

# Learning by example

#### **25 years of architecture bloopers**



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# Robert in a nutshell

#### • Expertise, <u>focus</u>:

(Domain) Modelling, Model Driven Development, (Non-functional) Requirements, Method engineering, Architecture: <u>Aspect oriented design (patterns)</u> Research, innovation System, software, information, enterprise <u>Coaching</u>, <u>consultancy</u>, <u>training</u>

#### • Some customers:

Canon, HTI, ASML, UT, TUE, UvA, BMW group, COA, KvK, Ohra, Rabobank, NXP, UVIT, CRV, SNS, Reaal, Delta Lloyd, Interpolis, APG, NS, VBI, Shell, ECT, Fortis, Vlisco

#### • Jobs:

Software engineer: Dutch Army -1994, Software architect, method engineer: KISS b.v. –1999, Senior scientist architecture: Philips Research -2006, Modeling architect: Philips Healthcare -2007, Principal architect: Sogeti -2013, Consultant, coach, trainer, method engineer, scientist: Atom Free IT, PhD VU Amsterdam -today

#### • Education:

TUE informatica -1991, EngD Software Technology -1993



## Architecture is the bridge





## My 20 years of learning: some examples

- A Copier
- Particle accelerator
- Tank simulator
- Computer aided education
- Model driven development
- My first enterprise architecture
- Method for functional specifications
- Merge of insurance companies

#### First, the theoretical setting...



#### System and Environment





## Balance Problem, Solution & Realization



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#### Architecture Reasoning Model





## Application dimension



## Design dimension





## Realization dimension





## Architecture Reasoning Model



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#### Good architecture is...

#### the Basis of a Good System



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#### Software architecture of a copier



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# Will it copy... right?

#### Copier software

#### **Test environment**



Original design covered only 7,5% of actual coding effort



#### Lessons learned



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#### Particle accelerator





#### How it was...



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#### Our design





#### What the users wanted



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#### Lessons learned



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A tank...







#### ...Simulator









€ 0.-

#### No surprises in the field







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#### The major technology choices









#### Lessons learned





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#### Time for a break



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#### Model Driven Development: generator







#### Model Driven Development: interpreter



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#### Interpreter becomes unpredictable



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#### Rocket Science... requires rocket engineers

Available skills and tools



The dream





#### Lessons learned



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#### My first... enterprise architecture



#### How to solve our IT problems?



#### We need an architecture!





#### The beautiful result





#### Lessons learned



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#### One method for functional specifications



#### 3 problems, 3 solutions





Unnecessary diversity



Disconnected sites



- 1 method
- Autonomous feature spec

• 1 method

• 1 spec repository

• 1 method

• Used at all sites



## Deploying the solution





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#### Merge of insurance companies





#### 9 times too much



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#### I will save you €1,000,000





#### No one listened...





#### Lessons learned



Zoals je het zo adequaat stelde, het probleem is keuze.





# Thank you for your attention

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