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The Home of Scrum

Agile Metrics Survey 2021

Stefan Wolpers & Alexander Bergmann

July 22, 2021



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Quick Guidelines

- Your microphones will be muted throughout
- This session is recorded. The recording and slides will be available after the webinar within 24 hours.
- Please ask questions!
 - Submit questions by selecting the Q & A icon:



Who is Scrum.org



Ken Schwaber
Scrum.org Founder,
Chairman and
Co-creator of Scrum



Consistent

Global

Community

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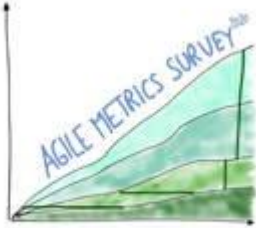


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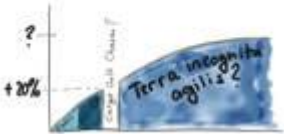
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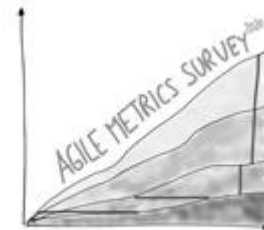
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THE AGILITY ASSESSMENT FRAMEWORK

Workshop 1 - BERLIN, February 3rd, 2018



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THE AGILITY ASSESSMENT FRAMEWORK
Workshop 1 - BERLIN, February 3rd, 2019



Is there a way to figure out in advance...
...how “agile” an organization is...
...before joining them? 🤔

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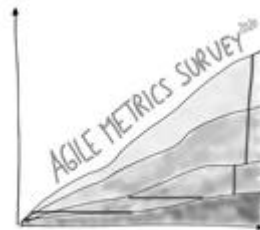
How to Measure Agility
of Organizations & Teams

Is Agile a Fit for every
Organization?

If Not: Wouldn't it be Great
to know in Advance?

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THE AGILITY ASSESSMENT FRAMEWORK

Workshop 1 - BERLIN, February 3rd, 2018



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The 2017 Survey: Fundamentals

Four Questions:

1. What factors contribute to a team's growing maturity in agile practices?
2. What maturity levels do you see at a team level?
3. What factors contribute to becoming an 'agile' or a learning organization?
4. What maturity levels do you see at an organizational level?

Responses: 86

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The 2017 Survey: Preliminary Taxonomy

Agile Maturity Indicators:

1. People & Communication
2. Organizational Excellence
3. Technical Excellence

Agile Metrics Survey 2021

The 2017 Survey: Autonomy

Self-organization:

1. Empower teams (Decisions, accountability)
2. Focus on outcome
3. Respect Scrum values (Commitment, focus, openness, respect, courage.)
4. Safety to raise & discuss issues
5. The team handles its own problems (No scrum mom.)
6. Supporting each other as team members (Bonding.)
7. Holding each other accountable (Agile is a team sport.)

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The 2017 Survey: Autonomy (2)

Accountability (individual):

Choosing tools & devices (e.g. software)

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The 2017 Survey: Mastery

Learning:

- Short feedback loops (User tests, customer development)
- Use of retrospectives
- Continuous team coaching (Guilds, code mentors etc.)
- Stakeholders live up to their responsibilities
- Hands-on experience over credentialism

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The 2017 Survey: Mastery (2)

Competence:

- T-shaped people
- Active knowledge sharing
 - Continuous learning,
 - No withholding of knowledge
 - Knowledge sharing beyond the product and tech realm
- Budget to attend conferences
- Center of Excellence for Agile

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The 2017 Survey: Mastery (3)

Team building:

- Cross-functional teams:
 - No dependencies w/ other teams,
 - End-to-end delivery capability
- Stable, long-living teams
- Support by an experienced scrum master

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The 2017 Survey: Purpose

Inclusion:

- Product discovery
- Product roadmap creation
- Release planning

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The 2017 Survey: Communication & Collaboration

Trust & respect:

- Benefit of the doubt for colleagues
- Safety to disagree
- Honesty
- Candid peer feedback

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The 2017 Survey: Communication & Collaboration (2)

Conflict resolution:

- **Constructive disagreement:**
 - 'Disagree but commit' approach
 - No tyranny of compromise
- **Non-violent communication**

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The 2017 Survey: Communication & Collaboration (3)

Collaboration:

- Zero tolerance for political games
- No scripted collaboration
- No incentives to withhold knowledge (Or information.)
- No finger-pointing, no blame-game

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The 2017 Survey: Organizational Excellence

Culture:

- Embrace and celebrate failure (Validate hypotheses by running experiments)
- Curiosity as a norm
- Undogmatic attitude, live Shu-Ha-Ri
- Transparency:
 - Share information and data at all levels,
 - No more gated information or information brokers

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The 2017 Survey: Organizational Excellence (2)

Leadership:

- Focus on innovation, quality and business value (No more HIPPOism.)
- Supports of 'agile's way of working' fully
- Enforces 'agile' as the core of the company culture
- Respect for roles, principles, and processes (The 'real' PO.)

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The 2017 Survey: Organizational Excellence (3)

Management:

- Managers to servant leaders
- Trust in people and teams
- Provides tools and facilities necessary to become agile
- Gemba and Kaizen become standard practices

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The 2017 Survey: Organizational Excellence (4)

Organizational design:

- Abandon functional silos for cross-functional teams
- Remove redundant middle management layers (Flatten the hierarchy)
- No more command & control, compliance driven management
- HR aligns with requirements of self-organizing teams
- The organizations morphs into a team of teams

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The 2017 Survey: Organizational Excellence (5)

Clear objectives:

- Shared vision among all actors
- Clear strategy
- Clear priorities

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The 2017 Survey: Organizational Excellence (6)

Business value focus:

- Customer centricity mindset
- Delivering business results
- Shifting the IT focus business needs
- From project budgets to product teams

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The 2017 Survey: Technical Excellence

Engineering level:

- Built-in quality:
 - Code reviews,
 - TDD:
 - Test automation,
 - Test coverage
- Pair and mob programming
- Practicing Scrum, Kanban, XP

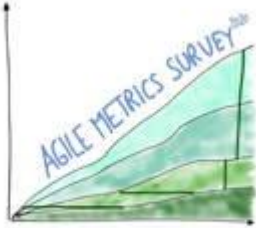
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The 2017 Survey: Technical Excellence (2)

Process level:

- DevOps: CI, CD (Deployment at will)
- Regular cadence of releases
- Identifying suitable metrics:
 - Lead time, cycle time,
 - Number of experiments,
 - Team health
- Open sourcing code

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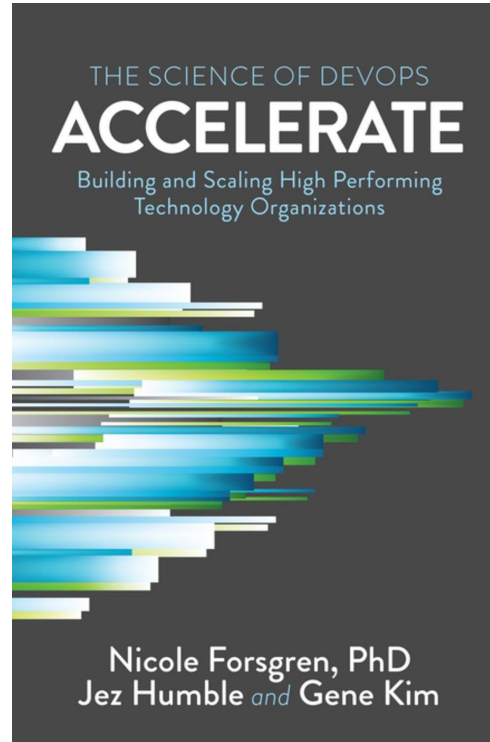


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THE AGILITY ASSESSMENT FRAMEWORK
Workshop 1 - BERLIN, February 3rd, 2019

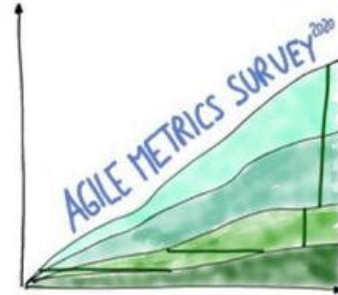


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HELP CREATE
THE SURVEY...



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Why Are We — better — Can We Measuring Agility?

The Goal of Becoming Agile:

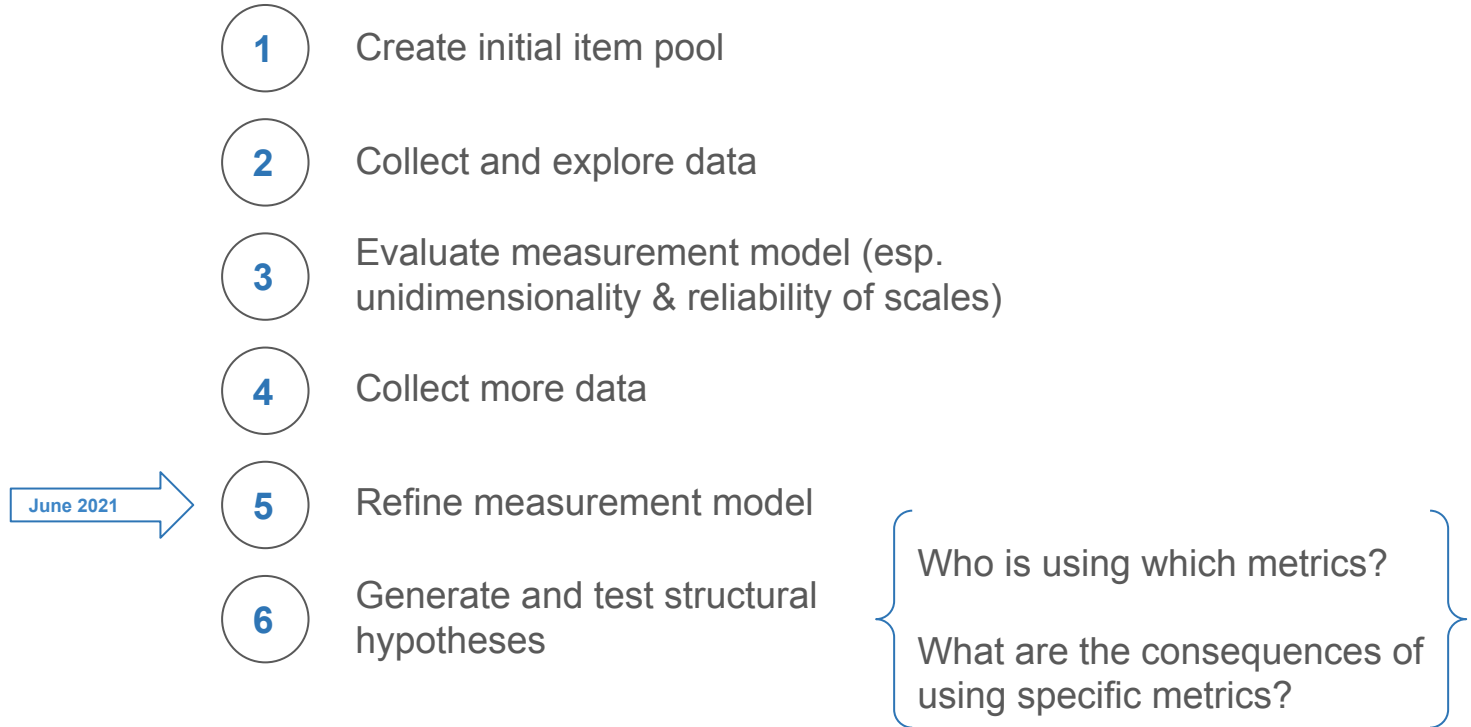
- Gain a competitive advantage by learning faster than the competition
- Create valuable products and services in increasingly volatile and competitive markets
- Create a sustainable business with a good ROI for all stakeholders.

The Elephant in the Room:

- How do we know that we are on the right track when all is so fuzzy?
- Could we create a statistical model to analyze the status quo and suggest next steps? 🤖

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How Measure Agility — a CTT Approach



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The Initial Metrics

What to measure?

Performance Metrics

Quality Metrics

Engineering Metrics

DevOps Metrics

Team Metrics

Organizational Agility Metrics

Flow Metrics

Product & Business Metrics

...

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The Initial Item Pool

Product & Business Metrics

Realized business value
Return on investment
Stakeholder Net Promoter Score
Customer Net Promoter Score
Number of experiments
Cost per release
Cost of delay
Cost per story point
Program predictability
Forecast accuracy

...

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Data Collection Practices

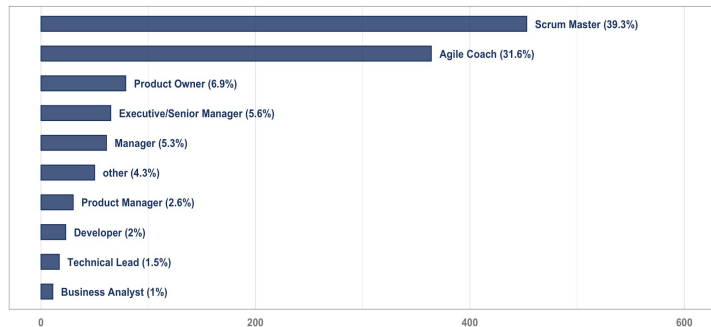
How Did We Collect the Data?

- 1st phase: **2019-11-17** to **2020-02-13**: **534** data-sets
- 2nd phase: **2020-07-22** to **2021-01-30**: **629** data-sets
- Total number of data-sets: **1,153**
- Main acquisition channel: *Food for Agile Thought* newsletter
- Additional channels: blog posts, social media postings
- Survey characteristics: Anonymous Google Form, no incentives

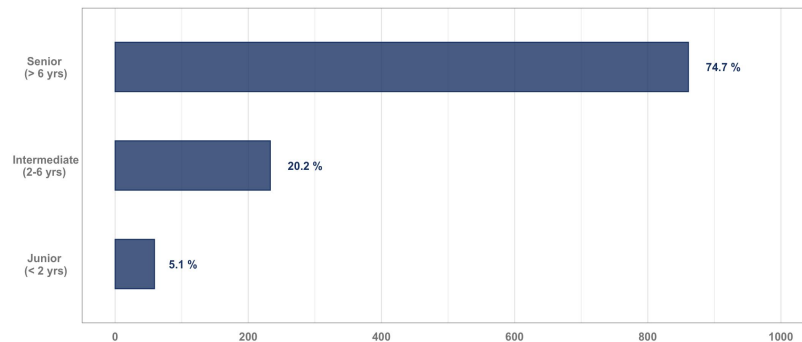
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A Sample Description: Individual Level

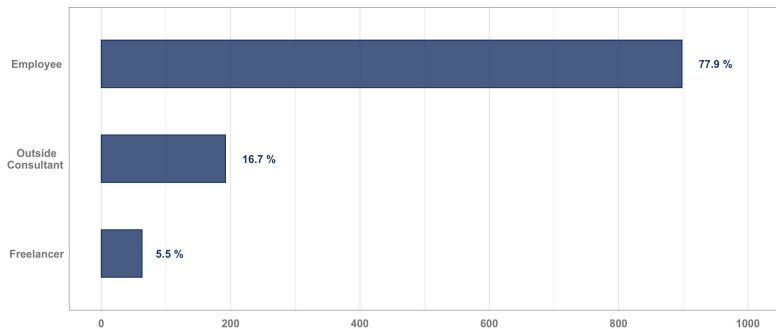
Agile Metrics Survey 2021: Participant Role



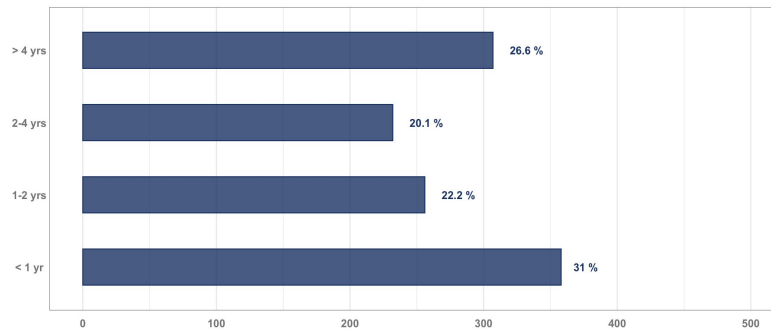
Agile Metrics Survey 2021: Participant Experience



Agile Metrics Survey 2021: Participant Status



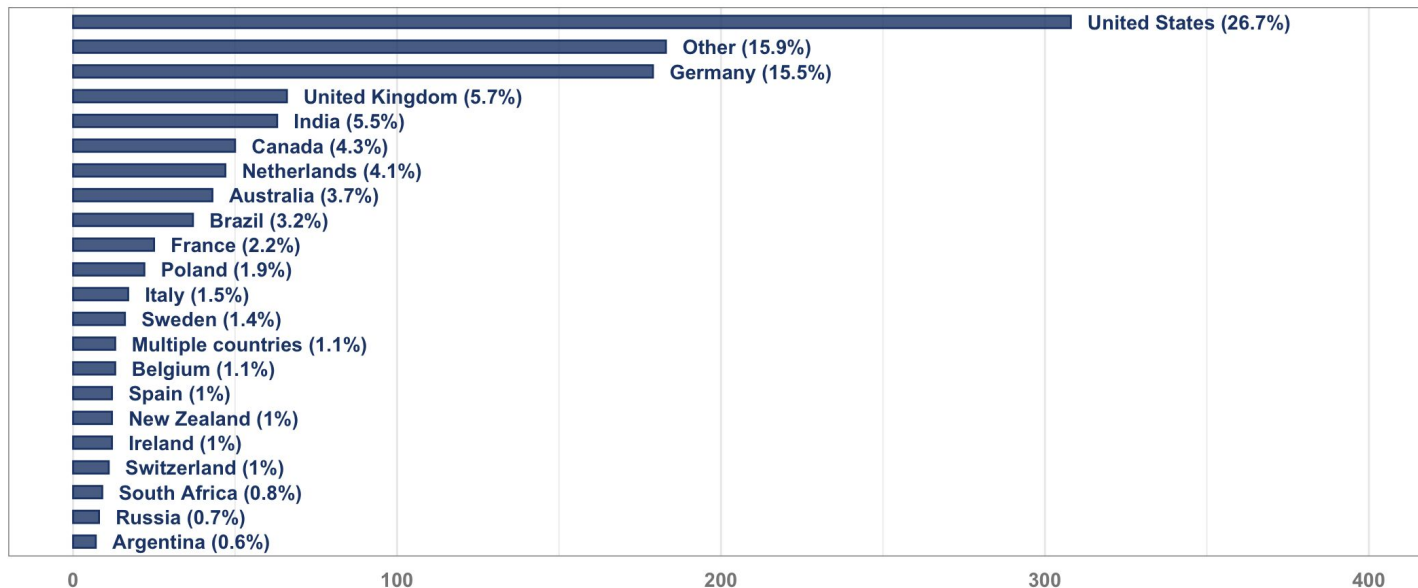
Agile Metrics Survey 2021: Participant Tenure



Agile Metrics Survey 2021

A Sample Description: Organizational Level

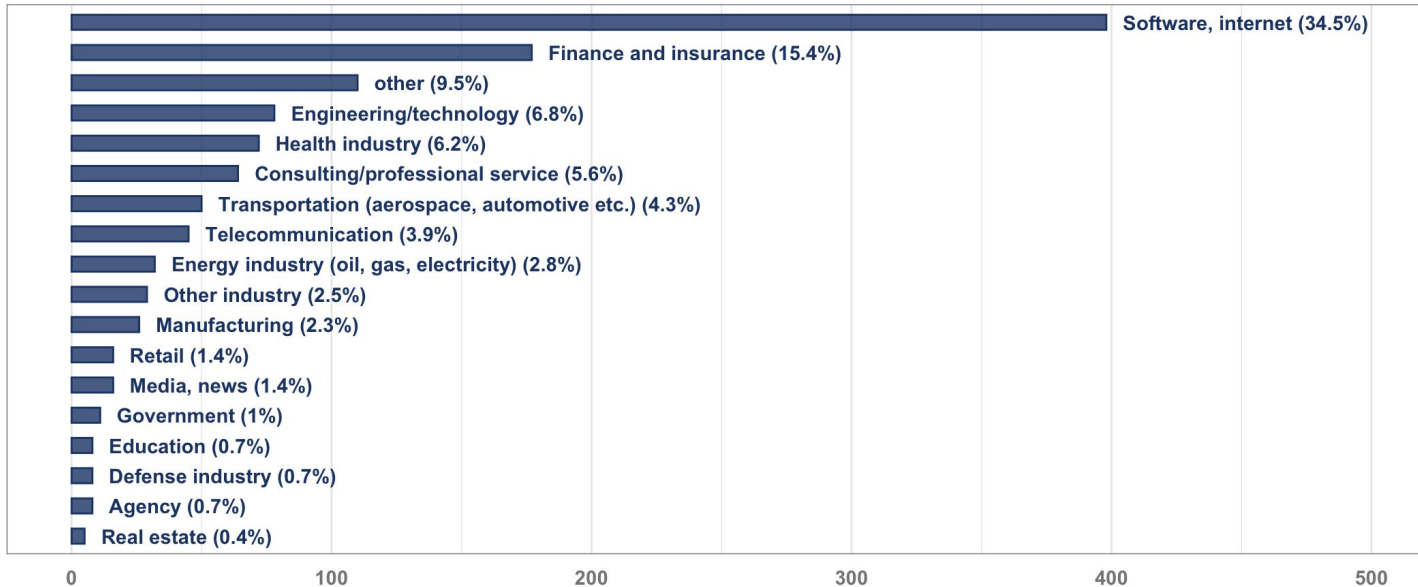
Agile Metrics Survey 2021: Countries of Participants



Agile Metrics Survey 2021

A Sample Description: Organizational Level (2)

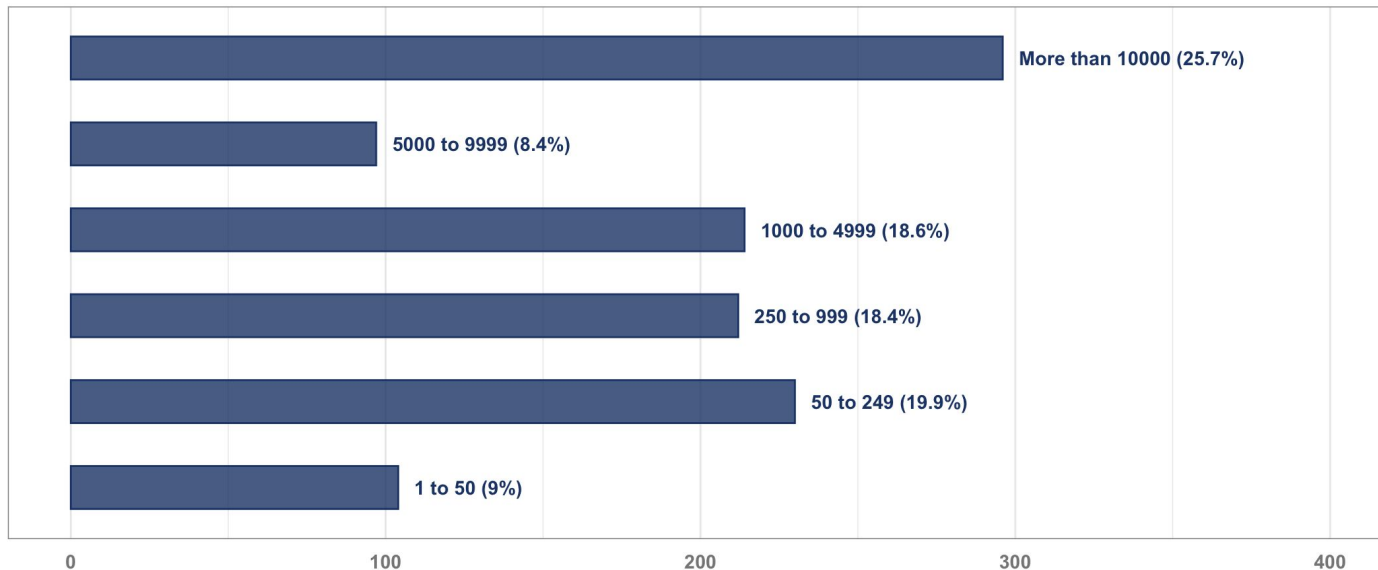
Agile Metrics Survey 2021: Industry Sectors



Agile Metrics Survey 2021

A Sample Description: Organizational Level (3)

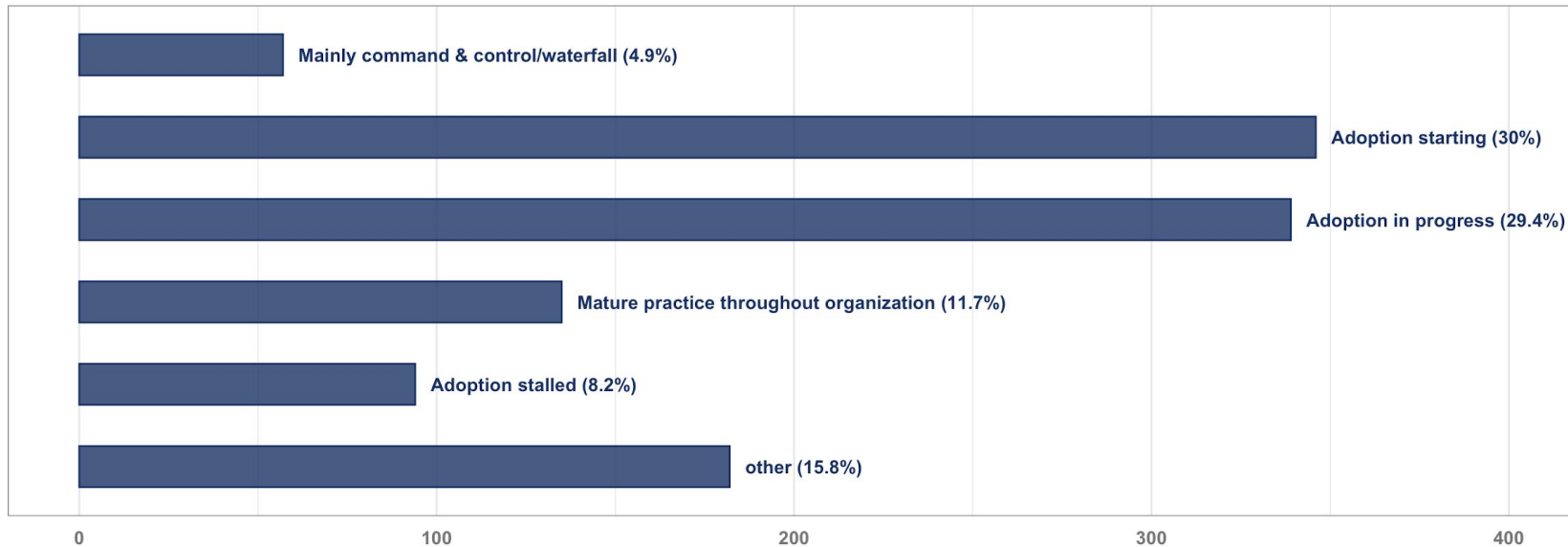
Agile Metrics Survey 2021: Sizes of Organizations



Agile Metrics Survey 2021

A Sample Description: Organizational Level (4)

Agile Metrics Survey 2021: Levels of Organizational Agility



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Validation and Reliability Evaluation (1)

Product & Business Metrics

Realized business value
Return on investment
Stakeholder Net Promoter Score
Customer Net Promoter Score
Number of experiments
Cost per release
Cost of delay
Cost per story point
Program predictability
Forecast accuracy

...

Agile Metrics Survey 2021

Validation and Reliability Evaluation (2)

Item	Principal Axis											
	PA 2	PA 4	PA 11	PA 5	PA 9	PA 1	PA 3	PA 7	PA 6	PA 8	PA 10	PA 12
PBMcustnps		.12	.18	.11	.15					.71		
PBMstakenps			.11	.21			.20	.15		.75		
PBMnrexp		.19	.23	.29	.13	.11	.40	.07	.02	.27		
PBMcprel						.14	.59	.15	.13		.11	.11
PBMcodel		.21	.10	.20	.16	.16	.53	.18		.19		.14
PBMcpstory	.17	.12	.15				.56	.15	.06		.12	.17
PBMforecast	.27	.15	.08	.12			.33	.12				.64
PBMpred	.21	.18	.12	.17	.14		.35	.17	.11	.11	.10	.63
...
Loadings _{SumSq}	4,36	3,95	3,58	2,67	2,55	2,23	2,19	2,02	1,85	1,57	1,35	1,14
Var _{Proportion}	.09	.08	.07	.05	.05	.04	.04	.04	.04	.03	.03	.02
Var _{Cumulative}	.09	.17	.24	.29	.34	.39	.43	.47	.51	.54	.57	.59

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Validation and Reliability Evaluation (3)

Product & Business Metrics

Realized business value

Realized Value

Return on investment

RoI

Stakeholder Net Promoter Score
Customer Net Promoter Score

NPS

Number of experiments
Cost per release
Cost of Delay
Cost per story point

Cost

Program predictability
Forecast accuracy

Prediction

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Validation and Reliability Evaluation (4)

Cost Metrics

Item	Mean	SD	Skew	Item Difficulty	Item Discrimination	α if deleted
PBMnrexp	1.65	1	1.57	0.33	0.47	.74
PBMcprel	1.96	1.27	1.06	0.39	0.61	.67
PBMcodel	1.83	1.15	1.25	0.37	0.61	.67
PBMcpstory	1.74	1.17	1.44	0.35	0.52	.71

Mean inter-item-correlation = .434 · Cronbach's α = .754

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The Refined Metrics

What to measure?

Performance Metrics

(.87)

Defect Metrics

(.85)

Time Metrics

(.87)

Engineering Metrics

(.86)

DevOps Metrics

(.88)

Team Metrics

(.78)

Organizational Agility Metrics

(.82)

Flow Metrics

(.87)

NPS Metrics

(.73)

Cost Metrics

(.75)

Prediction Metrics

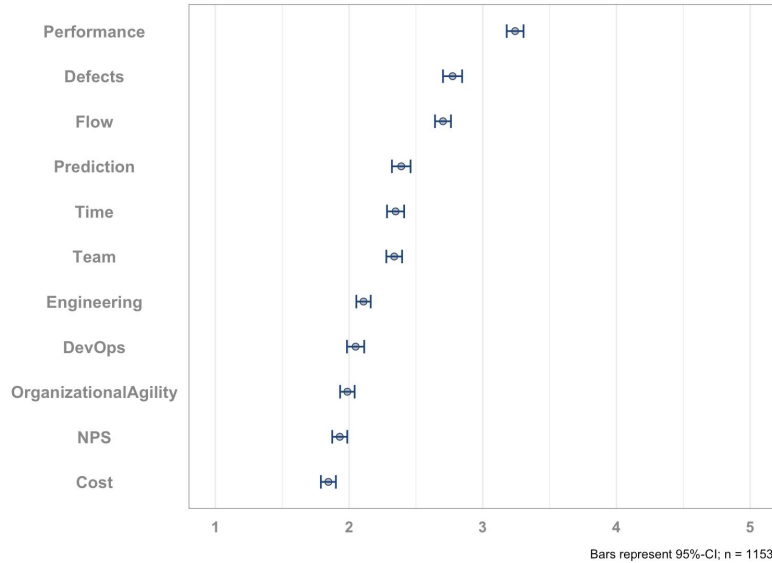
(.84)

Consistency

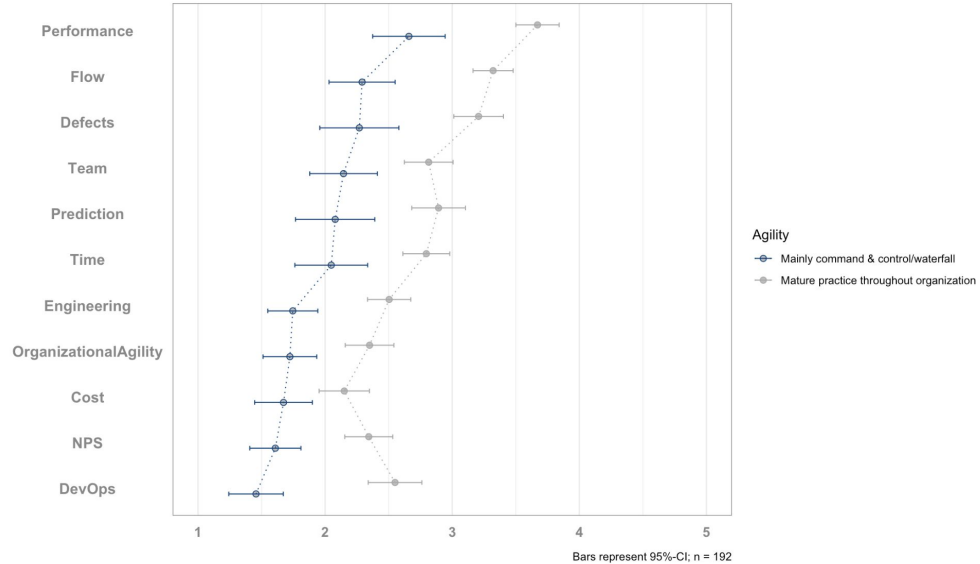
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Who Is Using Which Metric?

Agile Metrics Survey 2021: Overall Metric Use



Agile Metrics Survey 2021: Metric Use by Agility

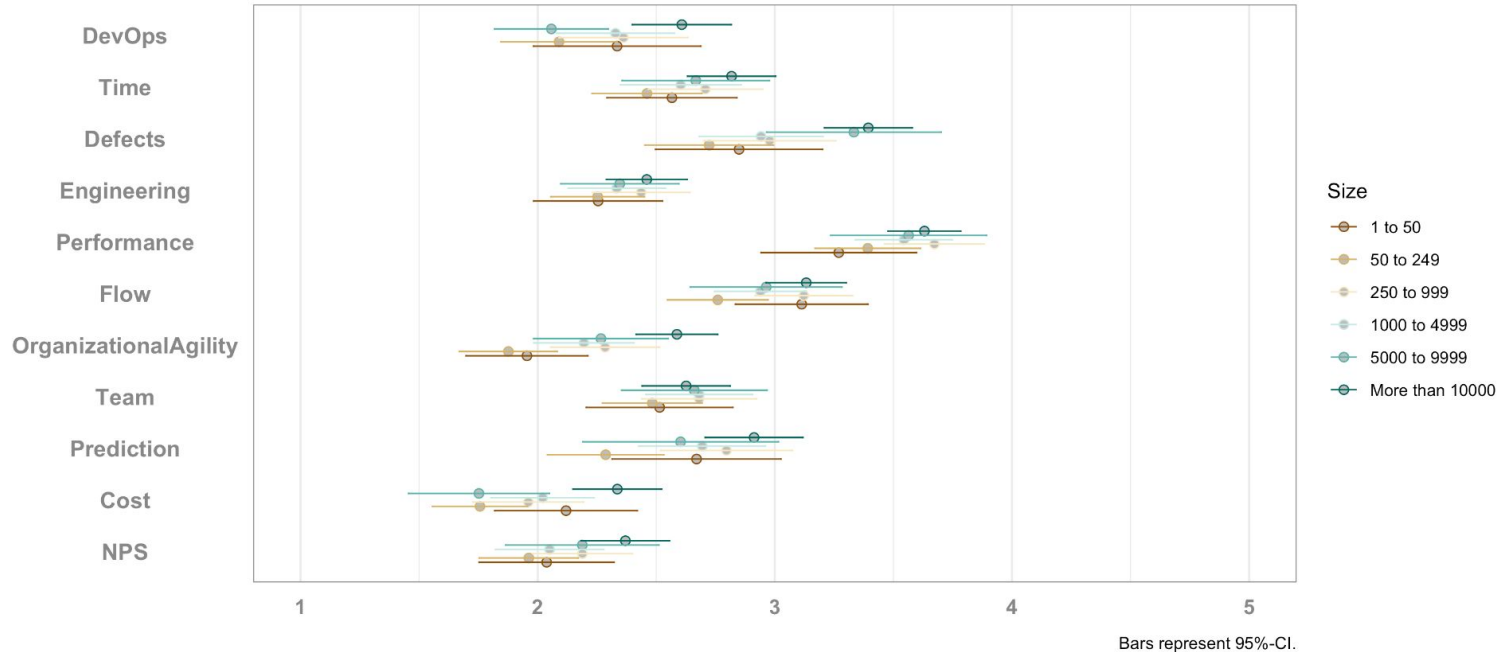


Agile Metrics Survey 2021

Who Is Using Which Metric?

Subsample: Agile Companies!

Agile Metrics Survey 2021: Metric Use by Size

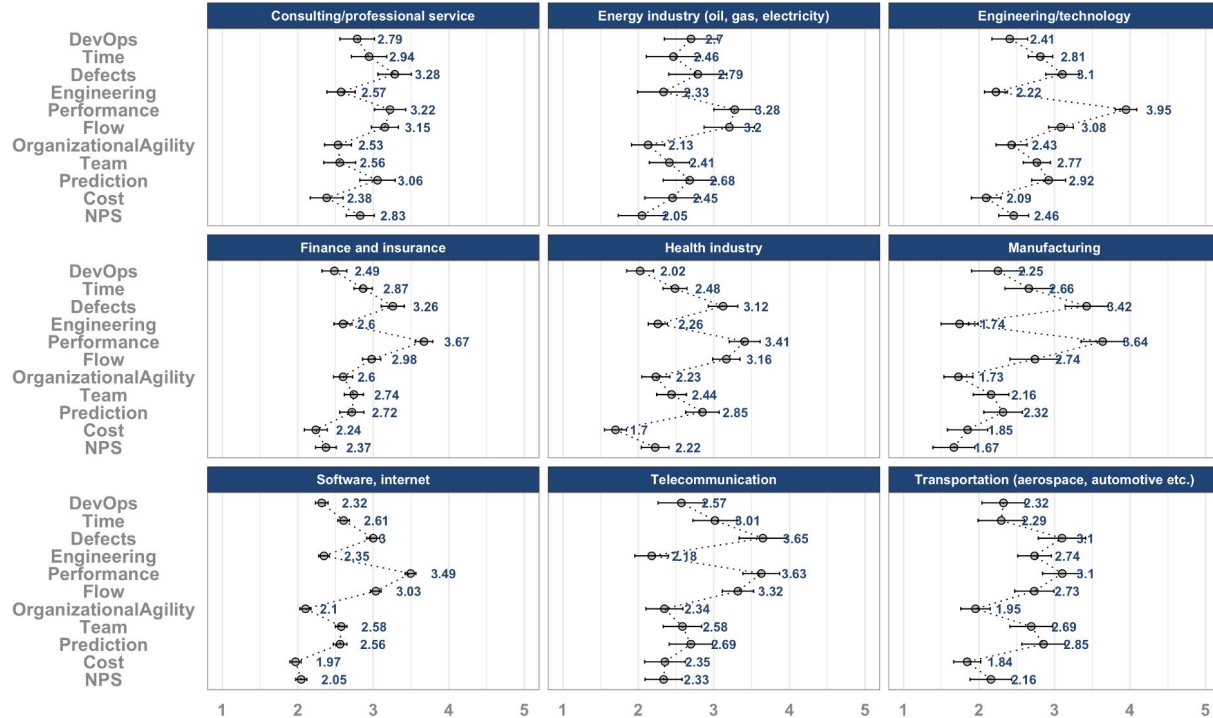


Agile Metrics Survey 2021

Who Is Using Which Metric?

Subsample: Agile Companies!

Agile Metrics Survey 2021: Metric Use by Sector



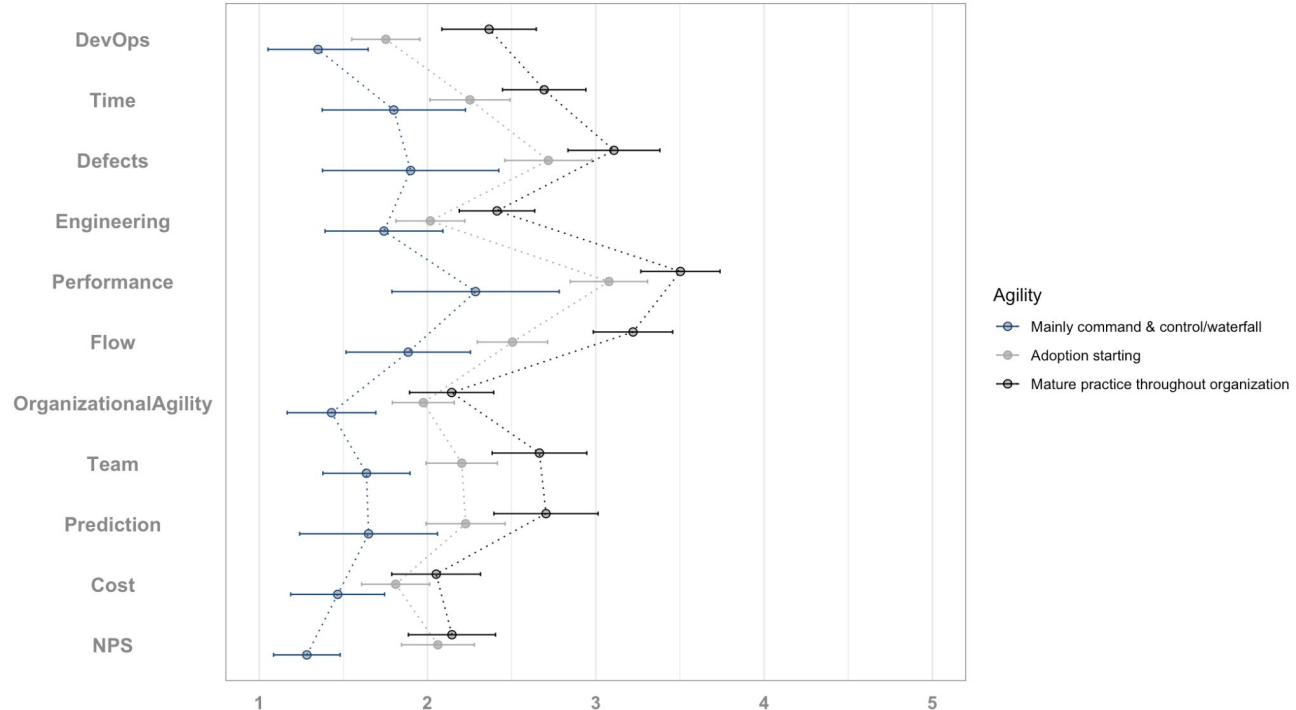
Bars represent Standard Error.

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Who Is Using Which Metric?

Subsample: Software/Internet Companies!

Agile Metrics Survey 2021: Metric Use by Agility



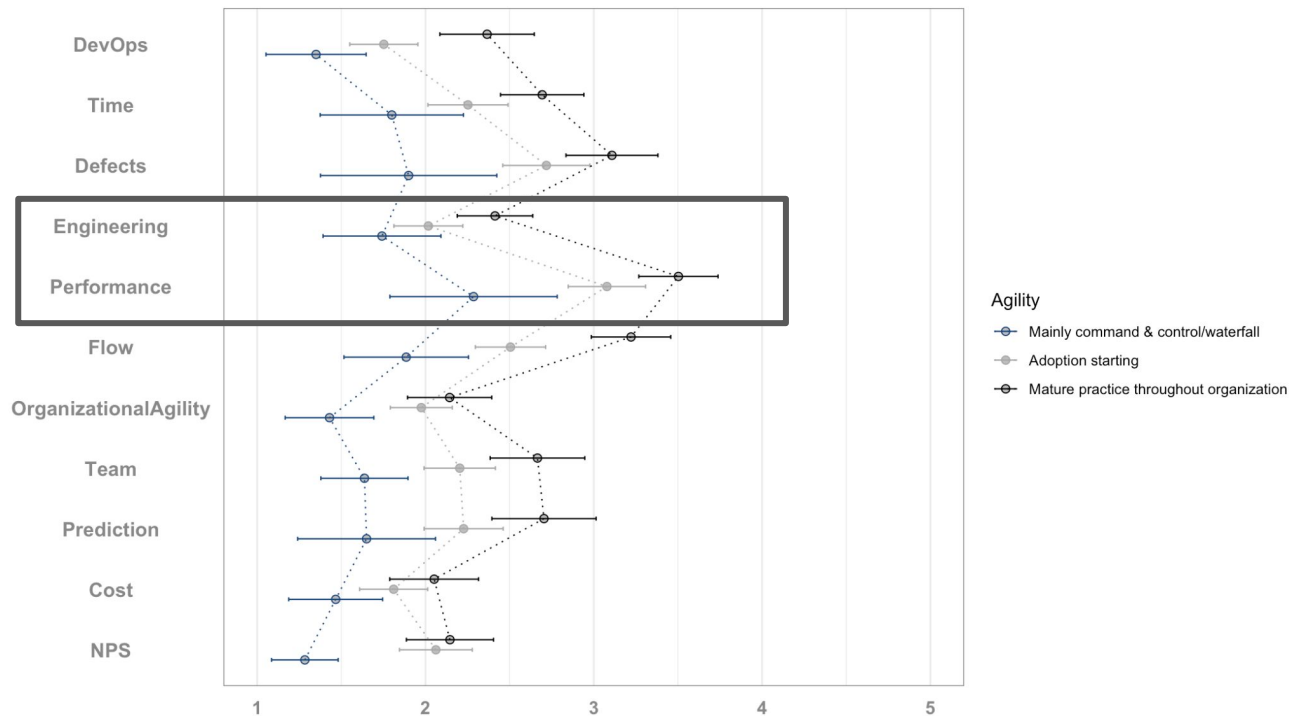
Bars represent 95%-CI; n = 188

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Who Is Using Which Metric?

Subsample: Software/Internet Companies!

Agile Metrics Survey 2021: Metric Use by Agility

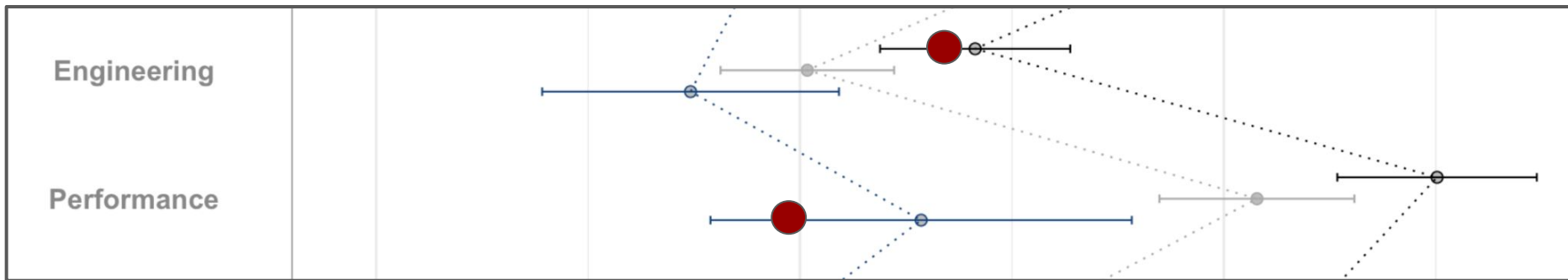


Bars represent 95%-CI; n = 188

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Who Is Using Which Metric?

Perspective: Consultant



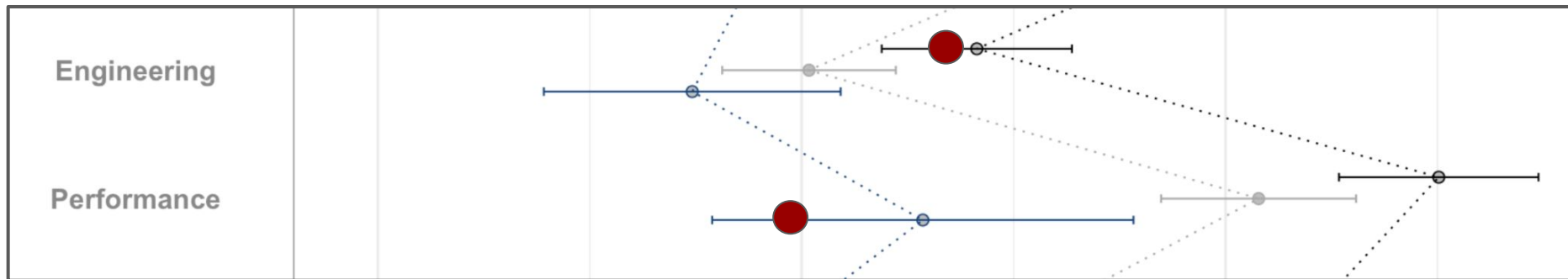
● Your Organization

Agile Maturity Benchmarking → taking into account sector, size, region, etc.

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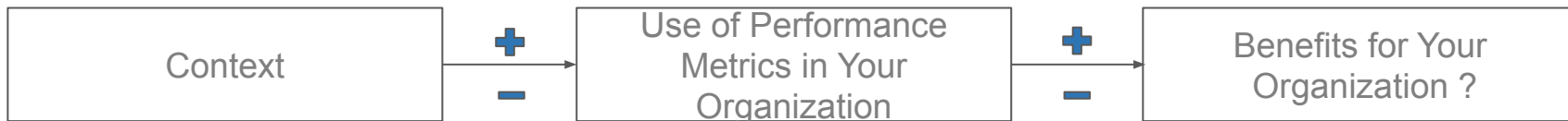
Who Is Using Which Metric?

Perspective: Consultant



● Your Organization

Agile Maturity Benchmarking → taking into account sector, size, region, etc.



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Is It All Worth It? Next Steps...

Perspective: Researcher

Building a structural model → what aspects are positively/negatively influenced by the use of specific metrics/a combination of specific metrics?



■ ■ ■

Include questions concerning deviation to baseline (organization specific)

Questions

Each role has a clear Learning Path



Product Owner Learning Path

★★★★★ 4.9 from 5 ratings

Unwatch

As described in the [Scrum Guide](#), a Scrum Product Owner is responsible for maximizing the value of the product resulting from the work of the Development Team. How this is done may vary widely across organizations, Scrum Teams, and individuals.

The learning path is organized by a set of [Professional Scrum Competencies](#) which each contain a number of focus areas. Resources are laid out in a prescribed order, however it is your journey, so follow in the best way that helps you learn.

▼ Understanding and Applying the Scrum Framework

Empiricism

Scrum Values

Scrum Roles

Scrum Events

Scrum Artifacts

Sprint Goal

Done

Scaling Scrum

► Managing Products with Agility

Understanding and Applying the Scrum Framework / Empiricism

The Agile Manifesto

Created by 17 visionaries in 2001, the Agile Manifesto was developed to look at the core principles and values for Agile software development. [0:04:00]

★★★★★ 4.8 from 6 ratings

Completed

Empiricism, the Act of Making Decisions Based on What Is

Ken Schwaber writes about commitment and Scrum as an empirical process. [0:03:30]

★★★★★ 4.8 from 7 ratings

Completed

The Three Pillars of Empiricism (Scrum)

READ THE SCRUM GUIDE

VIEW THE SCRUM FRAMEWORK

THE SCRUM GLOSSARY

FIND TRAINING

GET CERTIFIED

5/

<https://www.scrum.org/pathway/scrum-master>

<https://www.scrum.org/pathway/product-owner-learning-path>

<https://www.scrum.org/pathway/team-member-learning-path>

<https://www.scrum.org/pathway/agile-leader-learning-path>

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Is It All Worth It? Next Steps...

Learn about all metrics from the upcoming

Agile Metrics Survey 2021

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Thank you!