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Agile Software Development

Part 9: Scaling Agile Projects

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Scaling Agile Projects

Scaling agile projects

Adding people late to a project makes it later (Brooke's Law). Why ?

> Nonlinear interactions almost always make the behavior of the aggregate more complicated that would be predicted by summing or averaging.
>
> Source: John H. Holland. *Hidden Order. How Adaptation Builds Complexity*. Basic Books, 1995, pg. 23

Assume a typical (what means that?) agile project as a baseline.

- Which nonlinear effects appear if the project is scaled up to 100 people ?
- And if it is scaled up to 1000 people ?

Scaling Agile Projects

Characterizing projects, Crystal (Cockburn, 2002)

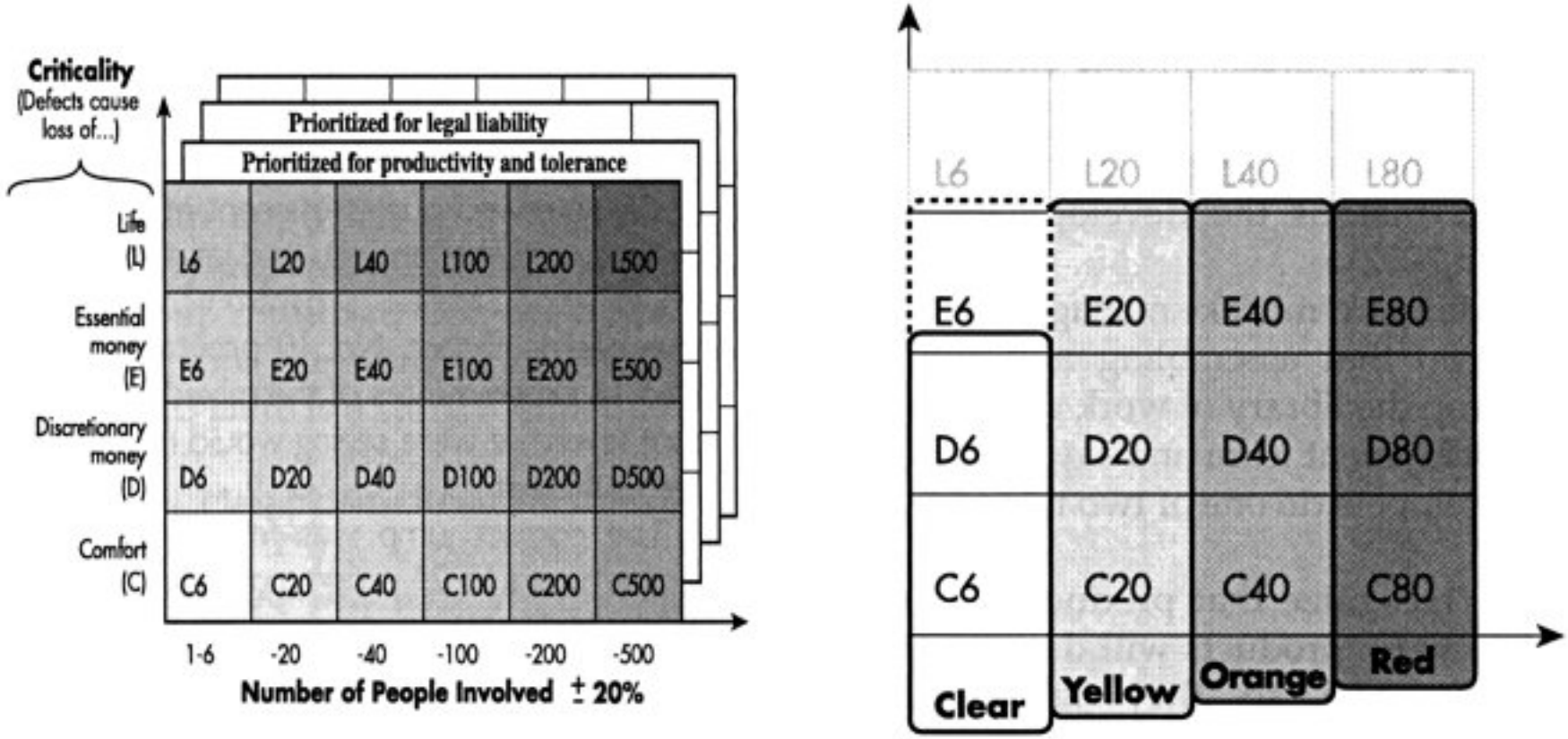

Image Source: A. Cockburn. *Agile Software Development*. Addison-Wesley, 2000, pg. 162, 200

Different methodologies are needed for different projects.

Source: A. Cockburn. *Agile Software Development*. Addison-Wesley, 2000, pg. 162

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Agile and plan-driven home grounds (Boehm & Turner, 2004)

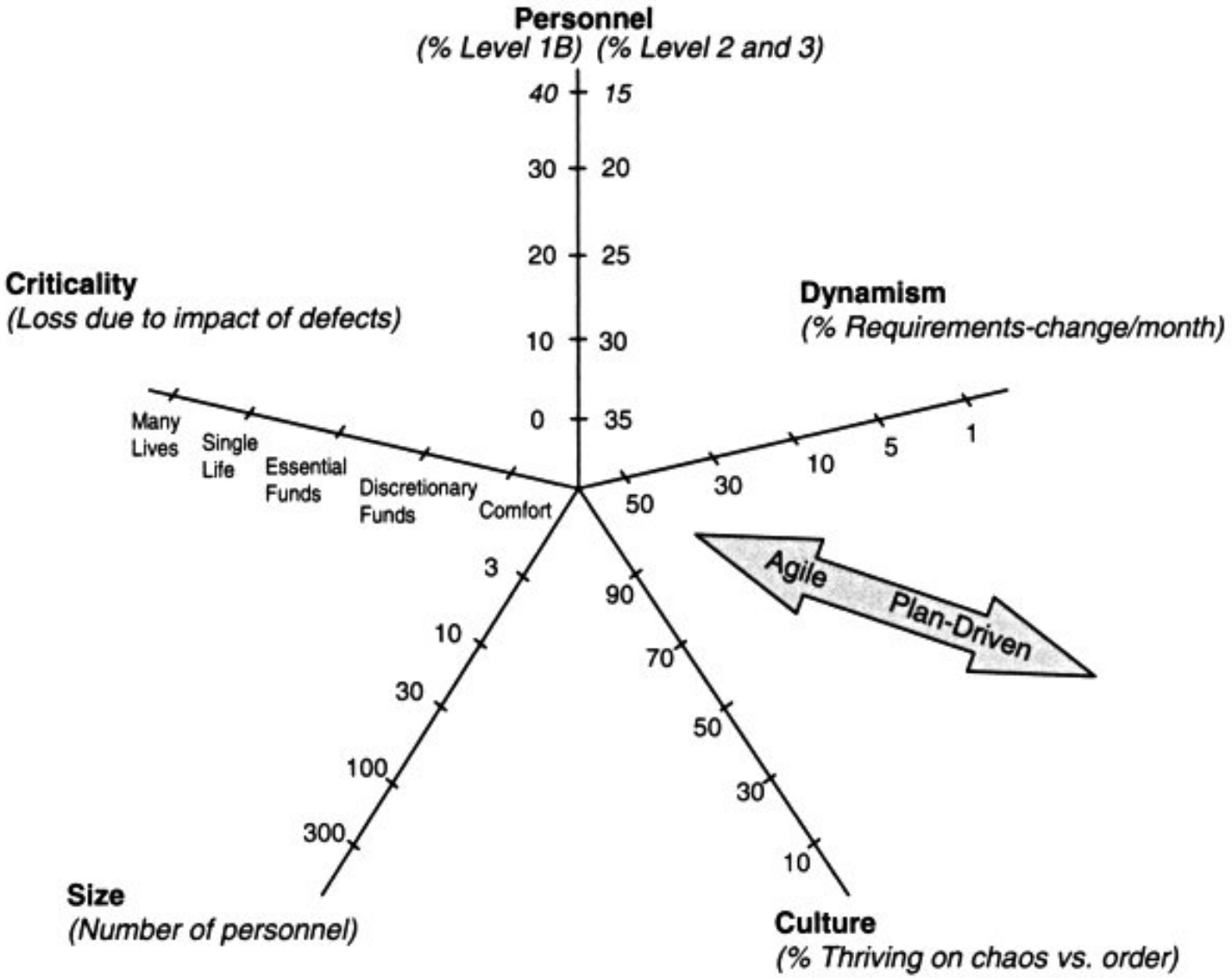

Image Source: B. Boehm, R. Turner. *Balancing Agility and Discipline*. Addison-Wesley, 2004, pg. 56

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Sweet-spot agile projects (Reifer et al., 2003)

A sweet-spot agile project typically involves a small, self-organizing, collocated team of fewer than 20 developers and one or more on-site customers. The team usually works together on a variable-scope application with unstable or emergent requirements, relying mainly on an oral culture based on high-bandwidth, face-to-face communication.

Source: D. J. Reifer; F. Maurer; H. Erdogmus. *Scaling Agile Methods*. IEEE Software, Vol. 20, No. 4, July/August 2003

Scaling Agile Projects

Scaling agile projects (Leffingwell, 2006)

D. Leffingwell proposed seven agile practices that scale, as well as seven enterprise practices to achieve scaled agility.

The seven agile practices are:

1. The define/build/test component team
2. Two-level planning
3. Iterations
4. Smaller and more frequent releases
5. Concurrent testing
6. Continuous integration
7. Regular reflection and adaptation

Scaling Agile Projects

The define/build/test component team

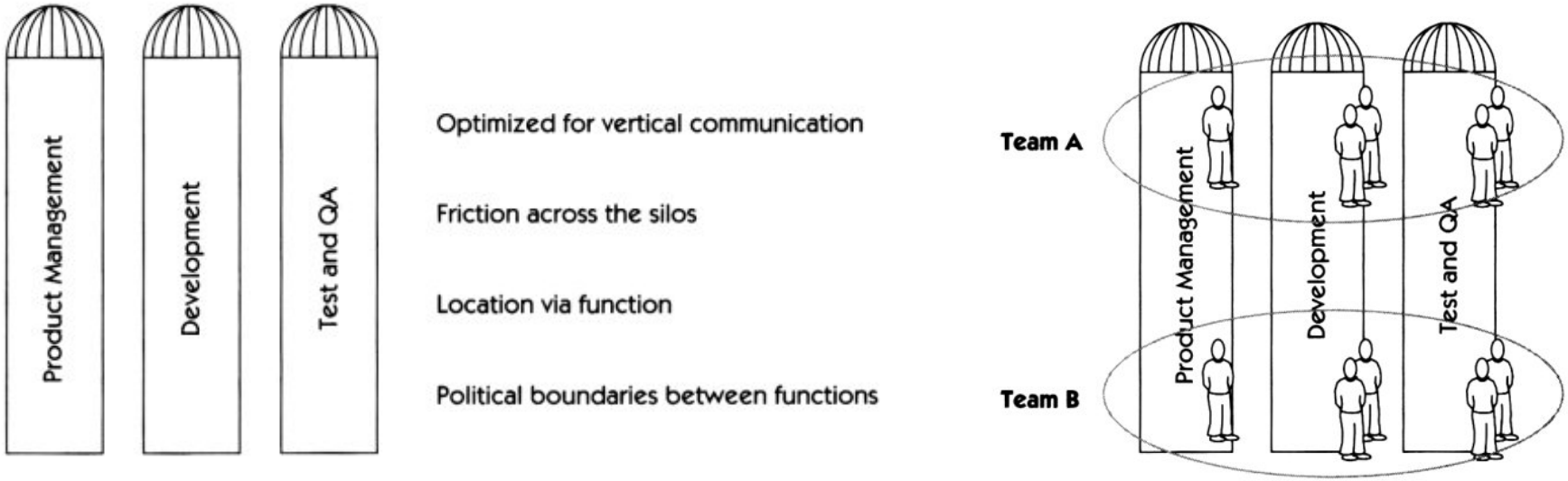

Image source: D. Leffingwell. *Scaling Software Agility*. Addison-Wesley, 2007, pg. 104, 105

With agile, the organization must be reorganized so that each team has all skills – product definition, software development, and testing – necessary to define/build/test and deliver each story.

Source: D. Leffingwell. *Scaling Software Agility*. Addison-Wesley, 2007, pg. 105

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The define/build/test component team

Scrum of Scrums

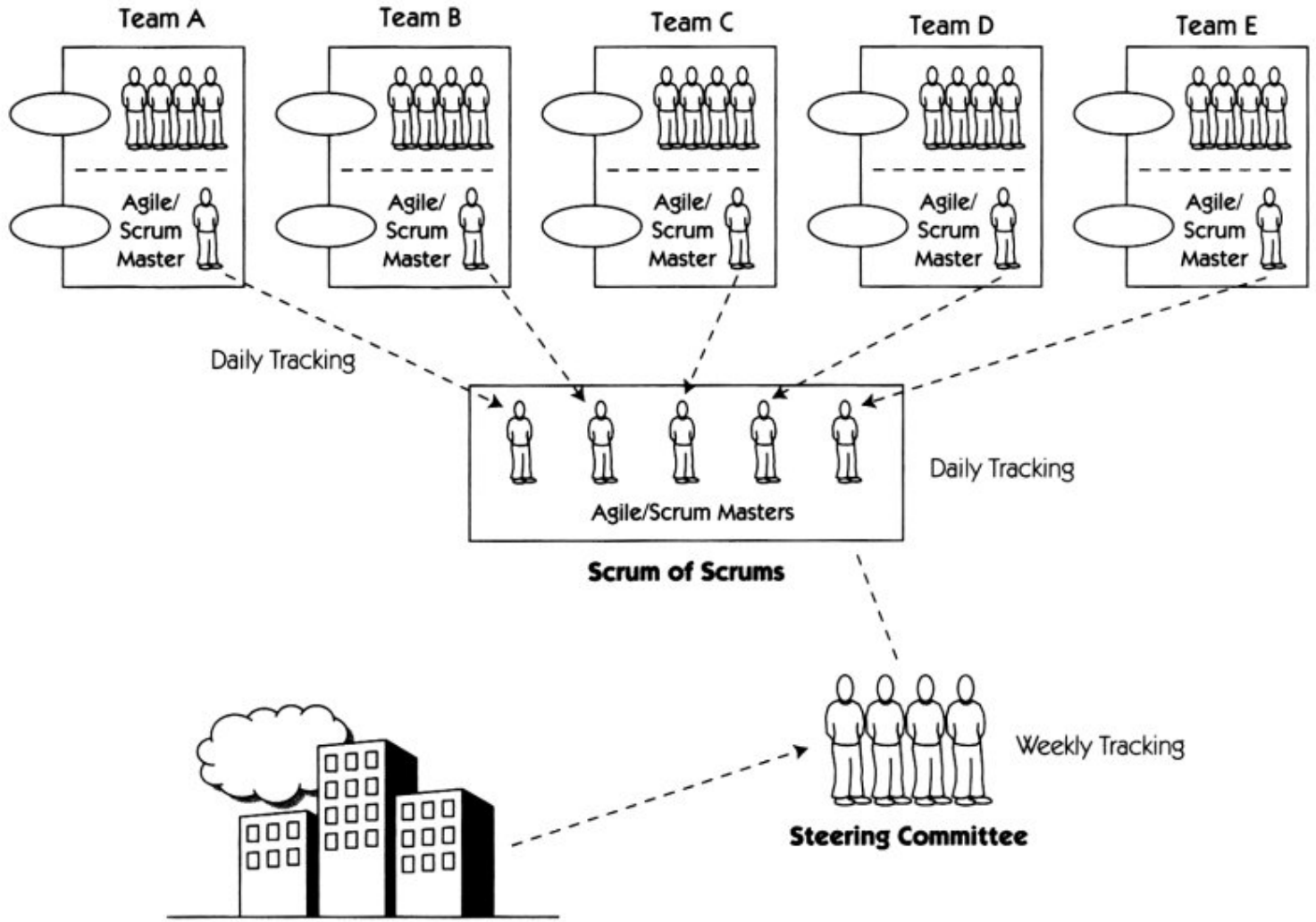

Image source: D. Leffingwell. *Scaling Software Agility*. Addison-Wesley, 2007, pg. 151

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Seven Enterprise practices (Leffingwell, 2006)

Supporting these seven agile practices, *Leffingwell* proposed a set of seven enterprise practices to achieve scaled agility.

The seven enterprise practices are:

1. Intentional architecture
2. Lean requirements at scale
3. The agile release train
4. Tooling
5. Changing the organization
6. Impact on customers and distribution
7. Measuring business performance

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The agile release train

Problem statement:

> Simply put, agile teams create more product more quickly and coordinating delivery of these products to the market becomes an enterprise challenge.
>
> Source: D. Leffingwell. *Agile at Scale: 7+7 Practices for Enterprise Agility*. Agile Journal, April 4, 2006

Scaling Agile Projects

The agile release train

Challenge: A pattern of unsynchronized releases causes delay:

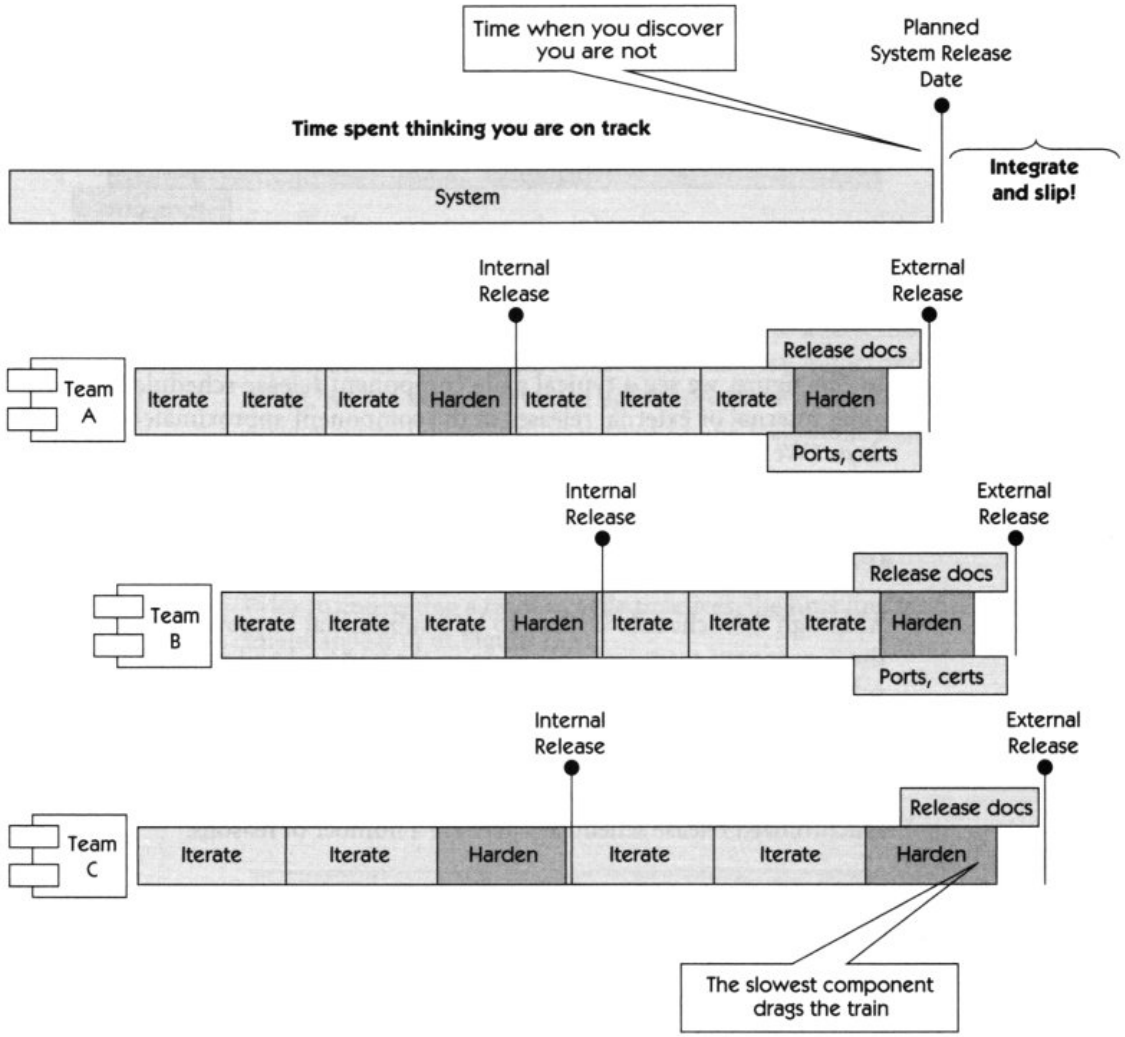

Image source: D. Leffingwell. *Scaling Software Agility*. Addison-Wesley, 2007, pg. 240

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The agile release train

A synchronized agile release train:

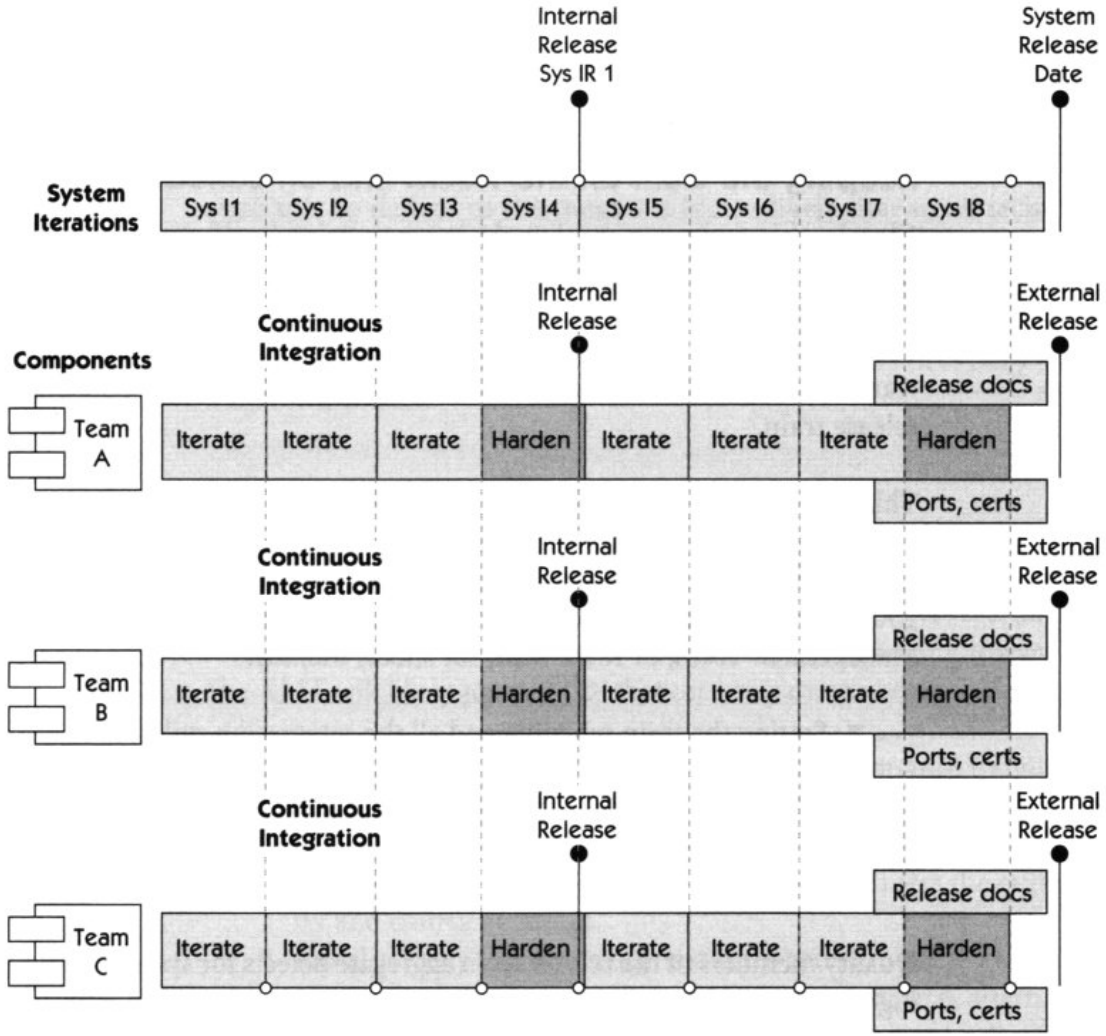

Image source: D. Leffingwell. *Scaling Software Agility*. Addison-Wesley, 2007, pg. 243

Scaling Agile Projects

Distributed Scrum

- J. Sutherland et al.: *„Distributed Scrum: Agile Project Management with Outsourced Development Teams*", IEEE Proceedings of the 40th Annual Hawaii International Conference on System Sciences (HICSS 2007)
- A. Marchenko, P. Abrahamsson: *„Scrum in a Multiproject Environment: An Ethnographically-Inspired Case Study on the Adoption Challenges*", IEEE Proceedings of the Agile 2008 conference
- E. Uy, N. Ioannu: *„Growing and Sustaining an Offshore Scrum Engagement*", IEEE Proceedings of the Agile 2008 conference
- R. Lyon, M. Evans: *„Scaling Up - pushing Scrum out of its Comfort Zone*", IEEE Proceedings of the Agile 2008 conference