



Business and Technical Agility with Team Topologies

Matthew Skelton & Manuel Pais

co-authors of *Team Topologies*

@matthewpskelton @manupaisable

QCon Plus - 26 May 2021



Matthew Skelton

Founder at [Conflux](#)

Experience as: software developer,
technical director, change enabler,
conference organizer...

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Manuel Pais

Independent IT organizational
consultant and trainer

Ex-dev, ex-build manager,
ex-tester, ex-QA lead

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LinkedIn: [manuelpais](#)

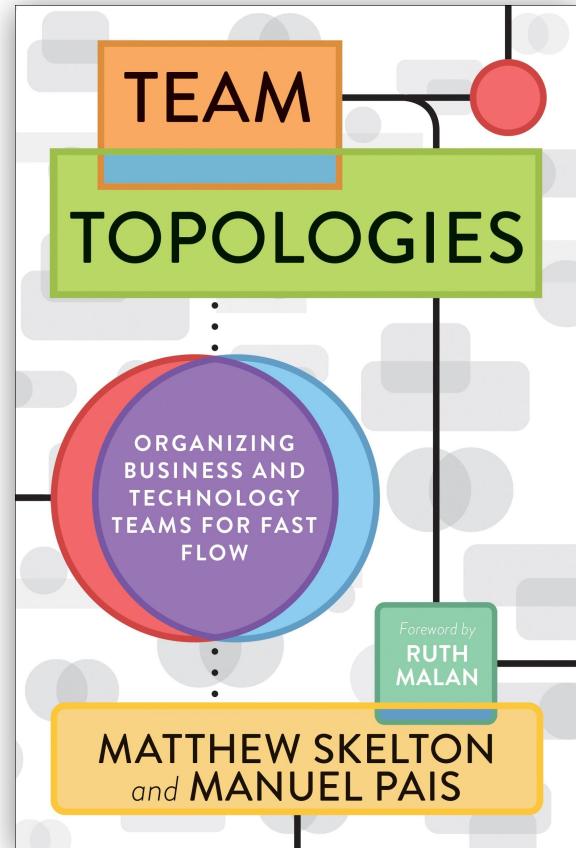
Team Topologies

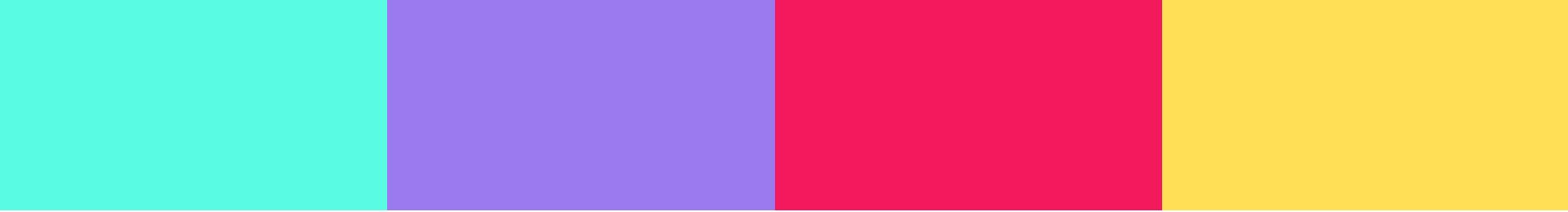
*Organizing business and
technology teams for fast flow*

Matthew Skelton & Manuel Pais

IT Revolution Press, 2019

teamtopologies.com/book





“innovative tools and concepts for structuring the next generation digital operating model”

Charles T. Betz,
Principal Analyst, Forrester Research



What is business agility?



Being agile, not doing 'Agile'

Valuable: product mindset



Team Topologies examples



How does Team Topologies help with business & technical agility?

**Team Topologies
encourages decoupling of
business concepts to help
make the organization
more responsive**

**Team Topologies patterns
help to turn blocking
compliance checks into
self-service, flow-aligned,
API-driven checks**

**Team Topologies is partly a
sense-making approach to
help organizations gain
situational awareness and
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Team Topologies helps the organization to focus tightly on its core mission via streams and limiting team cognitive load



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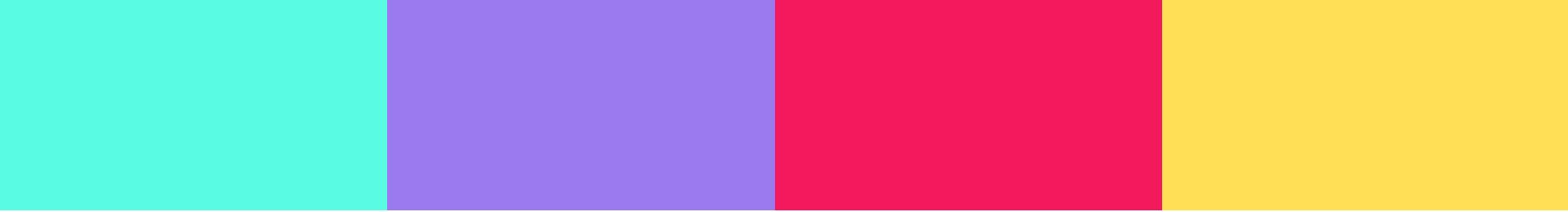
Valuable: product mindset



Team Topologies examples



What is business agility?



*Business Agility: the ability
to respond rapidly* to
changing internal and
external conditions (* in hours)*



Remote-first



Speed of change:

technology, climate, geopolitical



Increased global and local competition

Photo by [chuttersnap](#) on [Unsplash](#)

digital

“Digital”: 1

Rapidly-developed
services accessed via
personal compute
devices

“Digital”: 2

Rich telemetry for
existing processes
provided via software
and sensors

“Digital”: 3

**Highly effective ways of
working discovered &
evolved through 1 and 2**



Questions to answer

**How would we optimize for
a fast flow of change?**

Questions to answer

**How would we make sure
we focus on user needs?**

Questions to answer

**How would we produce the
right thing in the right way
at the right time?**

Questions to answer

**How would we easily
'course-correct' when we
need to adjust?**

Questions to answer

**How would we maximize our
chances of finding new
opportunities for innovation?**

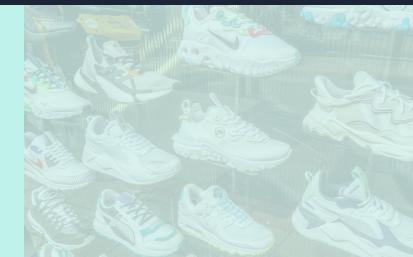


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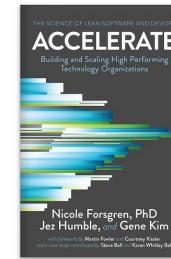
Team Topologies examples



Being agile, not doing ‘Agile’

State of DevOps reports

Annual survey of 1000-5000 IT professionals worldwide using rigorous statistical methods



State of DevOps 2019

Analysis from responses of
over 31,000 IT professionals
worldwide over 6 years

**"an independent view into the
practices and capabilities that
drive high performance"**

+ “Four Key Metrics”



State of DevOps 2019

Key technical practices

- Lightweight change process
- Real DR testing
- Maintainable code
- Loosely-coupled systems
- Monitoring
- Trunk-based development
- Deployment automation



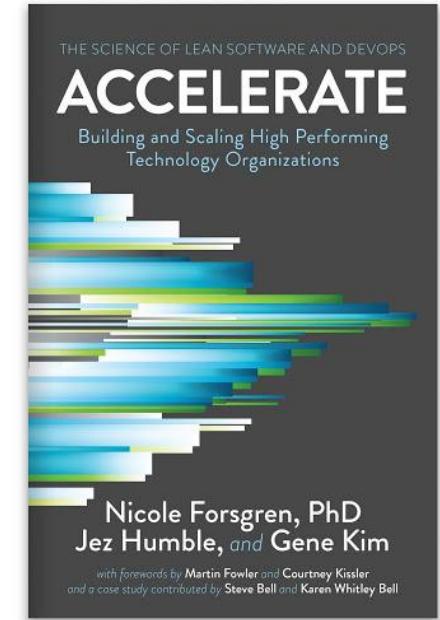
4 key metrics: ‘Accelerate’

lead time

deployment frequency

Mean Time To Restore

change fail percentage



A photograph showing a row of large, weathered metal pipes lying in a grassy field. The pipes are dark brown and show signs of rust and wear. They are arranged in a curve, with some pipes partially buried in the grass. The background consists of a green, grassy hillside.

Fast feedback via deployment pipelines

Good technical practices (TDD, ...)



Team ownership of software & services



Configuration in version control (Git)





Cloud-native: transparent in operation

```
def __init__(self, shell=Shell()):  
    self.shell=shell
```

– **Self-request:**

'POST':
 west['body'])

```
        and('add', params, self.shell)
    status': 200, 'body': '{}'}
    or as ve:
    status': 400, 'body': json.dumps({ 'message':
        == 'DELETE':
        COMMAND + ' -F0'
        and_return_status(command)
    200 }
```

Cloud-native: designed for automation

A photograph of a modern architectural structure, likely a residential building, featuring a series of angular, overlapping panels in shades of teal, purple, and red. The panels create a dynamic, geometric pattern. The building is set against a clear blue sky with a few wispy white clouds.

Re-aligned architecture

Domain-driven design (DDD)



Untangle business concepts for
faster flow

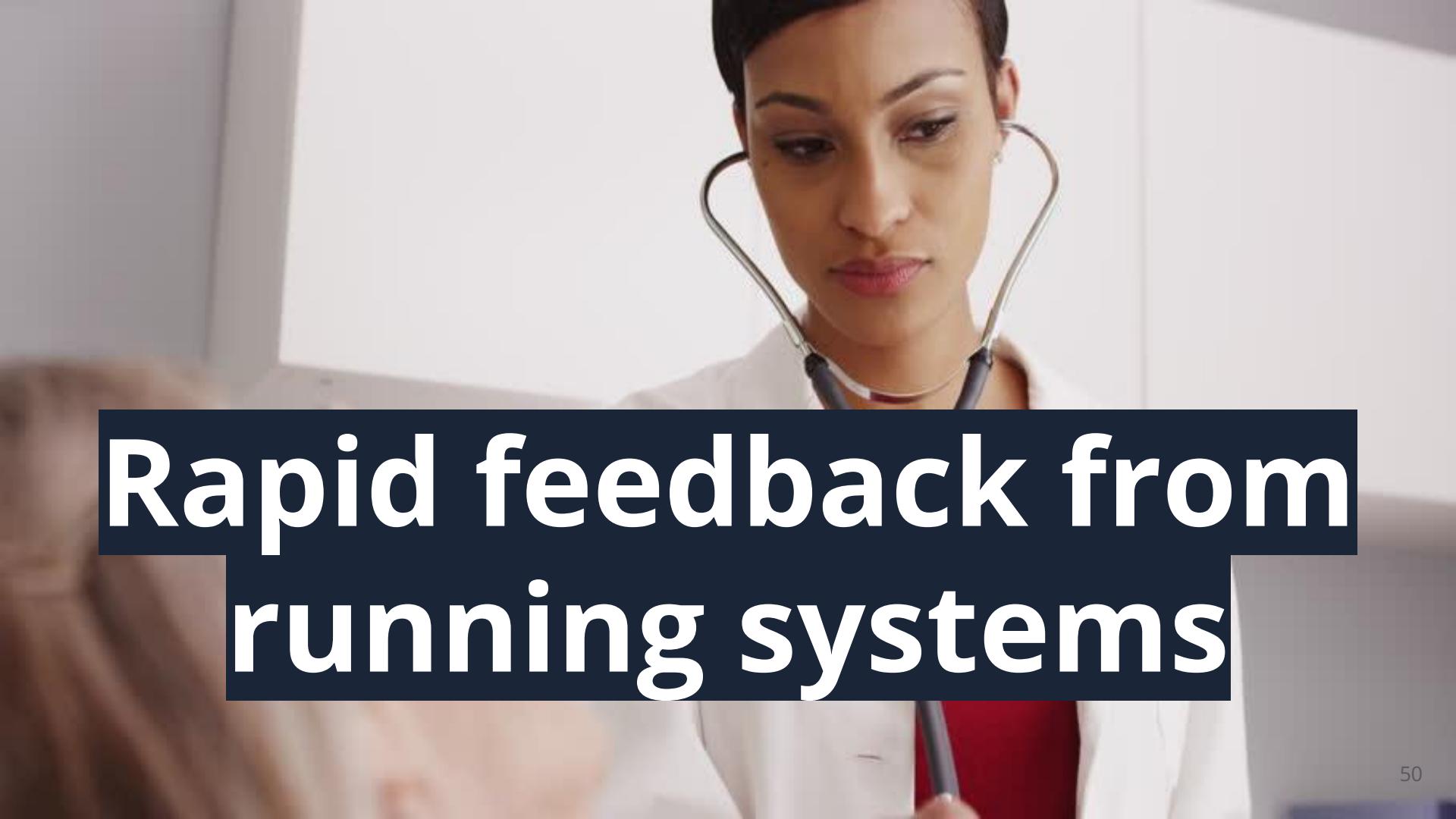
Wardley Maps

Increase situational awareness
and apply the right techniques -
custom/product/utility

Team Topologies

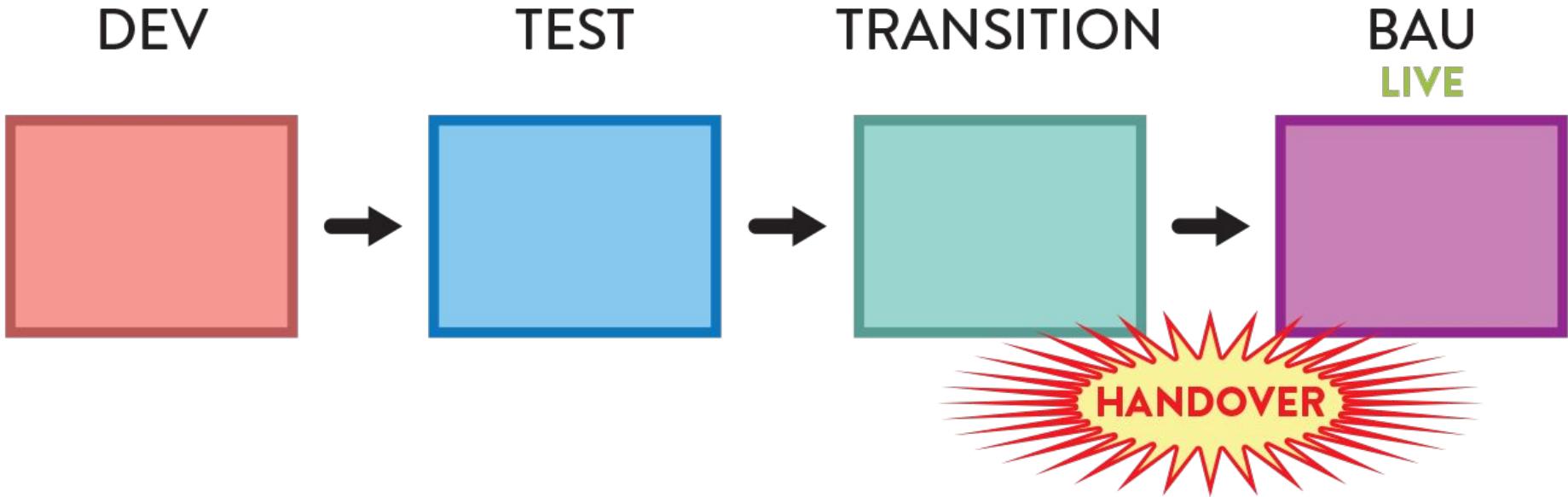
Fast flow, rapid feedback, team interactions, org evolution, team cognitive load, ...

Rapid flow of change



Rapid feedback from running systems

Handovers kill flow

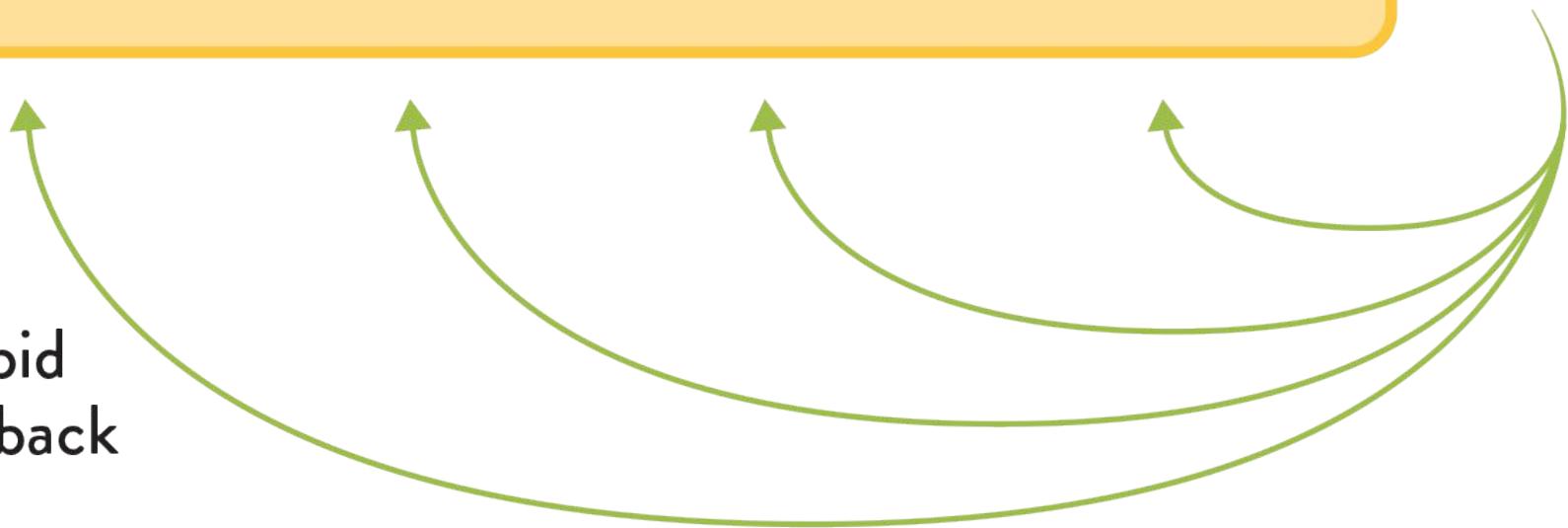




Stream-Aligned Team

LIVE

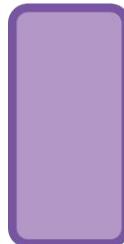
Rapid
Feedback



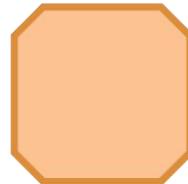
Four Team Types



Stream-aligned
team



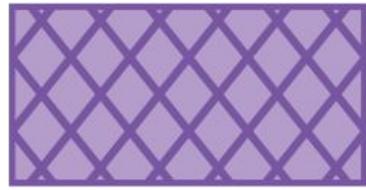
Enabling team



Complicated-
subsystem team



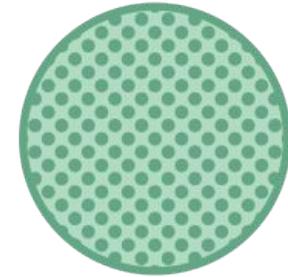
Platform team



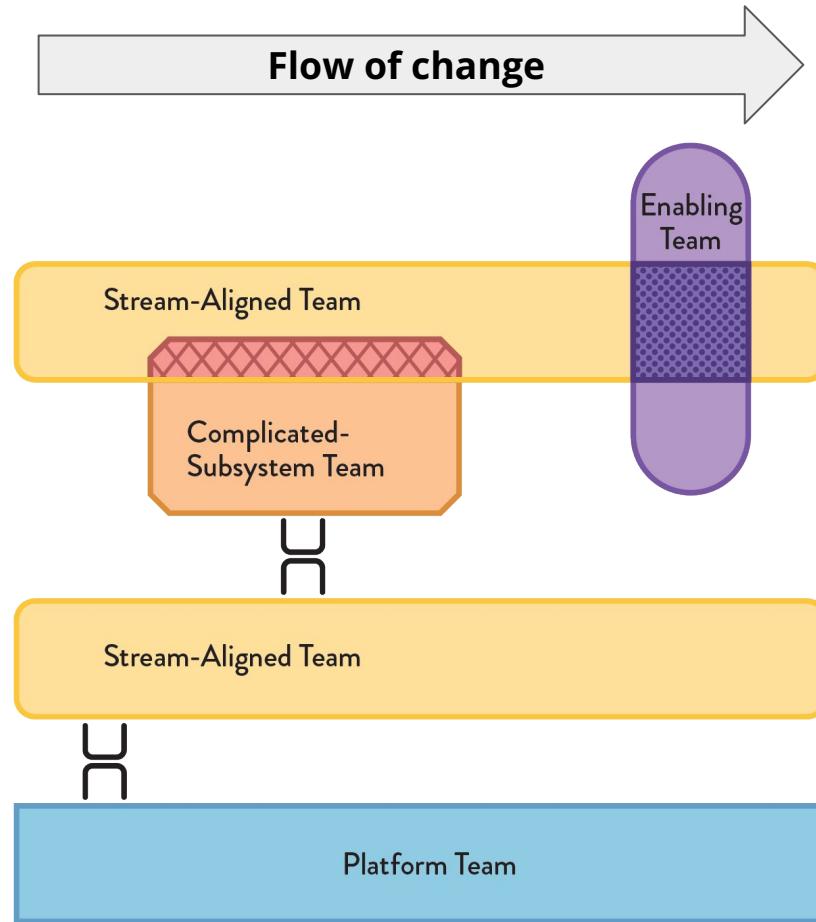
Collaboration



X-as-a-Service



Facilitating



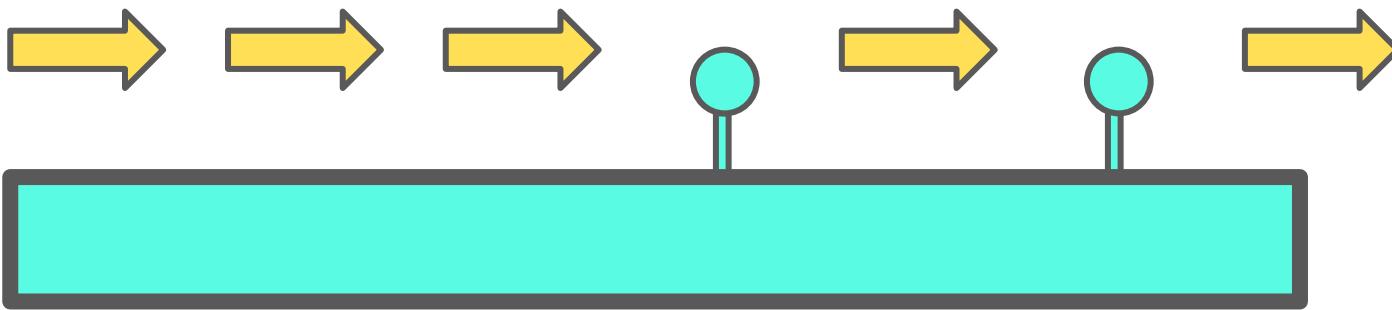


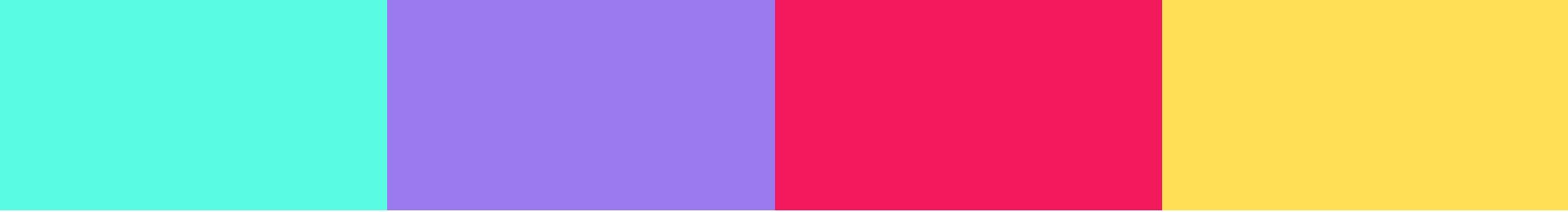
**Track dependencies and
separate as “blocking” vs
“non-blocking”**

Blocking



Non-Blocking





***Remove barriers to flow:
hand-offs, approval gates,
manual inspections***

Replace with self-service APIs



Compliance mindset shift: Permitting to Enabling

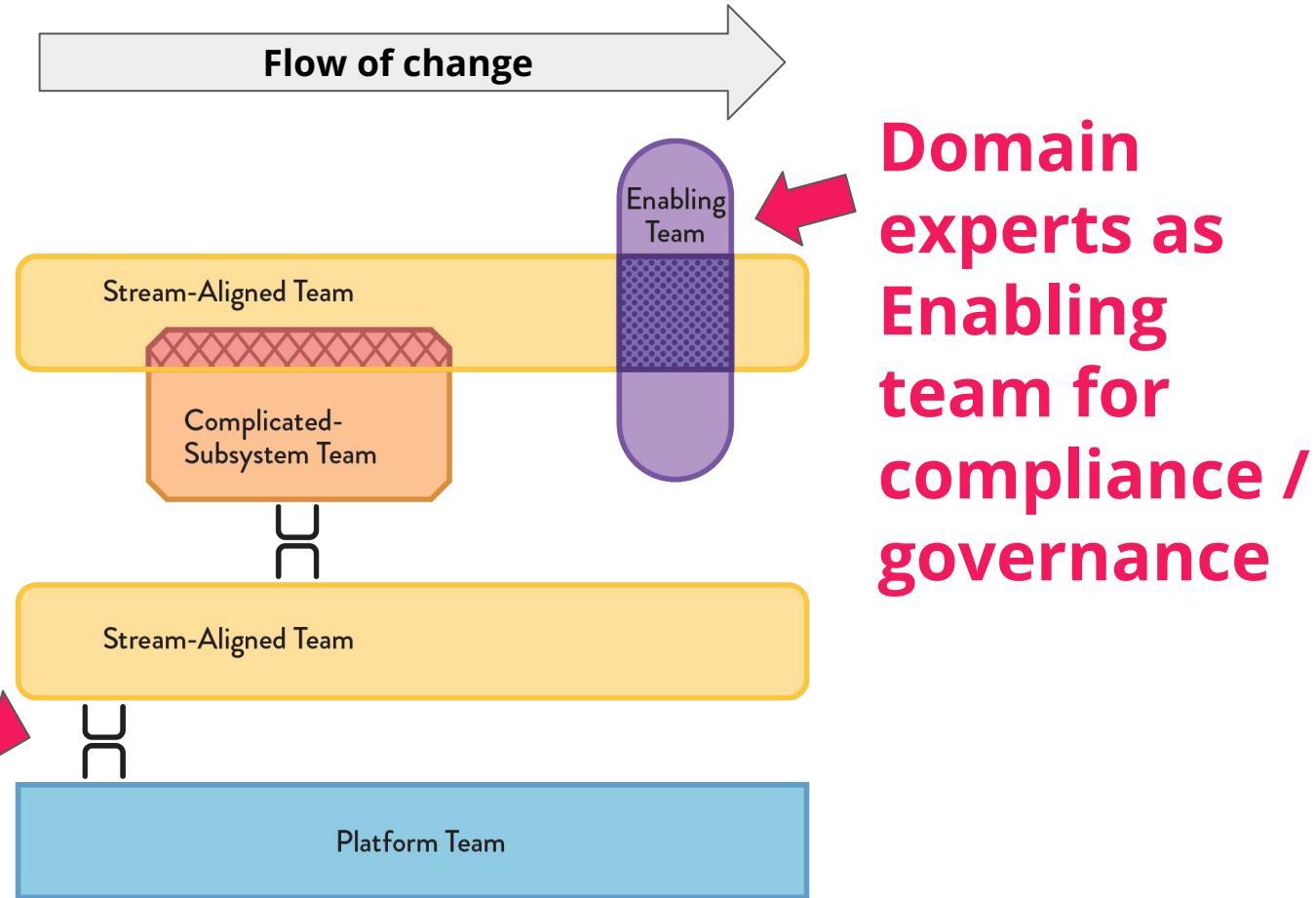


Scaled Expertise

“What would be needed for us to be compliant with security/finance/PII rules with multiple, decoupled, rapid flows of change?”

(Self-service APIs)

Compliance as Code (API)





What is business agility?



Being agile, not doing 'Agile'

Valuable: product mindset



Team Topologies examples



The value of a product mindset

Product = Holistic User Experience

- Functionality
- Design
- Monetization
- Content

- Marty Cagan, 2010



Source: <https://svpg.com/defining-product/>



A **product** is optional to use - no-one is forced to use the product



A **product** is carefully
designed and curated

YOU CAN SELECT A SONG

25¢

QUARTERS ONLY

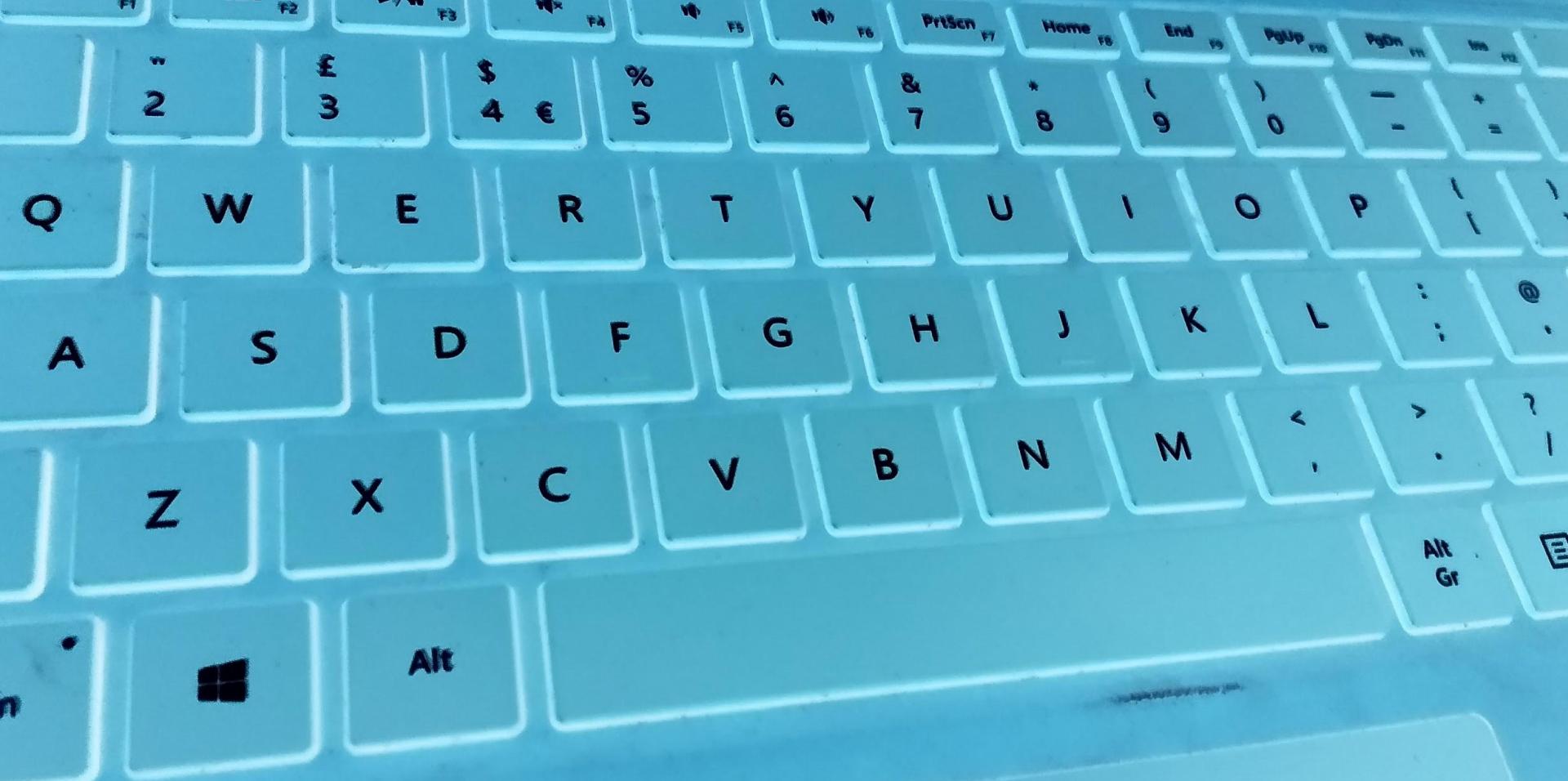
PIRIOGRAM

1 2 3 4 5 6 7 8

PLAY NICKEL IN ONE OR MORE SLOTS

PUSH BUTTON EACH NICKEL

A **product** simplifies
something for users



A **product** evolves to take
advantage of technology
changes

**A strong focus on
user needs drives
good software
#UX**

**The software should
'get out of the way' -
design for usability**



Product Management for internal platforms

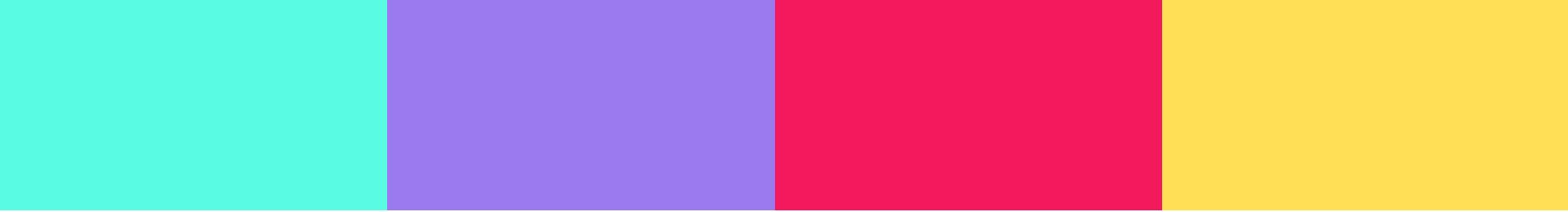


A platform is optional to use - no team is forced to use the platform

Internal Marketing

Platforms must advocate for their platform product and “market” it to internal teams

(User Personas, UX, talking...)



*A platform is a curated experience for engineers
(the customers of the platform).*



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Team Topologies examples



Team Topologies examples

Case studies in the TT book



ERICSSON



...

**May 2021:
20 months since
publication of TT**

Industry examples on the TT website

CROZ

FOOTASYLUM 



U switch



**Organizations that
Matthew and Manuel have
worked with since 2019...**

A large European banking group

A major cloud technology company

GOV: Brazil, Canada, Norway, UK, US

Several major telecoms companies

A scale-up in Open Banking

An aerospace laboratory

Healthcare providers

Several mortgage companies



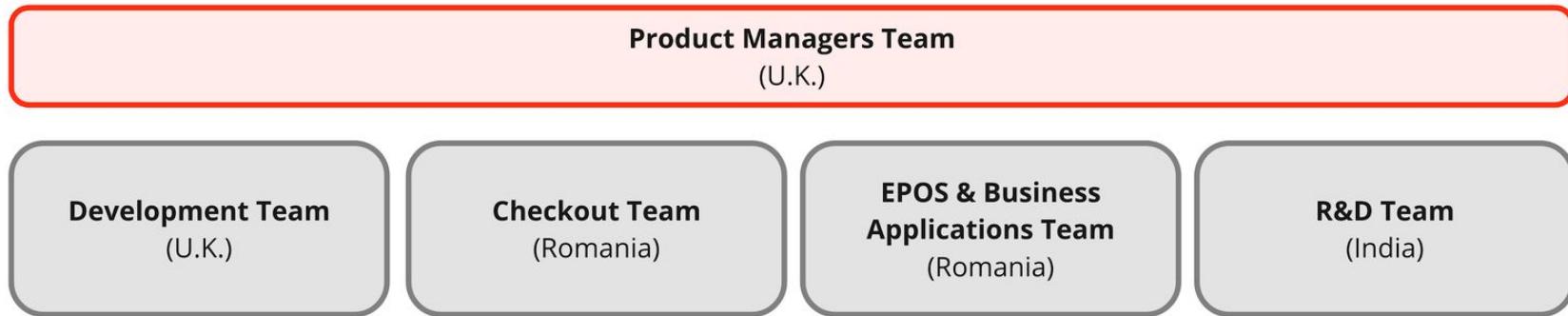
FOOTASYJUM





- Founded 2005
- 70 stores in the UK
- £260m revenue
- 2500 employees
- 2019: changes to make IT more responsive

High fragmentation of work and focus



Identify boundaries - business domain

Ecommerce Team

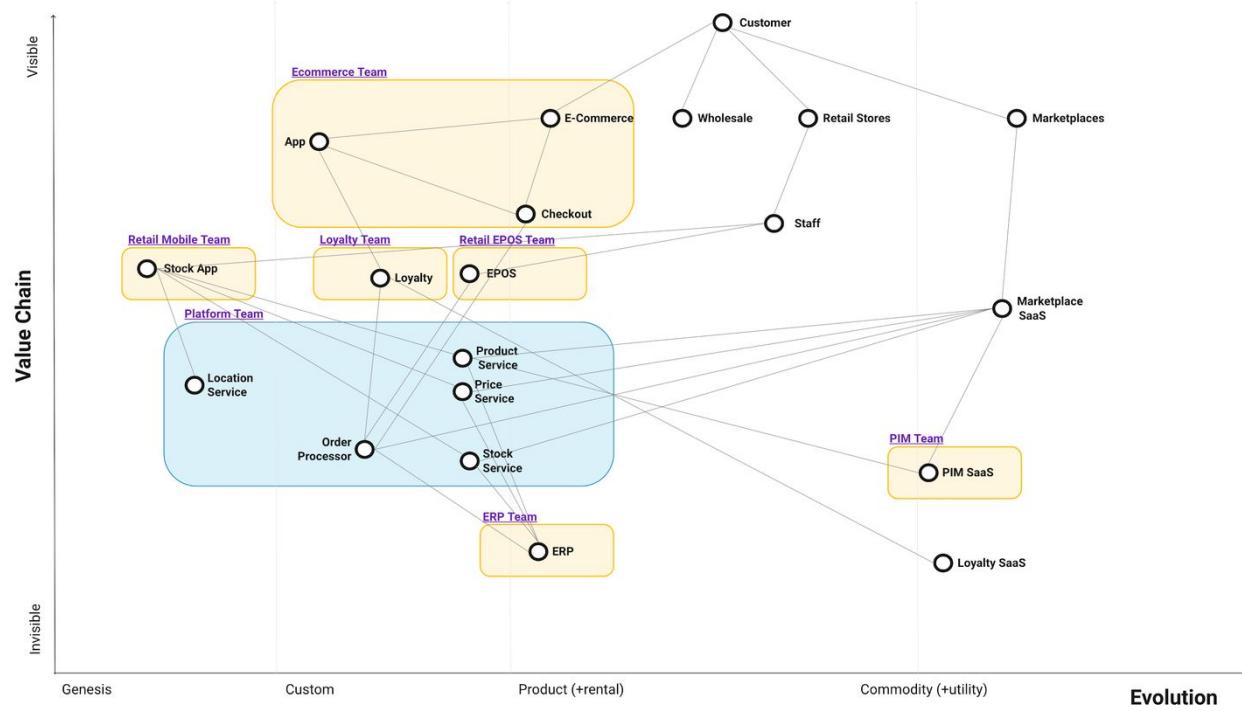
Retail EPOS Team

Customer Experience Team

ERP Team

Services Team

Combine with Wardley Mapping



Adopt the Thinnest Viable Platform

Design Settings Test Revisions Change log

Locations Api > OpenAPI specification JSON

Search operations Filter by tags Group by tag Add operation

All operations

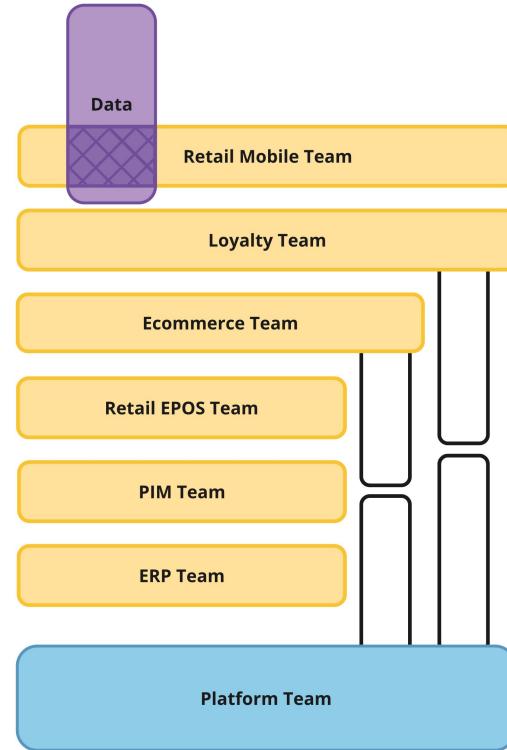
GET Get Locations ...

```
53        "postcode": "SR5 1QH",
54        "telephone": null,
55        "isStore": false,
56        "region": "North",
57        "latitude": 53.326881,
58        "longitude": -2.231057
59 },
60 {
61     "code": "005",
62     "locationId": "S0005",
63     "name": "Preston",
64     "area": "Area 4",
65     "address1": "84-86 Fishergate Walk",
66     "address2": "The Mall St. George's",
67     "city": "PRESTON",
68     "county": "Lancashire",
69     "postcode": "PR1 2NR",
70     "telephone": "01772 250694",
71     "isStore": true,
72     "region": "North",
73     "latitude": 53.758812,
74     "longitude": -2.701517
75 },
76 {
77     "code": "006",
78     "locationId": "S0006",
79     "name": "Middlesbrough",
80     "area": "Area 1",
81     "address1": "5-11 Corporation Road",
82     "address2": "",
83     "city": "MIDDLESBROUGH",
84     "county": "North Yorkshire",
85     "postcode": "TS1 1LJ",
86     "telephone": "01642 230286",
87     "isStore": true,
88     "region": "North",
89     "latitude": 54.57655,
90     "longitude": -1.235477
91 },
92 {
93     "code": "007",
94     "locationId": "S0007",
95     "name": "Sheffield",
96     "area": "Area 2",
97     "address1": "100 London Road",
98     "address2": "Sheffield",
99     "city": "SHEFFIELD",
100     "county": "South Yorkshire",
101     "postcode": "S1 1LA",
102     "telephone": "0114 2720000",
103     "isStore": true,
104     "region": "North",
105     "latitude": 53.454545,
106     "longitude": -1.471471
107 }
```

Operations Definitions Save Discard

Static data fine
to begin with:
shops rarely
move!

Clarity of purpose from team types



Concepts



- Stream-aligned (business domain)
- Thinnest Viable Platform
- Evolving teams and interactions
- Combine with Wardley Mapping

teamtopologies.com/examples

Thanks to:



Paul Martin
IT Director, Footasylum



Andy Norton
**Software Development
Manager, Footasylum**





U switch

U switch

- UK's leading comparison and switching service
- Founded in 2000
- ~250 staff, £140m+ revenue
- > 2010: Autonomous teams
- > 2017: Platformization

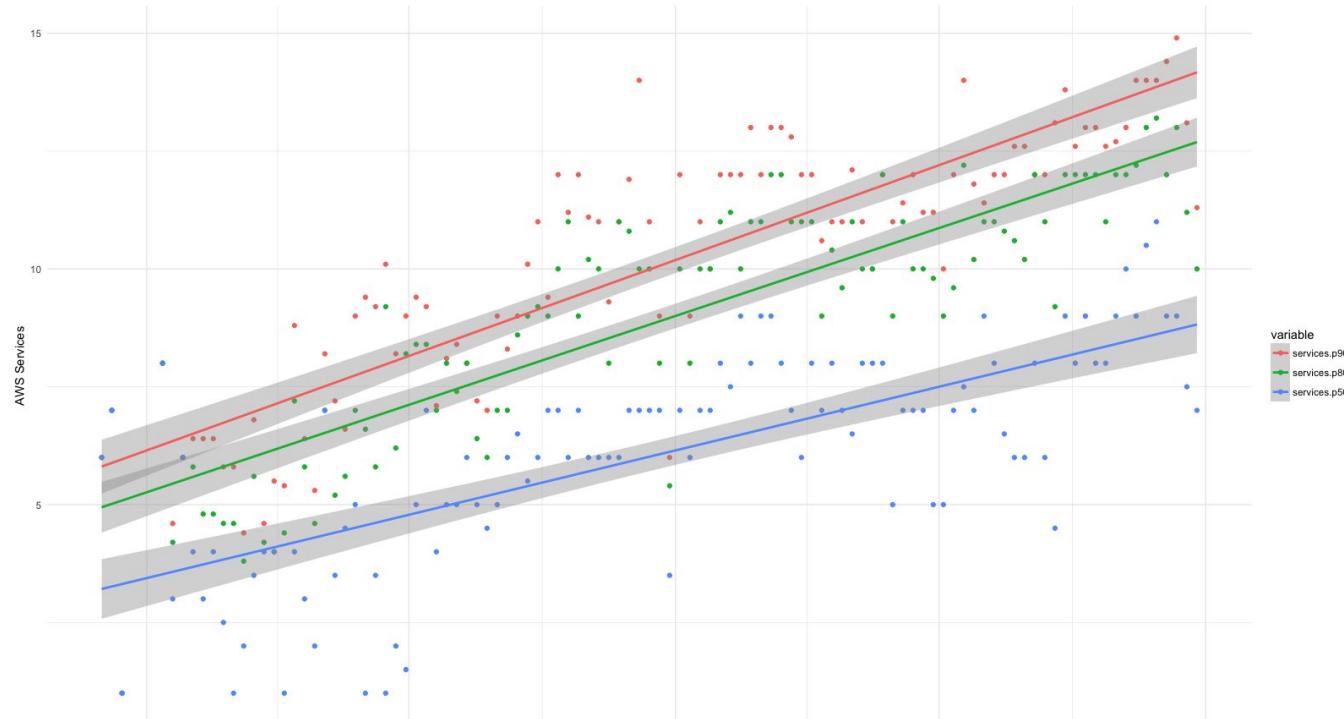
Autonomous stream-aligned teams

Energy

Broadband

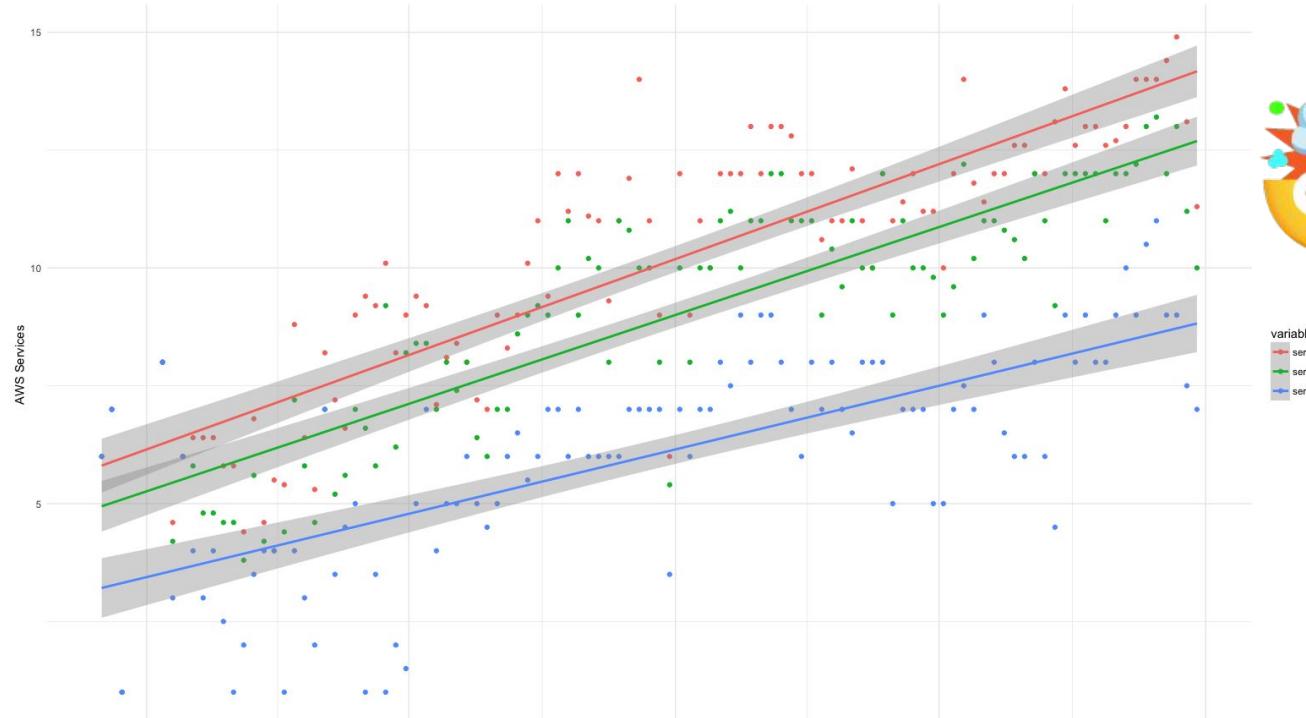
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2015-2016: direct AWS API calls



Low-level AWS service calls before platform adoption

2015-2016: direct AWS API calls

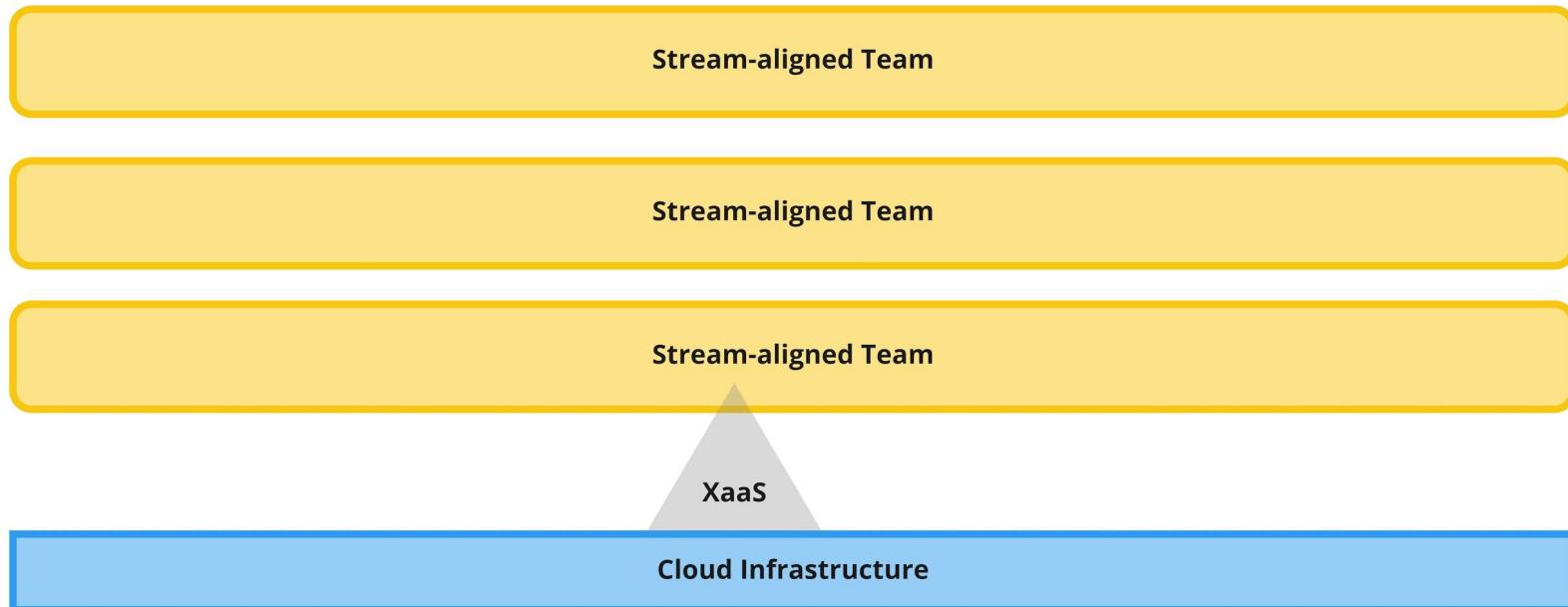


Low-level AWS service calls before platform adoption

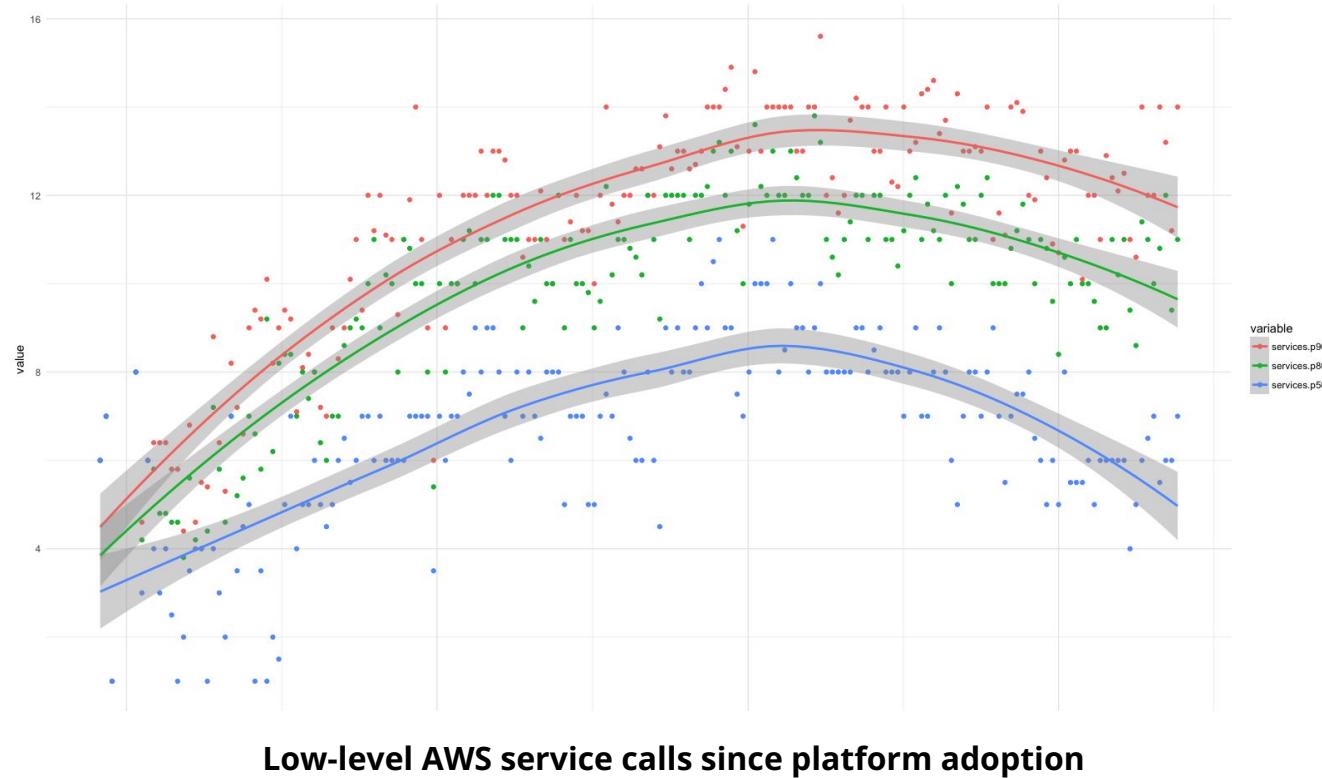
“people were spending more time having to interact with relatively low-level services thus spending their time on relatively low-value decisions”

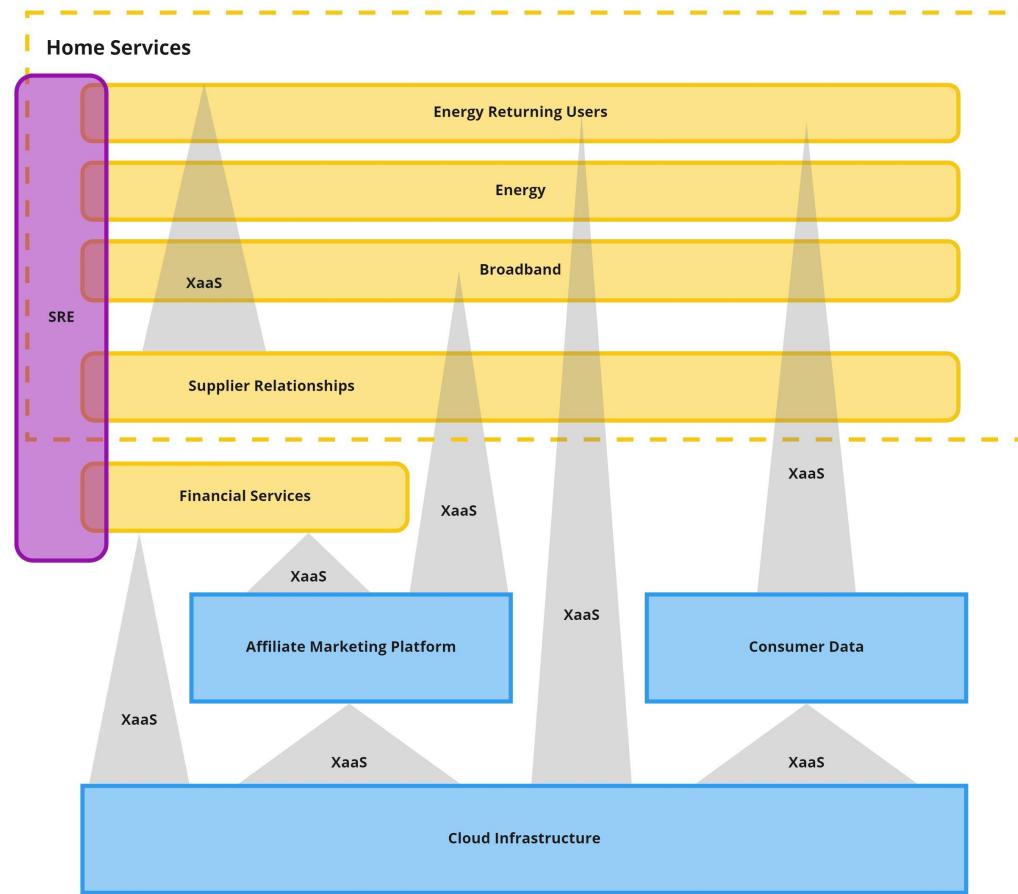
Paul Ingles, CTO at RVU / Uswitch

Early platform (first customer)



2015-2018: direct AWS API calls





Kubernetes Is Not Your Platform, It's Just the Foundation

LIKE

DISCUSS



BOOKMARKS



MAR 19, 2021 • 24 MIN READ

by



Manuel Pais

Team Topologies co-author, organizational consultant, trainer

Key Takeaways

- Kubernetes itself is not a platform but only the foundational element of an ecosystem not only of tools, and services, but also offering support as part of a compelling internal product.
 - Platform teams should provide useful abstractions of Kubernetes complexities to reduce cognitive load on stream teams.
 - The needs of platform users change and a platform team needs to ease their journey forward.
 - Changes to the platform should meet the needs of stream teams, prompting a collaborative discovery phase with the platform team followed by stabilizing the new features (or service) before they can be consumed by other stream teams in a self-service fashion.
 - A team-focused Kubernetes adoption requires an assessment of cognitive load and tradeoffs, clear platform and service definitions, and defined team interactions.
- • •

I read a lot of articles and see presentations on impressive Kubernetes tools, automation, and different ways to use the technology but these often offer little context about the organization other than the name of the teams involved.

RELATED CONTENT

Cloud Native and Kubernetes Observability: Expert Panel

MAY 06, 2021



The Evolution of Distributed Systems on Kubernetes

MAR 24, 2021



Experts Discuss Top Kubernetes Trends and Production Challenges

FEB 26, 2021



Gremlin Adds Automated Service Discovery for Targeting Chaos Experiments

MAY 03, 2021

HashiCorp Boundary: Remote Access Management Service Adds OIDC Support

APR 26, 2021

JetBrains Releases IntelliJ IDEA 2021.1

APR 21, 2021

AWS Announces the General Availability of the Red Hat OpenShift Service on AWS

infoq.com/articles/kubernetes-successful-adoption-foundation

“Engineering principles guided the way we organise teams: loosely-coupled and highly cohesive. Team Topologies is great for tying a lot of those ideas together, and most importantly giving it some language.”



Paul Ingles, CTO at RVU / Uswitch

Results



- “Curated” platform experience
- Reduced complexity for teams
- Addressed cross-team needs

Results



- From autonomy to self-sufficiency
- Patterns applied beyond IT
- Balancing fast flow with reliability

teamtopologies.com/examples

Thanks to:



Paul Ingles
Chief Technology Officer
RVU / Uswitch



Tom Booth
Head of Infrastructure & Security
RVU / Uswitch







What is business agility?



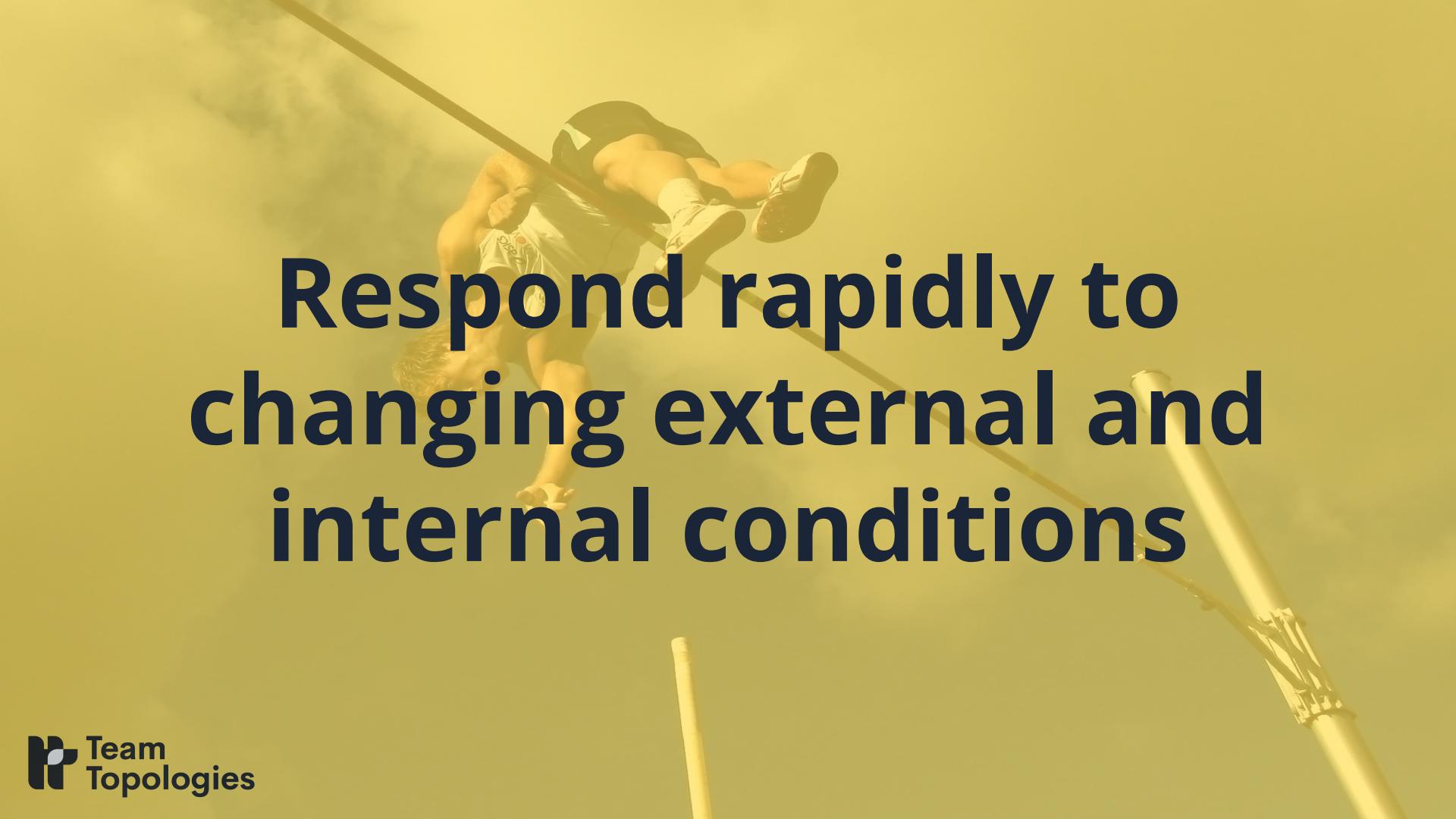
Being agile, not doing 'Agile'

Valuable: product mindset



Team Topologies examples



A person is climbing a rope in a hazy, yellowish environment, possibly a rappelling or climbing exercise. The person is wearing a cap, a light-colored t-shirt, and shorts. The background is filled with a thick, yellowish fog.

Respond rapidly to changing external and internal conditions



**Situational awareness,
clarity of business purpose,
good technical practices,
localised decisions**



**Strong focus on user needs
and User Experience (UX),
clear costs, viability,
mission, ...**

Real-world examples

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What's next?

Free Resources

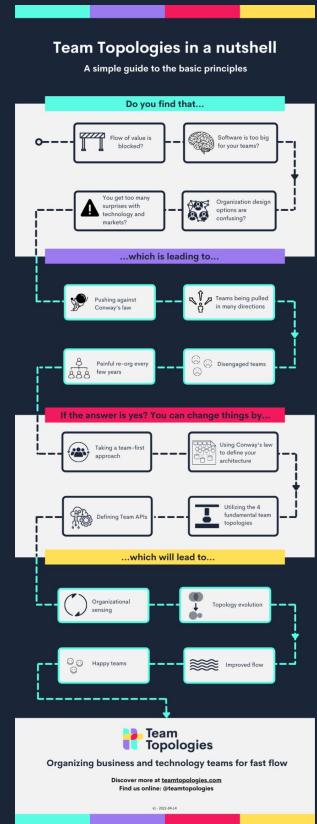
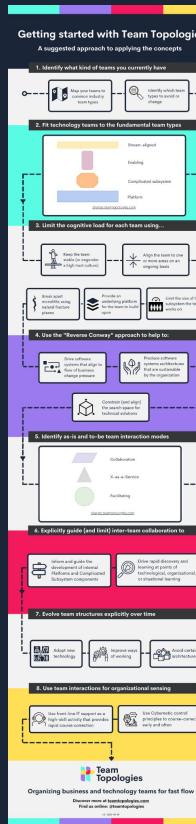
**teamtopologies.com/resources
(links, slides, video)**

**teamtopologies.com/tools
(templates, assessments, etc)**

Infographics

- Getting Started
- In a Nutshell

teamtopologies.com/infographics





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FlowOnRails

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