



The most comprehensive
AI-powered DevSecOps platform

What is Value Stream Management?

And what does it mean for IT?

Stephen Walters

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Currently based in Staffordshire, UK

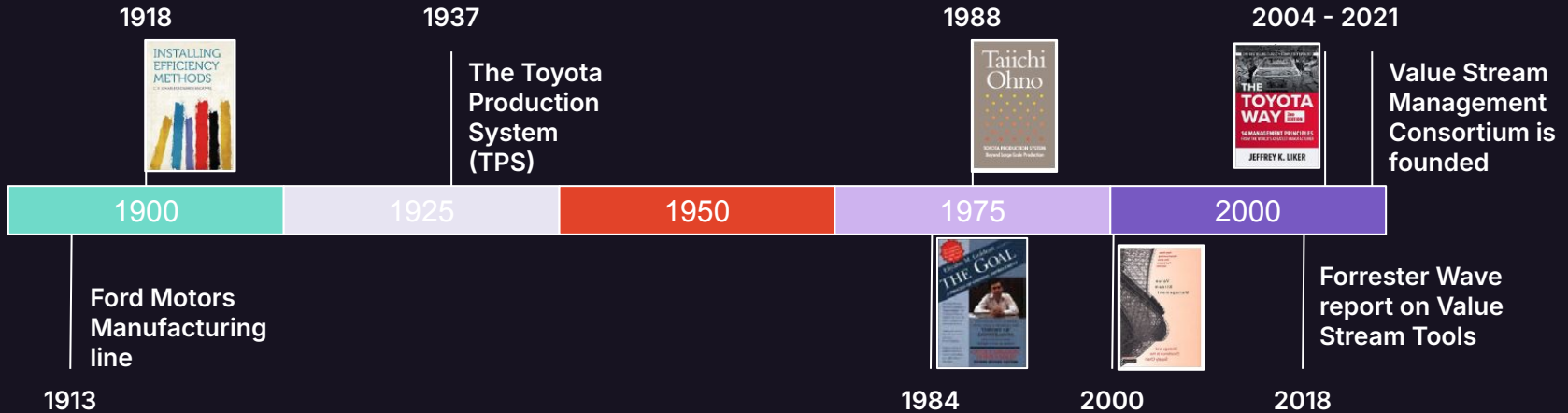


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An Introduction to VSM

The Value Stream Management Timeline



High level definition

“Value stream management means you connect **from idea to value realization**, integrating your DevOps toolchain end-to-end and gain **unparalleled insights** into what's happening when your **teams** are **delivering value outcomes to your customers.**”



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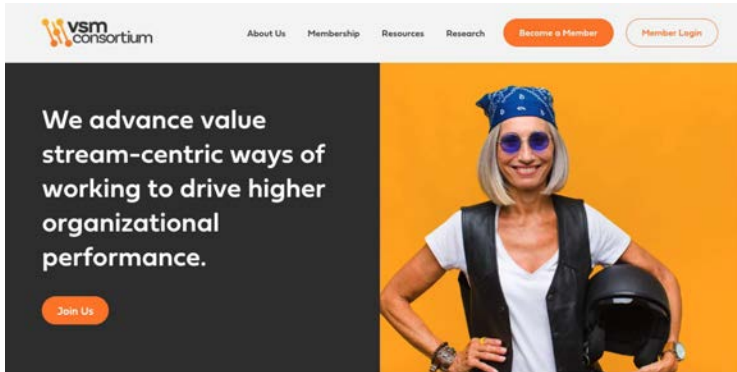


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Suggested reading



Harness value stream management to accelerate flow, create customer joy, and supercharge your organization in today's digital economy

Value stream management connects ideas to value realization across your digital business. Joining product management and software engineering aligns business goals with technology outcomes. Integrating digital toolchains end-to-end surfaces unparalleled insights into what's happening when your teams deliver value outcomes to your customers. At the Value Stream Management Consortium, we are dedicated to making this a standard way of working to ensure that all organizations can make the most of what they have and give their customers the best experiences possible.

VSMConsortium.org



- VSM Taxonomy
- VSM Assessments
- Blogs
- Events
 - Flowtopia
 - YouTube: @vsmconsortium
- Research
 - State of Value Stream Management Annual Report
- Membership
 - Individual
 - Enterprise
 - Corporate
 - Ambassador

What is the market saying...

“For Gartner, by 2026, 80% of organizations will use value stream management to align their software delivery priorities with business objectives.”

- Gartner, Nov, 2023

“Value Stream Management Software Market Size is projected to Reach Multimillion USD by 2029, In comparison to 2023, at unexpected CAGR during the forecast Period 2023-2029.”

- The Express Wire, Feb 19, 2023



Why is it needed?

The 3 core issues of DevOps today

Issue 1 - Conway's Law

- Architecture driving Communications vs Communications driving Architecture
- Team topologies in Value Stream Management produce fast/continuous flow:
 - Stream-aligned Teams
 - Enabling Teams
 - Platform Teams
 - Complicated Sub-system Teams
- "Good DevOps": Strong identities, clear responsibilities, high degree of autonomy, and, most importantly, well defined interaction paradigms and communication channels with other teams. But how?



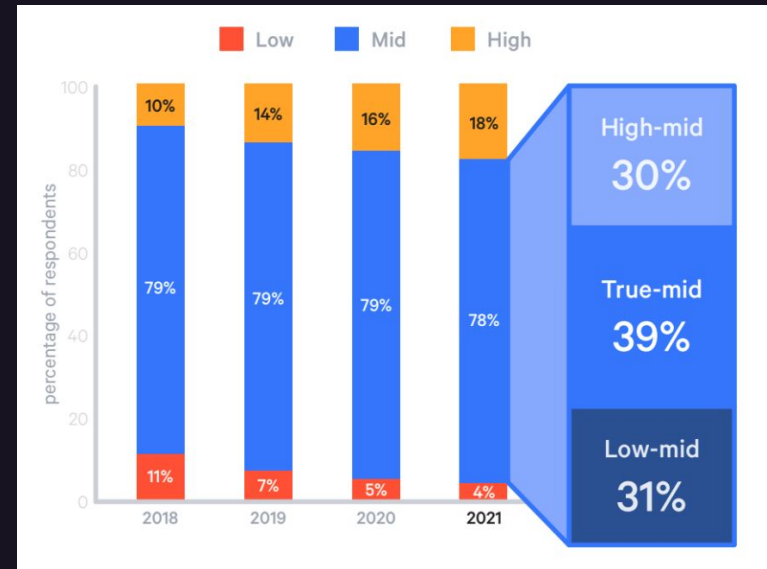
Conway's Law

"Organizations which design systems are constrained to produce systems which are copies of the communication structures of these organizations."



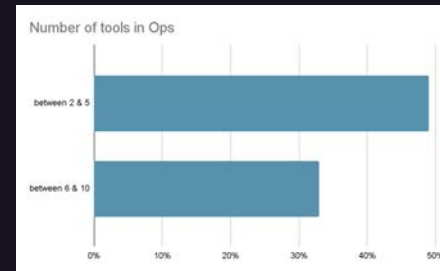
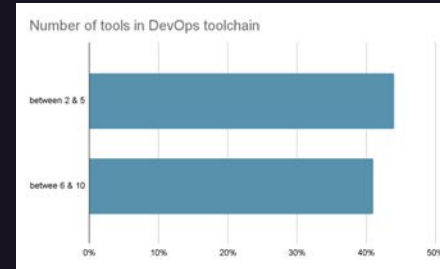
Issue 2 - "Mid-tier Stickiness"

- Puppet State of DevOps Report 2021
 - **"Devops is whatever you do to bridge the friction created by silos, and all the rest is engineering"** - Patrick Debois
- As defined by CALMS, we are implementing the Automation (The engineering), but what about the rest?
- Over the last four surveys, the number of "highly evolved" firms has grown; however, the amount of organizations in the middle level has remained stagnant, now identified in three distinct levels, "high-mid," "middle," and "low-mid."



Issue 3 - Toolchain Sprawl

- For Dev, 69% of survey takers told us they'd like to consolidate their toolchains. A full 37% said spending time on toolchain maintenance takes away from time that could be spent on compliance *
- For Ops, 63% use a DevOps Platform (a 23% increase) and 39% of respondents said the data they need exists but accessing and managing it is difficult, while 27% went further and acknowledged being "overwhelmed" by the amount and scope of data available *
- The largest aggregation of data about value stream flow comes from DIY dashboards and manual collection into spreadsheets (53.3%)
- The largest growth (5.2%) is from a single bought tool



Where do you obtain data about value stream flow?	2021	2022	+/-
From a single tool we have bought	5.6%	10.8%	+5.2%
From a single tool we have acquired (open source)	2.3%	2.7%	+0.4%
From a single tool we have built	5.6%	9.5%	+3.9%
From a number of tools we have integrated	18.5%	18.2%	-0.3%
Aggregated from several sources / tools (e.g., dashboard)	36.6%	29.7%	-6.9%
Manual collection from several sources / tools (e.g., spreadsheets)	25.9%	23.6%	-2.3%
We don't	3.7%	2.0%	-1.7%



Poor Return on Value

Conway's Law (Poor Org Structure)

+

Mid-Tier Stickiness (Poor process)

+

Toolchain Sprawl (Poor Tool
Management)

+

Focus on Outputs

=

A Messy Ball of Wool



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Good Return on Value

Organized Teams

+

Lean Processes

+

Consolidated Tools

+

Focus on Outcomes

=

Value Stream Management

How is it implemented?

The Value Stream Management Implementation Roadmap



The Value Stream Management Implementation Roadmap

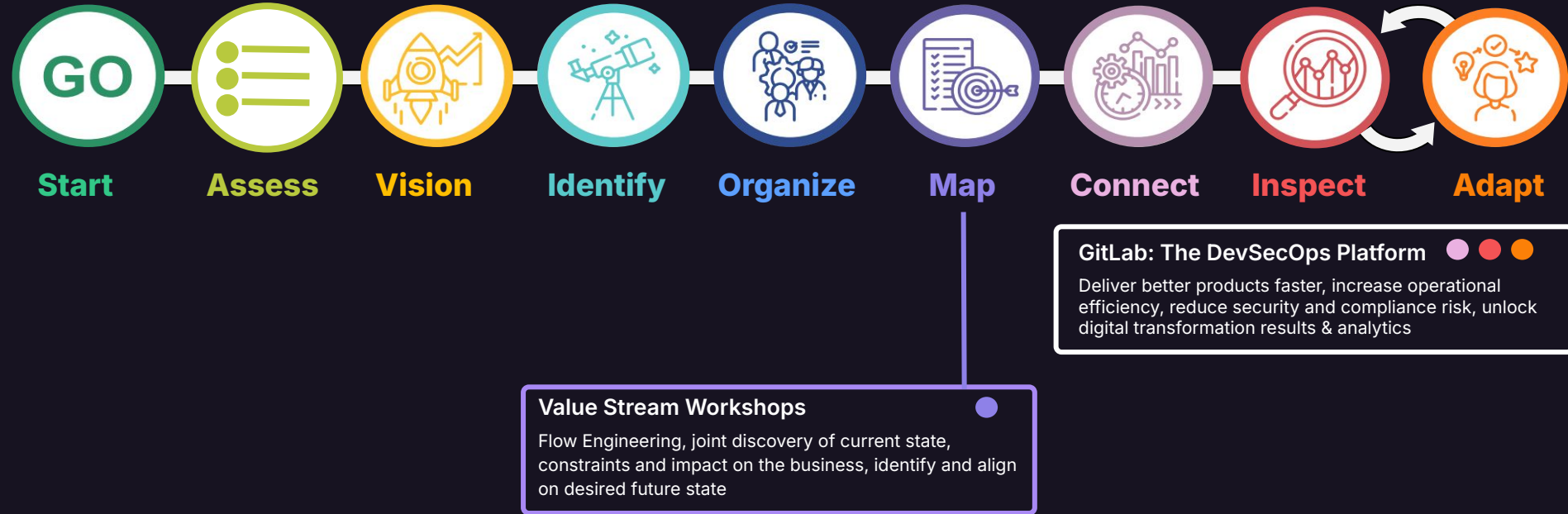


GitLab: The DevSecOps Platform ● ● ●

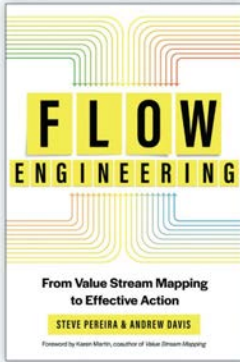
Deliver better products faster, increase operational efficiency, reduce security and compliance risk, unlock digital transformation results & analytics



The Value Stream Management Implementation Roadmap



Suggested reading



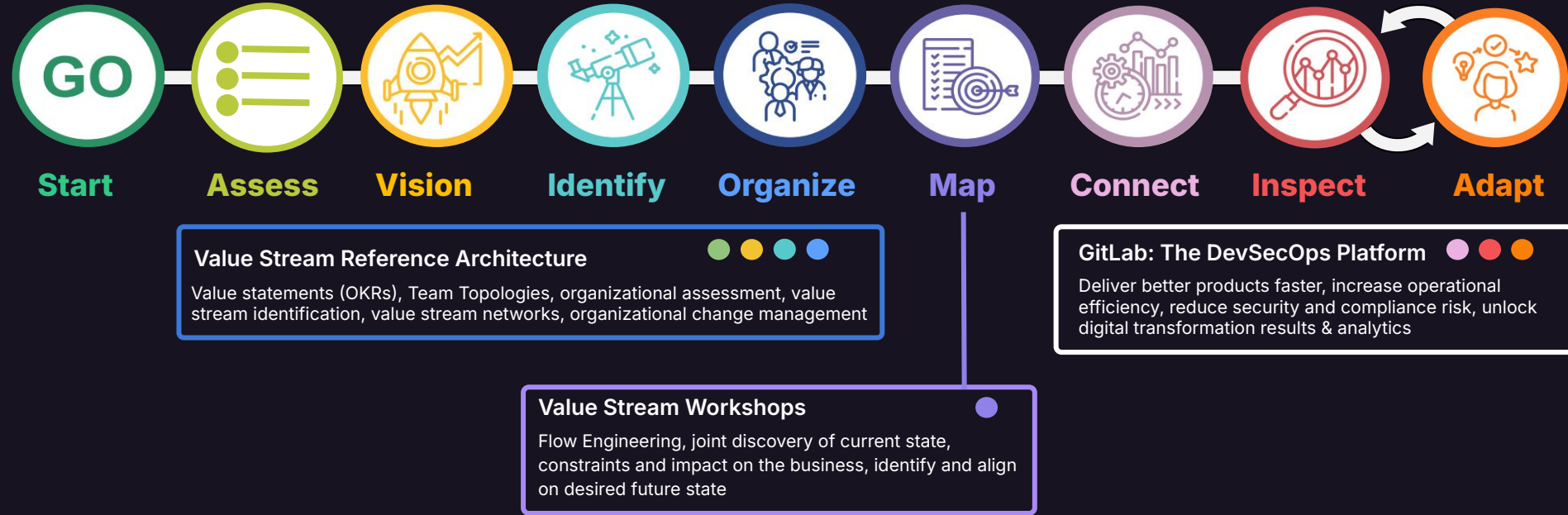
Flow Engineering

Steve Pereira & Andrew Davis
Published by ITRevolution



- The Flow Landscape
- Mapping the Landscape
 - Outcomes
 - Current State
 - Dependency
 - Future State
 - Flow
- Navigating the Landscape

The Value Stream Management Implementation Roadmap



How was the VSRA conceived?

The Value Stream Management Implementation Roadmap



Value Stream Reference Architecture



Value statements (OKRs), Team Topologies, organizational assessment, value stream identification, value stream networks, organizational change management



Suggested reading



Team Topologies

Matthew Skelton and Manuel Pais
Published by ITRevolution



- Stream-aligned Teams
- Enabling Teams
- Platform Teams
- Complicated-Subsystem Teams

- Collaboration
- X-as-a-Service
- Facilitation

Suggested reading



Value Stream Reference Architectures

Using Team Topologies as a pattern language and graph theory as a tool for analysis, this white paper shows how organizations can establish a Value Stream Reference Architecture (VSRA) to optimize for value delivery by reasoning about the four fundamental dimensions of knowledge work: Flow, Impediments, Needs, and Effort (Cognitive Load). The paper demonstrates how VSRA can take the guesswork out of organizational restructures by paying close attention to Conway's Law and the four FINE dimensions so that lean principles and value stream management can be more easily adopted. The paper suggests that VSRA can be used to pave the way for more efficient IT systems, software development, and technological deployments, allowing organizations to deliver value at scale.

Join the VSRA
Community



VSRA-Community.org

Stephen Walters & Dr Craig Statham

Published by VSMC



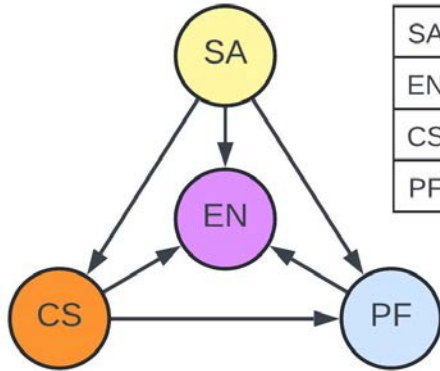
- Value Flow and Dependencies
- Cognitive Slope
- The FINE Dimensions
- Flow Entropy & Team Resilience

- Team Topologies
- Directional Graph Theory
- Newtonian Physics (Constructal Law)

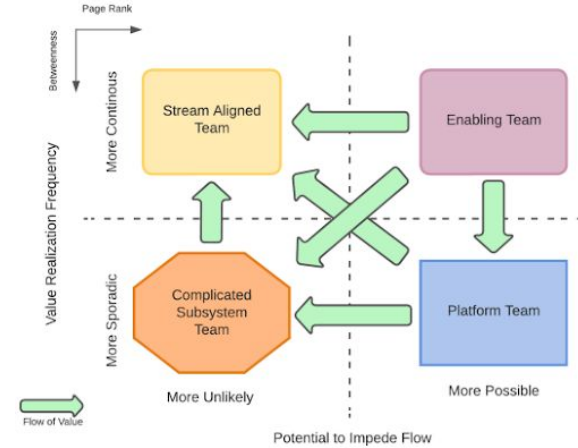


Value Flow and Dependencies

Team Topologies, Graph Theory & The General Direction of the Flow



SA	Stream Aligned
EN	Enabling
CS	Complicated Subsystem
PF	Platform



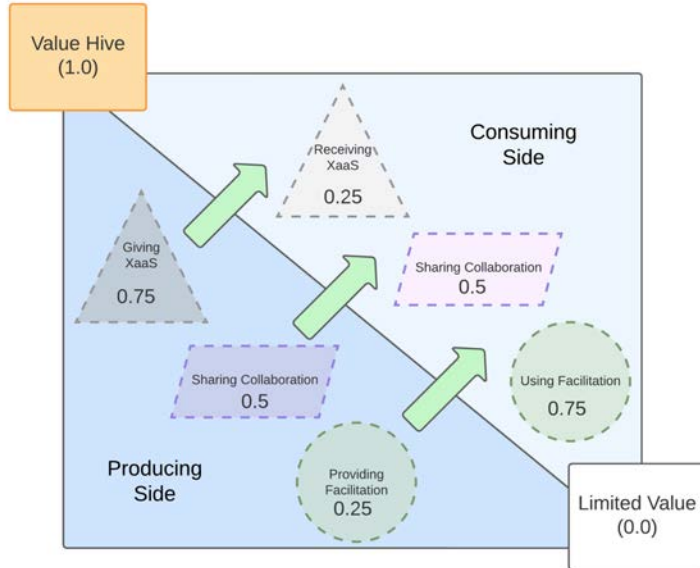
Betweenness	PageRank	Likely Team Topology
Low	Low	Stream-Aligned Team
Low	High	Enabling Team
High	Low	Complex Sub-System Team
High	High	Platform Team





Cognitive Slope

Team Topologies, Graph Theory & The General Direction of the Flow



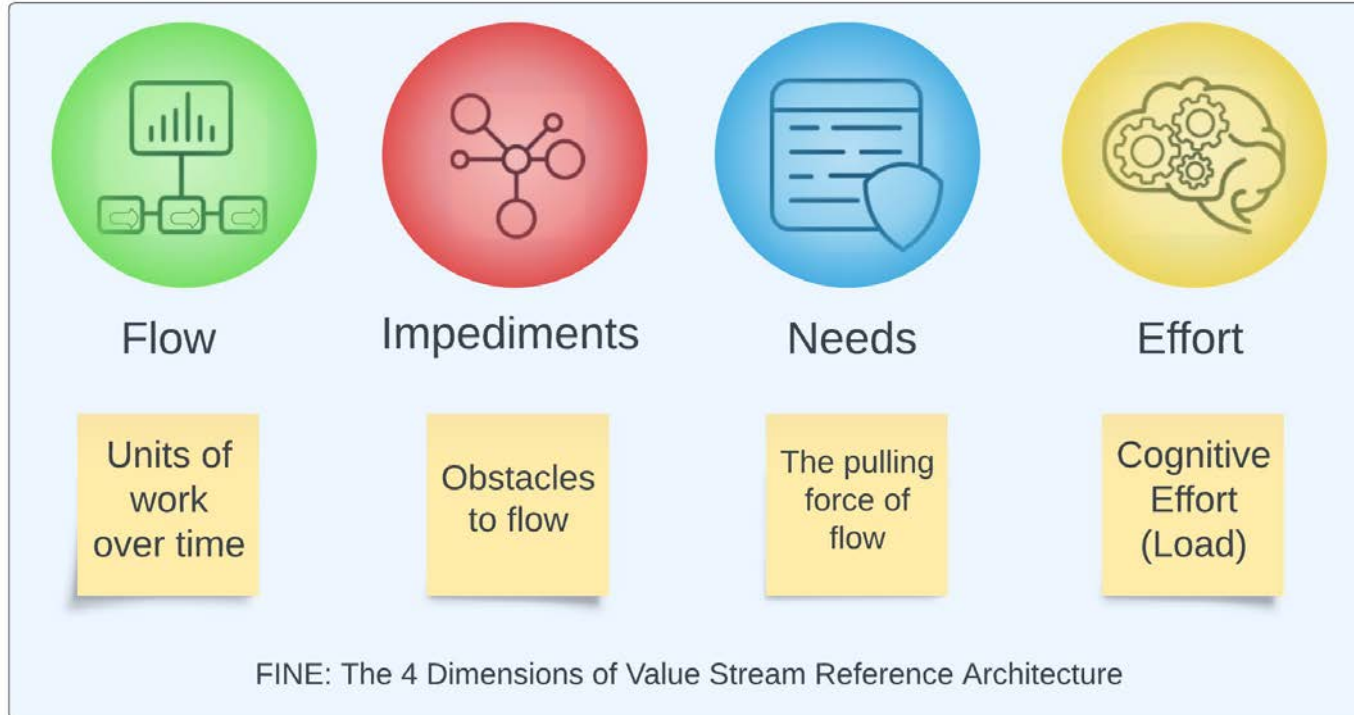
Team Topology	Average Cognitive Load	Summoned Cognitive Load
Stream-Aligned Team	0.625	2.5
Enabling Team	0.4375	1.75
Complicated Sub-System	0.625	2.5
Platform	0.8125	3.25





The FINE Dimensions

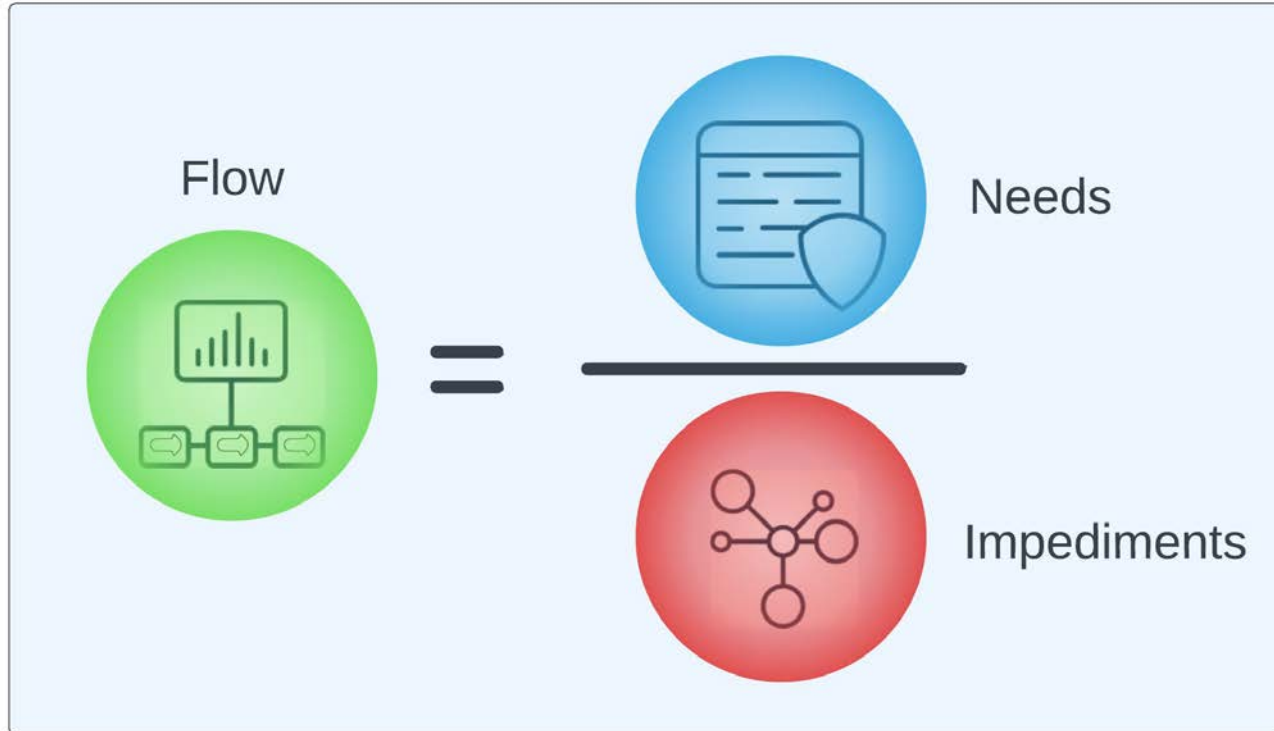
Applying Newtonian Thinking (The butterfly net moment!)





The FINE Dimensions

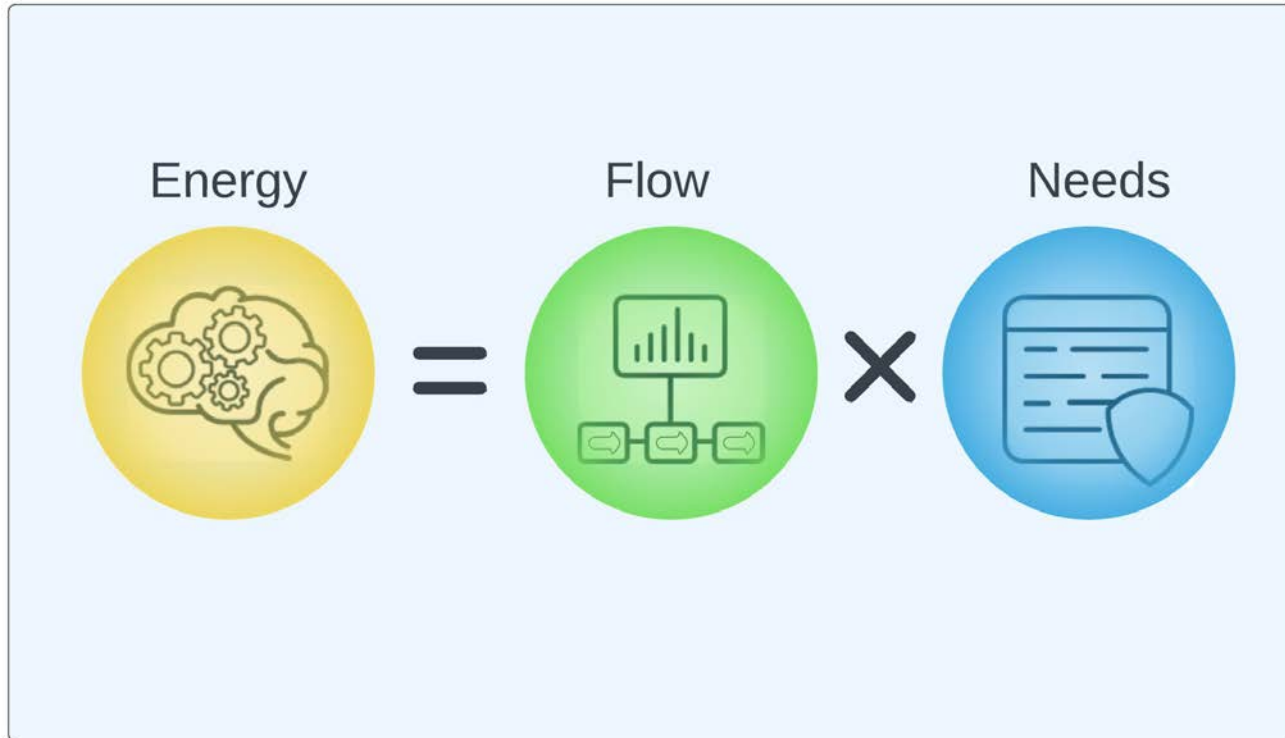
Applying Newtonian Thinking





The FINE Dimensions

Applying Newtonian Thinking





The FINE Dimensions

Applying Newtonian Thinking

F	I	N	E
Flow	Impediments	Needs	Effort
$F = \frac{E}{N}$	$I = \frac{N}{F}$	$N = F \times I$	$E = F \times N$
$F = \frac{N}{I}$	$I = \frac{N^2}{E}$	$N = \frac{E}{F}$	$E = \frac{N^2}{I}$
$F = \sqrt{\frac{E}{I}}$	$I = \frac{E}{F^2}$	$N = \sqrt{E \times I}$	$E = F^2 \times I$

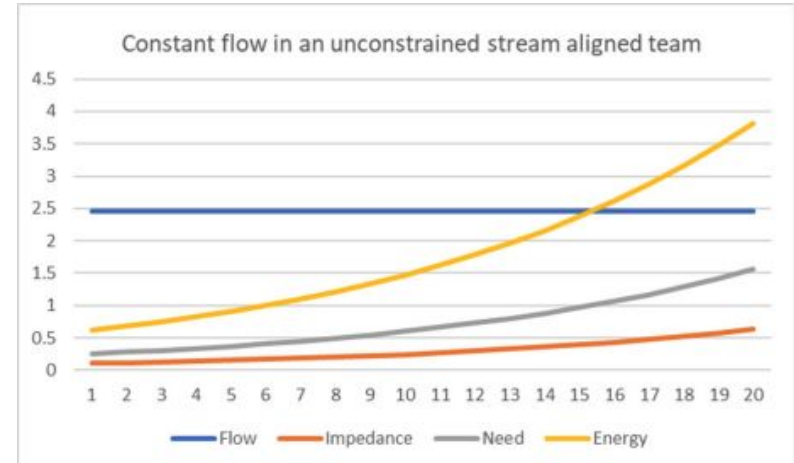
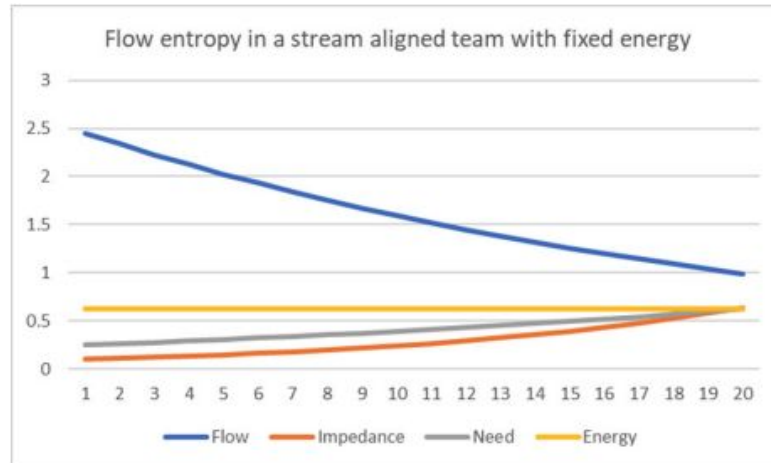
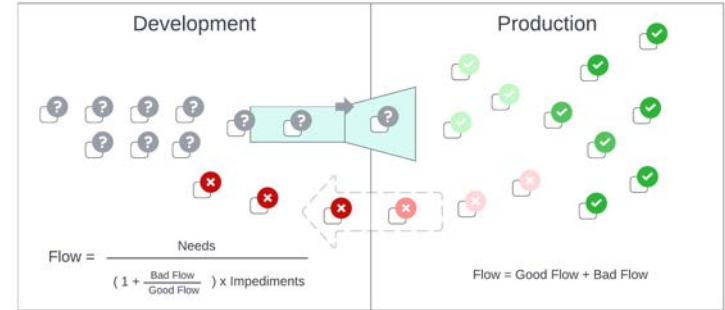




Flow Entropy

All things decay!

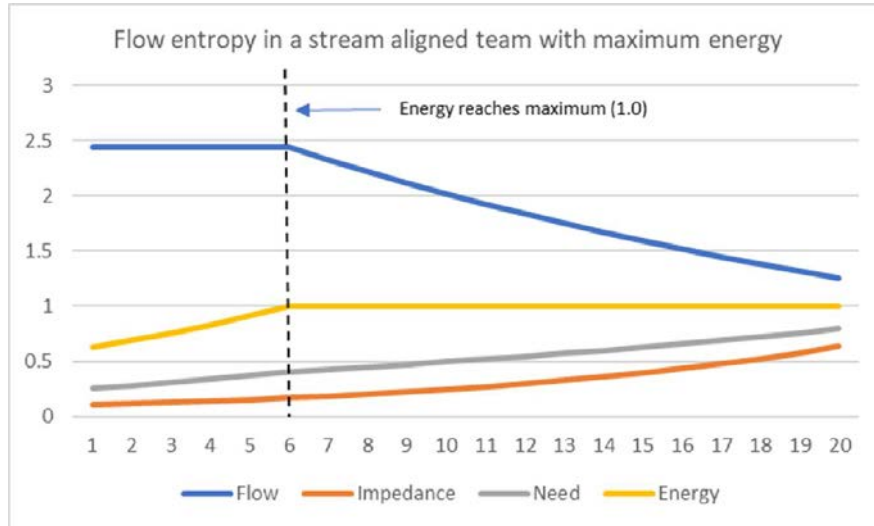
- The FINE flow analysis also allows inspection of Flow Entropy.
- Effort (cognitive load) is finite.
- Flow ratio (bad flow vs good flow – similar to change-fail-rate).
- Bad flow creates new impediments.
- Effort increases to maintain flow until it reaches a max.





Team Resilience

Flow Entropy

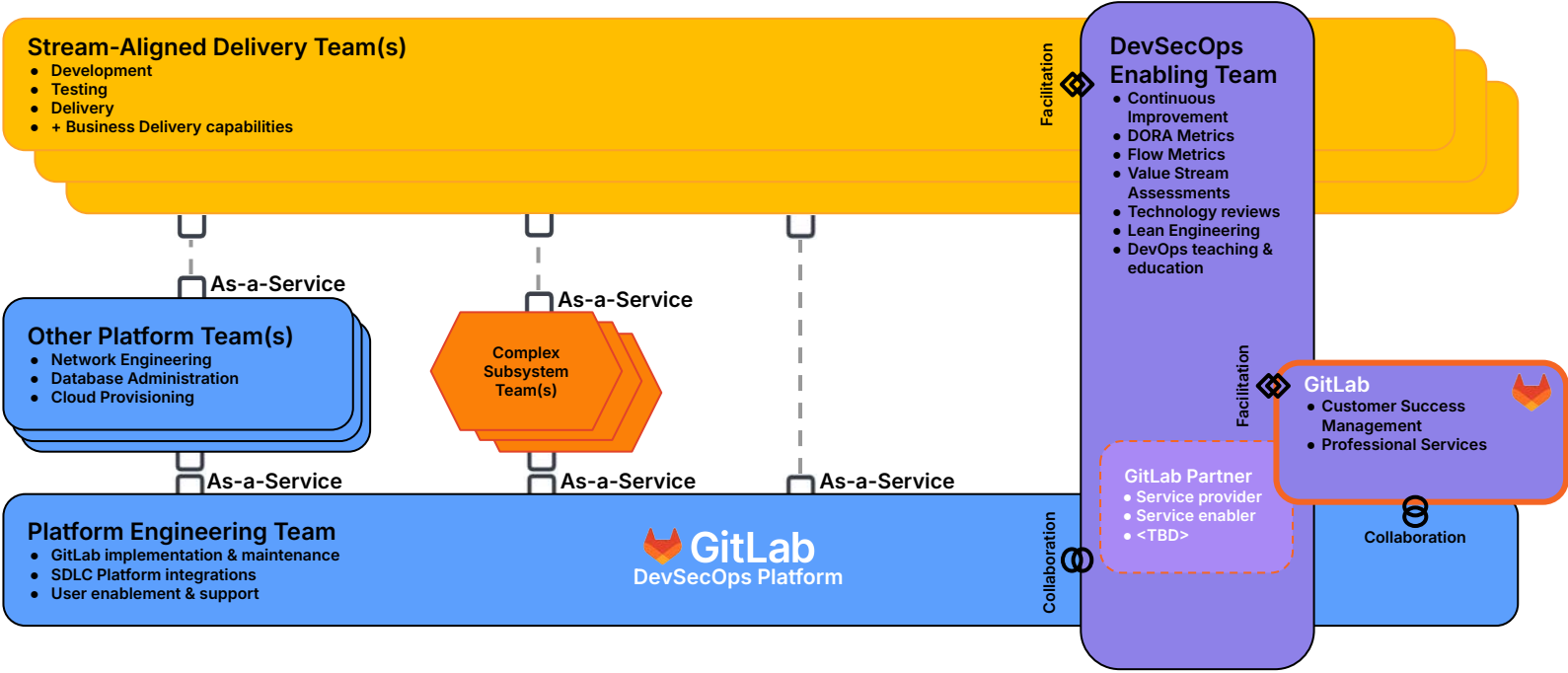


- At maximum effort (cognitive load) flow starts to drop.
- Flow entropy starts at this point.
- Team resilience can be measured by the number of cycles they can go before flow entropy becomes a problem.
- Changing the team topology and the interaction styles between teams can be used to control flow entropy.



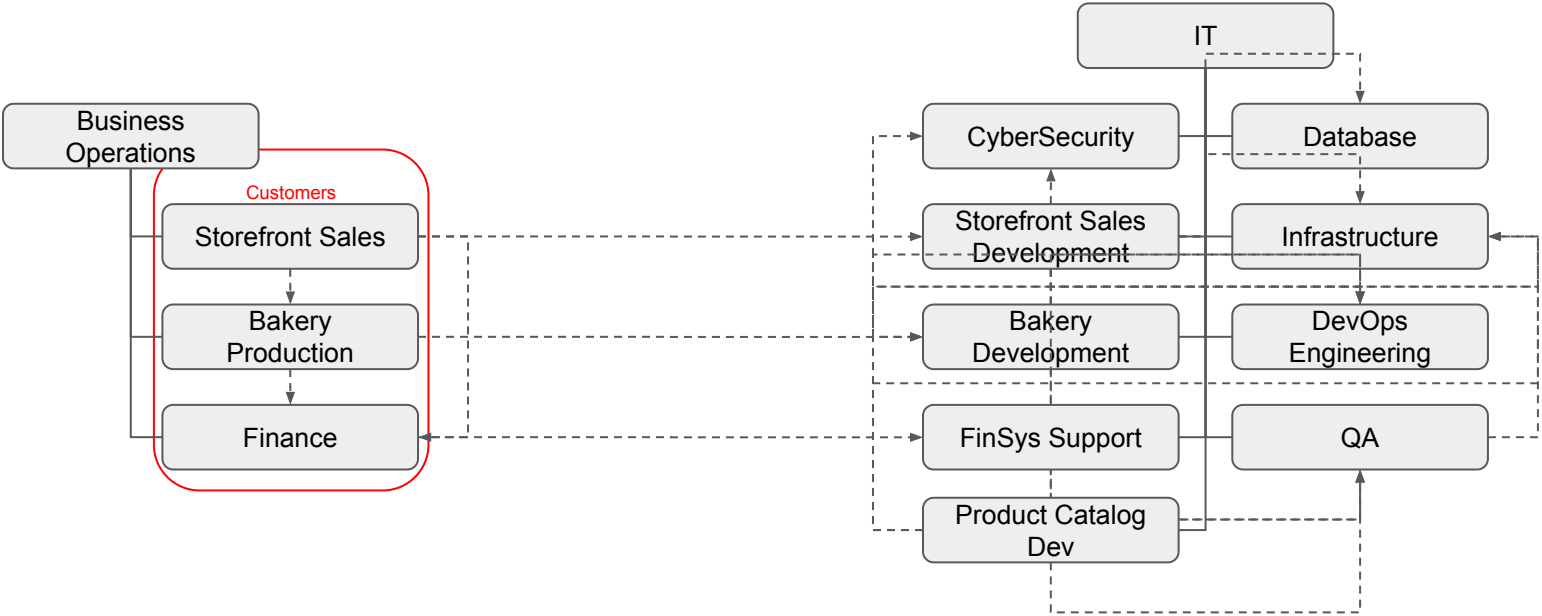
So what does a VSRA look like?

Example VSRA using Team Topologies



Example: Bakers Unlimited

Can you make sense of it?



Bakers Unlimited Present

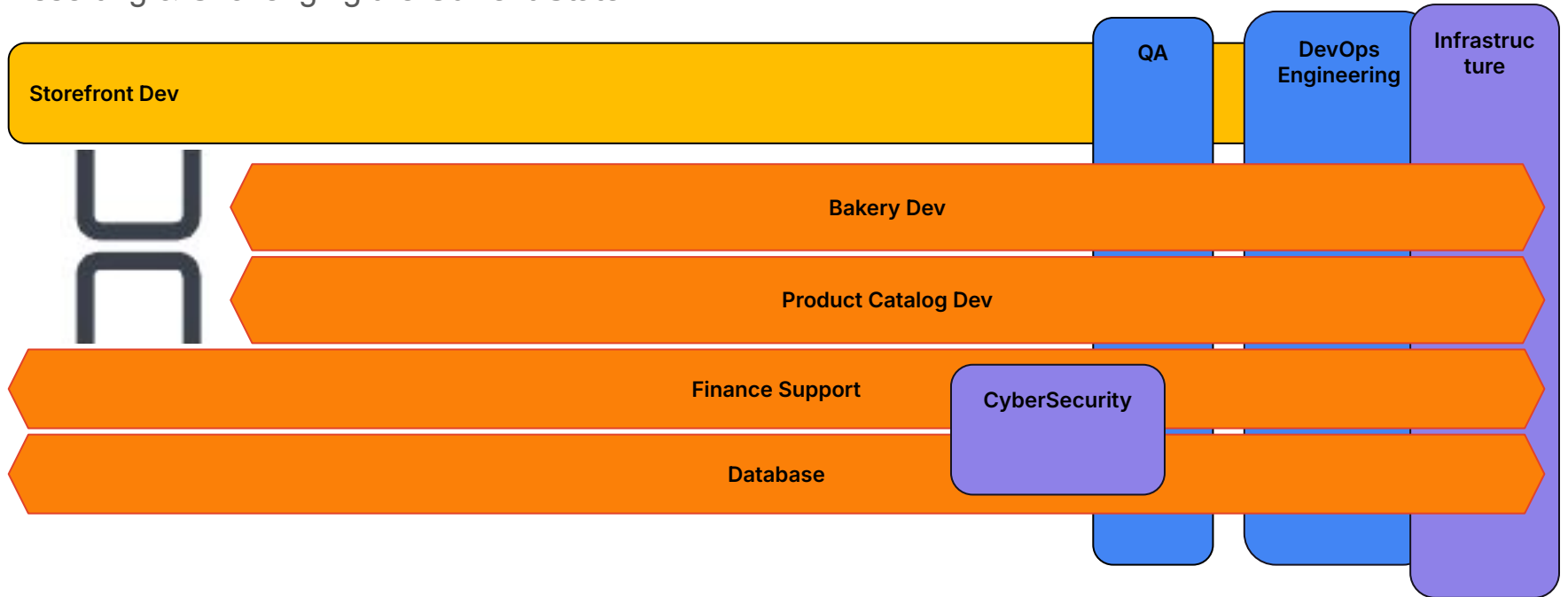


As-a-Service

Collaboration

Facilitation

Asserting & Challenging the Current State



Bakers Unlimited Present

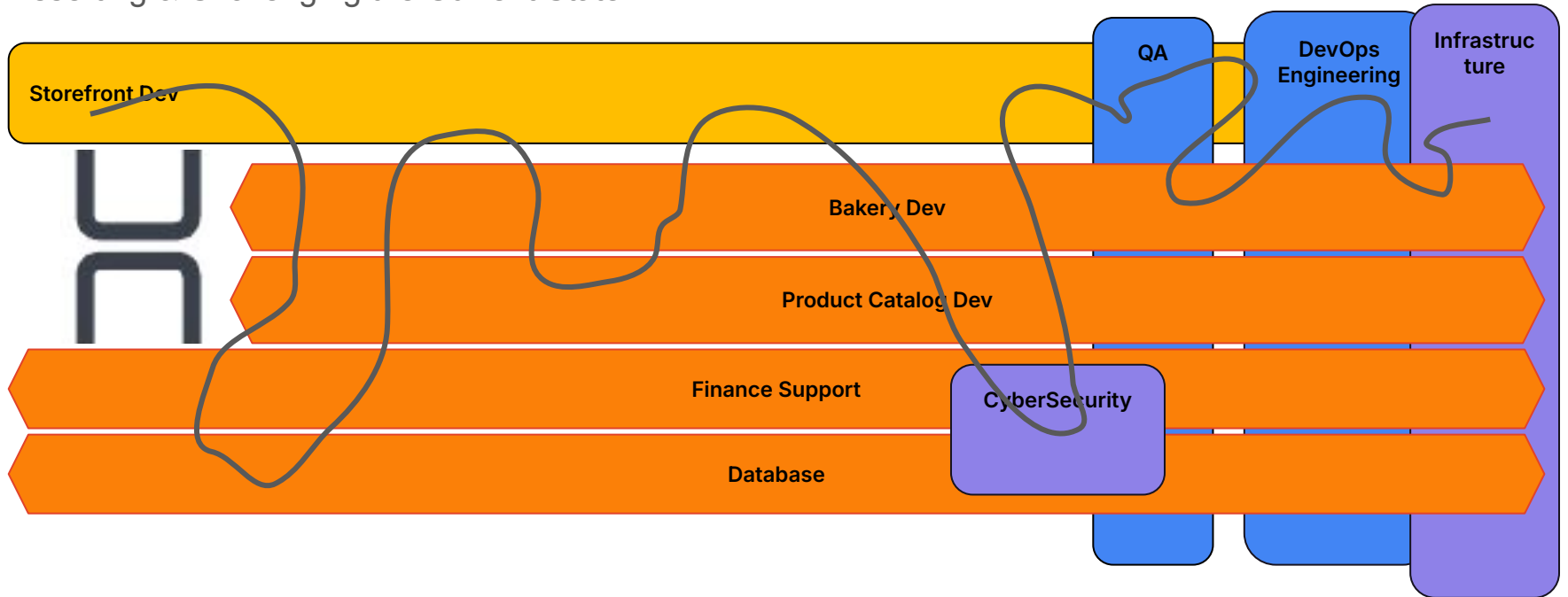


As-a-Service

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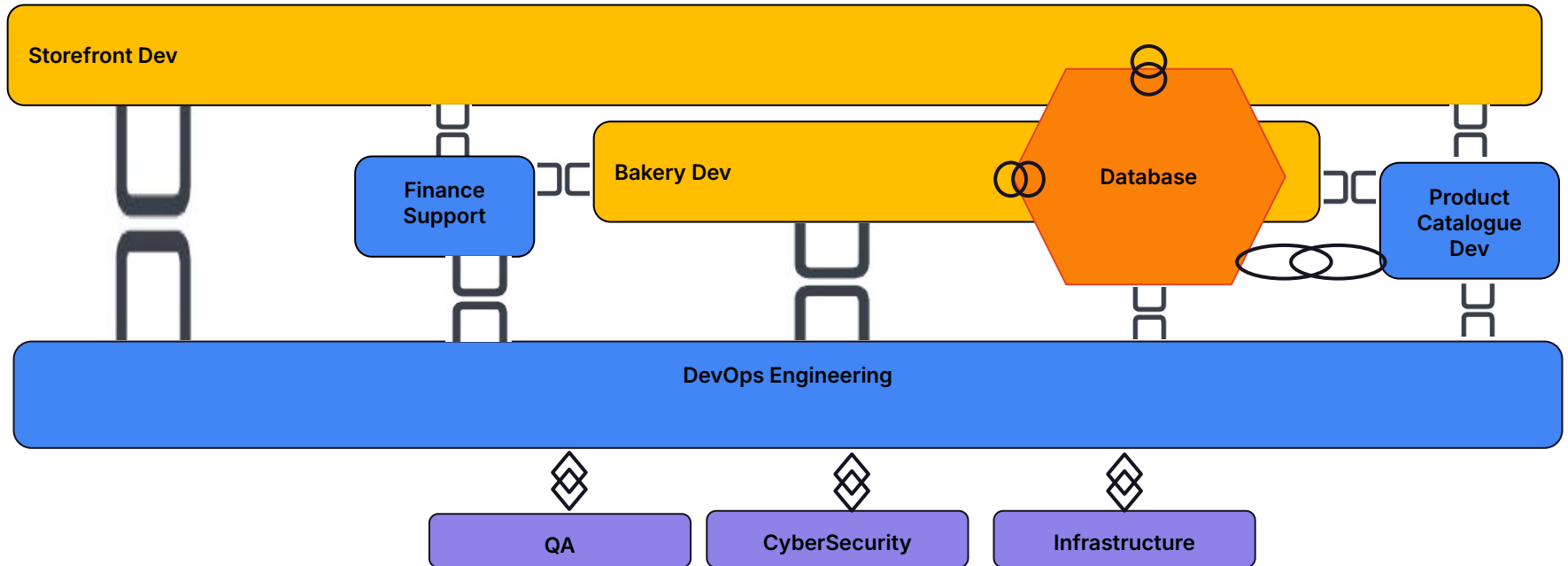
Asserting & Challenging the Current State



Bakers Unlimited Future



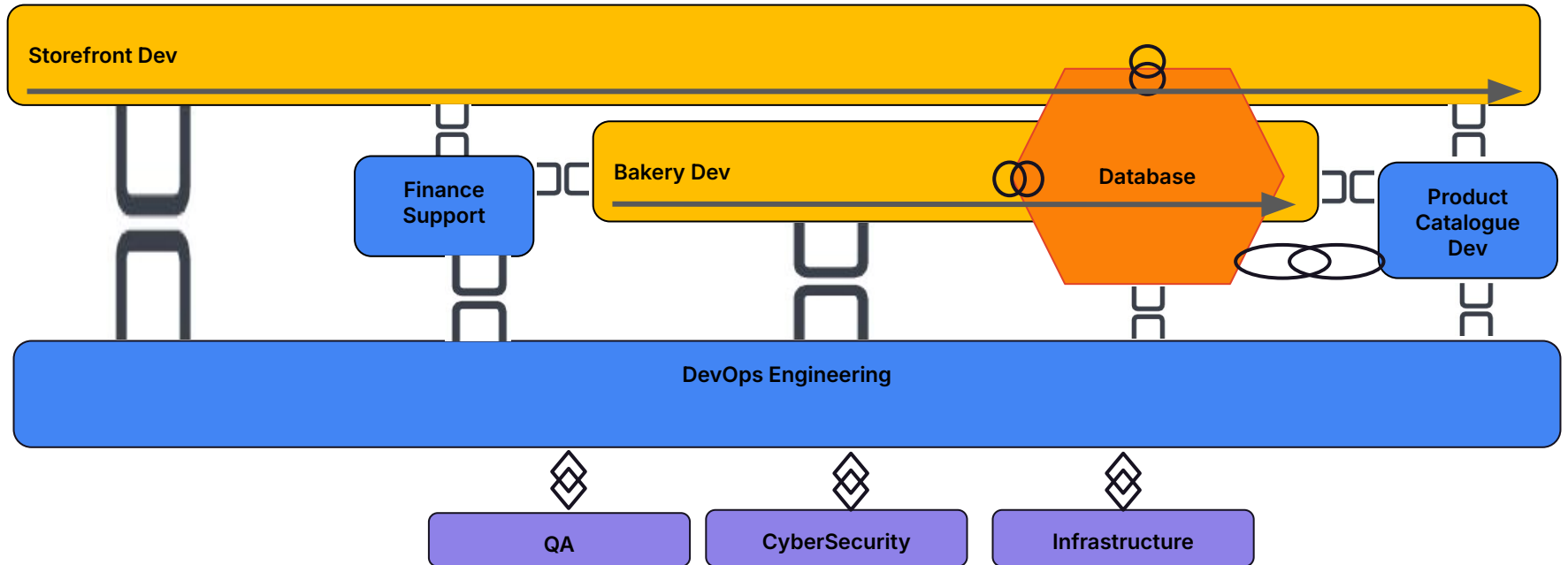
Create a Value Stream Reference Architecture diagram - Future State Model - defining the organization by the architecture you want



Bakers Unlimited Future



Create a Value Stream Reference Architecture diagram - Future State Model - defining the organization by the architecture you want



Identify software delivery workflow improvements

Current State






- ⊗ Manual processes
- ⊗ Duplicate work
- ⊗ Context switching & waiting
- ⊗ Lack visibility

Potential Future State



- ✓ Automation
- ✓ Inner-sourcing
- ✓ In-context flow
- ✓ Value stream dashboards

 Value Added Time  Non-Value Added Time  Idle Time



A VSM Story



SAS Institute Customer Intelligence

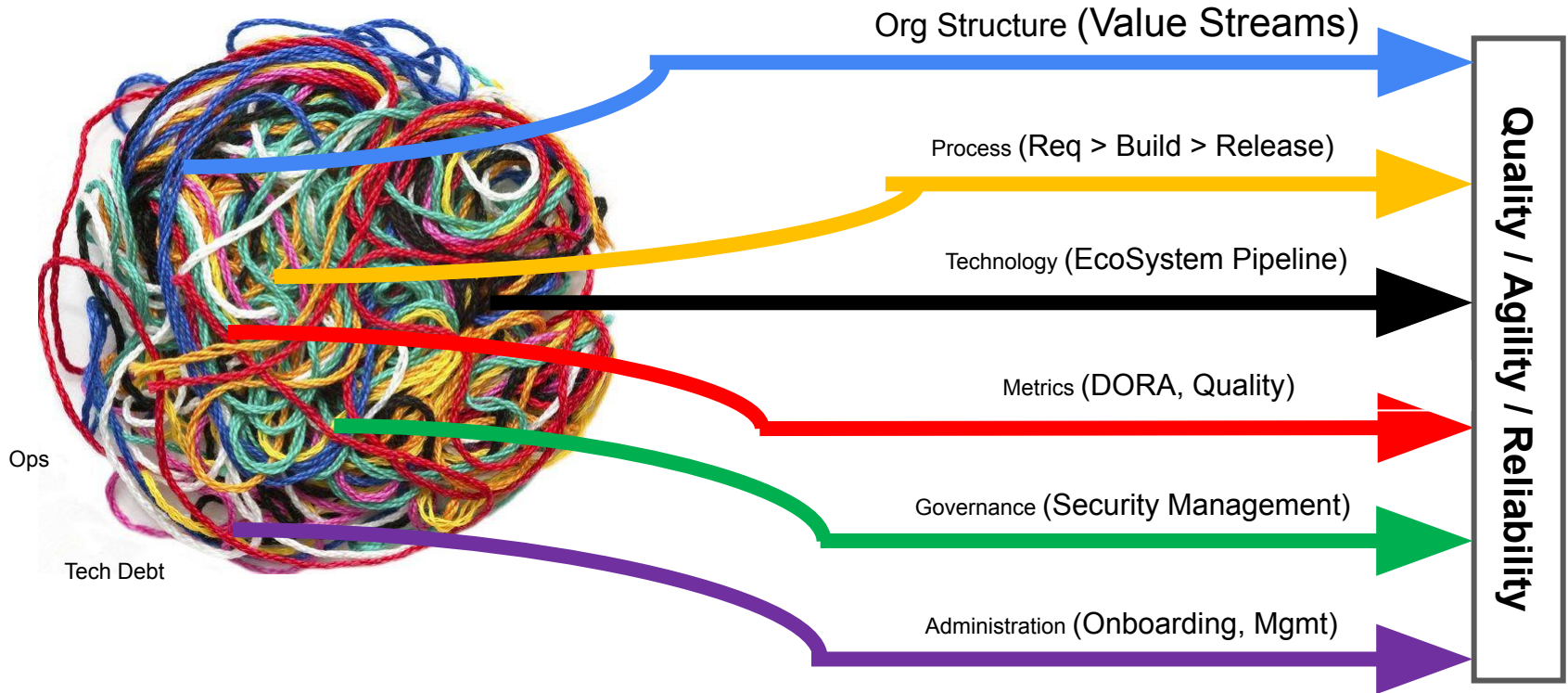


**Dr. Craig Statham -
Chief Software Architect,
SAS Customer Intelligence
Solutions**

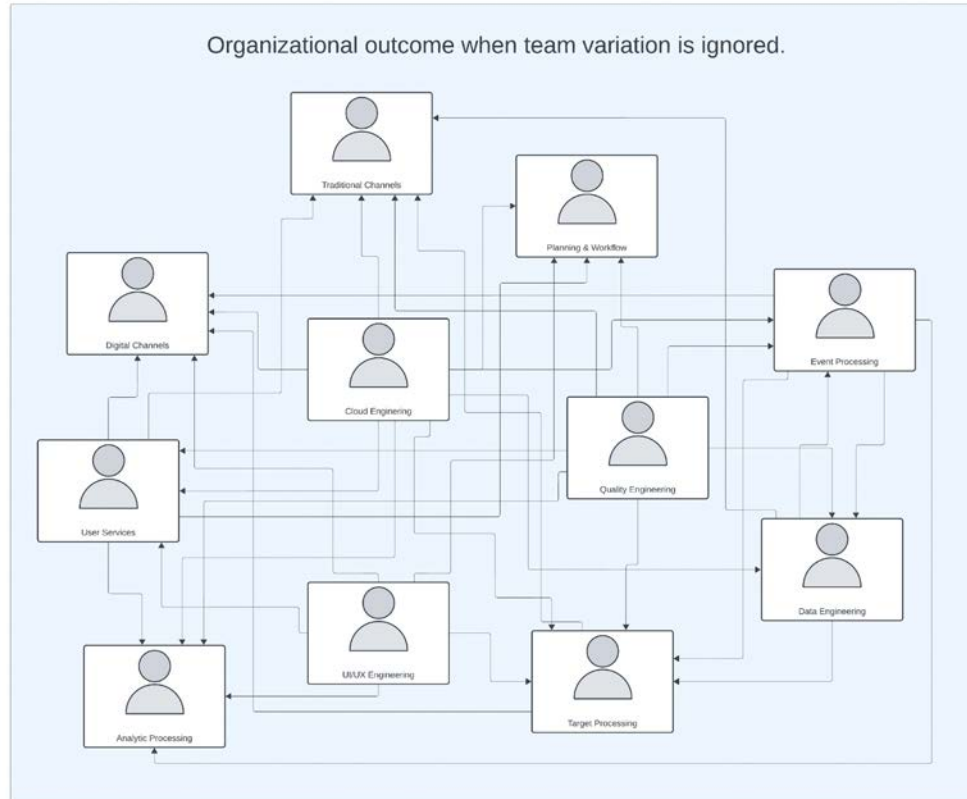
<https://www.linkedin.com/in/craig-statham/>

Pulling on Threads

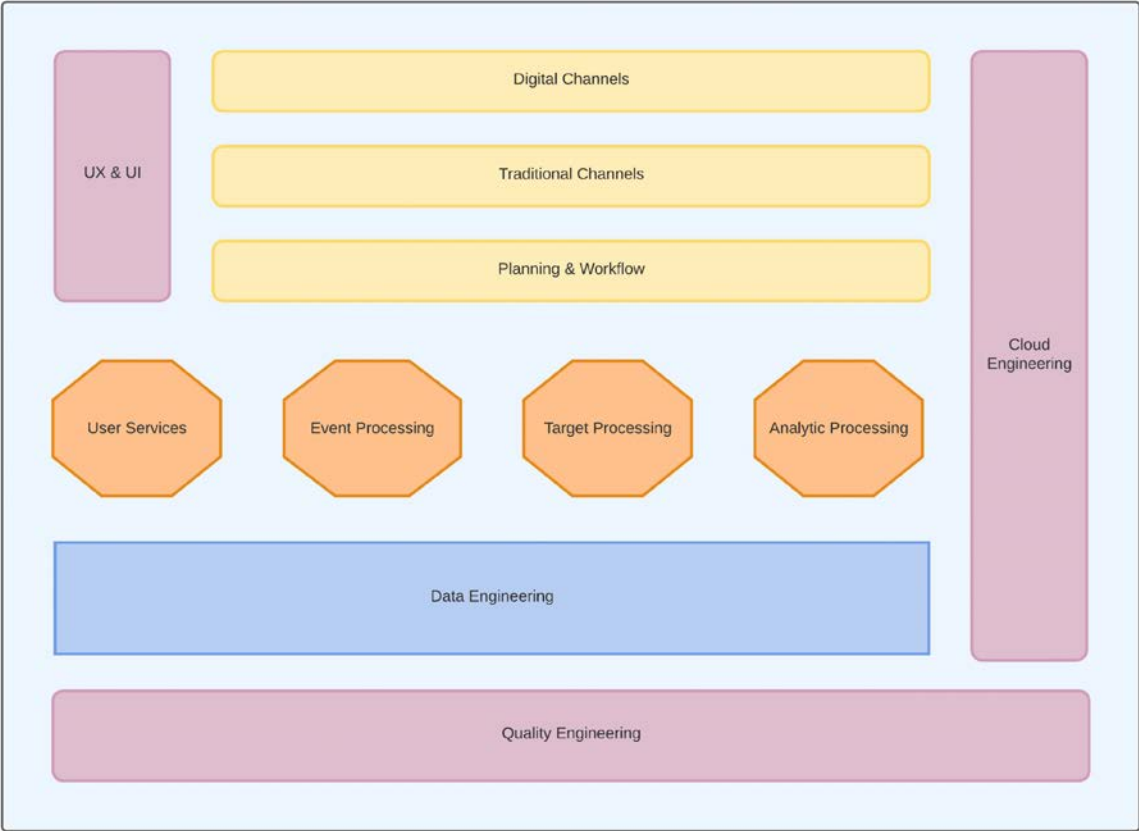
Without unravelling everything...



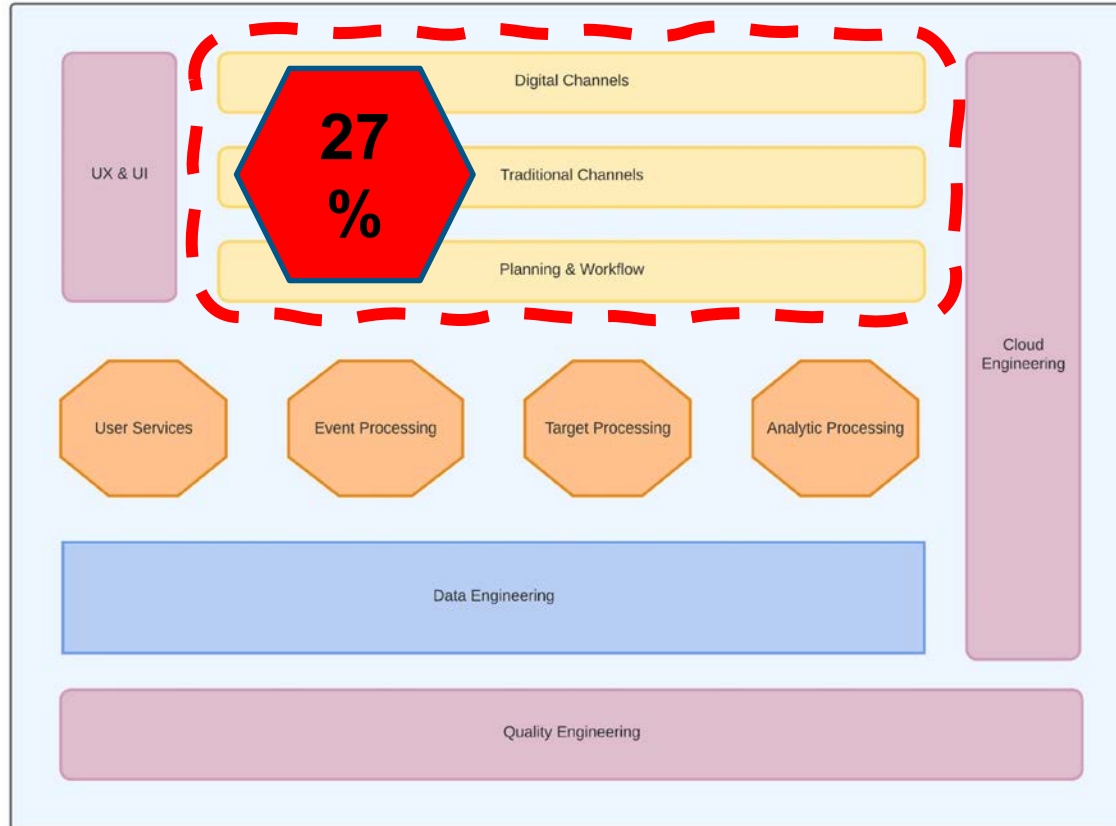
Flow is Messy because Orgs are messy!



Assert the Existing Team Topology

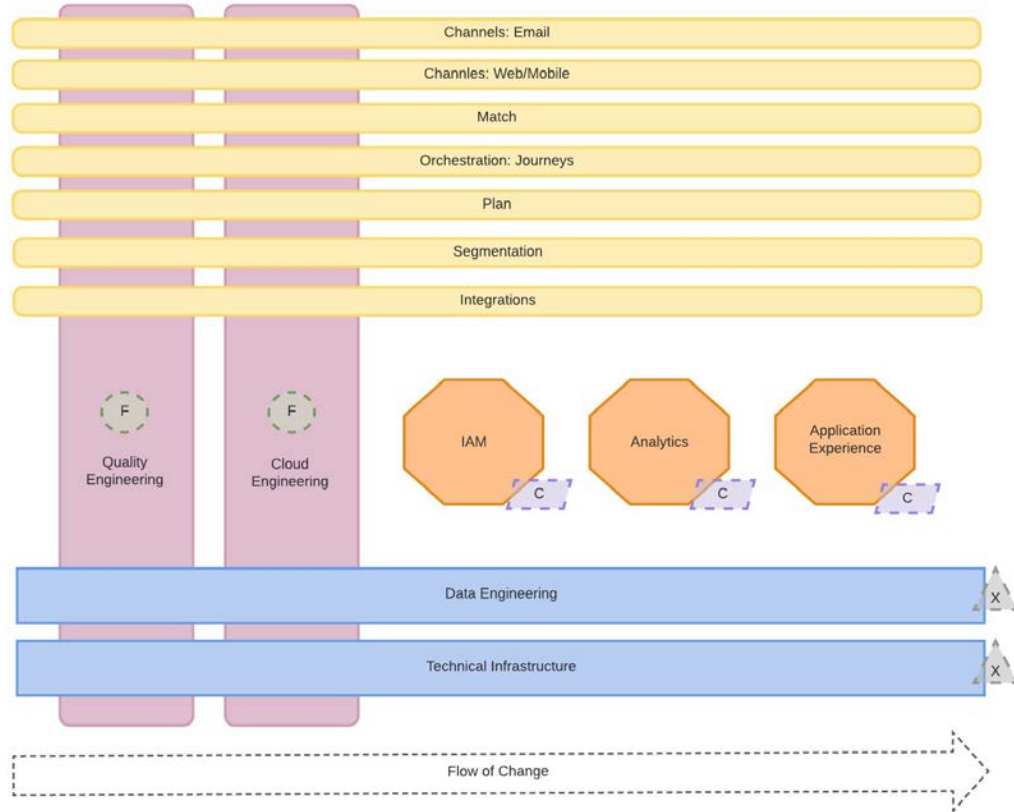


Challenge the Existing Team Topology



Team Topology

Developed using VSRA



Focus on SA Teams
SAR = 50%

Supporting Teams in
Equal Mix

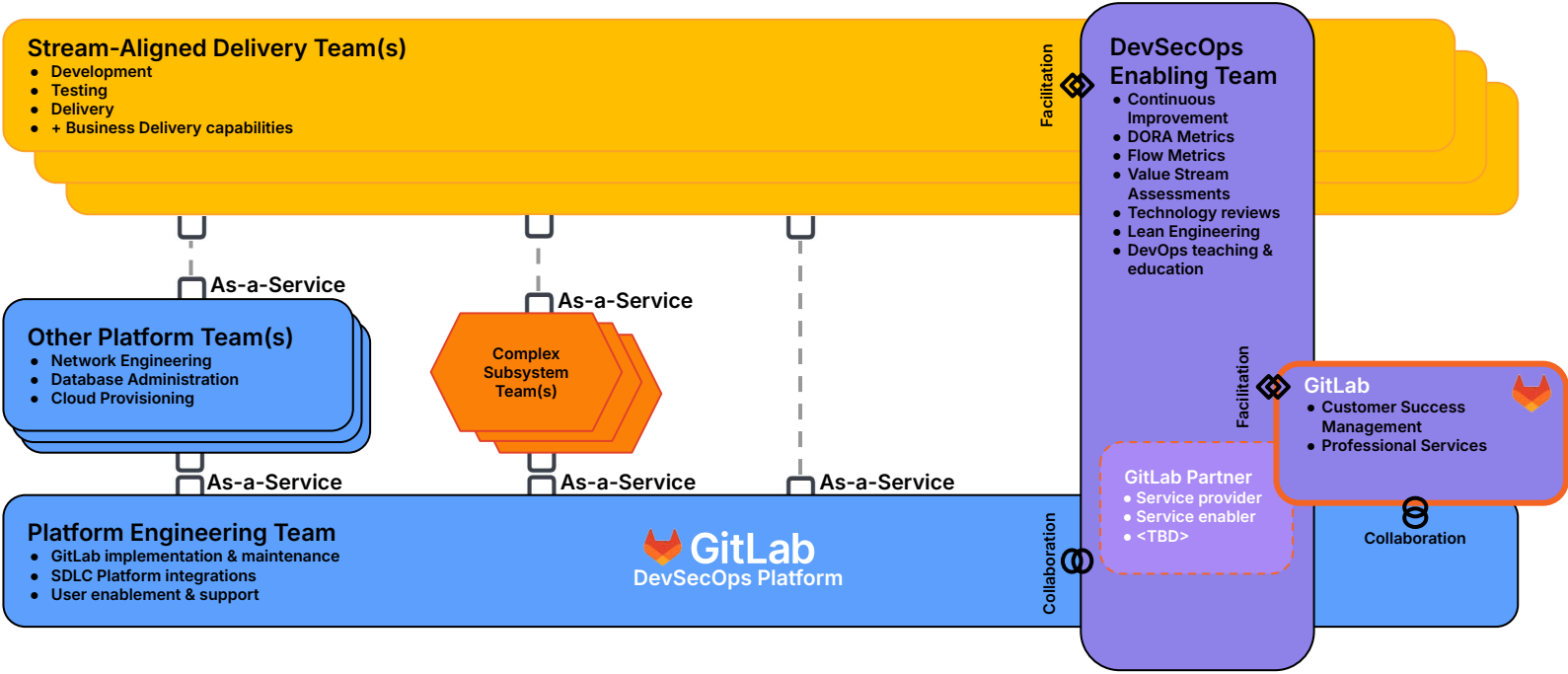
Outcomes of VSRA

Measurable Impact

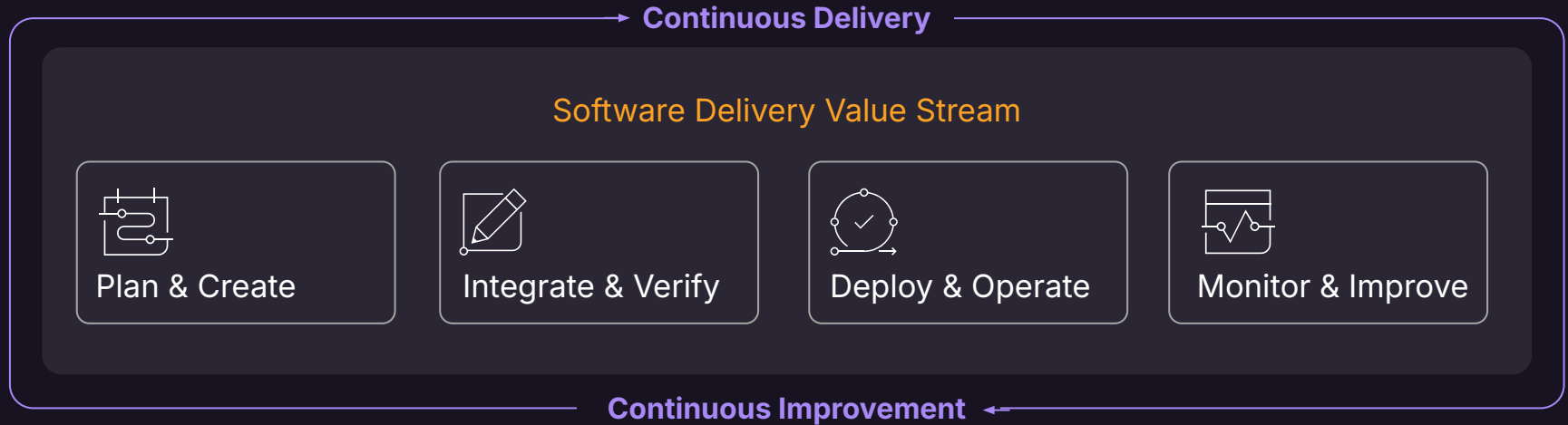
- Unravelling of Value Streams for clarity of purpose
- Identification of team types for reduced ambiguity
- Establishment of well-defined team interactions for improved flow
- Enablement of team autonomy for increased resilience
- Reduction of dependencies (hand-offs) for easier planning
- Smaller resource utilization for reduced costs
- More local ownership with faster feedback for improved quality
- Accelerate beyond DevOps Mid-Tier stickiness for improved ROI

The role of Platform Engineering

Example VSRA using Team Topologies



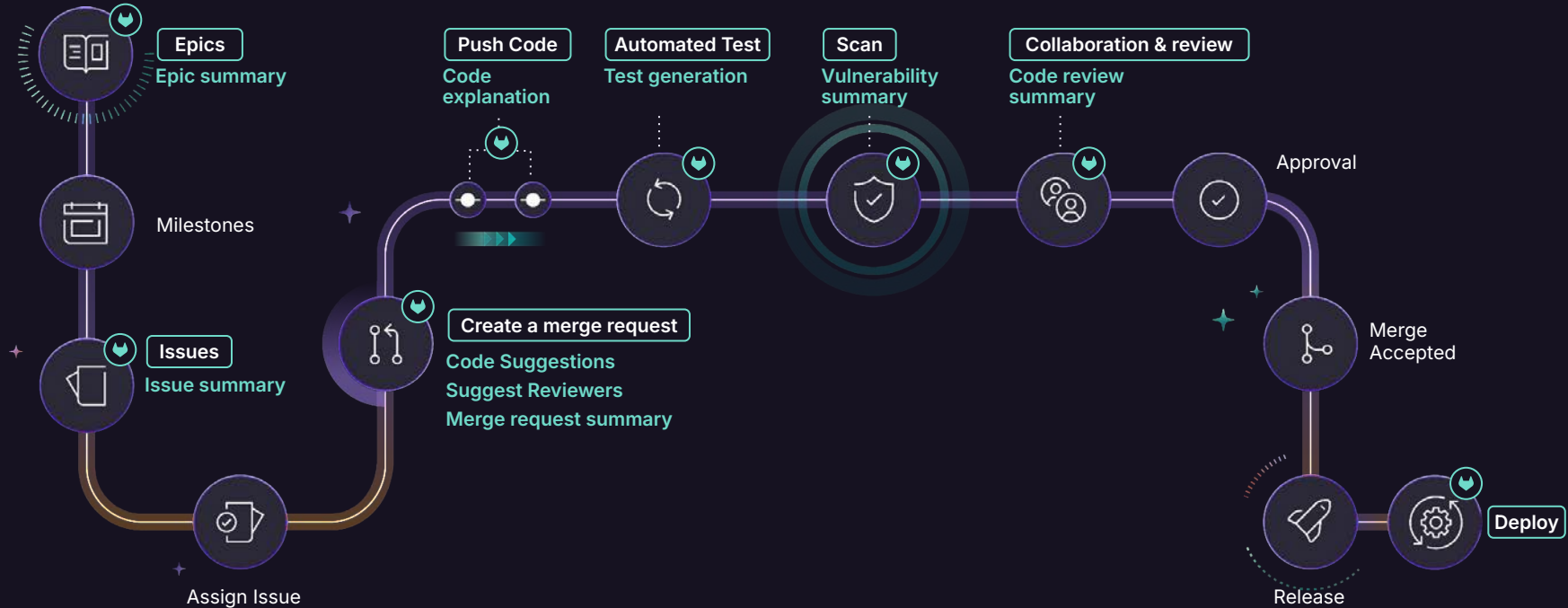
A platform approach brings the entire software development lifecycle into a single application



Streamlines collaboration and **eliminates** context-switching



One workflow to unite your developers, security, and operations teams **powered by AI**



Where to learn more about VSRA

VSRA Community of Practice



<https://vsra-community.org>

vsra-community.org

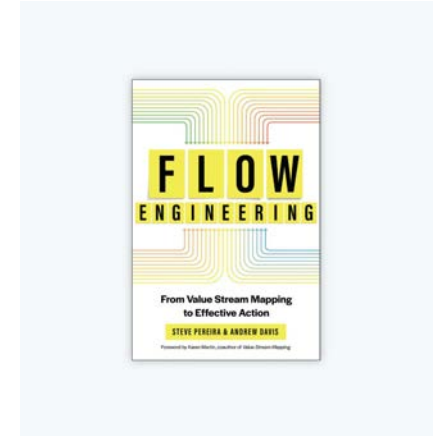
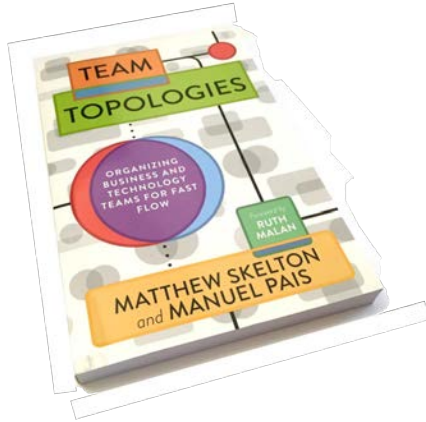
The logo for the VSRA Community is a blue diamond shape with a white border. Inside the diamond, the word "VSRA" is written in bold yellow letters, with a horizontal yellow line above it. Below "VSRA", the word "Community" is written in smaller white letters.

**Value Stream
Reference
Architectures**

**Proud Community of the Value
Stream Management Consortium**

Welcome to the Value Stream Reference Architectures (VSRA) community of practice. Our member community is kindly hosted by the [Value Stream Management Consortium](#). Tap or click the button below to access the member portal. Not a VSRA member? [Join for Free!](#)

In summary...



Thank you

GitLab Field CTO, EMEA



Currently based in Staffordshire, UK



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