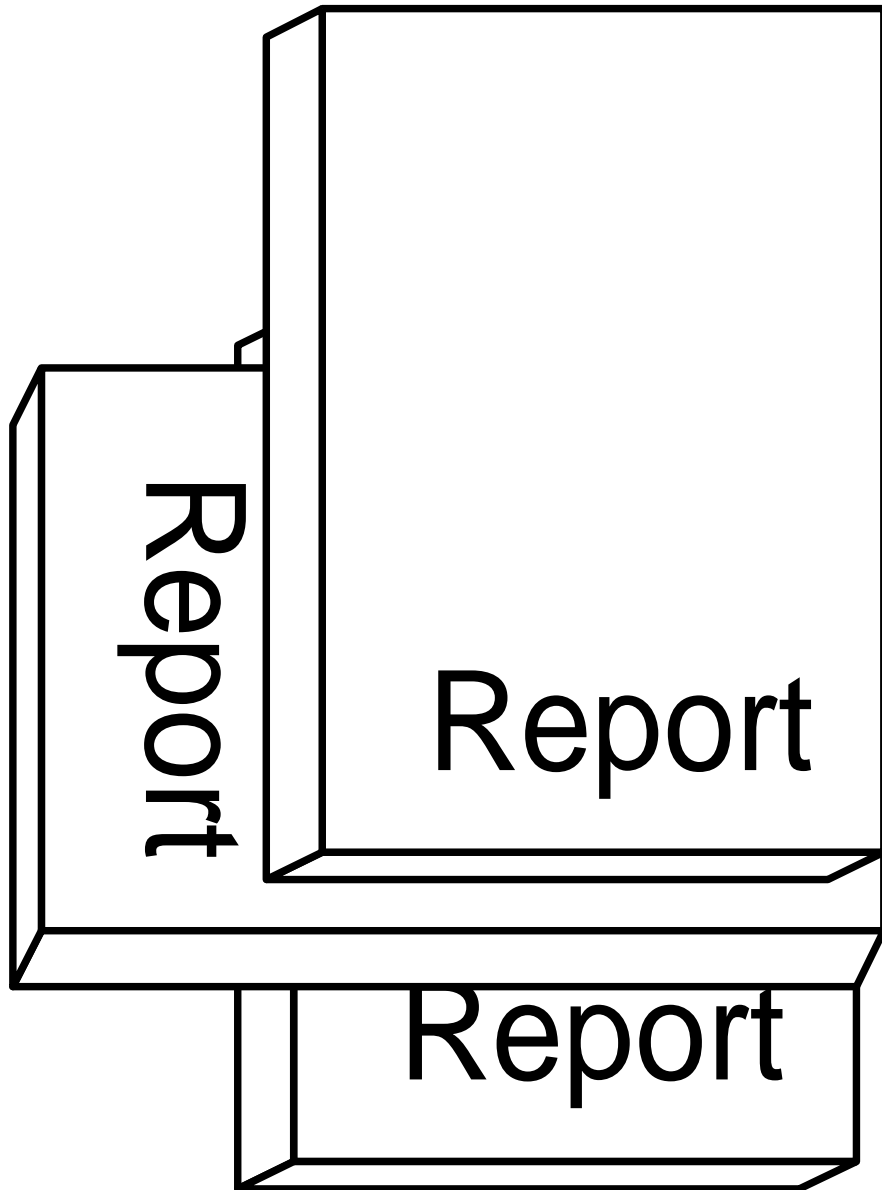
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Deliverables of the System Architect

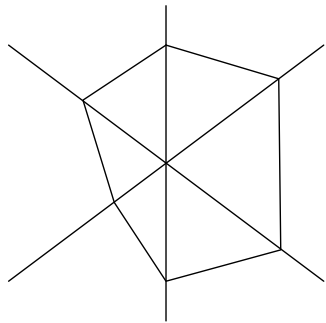


List of Deliverables

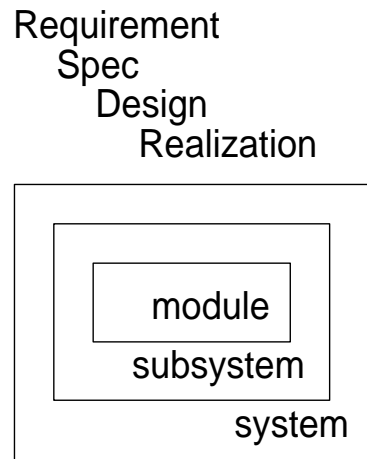
- Requirements (**what** is needed)
- Specification (**what** will be realized)
- Design (**how** the system will be realized)
- Verification Specification (**how** the system will be verified)
- Verification Report (the result of the verification)
- Feasibility Report (the results of a feasibility study)
- Roadmap



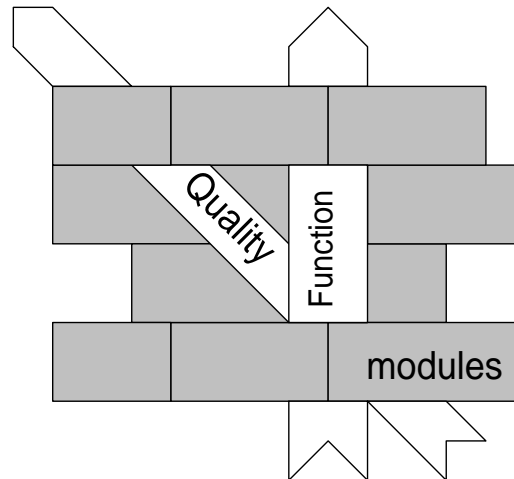
Responsibilities of the System Architect



Balance



Consistency

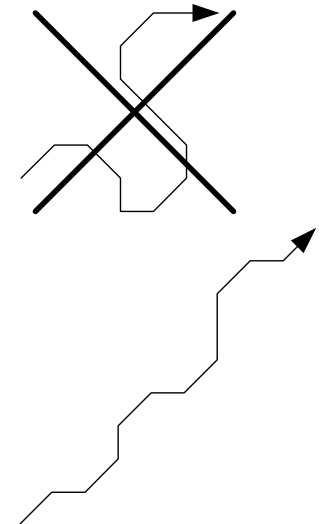


Decomposition
Integration

Overview

KISS

Elegance
Simple



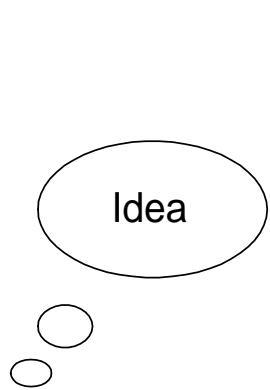
Integrity

Examples of Secondary Responsibilities

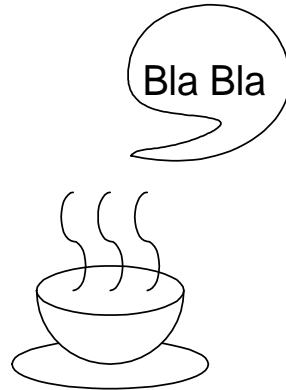
responsibility	primary owner
business plan, profit	business manager
schedule, resources	project leader
market, salability	marketing manager
technology	technology manager
process, people	line manager
detailed designs	engineers



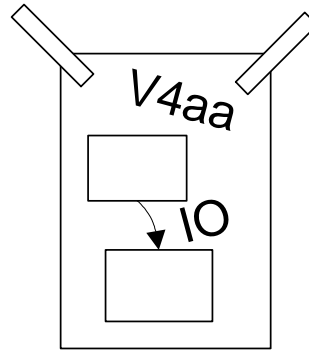
What does the System Architect **do**?



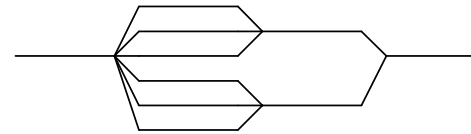
think,
analyse



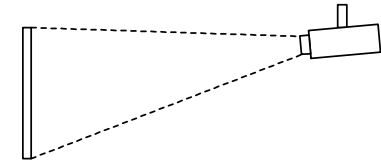
listen, talk,
walk around



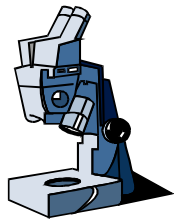
design,
brainstorm,
explain



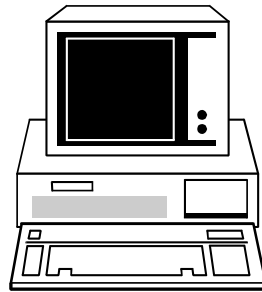
assist project leader
with work breakdown,
schedule, risks



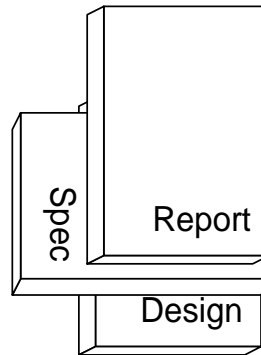
present,
meet, teach,
discuss



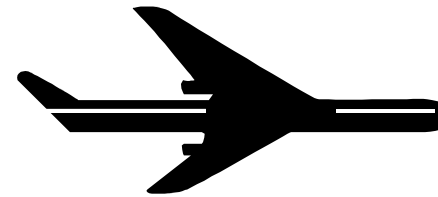
test,
integrate



write,
consolidate,
browse



read,
review



travel to
customer,
supplier,
conference

From Detail to Overview

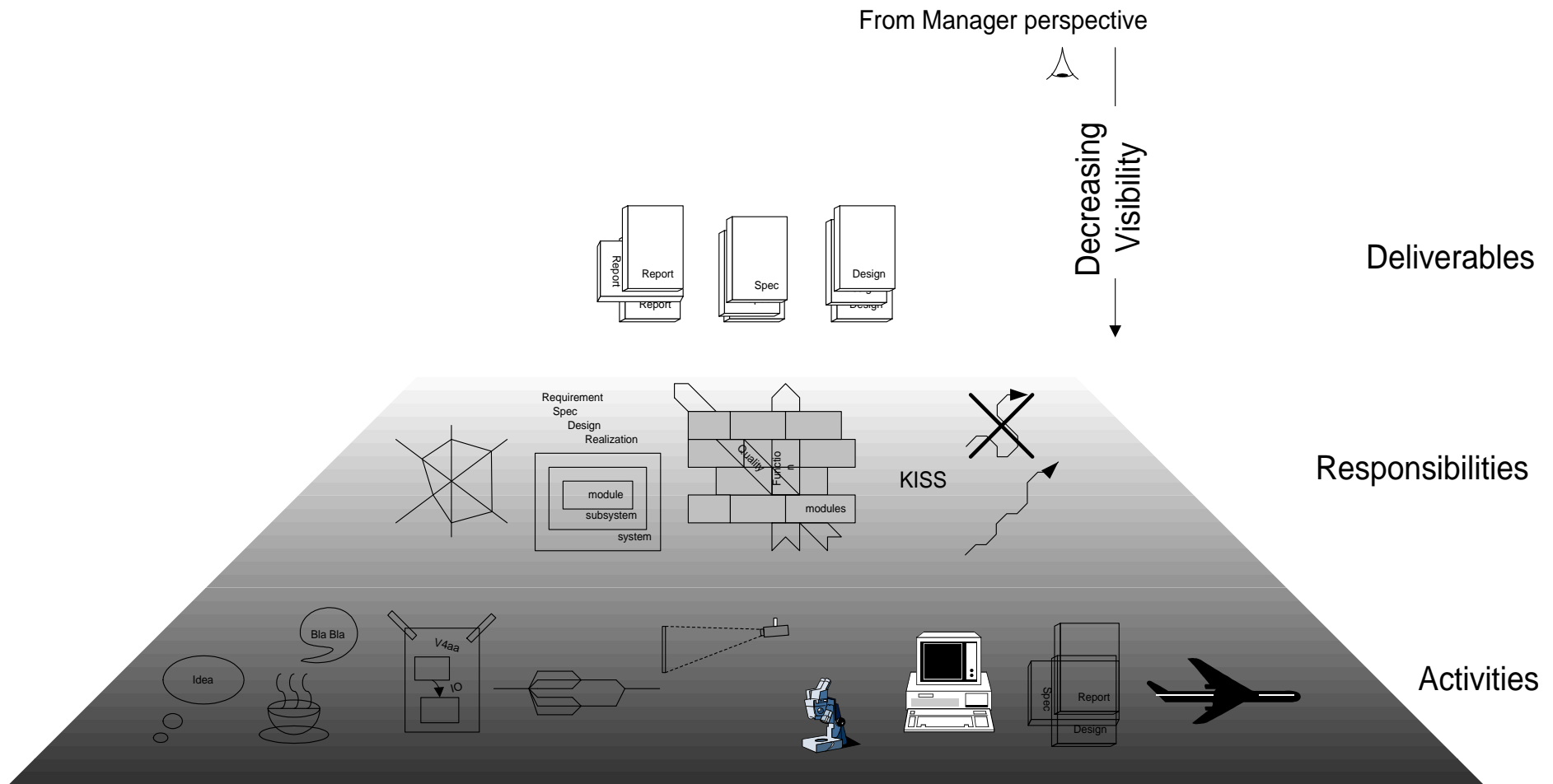
	per year	Quantity (order of magnitude)	architect time per item
consolidation in deliverables	driving views	10	100 hrs
meetings	shared issues	10^2	1 hr
informal contacts	touched details	10^4	0.5..10 min
sampling scanning	seen details	$10^5..10^6$	0.1 .. 1 sec
	product details	$10^7..10^{10}$	
	real world facts	infinite	

Reality or Virtuality?

Abstractions only exist for concrete facts.



Visible Output versus Invisible Work



The Arisal of a System Architect

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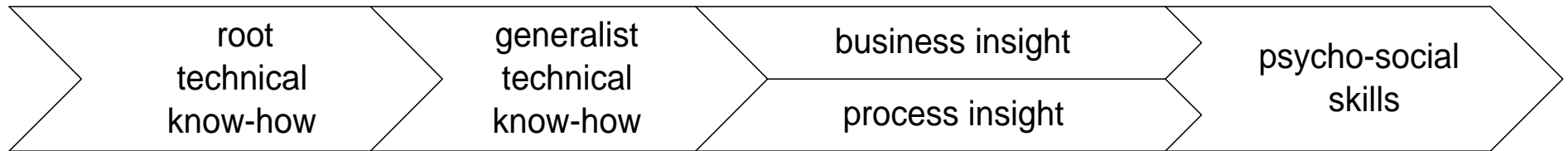
System architects are very scarce. This presentation presents the observed growth pattern of a number of system architects. It is hoped that analysing the characteristics of existing system architects will help in training new system architects.

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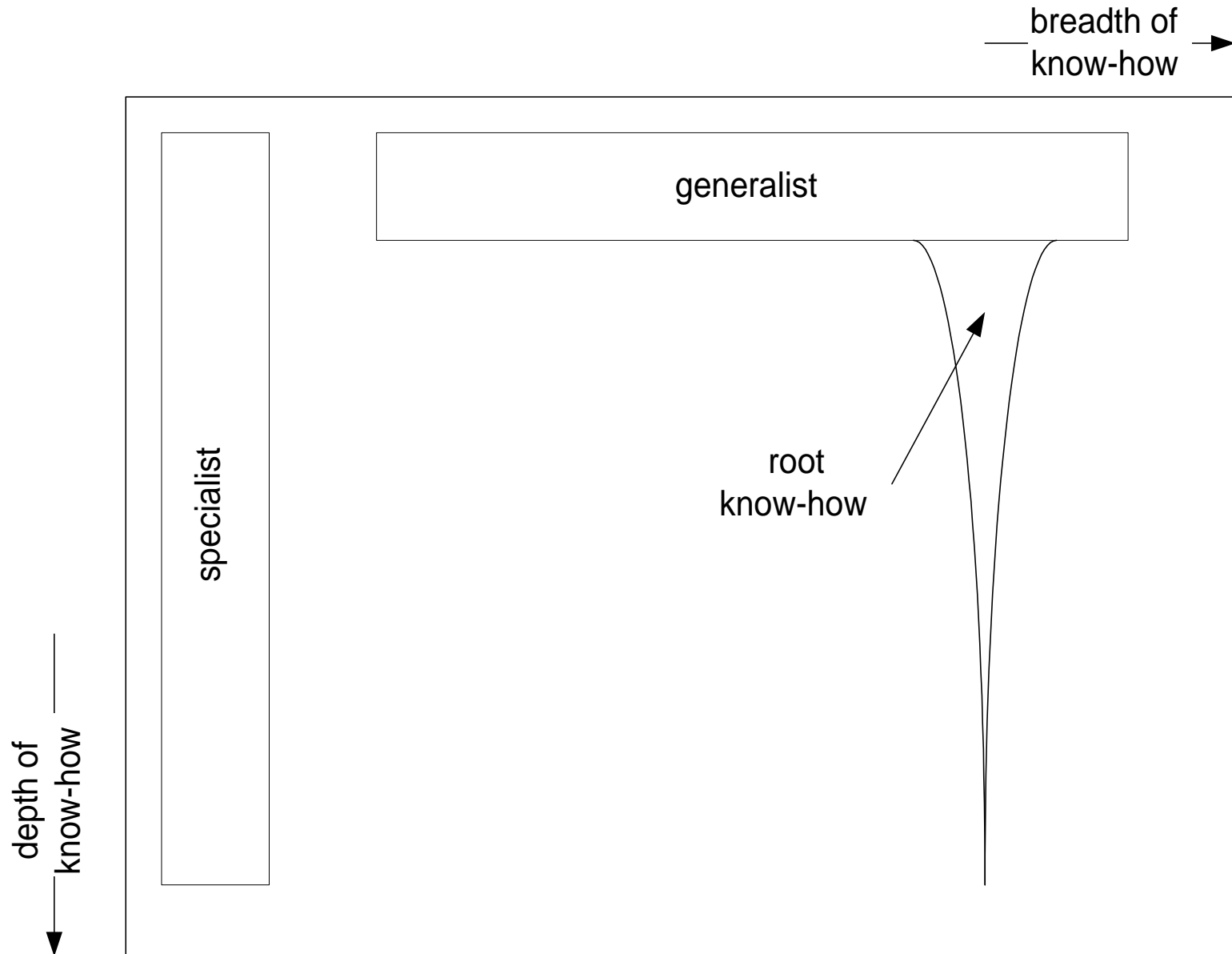
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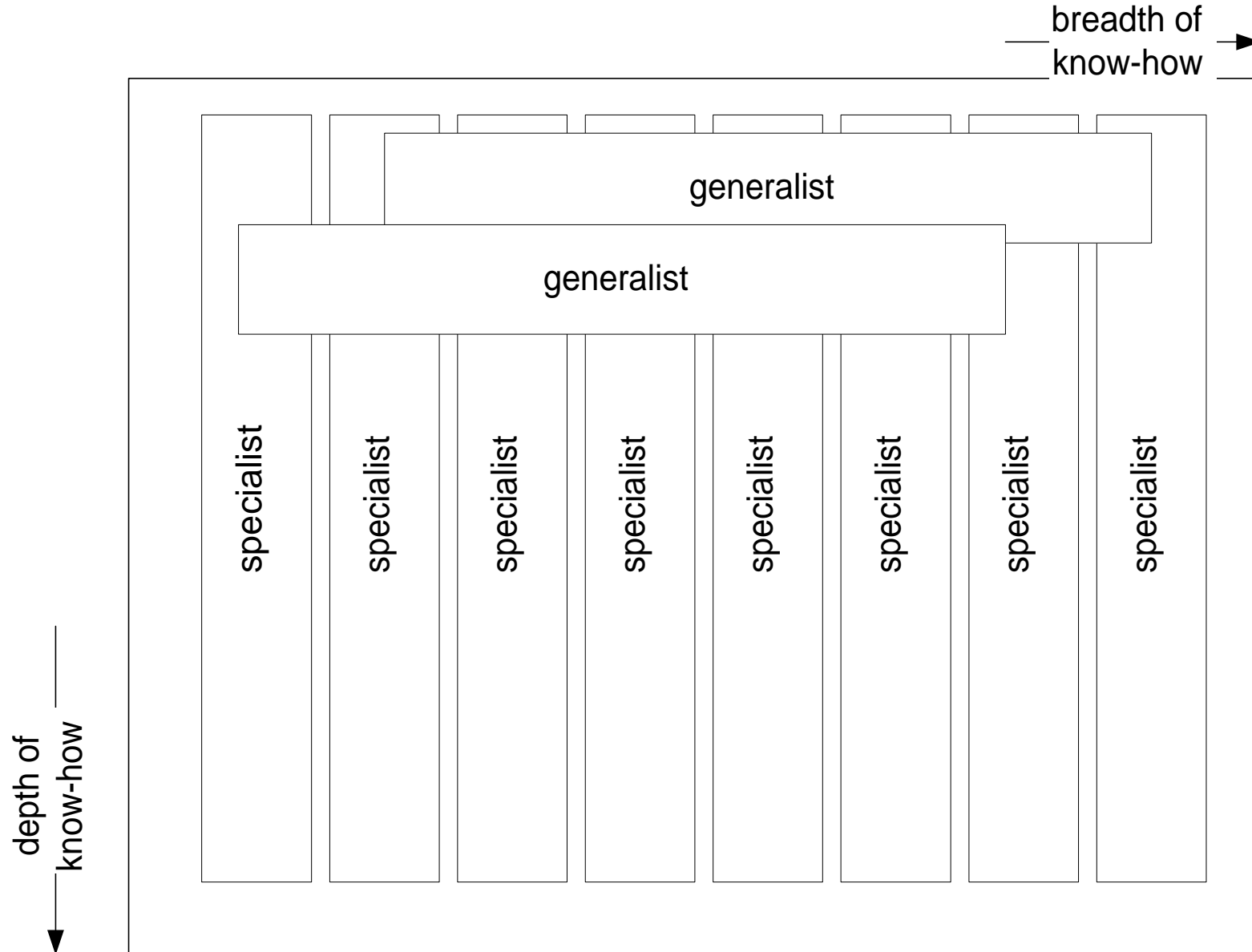
Typical Growth of a System Architect



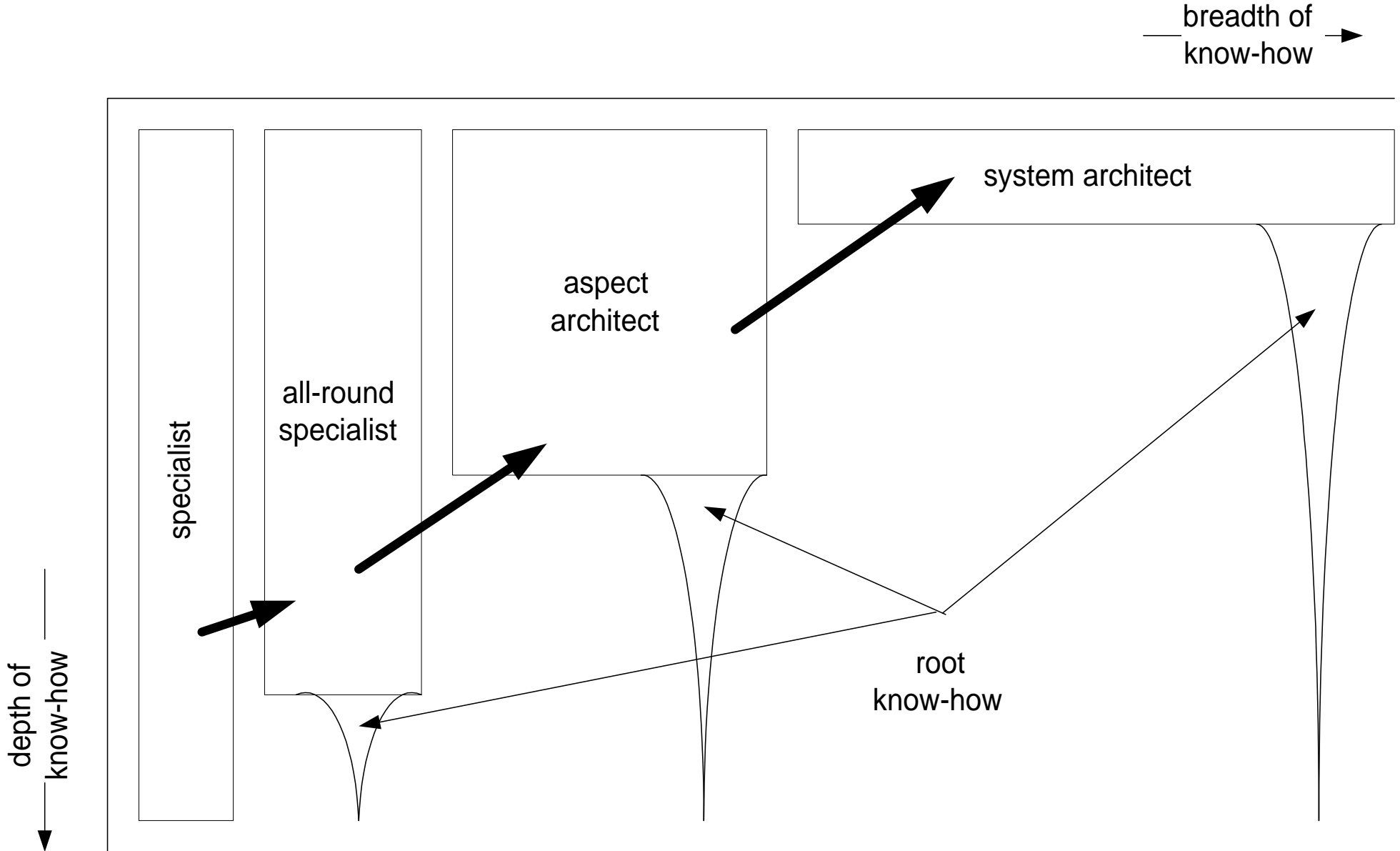
Generalist versus Specialist



Generalists and Specialists are Complementary



Spectrum from Specialist to System Architect



Exercise Role and Task of the System Architect

Role play with 3 roles and optional observer:

- 1 operational leader (project leader)
- 1 system architect
- 1 marketing manager
- 1 observer (optional)

Discuss the definition (business relevance, specification, and planning) of a travel e-mail mate.

Present (max. 2 flips) the result and the process (the relation and interaction of the three roles).

