Beyond the Known Knowns

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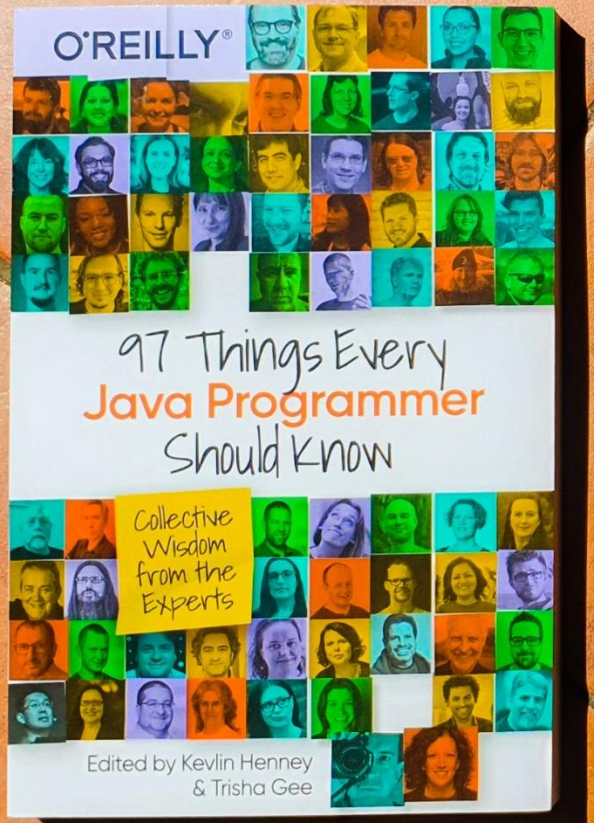
O'REILLY®
97 Things Every
Java Programmer
Should Know
Collective Wisdom from the Experts
Edited by Kevlin Henney
& Trisha Gee


Kevlin Henney 编
李军 译 吕骏 审校
電子工業出版社
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97
Collective Wisdom
from the Experts
97 Things Every
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O'REILLY
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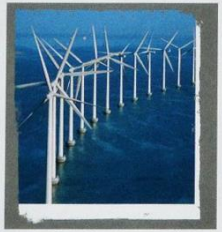
WILEY SERIES IN
SOFTWARE DESIGN PATTERNS

PATTERN-ORIENTED SOFTWARE ARCHITECTURE

A Pattern Language for Distributed Computing



Volume 4

Frank Buschmann
Kevlin Henney
Douglas C. Schmidt

WILEY SERIES IN
SOFTWARE DESIGN PATTERNS

PATTERN-ORIENTED SOFTWARE ARCHITECTURE

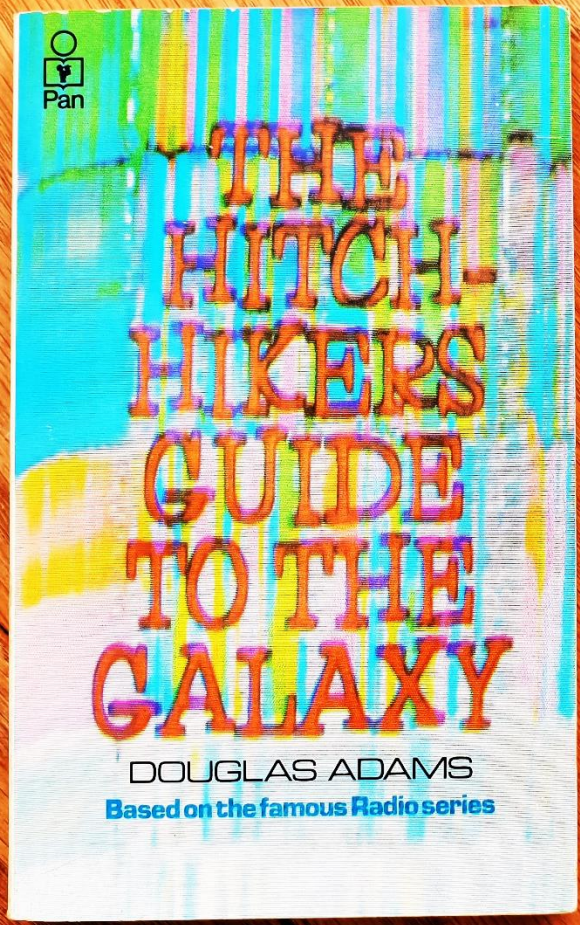
On Patterns and Pattern Languages

Volume 5

Frank Buschmann
Kevlin Henney
Douglas C. Schmidt

To me programming is more than an important practical art. It is also a gigantic undertaking in the foundations of knowledge.

Grace Hopper


Pan
THE HITCH-HIKERS GUIDE TO THE GALAXY
DOUGLAS ADAMS
Based on the famous Radio series

We demand rigidly defined areas of doubt and uncertainty!

$$\Delta x \, \Delta p \geq \frac{\hbar}{2}$$

On Formally Undecidable Propositions Of Principia Mathematica And Related Systems

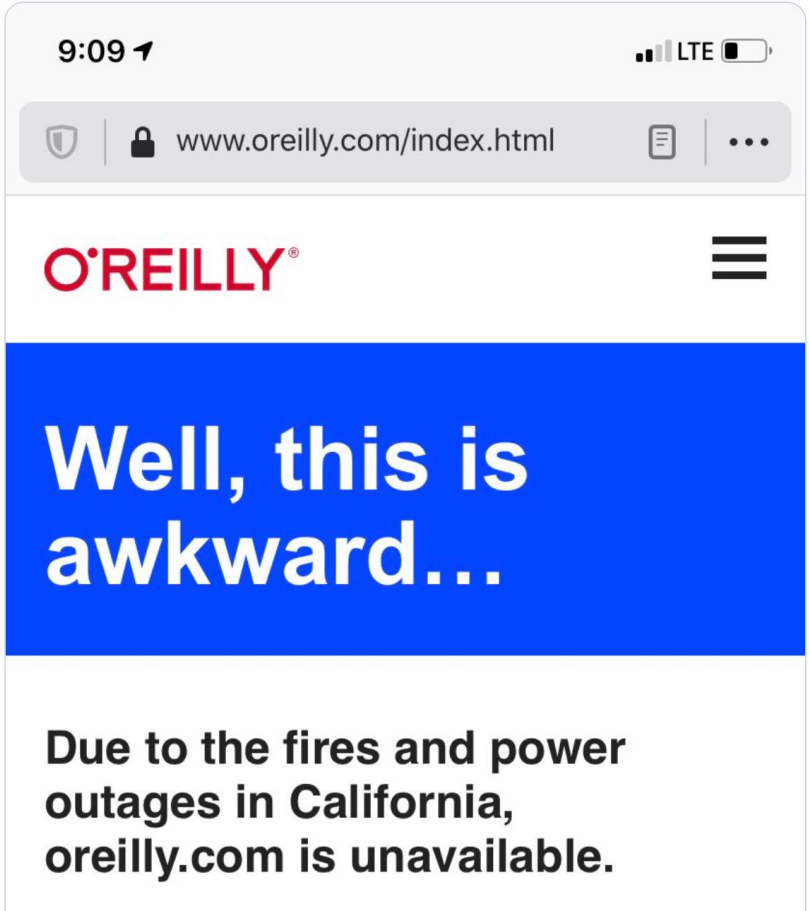
KURT GÖDEL

Translated by
B. MELTZER

Introduction by
R B. BRAITHWAITE

Charlie Morris
@cdmo

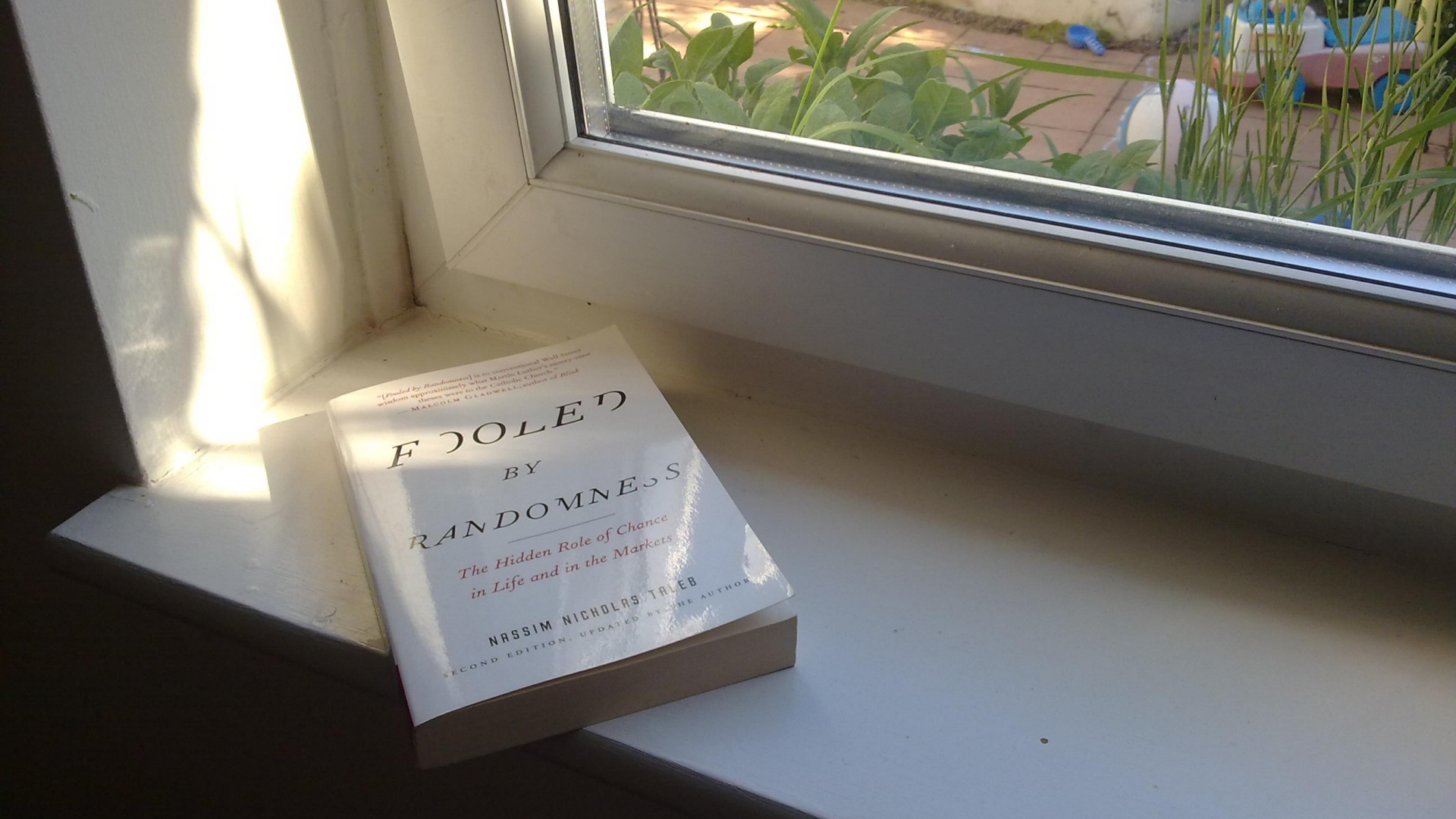
Fire in California, can't read your ebook in Pennsylvania

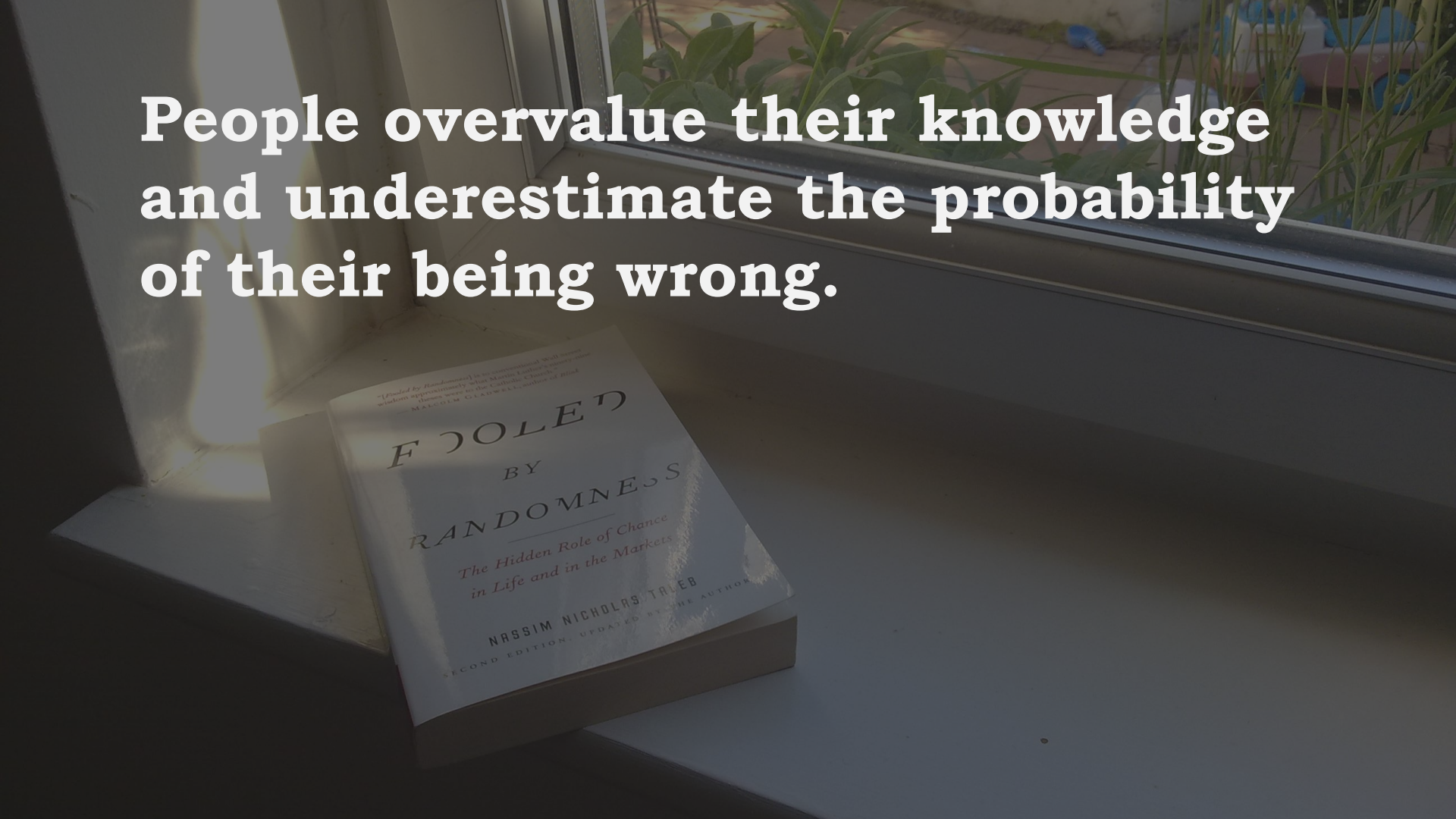


twitter.com/cdmo/status/1188806227079389184

A distributed system is one in which the failure of a computer you didn’t even know existed can render your own computer unusable.

Leslie Lamport


FOOLED
BY
RANDOMNESS
The Hidden Role of Chance
in Life and in the Markets
NASSIM NICHOLAS TALEB
SECOND EDITION, UPDATED BY THE AUTHOR


People overvalue their knowledge and underestimate the probability of their being wrong.
FOOLED BY RANDOMNESS
The Hidden Role of Chance in Life and in the Markets
NASSIM NICHOLAS TALEB

0. lack of ignorance
1. lack of knowledge
2. lack of awareness
3. lack of process
4. meta-ignorance

Phillip G Armour

Five Orders of Ignorance

0. lack of ignorance
1. lack of knowledge
2. lack of awareness
3. lack of process

Phillip G Armour
Five Orders of Ignorance

known knowns
known unknowns
unknown unknowns
unknowable unknowns

known knowns

known unknowns

unknown unknowns

unknowable unknowns

I know that I know nothing.

Socrates *

* Possibly

known knowns

known unknowns

unknown unknowns

unknowable unknowns

The planning fallacy is a cognitive bias first proposed by Daniel Kahneman and Amos Tversky in 1979. They defined this phenomenon as “the tendency to underestimate the amount of time needed to complete a future task, due in part to the reliance on overly optimistic performance scenarios.”

entrepreneur.com/article/350045

SOFTWARE ENGINEERING

Report on a conference sponsored by the

NATO SCIENCE COMMITTEE

Garmisch, Germany, 7th to 11th October 1968

SOFTWARE ENGINEERING

The most deadly thing in software is the concept, which almost universally seems to be followed, that you are going to specify what you are going to do, and then do it.

Douglas Ross

Report on a conference sponsored by the
NATO SCIENCE COMMITTEE
Garmisch, Germany, 7th to 11th O

SOFTWARE ENGINEERING

And that is where most of our troubles come from.

Report on a conference sponsored by the

NATO SCIENCE COMMITTEE

Garmisch, Germany, 7th to 11th O[illegible]

Douglas Ross

SOFTWARE ENGINEERING

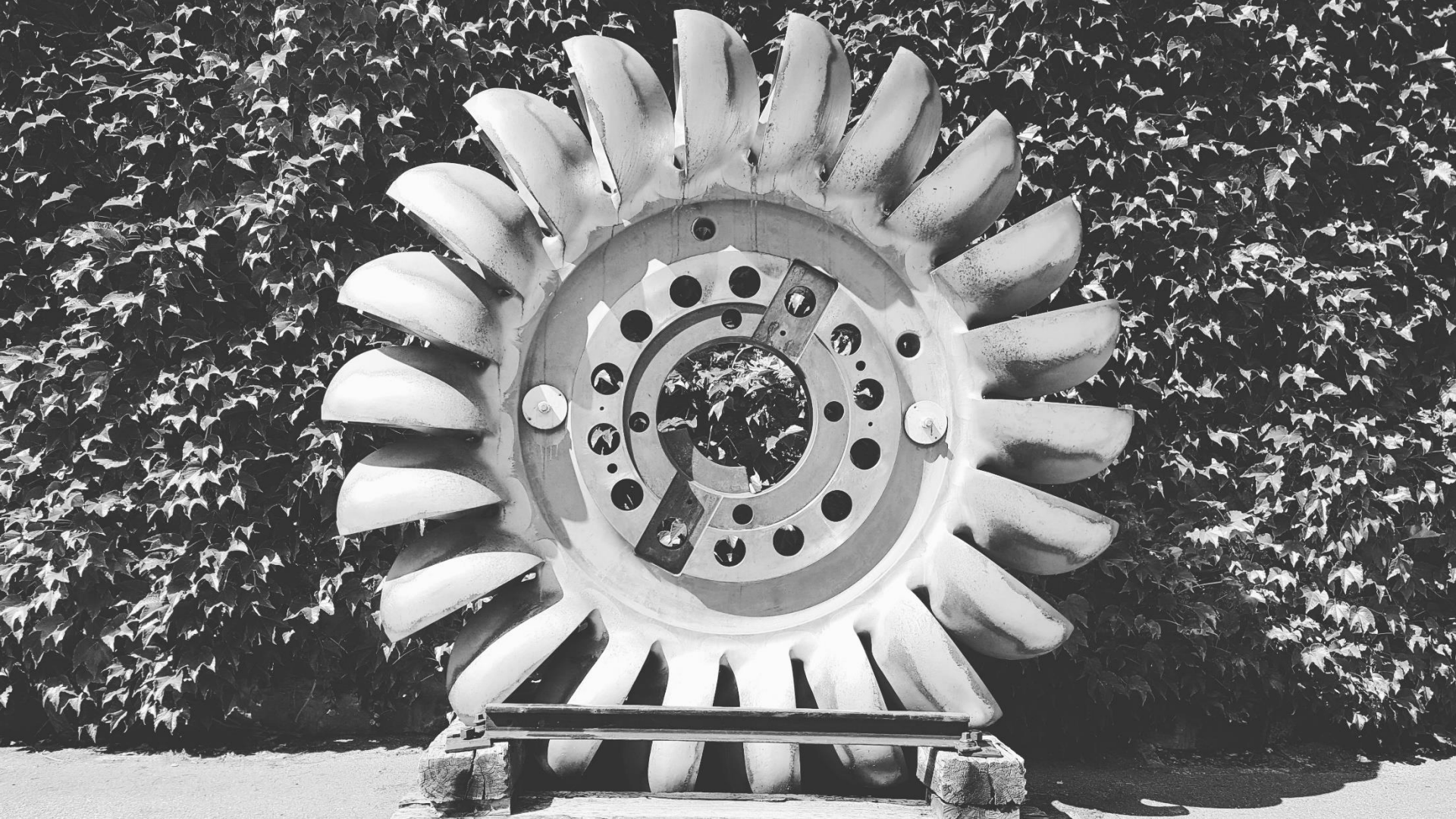
The design process is an iterative one.

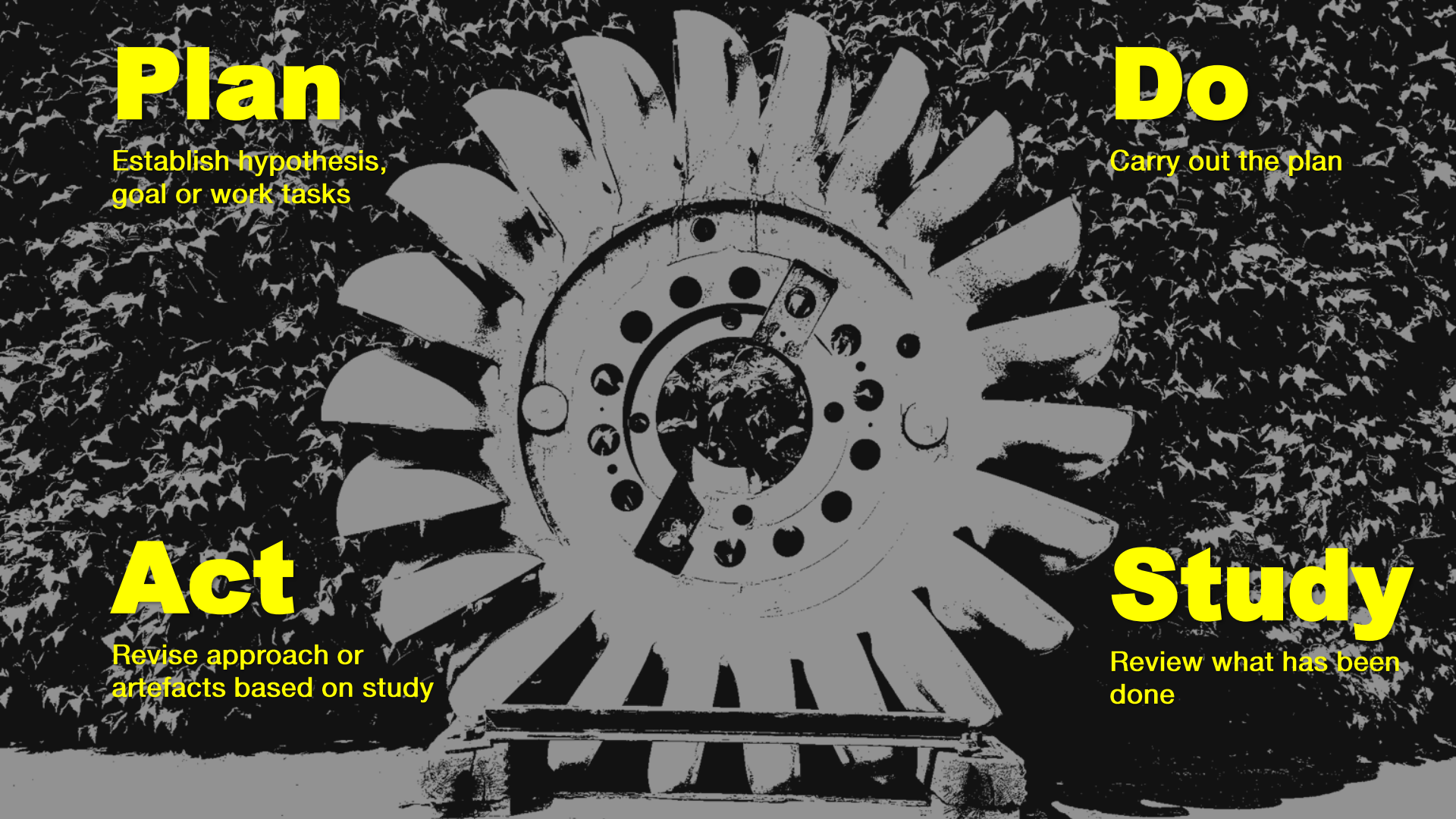
Report on a conference sponsored by the

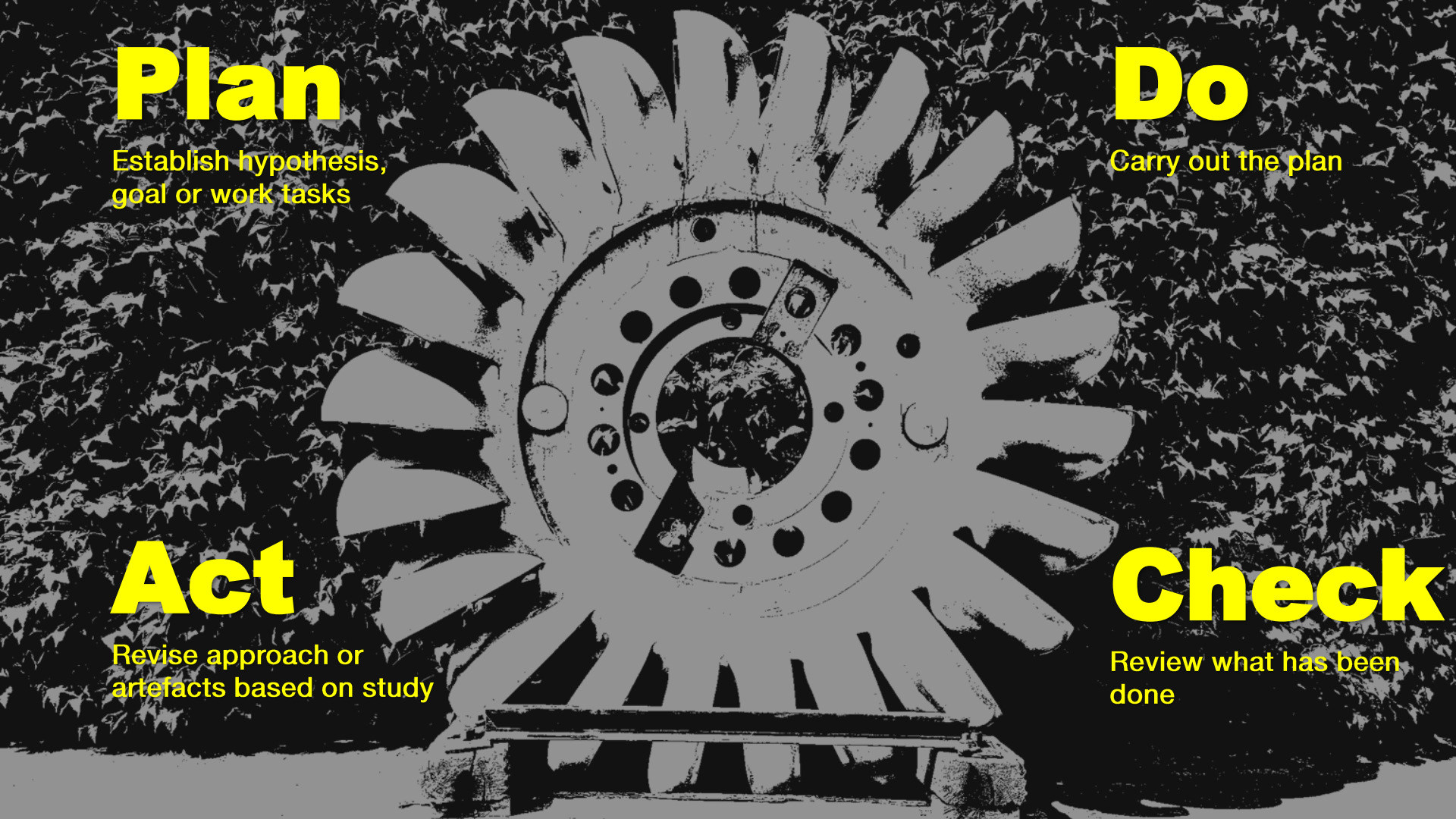
NATO SCIENCE COMMITTEE

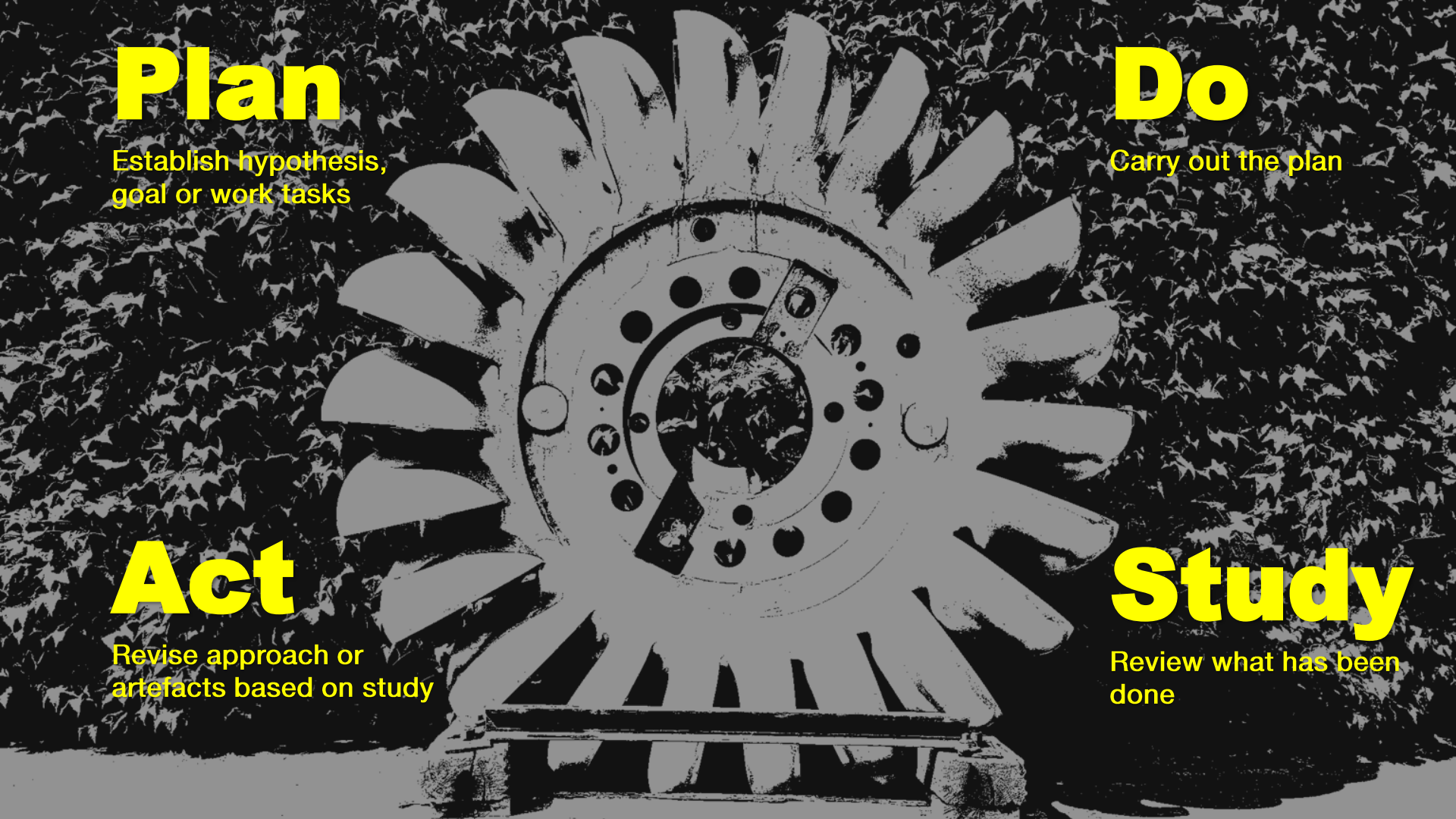
Garmisch, Germany, 7th to 11th October 1968

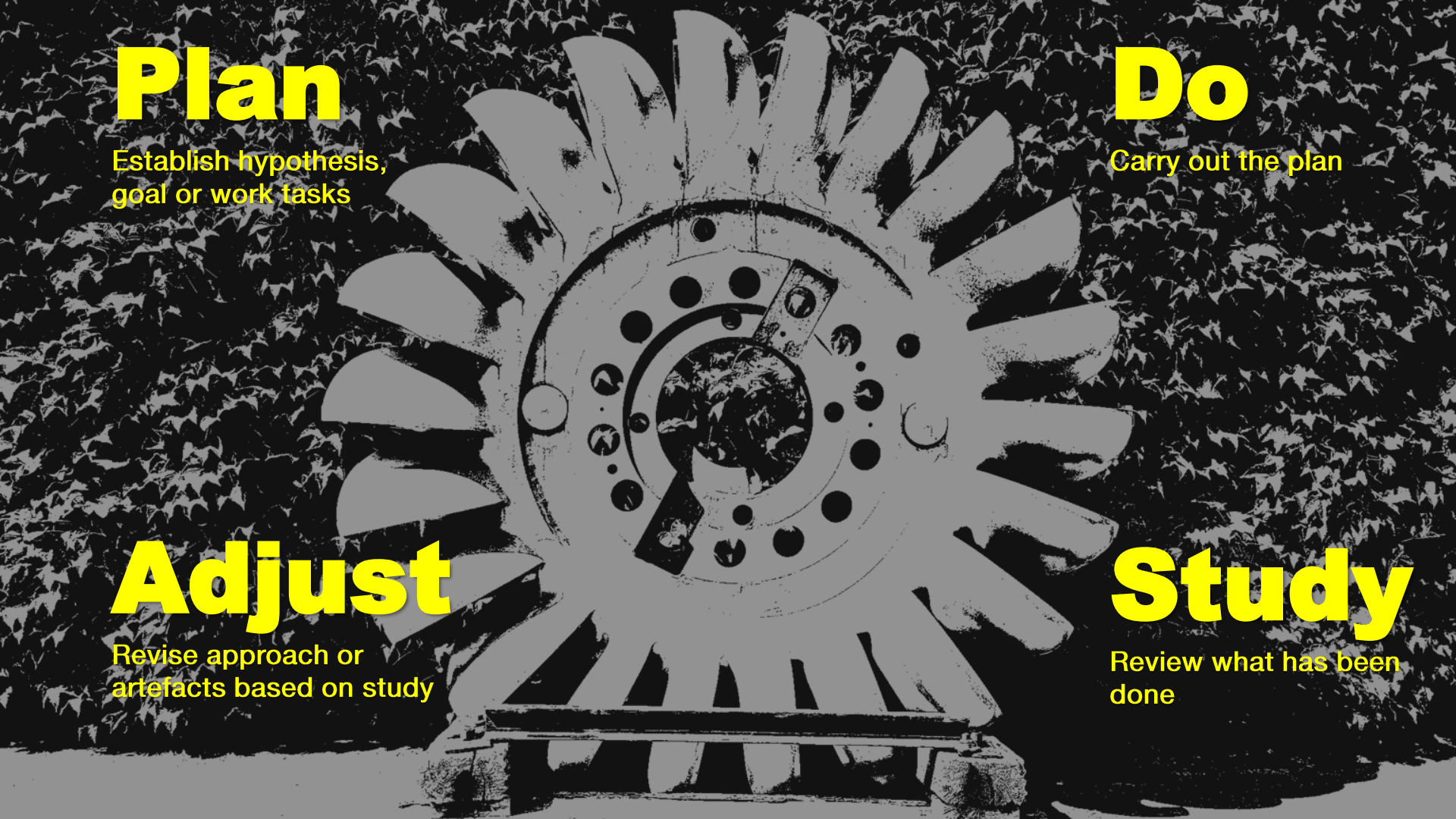
Andy Kinslow




Plan
Establish hypothesis, goal or work tasks
Do
Carry out the plan
Act
Revise approach or artefacts based on study
Study
Review what has been done


Plan
Establish hypothesis, goal or work tasks
Do
Carry out the plan
Act
Revise approach or artefacts based on study
Check
Review what has been done


Plan
Establish hypothesis, goal or work tasks
Do
Carry out the plan
Act
Revise approach or artefacts based on study
Study
Review what has been done


Plan
Establish hypothesis, goal or work tasks
Do
Carry out the plan
Adjust
Revise approach or artefacts based on study
Study
Review what has been done

You have to finish things — that's what you learn from, you learn by finishing things.

Neil Gaiman

known knowns

known unknowns

unknown unknowns

unknowable unknowns


esa


Photo Service Optique - CSG - © ESA - CNES

```
                                                G_M_INFO_DERIVE(T_ALG.E_DON))
      if L_M_DON_32 > 32767 then
         P_M_DERIVE(T_ALG.E_DON) := 16#7FFF#;
      elsif L_M_DON_32 < -32768 then
         P_M_DERIVE(T_ALG.E_DON) := 16#8000#;
      else
         P_M_DERIVE(T_ALG.E_DON) := UC_16S_EN_16NS(
            TDB.T_ENTIER_16S(L_M_DON_32));
      end if;

      P_M_DERIVE(T_ALG.E_DOE) := UC_16S_EN_16NS (TDB.T_ENTIER_16S
                                                 ((1.0/C_M_LSB_DOE) *
                                                 G_M_INFO_DERIVE(T_ALG.E_DOE)

      L_M_BV_32 := TDB.T_ENTIER_32S ((1.0/C_M_LSB_BV) *
                                                G_M_INFO_DERIVE(T_ALG.E_BV));
      if L_M_BV_32 > 32767 then
         P_M_DERIVE(T_ALG.E_BV) := 16#7FFF#;
      elsif L_M_BV_32 < -32768 then
         P_M_DERIVE(T_ALG.E_BV) := 16#8000#;
      else
         P_M_DERIVE(T_ALG.E_BV) := UC_16S_EN_16NS(TDB.T_ENTIER_16S(L_M
      end if;

      P_M_DERIVE(T_ALG.E_BH) := UC_16S_EN_16NS (TDB.T_ENTIER_16S
                                                 ((1.0/C_M_LSB_BH) *
                                                 G_M_INFO_DERIVE(T_ALG.E_BH)))
   end LIRE_DERIVE;
--$finprocedure
```

Kevlin Henney
@KevlinHenney

Epistemologically speaking, assumptions are the barefoot-trodden Lego bricks in the dark of knowledge. You don't know they're there until you know that they're there. And even if you know there are some there, you don't know exactly where and you'll still end up stepping on some.

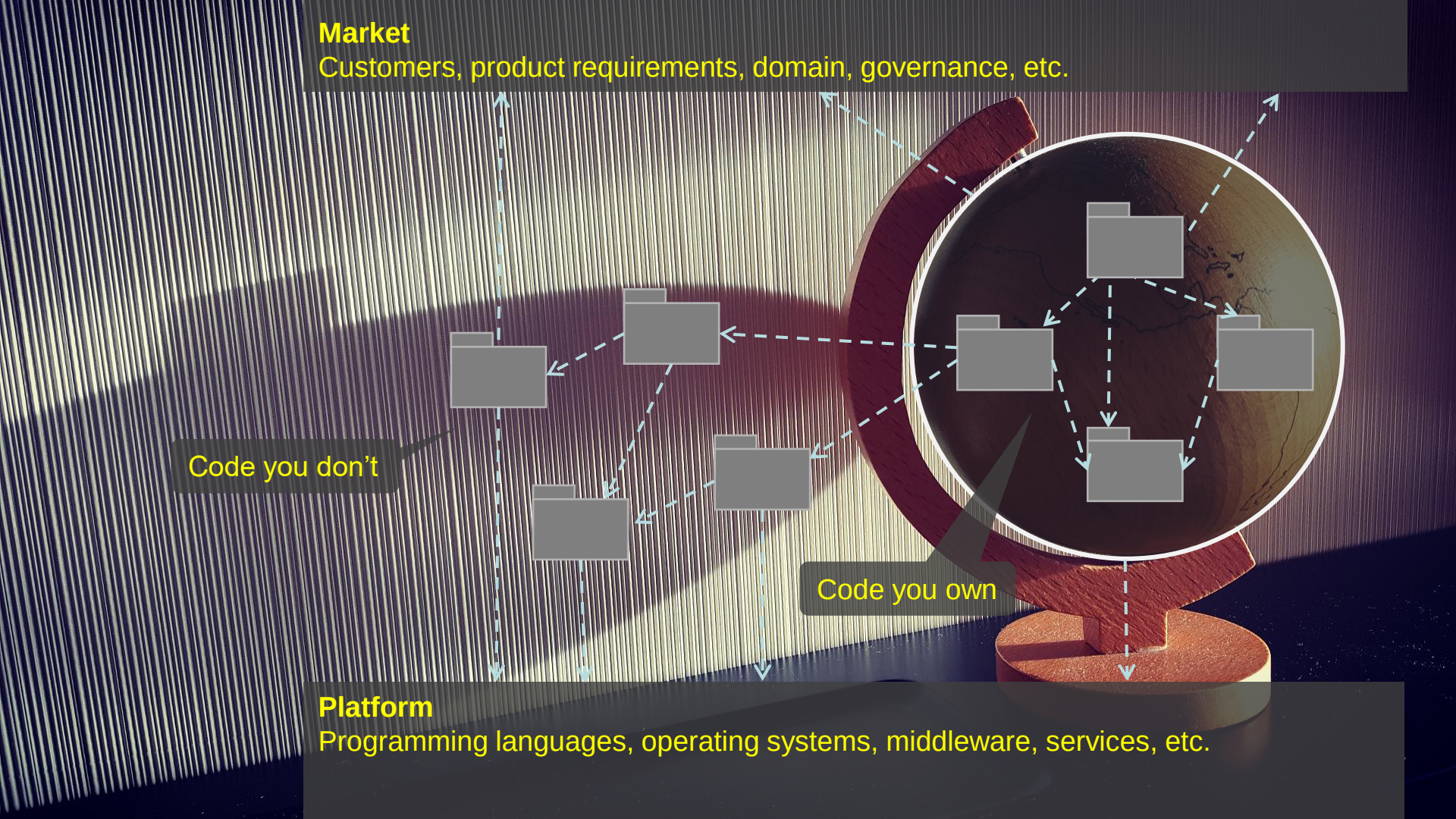
♡ 26 2:29 PM - Apr 22, 2020

twitter.com/KevlinHenney/status/1252952622128128000

The connections between modules are the assumptions which the modules make about each other.

David Parnas

"Information Distribution Aspects of Design Methodology"


Market
Customers, product requirements, domain, governance, etc.
Code you don’t
Code you own
Platform
Programming languages, operating systems, middleware, services, etc.

Market

Customers, product requirements, domain, governance, etc.

Code you don't

Code you own

Platform

Programming languages, operating systems, middleware, services, etc.

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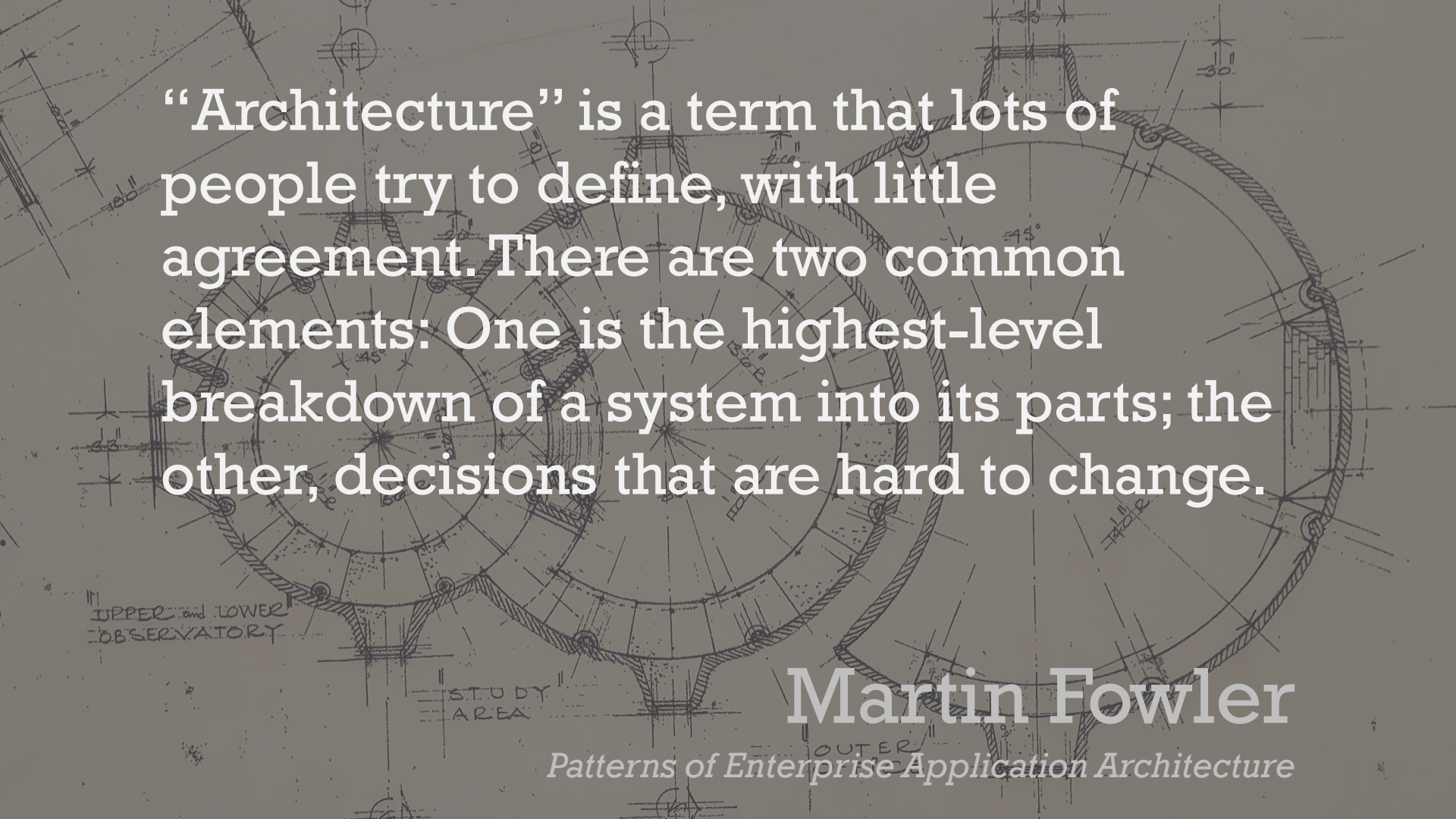
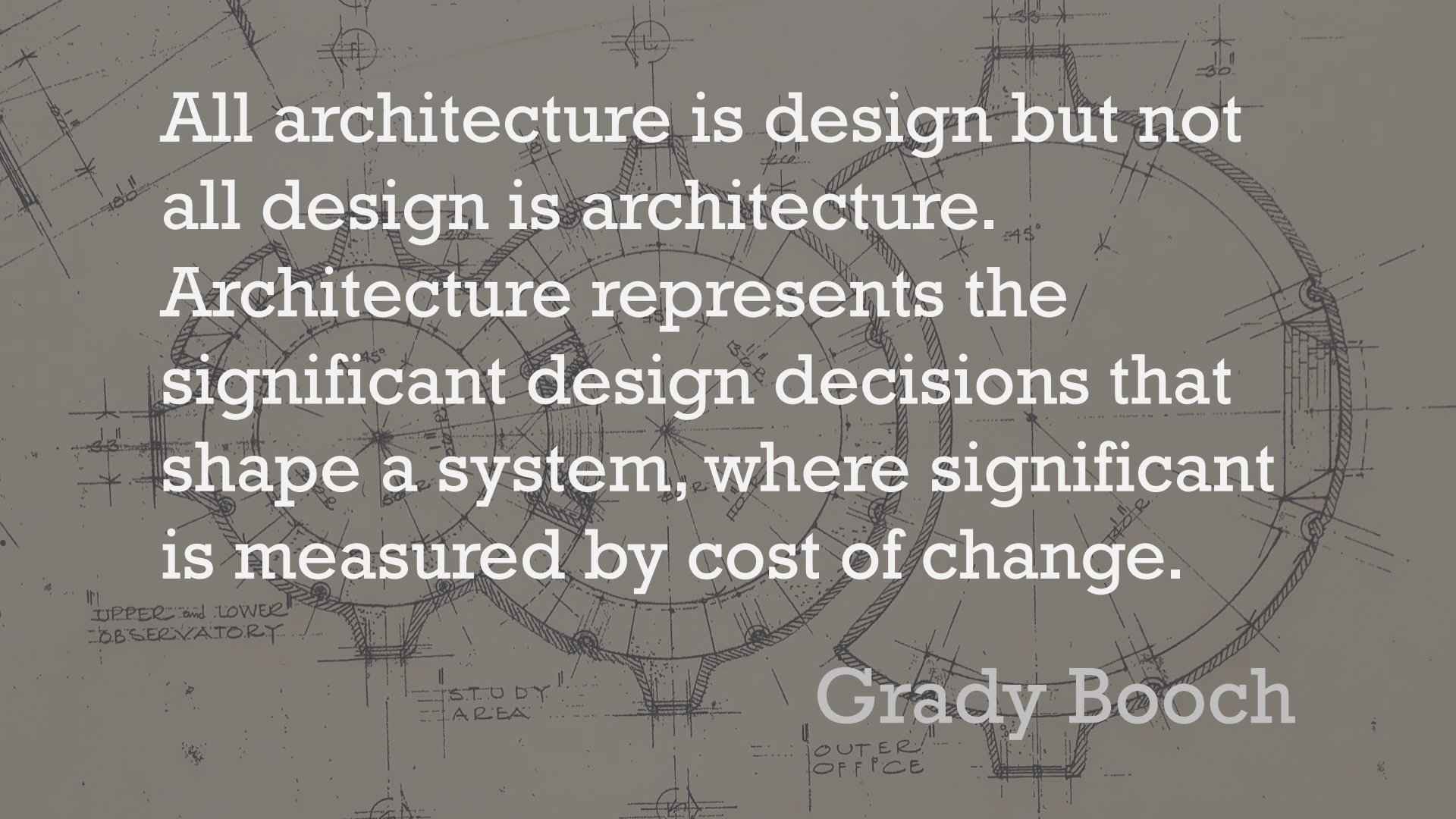


"Architecture" is a term that lots of people try to define, with little agreement. There are two common elements: One is the highest-level breakdown of a system into its parts; the other, decisions that are hard to change.

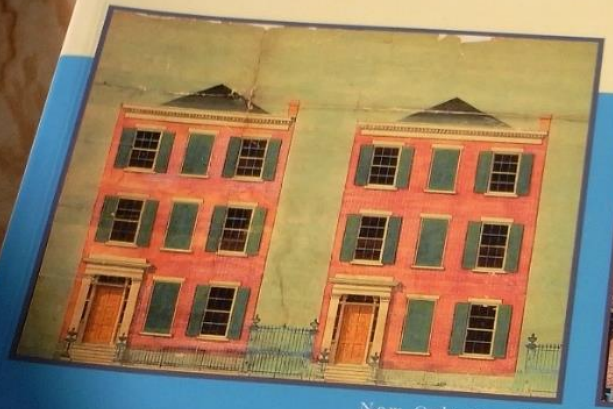
Martin Fowler

Patterns of Enterprise Application Architecture


All architecture is design but not all design is architecture. Architecture represents the significant design decisions that shape a system, where significant is measured by cost of change.
Grady Booch
UPPER and LOWER OBSERVATORY
STUDY AREA
OUTER OFFICE

HOW BUILDINGS LEARN

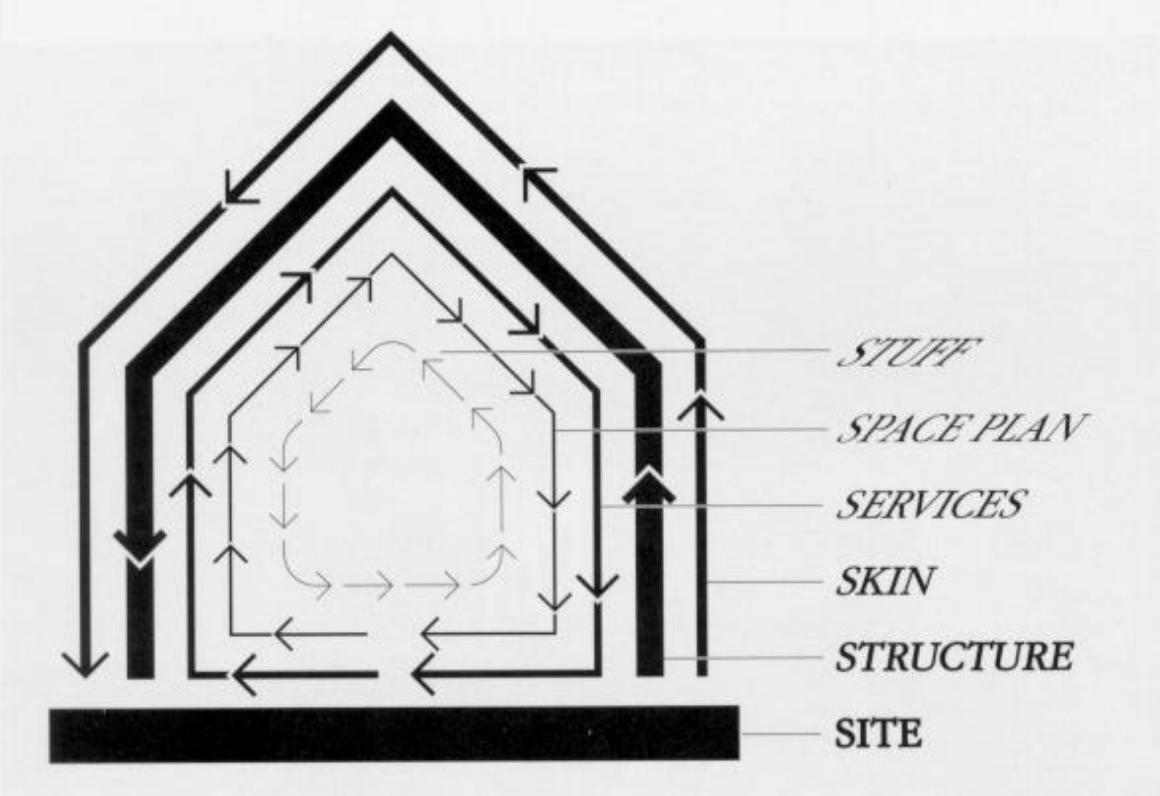
What happens after they're built



New Orleans, 1857

The same two buildings, 1993

STEWART BRAND

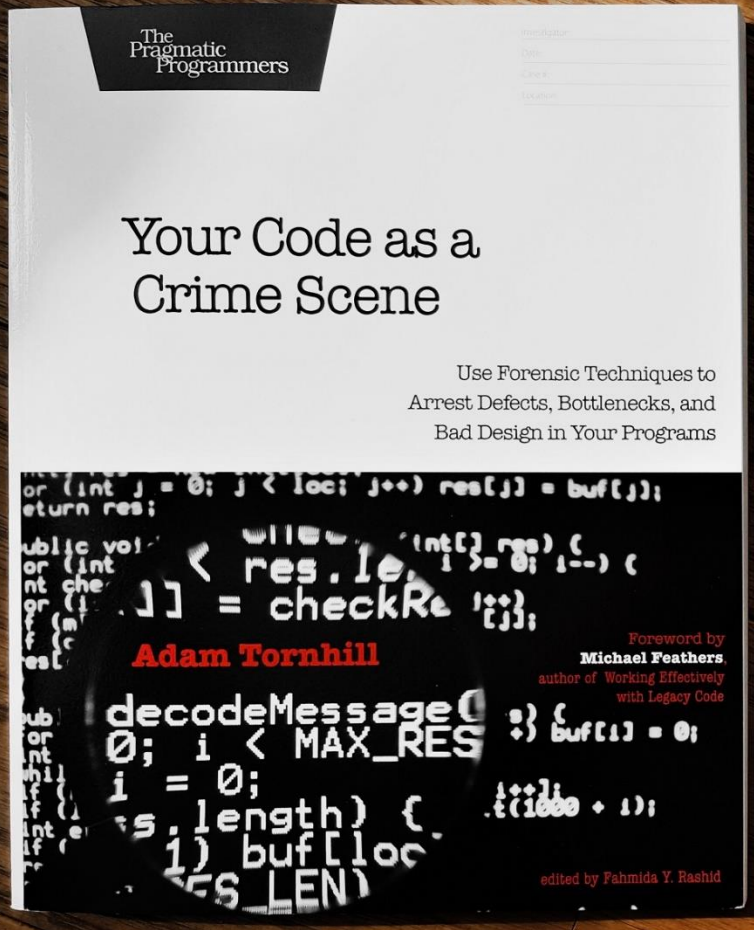

STUFF
SPACE PLAN
SERVICES
SKIN
STRUCTURE
SITE

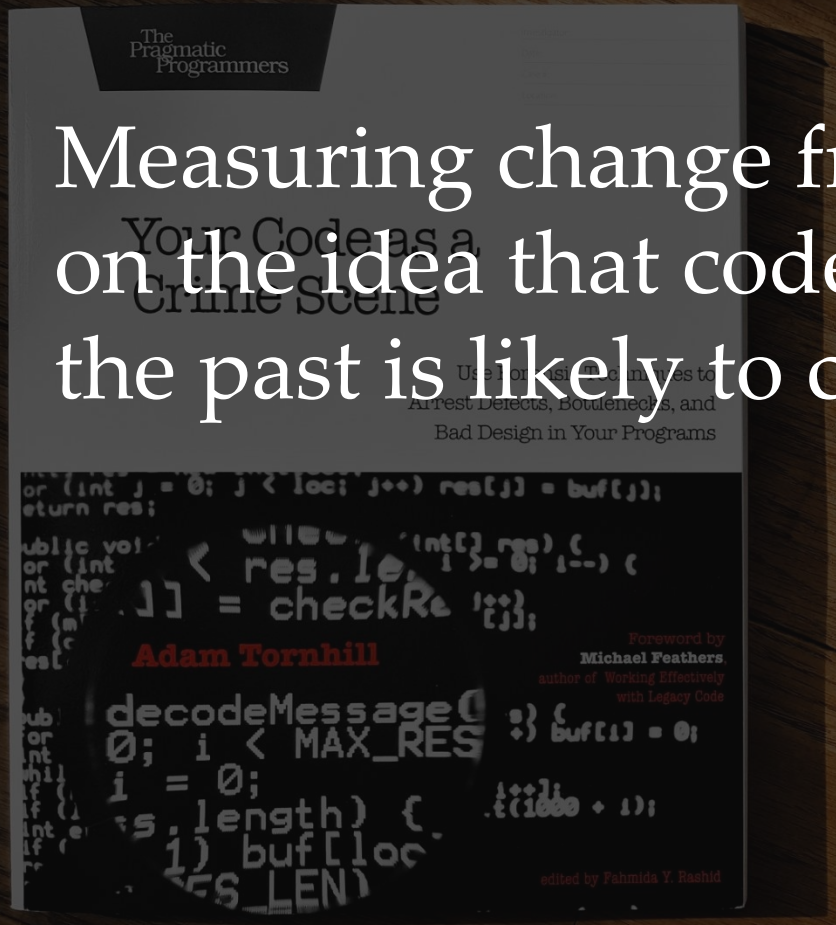
Shearing Layers

Different artifacts change at different rates.

Therefore, factor your system so that artifacts that change at similar rates are together.

Brian Foote & Joseph Yoder
"Big Ball of Mud"
laputan.org/mud/mud.html


The Pragmatic Programmers
Your Code as a Crime Scene
Use Forensic Techniques to Arrest Defects, Bottlenecks, and Bad Design in Your Programs
Adam Tornhill
Foreword by Michael Feathers, author of Working Effectively with Legacy Code
edited by Fahmida Y. Rashid



Measuring change frequencies is based on the idea that code that has changed in the past is likely to change again.

Lean Software Development

An Agile Toolkit

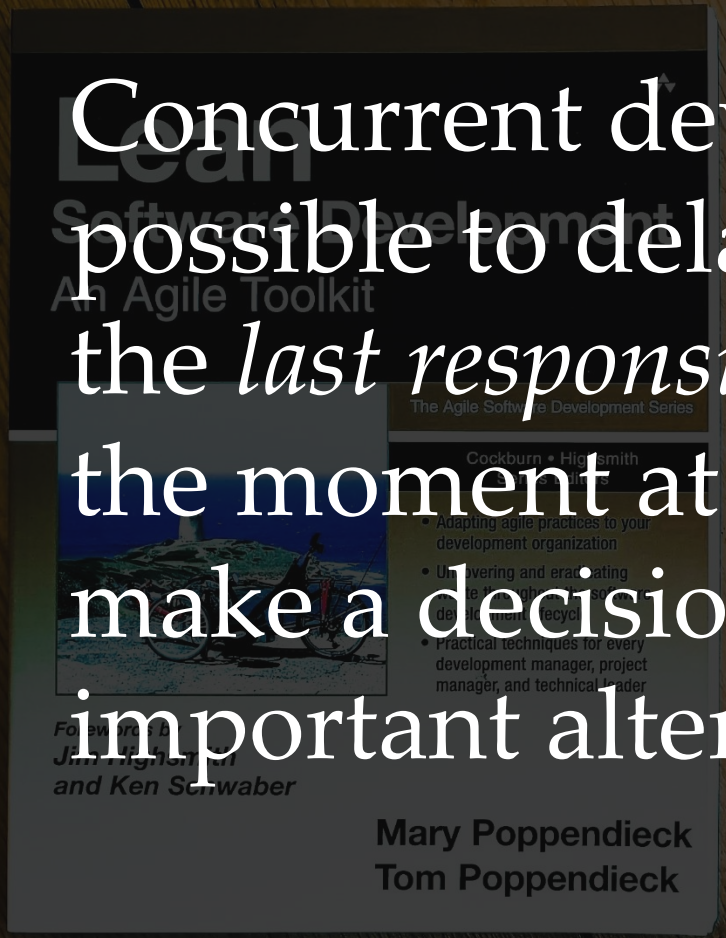
The Agile Software Development Series

Cockburn • Highsmith
Series Editors

- Adapting agile practices to your development organization
- Uncovering and eradicating waste throughout the software development lifecycle
- Practical techniques for every development manager, project manager, and technical leader

Forewords by
Jim Highsmith
and Ken Schwaber

Mary Poppendieck
Tom Poppendieck



Concurrent development makes it possible to delay commitment until the *last responsible moment*, that is, the moment at which failing to make a decision eliminates an important alternative.

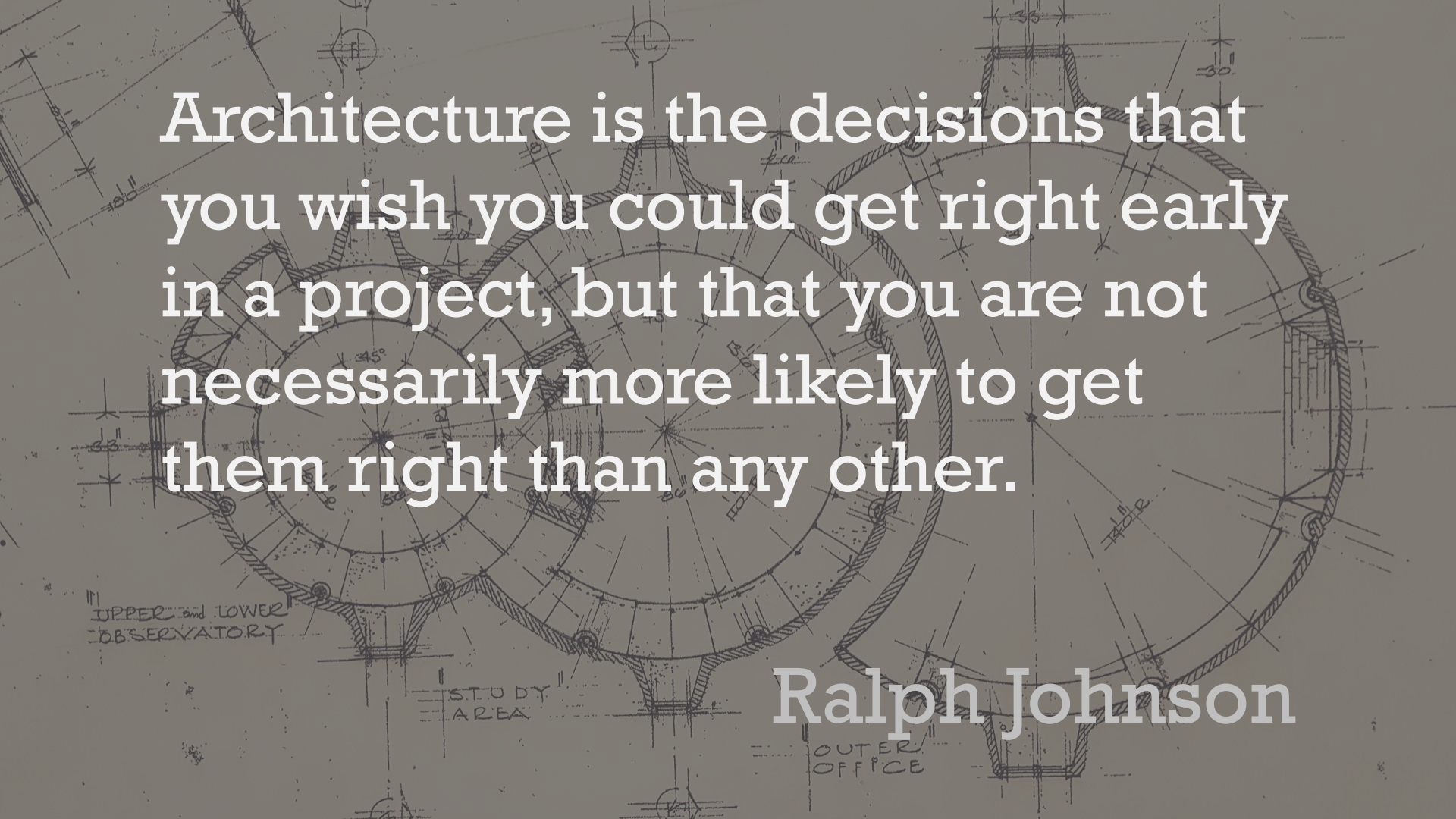
1. Options have value.
2. Options expire.
3. Never commit early unless you know why.

Olav Maassen & Chris Matts

"'Real Options' Underlie Agile Practices"

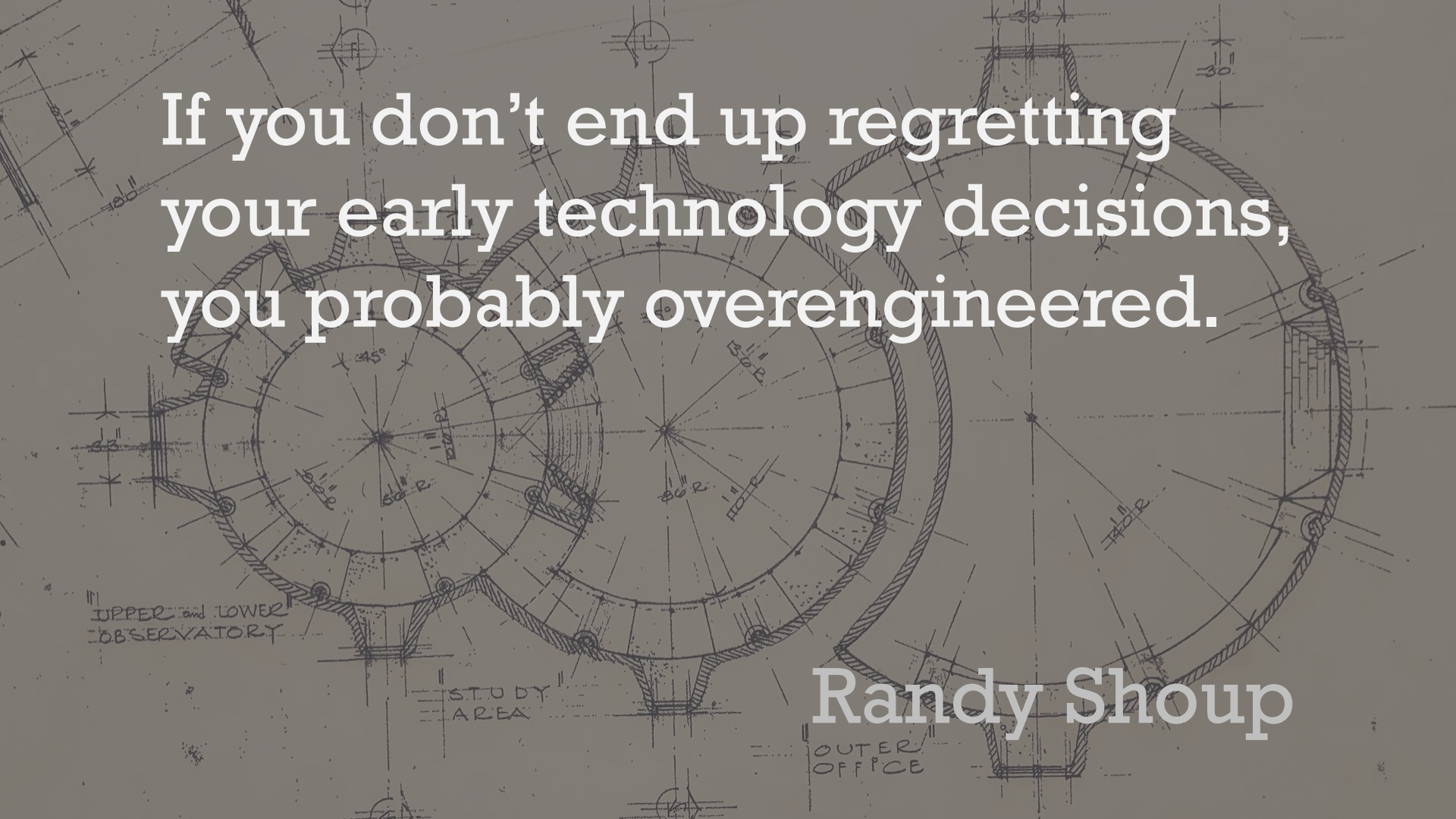
infoq.com/articles/real-options-enhance-agility

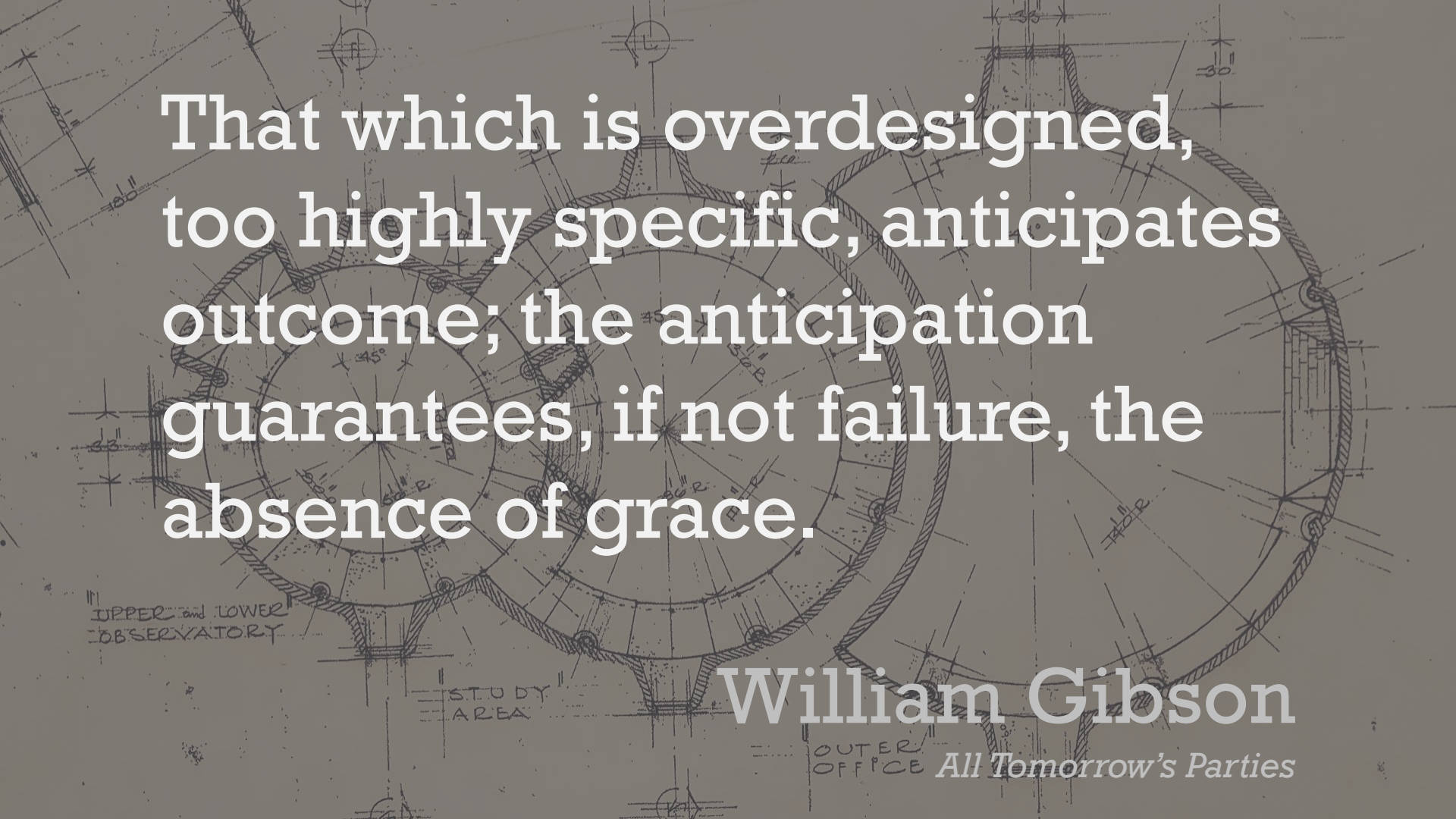
known knowns
known unknowns
unknown unknowns
unknowable unknowns



Architecture is the decisions that you wish you could get right early in a project, but that you are not necessarily more likely to get them right than any other.

Ralph Johnson

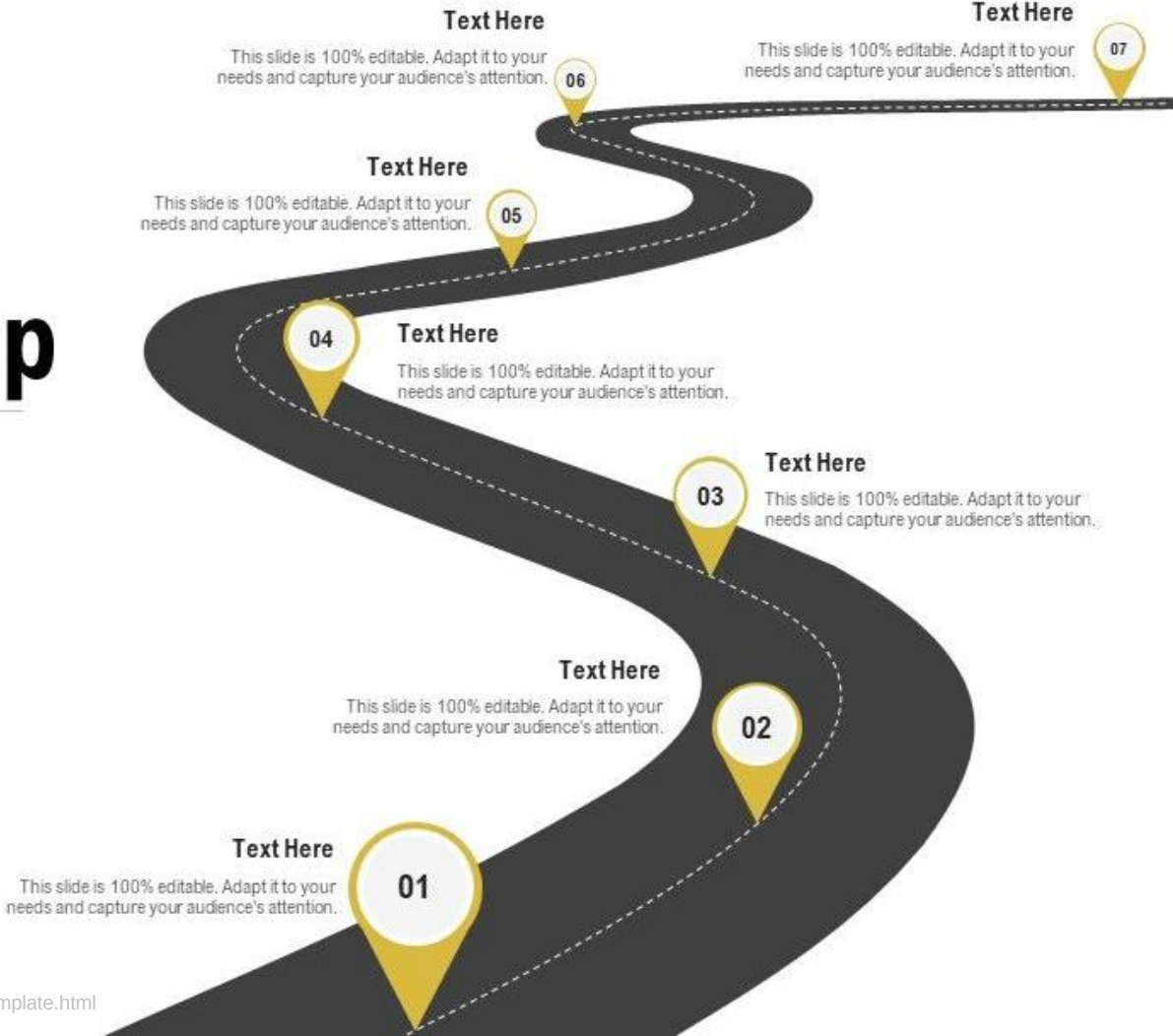

If you don't end up regretting
your early technology decisions,
you probably overengineered.
Randy Shoup
UPPER and LOWER
OBSERVATORY
STUDY
AREA
OUTER
OFFICE

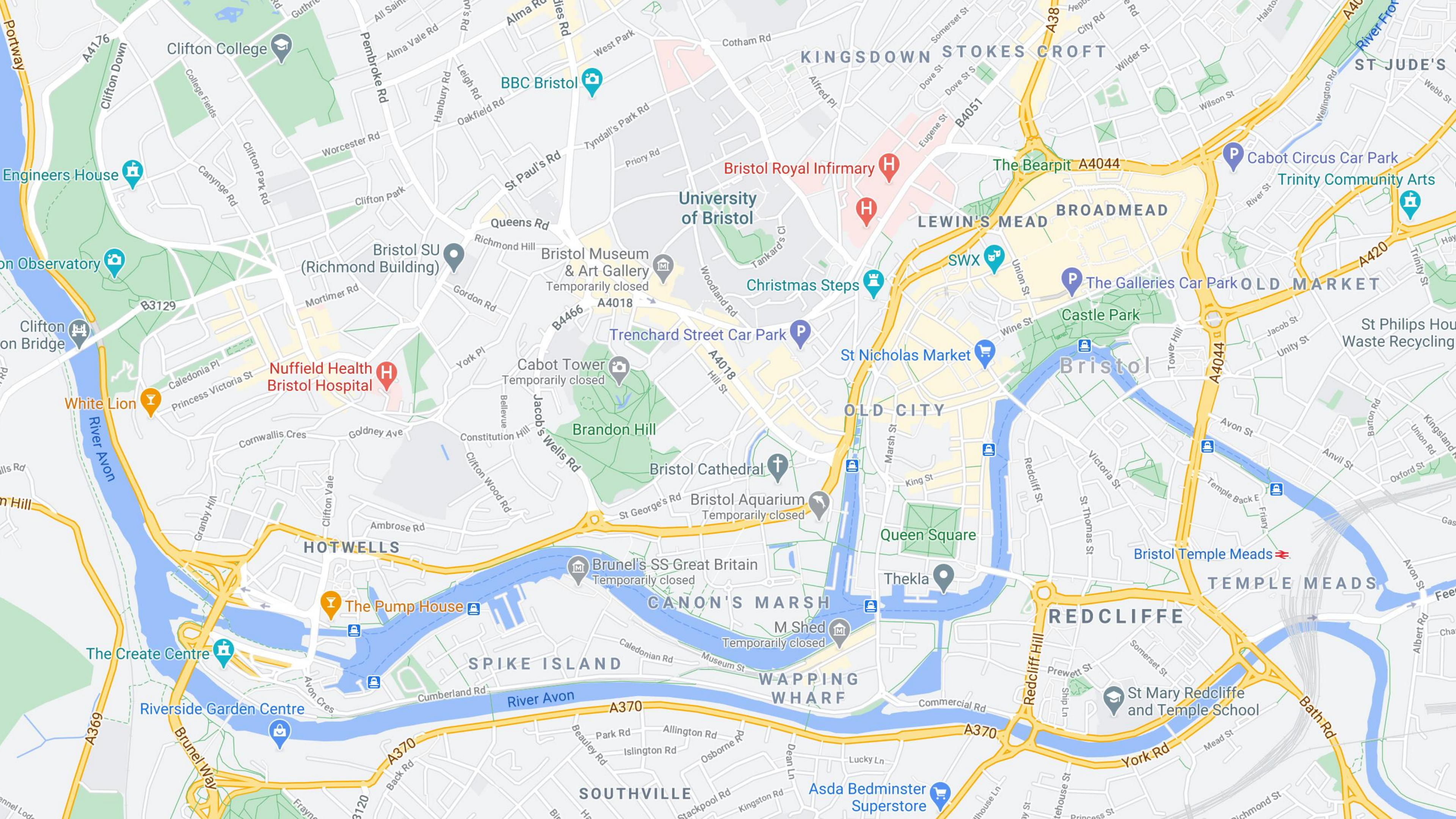

That which is overdesigned, too highly specific, anticipates outcome; the anticipation guarantees, if not failure, the absence of grace.
William Gibson
All Tomorrow's Parties

Prediction is very difficult, especially about the future.

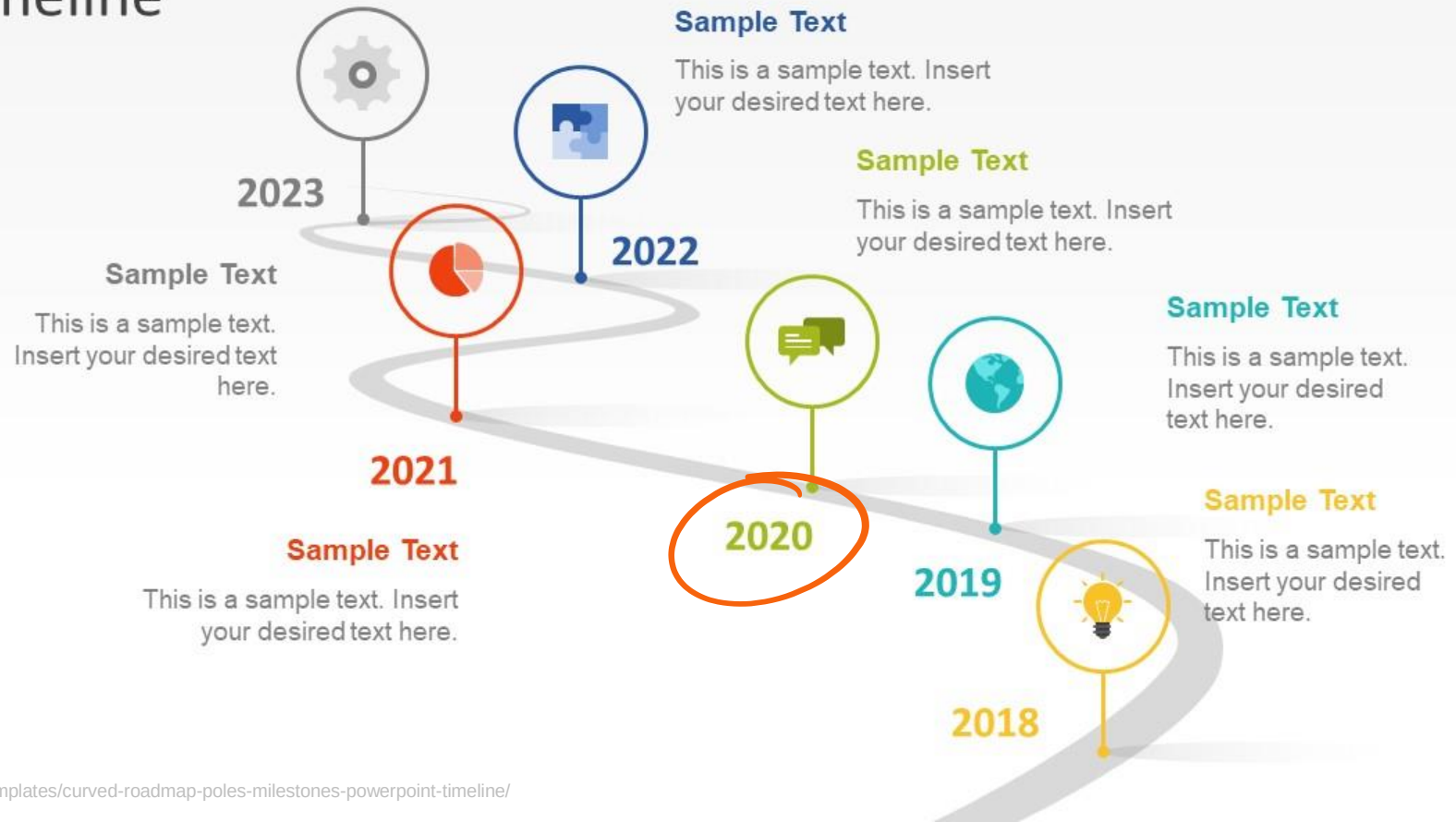
Niels Bohr?

Roadmap




Clifton College
BBC Bristol
KINGSDOWN
STOKES CROFT
ST JUDE'S
Cotham Rd
Pembroke Rd
Alma Vale Rd
West Park
Worcester Rd
Oakfield Rd
Tyndall's Park Rd
Priory Rd
St Paul's Rd
Clifton Park
Queens Rd
Richmond Hill
Engineers House
Bristol Royal Infirmary
University of Bristol
The Bearpit
A4044
Cabot Circus Car Park
Trinity Community Arts
LEWIN'S MEAD
BROADMEAD
Bristol SU (Richmond Building)
Bristol Museum & Art Gallery
Temporarily closed
Observatory
SWX
Christmas Steps
The Galleries Car Park
OLD MARKET
Mortimer Rd
Gordon Rd
B3129
A4018
B4466
Clifton
Bridge
Trenchard Street Car Park
Castle Park
St Philips House
Waste Recycling
St Nicholas Market
Bristol
Nuffield Health
Bristol Hospital
Cabot Tower
Temporarily closed
Caledonia Pl
Princess Victoria St
White Lion
OLD CITY
Brandon Hill
River Avon
Cornwallis Cres
Goldney Ave
Constitution Hill
Jacob's Wells Rd
Bristol Cathedral
King St
Avon St
Bristol Aquarium
Temporarily closed
St George's Rd
Ambrose Rd
Queen Square
HOTWELLS
Bristol Temple Meads
Brunel's SS Great Britain
Temporarily closed
Thekla
TEMPLE MEADS
CANON'S MARSH
REDCLIFFE
The Pump House
M Shed
Temporarily closed
The Create Centre
SPIKE ISLAND
WAPPING
WHARF
Caledonian Rd
Museum St
Redcliff Hill
St Mary Redcliffe
and Temple School
Cumberland Rd
River Avon
Riverside Garden Centre
A370
Commercial Rd
Bath Rd
York Rd
Park Rd
Allington Rd
Islington Rd
A369
Brunel Way
SOUTHVILLE
Asda Bedminster
Superstore

Curved Roadmap with Poles Milestones PowerPoint Timeline




prioritise by
business value


TOBAR
The Old Aerodrome,
Beccles, NR34 7SP
www.tobar.co.uk
" SEILF EMIT "

prioritise by estimated business value


101 Things I Learned
in Architecture School
Matthew Frederick

Properly gaining control of the design process tends to feel like one is *losing* control of the design process.