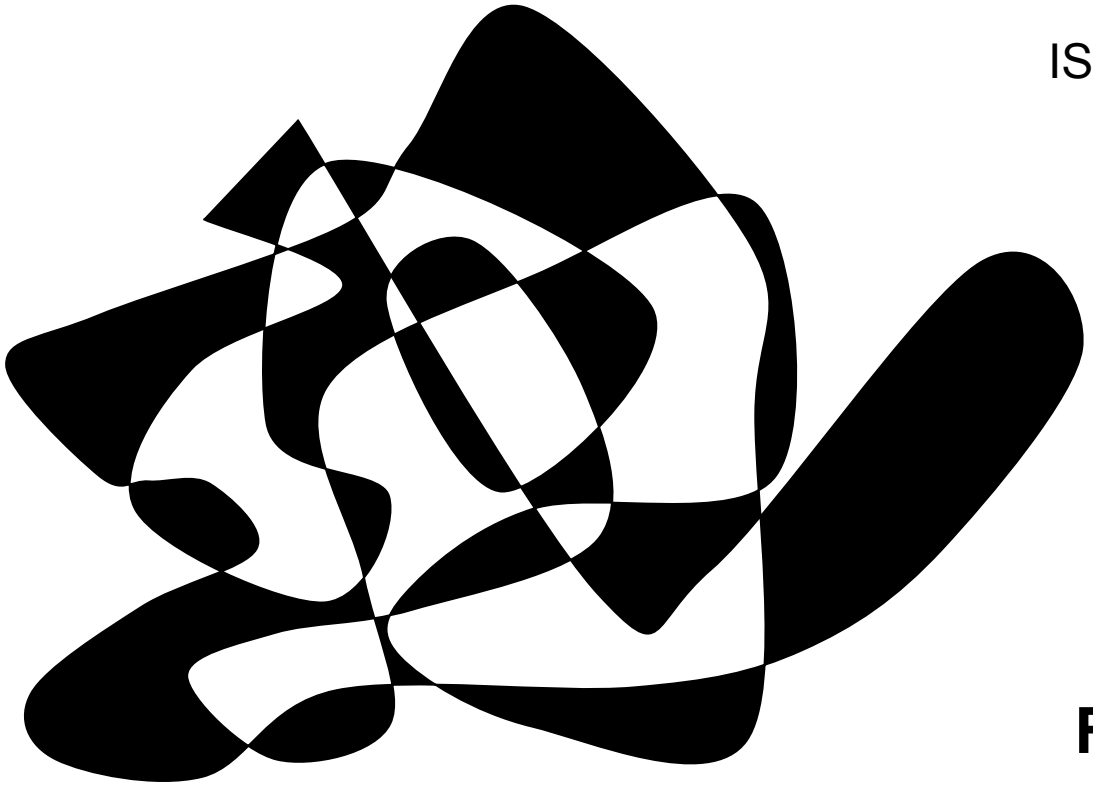
Advanced Project Management

IS 594, Section PJ

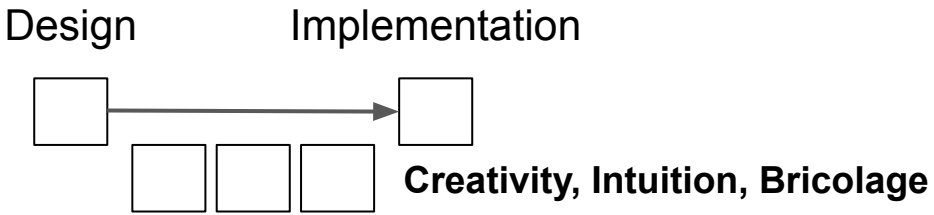


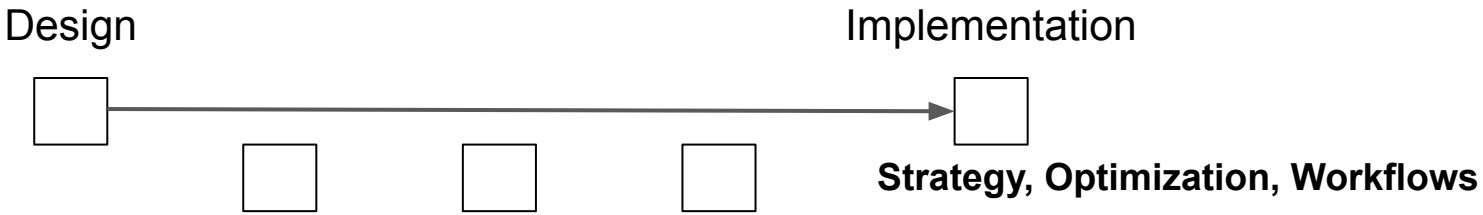
Foundations II

Improvisation: “convergence of composition and execution”.

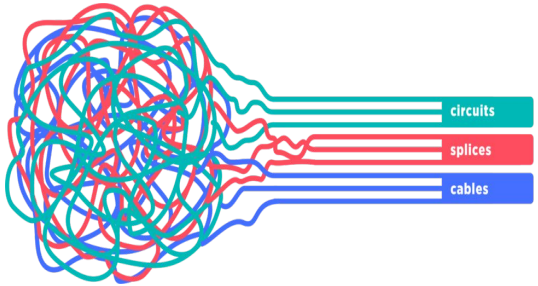
The less the time between the design phase and implementation phase, the more activity is improvisational.

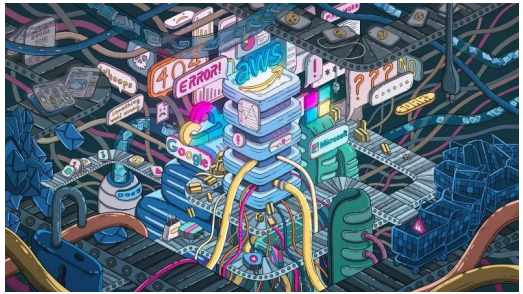
- results from pressure to achieve on a compressed timetable.

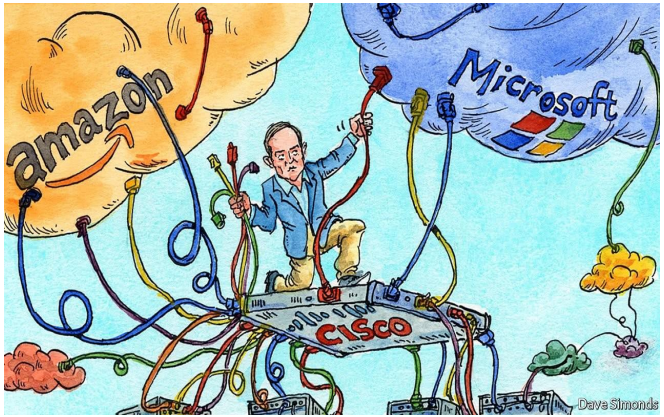


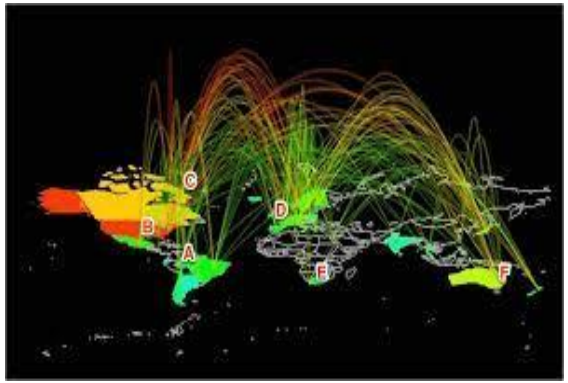


Information Technology is Intertwined with Complexity and Difficult, Nonlinear Problems

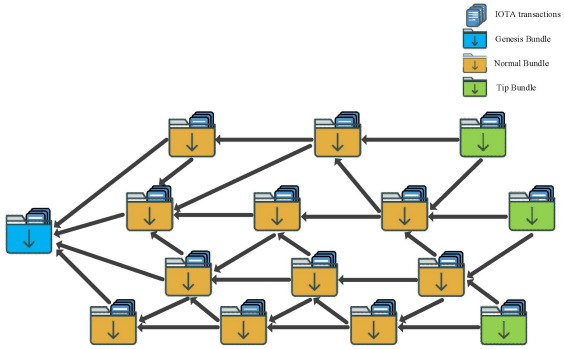


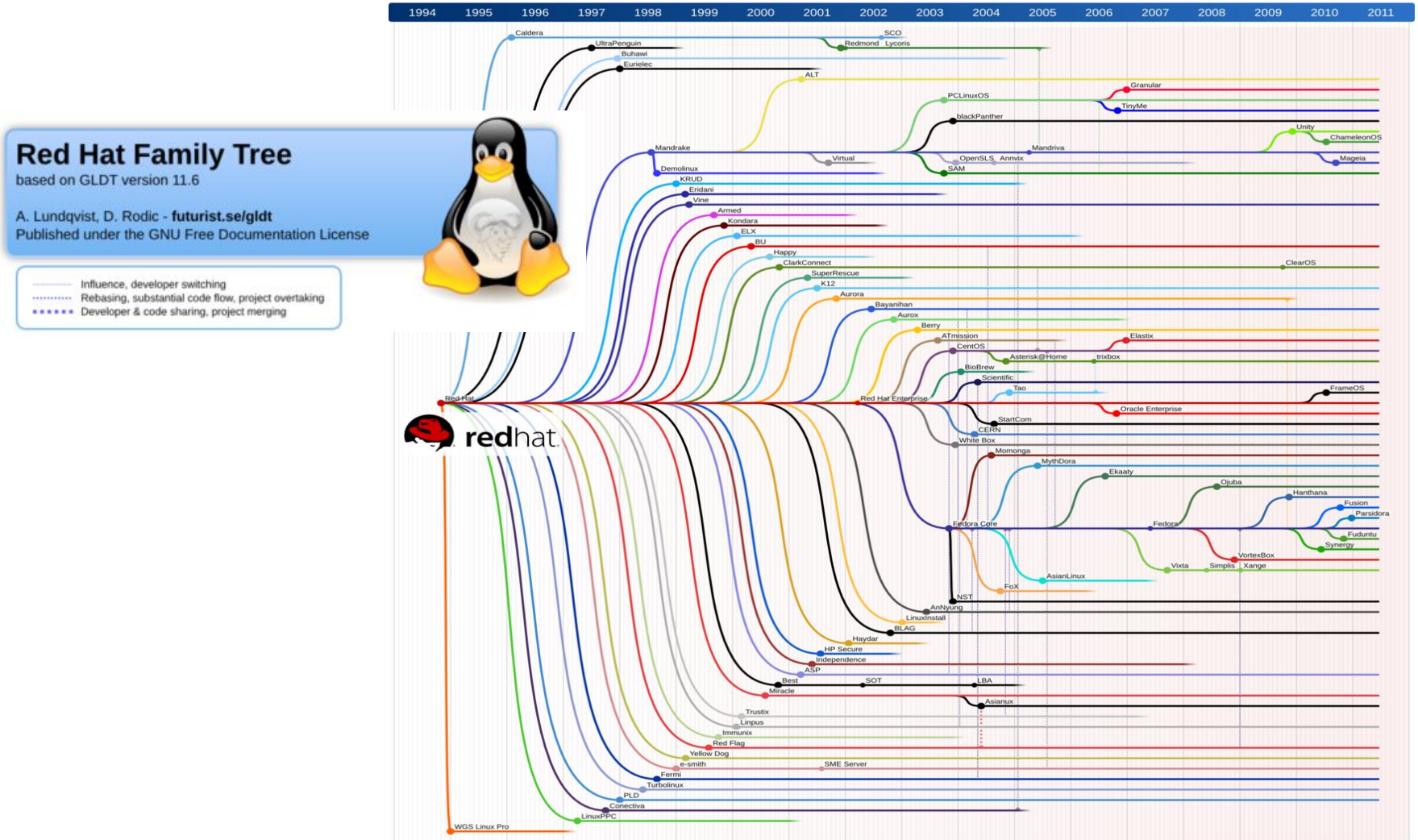






From: The Growing Complexity of Kubernetes




Red Hat Family Tree
based on GLDT version 11.6
A. Lundqvist, D. Rodic - futurist.se/gldt
Published under the GNU Free Documentation License
Influence, developer switching
Rebasing, substantial code flow, project overtaking
Developer & code sharing, project merging
1994
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UltraPenguin
Buhawi
Eurielec
SCO
Redmond
Lycoris
ALT
PCLinuxOS
Granular
TinyMe
blackPanther
Unity
ChameleonOS
Mageia
Mandriva
OpenSLS
Annvix
SAM
Virtual
Mandrake
Demolinux
KRUD
Eridani
Vine
Armed
Kondara
ELX
BU
Happy
ClarkConnect
ClearOS
SuperRescue
K12
Aurora
Bayanihan
Aurox
Berry
ATmission
CentOS
Elastix
Asterisk@Home
trixbox
BioBrew
Scientific
Tao
FrameOS
Oracle Enterprise
Red Hat Enterprise
Red Hat
redhat
StartCom
CERN
White Box
Momonga
MythDora
Ekaaty
Ojuba
Hanthana
Fusion
Parsidora
Fuduntu
Synergy
Fedora
Fedora Core
VortexBox
Vixta
Simplis
Xange
AsianLinux
FoX
NST
AnNyung
LinuxInstall
BLAG
Haydar
HP Secure
Independence
ASP
Best
SOT
LBA
Miracle
Asianux
Trustix
Linpus
Immunix
Red Flag
Yellow Dog
e-smith
SME Server
Fermi
Turbolinux
PLD
Conectiva
LinuxPPC
WGS Linux Pro

Workflow Design

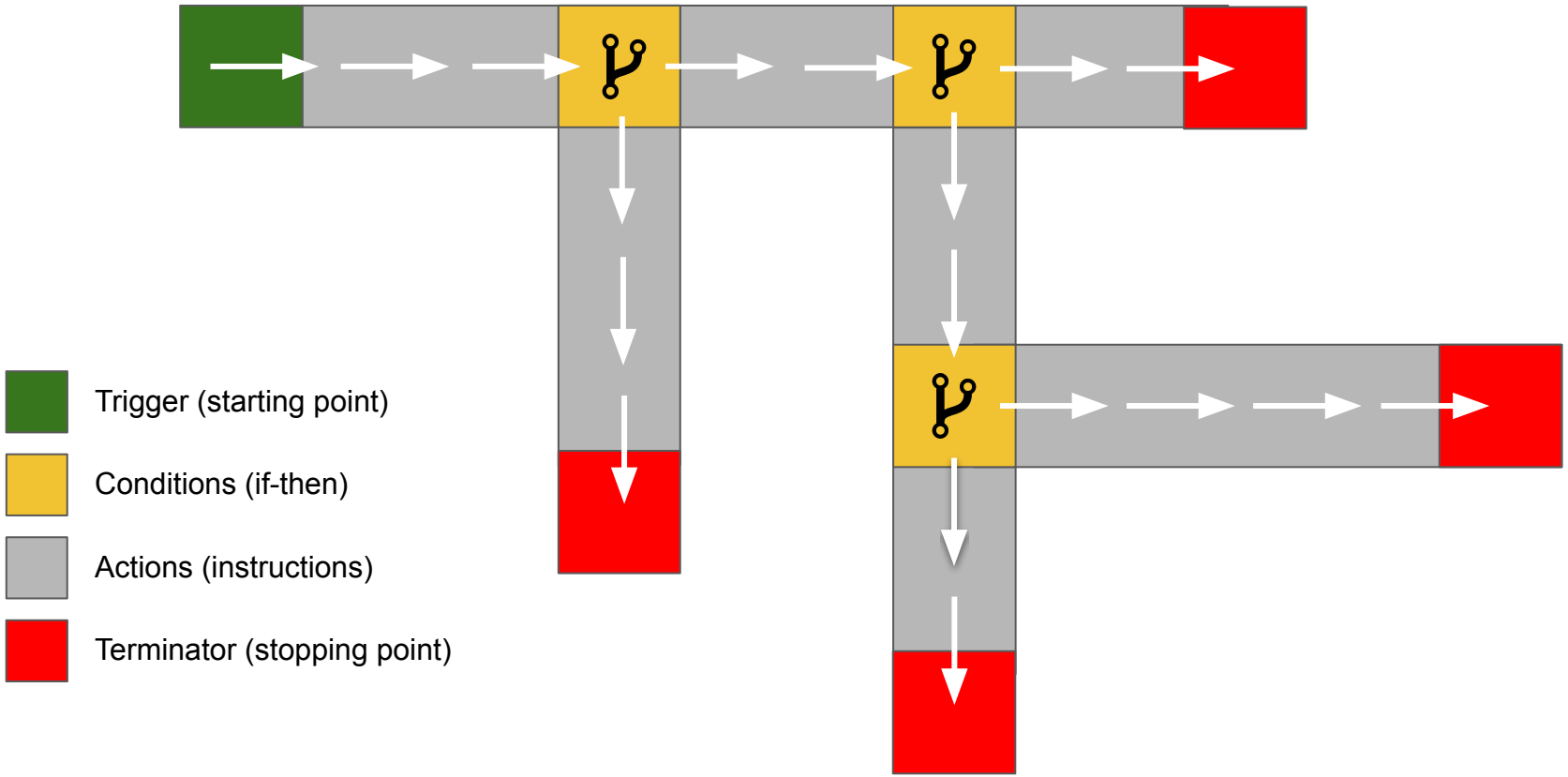
Effective Workflow Design:

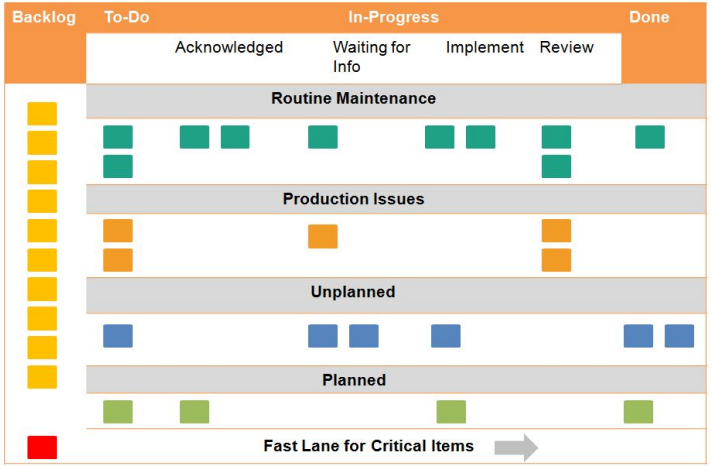
- Optimized workflows = significant increase in efficiency.
- Prioritize workflow design = provide a competitive edge.

Workflow structure (triggers, conditions, actions):

- Streamlined process, increased productivity, market advantages.

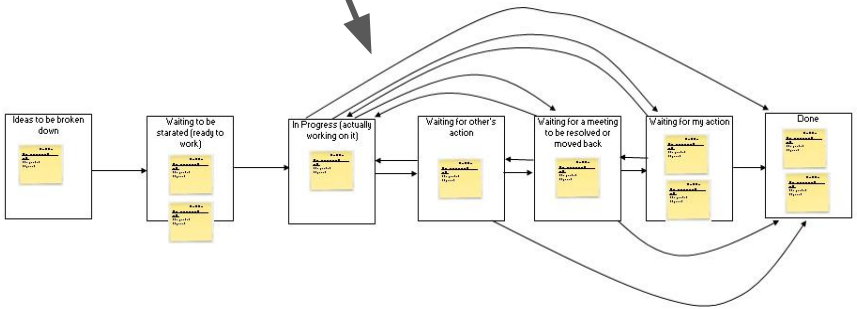
Workflow Design

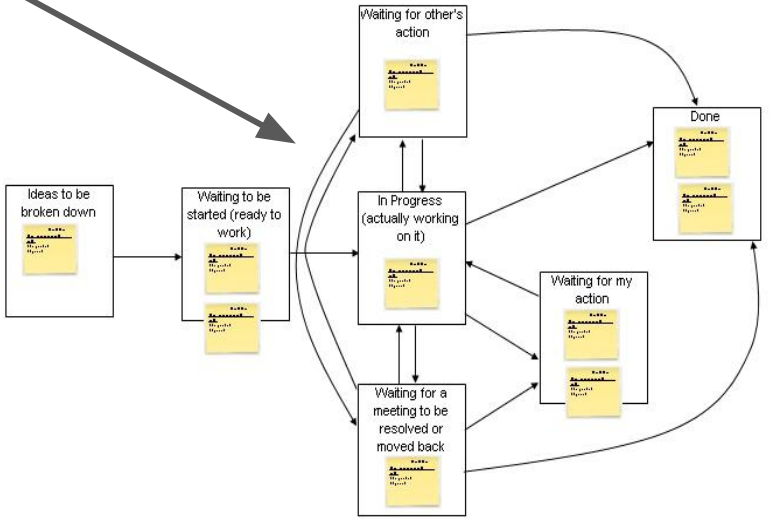




The Optimum way to use Kanban Boards to streamline your IT Operations

https://digite.medium.com/the-optimum-way-to-use-kanban-boards-to-streamline-your-it-operations-a04e9eec5d22





Kanban in a Networked Process

https://softwaredevelopmenttoday.com/2011/11/kanban-in-a-networked-process-visualise-the-network/

TRIGGERS: starting point (fill out a form, use an API to work with dataset).

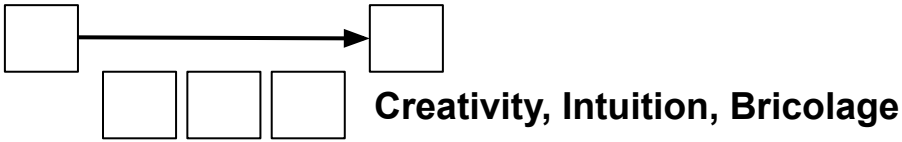
CONDITIONS: If-Then statements and decision points (if error, then debug protocol).

ACTIONS: Set of instructions (use a series of tools in a particular sequence).

TERMINATOR: Stopping point in a particular workflow (once triggers, conditions, and actions achieved, yield output).

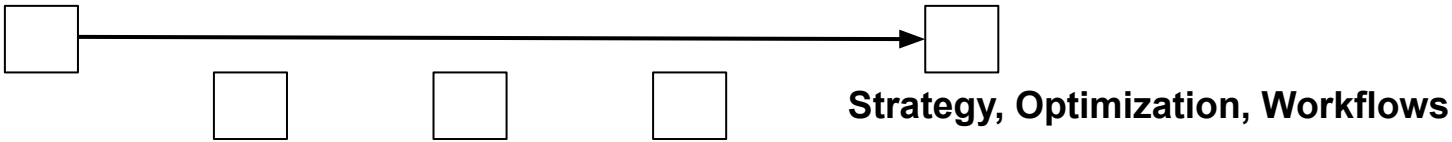
How do we understand the difference between these two cases?

Design Implementation

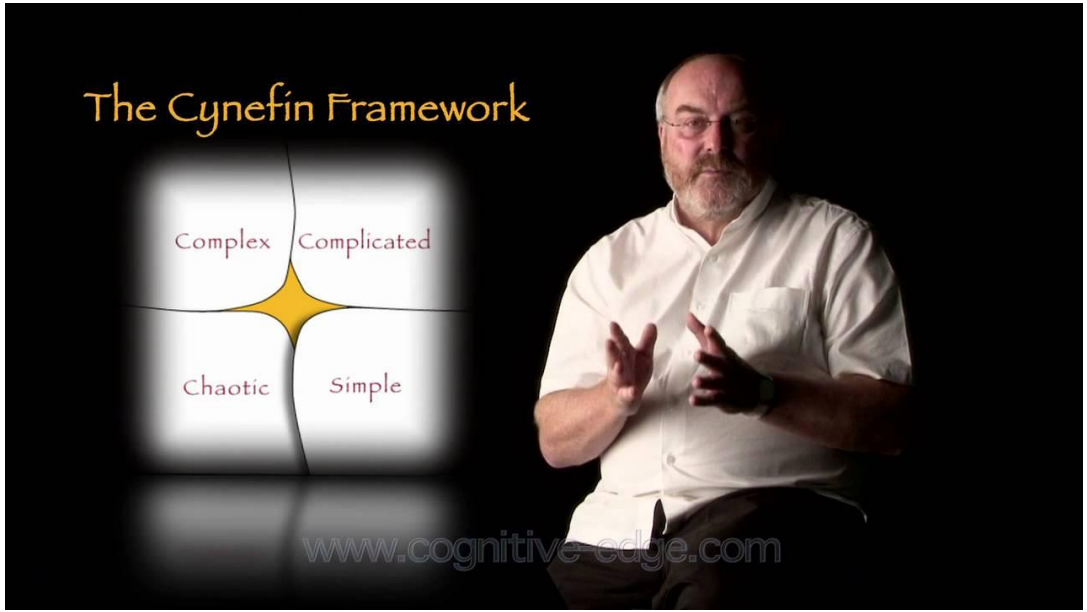


Creativity, Intuition, Bricolage

Design Implementation



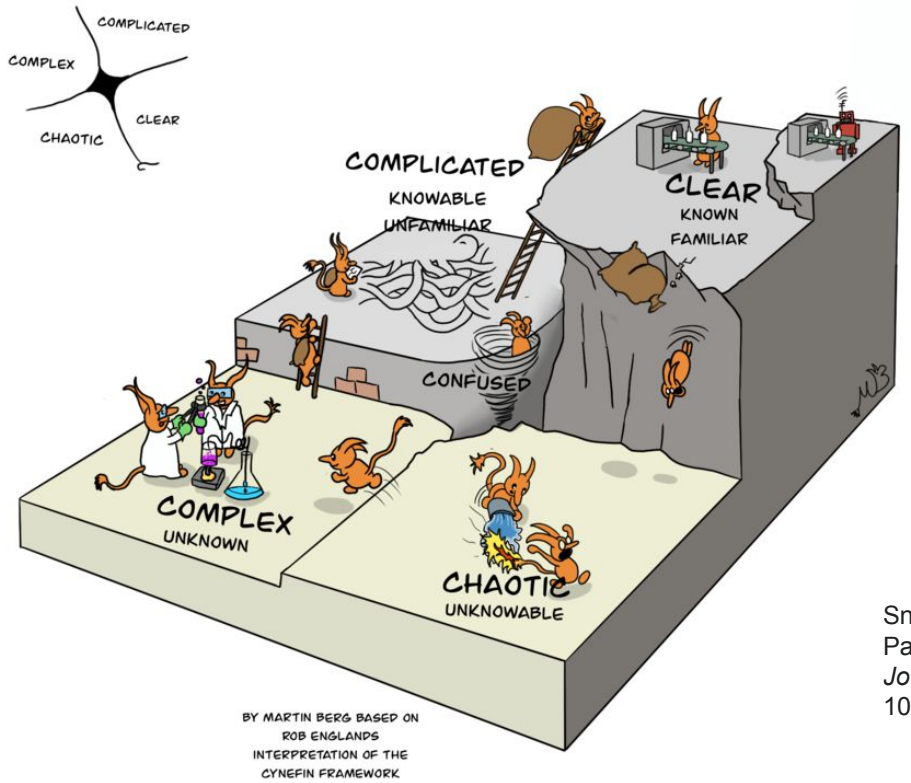
Strategy, Optimization, Workflows



Developed by David Snowden (IBM) in 1999.

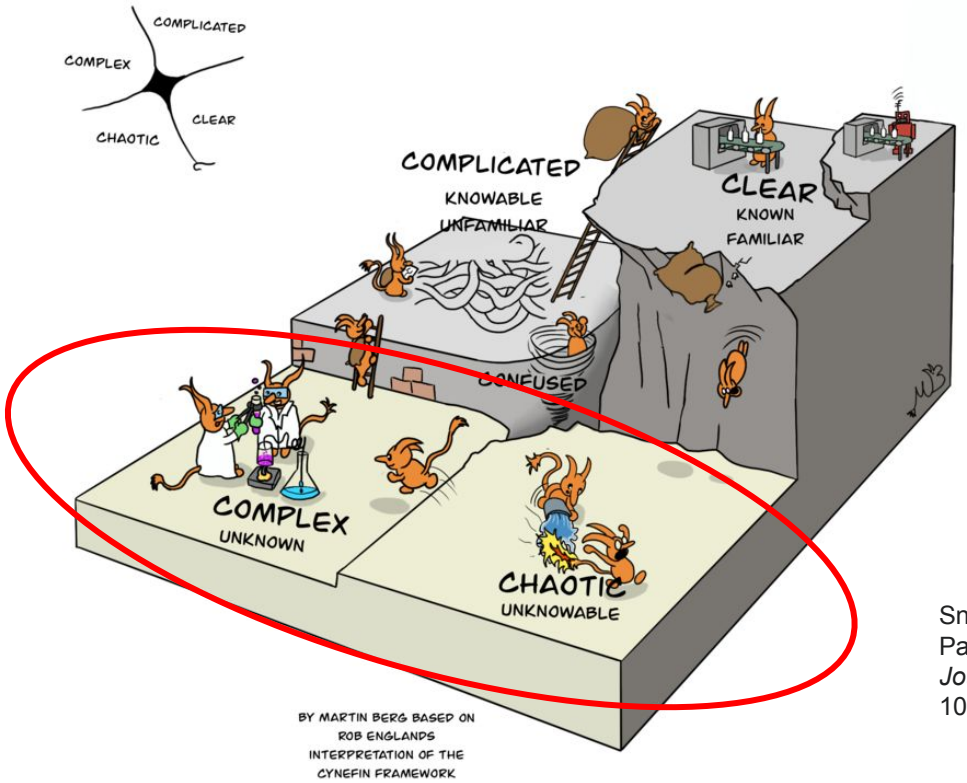
- sense-making device (making sense of problem domains).
- system organization is a proxy for complexity.
- four domains (from simple to chaotic).
- toothbrush factory less complex than drug discovery.

Cynefin: Complex to Chaotic Domain

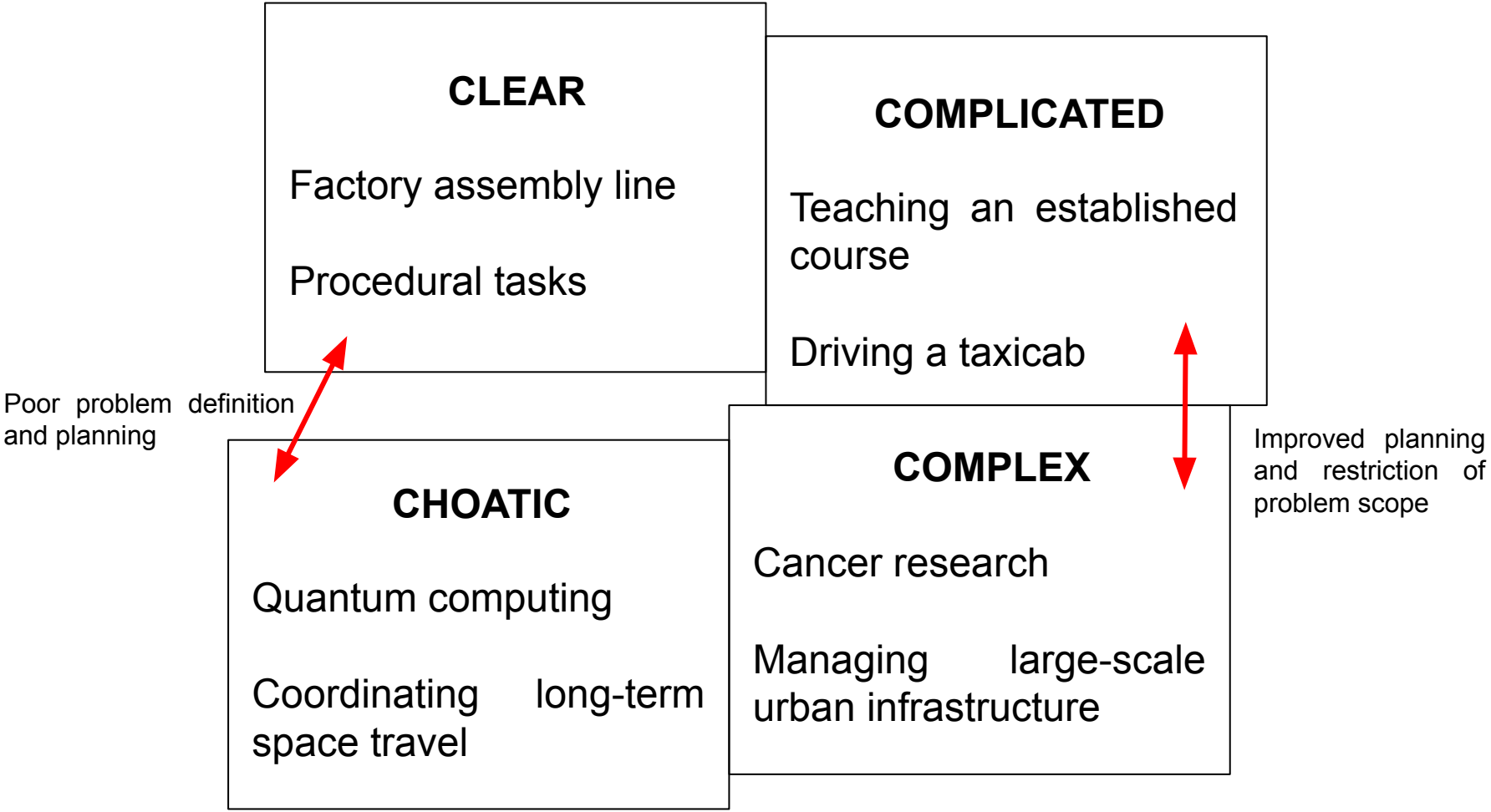


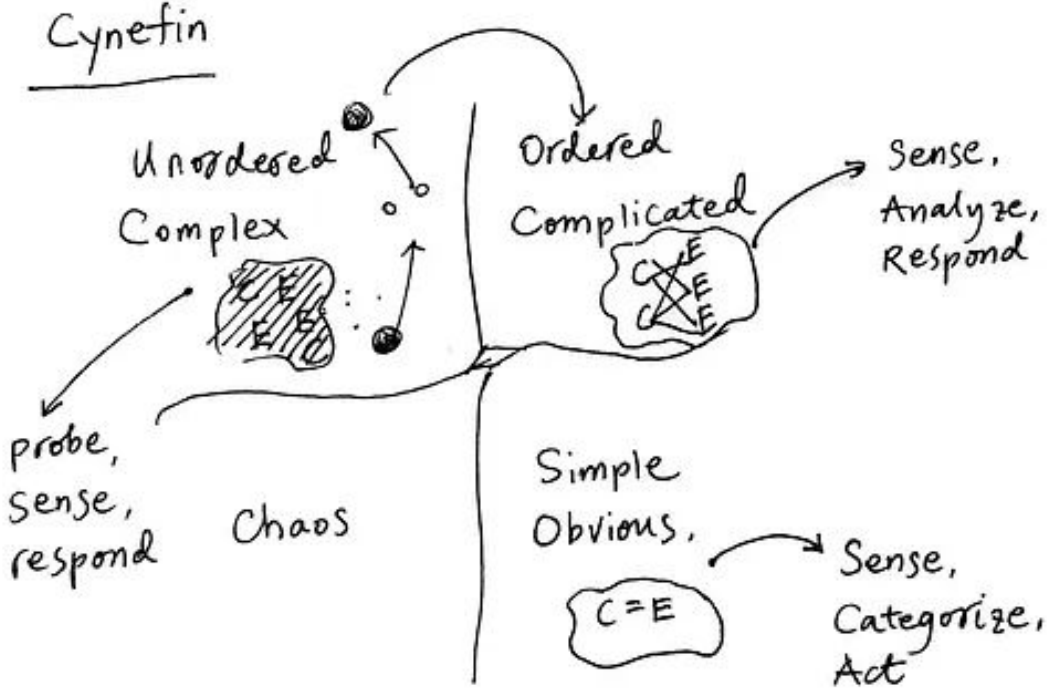
Snowden, D. (2002). Complex Acts of Knowing: Paradox and Descriptive Self Awareness. *Journal of Knowledge Management*, 6(2), 100–111.

Cynefin: Complex to Chaotic Domain



Snowden, D. (2002). Complex Acts of Knowing: Paradox and Descriptive Self Awareness. *Journal of Knowledge Management*, 6(2), 100–111.


CLEAR
Factory assembly line
Procedural tasks
COMPLICATED
Teaching an established course
Driving a taxicab
Poor problem definition and planning
CHOATIC
Quantum computing
Coordinating long-term space travel
COMPLEX
Cancer research
Managing large-scale urban infrastructure
Improved planning and restriction of problem scope



Anni Yang. Final Session: the big picture. Cynefin Framework. *Medium*, https://medium.com/@yangyang.kadk/final-session-the-big-picture-5498d76c8e1c

Act/Probe, Sense, Categorize/Analyze, Respond

Simple (cause = effect), Complicated (cause interacts with effect), Complex (cause is poorly coupled to effect), Chaos (cause ≠ effect)

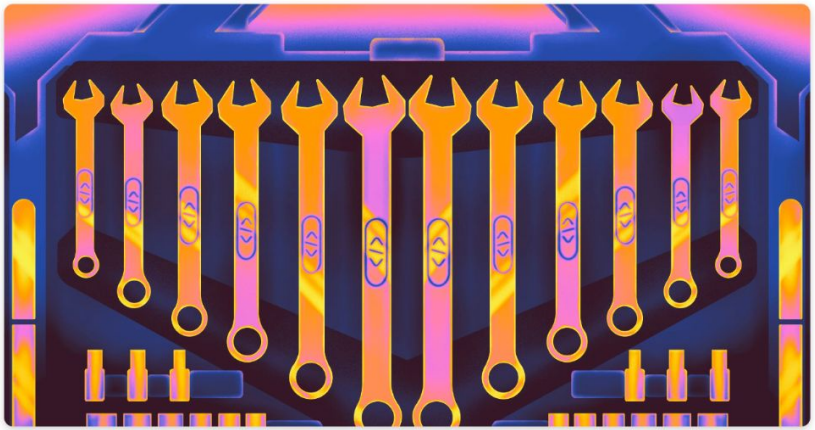
Tech Toolbox: between chaos and rigidity
(Stack Overflow blog)
https://stackoverflow.blog/2023/03/23/your-tech-toolbox-the-middle-ground-between-tech-chaos-and-rigidity/?cb=1

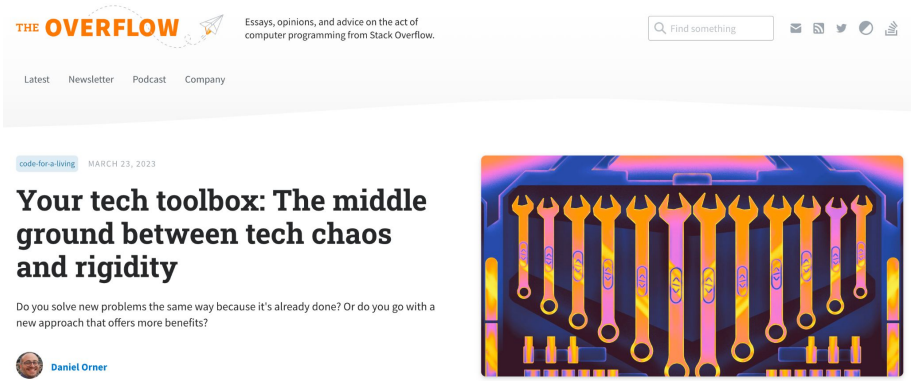
code-for-a-living MARCH 23, 2023

Your tech toolbox: The middle ground between tech chaos and rigidity

Do you solve new problems the same way because it's already done? Or do you go with a new approach that offers more benefits?

Daniel Orner





Two approaches: taking a balanced view (golden mean)?

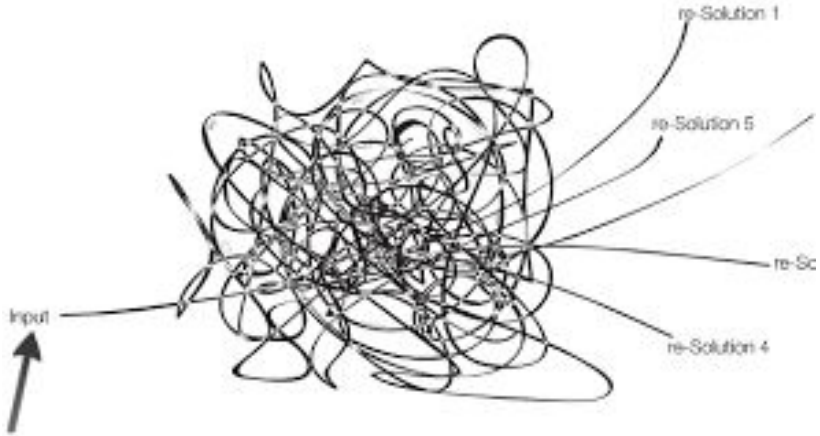
1) Wild West Approach: full autonomy, absolute change.

- risk of issue and technological sprawl, hard to reuse tools and past solutions.

1) Lock it Down Approach: no autonomy, a single solution from the start.

- easy to reuse tools and past solutions leads to increasingly hacky and costly kludges.

Sociotechnical Problems are Wicked Problems



Wicked Problems

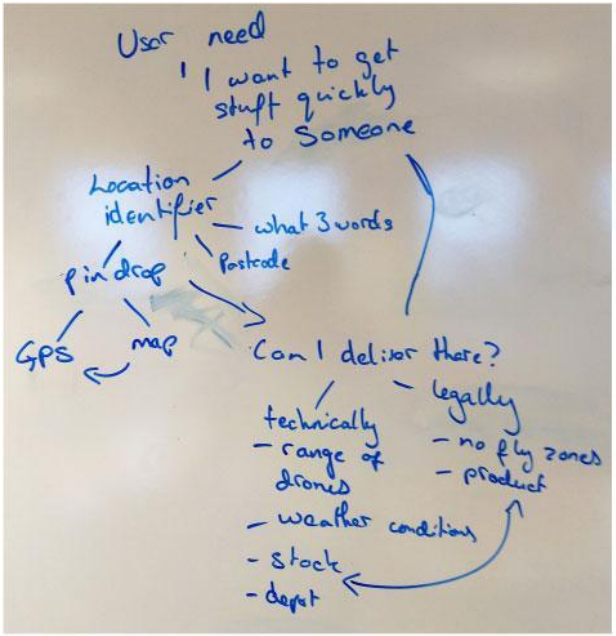
Lack clarity in their aims and solutions, challenges of articulation, and internal logic.

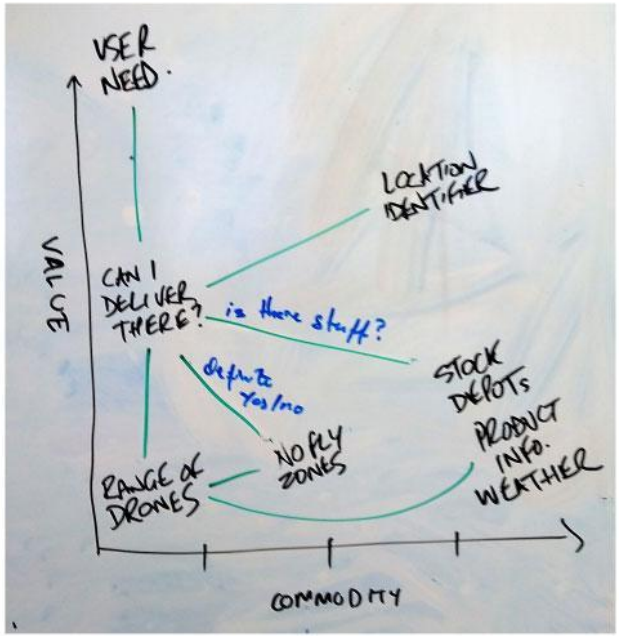
Subject to real-world constraints that prevent quick solutions and replication.

Impossible to solve in a way that is simple, complete, or final.

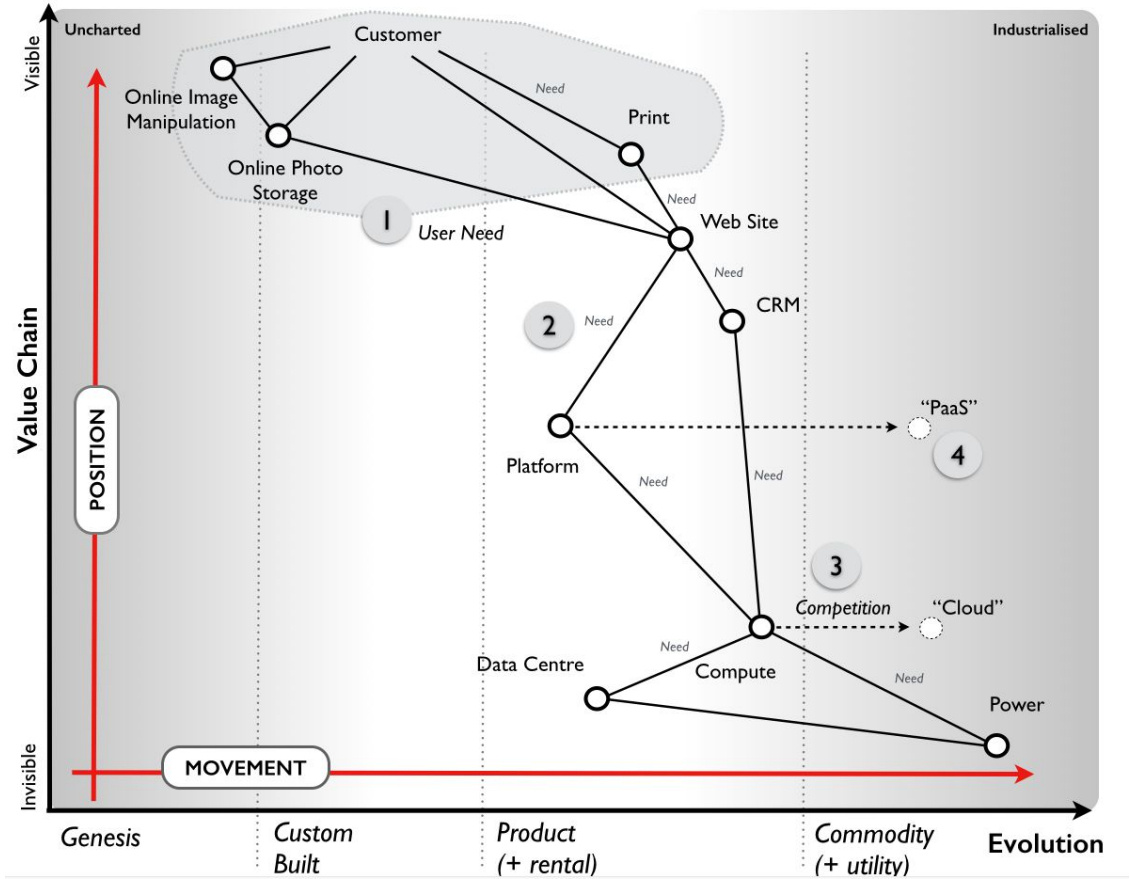
Wardley Mapping

Simon Wardley



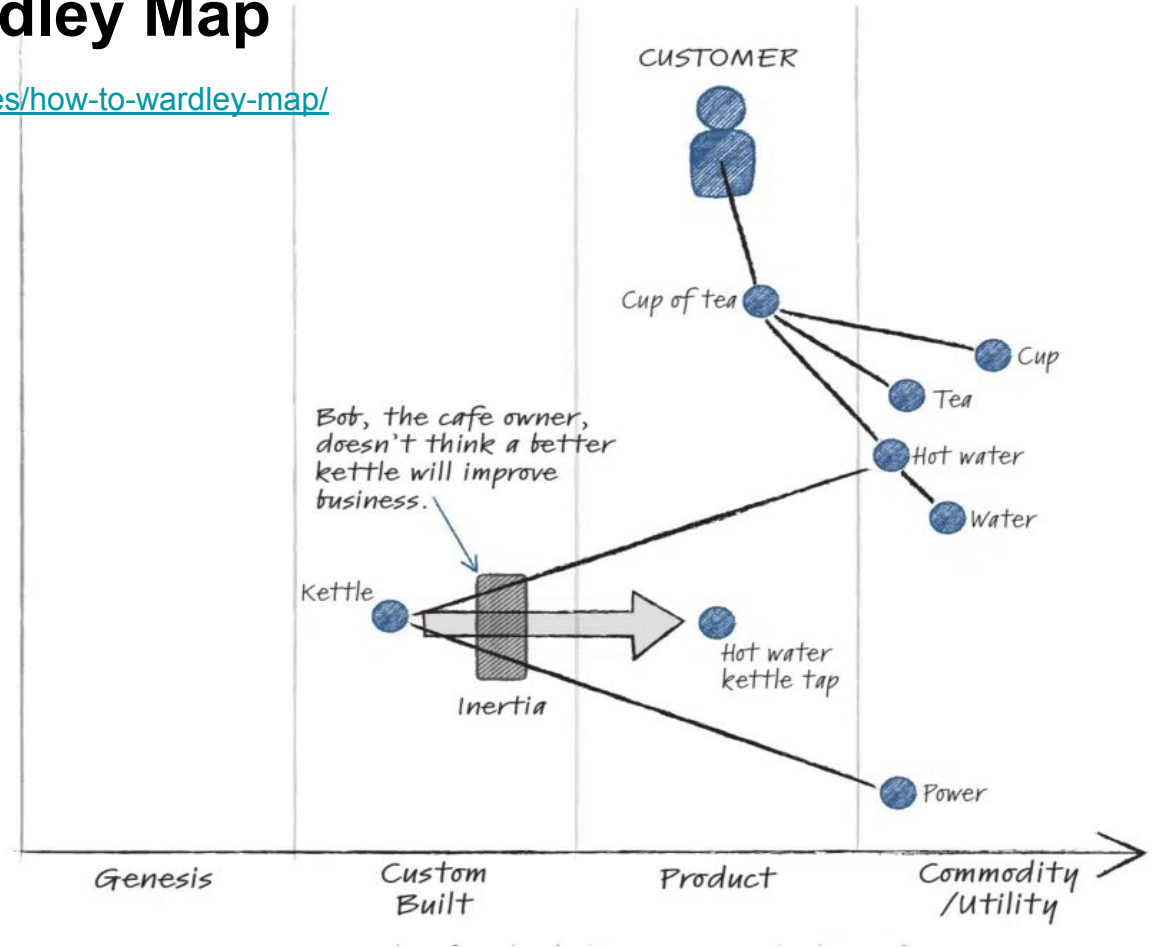


Wardley Mapping



How to Wardley Map

https://itrevolution.com/articles/how-to-wardley-map/



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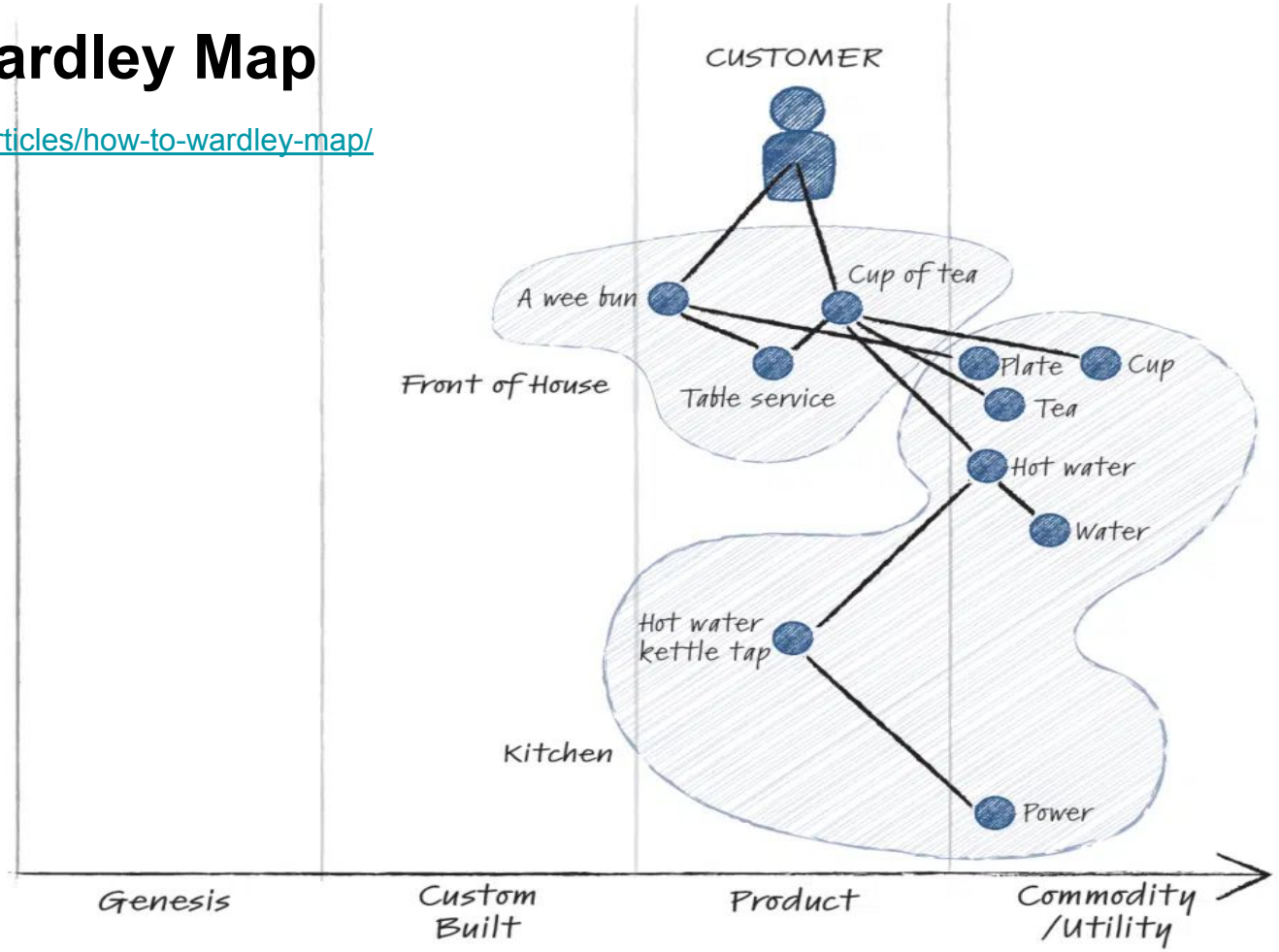

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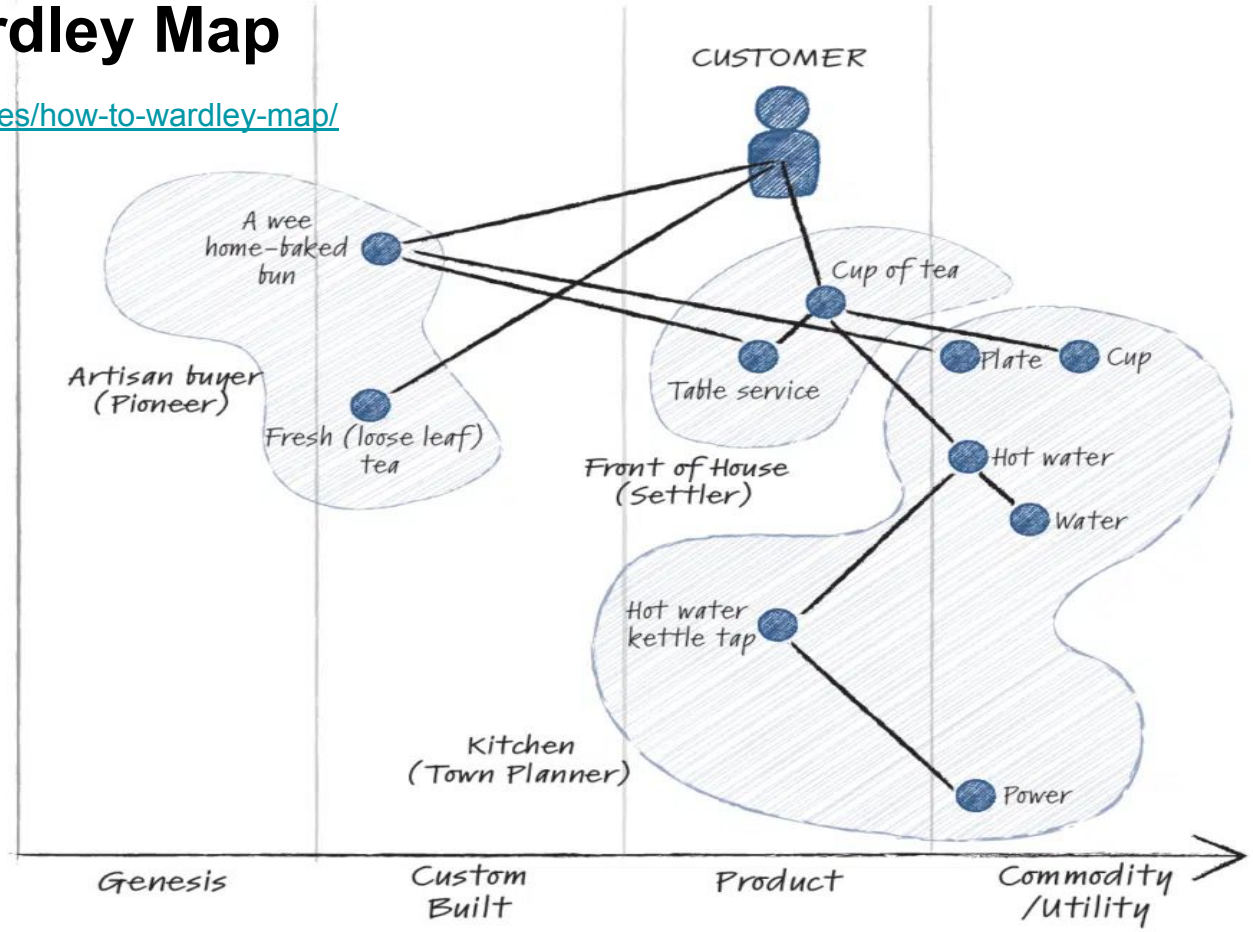

Structure of systems: Complex Workflows, Cynefin, Wardley Maps.

- comparison of strategy vs. structure.

- strategy = what do we do within organization, market? How do we optimize? What is the best set of actions?

- structure = how well do we understand the domain of the project? How do we represent these components? How do they shape the scope of our project?

Structure of systems: Complex Workflows, Cynefin, Wardley Maps.

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Thing, **function**, <u>importance</u>

Structural models help us understand the **systems-level assumptions and precursors** of our project, enabling us to look at the <u>evolutionary trajectory</u> of our project.