

USAGE AND PERCEPTIONS OF AGILE SOFTWARE DEVELOPMENT IN AN INDUSTRIAL CONTEXT

ESEM 2007
September 21, 2007

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Agile Development is Spreading

- Variety of Agile methodologies
 - Scrum, Extreme Programming, Crystal, others

- Research Questions
 - How is Agile practiced at Microsoft?
 - i.e. What do they do?
 - How do engineers feel about it?
 - i.e. Do they like it?

- This will be a data-heavy talk.

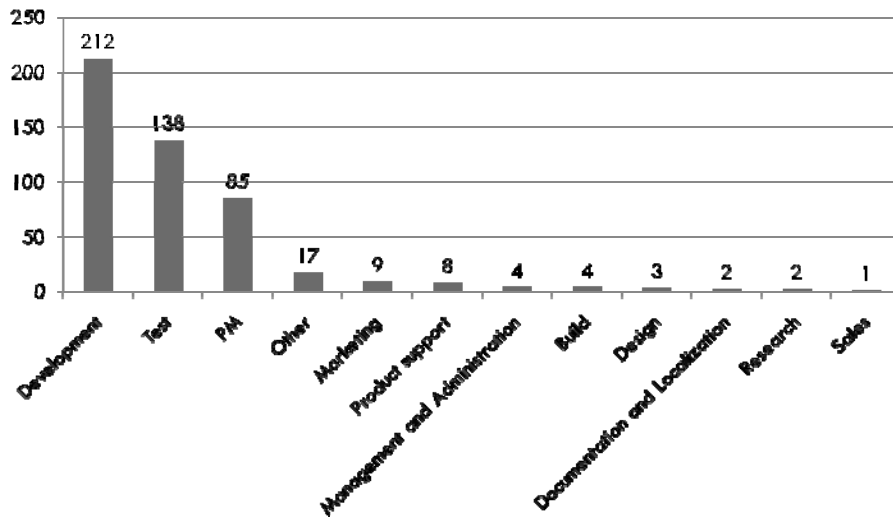
What did we do?

- Survey-based study
 - Anonymous survey sent to 2821 engineers at Microsoft
 - 10% random sampling of all developers, testers, program managers at Microsoft in October 2006
 - 487 valid responses
 - 18% developers, 18% testers, 10% program managers
 - Important topic to Microsoft engineers
 - We offered raffle for one \$250 MP3 player

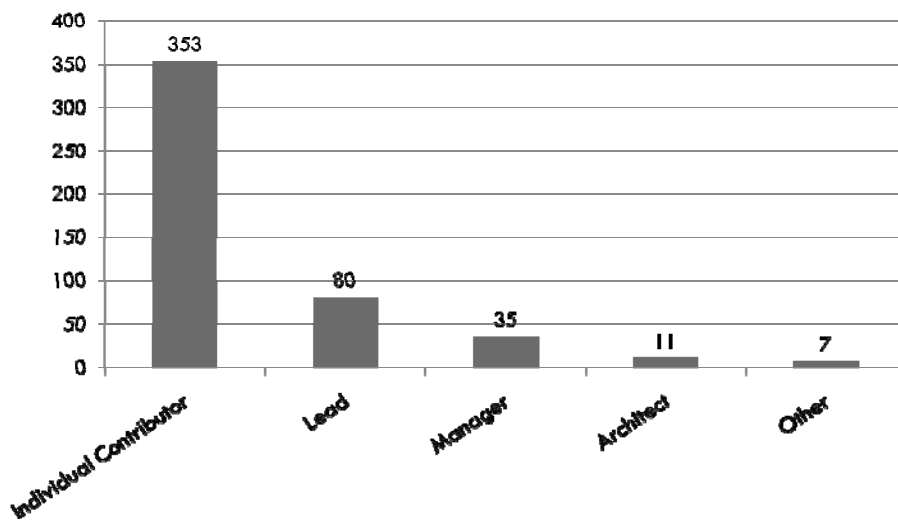
Respondent Demographics

- Average 9.20 years of professional experience
 - SD: 7.06 years
- Average 2.4 years in current product team
 - SD: 2.5 years

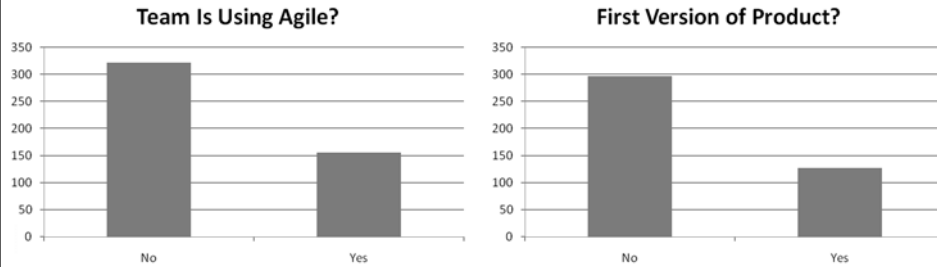
Respondent Job Area



Respondent Job Role

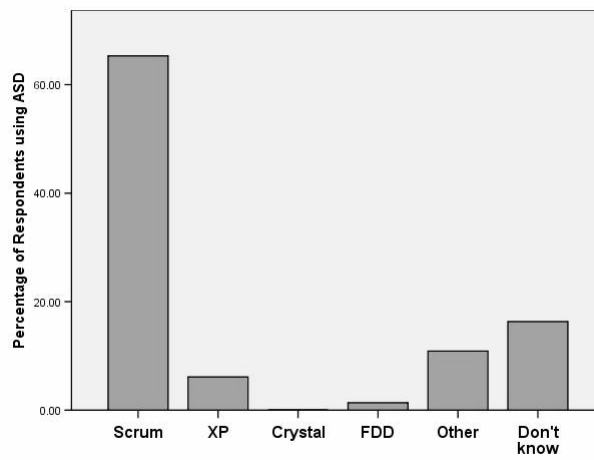


Who uses Agile?

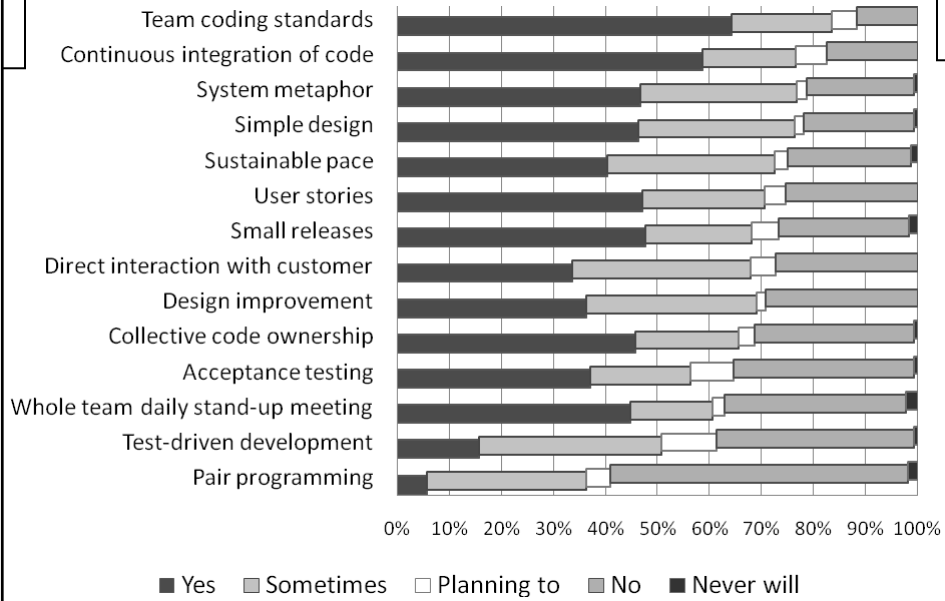


59.6% of Agile users work on legacy (not v1) code

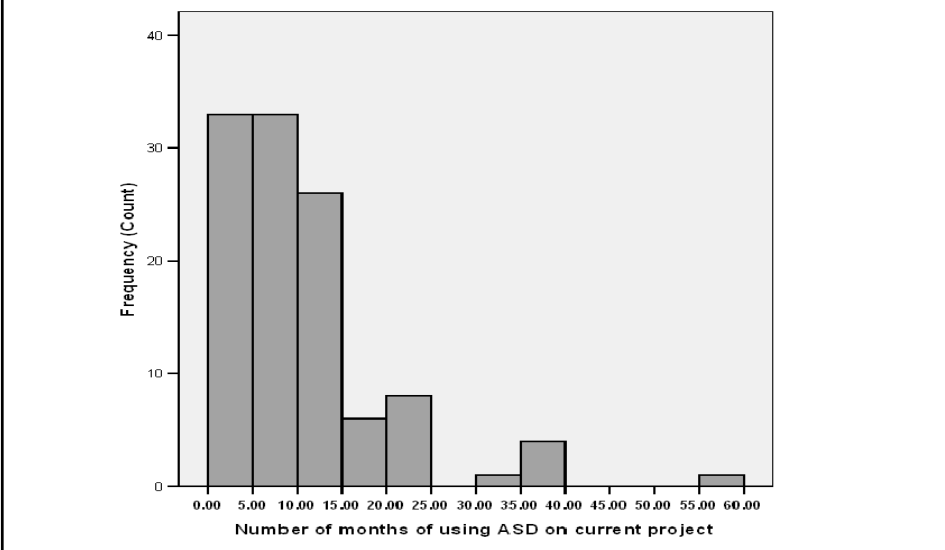
Agile Methodology



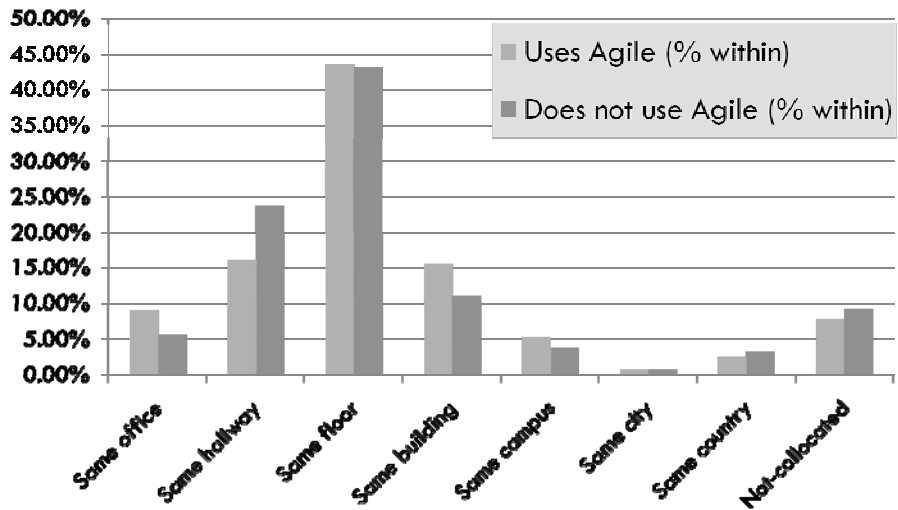
Agile Practice Penetration



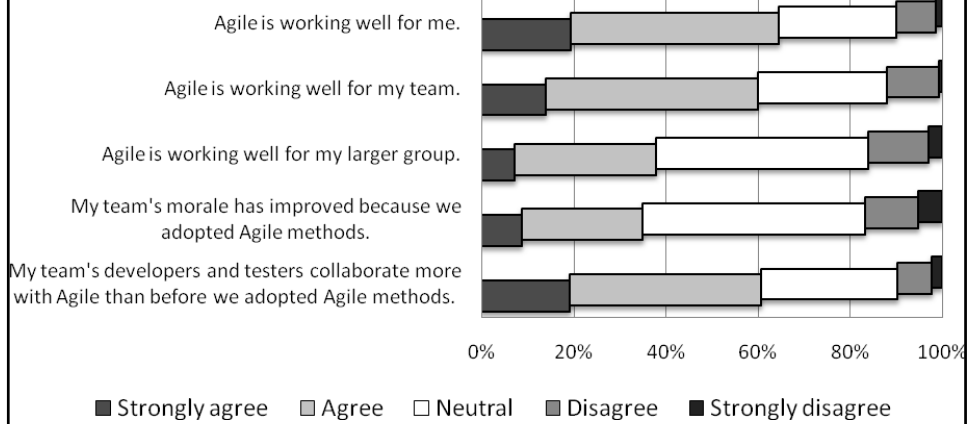
Length of Time Using Agile



Team Collocation



Engineering Teams Like Agile



Qualitative Methodology

- Open Coding via Card Sort
 - Print all long answer responses (for each survey question) on index cards
 - Sort them into piles on a table, by theme
 - Move cards between piles until settled
 - Each answer can be in only one pile
 - Piles labeled by theme of answers within
 - 2 researchers working together
 - 2-3 hours per card sort

Perceived Benefits from Agile

1. Improved Communication and Coordination	121
2. Quick Releases	101
3. Flexibility of Design – Quicker Response to Changes	86
4. More Reasonable Process	65
5. Increased Quality	62

687 comments, 44 themes

Perceived Problems from Agile

1. Does not scale to larger projects	52
2. Too many meetings	44
3. Management buy-in	37
4. Unfamiliar with Agile	36
5. Coordination with other teams	29
6. Losing sight of the big picture	29

565 comments, 58 themes

Open Questions

- How do you scale Agile to large (500-5000 person) teams?
- How do you best coordinate Agile and non-Agile teams?
 - Recently finished study on software team coordination at MS (in submission).
- What are the best software metrics for discerning Agile (vs. non-Agile) process effects on teams' artifacts?
- How can we fix actual and perceived problems uncovered in ethnographic investigations of Agile software development teams?

Conclusions

- 1/3 of respondents (spread across divisions) report their team uses Agile methodologies.
 - They mainly use Scrum.
 - Used for many legacy products.
 - Test-driven development and pair programming are *not* very common.
 - Agile usage does not appear to affect team collocation.
- MS engineers who have used Agile like it for their local team, but not necessarily for their organization.
 - They worry about scale, overhead, and management buy-in.

Questions?

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- Nachiappan Nagappan (nachin@microsoft.com)
ESM – Empirical Software Engineering and Measurement
<http://research.microsoft.com/esm>