

# 大敏捷的本质

赵卫

敏捷教练及顾问

IBM大中华区敏捷及DevOps卓越中心主管



下一代  
软件研发  
SOFTWARE  
DEVELOPMENT

# 个人介绍



赵卫(David ZHAO)

敏捷教练及顾问

IBM敏捷及DevOps卓越中心Leader

weizbj@cn.ibm.com

**Linked in** <https://www.linkedin.com/in/zhaoweik>



continuous delivery technical excellence  
efficient customer collaboration



# BIG AGILE

work together interactions change



continuous delivery technical excellence  
efficient customer collaboration





# 哪个大？

work together interactions  
effective responding to change



continuous delivery technical excellence  
efficient customer collaboration



# 远不远？

work together interactions  
effective responding to change



# 项目大不大？

work together interactions  
effective responding to change

项目大不大？

项目很大



项目有多少人？

一共8个人

continuous delivery technical excellence  
efficient customer collaboration





# 能否大事化小？

work together interactions  
effective responding to change



业务解耦，架构解耦

continuous delivery technical excellence  
efficient customer collaboration



# 能否大事化小？

work together interactions  
effective responding to change





# Scrum of Scrums?

work together interactions  
effective responding to change

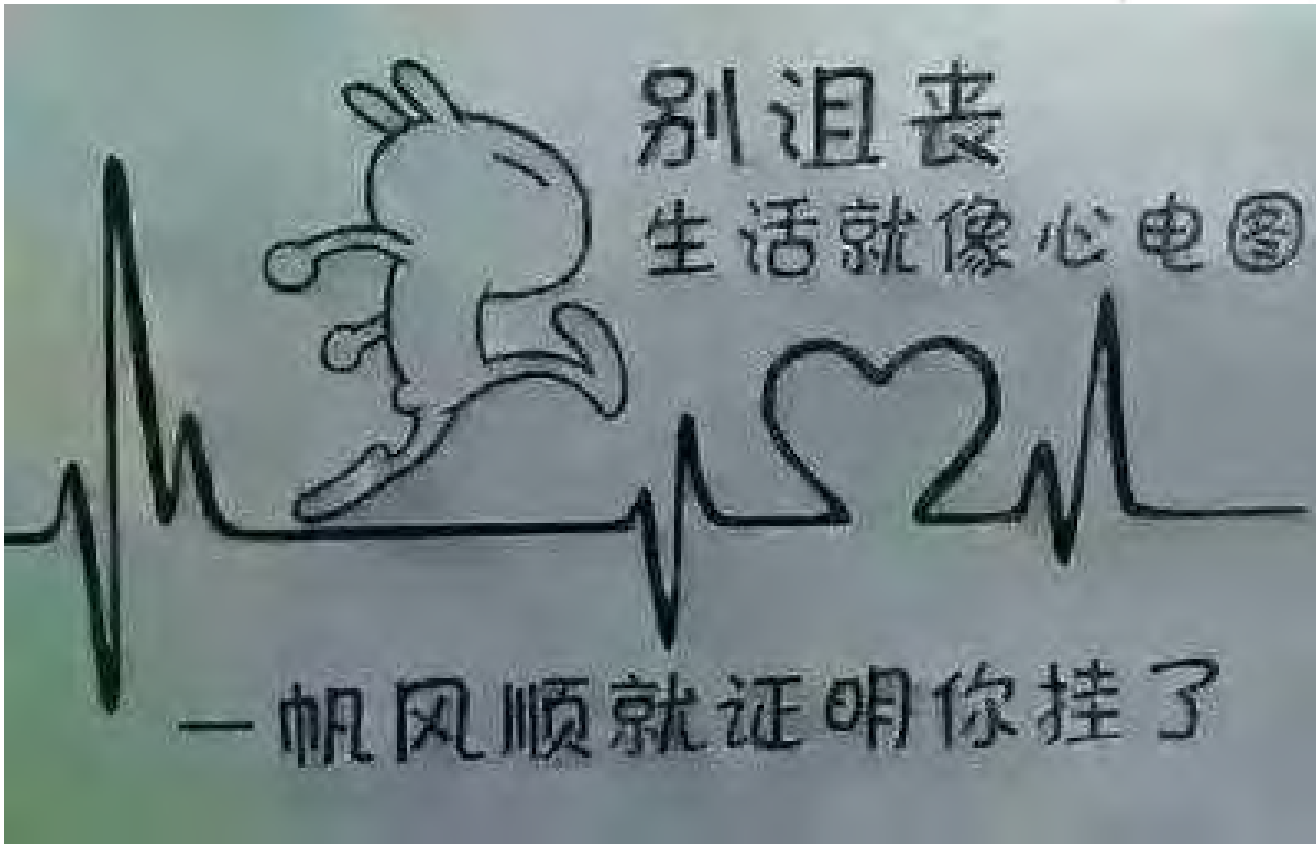
## 扩展性

- 典型的一支敏捷团队的人数是 $7 \pm 2$  人
  - 通过“团队中团队”的方法扩展
- 扩展团队时需要考虑的因素
  - 所开发产品的类型
  - 团队大小
  - 团队的分布
  - 项目周期
- Scrum方法可用于总数超过500人的项目



# 让我们正面这个问题

work together interactions  
effective responding to change



continuous delivery technical excellence  
efficient customer collaboration



# 我们要解决什么问题？

work together interactions  
effective responding to change

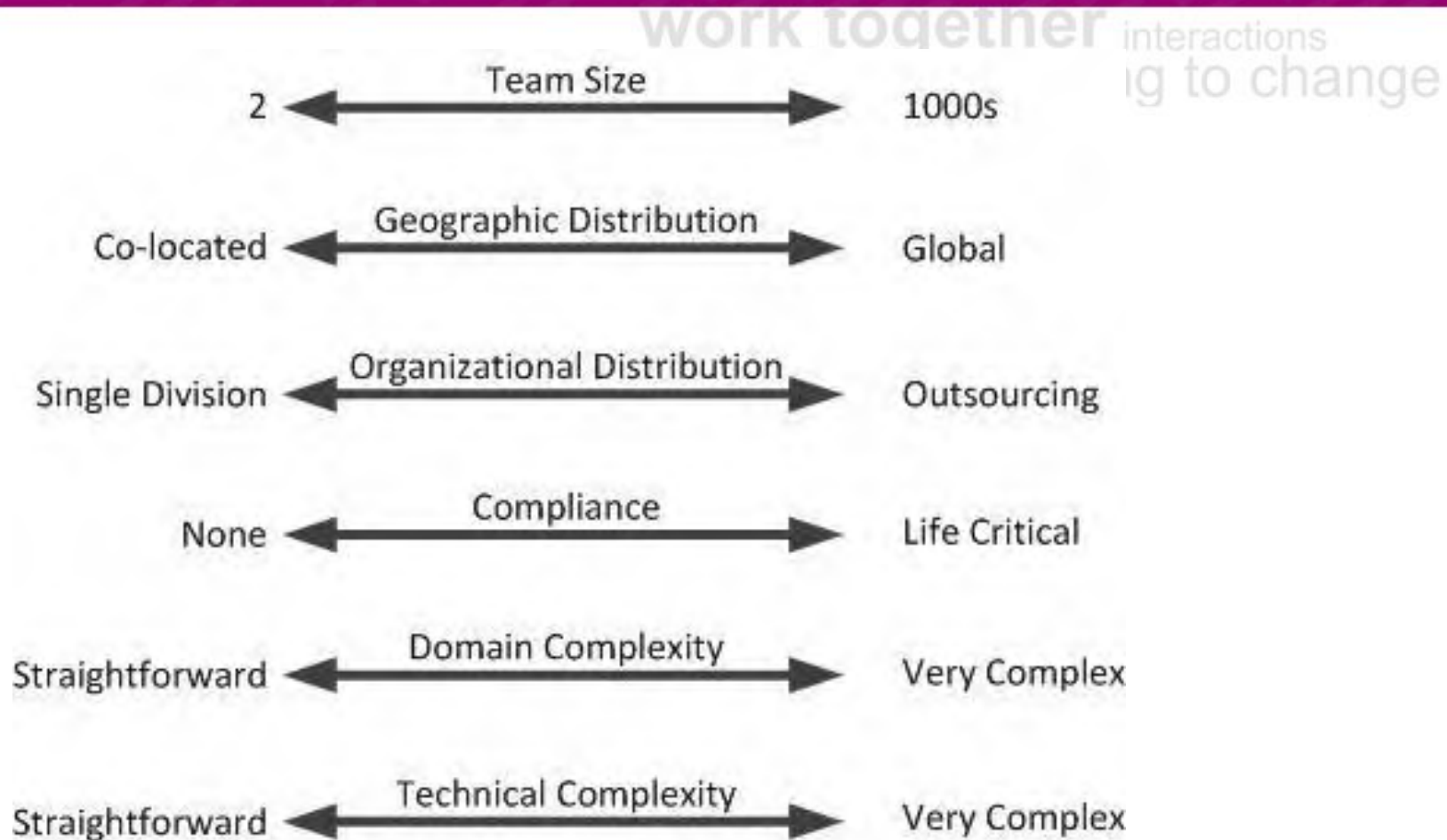


continuous delivery technical excellence  
efficient customer collaboration





# 大敏捷规模化因素



Copyright 2013 Scott Ambler + Associates

continuous delivery technical excellence  
efficient customer collaboration



# 因果回路图

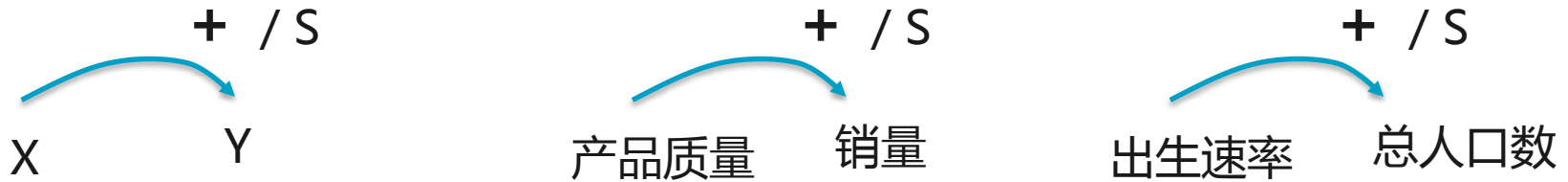




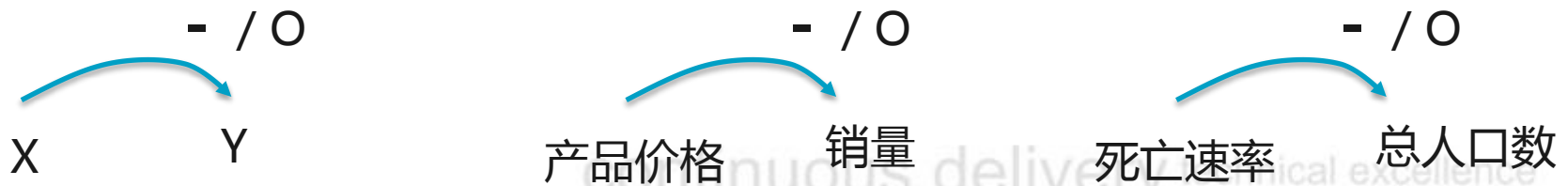
# 因果回路图 ( Causal loop diagram , CLD)

在系统思维中，回路图中一条线连接的两个变量或节点之间有两种因果关系：

- 正向链路: 变化方向相同的、正向积极关系 ( Positive ) ，代表一个变量如果上升增强 ( 或下降减弱 ) ，另外一个变量随之同样上升增强 ( 或下降减弱 ) ，可以用加号或者S ( Same ) 表示；



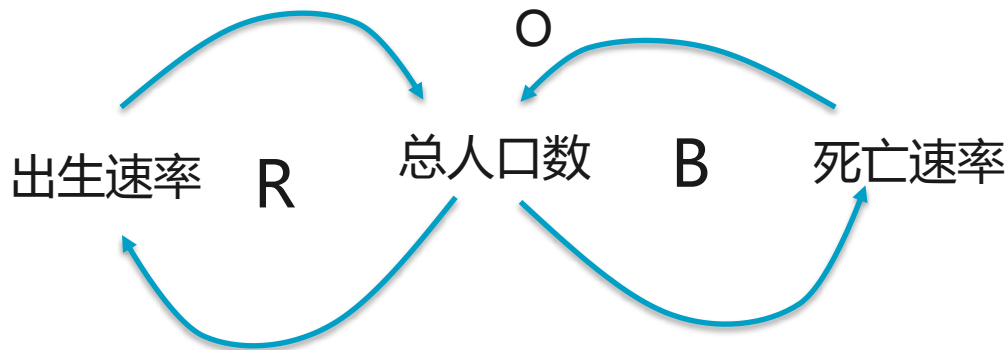
- 反向链路：变化方向是相反的、反向消极关系 ( Negative ) ，代表一个变量上升增强 ( 或下降减弱 ) ，另外一个变量随之相反变成下降减弱 ( 或上升增强 ) ，可以用减号或者O ( Opposite ) 表示。



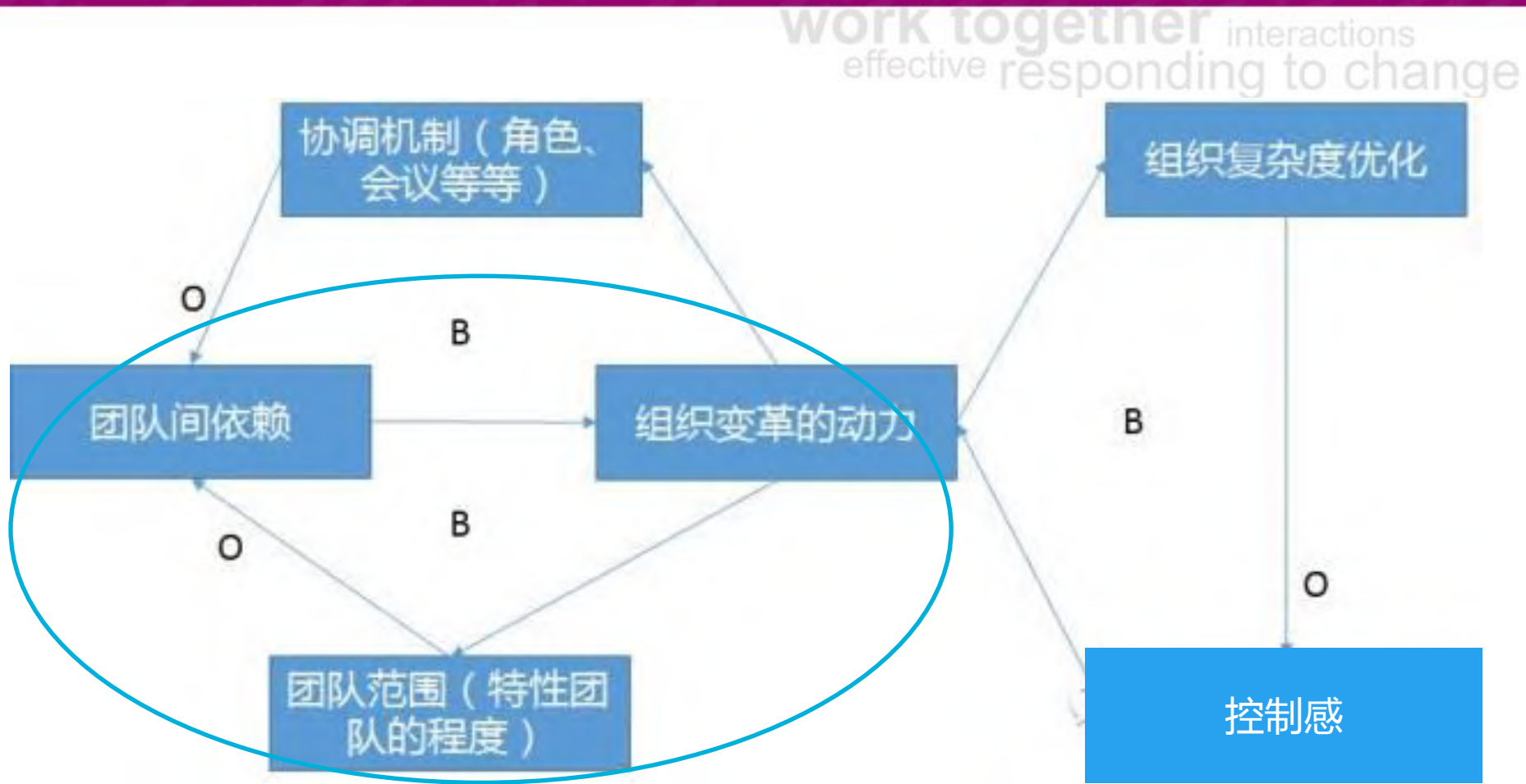


# 因果回路图 ( Causal loop diagram , CLD)

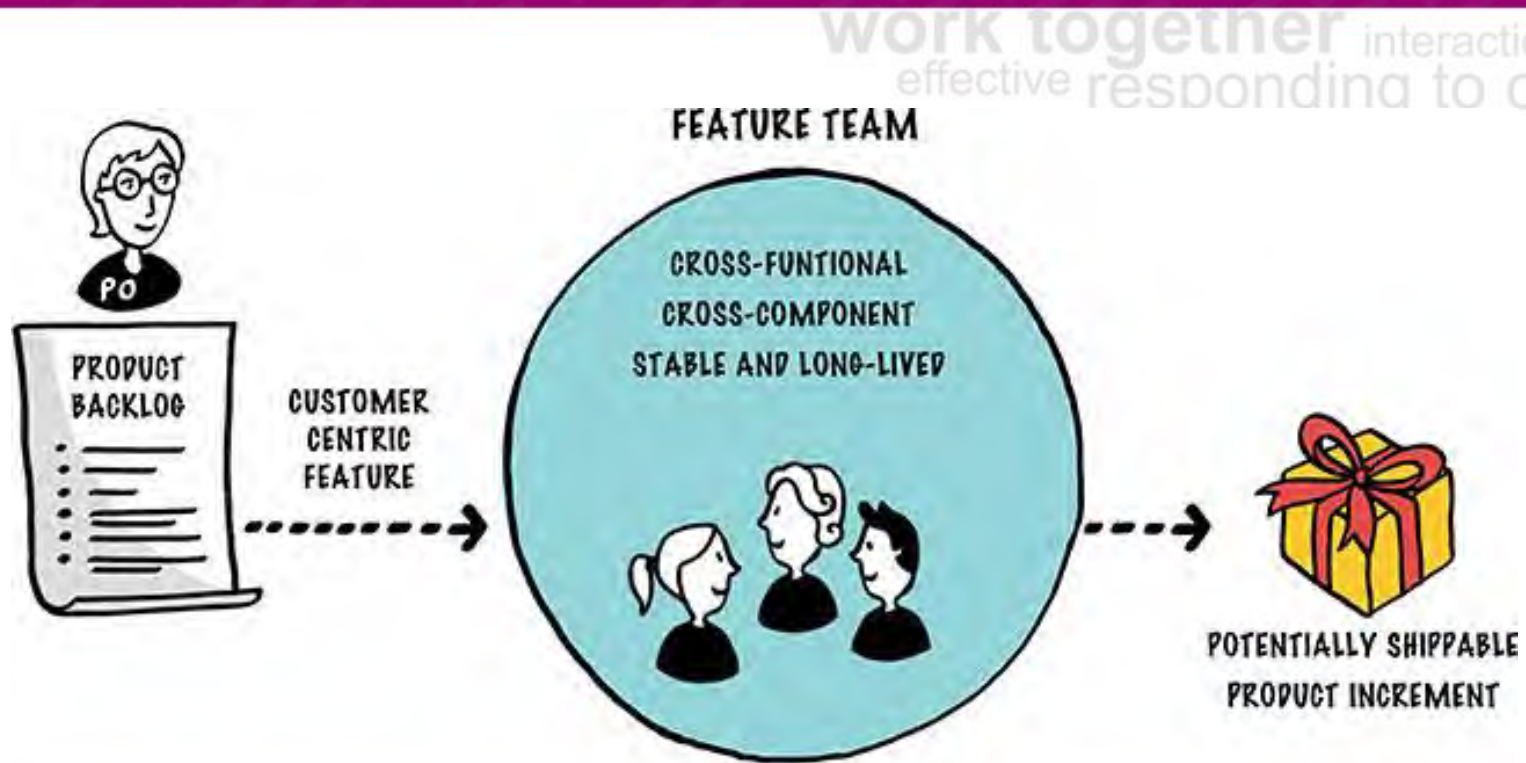
- 一个闭环的回路，要么是平衡回路 ( Balancing loop ) ，要么是增强回路 (Reinforcing loop)。
  - B平衡回路：代表一个变量作为起点，如果是上升增强的，经过回路效果变成下降减弱，形成了一个平衡。奇数个减号或者O代表平衡回路；
  - R增强回路：代表一个变量作为起点，经过回路后，它的效果得到增强，形成了加强或者减弱作用。这就像“遇强则强，遇弱则弱”。偶数个减号或者O代表增强回路。



# 解决依赖的两种思路——引入协调机制 or 特性团队



# LeSS的特性团队



TEAM HAS THE NECESSARY KNOWLEDGE AND SKILLS TO COMPLETE AN END-TO-END CUSTOMER-CENTRIC FEATURE. IF NOT, THE TEAM IS EXPECTED TO LEARN OR ACQUIRE THE NEEDED KNOWLEDGE AND SKILL.

continuous delivery technical excellence  
efficient customer collaboration

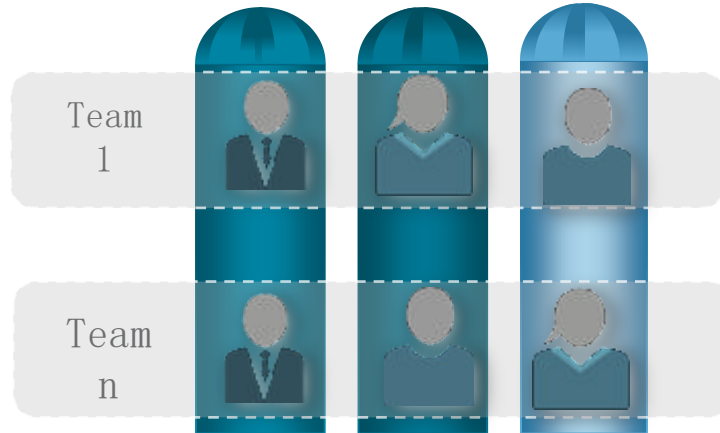




# SAFe的跨职能敏捷团队

work together interactions  
effective responding to change

- 为沟通效率和价值交付目的优化团队
- 团队可以是一个自组织、跨职能的Scrum团队或者看板团队
- 每两周，通过“故事”交付价值



continuous delivery technical excellence  
efficient customer collaboration



# SAFe的跨职能敏捷团队，特性团队？组件团队？

work together interactions  
effective responding to change

大型项目群团队类型通常是混合的：

## 精益提倡特性团队

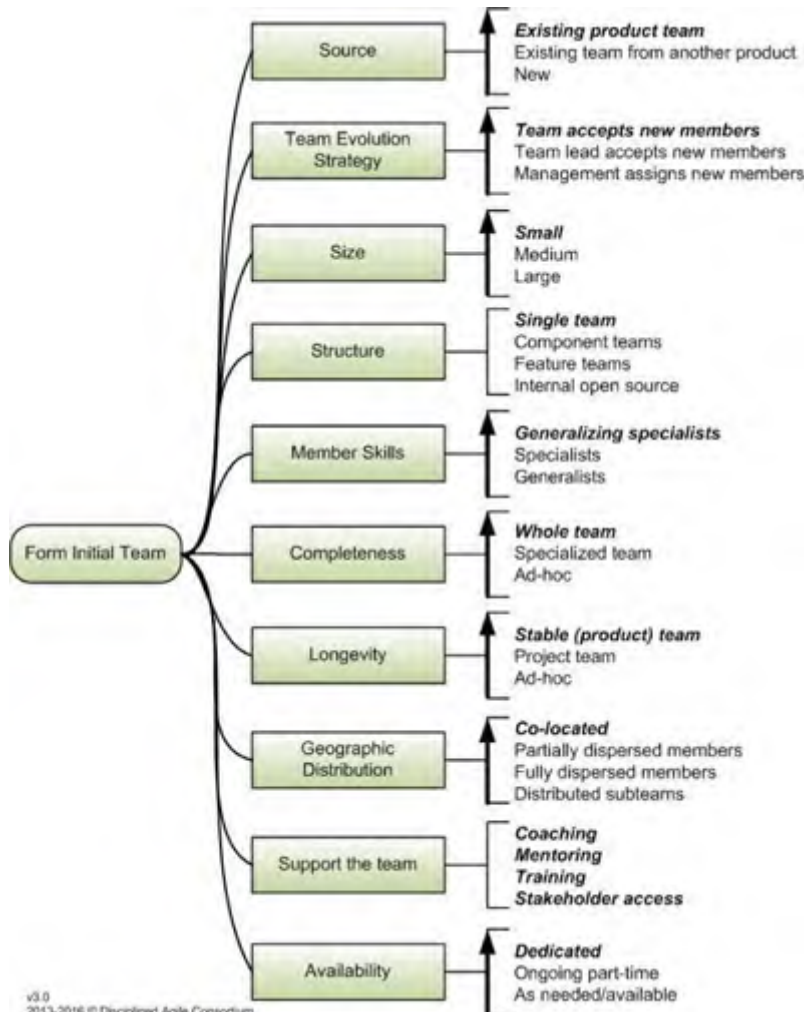
- 最快的速率
- 最小化依赖
- 发展T型人才

## 在如下情况下使用组件团队

- 高可复用性，高技术专业，关键非功能性需求
- 每个组件作为潜在可以替换的系统部分，并带有定义良好的接口



# DA2.0大规模敏捷团队的策略



v3.0  
2013-2016 © Disciplined Agile Consortium

work together interactions  
effective responding to change

**Table 1. Comparing the team organization approaches.**

Team Approach	Advantages	Disadvantages	Considerations
Component	<ul style="list-style-type: none"> <li>Reduces communication between sub-teams</li> <li>Enables teams to build technical expertise specific to their component(s)</li> </ul>	<ul style="list-style-type: none"> <li>Requires a loosely coupled, highly cohesive architecture</li> <li>Functional dependency may be complex</li> <li>Requires sophisticated configuration management</li> </ul>	<ul style="list-style-type: none"> <li>Use for component-based architectures</li> </ul>
Feature	<ul style="list-style-type: none"> <li>Enables teams to focus on a subset of the business</li> <li>Potential to make it easier to assign features to teams</li> </ul>	<ul style="list-style-type: none"> <li>Requires common development conventions</li> <li>Requires sophisticated configuration management</li> <li>Technical dependency management can be complex</li> </ul>	<ul style="list-style-type: none"> <li>Use for complex LoBs or applications which require developers to have deep understanding of the problem domain</li> </ul>

组件团队  
特性团队  
功能团队/职能团队  
开源团队

在实际中这些团队策略  
经常是组合在一起的

continuous delivery technical excellence  
efficient customer collaboration



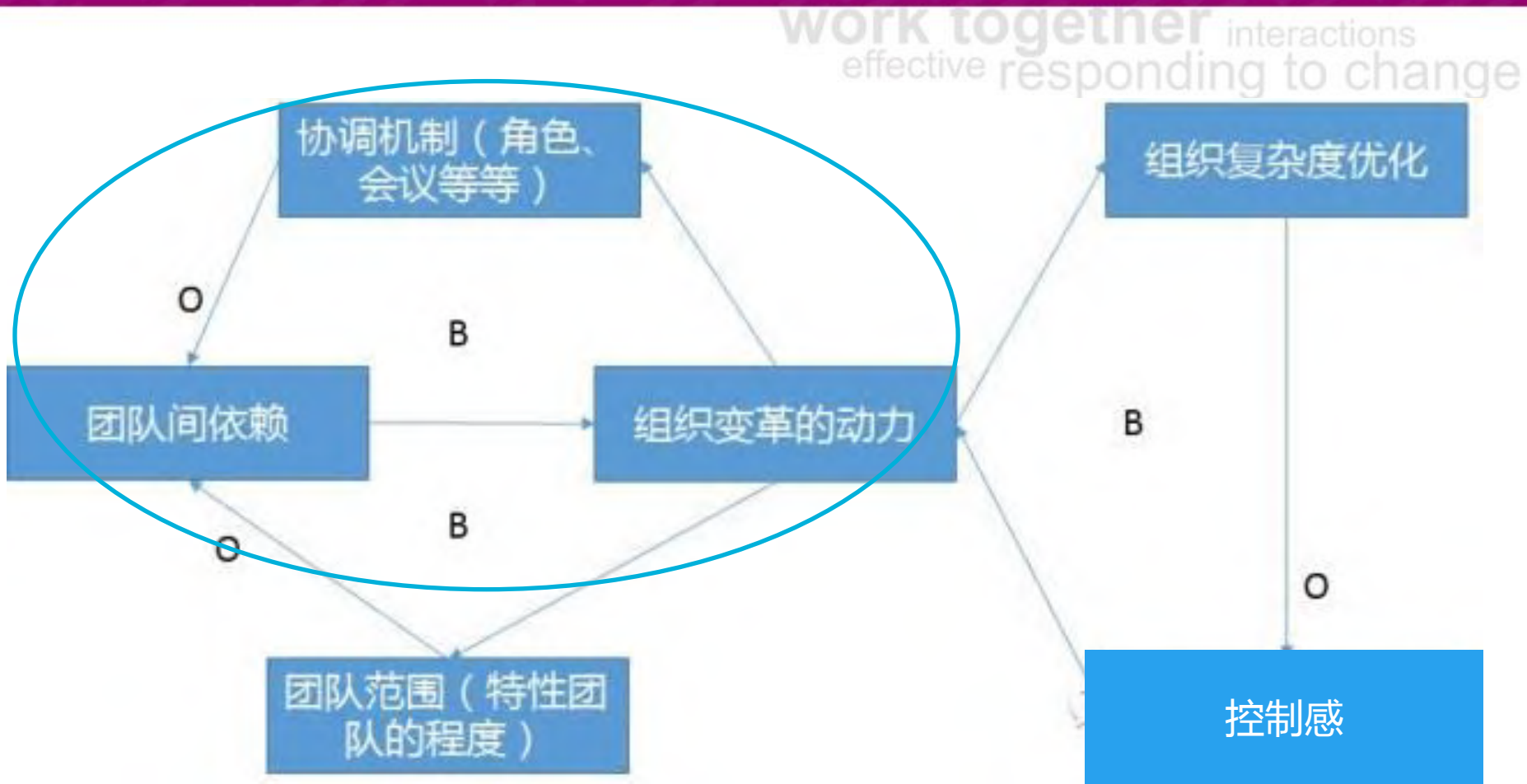


# 特性团队是解决大规模敏捷的一个有效途径

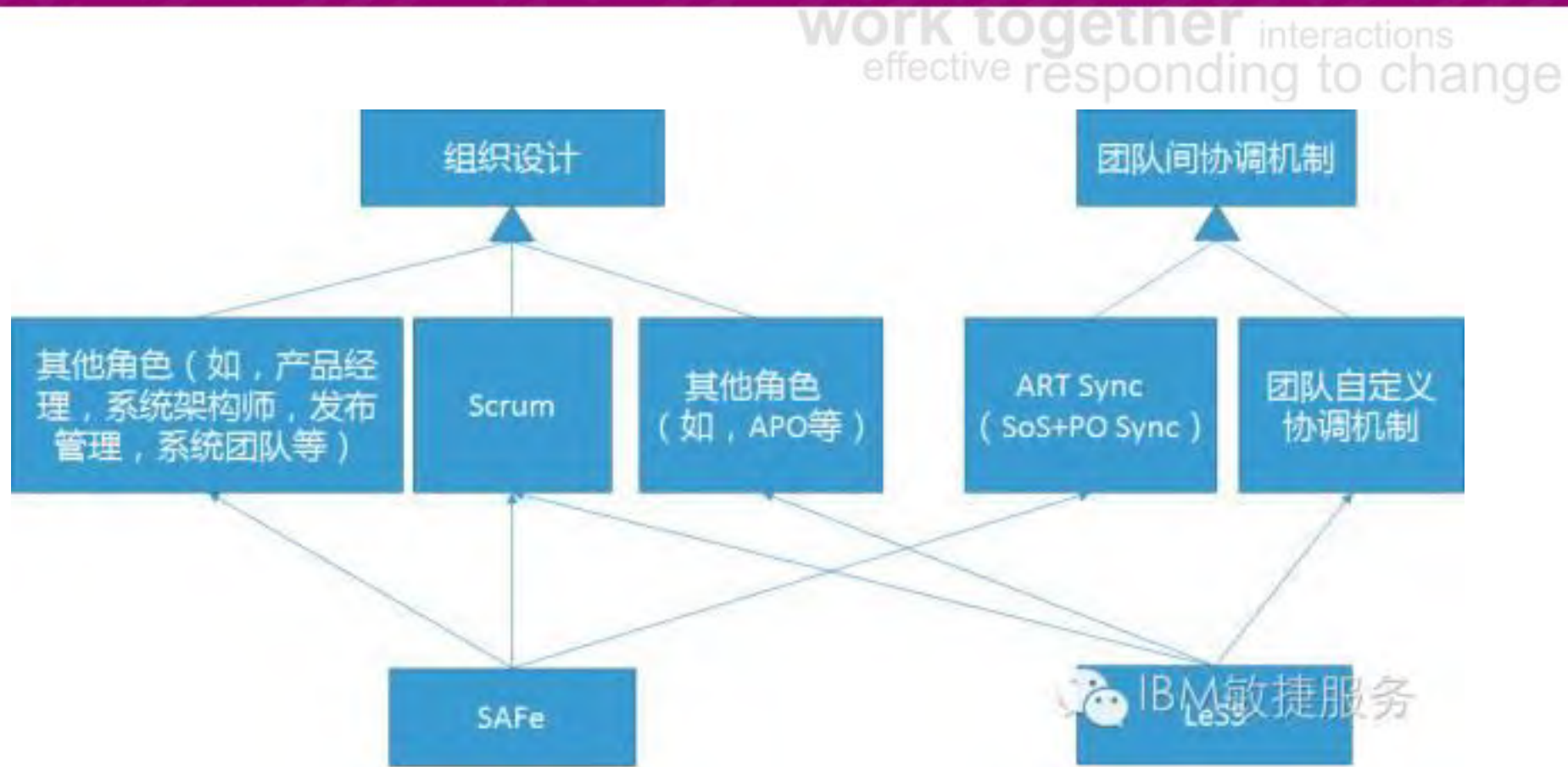
work together interactions  
effective responding to change



# 解决依赖的两种思路——引入协调机制 or 特性团队

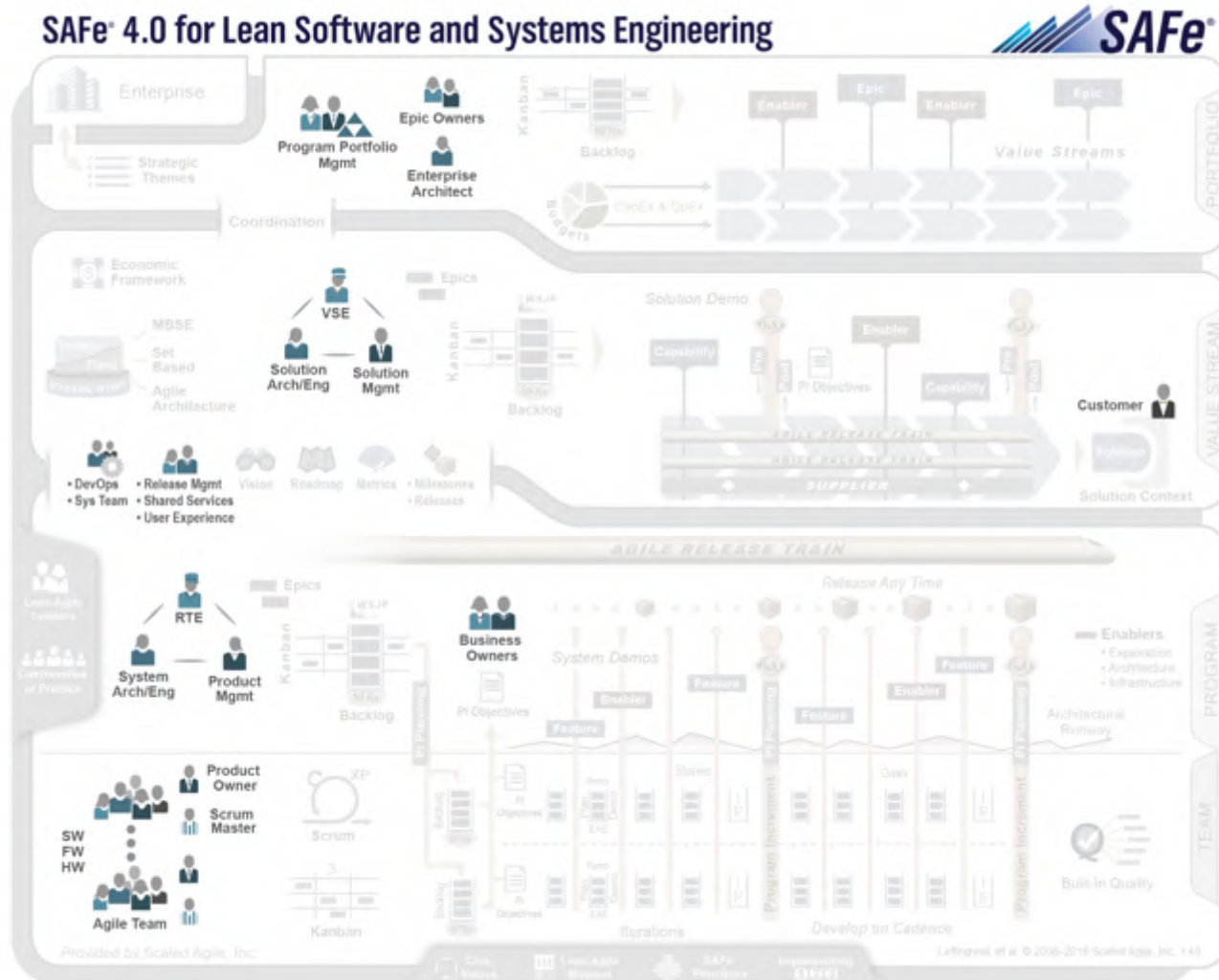


# 解决依赖的两种思路——SAFe & LeSS





# SAFe4.0的角色和组织结构



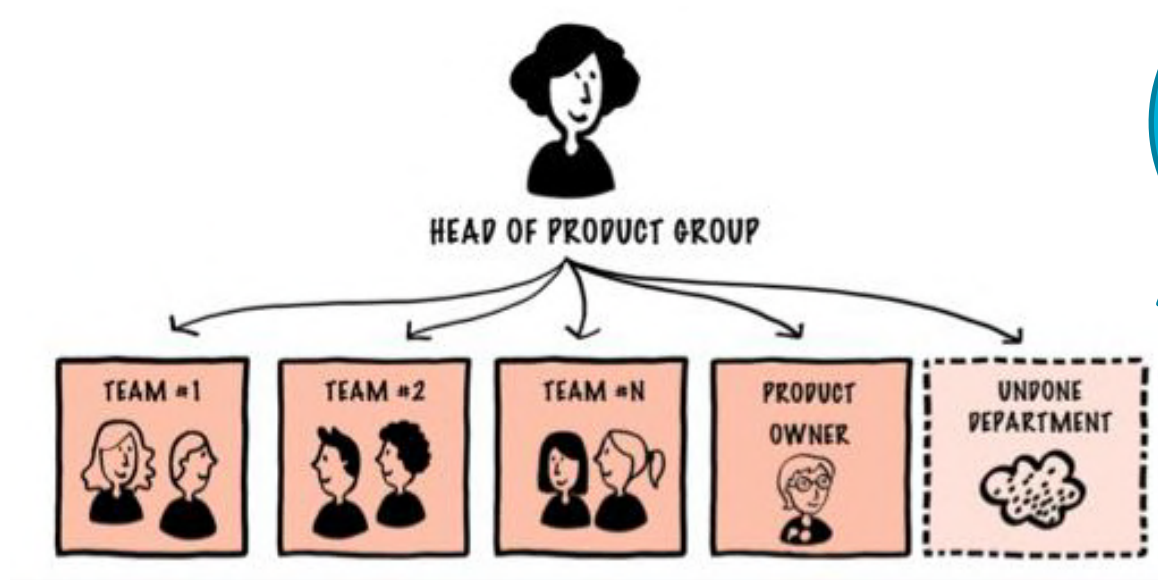
interactions  
leading to change

operational excellence  
efficient customer collaboration



# LeSS的组织结构

work together interactions  
effective responding to change



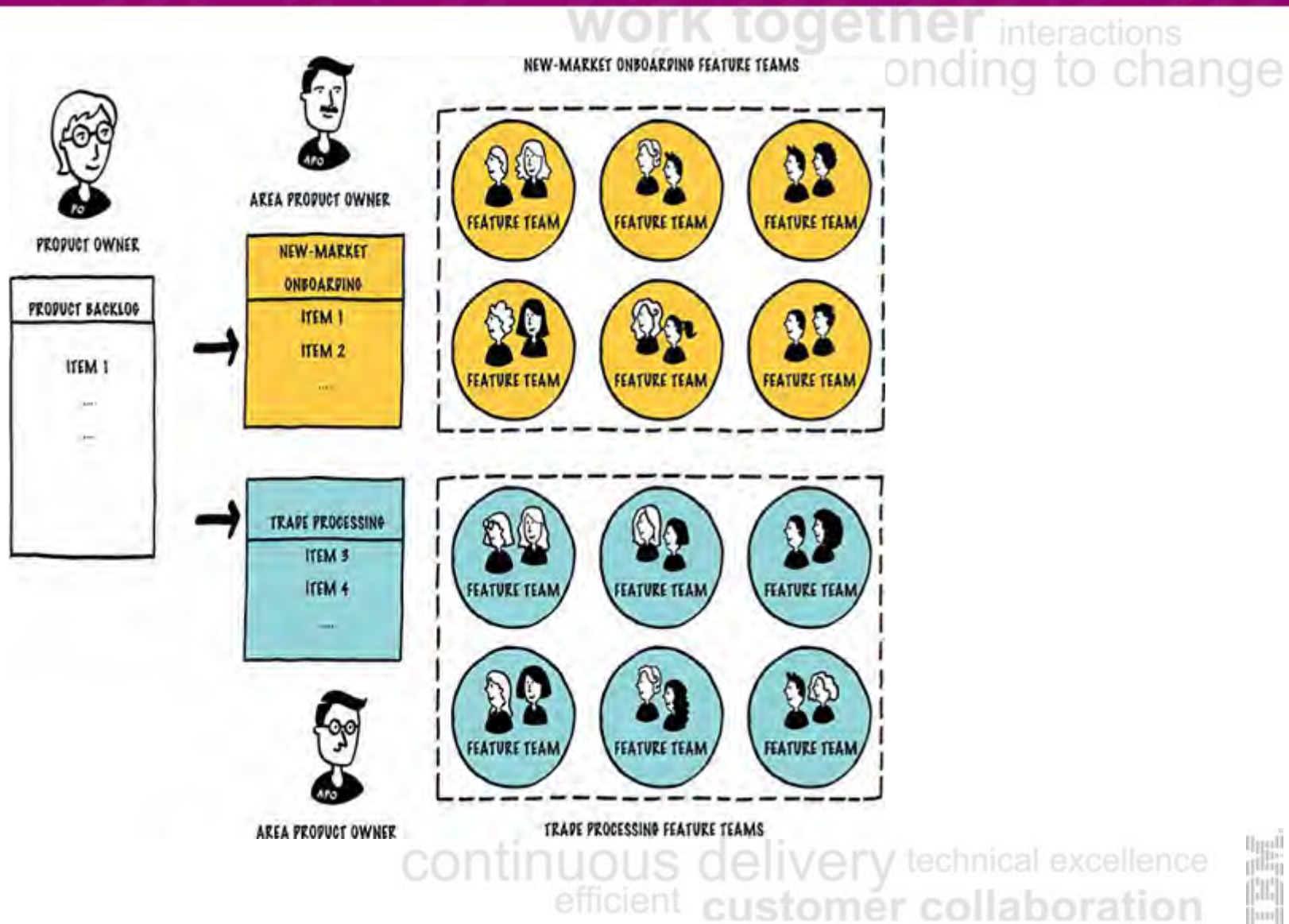
和SAFe的一个ART相当

- LeSS 2 - 8 Teams
- 1 Product Owner -> 2-8 Teams
- 1 Scrum Master -> 1-3 Teams
- Teams are feature teams

continuous delivery technical excellence  
efficient customer collaboration



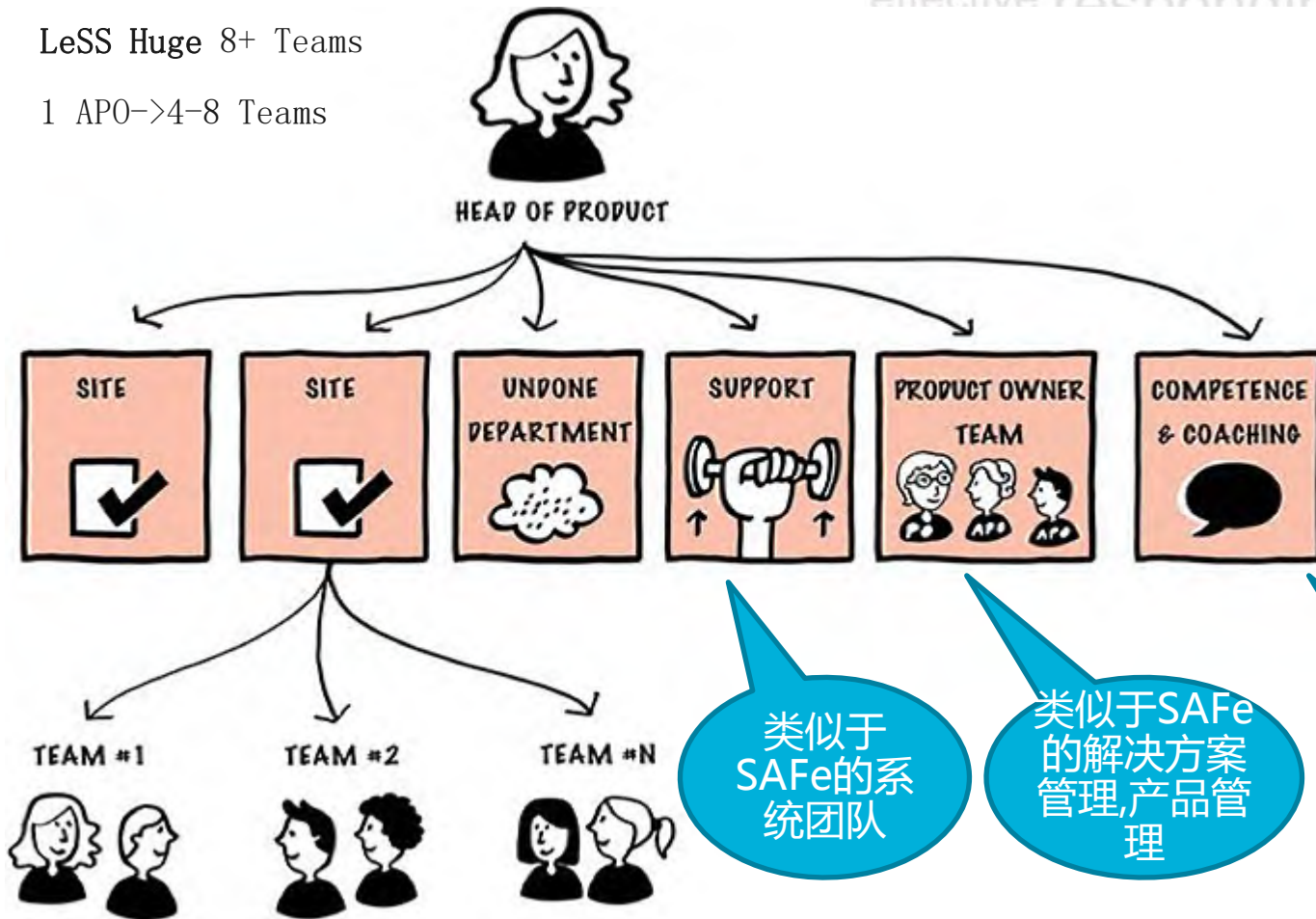
# LeSS Huge的角色





# LeSS Huge组织结构

- LeSS Huge 8+ Teams
- 1 APO → 4-8 Teams



和SAFe的VSM相当

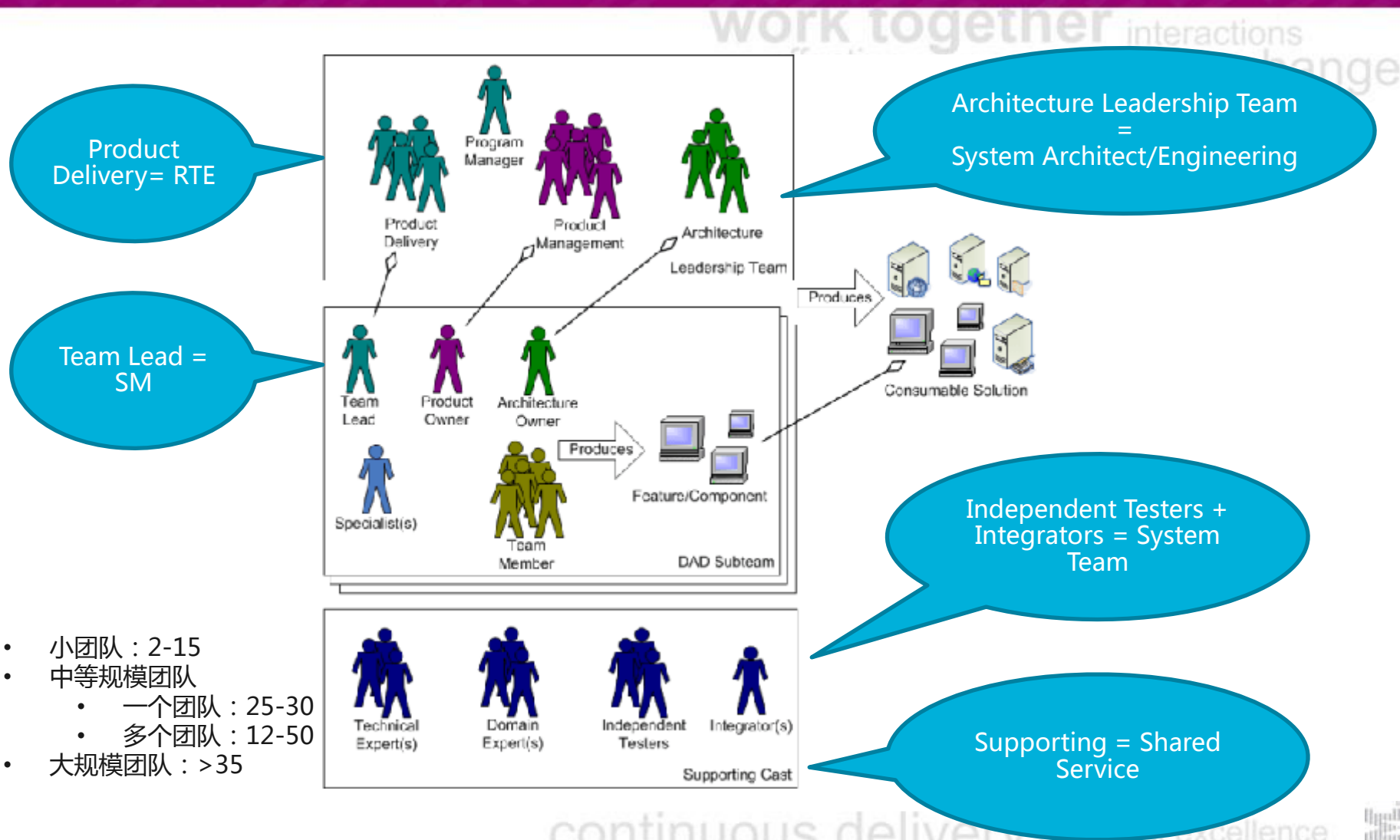
类似于SAFe的系统团队

类似于SAFe的解决方案管理, 产品管理

类似于SAFe的精益敏捷CoE



# DA2.0的角色

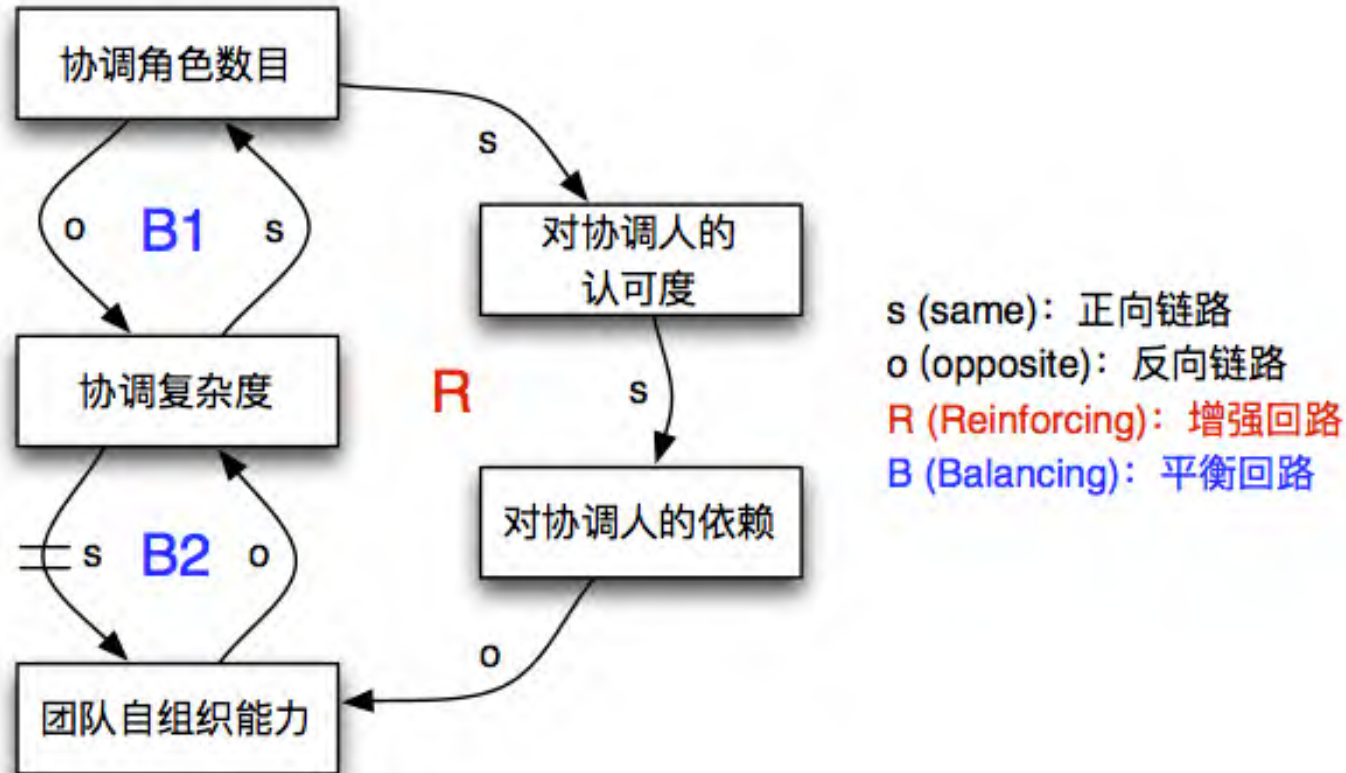


- 小分队：2-15
- 中等规模团队
  - 一个团队：25-30
  - 多个团队：12-50
- 大规模团队：>35



# 增加了协调角色会成为自组织的障碍么？

work together interactions  
effective responding to change



<http://yihuo.de/articles/214>





# 增加了协调角色就成为自组织的障碍么？

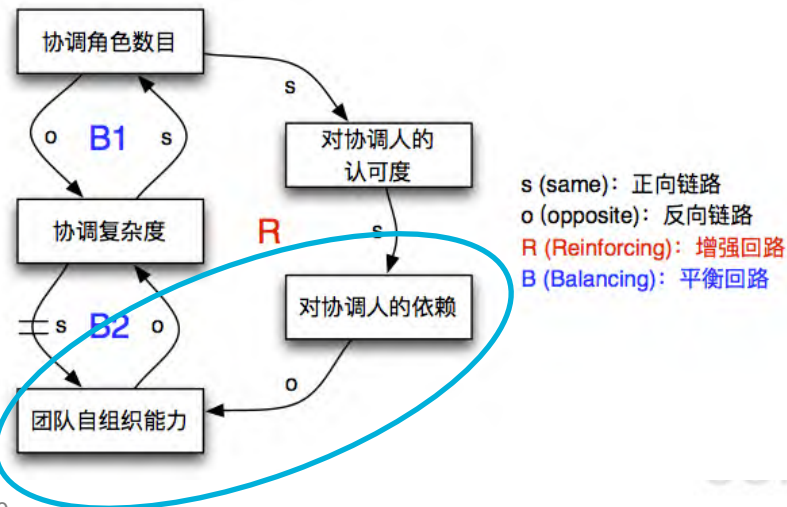
work together interactions  
effective responding to change



"Any problem in computer science can be solved with another layer of indirection."

... But that usually will create another problem."

David John Wheeler



敏捷已死么？

tinuous delivery technical excellence  
efficient customer collaboration



# 增加了协调角色就成为自组织的障碍么？

work together interactions  
effective responding to change



**管理3.0：我们都是园丁**

continuous delivery technical excellence  
efficient customer collaboration





天下大勢分久必合合久必分  
 周未七國分爭血八於秦  
 及秦滅之遂並漢分爭又  
 血八於漢一朝日高祖朝日  
 蛇而起義一虎天下復未光

或中再德靈獻商遂  
 分治三國惟其散亂之由  
 始也古桓靈二帝桓尚禁錮  
 五類帶信官入

桓尚前靈商即位大將軍  
 寶武大傳德術出相輔佐

時有官官曹節等弄權曹氏  
 陳昔評議之作也西反也官  
 中

時在唐有之入德角正實德律

張角軍前北幽州思分幽州大守劉焉召郭靖許讓出降即

出務約其義兵引幽涿縣中二伯其德漢景南南古德姓劉名信守玄德其祖劉雄父劉弘早喪

玄德幼而母至孝家貧以織席為業其父名元起年十五時使往南當新鄭古盧植  
 其父德潛甘為女日見了韓文慨然長嘆道以一人而居曰大大小小國家也何故其德古德問姓名其人曰  
 其姓張名及字翼德在汝南颍川界首白雲山黃巾賊聚眾又信交三下南無德是公在橋南姓故其相向也  
 德曰子德字翼德也對曰德公名翼德也

吾自有財者德歸者此公同  
 弟之如何玄德喜甚同歸  
 德曰德公名翼德也對曰德公名翼德也

玄德曰德公名翼德也對曰德公名翼德也  
 德曰德公名翼德也對曰德公名翼德也  
 德曰德公名翼德也對曰德公名翼德也

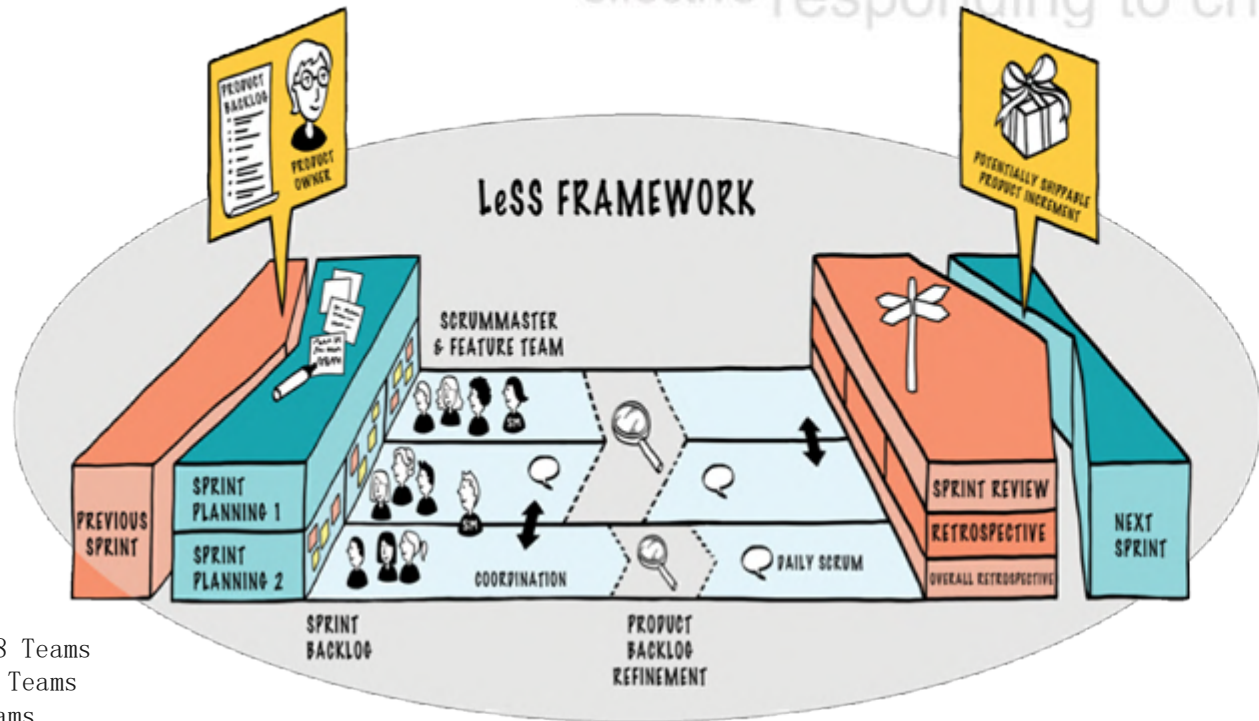
德曰德公名翼德也對曰德公名翼德也  
 德曰德公名翼德也對曰德公名翼德也  
 德曰德公名翼德也對曰德公名翼德也





# LeSS的计划、评审和回顾

work together interactions  
effective responding to change



- LeSS
  - LeSS 2 - 8 Teams
- Roles
  - 1 Product Owner -> 2-8 Teams
  - 1 Scrum Master -> 1-3 Teams
  - Teams are feature teams

## • Artifacts

- 1 PSPI
- 1 PBL
- 1 SBL/Team
- 1 Common DoD, and can be stronger DoD per team

## • Events

- 1 Common Sprint

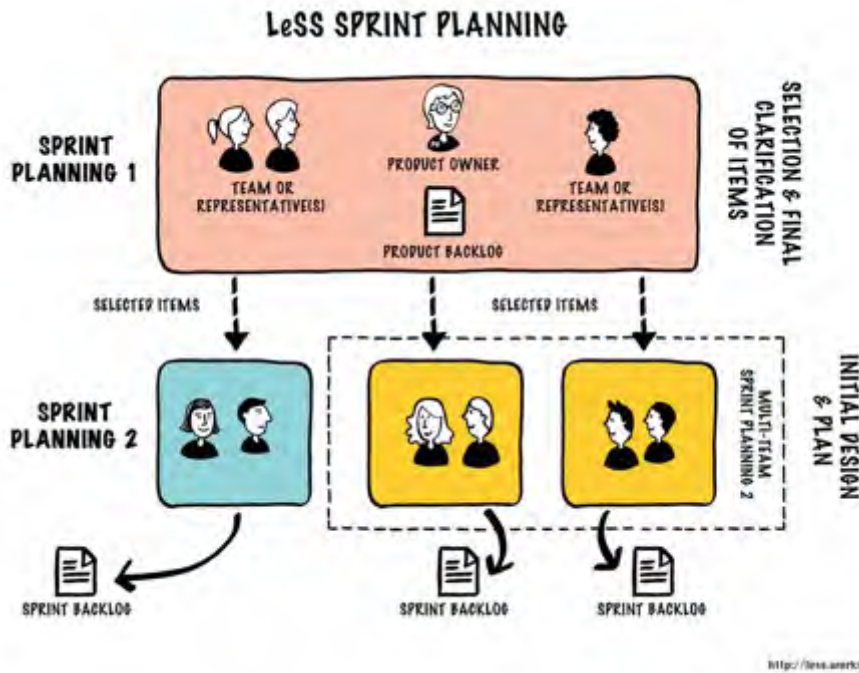
<http://less.works> 

continuous delivery technical excellence  
efficient customer collaboration

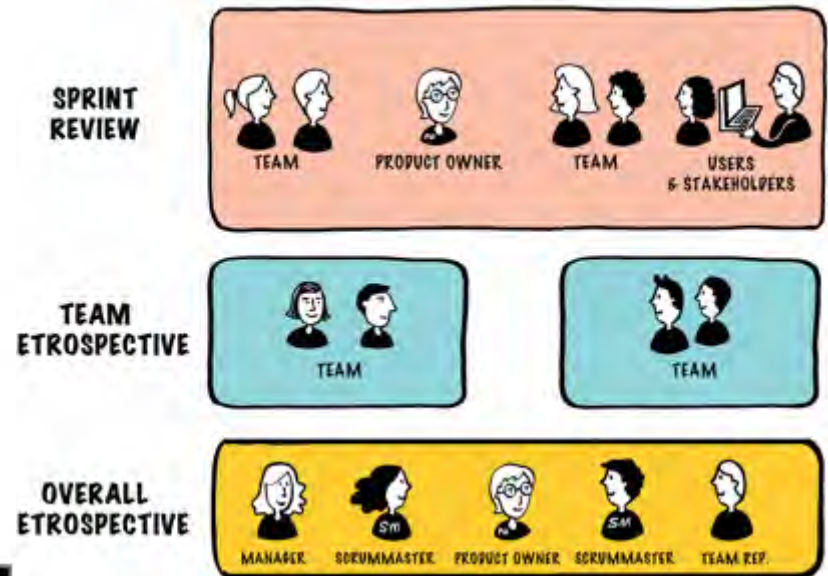


# LeSS的计划、评审和回顾

work together interactions  
effective responding to change



### LeSS SPRINT REVIEW & RETROSPECTIVE

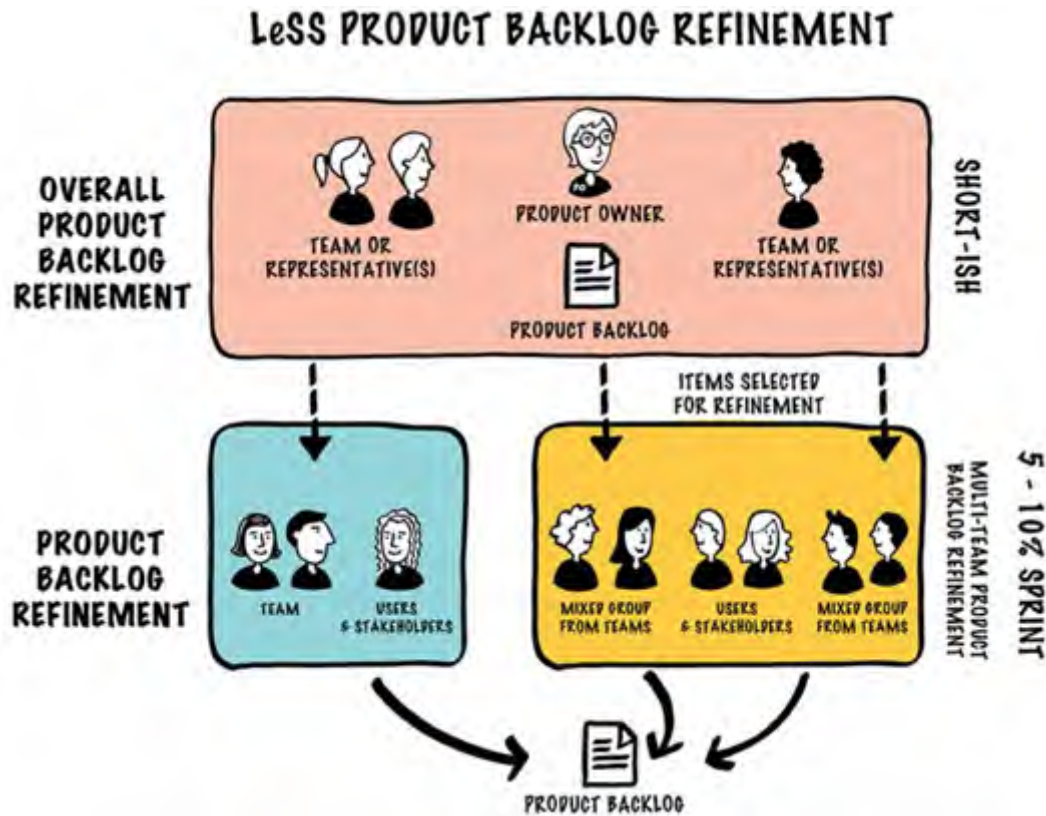


continuous delivery technical excellence  
efficient customer collaboration



# LeSS的Backlog优化会议

work together interactions  
effective responding to change



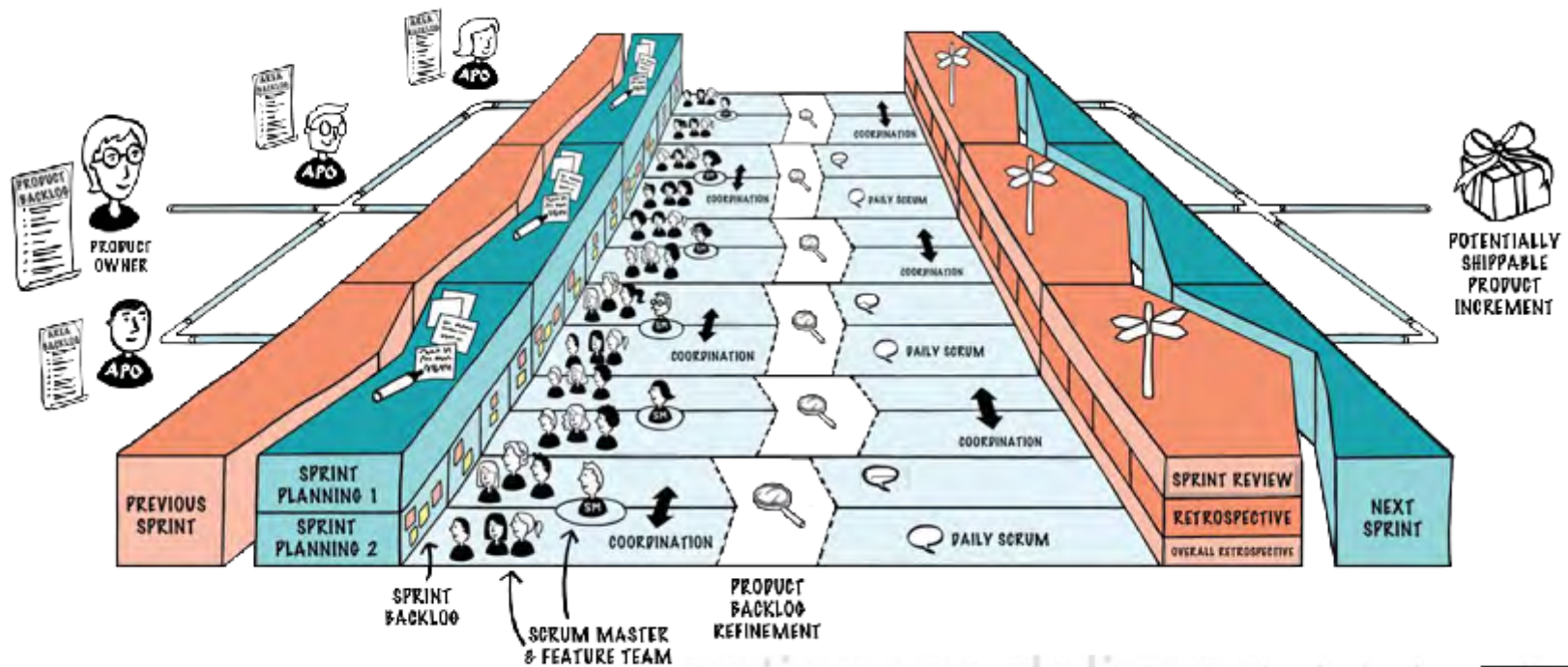
continuous delivery technical excellence  
efficient customer collaboration





# LeSS Huge的会议

- LeSS
  - LeSS Huge 8+ Teams
- Roles
  - 1 APO → 4-8 Teams



# LeSS的会议

work together interactions  
effective responding to change

小特性团队全员  
会议

由团队代表组成  
的团队全体会议

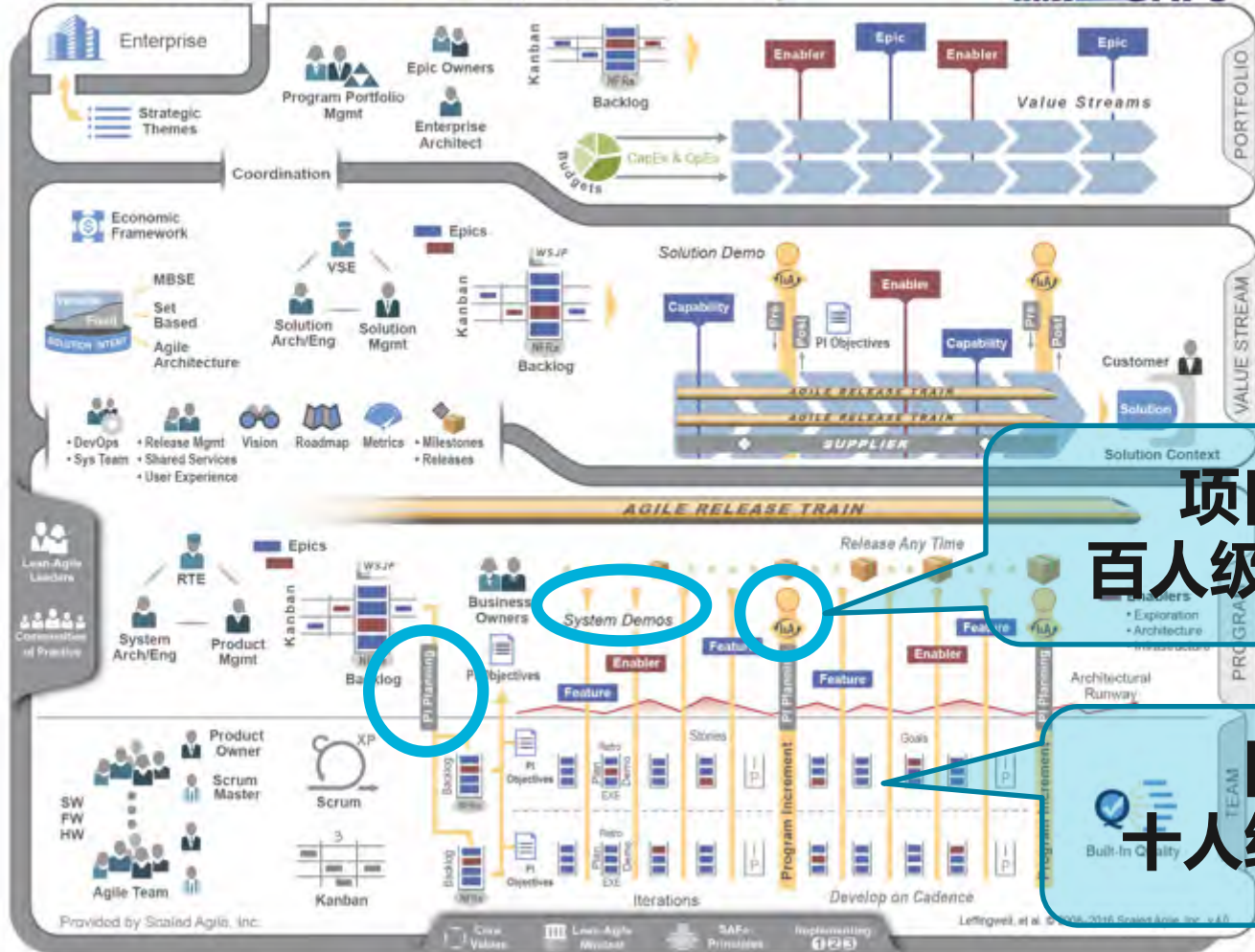
continuous delivery technical excellence  
efficient customer collaboration



# SAFe的会议

work together interactions  
ing to change

## SAFe 4.0 for Lean Software and Systems Engineering



项目群层  
百人级全员会议

团队层  
十人级全员会议

ical excellence  
laboration



# SAFe项目群增量计划会议 ( PI Planning )

work together interactions  
effective responding to change

## 集中在一个大会议室的PI计划会议

- ▶ 所有干系人面对面
- ▶ 管理层设定使命
- ▶ 所有敏捷团队成员面对面
- ▶ 需求和设计不断涌现
- ▶ 重要的干系人加速在现场决策
- ▶ 敏捷团队负责：制定计划



continuous delivery technical excellence  
efficient customer collaboration



# SAFe项目群增量计划会议 ( PI Planning )

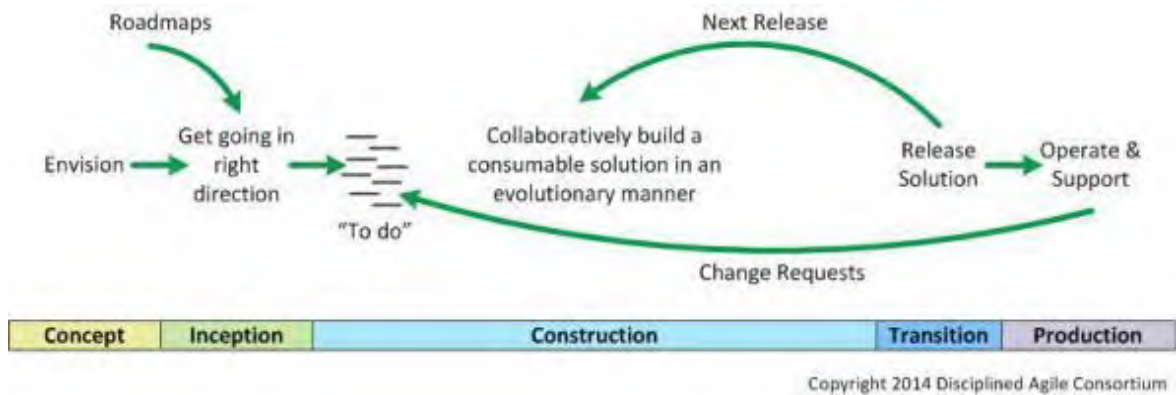
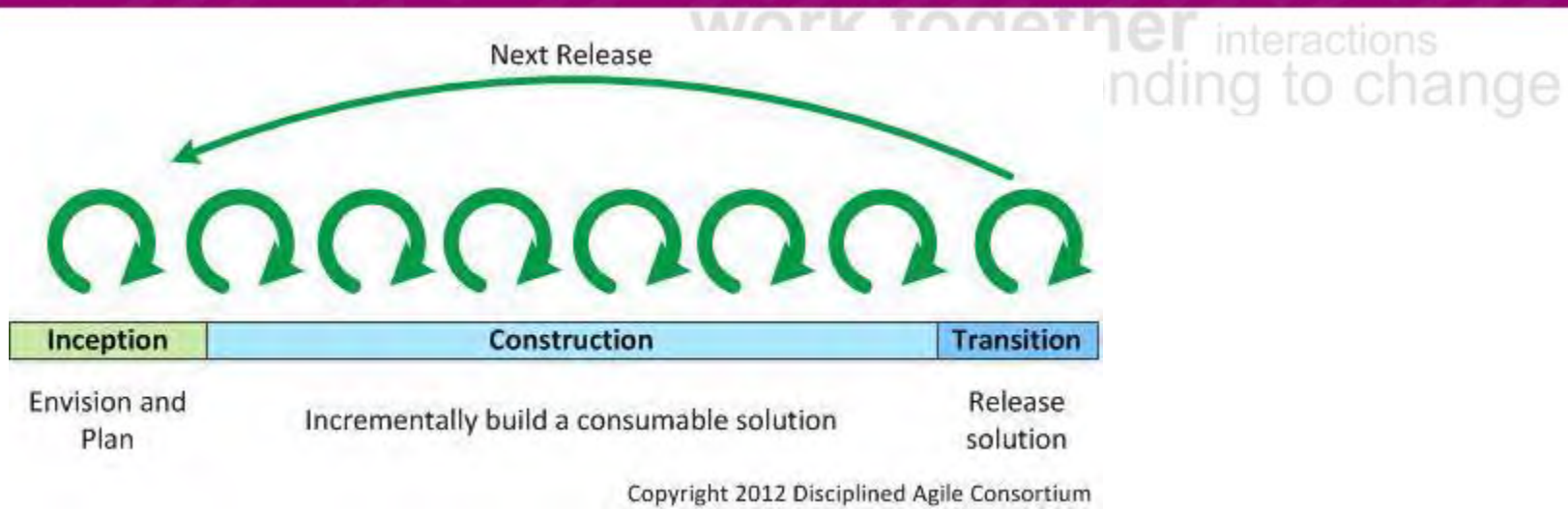


Figure 2. Standard two-day PI planning agenda

<http://www.scaledagileframework.com/pi-planning/>



# DA2.0全生命周期

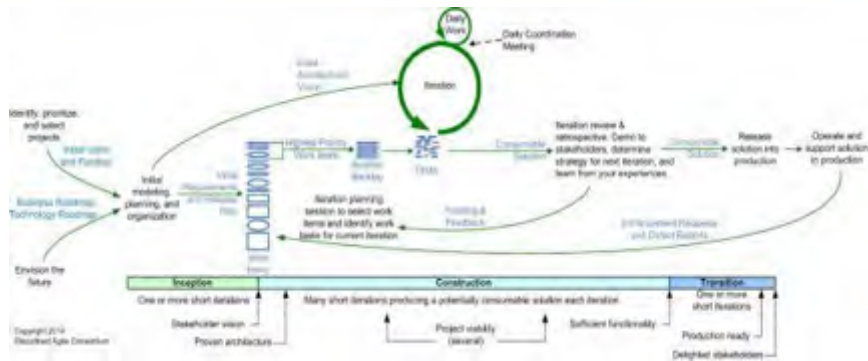


continuous delivery technical excellence  
efficient customer collaboration

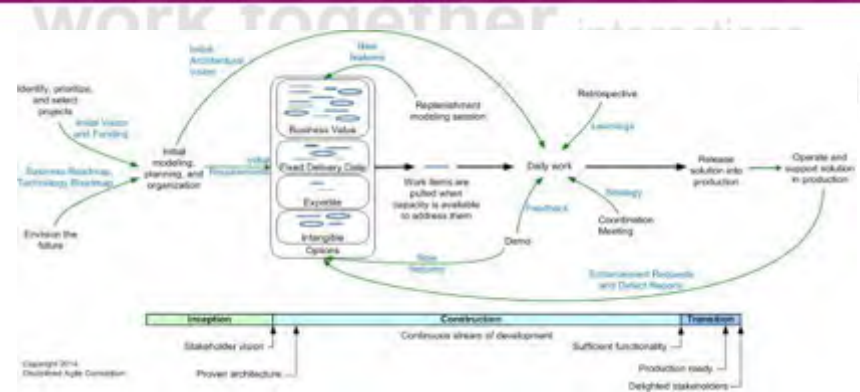




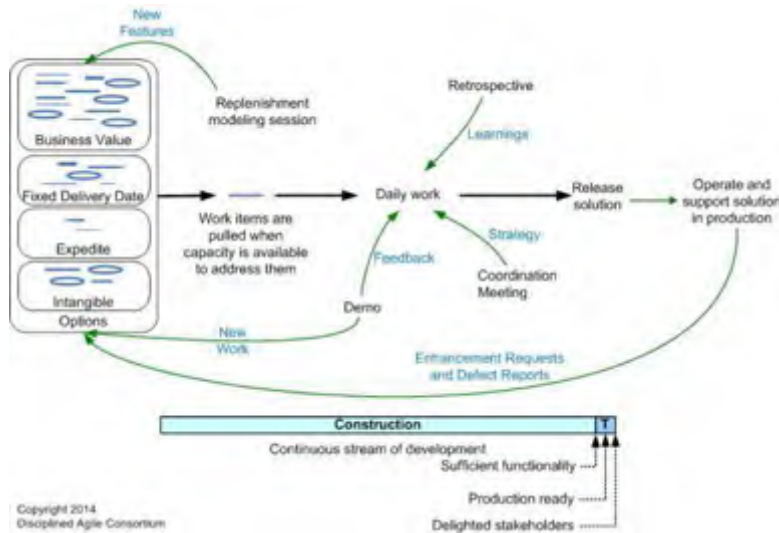
# DA2.0不同类型生命周期



The Agile/Basic Lifecycle



The Lean/Advanced Lifecycle

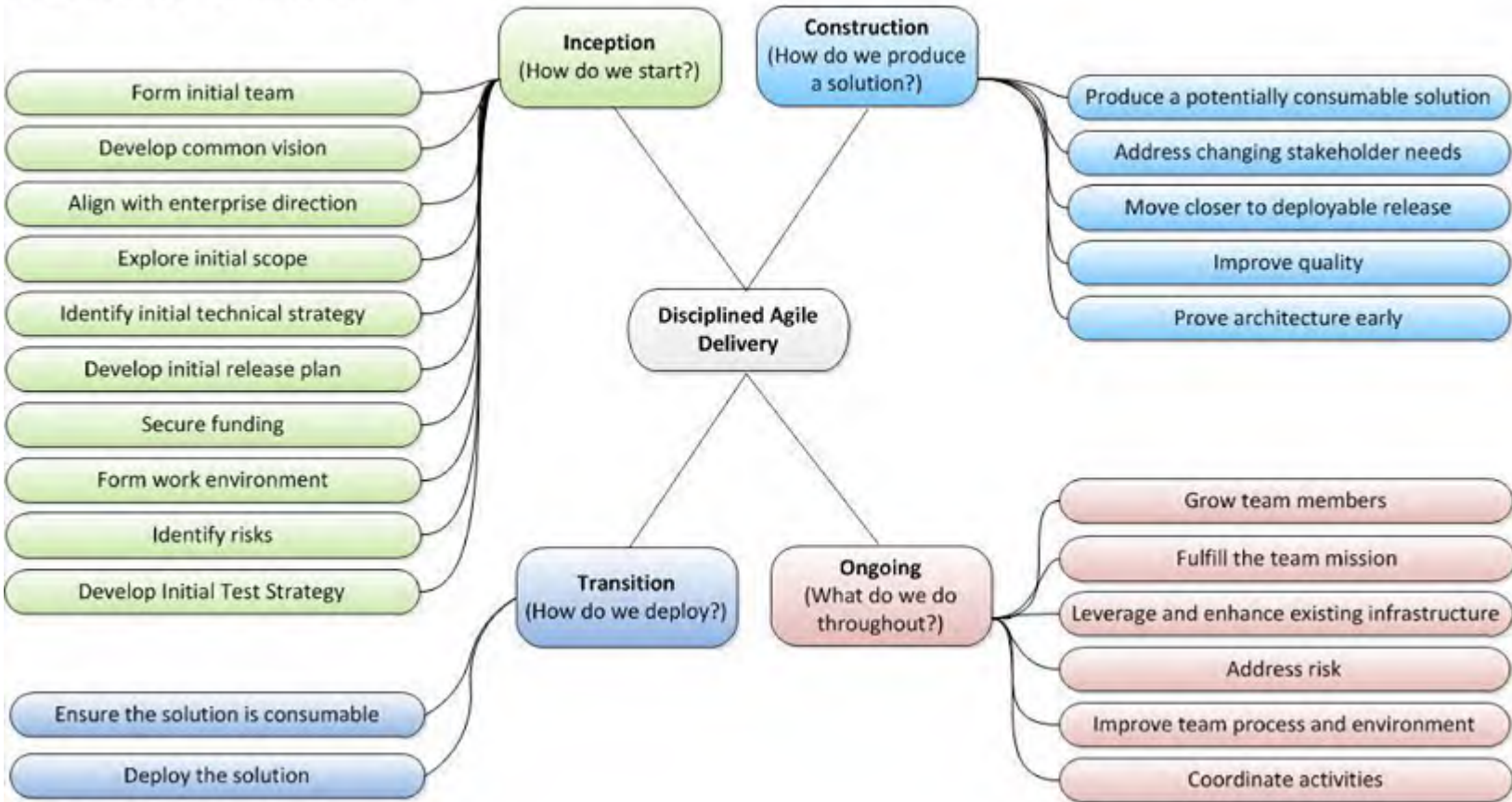


The Continuous Delivery DAD Lifecycle The Exploratory (Lean Startup) Lifecycle



# DA2.0流程的目标决策点

## The Process Goals of Disciplined Agile Delivery (DAD)



v2.1 2013-2017 © Disciplined Agile Consortium



# DA2.0大规模团队解决风险策略

work together interactions  
effective responding to change

Large teams will often adopt the following strategies to address the challenges that they face:

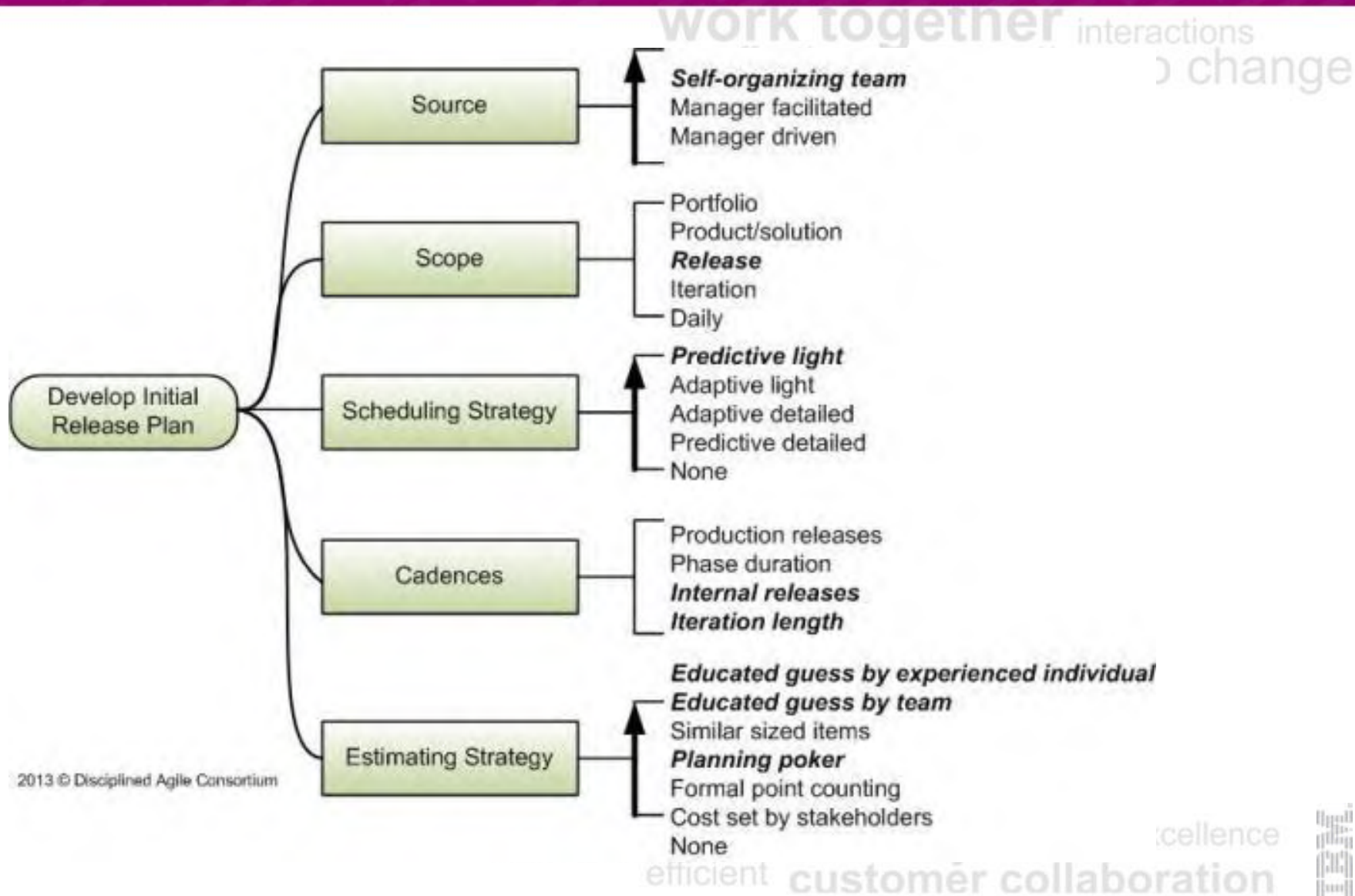
1. Do a bit more up-front requirements exploration
2. Do a bit more up-front architectural modelling
3. Do a bit more initial planning
4. Adopt more sophisticated coordination activities
5. Adopt more sophisticated testing strategies

continuous delivery technical excellence  
efficient customer collaboration



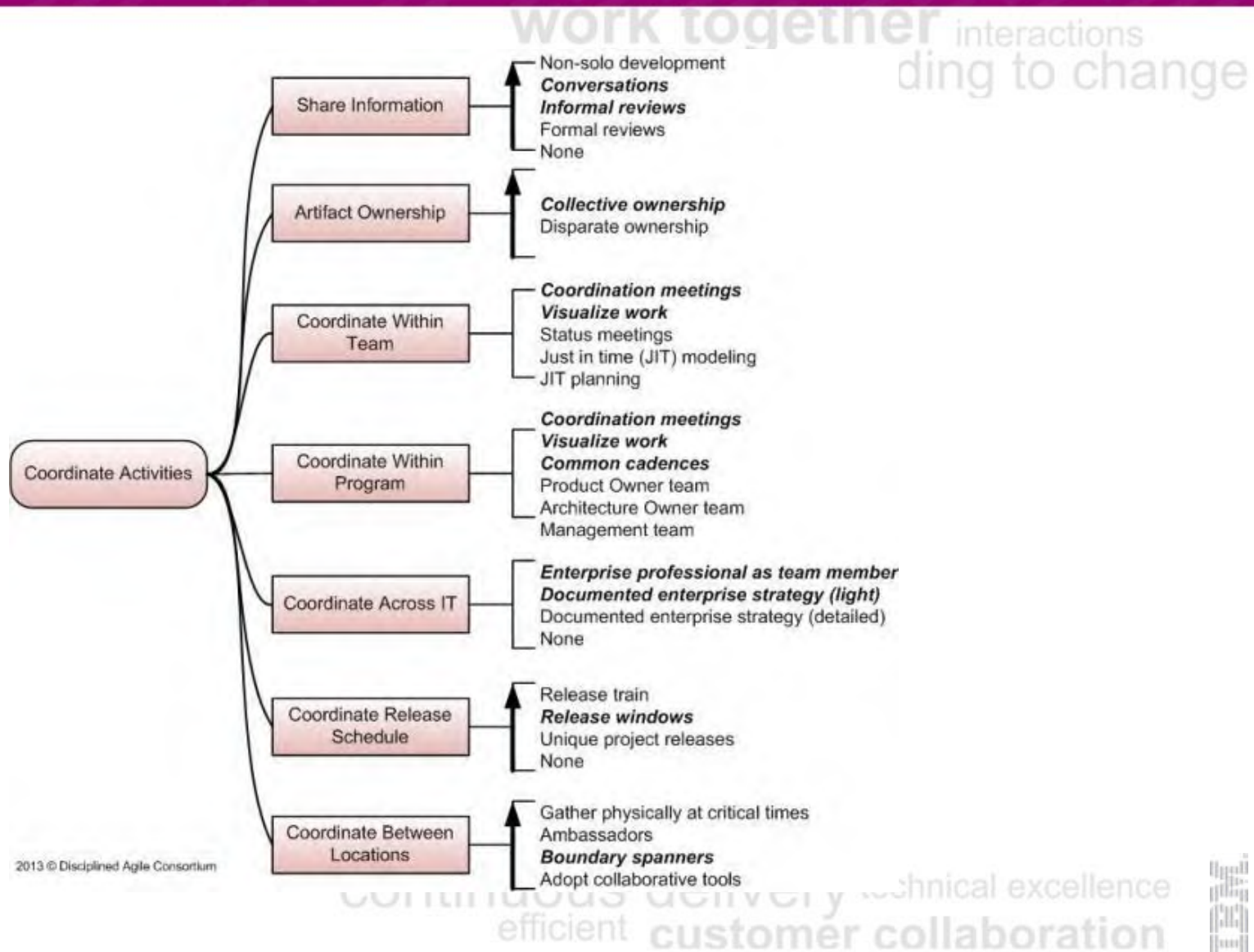


# DA2.0初始发布计划策略



2013 © Disciplined Agile Consortium

# DA2.0协调活动策略



# 大敏捷的团队和协调活动

团队特征	团队结构	团队活动
DA2.0团队策略 提倡特性团队，通常和组件团队混合使用	DA2.0团队结构 借鉴Scrum团队，采用中性角色名称，增加额外角色处理大规模问题	DA2.0 协调活动策略
SAFe4.0提倡特性团队，通常和组件团队混合使用	SAFe4.0团队结构 借鉴Scrum团队，采用中性角色名称，增加额外角色处理大规模问题	SAFe4.0项目群层Pi会议 使用全员策略
LeSS特性团队	LeSS最小化额外角色， APO	LeSS使用团队代表处理规模问题





# 大敏捷路在何方？

定义多点

组件团队

减少协调角

特性团队

增加协调机制

减少耦合

最小化角色个数和种类

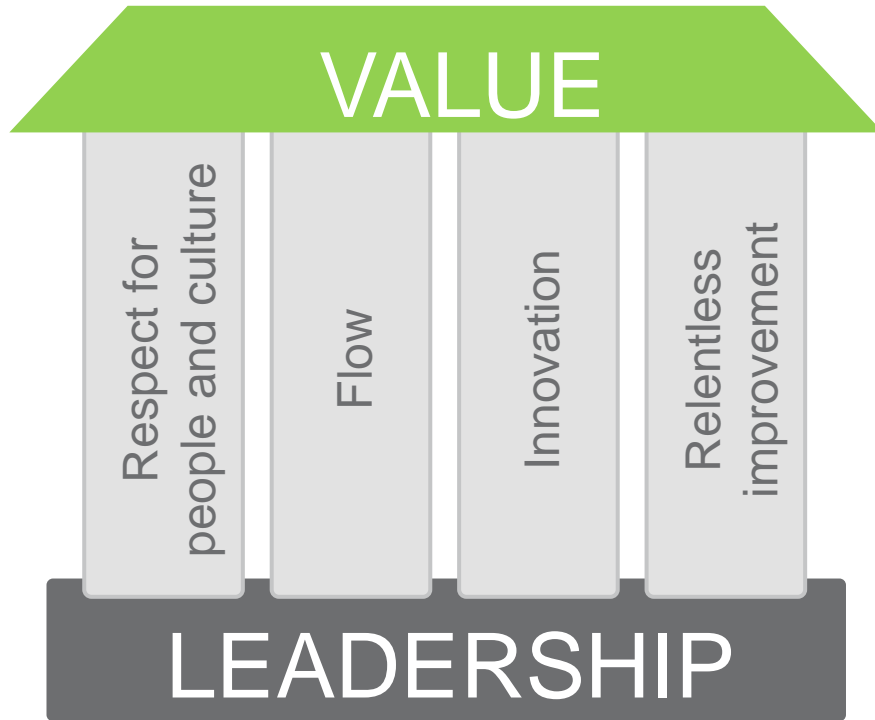
增加协

定义少点

大敏捷在于人



# SAFe4.0精益-敏捷理念



SAFe精益之屋

work together interactions  
effective responding to change

## The Values of the Agile Manifesto

We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

**Individuals and interactions** over processes and tools

**Working software** over comprehensive documentation

**Customer collaboration** over contract negotiation

**Responding to change** over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

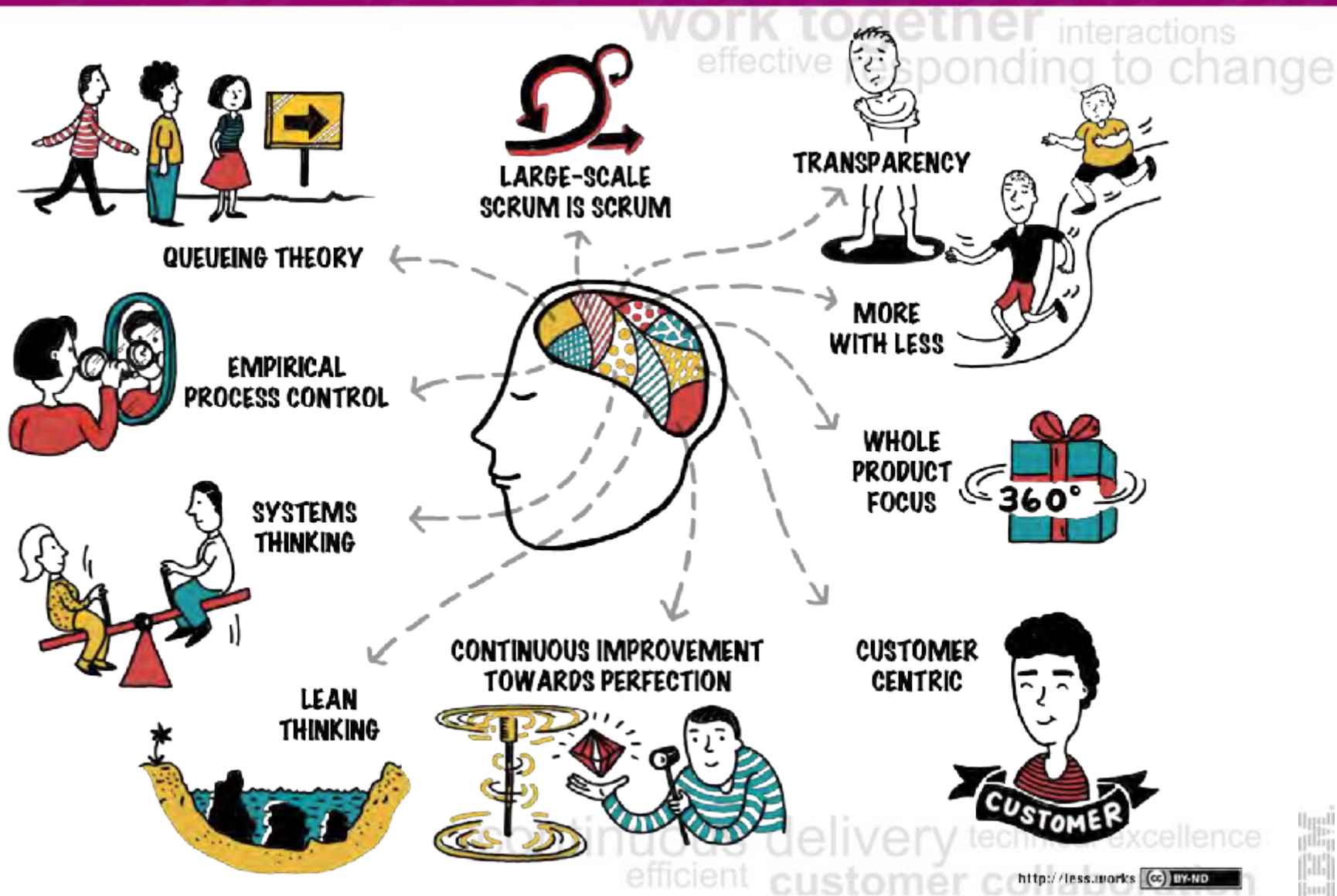
[agilemanifesto.org](http://agilemanifesto.org)

敏捷宣言





# LeSS原则



# The Disciplined Agile Manifesto

work together interactions  
effective responding to change

## Our Values

We value:

**Individuals and interactions** over processes and tools

**Consumable solutions** over comprehensive documentation

**Stakeholder collaboration** over contract negotiation

**Responding to change** over following a plan

That is, while there is value in the items on the right, disciplined agilists value the items on the left more.

continuous delivery technical excellence  
efficient customer collaboration



# The Disciplined Agile Manifesto

## The Principles Behind the Disciplined Agile Manifesto

1. Our highest priority is to satisfy the stakeholder through early and continuous delivery of valuable solutions.
2. Welcome changing requirements, even late in the solution delivery lifecycle. Agile processes harness change for the customer's competitive advantage.
3. Deliver consumable solutions frequently, from a couple of weeks to a couple of months, with a preference to the shorter time scale.
4. Stakeholders and developers must work together daily throughout the project.
5. Build teams around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
6. The most efficient and effective method of conveying information to and within a delivery team is face-to-face conversation.
7. Consumable solutions are the primary measure of progress.
8. Agile processes promote sustainable delivery. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
9. Continuous attention to technical excellence and good design enhances agility.
10. Simplicity – the art of maximizing the amount of work not done – is essential.
11. The best architectures, requirements, and designs emerge from self-organizing teams.
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.
13. Leverage and evolve the assets within your enterprise, collaborating with the people responsible for those assets to do so.
14. Visualize work to produce a smooth delivery flow and keep work-in-progress (WIP) to a minimum.
15. Evolve the enterprise to support agile, non-agile, and hybrid teams.

work together interactions  
ing to change

technical excellence  
efficient customer collaboration





# 大敏捷

work together interactions  
effective responding to change



continuous delivery technical excellence  
efficient customer collaboration



# 大敏捷

work together interactions  
effective responding to change



continuous delivery technical excellence  
efficient customer collaboration





# 谢谢！

赵卫，敏捷教练及顾问

IBM大中华区敏捷及DevOps卓越中心主管

