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ASDS-CZ

Agile Software Development Survey Czech Republic

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Bedřichov, 6. 9. 2019

Disclaimer

- Only a preliminary snapshot of research data will be presented
- The analysis is still ongoing
- Some graphs shown further are not in “camera-ready” quality

Research questions

- **RQ1:** To what extent are individual agile methodologies and agile practices used in the Czech Republic?
- **RQ2:** What combinations of agile methodologies and practices can be found implemented in the Czech Republic?

Related scientific work

- HELENA survey
 - Kuhrmann, M., Diebold, P., Münch, J., Tell, P., Trektene, K., Mc Caffery, F., ... & Prause, C. (2019). Hybrid software development approaches in practice: a European perspective. *IEEE Software*, 36(4), 20-31.
- Other surveys - selection
 - Rodríguez, P., Markkula, J., Oivo, M., & Turula, K. (2012). Survey on agile and lean usage in finnish software industry. In *Proceedings of the 2012 ACM-IEEE International Symposium on Empirical Software Engineering and Measurement* (pp. 139-148). IEEE.
 - Campanelli, A. S., Camilo, R. D., & Parreiras, F. S. (2018). The impact of tailoring criteria on agile practices adoption: A survey with novice agile practitioners in Brazil. *Journal of Systems and Software*, 137, 366-379.
 - Williams, L. (2012). What agile teams think of agile principles. *Communications of the ACM*, 55(4), 71-76.

Survey design

- Our focus has been on agile methods and practices per-se -> we limit other potentially interesting questions that could be asked
- Validation of the questionnaire with seven experts from industry
- Limesurvey - <https://www.limesurvey.org/>

Survey design

- A questionnaire containing 21 questions, divided into 4 parts:
 - Demography – part 1: Team characteristics and respondent role
 - Agile practices presently used in the respondent's team of 34 offered practices
 - Subjective ranking of the *importance of* those agile practices for project success
 - Demography – part 2: Company characteristics

Data collection

- Two months period (July 8th 2019 to September 8th 2019)
- Convenience sampling largely relying on social networks (LinkedIn – 9 groups, Facebook – 8 groups) and our industry contacts
- During the first phase, we collected 120 complete answers (estimated total ca. 170)

Data collection

Praktiky (1/3)

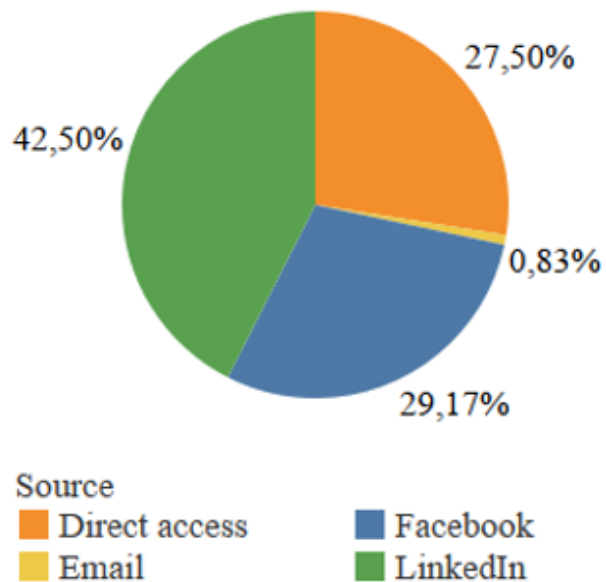
U každé z následujících praktik (faktorů prostředí) vyberte:

- zda ji tým používá
- jak je podle Vašeho názoru důležitá pro úspěšnou dodávku softwaru obecně

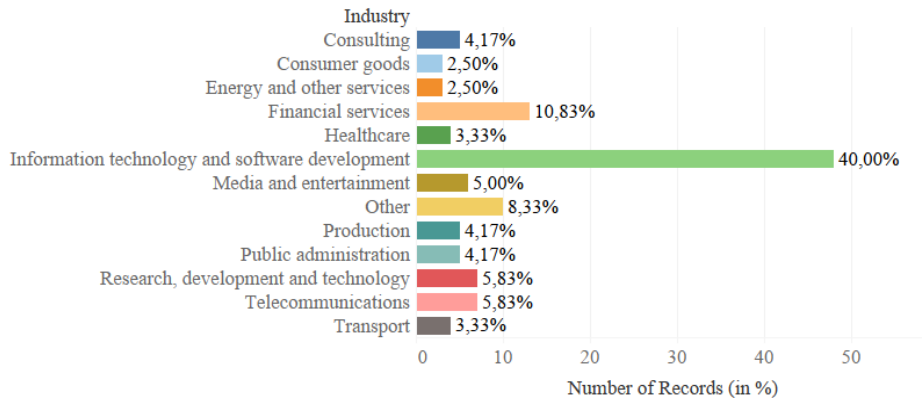
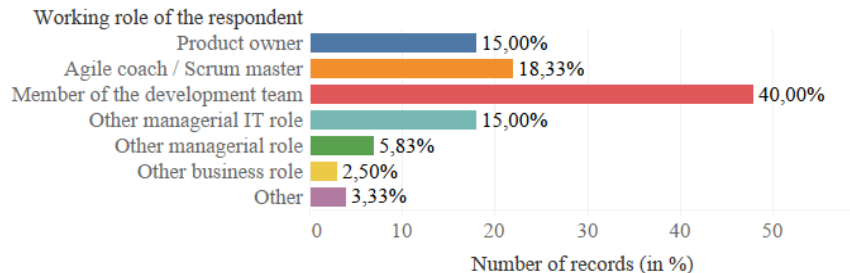
| | Praktiku tým používá | | | | Váš názor na důležitost praktiky pro úspěšnou dodávku softwaru obecně | | | | | |
|--|-----------------------|-----------------------|-----------------------|--------------------------|---|-----------------------|-----------------------|-----------------------|-----------------------|--------------------------|
| | Ano | Do určité míry | Ne | Nevím / nelze vyhodnotit | Naprostο důležitá | Spíše důležitá | Neutrální | Spíše nedůležitá | Naprostο nedůležitá | Nevím / nelze vyhodnotit |
| | | | | | | | | | | |
| "Open-space" kancelář (2) (Open office) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 40 hodin týdně / udržitelné tempo (2) (40-hour week / Sustainable pace) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Role Product owner působící v týmu (2) (Dedicated product owner) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Role Scrum master působící v týmu (2) (Scrum Master) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Denní schůzka / Stand-up (2) (Daily meeting/Stand-up) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

SELECTED FINDINGS

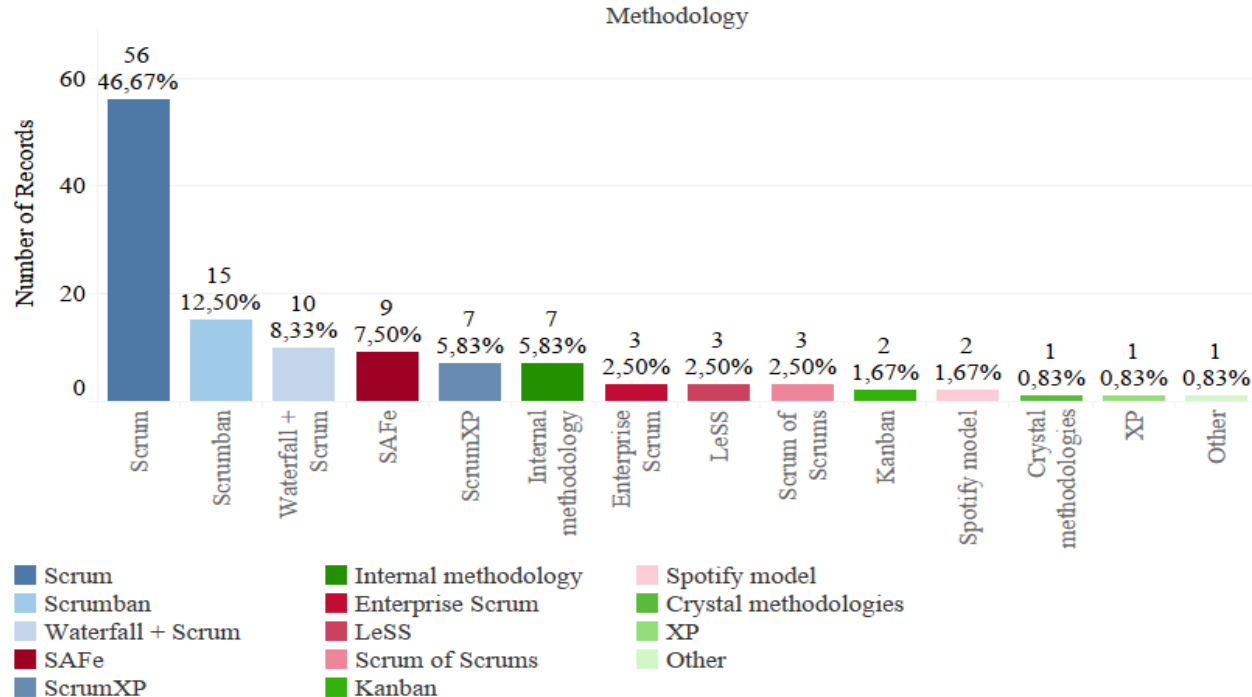
Where did respondents find the survey?



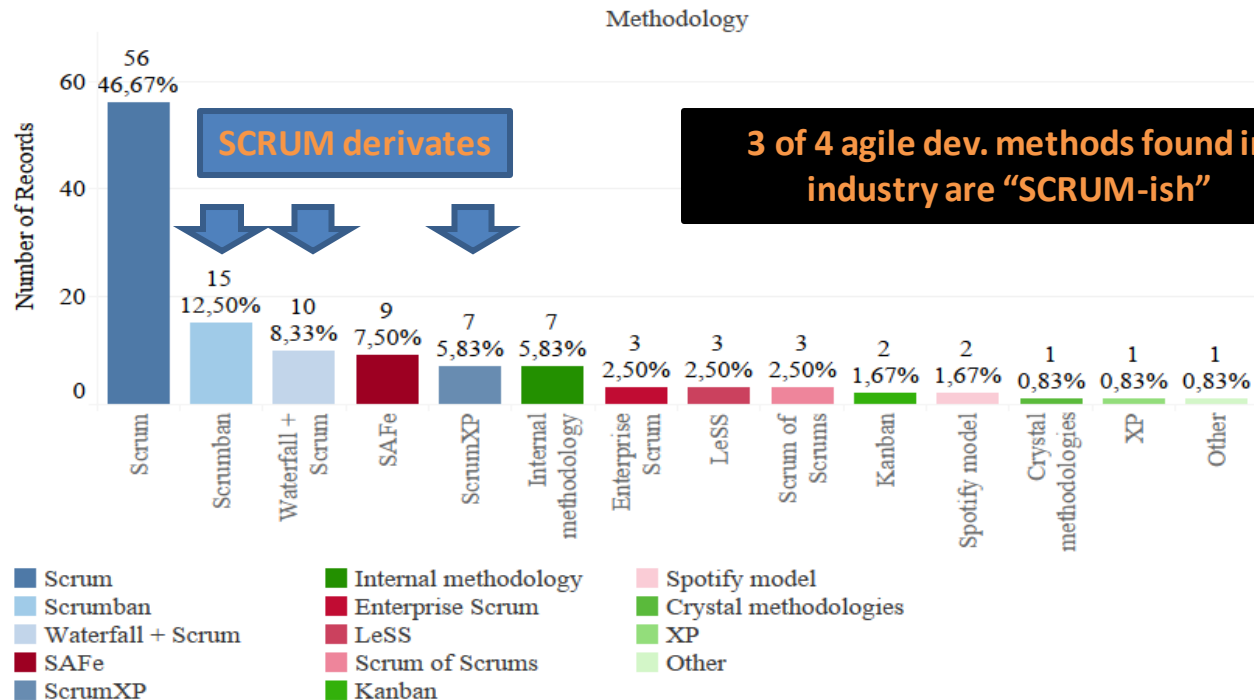
Participants demographics



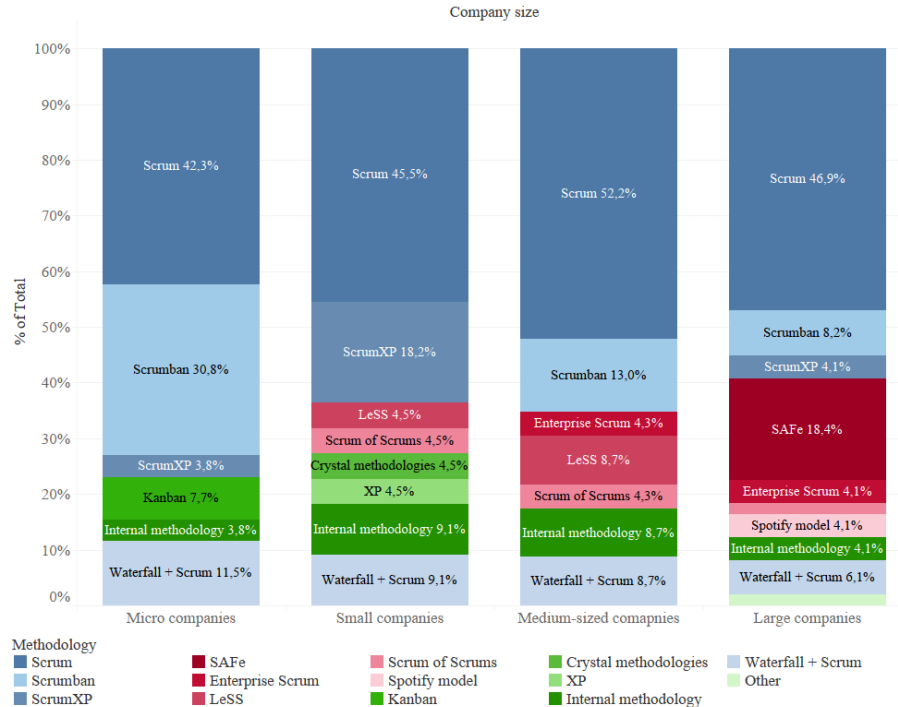
Overall presence of agile methodologies (N=120)



Overall presence of agile methodologies (N=120)



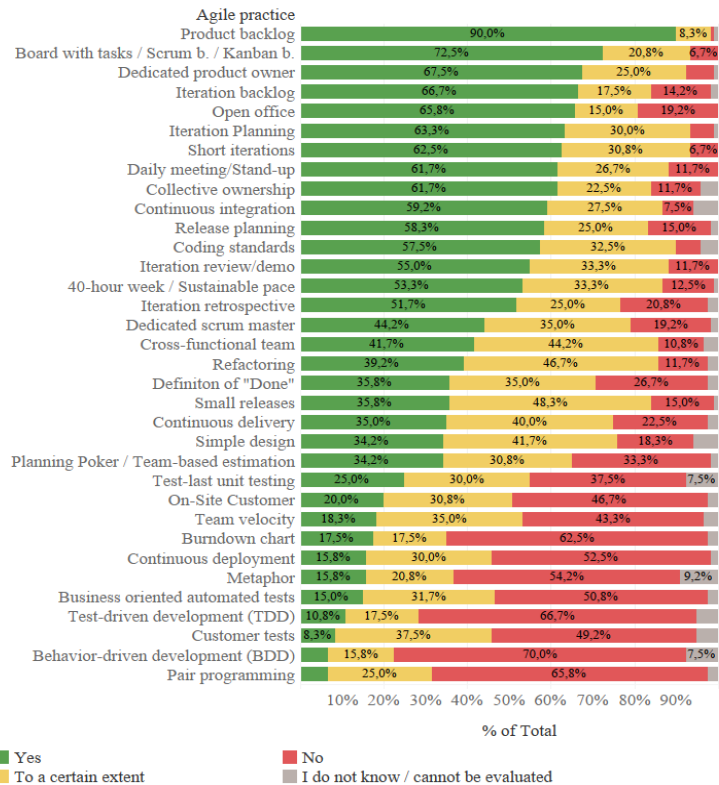
Methodologies vs. company size



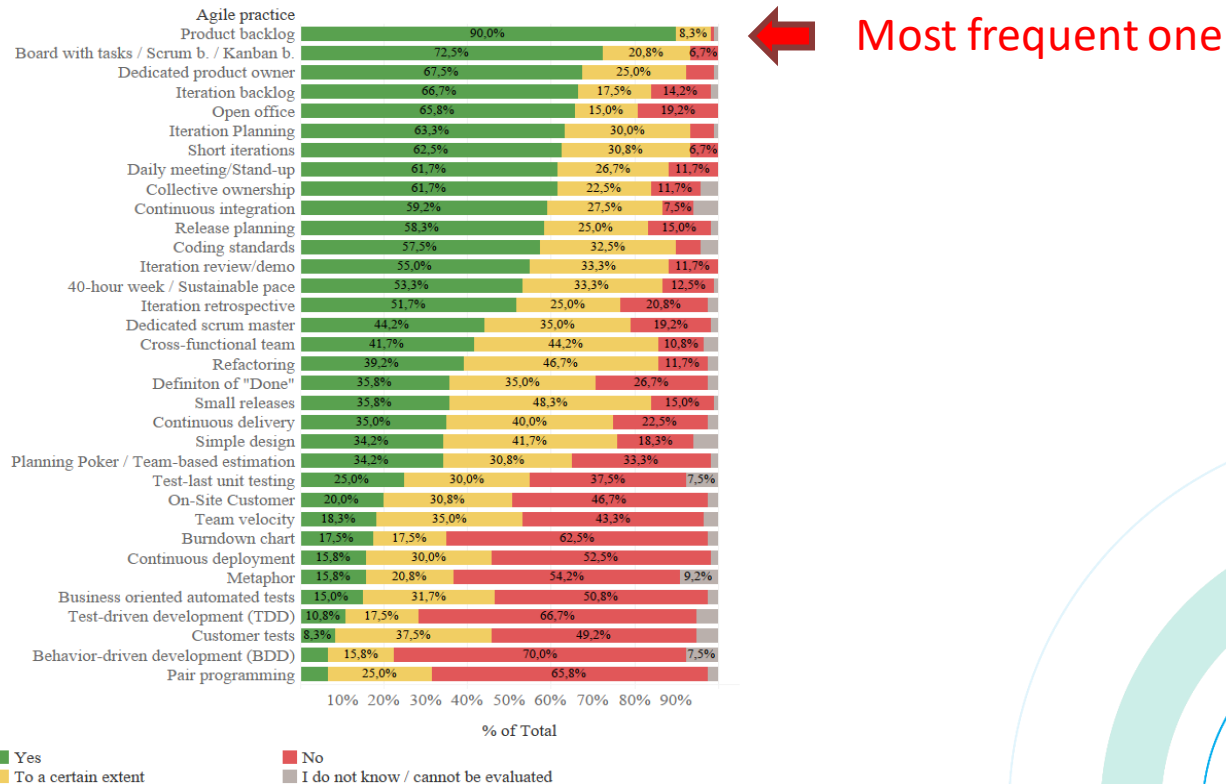
Agile practices in-use

| Czech term | English term |
|--|---|
| "Open-space" kancelář | Open office |
| 40 hodin týdně / udržitelné tempo | 40-hour week / Sustainable pace |
| Automatizované testy orientované na byznys funkcionalitu | Business oriented automated tests |
| Backlog iterace | Iteration backlog |
| Backlog produktu | Product backlog |
| Behavior-driven development (BDD) | Behavior-driven development (BDD) |
| Burndown graf | Burndown chart |
| Definiton of "Done" | Definiton of "Done" |
| Denní schůzka/Stand-up | Daily meeting/Stand-up |
| Jednoduchý návrh | Simple design |
| Jednotkové testování typu „test last“ | Test-last unit testing |
| Kontinuální dodávka | Continuous delivery |
| Kontinuální integrace | Continuous integration |
| Kontinuální nasazování | Continuous deployment |
| Krátké iterace | Short iterations |
| Malé releasy | Small releases |
| Metafora | Metaphor |
| Multifunkční tým | Cross-functional team |
| Párové programování | Pair programming |
| Planning poker / Týmové odhady | Planning Poker / Team-based estimation |
| Plánování iterace | Iteration Planning |
| Plánování releasu | Release planning |
| RefaktORIZACE kódu | Refactoring |
| Retrospektiva iterace | Iteration retrospective |
| Review iterace/Demo | Iteration review/demo |
| Role Product owner působící v týmu | Dedicated product owner |
| Role Scrum Master působící v týmu | Dedicated scrum master |
| Rychlost (velocity) týmu | Team velocity |
| Společné vlastnictví kódu | Collective ownership |
| Standardy kódu | Coding standards |
| Tabule s úkoly /Scrum board/Kanban board | Board with tasks / Scrum board / Kanban board |
| Testy psané zákazníkem | Customer tests |
| Testy řízený vývoj (TDD) | Test-driven development (TDD) |
| Zákazník na pracovišti | On-Site Customer |

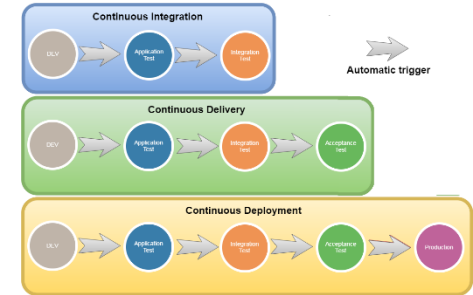
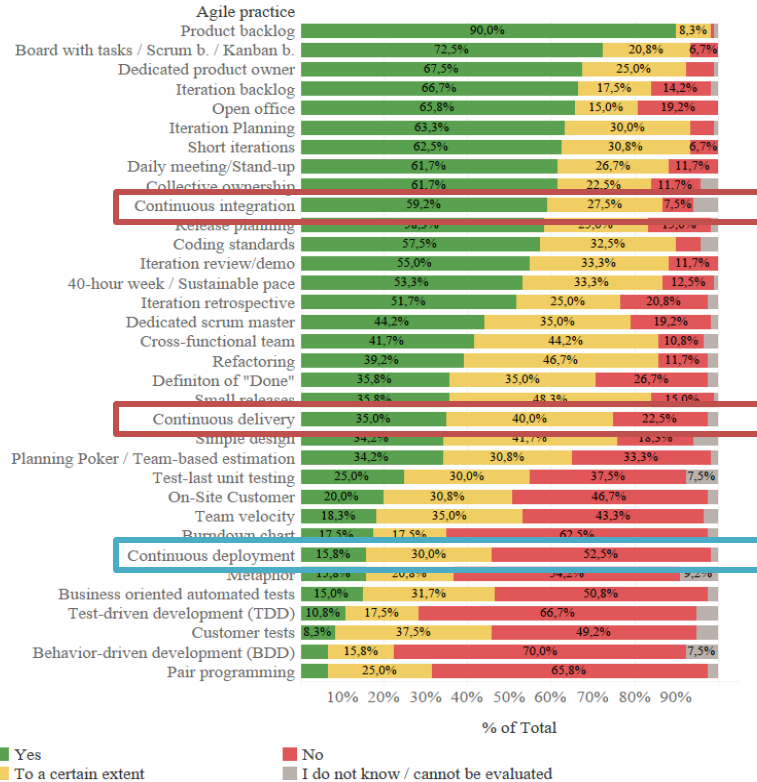
Agile practices in-use



Agile practices in-use

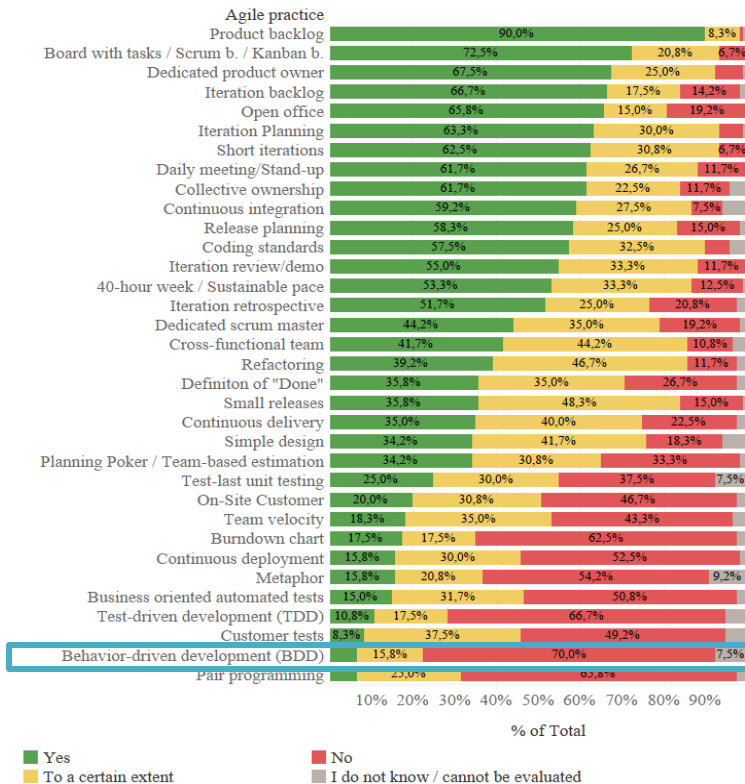


Agile practices in-use



← DevOps still in very infancy?

Agile practices in-use



← BDD rarely used

Pairwise methodology/practices

| | | Methodology utilization | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|----|-------------------------|---------------------------------|-------------------------|------------------------|------------------------|------------------|----------|--------------------|------------------|-------------------------|-----------------------|-----------------------|------------------|------------------|-------------|----------------------|------------------|-----------------------------------|-----------------------------------|----------------|-------------------------------|------------------------|------------------------|---------------------|-----------------------|---------------|----------------|-----------------|-------------------|----------------------|--|---|----------------|---------------|---|
| | | Open office | 40-hour week / Sustainable pace | Dedicated product owner | Dedicated scrum master | Daily meeting/Stand-up | Short iterations | Metaphor | Iteration Planning | Release planning | Iteration retrospective | Iteration review/demo | Cross-functional team | On-Site Customer | Pair programming | Refactoring | Collective ownership | Coding standards | Behavior-driven development (BDD) | Business oriented automated tests | Customer tests | Test-driven development (TDD) | Test-last unit testing | Continuous integration | Continuous delivery | Continuous deployment | Simple design | Small releases | Product backlog | Iteration backlog | Definition of "Done" | Planning Poker / Team-based estimation | Board with tasks / Scrum b. / Kanban b. | Burndown chart | Team velocity | |
| Agile methodology | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| Crystal methodologies | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | |
| Extreme programming (XP) | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | |
| Kanban | 2 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 0 | 0 | |
| Scrum | 56 | 39 | 34 | 35 | 21 | 38 | 36 | 7 | 38 | 33 | 32 | 29 | 19 | 10 | 3 | 15 | 28 | 33 | 4 | 9 | 5 | 6 | 16 | 30 | 20 | 9 | 20 | 16 | 48 | 38 | 25 | 20 | 41 | 9 | 9 | |
| Scrumban (Scrum + Kanban) | 15 | 6 | 9 | 10 | 9 | 12 | 9 | 2 | 9 | 8 | 10 | 8 | 7 | 1 | 0 | 7 | 10 | 8 | 1 | 1 | 2 | 0 | 2 | 8 | 4 | 0 | 3 | 7 | 14 | 11 | 4 | 6 | 11 | 2 | 2 | |
| ScrumXP (Scrum + XP) | 7 | 5 | 2 | 4 | 2 | 4 | 4 | 1 | 2 | 4 | 1 | 2 | 3 | 4 | 2 | 6 | 6 | 5 | 0 | 1 | 1 | 3 | 2 | 6 | 2 | 1 | 4 | 4 | 7 | 2 | 1 | 1 | 4 | 0 | 2 | |
| Waterfall + Scrum | 10 | 7 | 5 | 7 | 4 | 6 | 3 | 4 | 5 | 7 | 2 | 8 | 4 | 1 | 0 | 3 | 9 | 2 | 1 | 1 | 0 | 2 | 2 | 6 | 2 | 2 | 4 | 3 | 9 | 5 | 1 | 2 | 6 | 1 | 3 | |
| Enterprise Scrum | 3 | 2 | 2 | 2 | 2 | 3 | 2 | 1 | 2 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 3 | 2 | 1 | 1 | 1 | 0 | 1 | 3 | 2 | 2 | 1 | 2 | 3 | 3 | 1 | 1 | 3 | 1 | 1 | |
| Scrum of Scrums | 3 | 2 | 1 | 3 | 2 | 1 | 2 | 0 | 3 | 2 | 2 | 3 | 1 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 1 | 1 | 3 | 3 | 1 | 0 | 2 | 1 | 0 | |
| LeSS (Large Scale Scrum) | 3 | 1 | 2 | 3 | 2 | 2 | 3 | 0 | 2 | 0 | 2 | 2 | 3 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 0 | 1 | 1 | 3 | 2 | 3 | 3 | 3 | 2 | 1 | |
| SAFe (Scaled Agile Framework) | 9 | 8 | 3 | 8 | 7 | 5 | 5 | 2 | 6 | 7 | 6 | 6 | 5 | 2 | 0 | 5 | 6 | 5 | 0 | 1 | 1 | 1 | 2 | 6 | 3 | 1 | 1 | 3 | 9 | 8 | 2 | 3 | 7 | 1 | 2 | |
| Spotify model | 2 | 1 | 0 | 1 | 1 | 1 | 2 | 0 | 2 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 1 | 1 | 0 | 2 | 2 | 1 |
| Internal methodology | 7 | 6 | 3 | 5 | 3 | 1 | 5 | 0 | 4 | 4 | 3 | 3 | 3 | 3 | 1 | 4 | 4 | 5 | 0 | 2 | 0 | 0 | 2 | 3 | 3 | 2 | 3 | 4 | 5 | 4 | 1 | 1 | 3 | 1 | 1 | |
| Other | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 |

The dominant form of SCRUM (5 most commonly used practices)

| Agile methodology | Methodology utilization | Open office | 40-hour week / Sustainable pace | Dedicated product owner | Dedicated scrum master | Daily meeting/Stand-up | Short iterations | Metaphor | Iteration Planning | Release planning | Iteration retrospective | Iteration review/demo | Cross-functional team | On-Site Customer | Pair programming | Refactoring | Collective ownership | Coding standards | Behavior-driven development (BDD) | Business oriented automated tests | Customer tests | Test-driven development (TDD) | Test-last unit testing | Continuous integration | Continuous delivery | Continuous deployment | Simple design | Small releases | Product backlog | Iteration backlog | Definition of "Done" | Planning Poker / Team-based estimation | Board with tasks / Scrum b. / Kanban b. | Burndown chart | Team velocity |
|-------------------------------|-------------------------|-------------|---------------------------------|-------------------------|------------------------|------------------------|------------------|-----------|--------------------|------------------|-------------------------|-----------------------|-----------------------|------------------|------------------|-------------|----------------------|------------------|-----------------------------------|-----------------------------------|----------------|-------------------------------|------------------------|------------------------|---------------------|-----------------------|---------------|----------------|-----------------|-------------------|----------------------|--|---|----------------|---------------|
| Crystal methodologies | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | |
| Extreme programming (XP) | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | |
| Kanban | 2 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 0 | 0 | 0 | |
| Scrum | 56 | 39 | 34 | 35 | 2 | 38 | 36 | 38 | 33 | 32 | 29 | 19 | 10 | 3 | 15 | 28 | 33 | 4 | 9 | 5 | 6 | 16 | 30 | 20 | 9 | 20 | 1 | 48 | 38 | 5 | 41 | 9 | 9 | | |
| Scrumban (Scrum + Kanban) | 15 | 6 | 9 | 10 | 9 | 12 | 9 | 2 | 9 | 8 | 10 | 8 | 7 | 1 | 0 | 7 | 10 | 8 | 1 | 1 | 2 | 0 | 2 | 8 | 4 | 0 | 3 | 7 | 14 | 11 | 4 | 6 | 11 | 2 | 2 |
| ScrumXP (Scrum + XP) | 7 | 5 | 2 | 4 | 2 | 4 | 1 | 2 | 4 | 1 | 2 | 3 | 4 | 2 | 6 | 6 | 5 | 0 | 1 | 1 | 3 | 2 | 6 | 2 | 1 | 4 | 4 | 7 | 2 | 1 | 1 | 4 | 0 | 2 | |
| Waterfall + Scrum | 10 | 7 | 5 | 7 | 4 | 6 | 3 | 4 | 5 | 7 | 2 | 8 | 4 | 1 | 0 | 3 | 9 | 2 | 1 | 1 | 0 | 2 | 2 | 6 | 2 | 2 | 4 | 3 | 9 | 5 | 1 | 2 | 6 | 1 | 3 |
| Enterprise Scrum | 3 | 2 | 2 | 2 | 2 | 3 | 2 | 1 | 2 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 3 | 2 | 1 | 1 | 1 | 0 | 1 | 3 | 2 | 2 | 1 | 2 | 3 | 3 | 1 | 1 | 3 | 1 | 1 |
| Scrum of Scrums | 3 | 2 | 1 | 3 | 2 | 1 | 2 | 0 | 3 | 2 | 2 | 3 | 1 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 1 | 1 | 3 | 3 | 1 | 0 | 2 | 1 | 0 |
| LeSS (Large Scale Scrum) | 3 | 1 | 2 | 3 | 2 | 2 | 3 | 0 | 2 | 0 | 2 | 2 | 3 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 0 | 1 | 1 | 3 | 2 | 3 | 3 | 2 | 1 | |
| SAFe (Scaled Agile Framework) | 9 | 8 | 3 | 8 | 7 | 5 | 5 | 2 | 6 | 7 | 6 | 6 | 5 | 2 | 0 | 5 | 6 | 5 | 0 | 1 | 1 | 1 | 2 | 6 | 3 | 1 | 1 | 3 | 9 | 8 | 2 | 3 | 7 | 1 | 2 |
| Spotify model | 2 | 1 | 0 | 1 | 1 | 1 | 2 | 0 | 2 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 1 | 1 | 2 | 2 | 1 |
| Internal methodology | 7 | 6 | 3 | 5 | 3 | 1 | 5 | 0 | 4 | 4 | 3 | 3 | 3 | 3 | 1 | 4 | 4 | 5 | 0 | 2 | 0 | 0 | 2 | 3 | 3 | 2 | 3 | 4 | 5 | 4 | 1 | 1 | 3 | 1 | 1 |
| Other | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 |

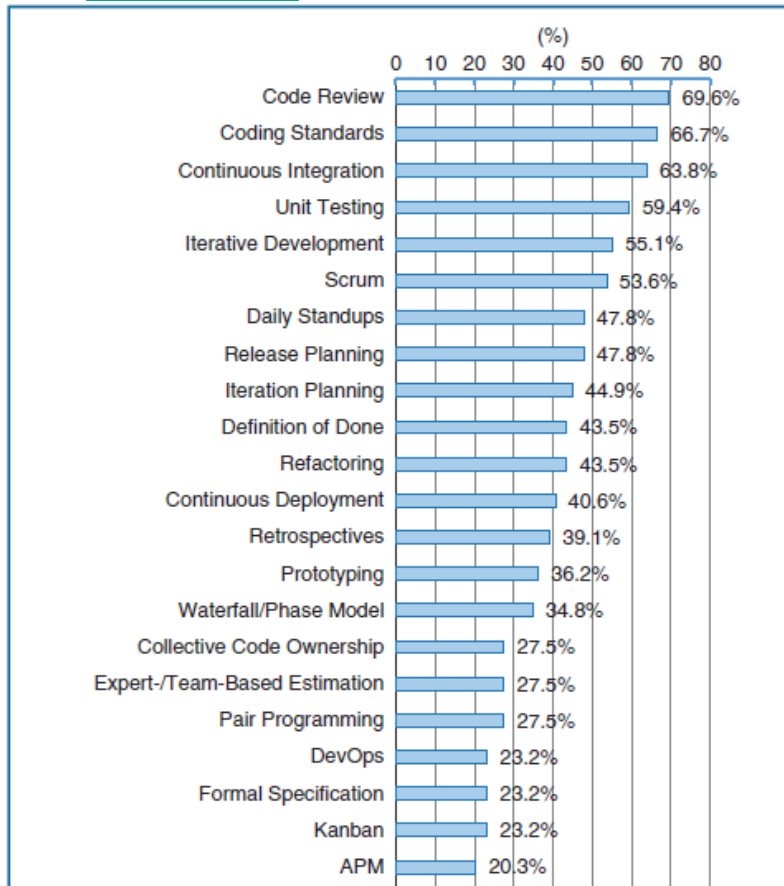
QUESTIONS?

BACKUP SLIDES

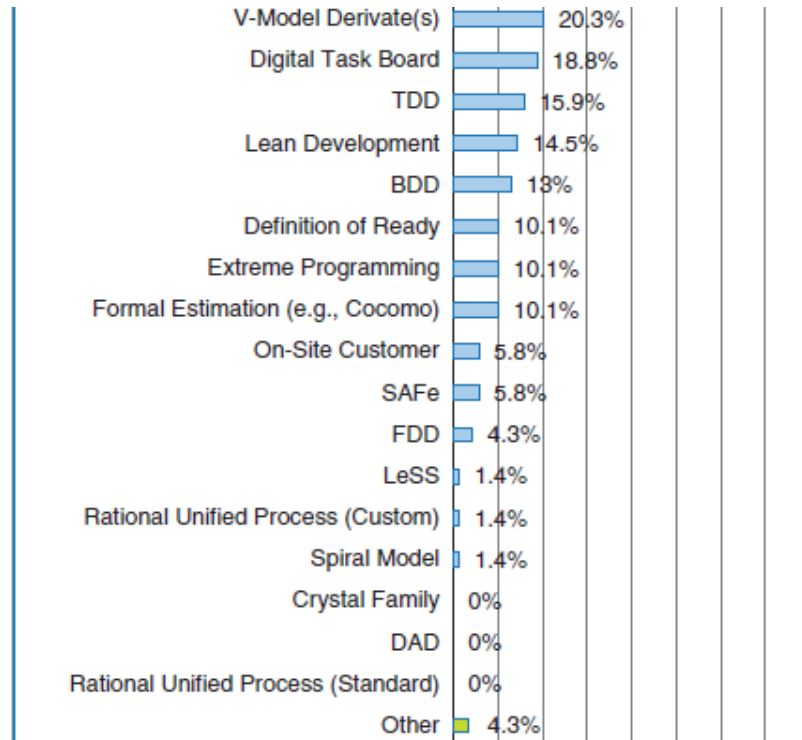
Some dilemmas

HELENA:

*Because the terms process, method, approach, and practice are difficult to precisely define, we decided **not** to provide participants with a **precategorized list**.*



N=69, 16 different countries



<https://vsecz.limequery.org/196137>