EXECUTIVE SUMMARY

BENEFITS OF AGILITY MATCHING EXPECTATIONS

The 12th State of Agile survey found that organizations are realizing the benefits they set out to achieve by adopting agile. Four of the top five reported reasons for adopting agile are also reported in the top five areas most-impacted as the result of adopting agile.

Survey respondents also report that their organizations are recognizing agile success at the project level. Of those with knowledge of success at that level, 61% reported that “most” or “all” of their agile projects have been successful.

In terms of organizational agile maturity, there continues to be ample room for improvement. Only 12% percent responded that their organizations have a high level of competency with agile practices across the organization, and only 4% report that agile practices are enabling greater adaptability to market conditions. The encouraging news is that 59% recognize that they are still maturing, indicating that they do not intend to plateau where they are.

The Scaled Agile Framework® (SAFe®) is reported as the most widely-used approach to scaling agile, with nearly 1/3 (29%) saying that SAFe is the method they “follow most closely”. The scaling approach that saw the largest increase in reported use since last year is the Disciplined Agile Framework (DA), up from 1% in 2016 to 5% in this year’s survey.

<table>
<thead>
<tr>
<th>Reason for Adopting Agile</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accelerate software delivery</td>
<td>75%</td>
</tr>
<tr>
<td>Manage changing priorities</td>
<td>64%</td>
</tr>
<tr>
<td>Increase productivity</td>
<td>55%</td>
</tr>
<tr>
<td>Better Business/IT alignment</td>
<td>49%</td>
</tr>
<tr>
<td>Increased software quality</td>
<td>46%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Benefits of Adopting Agile</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage changing priorities</td>
<td>71%</td>
</tr>
<tr>
<td>Project visibility</td>
<td>66%</td>
</tr>
<tr>
<td>Business/IT alignment</td>
<td>65%</td>
</tr>
<tr>
<td>Delivery speed/Time to market</td>
<td>62%</td>
</tr>
<tr>
<td>Team productivity</td>
<td>61%</td>
</tr>
</tbody>
</table>
THE SURVEY RESULTS HIGHLIGHTED THREE THEMES:

**ORGANIZATIONAL CULTURE MATTERS**

This year's survey is consistent with that of recent years in that organizational culture stands out as a critical factor in the success of adopting and scaling agile. The three most significant challenges to agile adoption and scaling are reported as Organizational culture at odds with agile values (53%), General organizational resistance to change (46%), and Inadequate management support and sponsorship (42%).

Internal agile coaches (53%), consistent practices and processes across teams (43%), and the implementation of a common tool across teams (41%) are the top three factors reported to have been most helpful in scaling agile. These underscore the importance of a culture of excellence and alignment.

**AGILE IS EXPANDING WITHIN THE ENTERPRISE**

The survey provides indicators that agile adoption is growing within organizations, both more broadly and deeply. 25% of the respondents say that all or almost all of their teams are agile, whereas only 8% reported that in 2016. The application of agile techniques to higher-level planning also saw an increase, with more respondents practicing Product Roadmapping (46%) and Agile Portfolio Planning (35%).

**CUSTOMER SATISFACTION IS OF UTMOST IMPORTANCE**

One of the most notable changes from last year’s survey is the importance of Customer/User Satisfaction in measuring success. While business value still ranks highly, Customer/User Satisfaction ranks as the top measure of success for agile initiatives (57%) and agile projects (46%). This change in the survey mirrors the growing emphasis on customer satisfaction in digital transformation initiatives.

**LOOKING FORWARD**

With the recognized necessity of accelerating the speed of delivery of high-quality software, and the emphasis on customer satisfaction, it’s no surprise that 71% of the survey respondents report that a DevOps initiative is underway or planned for the next 12 months. We also expect the expansion of agility into higher-level planning to continue, as the need to manage the entire value stream, from strategic planning to customer delivery, will be critical going forward.

The need to manage the entire value stream, from strategic planning to customer delivery, and to have the proper feedback loops in place, will be critical going forward. This will require the organizational culture, skills, and tooling to allow for managing and measuring the flow of business value across the entire value stream. To achieve this, enterprises will need to truly unify their agile portfolio planning, agile project management, and continuous delivery efforts.

This will further decrease the use of spreadsheets and team-oriented point solutions as organizations seek a more enterprise-centric solution for unifying their Agile and DevOps initiatives and accelerating the delivery of business value across the entire organization.
The 12th annual State of Agile survey was conducted between August and December, 2017. Sponsored by CollabNet VersionOne, the survey invited individuals from a broad range of industries in the global software development community and was promoted far beyond VersionOne’s customer base at tradeshows and multiple digital channels. 1,492 responses were collected, analyzed, and prepared into a summary report by Analysis.Net Research, an independent survey consultancy. Only 22% of the respondents were VersionOne customers, indicating the range and diversity of respondents.

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RESPONDENT DEMOGRAPHICS

Similar to past years, this survey collected responses from a diverse set of organization sizes, geographic locations, roles and industries. There was an increase in the number of responses coming from ScrumMaster or Internal Agile Coaches (19% of respondents last year and 34% this year) and a decrease in responses from Project / Program Managers (23% of respondents last year and 14% this year).

**Size of Organization**
Respondents who worked for organizations with:

- 39% < 1,000 people
- 21% 1,001-5,000 people
- 16% 5,001-20,000 people
- 28% 20,001+ people

**Size of Software Organization**
Respondents who worked for organizations with software development organizations with:

- 29% < 100 people
- 35% 101-1,000 people
- 19% 1,001-5,000 people
- 17% 5,001+ people

**Location of Organization**
Respondents were from:

- 55% North America
- 27% Europe
- 7% Asia
- 7% South America
- 1% Africa
- 3% Australia or New Zealand
RESPONDENT DEMOGRAPHICS

Role
- ScrumMaster or Internal Coach: 34%
- Project / Program Manager: 14%
- Development Leader: VP/ Director: 11%
- Development Team Member: Architect/ Developer/ QA/ Tester/ UI/ UX Designer: 8%
- External Consultant/ Trainer: 6%
- Product Manager/ Product Owner: 4%
- Business Analyst: 3%
- C-Level Executive: 3%
- DevOps: 5%
- Other: 1%

Industries
- Technology: 24%
- Financial Services: 17%
- Professional Services: 9%
- Insurance: 7%
- Government: 6%
- Healthcare and Pharmaceuticals: 6%
- Industrial/Manufacturing: 4%
- Telecommunications: 4%
- Education: 3%
- Energy: 3%
- Retail: 3%
- Transportation: 3%
- Media/Entertainment: 2%
- Non-profit: 1%
- Other: 8%

Distributed Agile Teams
79% of respondents had at least some distributed teams practicing agile.
Company Experience

**Percentage of Teams Using Agile**

52% of respondents stated that more than half of teams in their organizations are using agile practices.

- **25%** All of our teams are agile
- **27%** More than ½ of our teams are agile
- **46%** Less than ½ of our teams are agile
- **2%** None of our teams are agile

**Reasons for Adopting Agile**

The reasons stated for adopting agile follow a similar ranking as in the previous year though we did see the biggest change in responses in accelerate software delivery (75% compared to 69% last year), enhancing delivery predictability (46% compared to 30% last year), improving IT/Business alignment (49% compared to 42% last year), and reducing project cost (24% compared to 18% last year).

- Accelerate software delivery: 75%
- Enhance ability to manage changing priorities: 64%
- Increase productivity: 55%
- Improve business/IT alignment: 49%
- Enhance software quality: 46%
- Enhance delivery predictability: 46%
- Improve project visibility: 42%
- Reduce project risk: 37%
- Improve team morale: 28%
- Improve engineering discipline: 25%
- Reduce project cost: 24%
- Increase software maintainability: 18%
- Better manage distributed teams: 17%

*Respondents were able to make multiple selections.*

**Agile Maturity**

The vast majority of respondents (84%) said their organization was at or below a “still maturing” level.

- **12%** High level of competency with agile practices across the organization
- **59%** Use agile practices but still maturing
- **4%** Agile practices are enabling greater adaptability to market conditions
- **19%** Experimenting with agile in pockets
- **2%** No agile initiatives

Considering an agile initiative
BENEFITS OF AGILE

Benefits of Adopting Agile

By implementing agile, respondents cited seeing improvements in the following areas:

- Ability to manage changing priorities: 71%
- Project visibility: 66%
- Business/IT alignment: 65%
- Delivery speed/time to market: 62%
- Increased team productivity: 61%
- Team morale: 61%
- Project predictability: 49%
- Software quality: 47%
- Project risk reduction: 47%
- Engineering discipline: 43%
- Managing distributed teams: 40%
- Software maintainability: 33%
- Project cost reduction: 22%

*Respondents were able to make multiple selections.
AGILE METHODS AND PRACTICES

Agile Methodologies Used
Scrum, ScrumBan and Scrum/XP Hybrid (70%) continue to be the most common agile methodologies used by respondents’ organizations.

Agile Techniques Employed
From 2016 to 2017, the use of Kanban grew from 50% to 65%; product roadmapping increased from 38% to 46% and portfolio planning went from 25% to 35%.

*Respondents were able to make multiple selections.
**Engineering Practices Employed**

This year’s survey demonstrated an increased use of coding standards (64% compared to 56% last year) and the use of continuous integration and refactoring were cited less as practices used.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit testing</td>
<td>75%</td>
</tr>
<tr>
<td>Coding standards</td>
<td>64%</td>
</tr>
<tr>
<td>Continuous integration</td>
<td>54%</td>
</tr>
<tr>
<td>Refactoring</td>
<td>45%</td>
</tr>
<tr>
<td>Continuous deployment</td>
<td>37%</td>
</tr>
<tr>
<td>Pair programming</td>
<td>36%</td>
</tr>
<tr>
<td>Test-driven development (TDD)</td>
<td>35%</td>
</tr>
<tr>
<td>Automated acceptance testing</td>
<td>32%</td>
</tr>
<tr>
<td>Collective code ownership</td>
<td>31%</td>
</tr>
<tr>
<td>Sustainable pace</td>
<td>25%</td>
</tr>
<tr>
<td>Behavior-driven development (BDD)</td>
<td>17%</td>
</tr>
<tr>
<td>Emergent design</td>
<td>16%</td>
</tr>
</tbody>
</table>

*Respondents were able to make multiple selections.

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**Agile in Outsourced Dev Projects**

45% of respondents are using agile practices to manage outsourced development projects. 40% of respondents indicated they plan to increase the use of agile in outsourced development projects in the next 24 months.
AGILE SUCCESS AND METRICS

How Success Is Measured... with Agile Initiatives?

Business value, on-time delivery of projects and customer/user satisfaction have remained the top three measures of agile initiative’s success as they have in the past few years with customer/user satisfaction moving into the top spot increasing from 44% last year to 57% this year. Product scope saw a decline from 40% to 20% from 2016 to 2017.

Customer/user satisfaction 57% 53% 55%
On-time delivery 55% 53% 55%
Business value 47% 45% 47%
Quality 31% 30% 31%
Productivity 29% 29% 30%
Predictability 26% 27% 26%
Project visibility 25% 25% 25%
Process improvement 20% 20% 20%
Product scope 11% 12% 12%
Don’t know

*Respondents were able to make multiple selections.

How Success Is Measured... with Agile Projects

Business value increased as a cited measure of agile project success from 23% in 2016 to 43% in 2017. Customer/user satisfaction increased from 28% in 2016 to 46% in 2017 while velocity had been the number one measure of an agile project’s success decreased from 67% in 2016 to 42% in 2017. Iteration burndown also went down from 2016 (51%) to 2017 (27%).

Customer/user satisfaction 46% 43% 46%
Business value delivered 43% 42% 43%
Velocity 31% 30% 31%
Budget vs. actual cost 30% 29% 30%
Planned vs. actual stories per iteration 29% 28% 29%
Planned vs. actual release dates 27% 27% 27%
Defects in to production 24% 24% 24%
Iteration burndown 22% 22% 22%
Cycle time 21% 21% 21%
Burn-up chart
Release burndown
Defects over time

Defect resolution 16% 16% 16%
WIP (Work-in-process) 14% 14% 14%
Customer retention 13% 13% 13%
Estimation accuracy 13% 13% 13%
Test pass/fail over time 12% 12% 12%
Revenue/sales impact 10% 10% 10%
Cumulative flow chart 9% 9% 9%
Product utilization 8% 8% 8%
Scope change in a release 8% 8% 8%
Individual hours per iteration/week
Earned value

*Respondents were able to make multiple selections.

Success of Agile Projects

98% of respondents said that they had success with agile projects in their organization. 74% indicated more than half of their agile projects had been successful.
Scaling Methods and Approaches

The Scaled Agile Framework continues to be the most popular scaling method cited by respondents.

Top 5 Tips for Success with Scaling Agile

Respondent indicated the most valuable in helping them scale agile practices were:

1. Internal Agile Coaches
2. Consistent Practices and Processes Across Teams
3. Implementation of a Common Tool Across Teams
4. External Agile Consultants or Trainers
5. Executive Sponsorship

*Respondents were able to make multiple selections.

Challenges Experienced Adopting & Scaling Agile

From last year to this year we saw a decrease in respondents citing “organizational culture at odds with agile values” and “lack of business/customer/product owner availability” as challenges for adopting and scaling agile. Barriers that were cited more this year include “fragmented tooling”, “inconsistent processes across teams” and “general resistance to change”.

- Organizational culture at odds with agile values: 53%
- General organization resistance to change: 46%
- Inadequate management support and sponsorship: 42%
- Lack of skills/experience with agile methods: 41%
- Insufficient training and education: 35%
- Inconsistent processes and practices across teams: 34%
- Lack of business/customer/product owner availability: 31%
- Pervasiveness of traditional development methods: 30%
- Fragmented tooling and project-related data/measurements: 24%
- Minimal collaboration and knowledge sharing: 21%
- Regulatory compliance or government issue: 14%

*Respondents were able to make multiple selections.
### General Tool Uses and Preferences

The use of Kanban boards again was cited as a tool used more than in the previous year as was Project & portfolio management (PPM) tools.

<table>
<thead>
<tr>
<th>Tool Type</th>
<th>CURRENT TOOL USAGE</th>
<th>FUTURE PLANS TO USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kanban board</td>
<td>74% 69%</td>
<td>7% 11%</td>
</tr>
<tr>
<td>Bug tracker</td>
<td>72% 71%</td>
<td>10% 10%</td>
</tr>
<tr>
<td>Taskboard</td>
<td>71% 75%</td>
<td>7% 8%</td>
</tr>
<tr>
<td>Agile project management tool</td>
<td>67% 63%</td>
<td>9% 17%</td>
</tr>
<tr>
<td>Spreadsheet</td>
<td>65% 67%</td>
<td>4% 5%</td>
</tr>
<tr>
<td>Wiki</td>
<td>62% 62%</td>
<td>11% 13%</td>
</tr>
<tr>
<td>Automated build tool</td>
<td>60% 59%</td>
<td>20% 22%</td>
</tr>
<tr>
<td>Unit test tool</td>
<td>57% 61%</td>
<td>15% 19%</td>
</tr>
<tr>
<td>Continuous integration tool</td>
<td>52% 52%</td>
<td>24% 27%</td>
</tr>
<tr>
<td>Requirements management tool</td>
<td>46% 43%</td>
<td>13% 19%</td>
</tr>
<tr>
<td>Release/deployment automation tool</td>
<td>44% 44%</td>
<td>29% 31%</td>
</tr>
<tr>
<td>Traditional project management tool</td>
<td>43% 43%</td>
<td>5% 5%</td>
</tr>
<tr>
<td>Project &amp; portfolio management (PPM) tool</td>
<td>40% 35%</td>
<td>18% 25%</td>
</tr>
<tr>
<td>Automated acceptance tool</td>
<td>36% 35%</td>
<td>29% 36%</td>
</tr>
<tr>
<td>Index cards</td>
<td>29% 34%</td>
<td>7% 10%</td>
</tr>
<tr>
<td>Story mapping tool</td>
<td>29% 25%</td>
<td>19% 30%</td>
</tr>
<tr>
<td>Refactoring tool</td>
<td>19% 25%</td>
<td>15% 25%</td>
</tr>
<tr>
<td>Customer idea management tool</td>
<td>16% 16%</td>
<td>15% 26%</td>
</tr>
</tbody>
</table>

*Respondents were able to make multiple selections.*
# Use of Agile Management Tools

Respondents were able to make multiple selections.

<table>
<thead>
<tr>
<th>Tool</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlassian JIRA</td>
<td>58%</td>
</tr>
<tr>
<td>Axosoft</td>
<td>1%</td>
</tr>
<tr>
<td>Bugzilla</td>
<td>4%</td>
</tr>
<tr>
<td>CA Agile Central</td>
<td>9%</td>
</tr>
<tr>
<td>CollabNet TeamForge</td>
<td>2%</td>
</tr>
<tr>
<td>Google Docs</td>
<td>17%</td>
</tr>
<tr>
<td>Hansoft</td>
<td>1%</td>
</tr>
<tr>
<td>HP Agile Manager</td>
<td>2%</td>
</tr>
<tr>
<td>HP Quality Center/ALM</td>
<td>14%</td>
</tr>
<tr>
<td>IBM Rational Team Concert</td>
<td>6%</td>
</tr>
<tr>
<td>In-house/home-grown</td>
<td>8%</td>
</tr>
<tr>
<td>LeanKit</td>
<td>4%</td>
</tr>
<tr>
<td>Microsoft Excel</td>
<td>46%</td>
</tr>
<tr>
<td>Microsoft Project</td>
<td>21%</td>
</tr>
<tr>
<td>Microsoft TFS</td>
<td>21%</td>
</tr>
<tr>
<td>Pivotal Tracker</td>
<td>2%</td>
</tr>
<tr>
<td>Target Process</td>
<td>1%</td>
</tr>
<tr>
<td>ThoughtWorks Mingle</td>
<td>1%</td>
</tr>
<tr>
<td>VersionOne</td>
<td>20%</td>
</tr>
<tr>
<td>Other</td>
<td>14%</td>
</tr>
</tbody>
</table>
Recommended Agile Project Management Tools

Respondents were asked whether they would recommend the tool(s) they are using based on their experience. For the sixth year in a row, VersionOne had the highest recommendation rate of any other tool evaluated in the survey (81%).

Respondents were able to make multiple selections.
DevOps Initiatives
71% of respondents stated that they currently have a DevOps initiative in their organization or are planning one in the next 12 months.

How Success Is Measured... with DevOps Initiatives?
Respondents cited the top measures of success for their organization's DevOps initiatives were accelerated delivery speed, improved quality, flow of business value all the way to the end user and reduction of risk.

- Accelerated delivery speed: 58%
- Improved quality: 51%
- Increased flow of business value to users: 44%
- Reduce risk: 41%
- Increase customer satisfaction: 33%
- Decreased IT costs: 28%
- Ensure compliance/governance: 17%

*Respondents were able to make multiple selections.

Value of Capability Improvement in DevOps Practice
Respondents said they would find it valuable or very valuable to experience improvements in the following capabilities in their DevOps practices:

- Ability to measure cycle time, wait time, bottlenecks of business value flowing through delivery cycle: 84%
- End-to-end traceability from business initiative through development, test and deployment: 83%
- Identification and measurement of technical risk prior to deployment: 82%
- Automated audit compliance and governance reporting across all control points: 69%

Importance of DevOps Transformation
65% of respondents said DevOps transformation was important or very important in their organization.

- Not important: 12%
- Somewhat important: 23%
- Important: 32%
- Very important: 33%