

# What is Software Architecture

Simon Lasselsberger

# **Simon Lasselsberger**

I help software companies design scalable software systems by supporting them with solving architectural challenges.

I mentor and coach developers as well as decision-makers with my company Lasssim.



**Architecture is about the important stuff.**

**Whatever that is.**

*Ralph Johnson*



In most successful software projects,  
the expert developers working on that project have  
a shared understanding of the system design.

This **shared understanding** is called 'architecture.'

*Ralph Johnson*

**Architecture is the decisions  
that you wish you could get  
right early in a project.**

*Ralph Johnson*

**The decisions that are  
hard to change later.**

*Martin Fowler*



shared understanding + hard to change later

=

The important stuff

## High level patterns

Microservices  
Monolith  
Client/Server Split  
Hexagonal Architecture  
Event-Driven Architecture  
Data structures

## Persistence Layer

Relational Database  
NoSQL Database  
Time Series Database  
External Services

## Communication

API  
Events  
JSON / XML / Binary  
Server side rendered HTML

Whatever that is.

## Application Platform

Programming Languages  
Frameworks  
Libraries  
Make or Buy

## Deployment

In-House Infrastructure  
Cloud  
Hybrid-Cloud  
CI/CD Pipeline

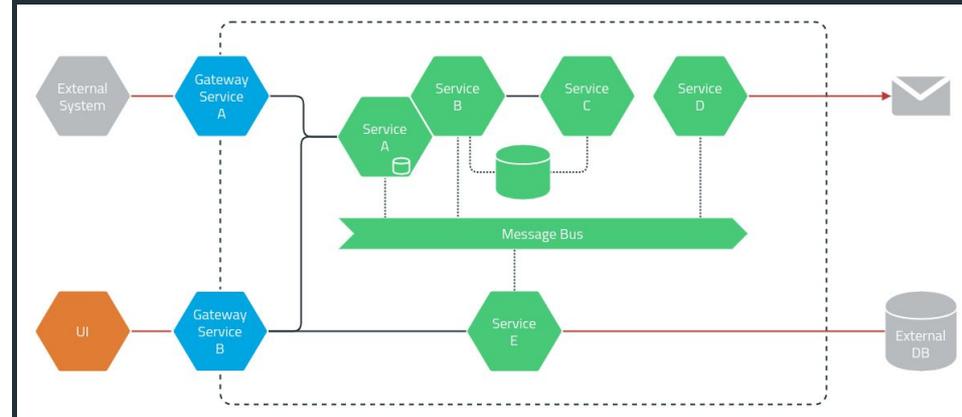
## Engineering Process

Agile Development  
Trainings  
Coaching  
Conway's Law

# Why is it called Architecture?

Based on civil engineering and the  
construction industry

Architects create plans of buildings that get  
implemented by construction workers

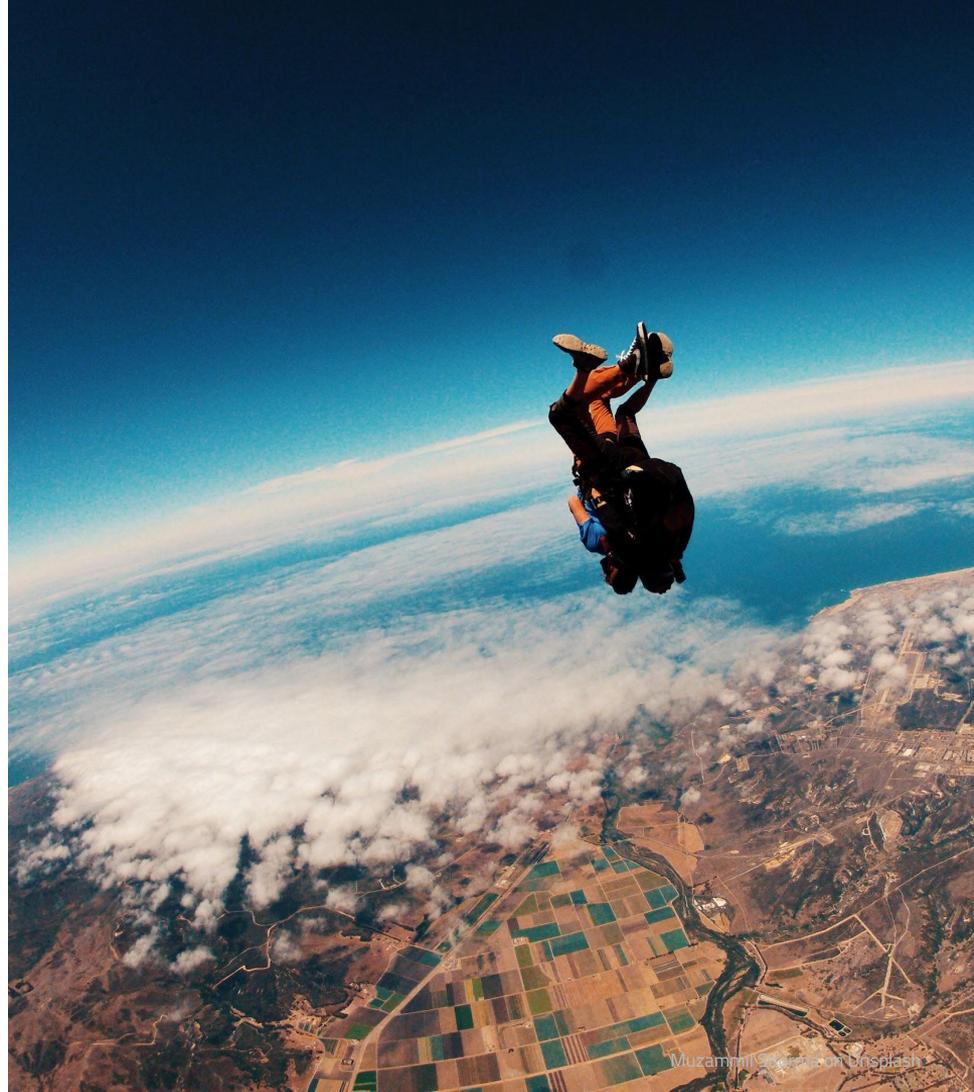


# Civil Engineering

## Environment is constant and known

- the physical world
- the laws of nature
- the factors that influence design

Once the building is built,  
it is not expected to change or evolve  
significantly



# Software Development

Software must be able to deal with an extremely fluid and dynamic environment.

A fundamental expectation is easy changeability.



# Town Planner

Erik Doernenburg suggested that Software Architects compare better to Town Planners

- Information from many perspectives
- Optimization of layout
- Respect current and future requirements



# Software Architect

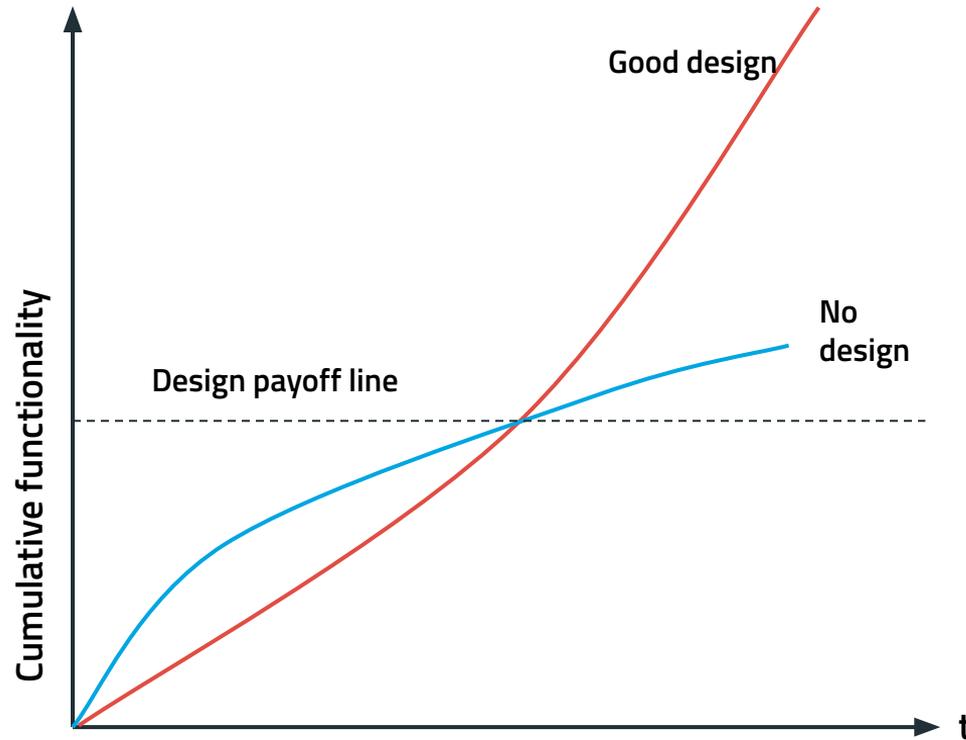
Creates, fosters and documents the *shared understanding* based on business goals

Identifies things that are *hard to change later* and is responsible for solutions

Does not dictate solutions but builds bridges between teams

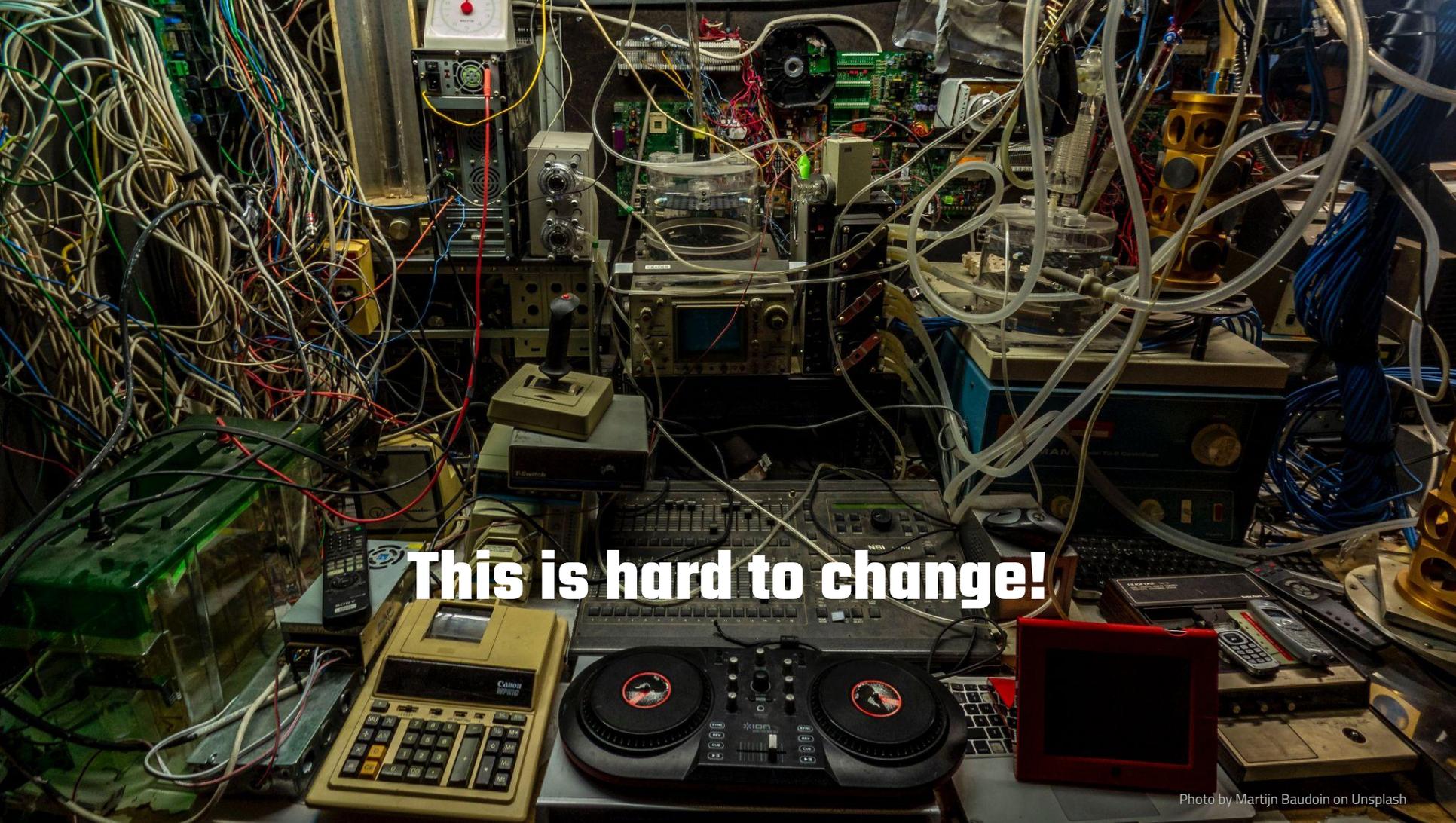


# Design Stamina Hypothesis (Martin Fowler)



Up here there's no useful trade-off

Down here it may be worth trading off design quality for time to market

A photograph of a highly cluttered and dense workspace, likely a vintage electronics or music production studio. The scene is filled with a variety of equipment and tangled cables. In the foreground, a black turntable with two decks is prominent, featuring red and black vinyl records. To its left is a yellow Canon BP-1000 calculator. In the center, a joystick sits on a small stand. The background is a chaotic arrangement of electronic components, including a power supply unit, a fan, and various circuit boards. A large, dense bundle of white and blue cables hangs from the top left. The overall atmosphere is one of complexity and technical intricacy.

**This is hard to change!**



**Much better!**

**Architecture is about the important stuff.**

**Whatever that is.**

*Ralph Johnson*





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