

**Scaling with
Feature vs. Component Teams
Silicon Valley
Agile Leadership Network
April 06, 2015
by Ken Rubin**

www.innovation.com

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 **If Ken Rubin Were a Word Cloud...**

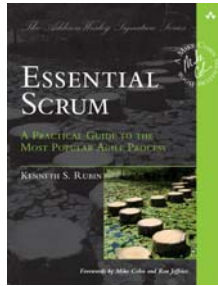


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Essential Scrum in Six Languages

English



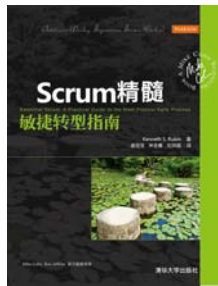
French



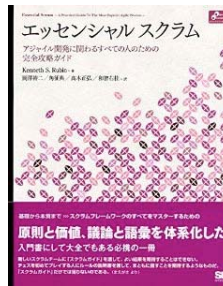
German



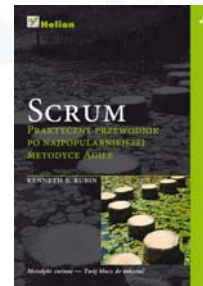
Chinese



Japanese



Polish



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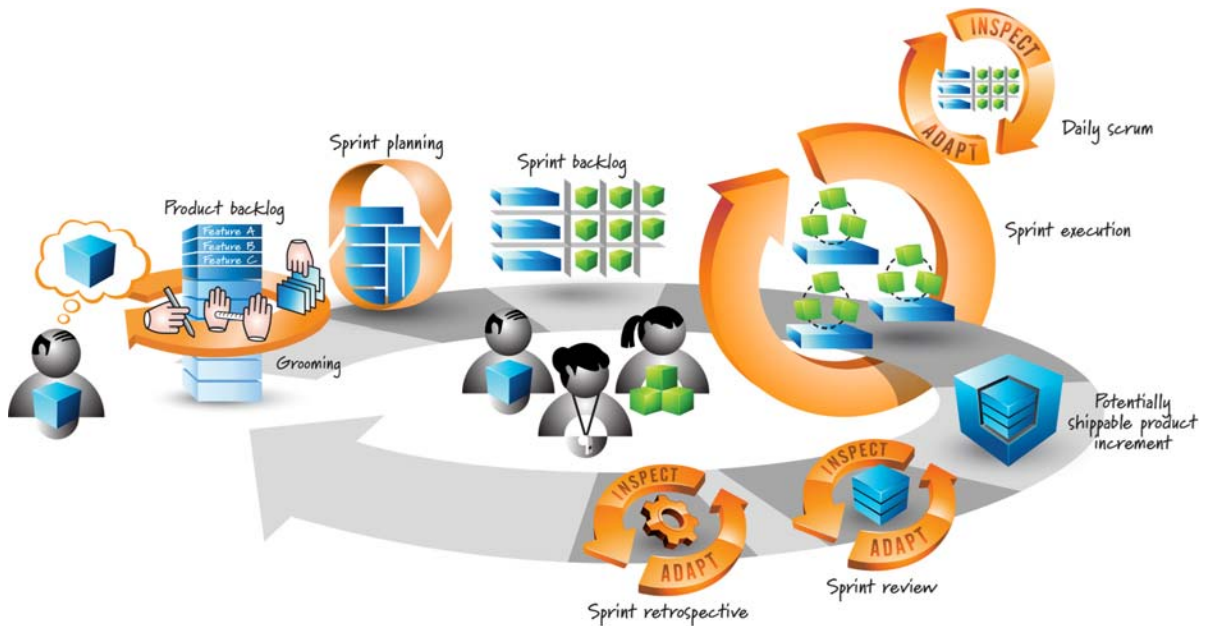
If You Hear Something You Like...

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@krubinagile and **#svain**
in your tweet!

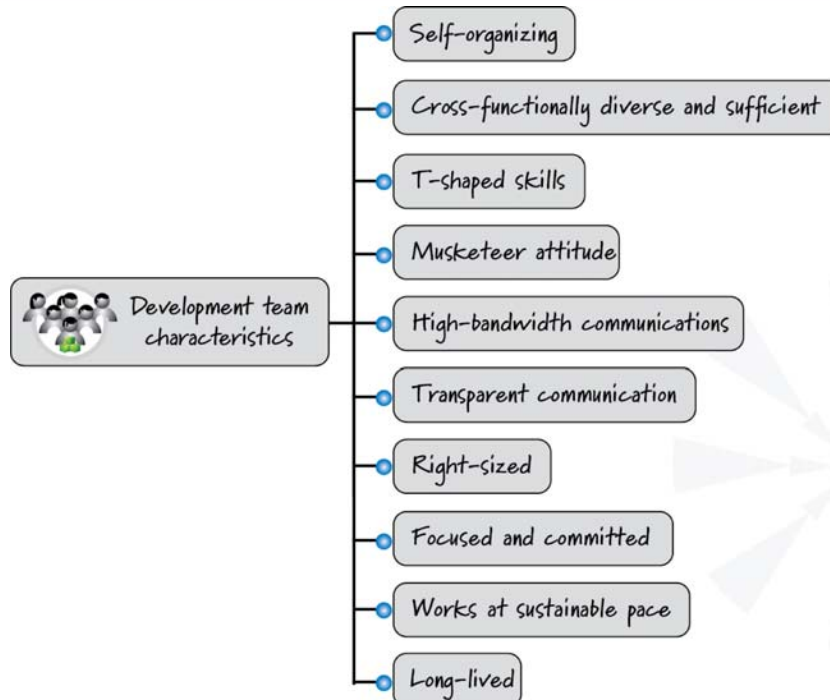
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Simple Agile Has One Product Backlog and One Team



Characteristics of a Single Development Team



Scaling Question

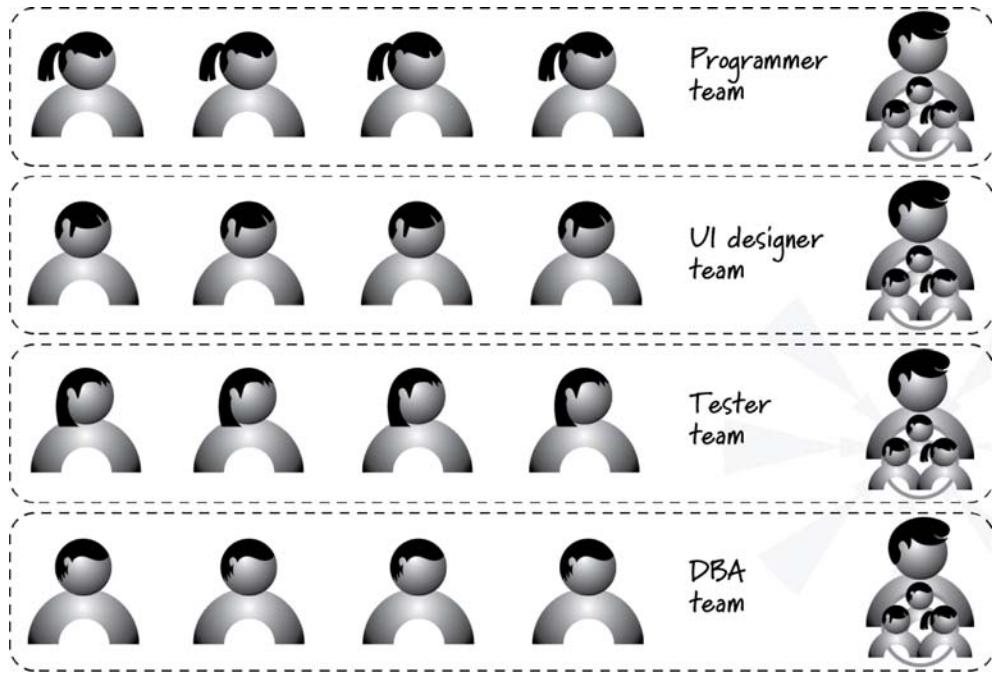
As the scope of work gets larger and one team is no longer sufficient, what is your scaling strategy?



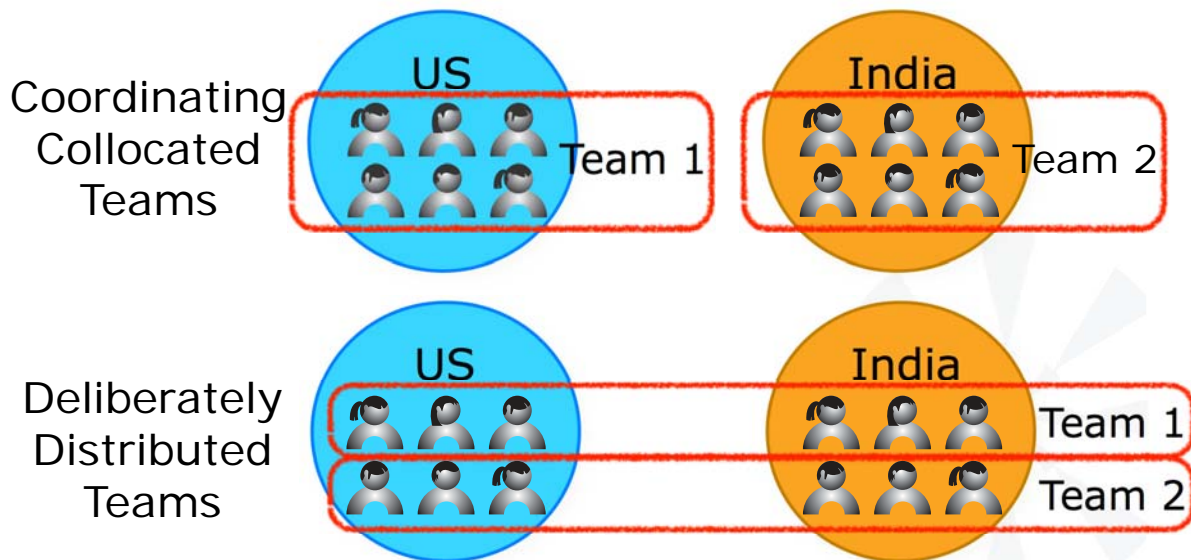
Team Patterns When Scaling Up



Discipline Teams



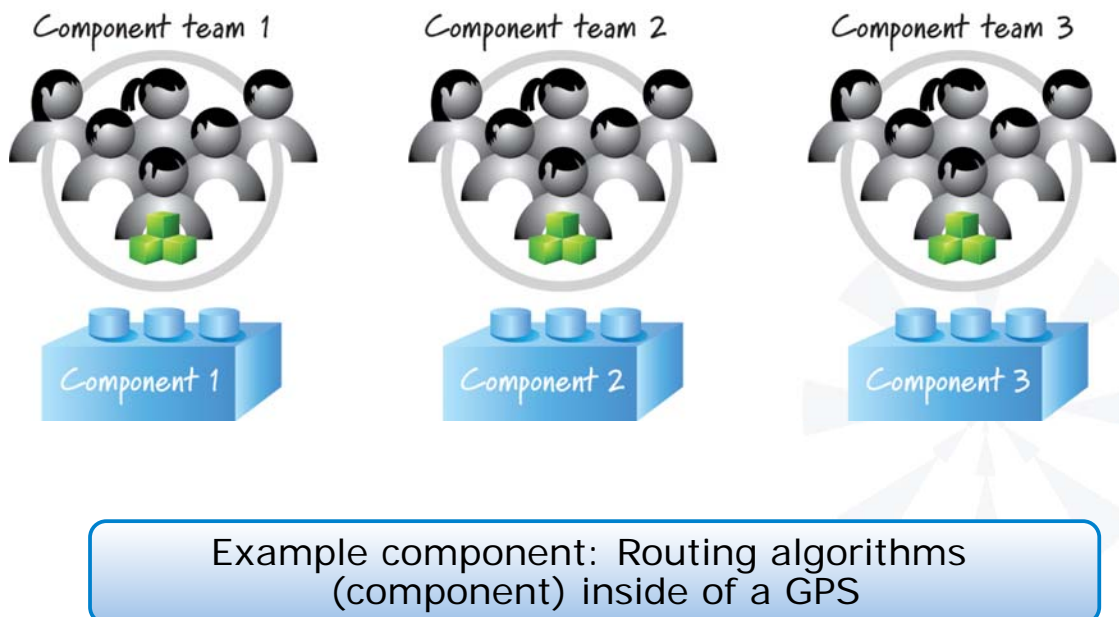
Location Teams



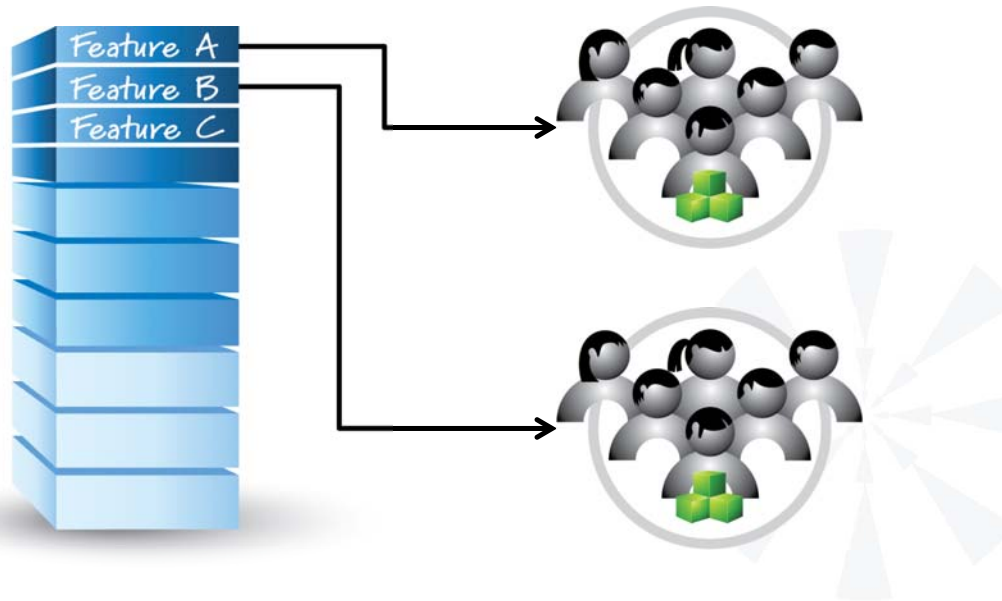
Architectural Layer Teams



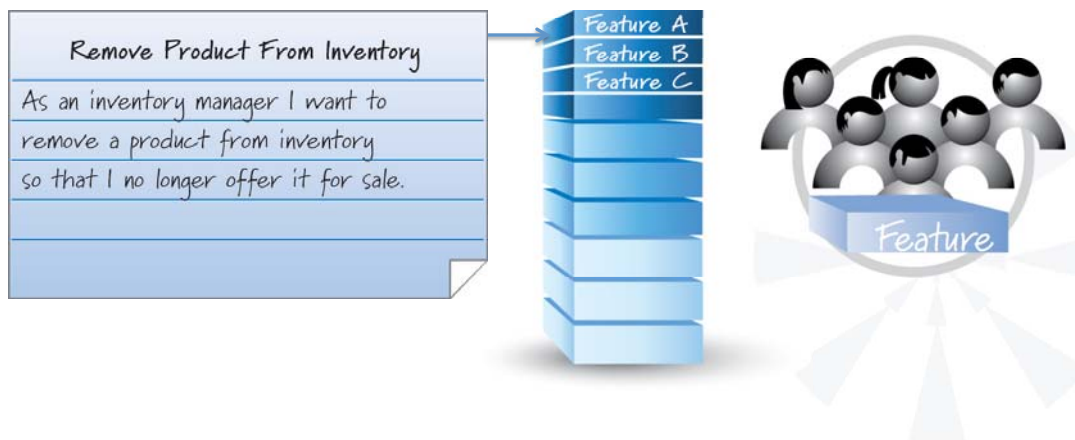
Component Teams



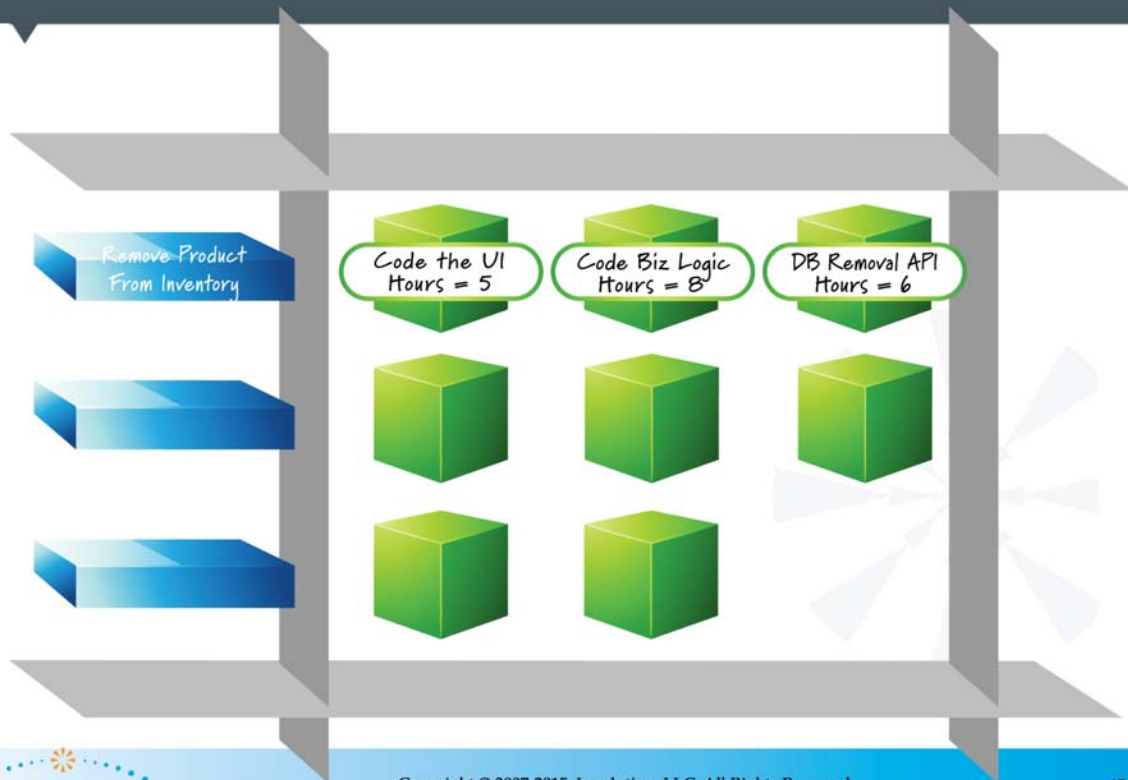
Feature Teams



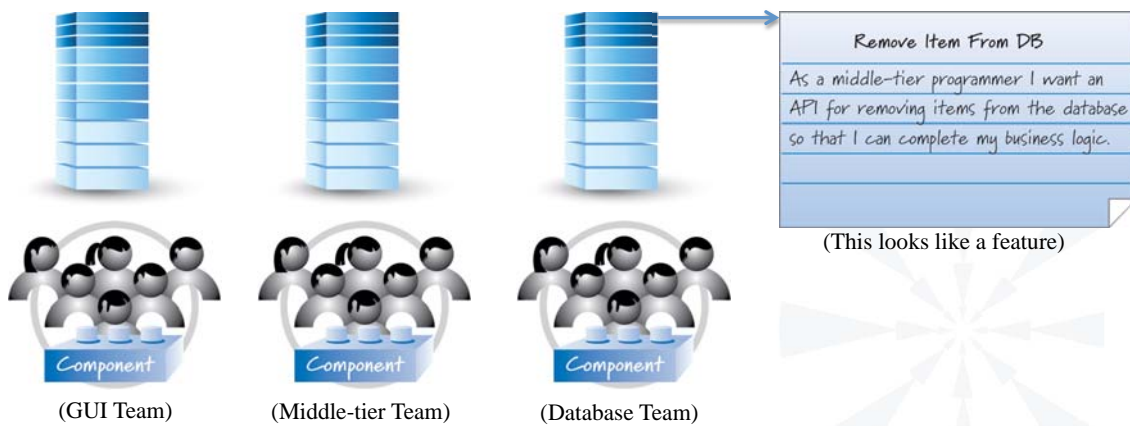
Example Feature Teams Working on End-customer Feature



Feature Team Tasks

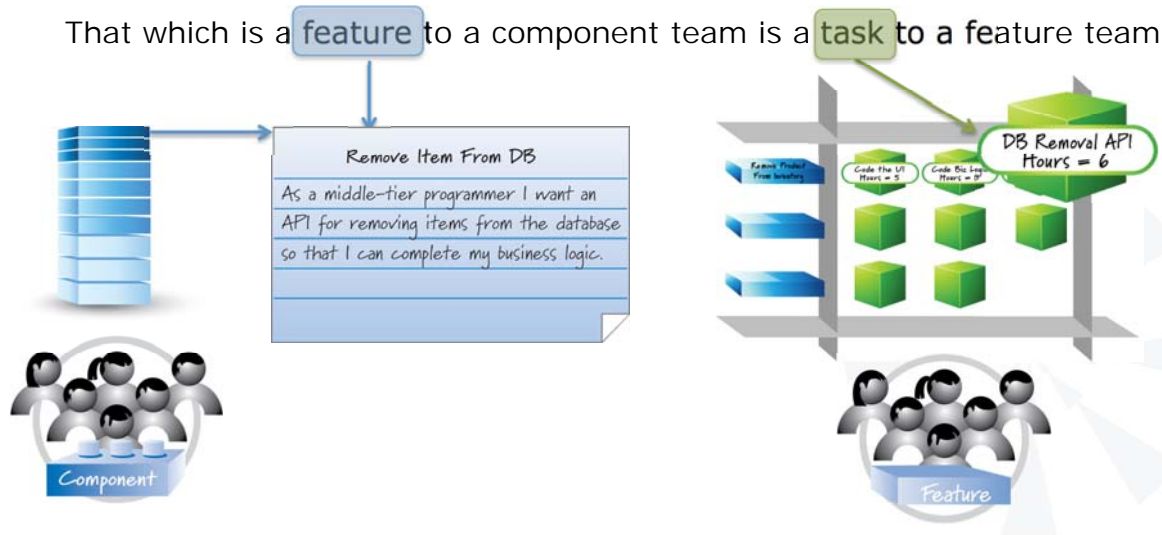


Example "Feature" to a Component Team



That Which Is a Feature to a Component Team is a Task to a Feature Team

That which is a **feature** to a component team is a **task** to a feature team



More Scaling Questions

So, which approach do you prefer?

What criteria are you using to decide?

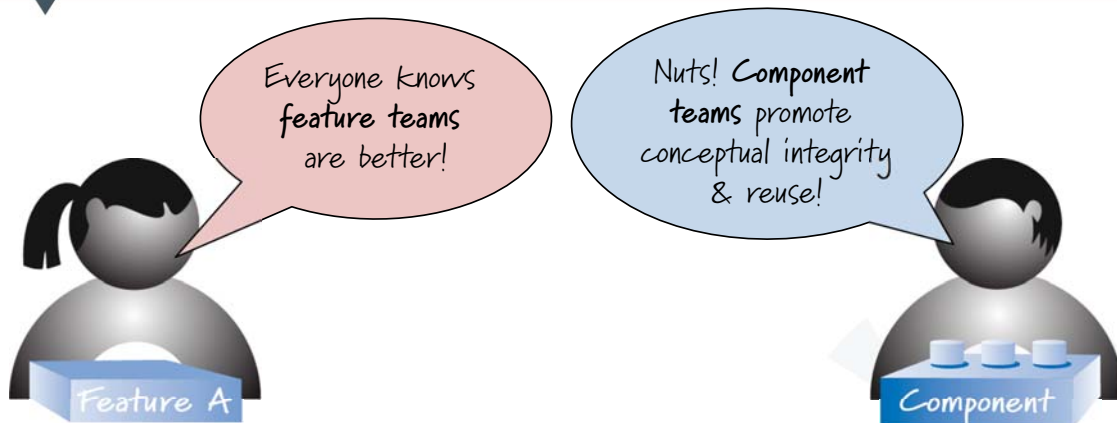




Economically Sensible Scaling



Don't Scale Based on Dogma!



Do you think there is a single answer to scaling that universally applies to all situations (sizes and types of organizations)?



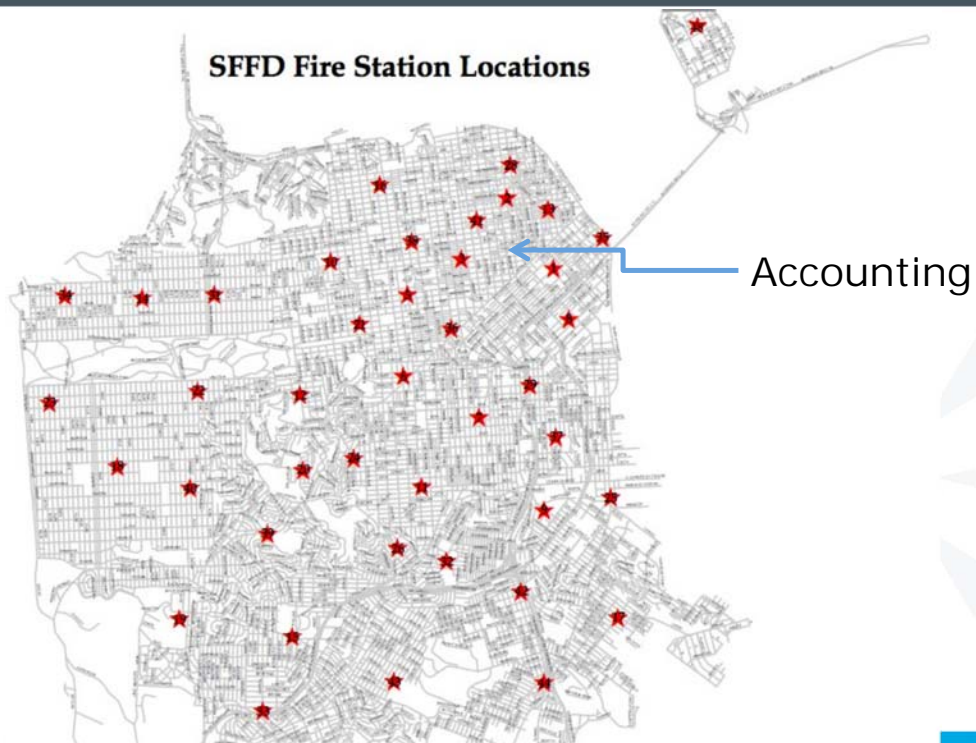


Different Types of Teams in San Francisco

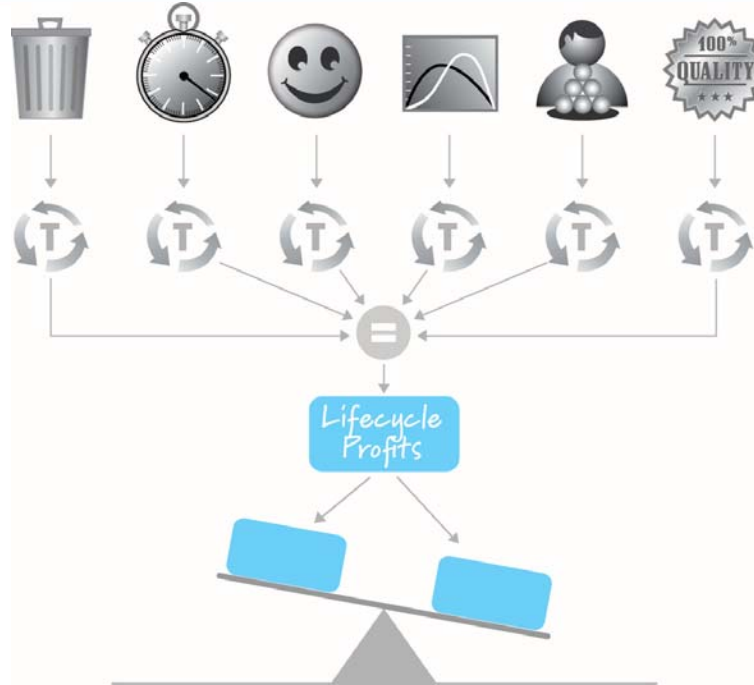
Do you think there should be one centralized firefighting team (station) in the center of San Francisco?



Different Types of Teams in San Francisco



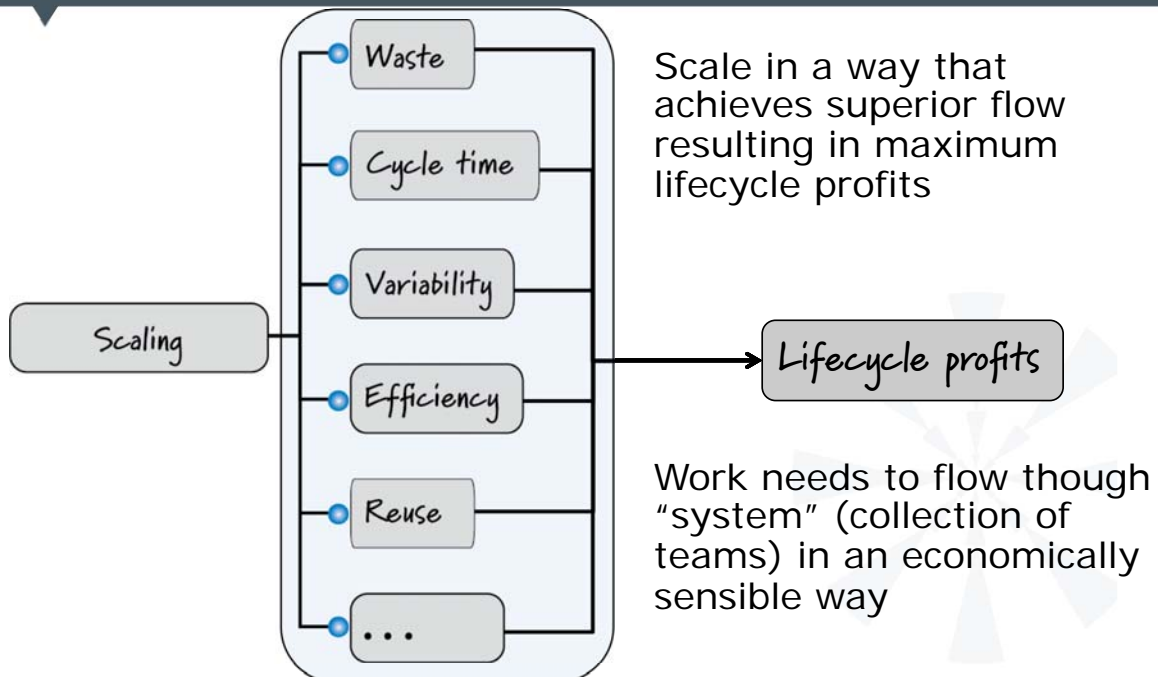
✶ We Need an Economic Framework to Evaluate Scaling Decision



Based on Reinertsen "The Principles of Product Development Flow: Second Generation Lean Product Development"

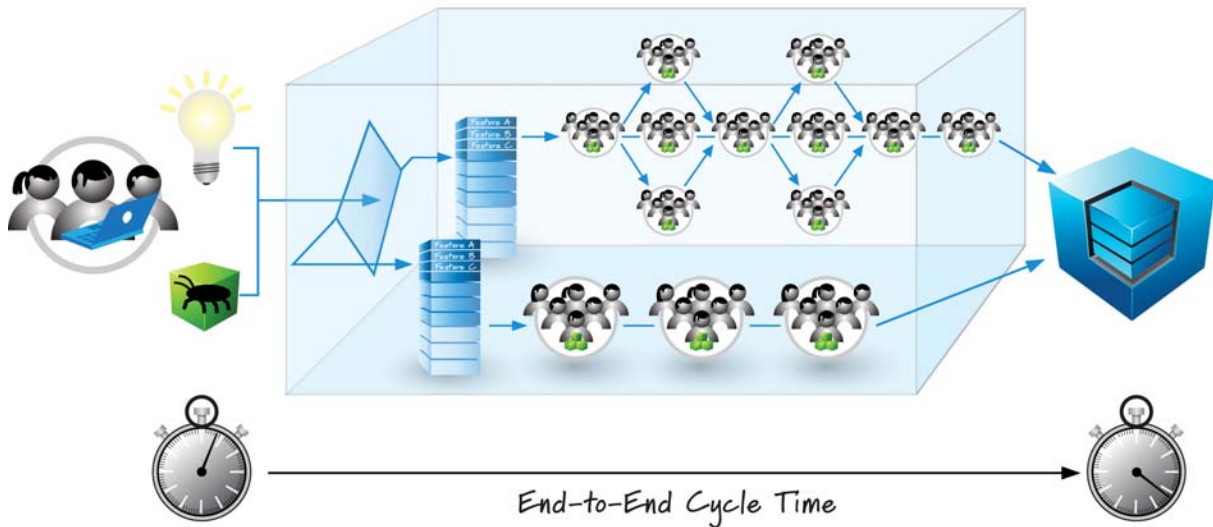


✶ Scale to Maximize Lifecycle Profits

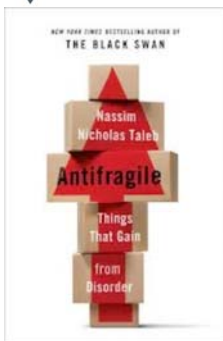


Fast, Flexible, and Economically Sensible Flow

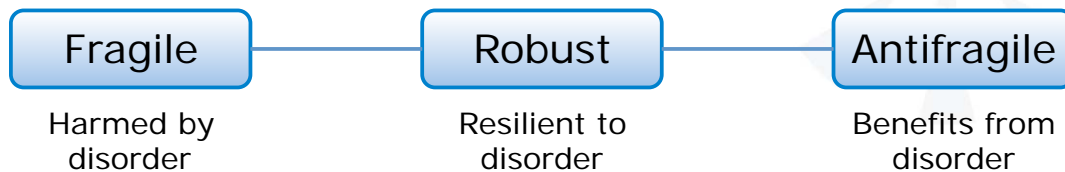
System of teams working together to deliver business value quickly



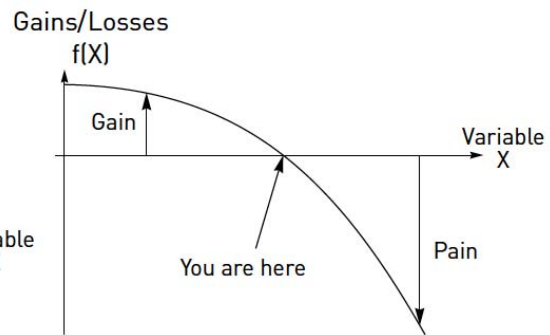
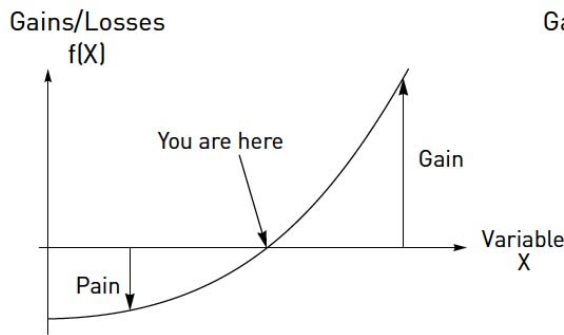
Fragile, Robust, Antifragile



Goal is not to eliminate uncertainty, risk, or variability, but to protect ourselves against the variability that harms us and to promote and exploit the variability that benefits us



Asymmetric Payoffs Create Economic Value or Harm



Positive asymmetric payoff (**antifragile**) anything that has more upside than downside from random events (variability)

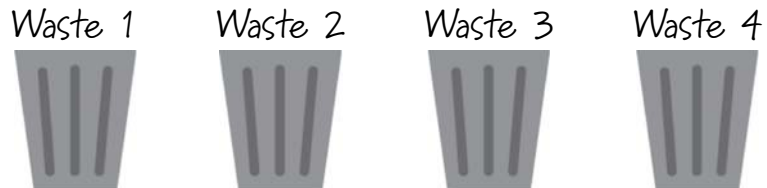
Negative asymmetric payoff (**fragile**) anything that has more downside than upside from random events (variability)

Source: Taleb, Nassim, Antifragile: Things That Gain from Disorder, Random House, 2012.

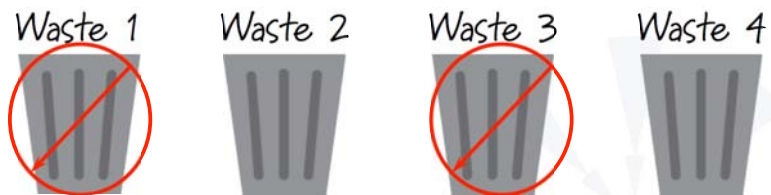


Waste

Multiple forms of waste



Can't eliminate them all



Determine which cause most economic damage

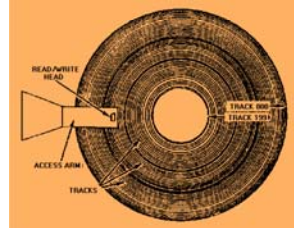


Recognize Inventory (WIP) Waste

Manufacturing inventory is both physically and financially visible

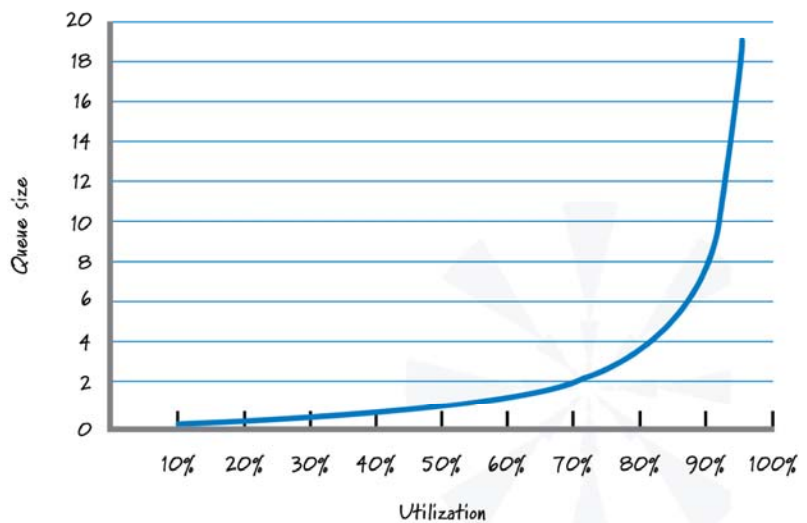


Product-development inventory are knowledge assets that aren't visible in the same way as physical parts

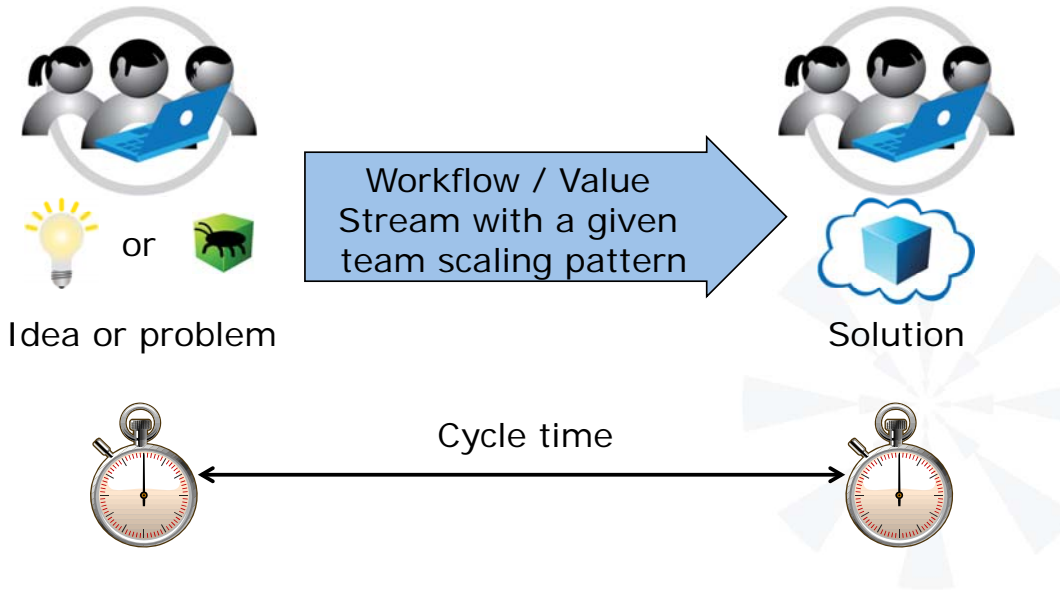


Focus on Idle Work Not Idle Workers

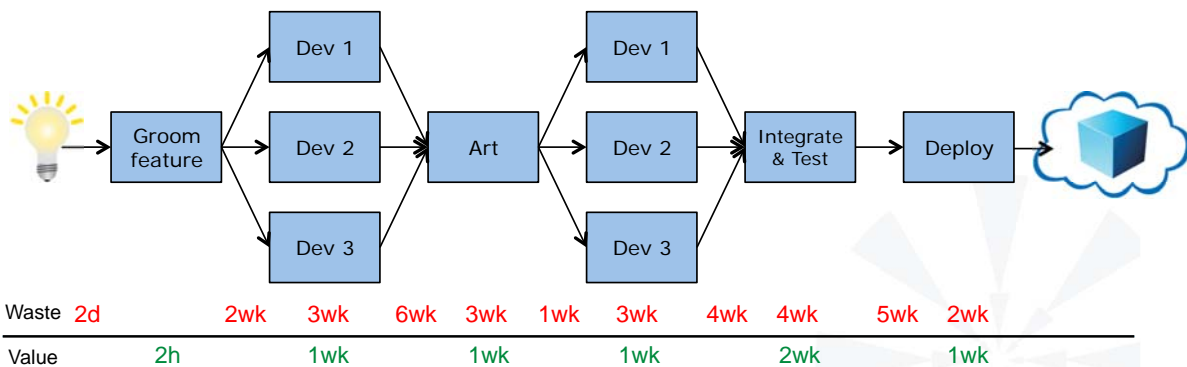
Watch the Baton Not the Runners



Cycle Time



Example Workflow / Value Stream



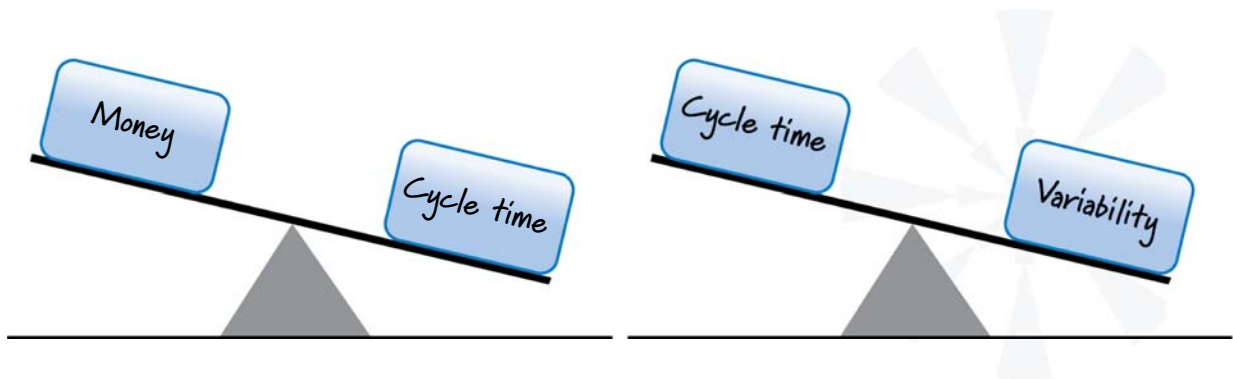
$$\frac{6 \text{ wk value-adding time}}{39.4 \text{ wk cycle time}} = 15\% \text{ Process cycle efficiency}$$

Improve team efficiency 10% yields 1.5% improvement
 Eliminate 10% waste yields 8.5% improvement

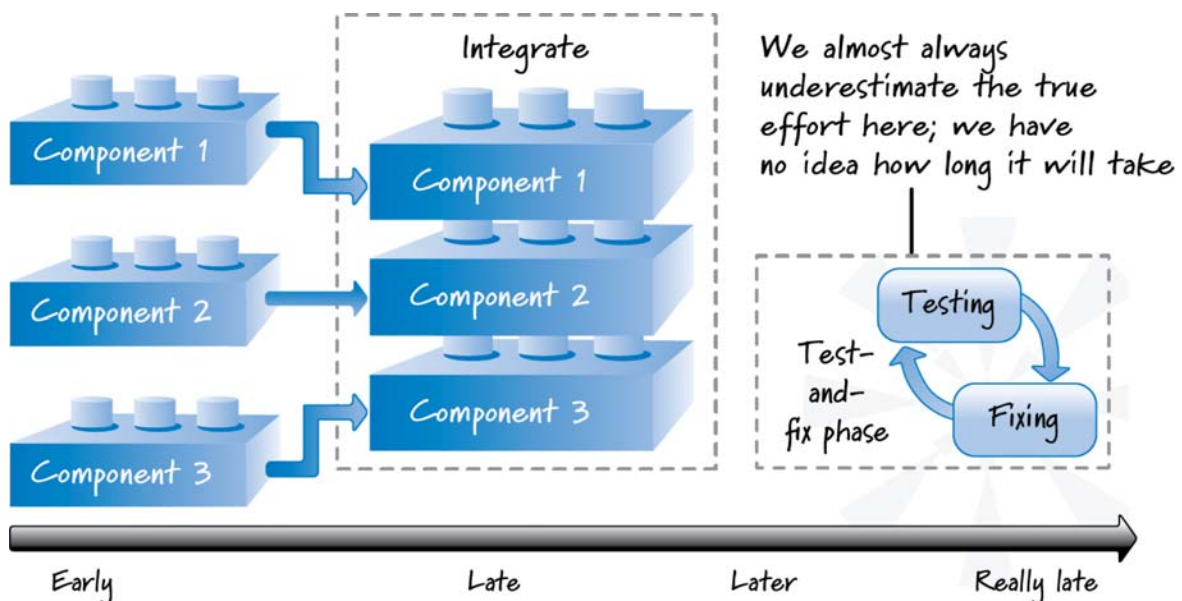


☀ Cost of Delay

If you have to wait 6 weeks for the Art team to draw your art, and that delay could be eliminated by having an artist on your team, what is the cost of the Art-team delay (in lifecycle profits)?



☀ Organize Teams to Validate Important Assumptions Fast

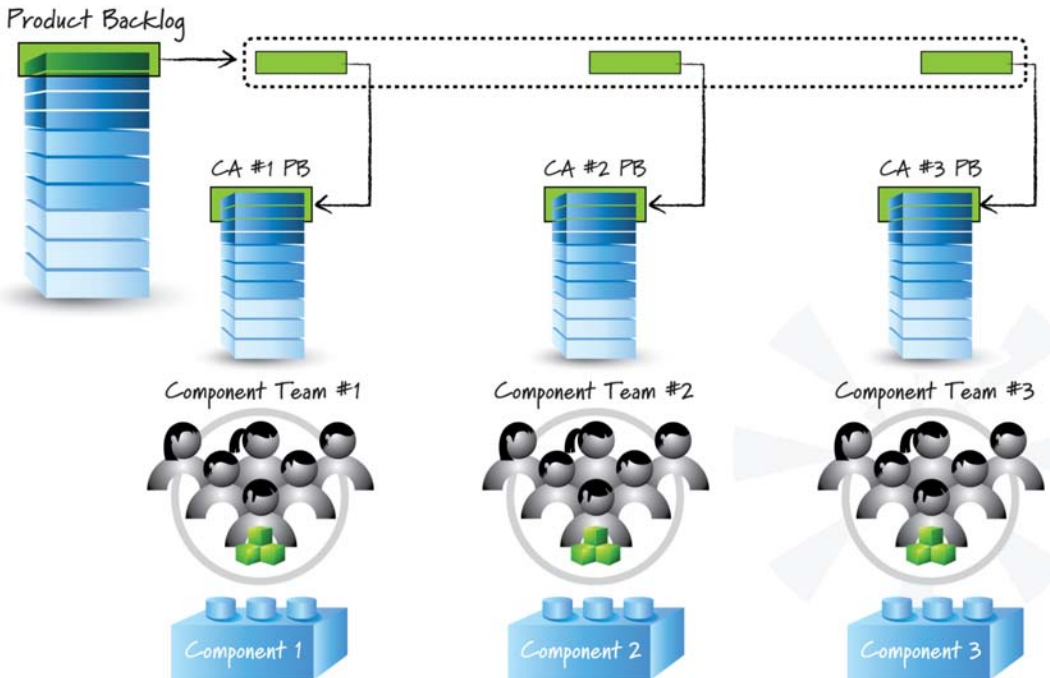




Analysis of Component Teams



Component Teams (Single Source)



Component Teams (Multiple Sources)



Issue – Prioritization

Localized prioritization decisions



Feature prioritization driven by component team availability



NPF (noisiest person first) dominates

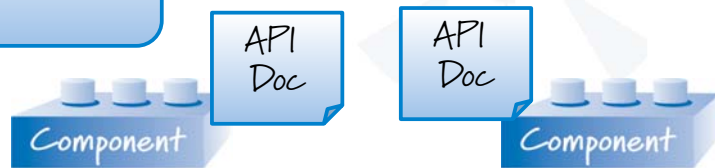


Issue – Coordination Costs

Requires significant and on-going planning, handoffs, and dependency management

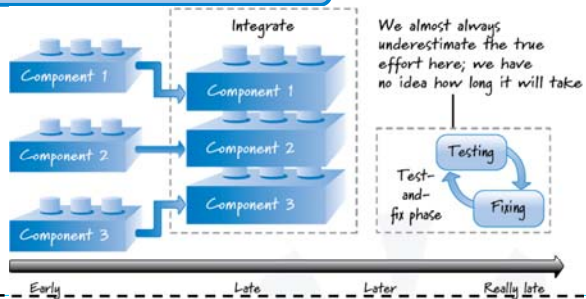
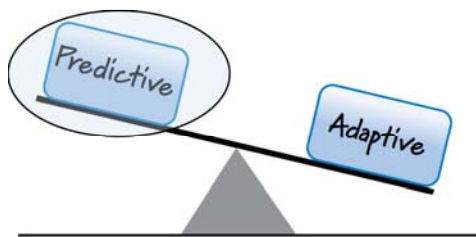
At scale, dependency management becomes economically intractable

Favors low-bandwidth means of communication (interaction by contracts)

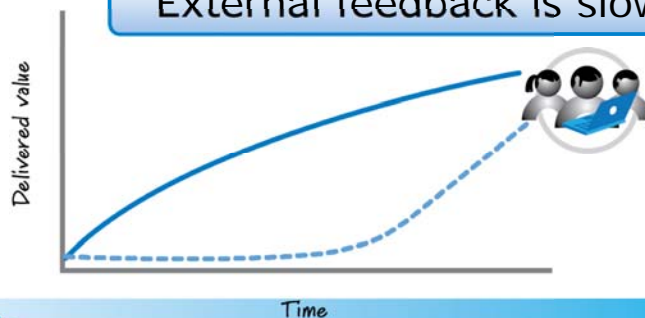


Issue – Slower Feedback

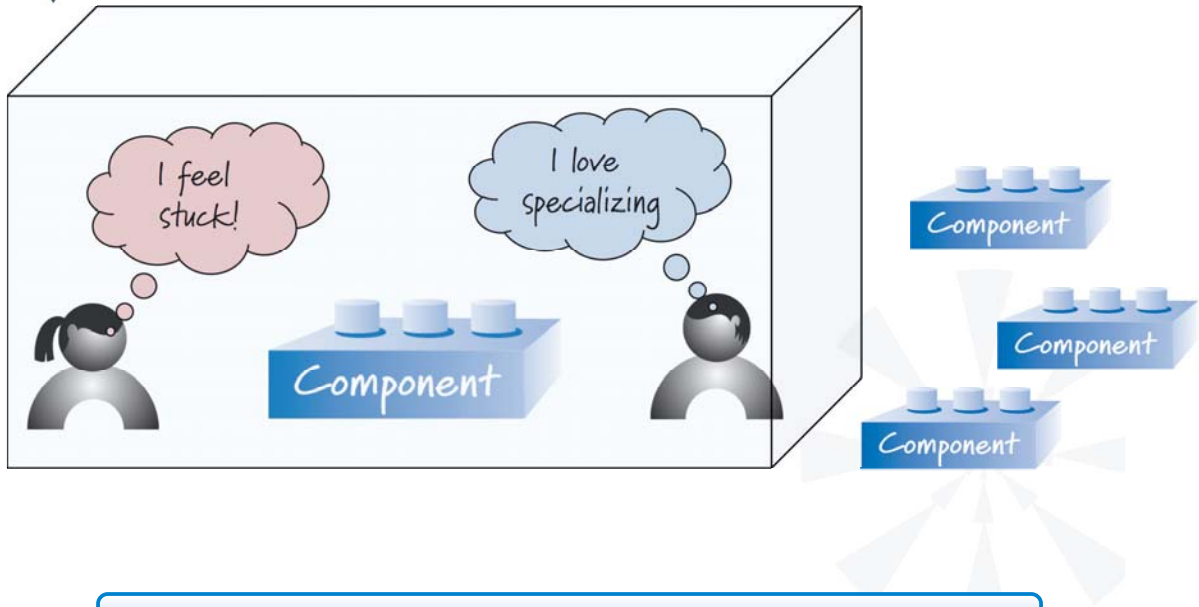
Internal feedback is slower



External feedback is slower



Issue – Limits Learning



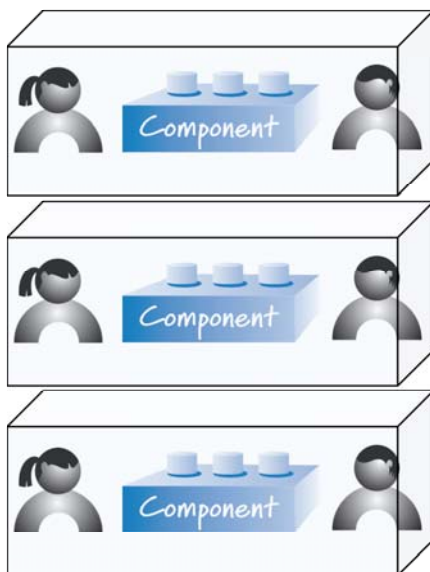
Fragile: specialty knowledge in only a few heads



Issue – Harder to See the Whole

Best components ever!

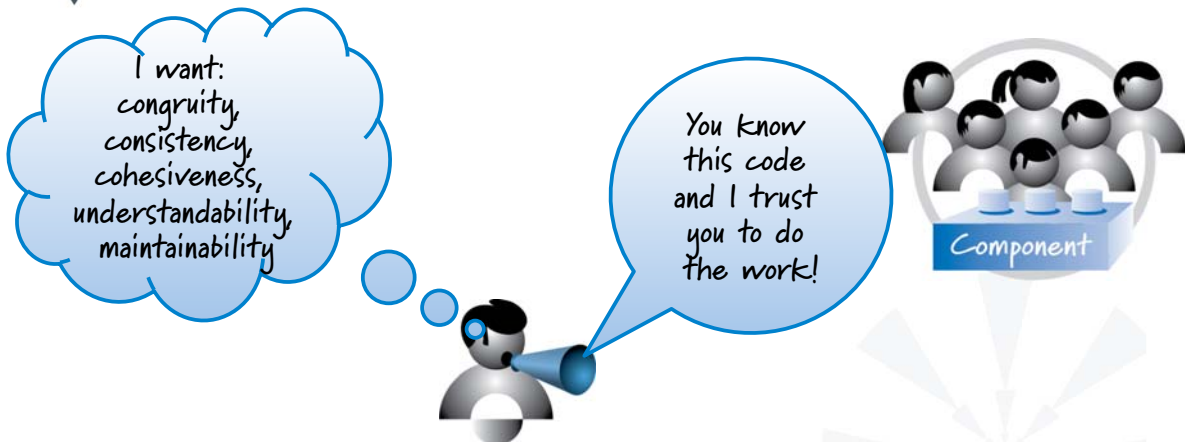
But still a poor product



Alignment trumps local excellence



Desirable Property – Conceptual Integrity

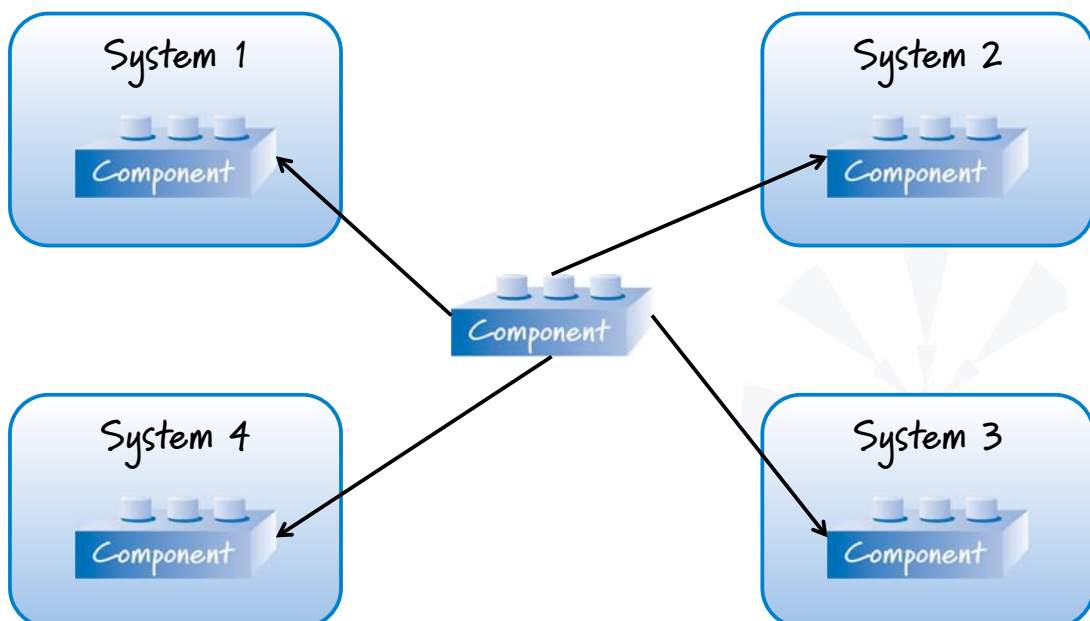


Want conceptual integrity both at component and full system/product level

Conceptual integrity at the component level **does not** guarantee conceptual integrity at the product level



Desirable Property – Asset Reuse

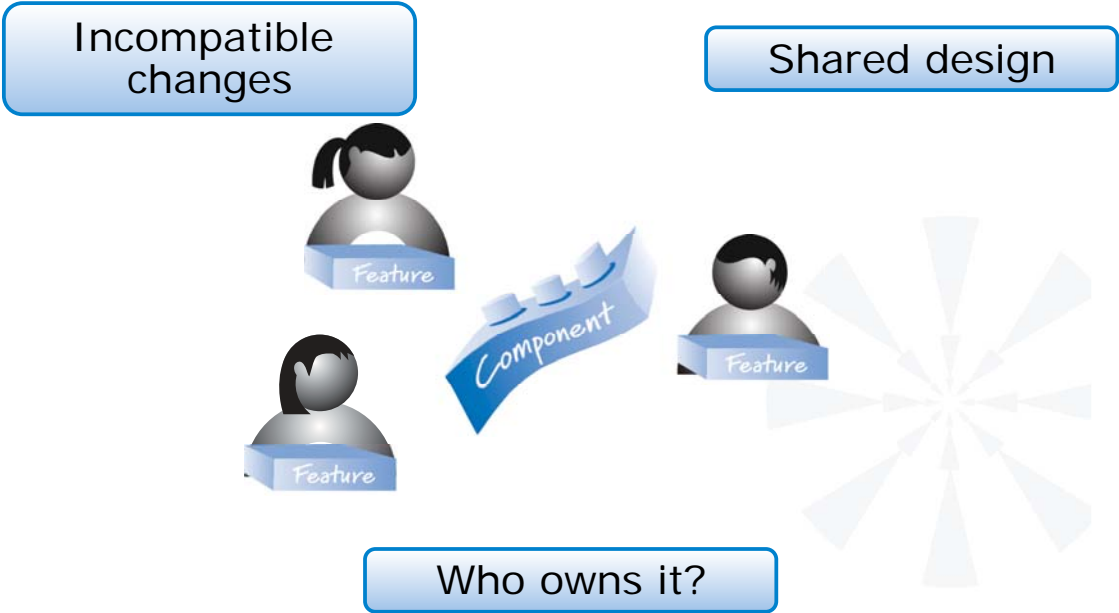




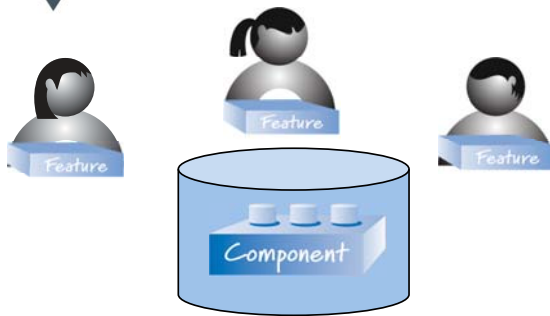
Analysis of Feature Teams



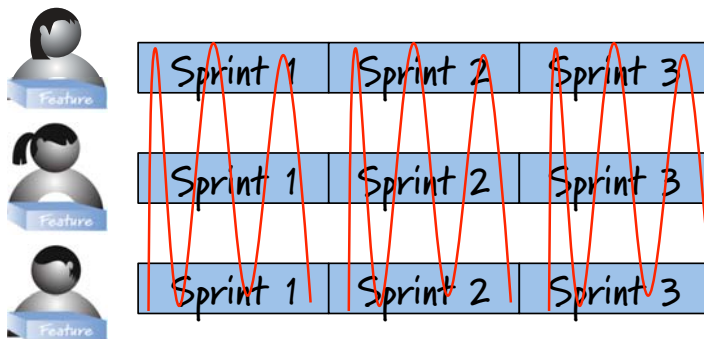
Issue – Lack of Conceptual Integrity



Issue – Technical Practices



Manage concurrent access



Continuously integrate work



Issue – Lack of Knowledge



Need deep domain skills

Need deep technical skills

Need to understand large system



Issue – Non-functional Requirements

Who ensures the non-functional requirements?

As a customer, I want to be one of 10,000 customers who can use the system during peak usage periods.

As a user, I want the site to be available 99.999% of the time I try to access it.

As the CTO, I want the new system to conform to our established security policies.

As a user, I want an interface in English, a Romance language and a complex language.



Issue – Team Longevity

Product 1



PB 1



Feature Team A



Product 2



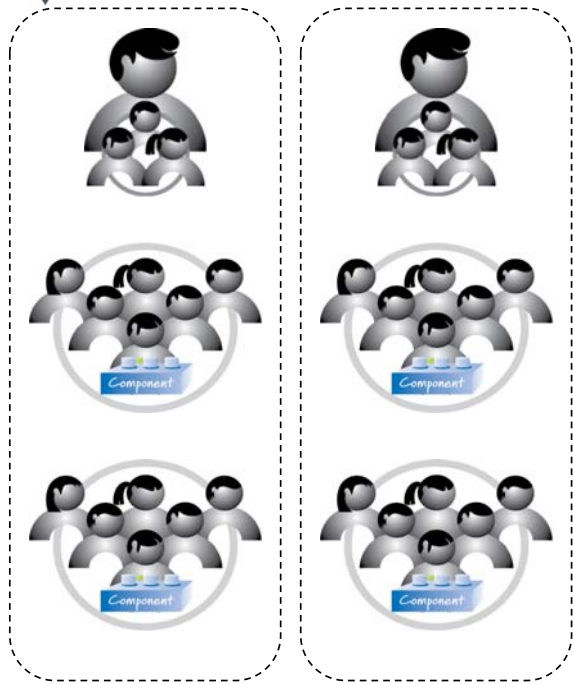
PB 2



Feature Team A



✦ Issue – Organizational Resistance



Interferes with fiefdoms

Too hard to reorganize into feature teams

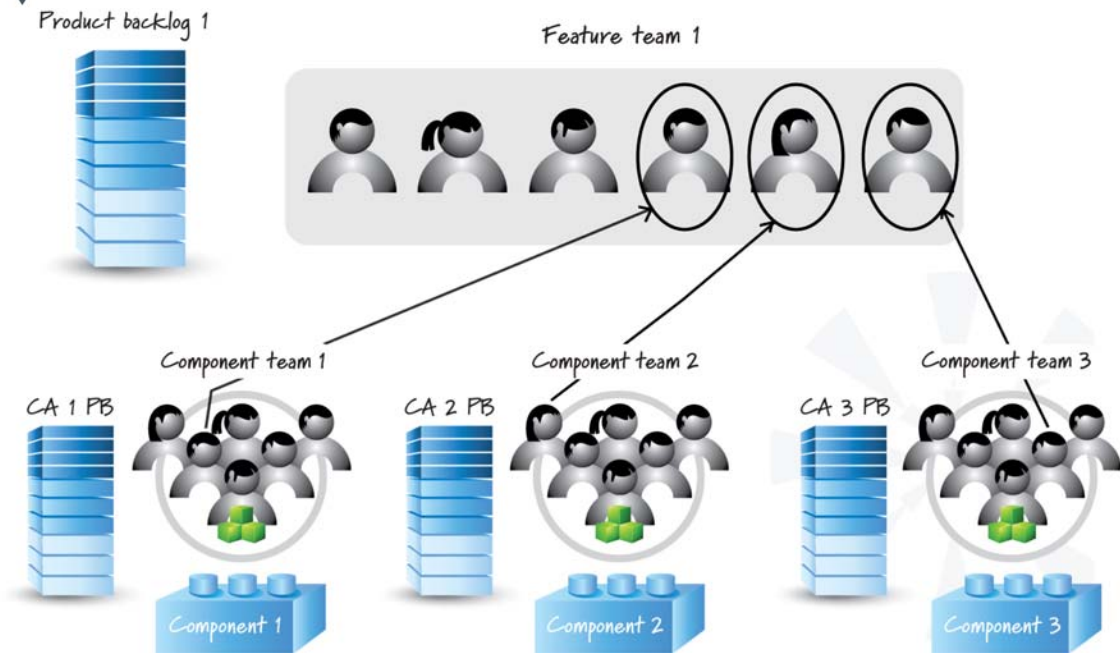
A general belief that feature teams will lead to significant technical debt



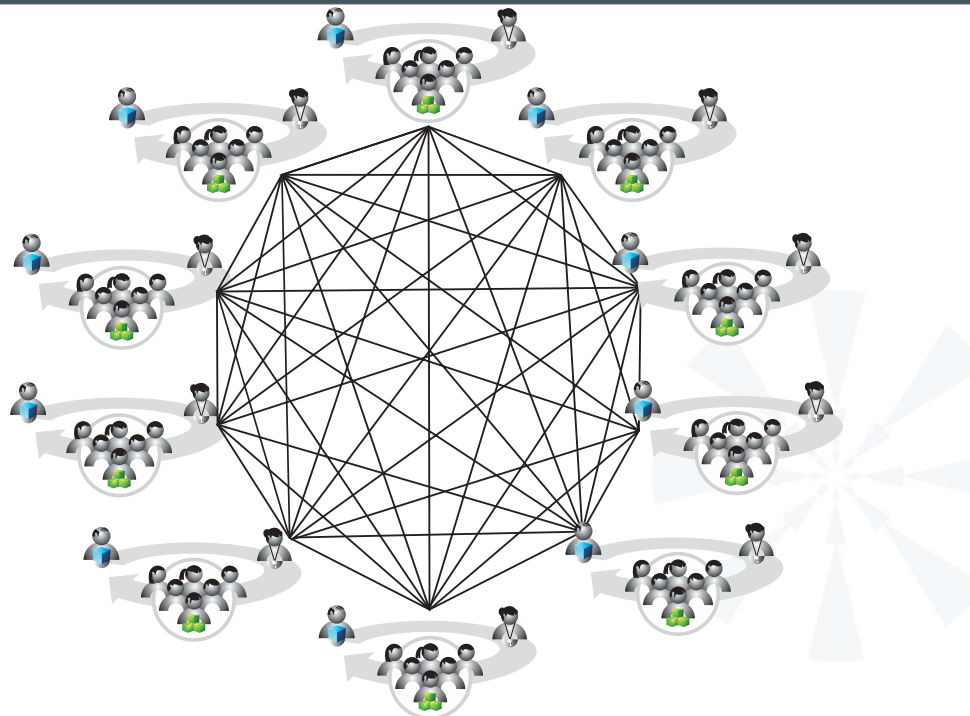
Example
Economically
Sensible
Approaches



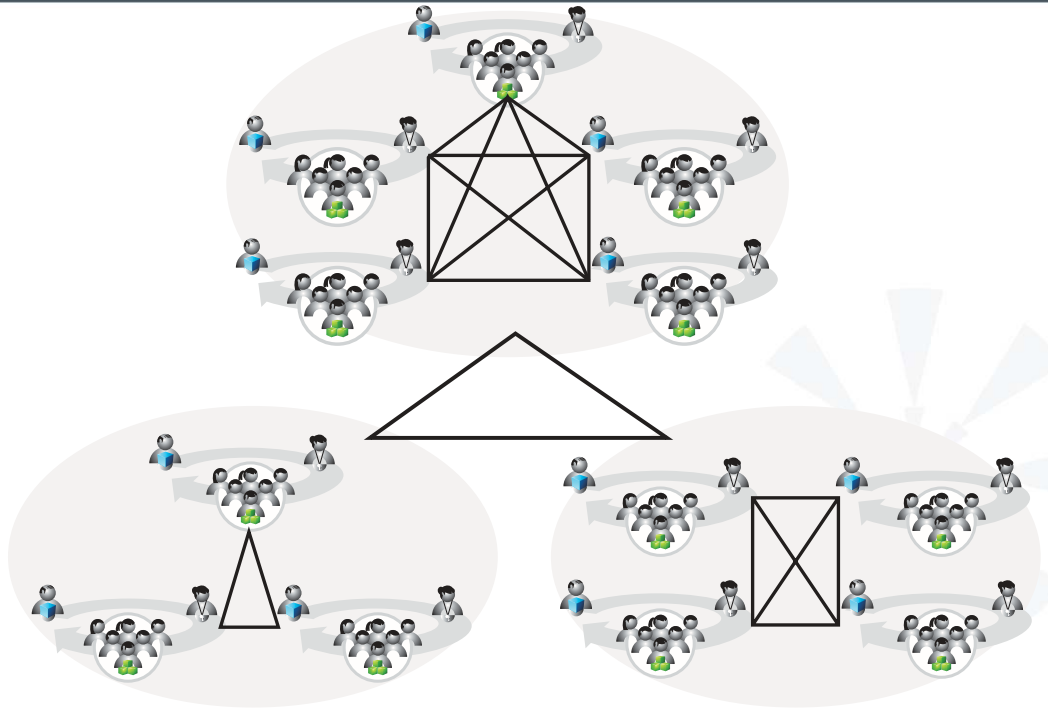
Combined Feature & Component Teams



Teams with Fully Connected Communication Channels



Teams Form Collaboration Clusters



Component Stewards/Guardians

Feature Team A



Feature Team B



Component Steward



I teach other people about component

Ensure changes maintain or improve conceptual integrity

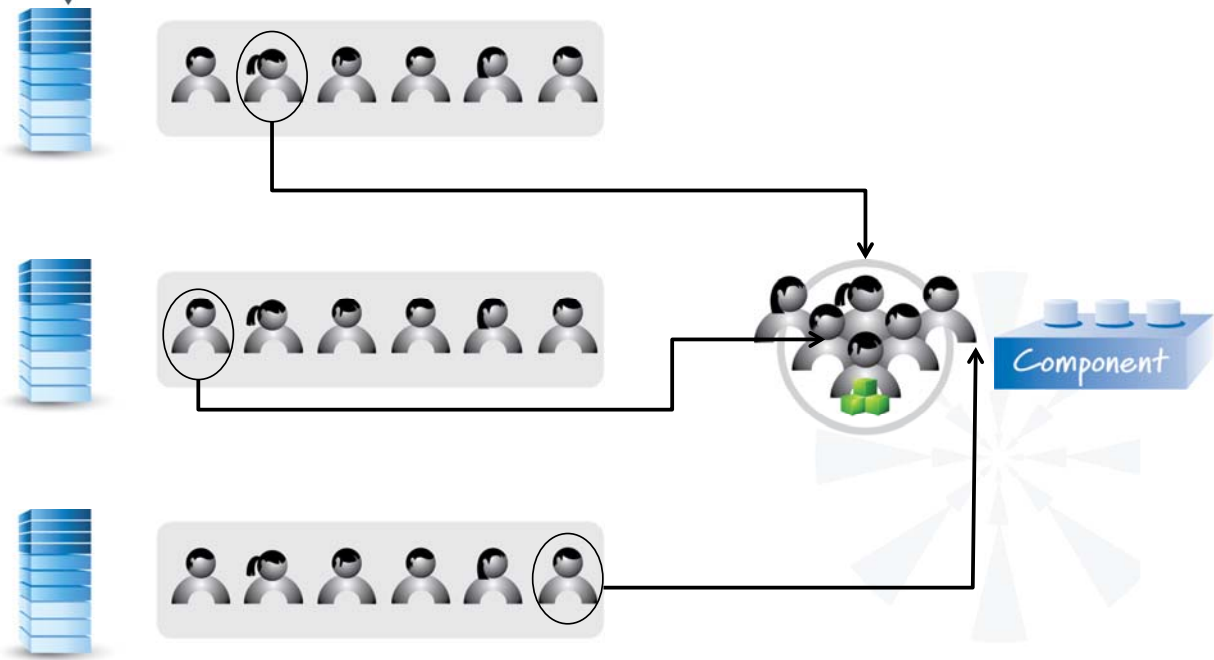
Take a leadership role in promoting reuse

I don't "own" the component

Feature teams make component changes



Create a Community of Practice from Feature Team Members



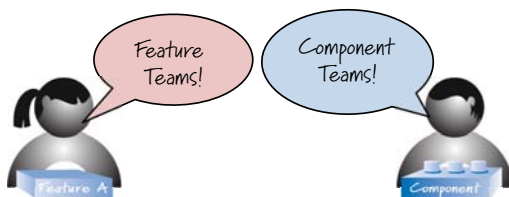
Summary

When you need more than 1 team

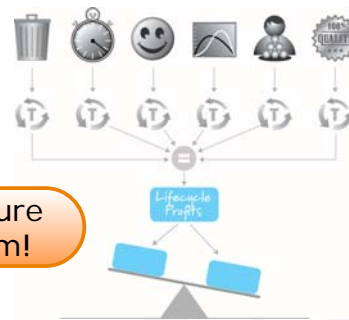


As a rule, you want most teams to be feature teams with an occasional component team!

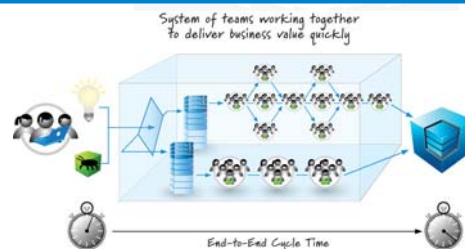
Don't scale based on dogma



Apply an economic framework



To achieve fast, flexible, flow



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— John F. Bauer III, veteran of technical solution delivery in large corporate IT shops

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