

Scaling Lean & Agile: Large, Multisite or Offshore Delivery

Craig Larman

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background...

Global Delivery Center
Founded in 2004 following the acquisition of Majoris by Valtech, the Valtech Global Delivery Center was awarded SBI-CMM Level 5 certification in July 2005.

Highlights

- Modern 45,000 sq. ft. (4,200 sq.m.) facility in Bangalore, India
- Round-the-clock operations supporting worldwide Agile development projects
- 500 full-time Valtech employees
- 24/7 physical security and access control
- Virtual project rooms with complete development & test facilities
- Cutting-edge voice, data and power distribution networks.



Valtech
Global Delivery Center



served as chief scientist @ Valtech
helped create “agile offshore”
lived in Bangalore (Bengaluru)

SIEMENS

LOCKHEED MARTIN



**Nokia Siemens
Networks**





was lead coach of lean sw development

XEROX

coach/consultant for large-scale & multisite & “offshore” Scrum



Nokia Siemens
Networks



Alcatel·Lucent



Computer Associates™

UBS ...

single-product size? 150-1500

people

3-10 sites

5-50 MSLOC

average?

800? 4 sites?

The earliest large-scale software-intensive product development was the Semi-Automatic Ground Environment (SAGE) system; created in the 1950s, it involved hundreds of people.¹ In retrospect, what did a senior manager think of the development strategy?

*One of the directors of SAGE was discussing why the programming had gotten out of hand. He was then asked, "If you had it to do all over again, what would you do differently?" His answer was to **"find the ten best people and write the entire thing themselves."** [Horowitz74] (emphasis added)*



curitiba, brazil



helsinki, finland



wroclaw, poland



bengaluru, india



antwerp, belgium



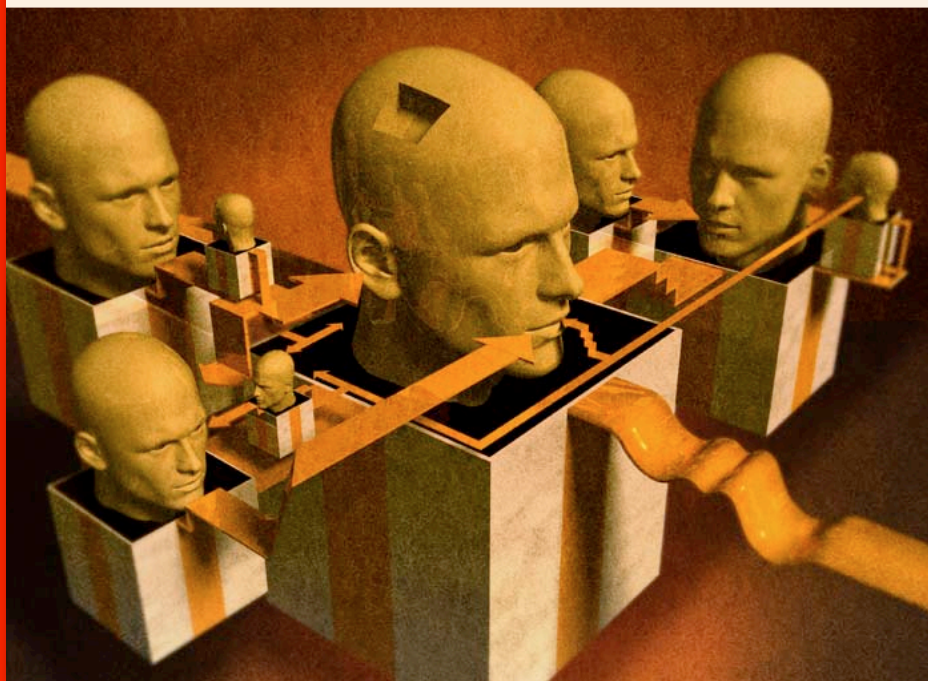
hangzhou, china

got tired of answering the same
questions, so wrote...

Scaling Lean & Agile Development

Thinking and Organizational Tools
for Large-Scale Scrum

Craig Larman
Bas Vodde

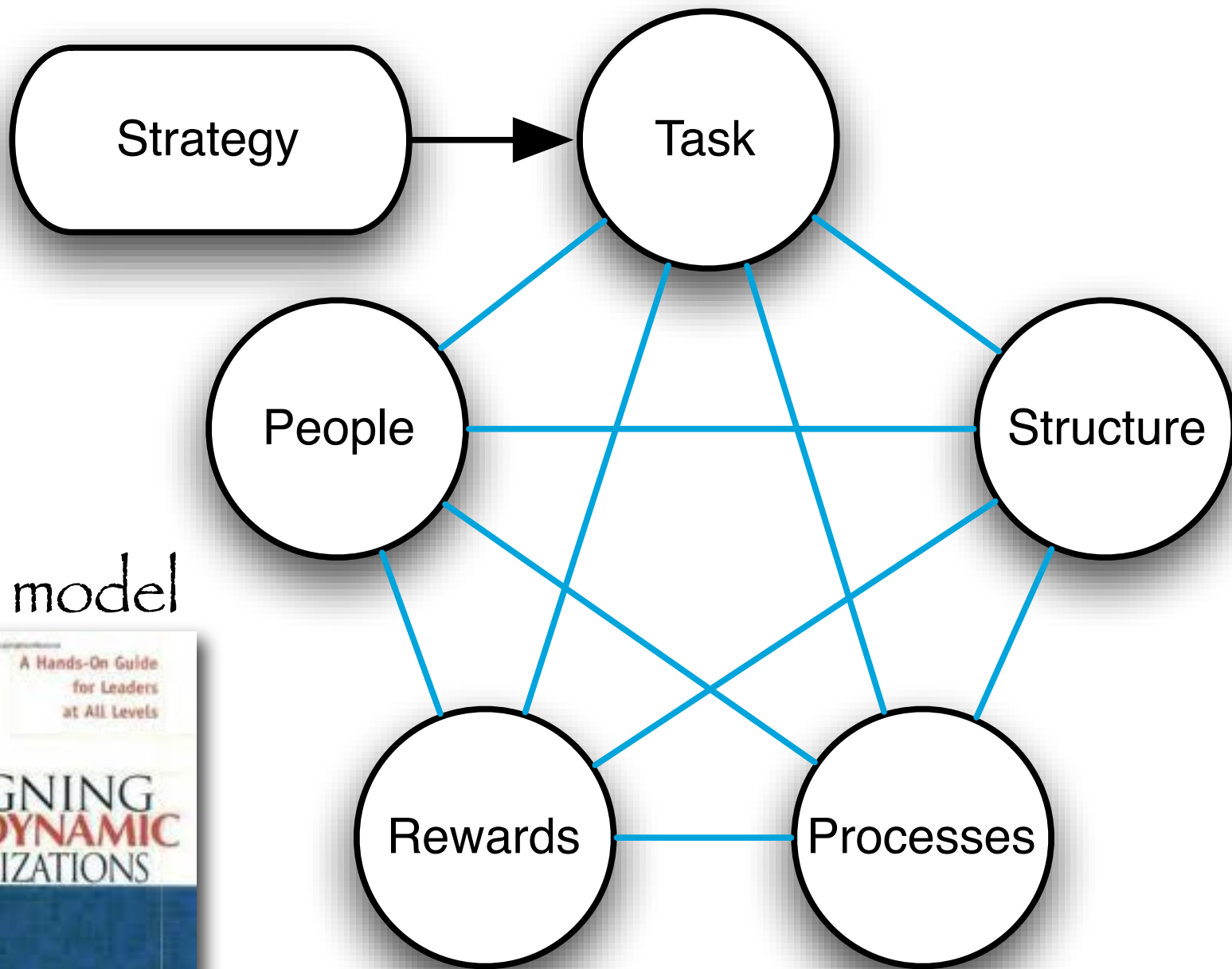


Practices for Scaling Lean & Agile Development

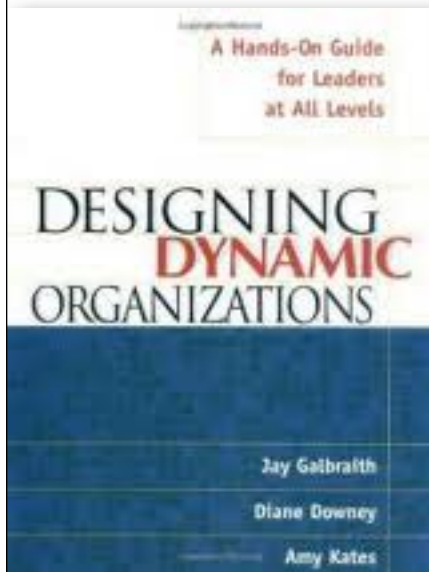
Large, Multisite, and Offshore Product Development
with Large-Scale Scrum

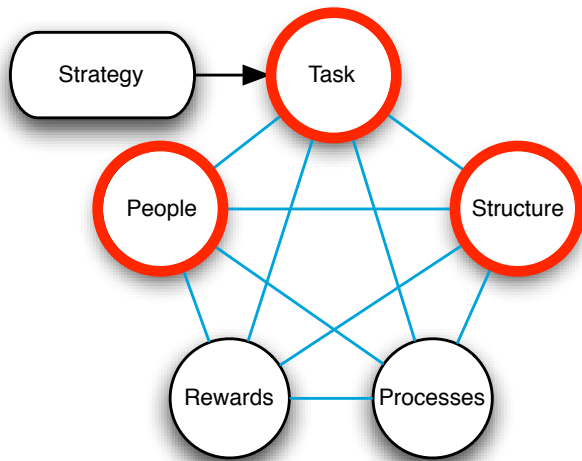
Craig Larman
Bas Vodde





Star model

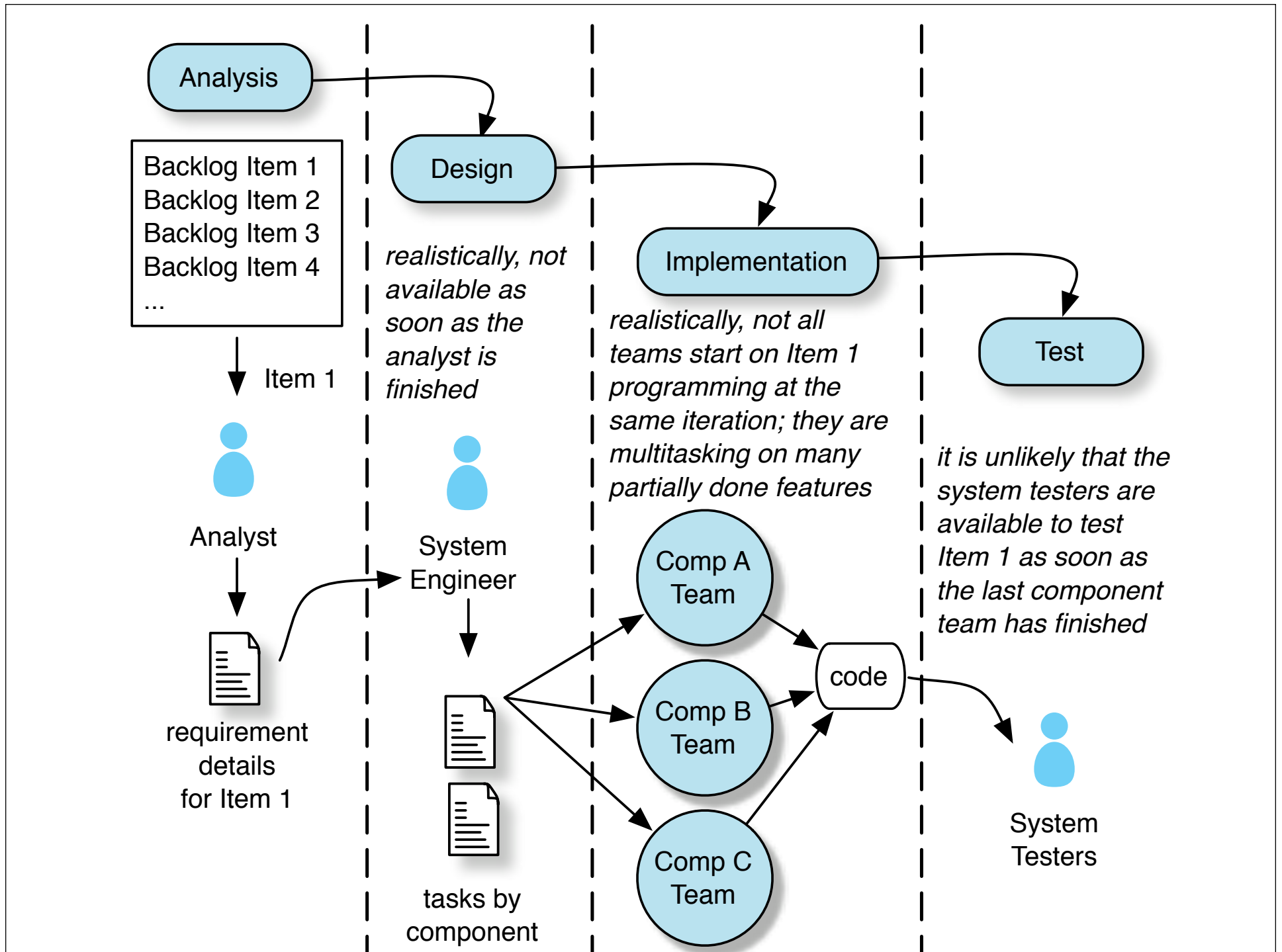




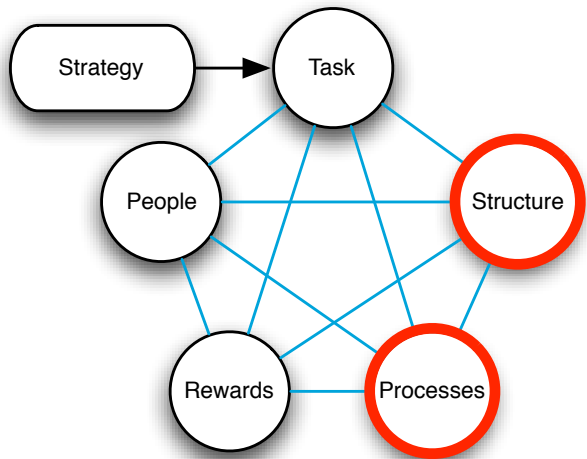
cross-functional, multi-learning,
cross-component feature
teams, with no single-specialists
(i.e., normal Scrum Teams)

not single-function groups

not component teams...



note how organizational
structure inhibits change in
architectural structure
(Conway's observation)



requirement areas...

Product Backlog

| Backlog Item | Requirement Area |
|--|--|
| IPv6 performance 10x HSDPA performance stats configuration of cells new NMS solution speed-up of build improved upgrading support stability to 99.999% | protocols performance management protocols management continuous integration upgrades management reliability |

| Product Backlog |
|--|
| IPv6 performance 10x HSDPA performance stats configuration of cells new NMS solution speed-up of build improved upgrading support stability to 99.999% |

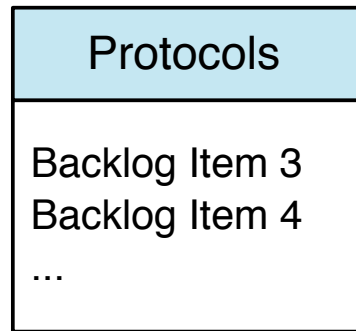
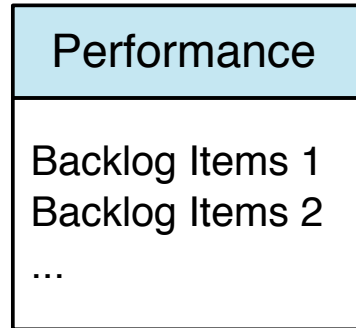
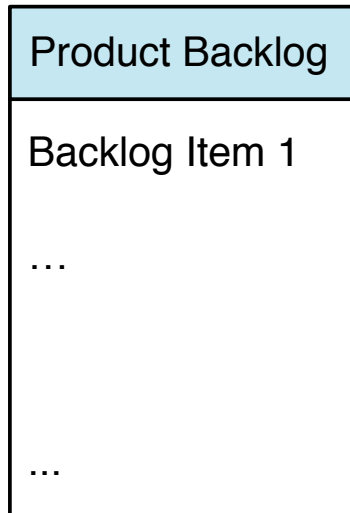


| Performance Area Backlog | |
|---|--|
| performance 10x performance 10x ... | switch hardware optimize DSP ... |



| Protocols Area Backlog | |
|------------------------------|--|
| IPv6 IPv6 HSDPA ... | simple connect data sending failed call ... |

or, "overall PO"

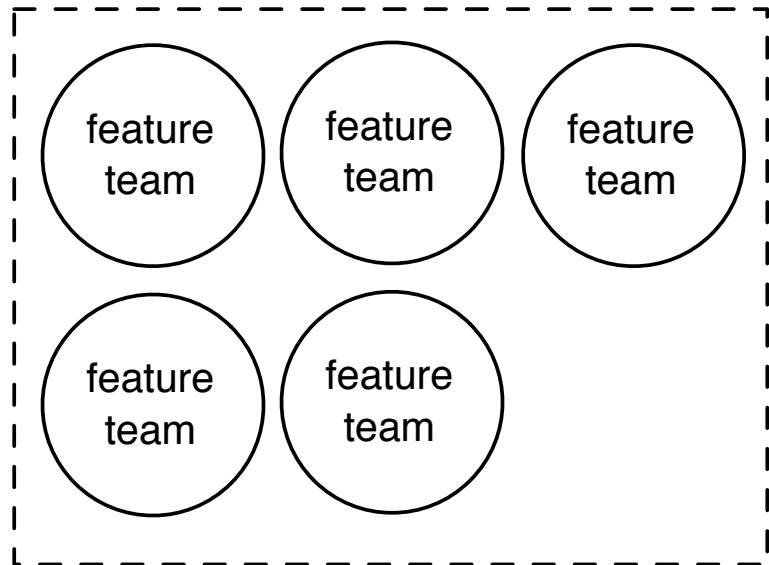
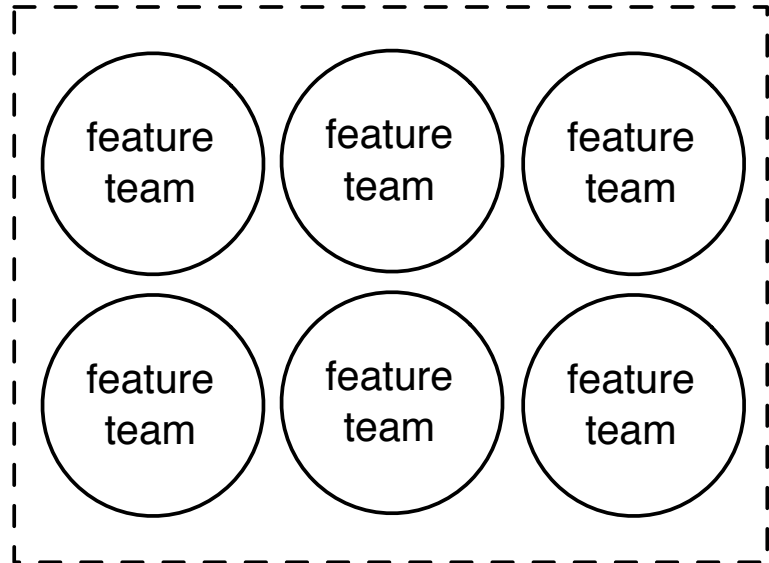


Area
Product
Owner

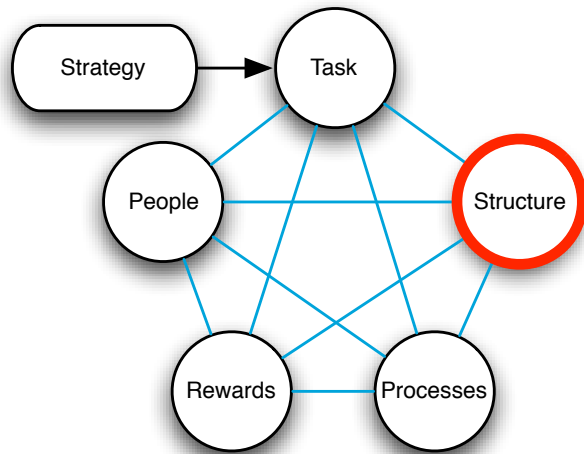


Area
Product
Owner

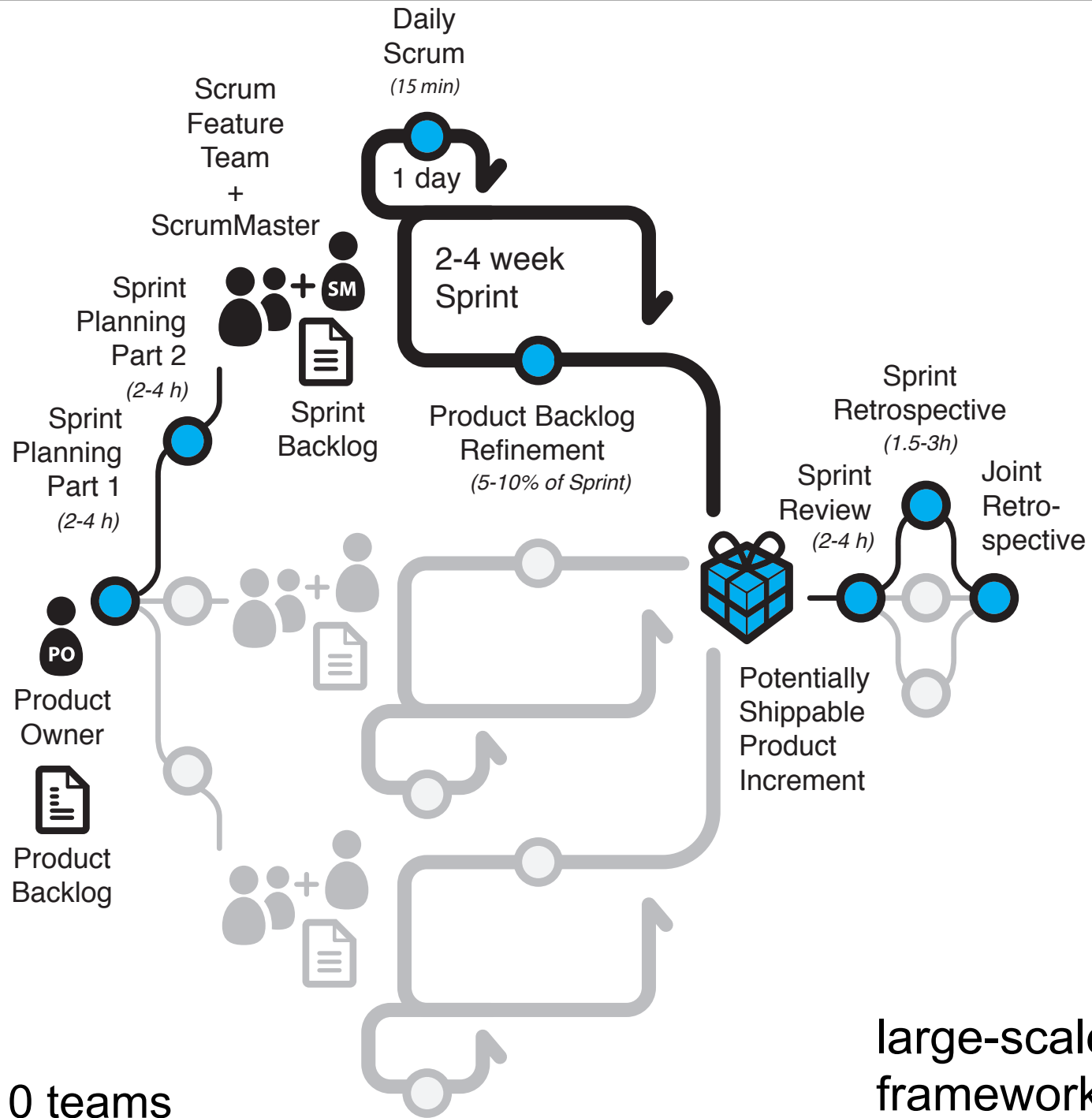
performance area feature teams



protocols area feature teams

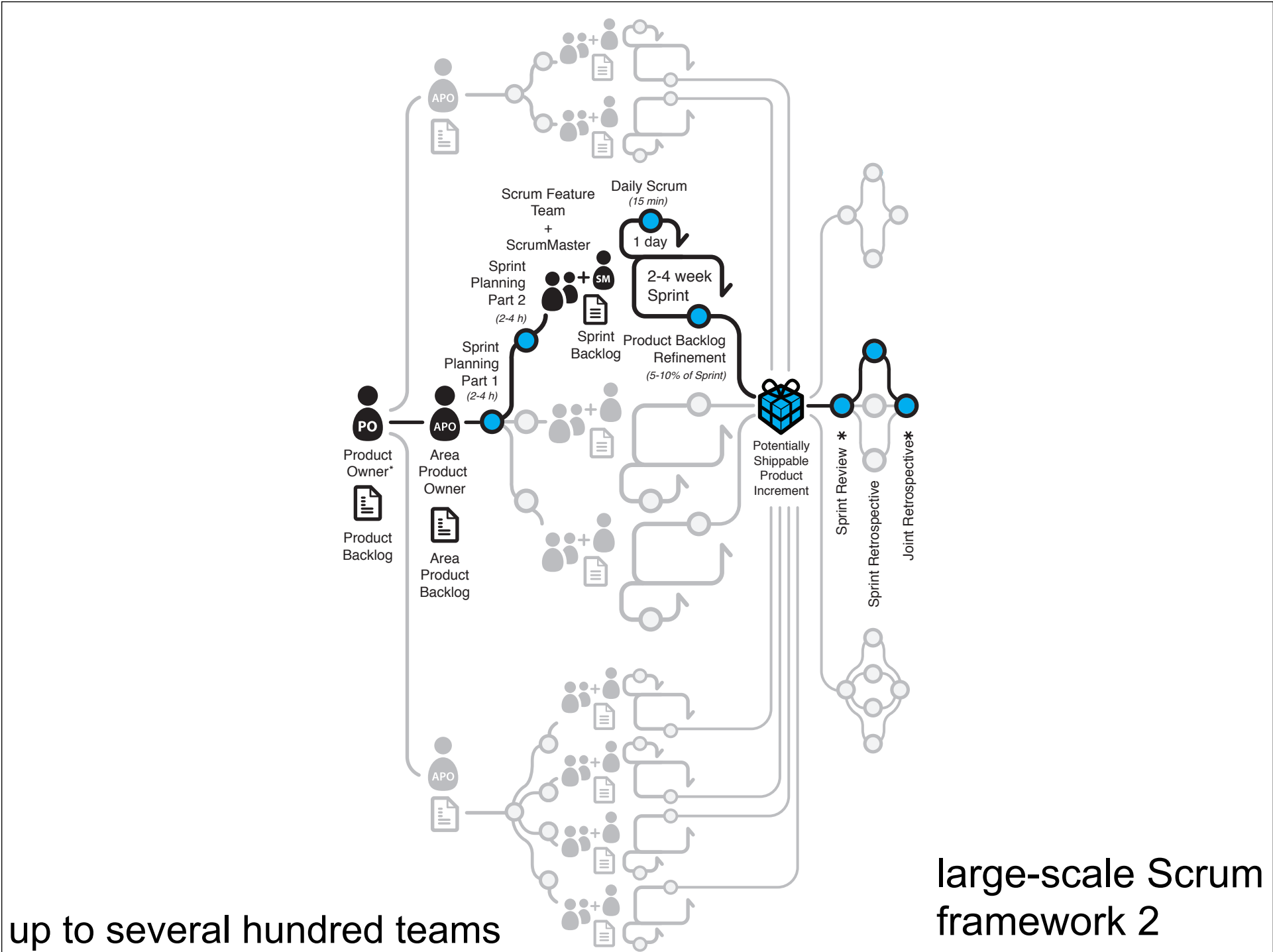


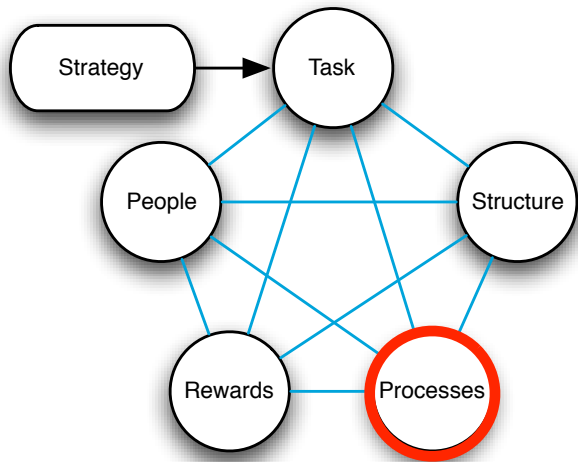
large-scale Scrum frameworks...



up to 5 or 10 teams

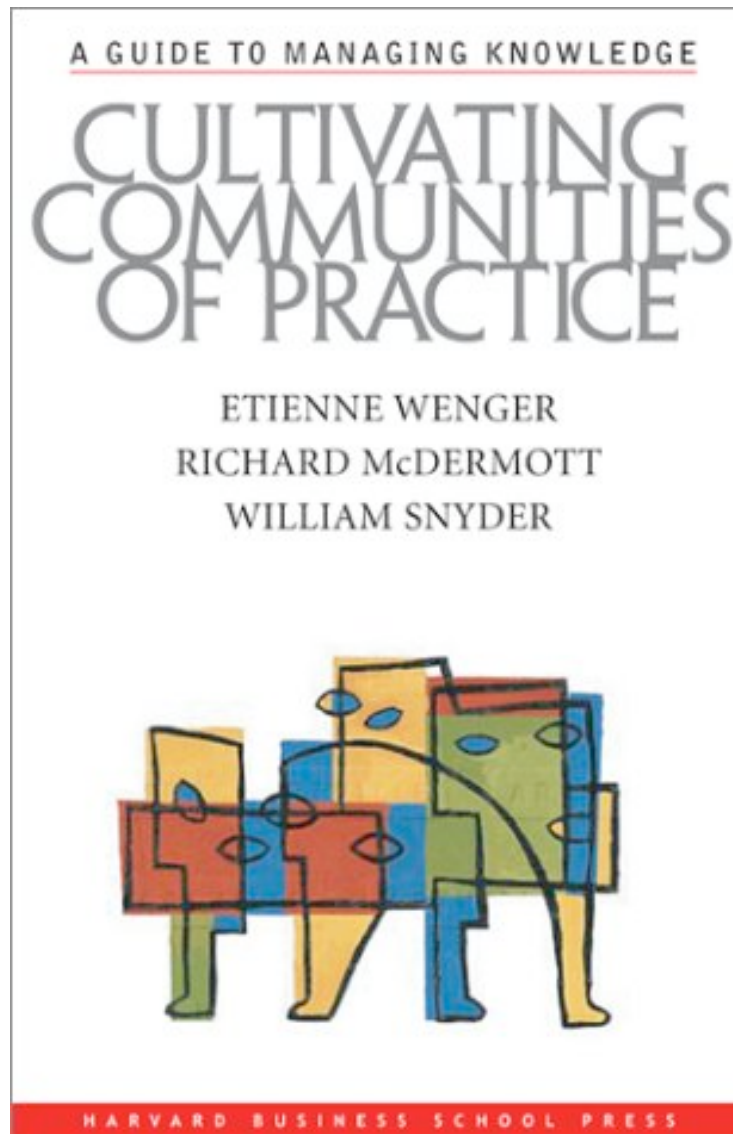
large-scale Scrum framework 1





design...

CoPs for all cross-discipline concerns



design workshops & joint design workshops



programming
good; modeling
bad

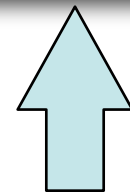
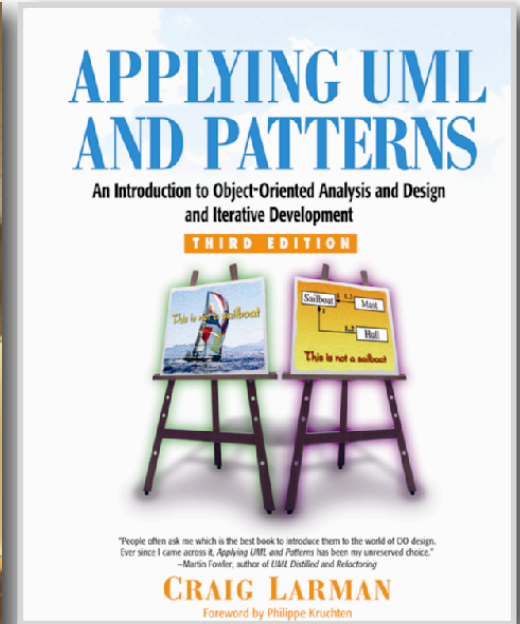
modeling good;
programming
bad

false
dichotomies

multisite video meetings with diverge-merge cycles



agile documentation workshop: N+1 View Model, Videos, Technical Memos



Chapter 39:
Documenting
Architecture

agile documentation workshop: N+1 View Model, Videos, Technical Memos



~~“PowerPoint” architects~~

culture of master-programmers

culture of gardening, not “building”



system-engineering group

architecture group

...

~~branching for customization~~

configuration for customization
(metadata, ...)

our code, subsystem, custom
tool, framework (not yours)

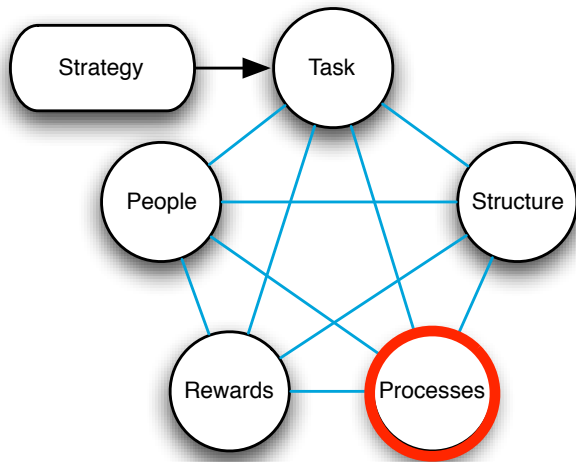
internal open source

component guardians

start with weakly-typed
interfaces across major systems

```
do ( aMap );
```

HALs & OS-ALs
(e.g., boost, apache
portable runtime)



requirements...

smaller-requirement splitting (not by tasks)...

- use cases
 - CRUD use cases
- scenarios of a use case
- data parts
- “type” specialization (e.g., different types of trades)
- scenario steps
- integration with external elements
- configurations
- I/O channels (e.g., via GUI and non-GUI)
- data formats
- role or persona
- “non-functional” requirements
- operation (e.g., HTTP GET, PUT)
- with stubs

dhcp. As a Network User, I want DHCP server support so that I can easily get a viable IP address and then use the network

dhcp.request. As a Network User, I want the server to handle requesting an IP address so that I can easily get a viable IP address and then use the network

dhcp.renew. As a Network User, I want the server to handle renewing an IP address so that I can easily keep using my current IP address when its lease expires

dhcp.full-support. As a Network User, I want full DHCP support

dhcp.request. As a Network User, I want the server to handle requesting an IP address so that I can easily get a viable IP address and then use the network

dhcp.request.success.main. ...I want a viable IP address when requesting an IP address and free ones are available...

...I want any viable IP address when requesting an IP address and free ones are available...

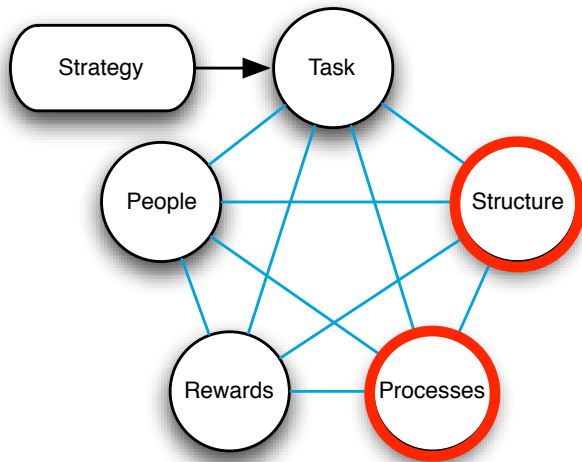
dhcp.request.fail.none free. ...I want to receive an error message when requesting an IP address and none are free...

dhcp.request.other. Everything else.

major feature goal: HSDPA calls

first split child (use-case scenario splitting):

Support for a properly failing HSDPA call



multisite...

terminology:

dispersed team

(avoid them; they don't scale
for 500-person groups)

large-scale multisite
development does not require
dispersed teams

Sprint N

Sprint N+1

London



Scrum
Feature
Team



Scrum
Feature
Team



Scrum
Feature
Team



Scrum
Feature
Team

Shanghai



Scrum
Feature
Team



Scrum
Feature
Team



Scrum
Feature
Team



Scrum
Feature
Team

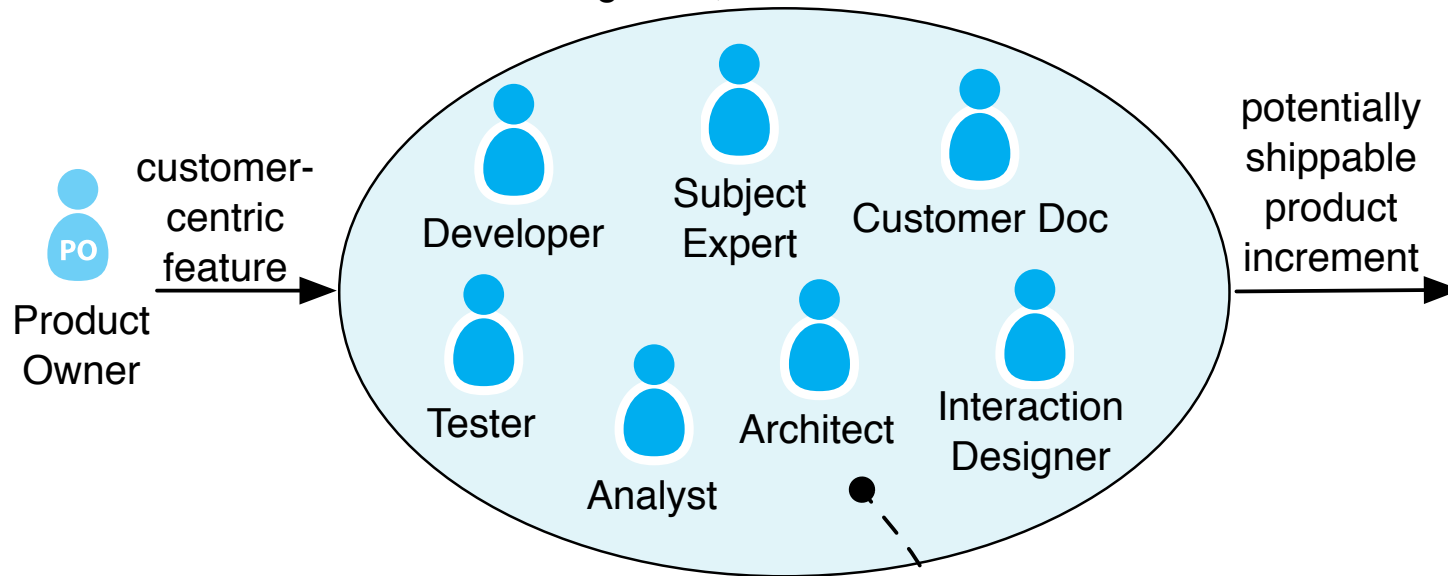
1 Sprint per
product, not
per site

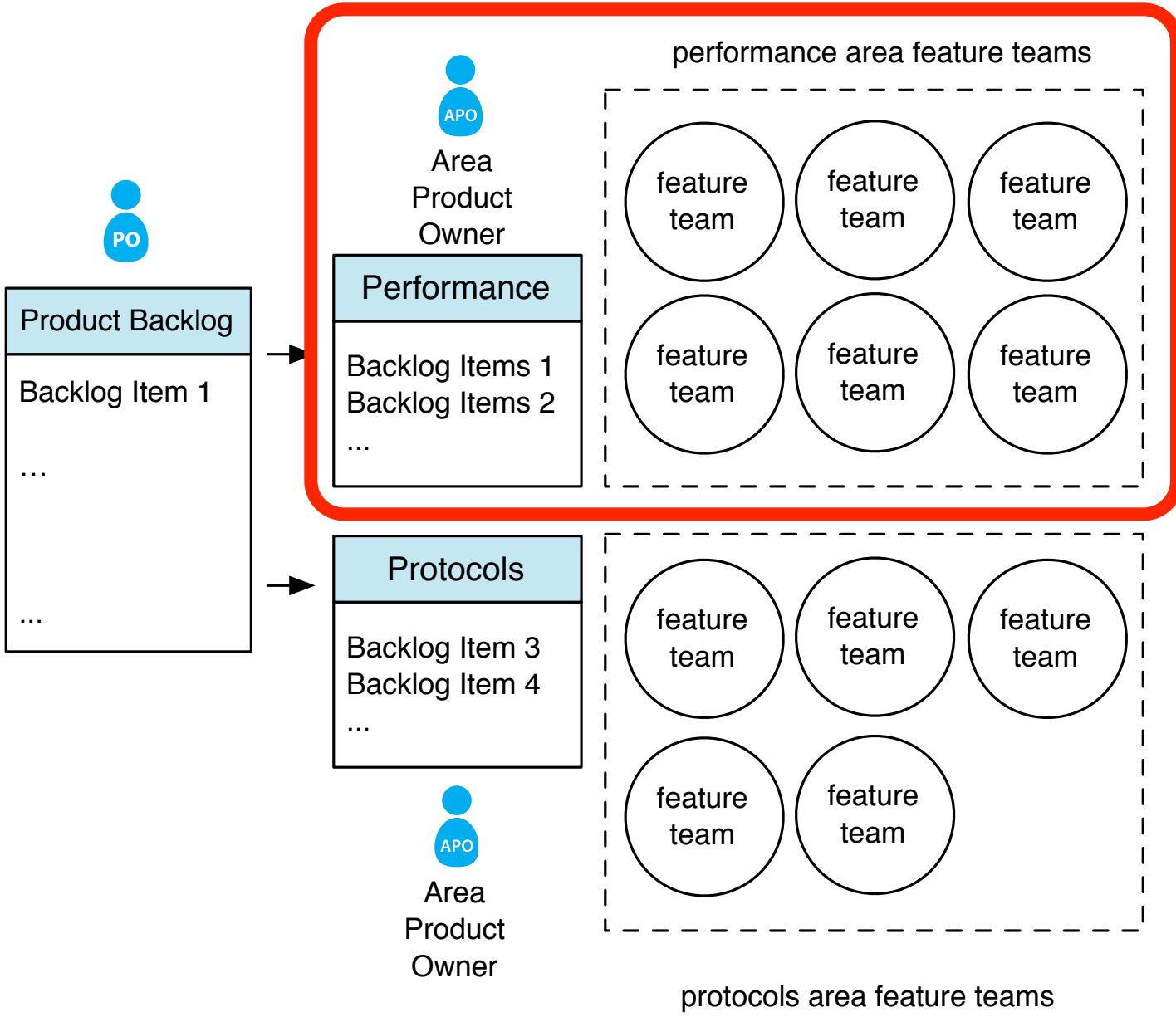
whole feature to co-located non-dispersed Scrum Team

Shanghai Team Blue

Scrum Team

long-lived, cross-functional



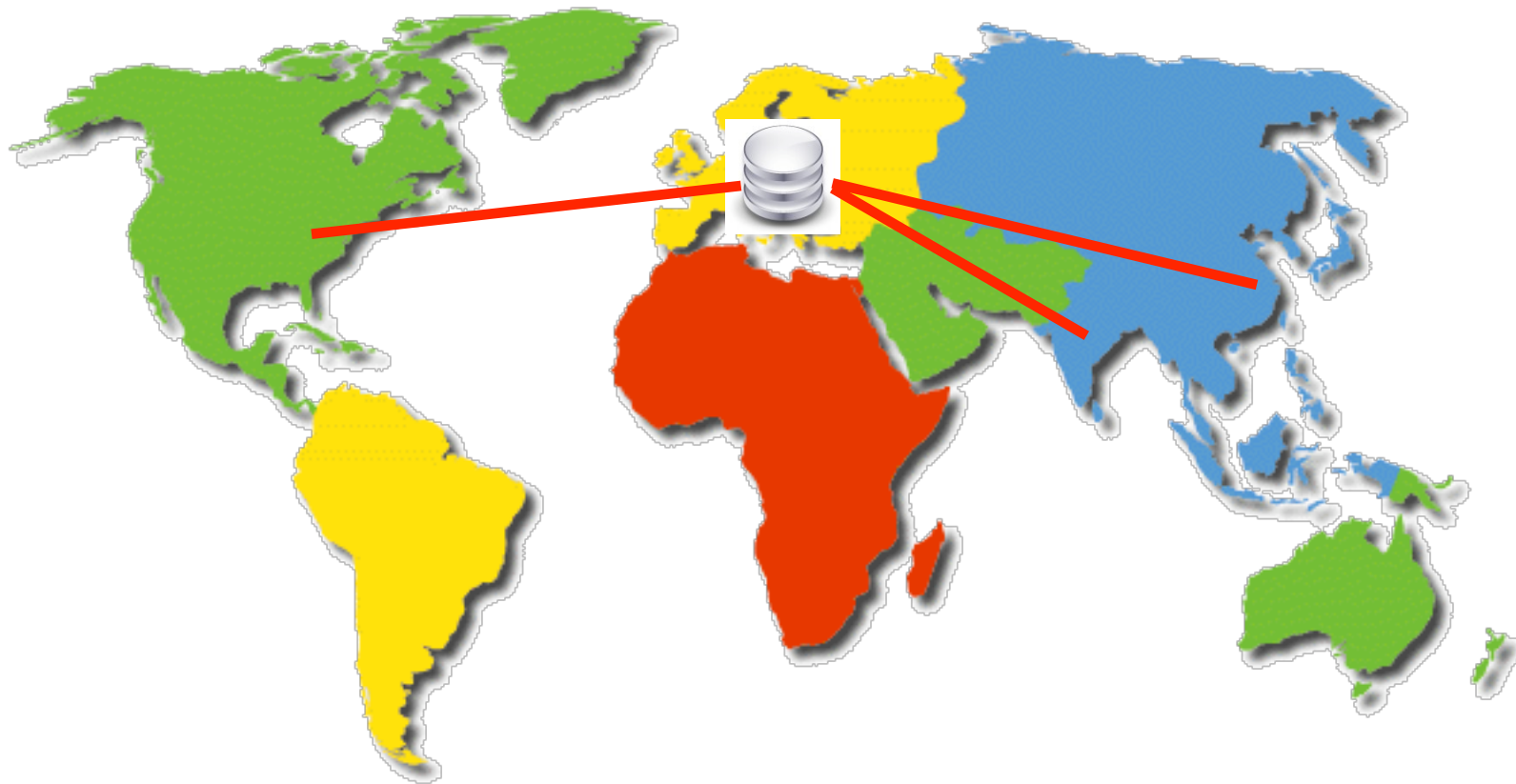


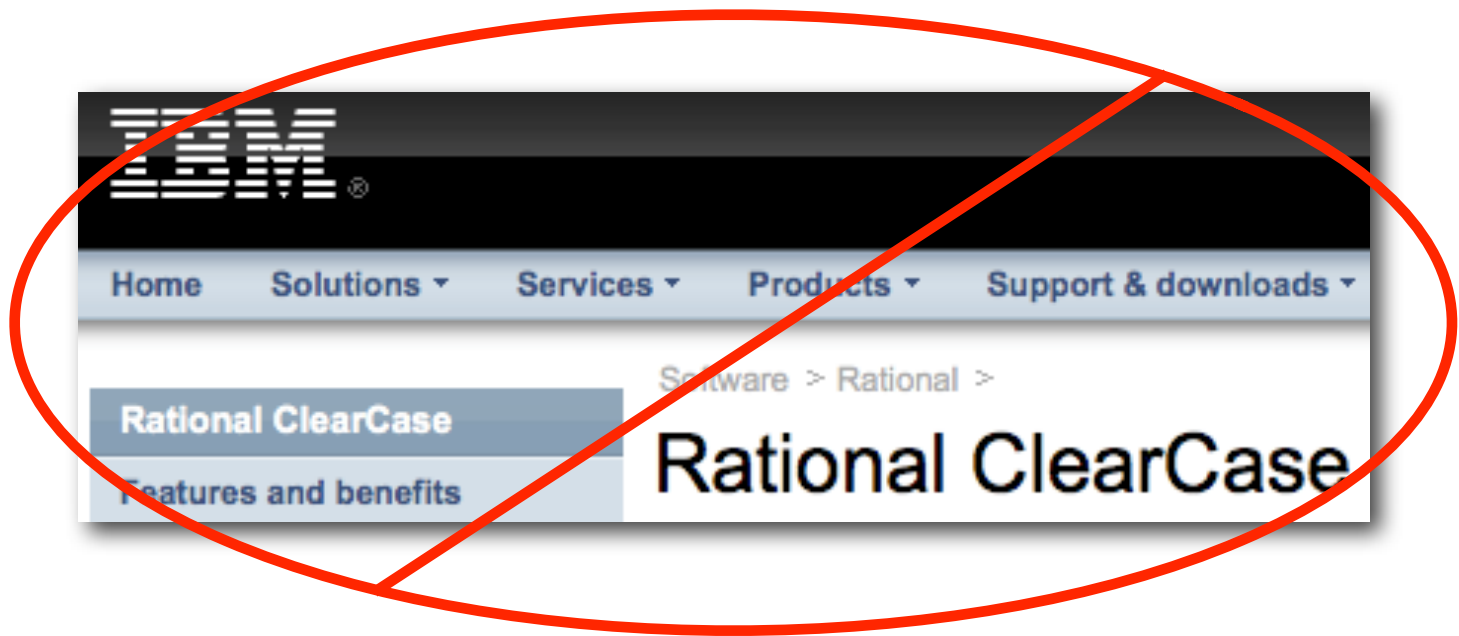
Shanghai

sites are equal partners

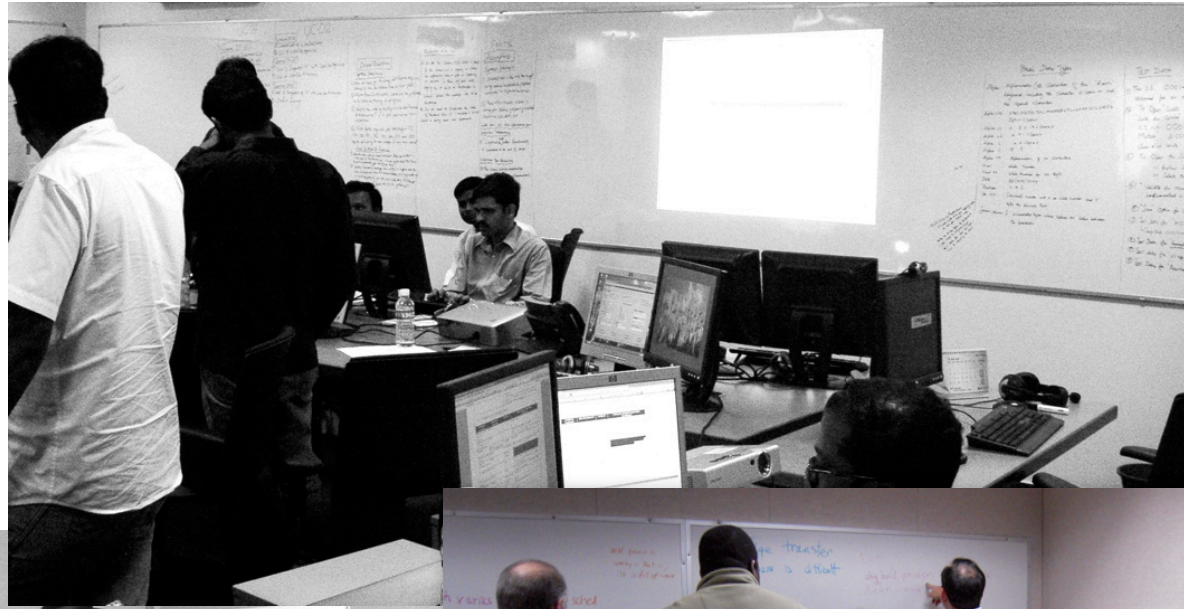


continuous integration, across all sites worldwide





seeing is believing...
ubiquitous cheap video technology in team rooms



multisite video meetings with diverge-merge cycles



multisite Sprint Planning Part 1 in
Large-Scale Scrum FW 1 or 2?

multisite Sprint Review in Large-
Scale Scrum FW 1 or 2?

multisite planning poker

| | A | B | C | D | E |
|----|----------------------------|--------------|-------|---|---|
| 1 | 1 | 2 | 3 | 5 | 8 |
| 2 | req M | req W | req O | | |
| 3 | req D | | req N | | |
| 4 | | | req A | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | <i>item to estimate...</i> | <i>req F</i> | | | |
| 10 | <i>Craig (rome)</i> | | 3 | | |
| 11 | <i>Bas (singapore)</i> | | 2 | | |
| 12 | <i>Pete (london)</i> | | 3 | | |
| 13 | <i>Jill (new york)</i> | | 5 | | |
| 14 | <i>Kumar (b'lore)</i> | | 2 | | |
| 15 | <i>Prasad (chennai)</i> | | 5 | | |
| 16 | <i>Yao (shanghai)</i> | | 3 | | |

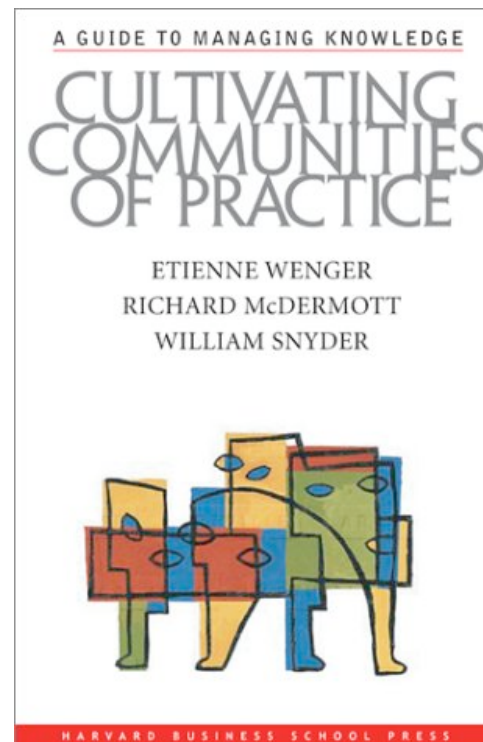


cross pollination

multisite matchmakers, not
intermediaries



multisite communications CoP



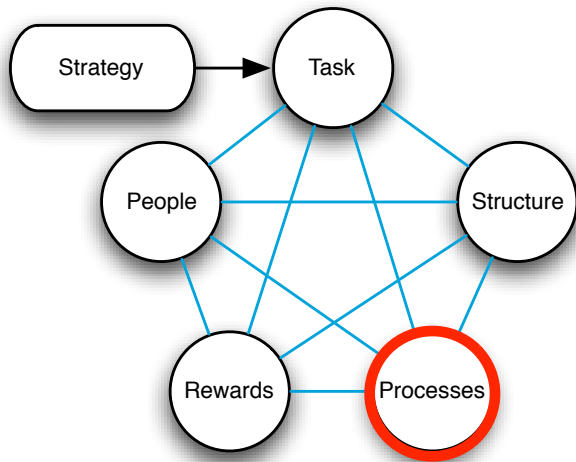
site-level Joint Retrospective



~~commercial tools~~



~~documents (Word,
SharePoint...)~~



inspect & adapt...

Sprint N

Sprint N+1

Team-level Sprint Review

Joint Review

Joint Retrospective

Team-level Sprint Retrospectives



Impediments Backlog;
Impediments
Service

~~Transformation
Backlog;
Transformation
Project~~



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