# Architectural Skills

*CSSE6400* 

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#### Quote

Architecture is the stuff you can't Google.

- Mark Richards [Richards and Ford, 2020]

### Quote

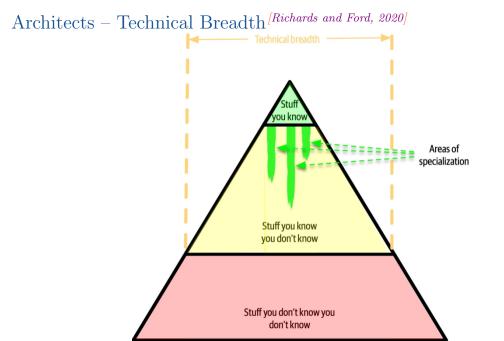
There are no right or wrong answers in architecture—only trade-offs.

- Neal Ford [Richards and Ford, 2020]

# Architectural Design

Architects use knowledge and experience to analyse trade-offs to design architectures appropriate to the system context.

# Developers – Technical Depth [Richards and Ford, 2020] Technical depth Stuff you know Stuff you know you don't know Stuff you don't know you don't know



### Definition $\theta$ . Conway's Law

Organisations design systems whose structure is inevitably a copy of the organisation's communication structure [Conway, 1968] [MacCormack et al., 2012].

### Conway's Law Consequences

- Business Process Management
- Microservices to reflect organisation structure
- Teams formed around services

# Conway's Law Consequences

Team insularity – more loyal to team than organisation

### Conway's Law Issues

- Cross-cutting concerns
  - e.g. Security
- Organisation structure should align with market structure
- Physical location of teams

# Definition 0. Peopleware [Neumann, 1977]

People involved in development of systems.

– Peter G. Neumann

# Stakeholders [Coplien and Bjørnvig, 2010]

- End Users
- Organisation
- Customers / Sponsors
- Domain Experts
- Developers

### Communication

- Written
  - For those who are not there
- Oral
  - Immediate & interactive

# Circumventing Conway's Law [Woods, 2017]

- Cloud Platforms
- Microservices
- APIs
- Culture

# Evidenced-Based Software Engineering

Don't follow fads, seek evidence for good practice.

### Let's hear from an expert

## Software Engineering's Greatest Hits

what we actually know about software development and why we believe it's true



**Greg Wilson** 

http://third-bit.com/talks/greatest-hits/



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