



FULLY DISTRIBUTED SCRUM: REPLICATING LOCAL PRODUCTIVITY AND QUALITY WITH OFFSHORE TEAMS

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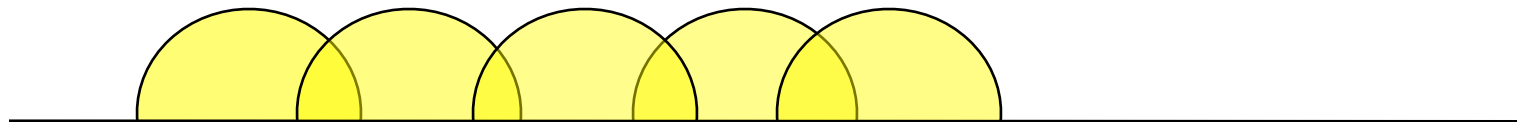
Scrum Training
Institute



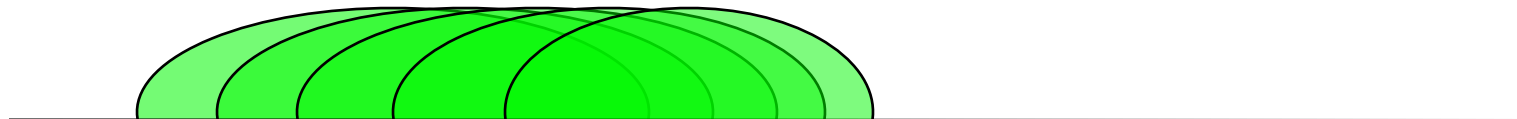
Distributed/Outsourcing Styles



Isolated Scrums



Distributed Scrum of Scrums



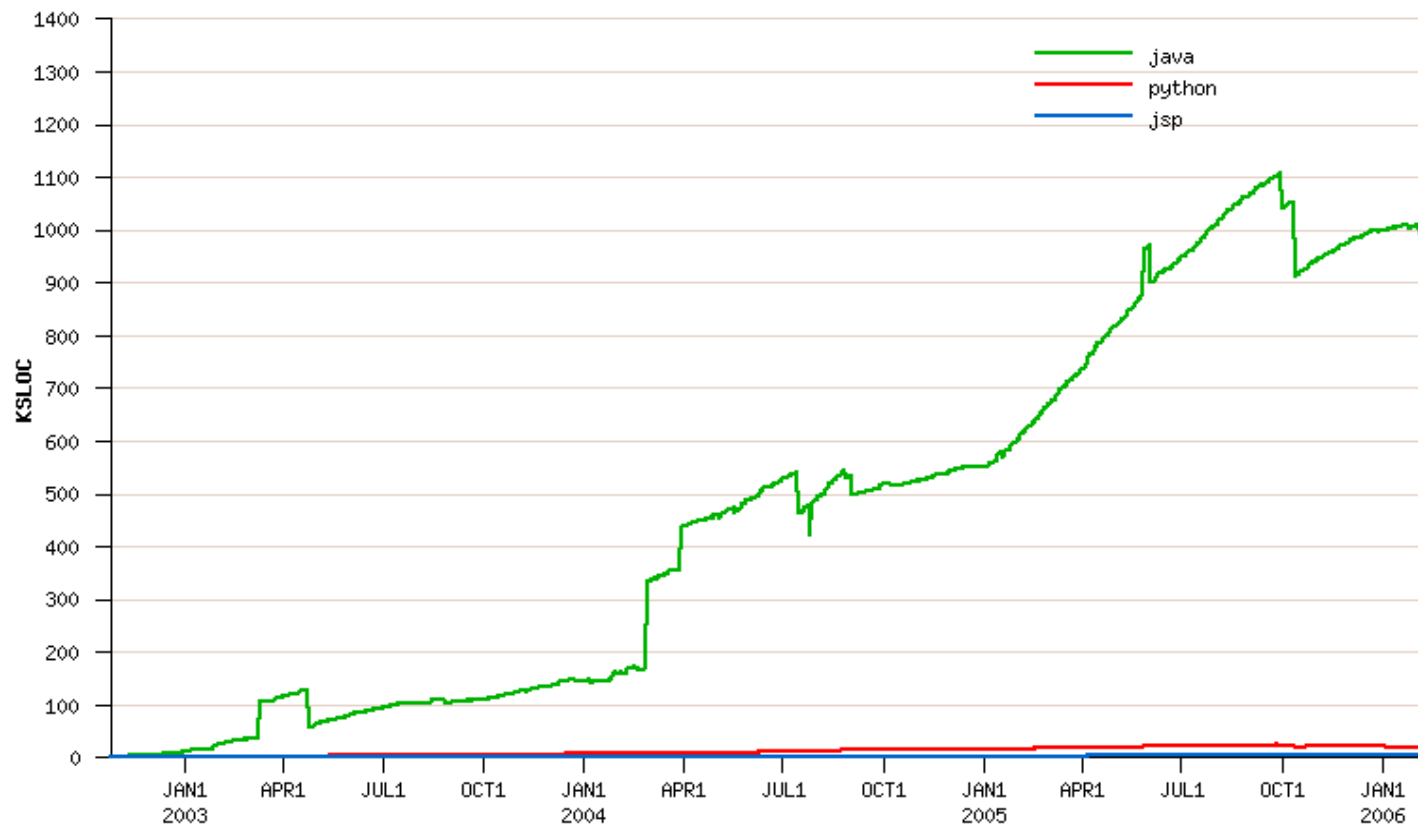
Totally Integrated Scrums

Outsourcing

- What happens if you outsource \$2M of development?
 - Industry data show 20% cost savings on average
- Outsourcing from PatientKeeper to Indian waterfall team:
 - Two years of data showed breakeven point occurs when Indian developer costs 10% of American Scrum developer
 - Actual Indian cost is 30%
- \$2M of Scrum development at my company costs \$6M when outsourced to waterfall teams
- Never outsource to waterfall teams. Only outsource to Scrum teams.

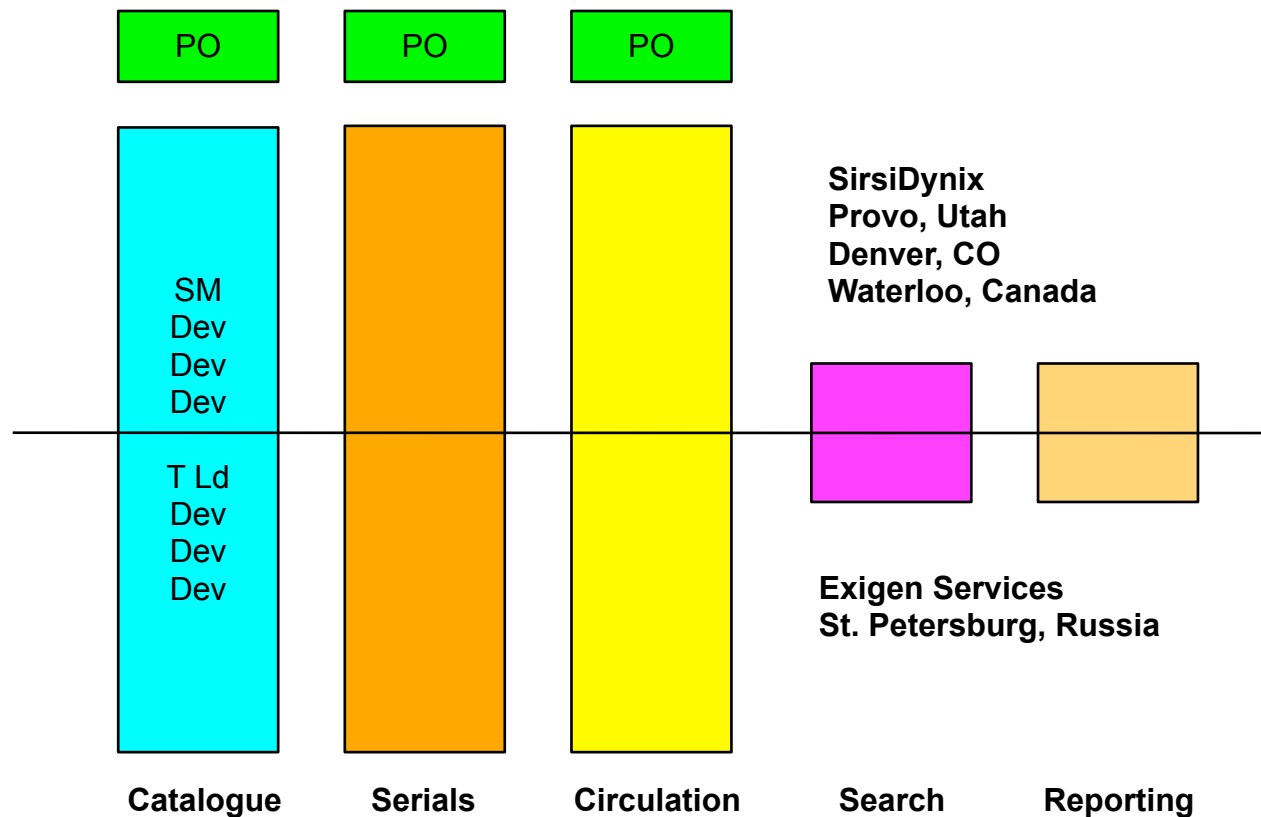
SirsiDynix - Anatomy of a failed project

- Over a million lines of Java code



SirsiDynix Distributed Scrum

- 56 developers distributed across sites



Velocity in Function Points/Dev month

	Scrum[1]	Waterfall[1]	SirsiDynix[2]
Person Months	54	540	827
Lines of Java	51,000	58,000	671,688
Function Points	959	900	12673
Function Points per Dev/Mon	17.8	2.0	15.3

1. M. Cohn, User Stories Applied for Agile Development. Addison-Wesley, 2004
2. J. Sutherland, A. Viktorov, J. Blount, and N. Puntikov, "Distributed Scrum: Agile Project Management with Outsourced Development Teams," in HICSS'40, Hawaii International Conference on Software Systems, Big Island, Hawaii,

SirsiDynix Challenges

- ScrumButt
- Builds were stable only at Sprint boundaries
- ScrumMasters, Product Owners, and Architects only in U.S.
- No XP in U.S, only in Russia
- No face to face meetings
- Low test coverage
- Poor refactoring practice
- Did not have equal talent across teams
- Company merger created competitive products
- Sirsi now owned Dynix and killed Dynix product

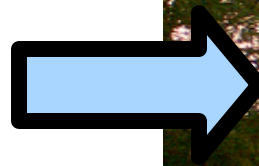
Research Issue

- SirsiDynix was a retrospective study of a single data point
- Even if quality was perfect, it does not prove anyone else can do it.
- Even worse, if you observe a finding after the fact, you cannot infer causality
- Is SirsiDynix a lucky accident? Or maybe an unlucky accident?

We needed a prospective study

- Define the distributed team model before projects start
- Assure consistent talent, tools, process, and organization across geographies
- Establish high quality data gathering techniques on velocity, quality, cost and environmental factors.
- Run a consistent team model on a series of projects and look for comparable results
- Demonstrate that local velocity = distributed velocity
- Demonstrate that local quality = distributed quality
- Demonstrate linear scaling at constant velocity per developer

Case study: Building a new railway information system



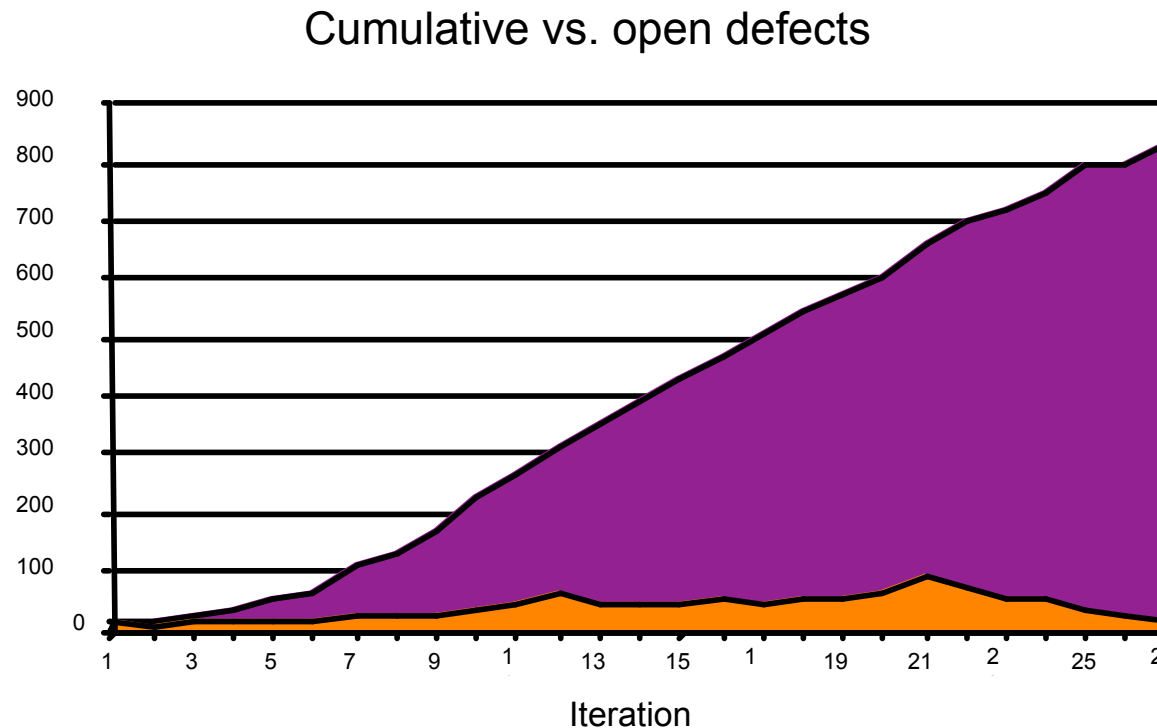
ProRail PUB Example

- ProRail rescued a failed waterfall project to build a new scheduling system and automated railway station signs at all Netherlands railway stations
- An 8 person Dutch Scrum team started the project and established local velocity.
- Xebia's India subsidiary sent 8 people to the Netherlands and two teams were formed. Each team was 4 Dutch and 4 Indian programmers.
- After establishing local velocity at 5 times other waterfall vendors on the project, the Indian half of each team went back to India.

ProRail Definition of Done

- Scrum teams run all XP practices inside the Scrum including intensive pair programming.
- The customer completes acceptance testing on all features during each Sprint.
- Done at the end of the Sprint means customer has accepted the code as ready for production.
- Defect rates are less than 1 per 1000 lines of code and steadily getting lower.

ProRail Defect Tracking



- Defect rate gets lower and lower as code base increases in size
- 95% of defects found inside iteration are eliminated before the end of the iteration

Team Characteristics

- TDD, pair programming, continuous integration. Same tools and techniques onshore and offshore.
- Daily Scrum meeting of team across geographies.
- SmartBoards, wikis, and other tools used to enhance communication.
- Indians say it feels exactly the same in India as it does in Amsterdam. They do the same thing in the same way.
- Xebia CTO has decided to use this model on all projects because it provides (counterintuitively) better customer focus and all other metrics are the same onshore or offshore.

Resolving Cultural Differences

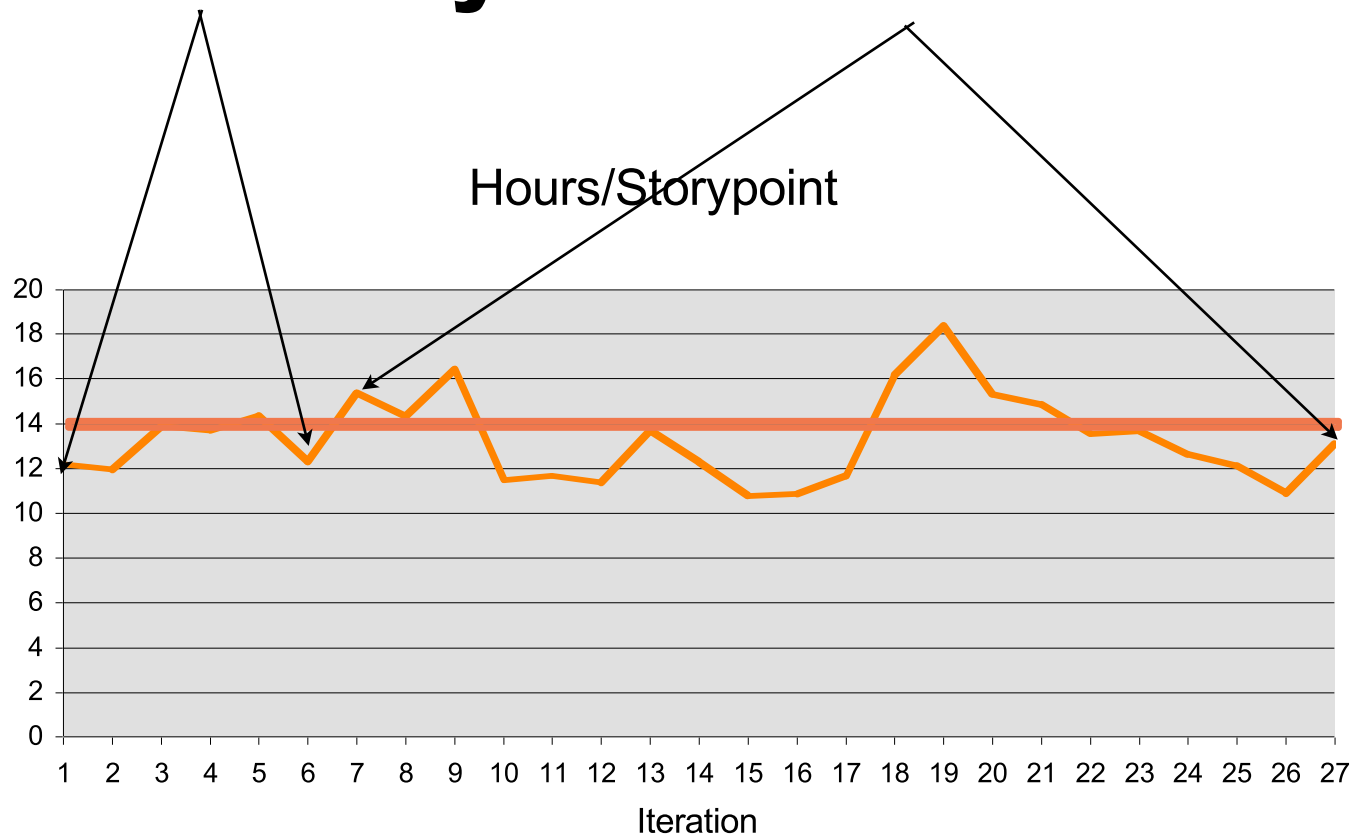
- One of the teams had local velocity decrease after distributing the team.
- Root cause analysis indicated the Indians were waiting for the senior Indian developer to tell them what to do.
- The same day this was determined, the Dutch ScrumMaster became a team member and the lead Indian developer became the ScrumMaster with the goal of eliminating the impediment.
- Distributed velocity immediately went up to previously established local velocity.

Dutch Velocity vs. Russian Velocity

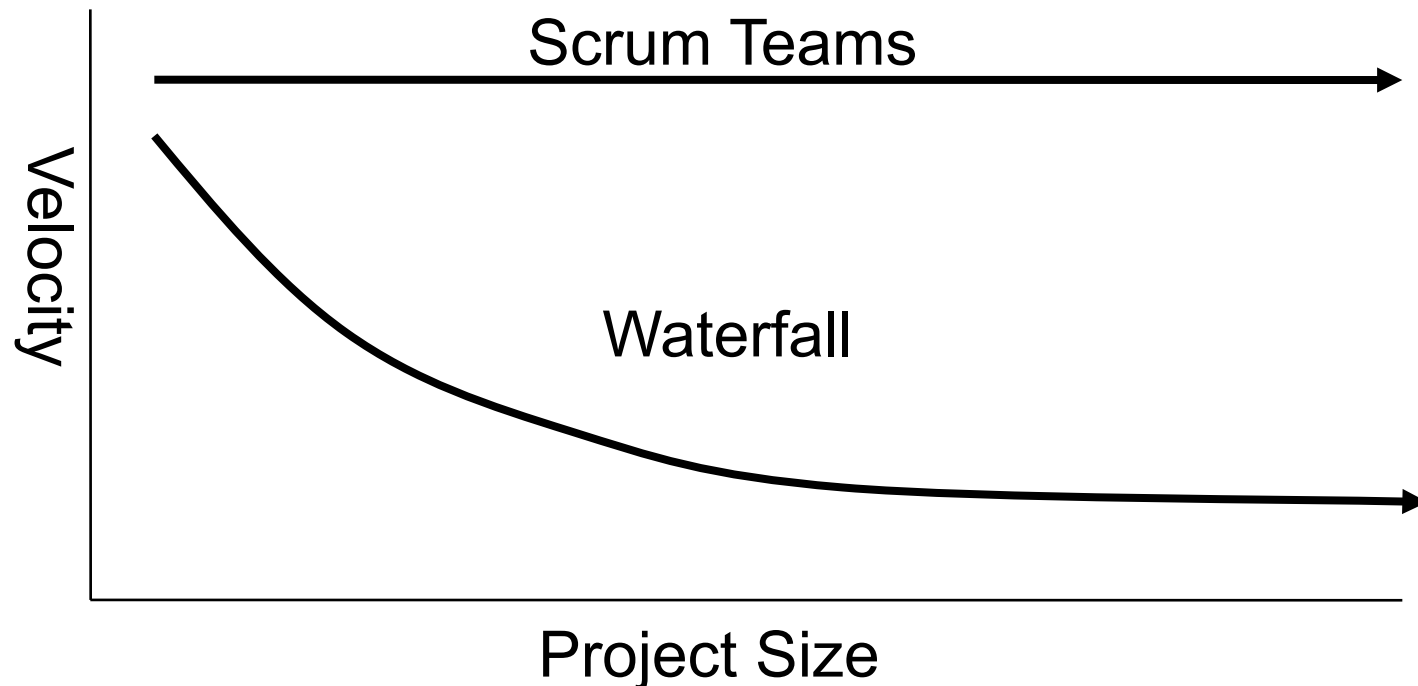
	SirsiDynix[2]	Xebia[3]
Person Months	827	125
Lines of Java	671,688	100,000
Function Points	12673	1887
Function Points per Dev/ Mon	15.3	15.1

1. M. Cohn, User Stories Applied for Agile Development. Addison-Wesley, 2004
2. J. Sutherland, A. Viktorov, J. Blount, and N. Puntikov, "Distributed Scrum: Agile Project Management with Outsourced Development Teams," in HICSS'40, Hawaii International Conference on Software Systems, Big Island, Hawaii,
3. J. Sutherland, G. Schoonheim, E. Rustenburg, M. Rijk. Fully Distributed Scrum: The Secret Sauce for Hyperproductive Outsourced Development Teams. Agile 2008, Toronto, Aug 4-8 (submission, preliminary data)

Local Velocity = Distributed Velocity

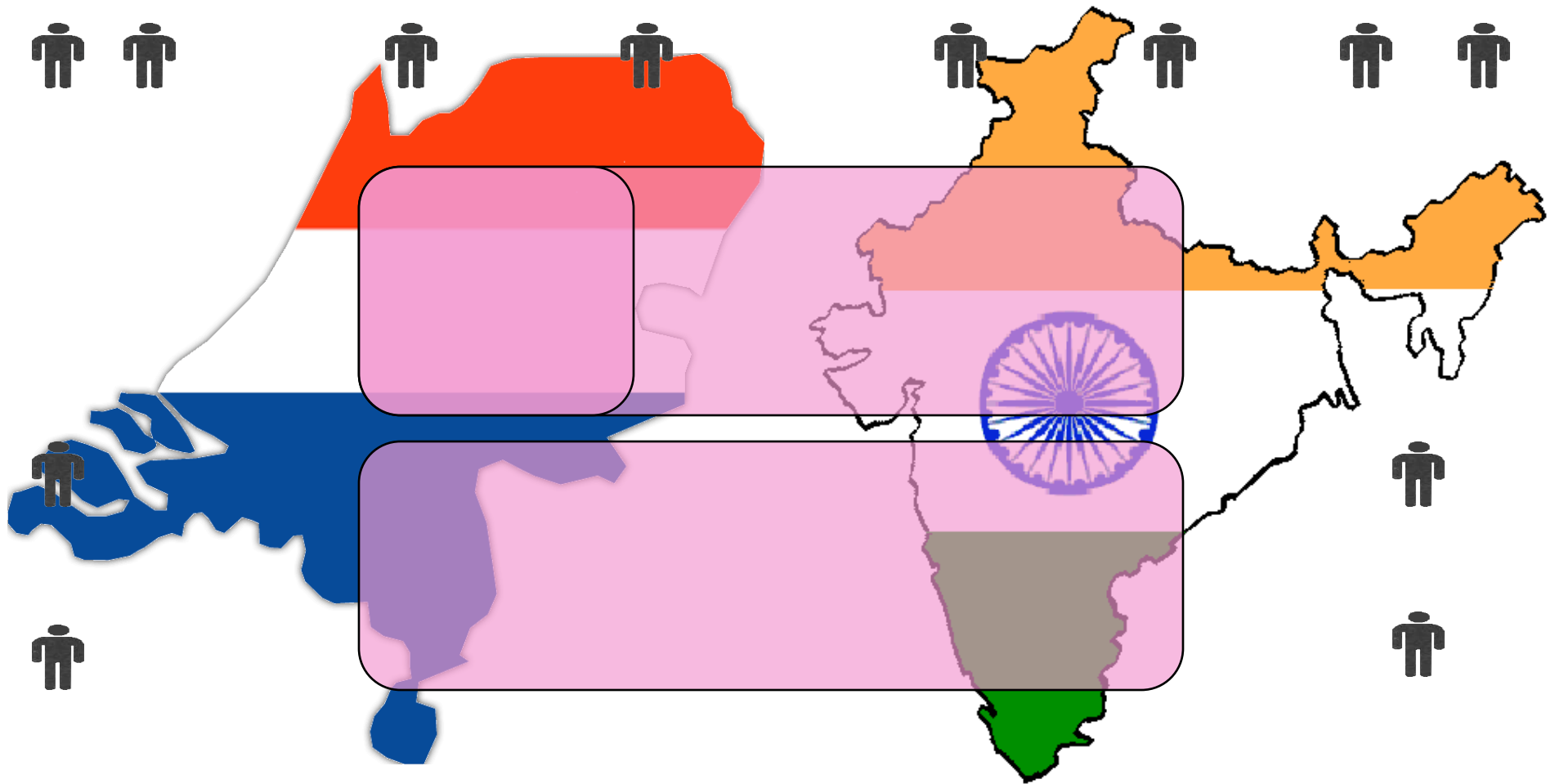


Linear Scalability of Large Scrum Projects



- J. Sutherland, A. Viktorov, J. Blount, and N. Puntikov, "Distributed Scrum: Agile Project Management with Outsourced Development Teams," in HICSS'40, Hawaii International Conference on Software Systems, Big Island, Hawaii, 2007.
- J. Sutherland, C. Jacobson, and K. Johnson, "Scrum and CMMI Level 5: A Magic Potion for Code Warriors!," in Agile 2007, Washington, D.C., 2007.

Fully Distributed Scrum



Conclusion

- ☒ Fully Distributed Scrum has the full benefits of both local hyperproductive teams and offshoring

Fully Distributed Scrum has more value than localized Scrum.

All Xebia projects of more than a few people are fully distributed today.

Questions?

