



Agile Project Management (APM) Tooling Survey Results

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Introduction

Trail Ridge Consulting conducted an independent global survey of the agile software development community to determine the project management tooling that companies are using to support their agile processes. This report presents the results of that survey.

In February 2001, a number of representatives from alternative software development communities (including Scrum, Extreme Programming, DSDM, Crystal and Adaptive Software Development) met in Utah to identify common ground in its fight against more prescriptive and commercial approaches. They created the *Manifesto for Agile Software Development* (www.agilemanifesto.org) - an identity statement that is reverberating today through thousands of software development corporations, around the world.

Of the four principle statements in the Agile Manifesto, the first “...Individuals and interactions over process and tools” stands out as the first and one of the most characteristic of the agile movement. It represents a dramatic shift away from decades of industry trending towards richer and more prescriptive processes and tools.

Today, five years hence, we are seeing a rise in the number of large enterprises adopting agile methods; we are seeing a rise in the creation of new (and perhaps more prescriptive) agile process definitions such as Industrial Extreme Programming, Enterprise Scrum, Microsoft for Agile Software Development and Agile Unified Process definitions; and finally we are seeing a rise in the number of function rich agile project management tools in the open source, mid-market, and enterprise market to support agile organizations.

Is the agile movement straying from its roots and seeking more prescriptive and tooling choices? Based on over 500 survey responses from 39 countries, this report seeks to answer this and other questions...

- What agile processes are in use today worldwide?*
- Which commercial and open source tools are used by agile organizations and why?*
- Is there a correlation between organization size and the types of agile tools they use?*
- What are the top reasons driving APM tool selection today?*

Based on survey responses, this report first develops an agility profile for development organizations. Next, it provides analysis of the tools in use to support agile processes. Finally it examines why organizations are choosing agile project management (APM) tools and where agile industry trends are leading.

About Trail Ridge Consulting

Trail Ridge Consulting provides agile organizational transition, alignment, training and coaching services for enterprise IT organizations. Contact us at:

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Special thanks to John Miller, Bud Cookson and Jean McAuliffe for their contributions in reviewing, editing and feedback on the survey and this report.

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Survey Results

Overview

Of 570 survey responses received, 525 are used for the analysis and presentation of findings in this report. The 45 responses not included in the final analysis were removed using a cleansing process described in *Appendix A: Data Gathering & Analysis*.

The results of the survey are presented in three parts:

1. Agile Corporate Profile
2. Agile Project Management (APM) Tools
3. Reasons for selecting an APM Tool

The Agile Corporate Profile provides the characteristics of the companies who responded to this survey including the company's development organization size, location, percentage of their development organization following an agile process, length of time following an agile process, and the specific agile process followed.

The Agile Project Management Tools section provides the results of the types of tools used in various phases of the agile process for managing release and iteration artifacts as well as other related artifacts. It evaluates a number of tooling categories including manual tools, office productivity tool suites, wikis, dedicated agile project management tools and more traditional software development lifecycle tools.

The final section provides reasons why companies have chosen to use dedicated agile project management tools and why others have chosen not to. It further distinguishes those results by company size.

Key Findings

Some of the key findings in this report include:

- Agile adoption still appears to be in an early adopters phase according to Geoffrey Moore's definition in *Crossing the Chasm*
- Scrum is the most prevalent process in use today, but is often integrated with other agile practices and methods
- Larger companies only have a fraction of their development organization staff following agile processes and smaller ones are only just over half-penetrated
- Organizations use a range of tools to manage their agile process, even if they have purchased a dedicated agile project management tool
- Agile project management tools have overtaken manual approaches across all companies
- Smaller companies are just as likely (if not more so) to use agile project management tooling than large companies; though some of their reasons differ

Agile Corporate Profile

The survey specifically targets companies that have adopted an agile process to some degree within their organization. We do not attempt to judge agility, but rather leave that up to the responder. Our goal is to understand where agile is being implemented, and correlate it to tool usage in support of specific agile processes. This section provides an overview of that corporate profile as represented by those who responded.

Company Location

Just over 50% of responders are from the United States; yet, with a balance from 38 other countries, it represents a fairly widespread adoption of agile processes across the globe. With such a large US-based response, our results may be US-biased.

After the United States the United Kingdom, Canada, India and Brazil represent the top 5 countries responding to the survey. See Figure 1 for a list of all countries and the corresponding number of responses totaling 525.

Country	# Resp.	Country	# Resp.
Africa (multiple)	4	Luxembourg	1
Argentina	3	Mexico	1
Australia	6	Netherlands	7
Austria	4	New Zealand	3
Belgium	4	Norway	2
Brazil	14	Peru	1
Canada	36	Phillippines	1
China	4	Poland	2
Czech Republic	1	Portugal	1
Denmark	7	Romania	2
Finland	5	Russian Fed.	2
France	7	Spain	3
Germany	5	Sweden	5
Iceland	1	Switzerland	4
India	24	Thailand	1
Iran	1	United Kingdom	40
Ireland	3	United States	279
Israel	1	Uruguay	1
Italy	6	Yugoslavia	1
Latvia	1	Unknown	31

Figure 1: Number of responses by country

Note: Country was not an explicit question on the survey; rather, it was determined based on the IP Address of the submitted response and correlated to a question asking which continent hosts their primary location. IP Address was removed from published results to maintain privacy.

Company's Development Organization Size

While some skeptics accept that agile methods may be effective for small teams in small companies, they express concerns about scalability to enterprise levels. Therefore, development organization size and agile adoption within the organization are critical variables in our analysis.

Agile Project Management Tooling Survey Results

We focus on the development organization size as oppose to company size because we believe people responding to the survey have more accurate knowledge of their development organization size.

Survey results indicate that agile adoption is more prevalent among smaller development organizations. Figure 2 shows that sixty-four percent (64%) of responses come from companies having fewer than 100 employees in development. On the other hand, this leaves 36% (or 190 responses) from companies with more than 100 employees in development. We believe there is a growing trend toward greater agile adoption in these larger development organizations.

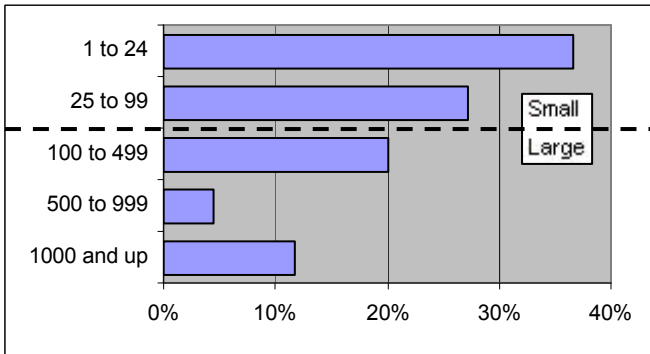


Figure 2: Number of employees in the development organization for all companies

NOTE: For the purposes of this survey, we define a smaller development organization as having fewer than 100 employees and a larger development organization as having 100 or more employees.

NOTE: There are about 60 responses with duplicate development organization signatures. However, since these are primarily from larger organizations, we felt their responses represented different entities within the larger organization and were therefore important to retain for analysis.

Agile Adoption Percentage

Looking at the agile adoption profile (e.g. how much of the development organization has adopted an agile process), we see a divided picture (see Figure 3). About one-third of responders report only modest agile process adoption across their development organization. They say 25% or fewer of their staff employ agile processes. Another third indicate that most staff (if not all) in their development organization are following an agile process as represented by the 75% or more bar.

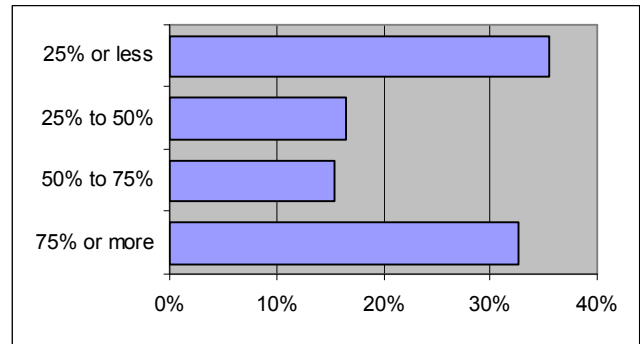


Figure 3: Percentage of development organization staff following an agile process (all organizations)

However, when we distinguish between smaller and larger development organizations (see Figure 4) we see that most larger organizations (55% of them) have committed only a small portion of their staff resources (25% or less) to using agile processes. We also see that among smaller development organizations, almost 60% of them have 50% or more of their staff following agile processes.

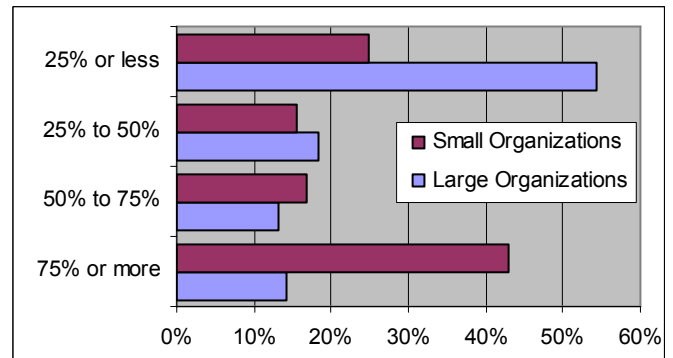


Figure 4: Percentage of development organization staff following agile processes, by organization size

Number of Agile Teams

It was suggested in an early review of our survey that most responders have difficulty calculating a percentage of agile use within their organization due to the large number of support employees, management or other uncertainties. Therefore, we included an easier metric to calculate and asked for the number of teams within their development organization that were following an agile process.

We felt the data for smaller organizations would not be very meaningful given their size limitations so we only include larger organizations in this result. Figure 5 displays the number of agile teams within larger development organizations.

Agile Project Management Tooling Survey Results

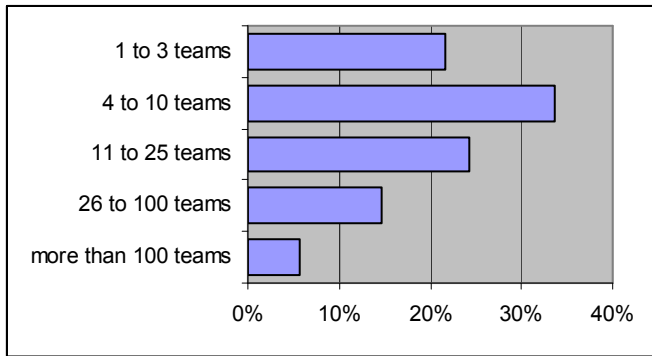


Figure 5: Number of teams following an agile process in larger development organizations

Over half of the larger development organizations have 10 or fewer teams practicing agile methods, indicating that they are anywhere from an initial agile pilot phase to a subset of departments within the organization following an agile process.

Number of Years Following Agile Methods

Another indication of the early adoption of agile methods can be found in looking at the number of years the development organization has been following an agile process. Figure 6 indicates that agile adoption across the industry is still in a relatively early stage with less than 20% of development organizations having practiced agility for more than 3 years.

The average length of time agile has been practiced by all companies was 1.9 years. Our results confirmed another recent survey conducted by VersionOne (<http://www.versionone.net/surveyresults.asp>).

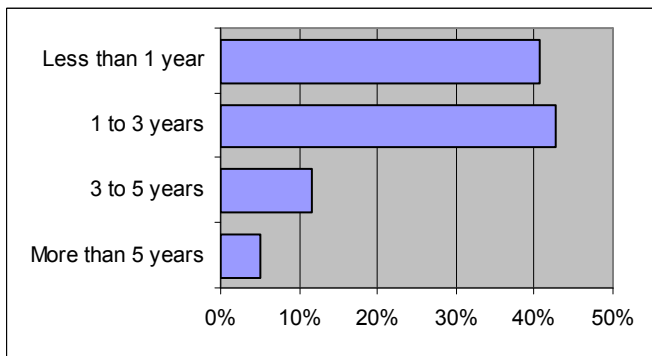


Figure 6: Number of years an agile process has been in use (all organizations)

NOTE: We find no significant correlation between organization size and number of years of agile experience.

This data may suggest we have moved beyond the innovators of the agile movement, but there is still an open discussion about whether we are still viewing the early agile adopters, or whether we have crossed the chasm (as represented by Geoffrey Moore's *Crossing the*

Chasm) and are viewing the effects of the early majority adopting agile methods.

Given the low adoption rates within all companies, the relative inexperience with agile methods, and the continuous evolution and debates over various agile methods, it appears that agile methods are still in the early adopters phase.

Company Distribution (Number of Locations)

The final corporate profile question evaluates team distribution as defined by the number of distinct cities in which development staff may reside. Figure 7 displays the number of locations across all responses. While a vast majority (over 80%) of the smaller organizations are located in one or two locations, larger organizations, not surprisingly, are more distributed.

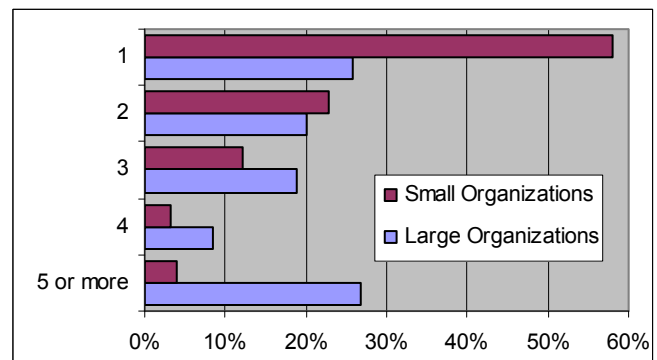


Figure 7: Number of cities in which developers reside within a single company

NOTE: A city boundary was chosen for this survey due to the belief that team co-location (an important agile characteristic) could be made possible within multiple buildings or floors in the same city, but is much more unlikely if it requires a significant commute or relocation.

Agile Process Followed

Based on the number of participants in their respective Yahoo! Discussion Groups (approximately 8,500 participants in the Extreme Programming Group and approximately 3,500 in the Scrum Development Group), we anticipated a proportional response to those processes in our survey. What we found contradicted our expectations. Mentioned in almost 60% of the responses, Scrum dominates the agile process landscape. Scrum is referenced almost three times more often than Extreme Programming (XP), representing a reversal from the number of participants in the Yahoo! Discussion Groups (See Figure 8).

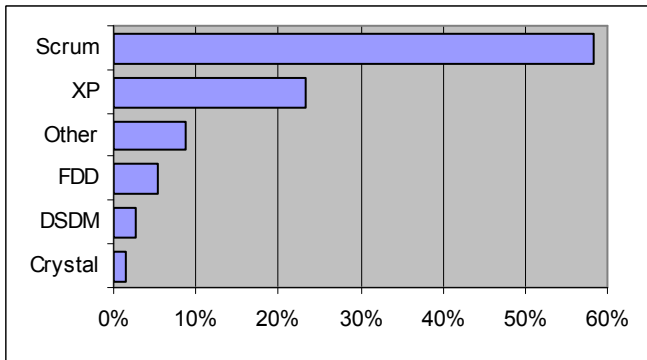


Figure 8: Principal agile process in use (all organizations)

While our results vary from another recent survey by VersionOne which reported Scrum at 40%, our survey does not include a specific “Hybrid” option, but rather suggests responders select the primary agile process that their organization identifies with. Even with this recommendation, there are many “Other” category responses indicating their hybrid approaches. The balance of the “Other” category includes homegrown custom agile processes and modified or agile versions of the Rational Unified Process (RUP).

NOTE: We altered a few responses that selected “Other” but indicated Scrum or XP in the open entry.

When we evaluate agile process by organization size, we find a trend that is quite interesting. Very small companies (those with fewer than 25 people in development) are much more likely to adopt XP as their primary agile process. Larger organizations tend to use Scrum more often (see Figure 9).

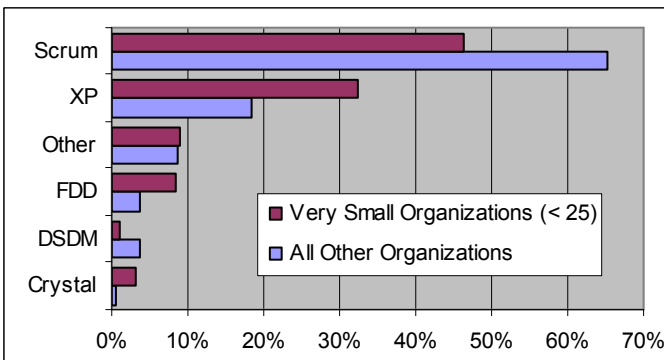


Figure 9: Agile process primarily identified separated by very small companies (under 25 in development)

One reason larger companies lean more toward Scrum might be due to its organizational focus and its simple adaptive framework that can be introduced into a larger company more easily than XP practices. This is an area that could benefit from additional research.

Agile Project Management (APM) Tools

The primary purpose of the survey, and this report, is to evaluate the types of project management tools in use by agile organizations. Are there correlations between corporate profiles and the level of tool adoption? Let’s see.

Tooling Categorization

Our first goal is to determine the general categories of tools that organizations are using to manage their agile process. Considering that some agile approaches emphasize “doing the simplest thing possible”, we consider manual process tools such as note cards, sticky notes, task boards and burn-down charts.

Also, based on our consulting experience, we know that often times “doing the simplest thing possible” means using the tools you have at hand or can get very easily. Therefore we also consider office productivity tools, wikis, internally developed tools and traditional non-agile tools that were previously purchased and used prior to agile process transition. We divide agile project management tool choices into the following six categories:

1. **Manual** - physical cards, task boards, charts, etc.
2. **Office** - Microsoft Office or equivalent
3. **Wiki** - an internal Wiki
4. **Internal** - an internally developed custom tool
5. **Agile Tool** - a publicly known agile tool including ExtremePlanner, Rally, ScrumVSTS, ScrumWorks, Target Process, VersionOne or XPlanner
6. **Traditional** - a tool used in non-agile processes such as requirements management, item work-flow tracking, project management, etc.

We then divide the agile process into three sub-processes to determine if tooling is used differently in various areas of agile development. In our consulting practice we often see a range of tools used to support various agile sub-processes. Tool usage in these cases is primarily driven by simple availability and often involves tools that were in place prior to agile process adoption. We focus on these sub-processes of agile development:

1. **Release Planning and Tracking** - Requirements, User Stories and Product Backlog
2. **Iteration Planning and Tracking** - Iteration work items, tasks, assignments, dependencies, etc.
3. **Traceability to Tests and Defects** - Mapping acceptance tests and issues back to requirements

The remainder of this report section evaluates each agile sub-process and the tooling responses received for each. We also break down tooling responses by organization size and other characteristics.

Release Planning and Tracking

Extreme Programming (XP) methods suggest that collocated team members write requirements as user stories on note cards and display them on a wall. Scrum practices suggest creating a simple prioritized list of items in a product and sprint backlog, often implemented using an Excel spreadsheet.

A wiki represents a relatively new approach for teams to easily create and manage project data. Most wikis allow any team member to edit or create new pages. A wiki can be seen as a manifestation of a self-organizing team, as its structure is completely flexible, just as the typical agile team structure.

Ease of use and general availability of manual tools, office productivity tools (such as Microsoft Excel, Open Office and Word) and web-based wikis suggest that these project management tools would be in broad use. Figure 10 confirms this hypothesis, with 3 out of the top 4 tools used across all companies being office, manual tools and wikis. But, somewhat to our surprise, we find that dedicated APM Tools have overtaken manual tools as a complementary solution - in both large and small companies.

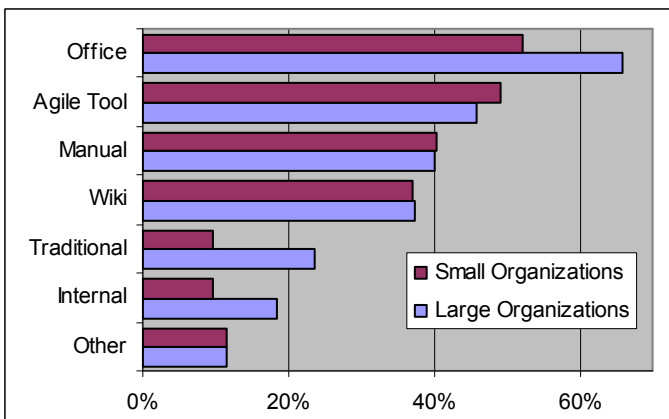


Figure 10: Tools used for managing requirements, user stories and the product backlogs

While not explicitly stated in the survey results (other than through comments), our experience has shown that Microsoft Excel is the tool of choice for managing a release with a simple product backlog of work items or user stories. Its power comes from the simplicity and flexibility of creating attributes such as *priority*, *estimate*, *status* and others while providing easy sorting and filtering capabilities.

Larger organizations are leveraging office solutions for release tracking more than smaller organizations. This appears counter-intuitive if larger organizations require more traceability and change control over their requirements because office solutions require additional infrastructure to provide traceability and change con-

trol. Though, given the limited penetration of agile within these larger organizations, it may be too early for them to make strategic tooling choices and thus are required to do more with what they already have.

Possibly the most interesting take away from this data is the similarity in tooling profiles of large and small organizations - their orders of tool preference are identical. This may indicate that larger organizations behave as smaller ones with only a fraction of their staff adopting agile processes thus far.

It is also surprising to see that over 40% of the development organizations leverage a dedicated APM tool. While we may be a community that *values individuals and interactions over process and tools* - the results indicate a broader use of function rich tools. Furthermore, larger companies are still more dependent on traditional tools such as a Rational Suite, Project Management tool and internally developed systems.

Using Multiple Tools

Another interesting finding emerges when looking at the *number* of tools used to manage agile release artifacts. Over half the companies indicate they use 3 or 4 tools, with larger organizations using slightly more tools than smaller ones. While our survey does not distinguish the use of multiple tools on the same project or different projects; through comments and our own experiences, leveraging multiple tools on one project is not uncommon. Many teams take advantage of a manual task board to compliment an online tool, or use a flexible office product to compliment a more structured agile tool.

Tools themselves are also becoming complex combinations of multiple tools incorporating wikis and IDE/Test/Defect integrations into them to more fully extend their reach. This begins to blur the lines of a single tool vs. multiple tool usage. Further review could shed more light on this trend.

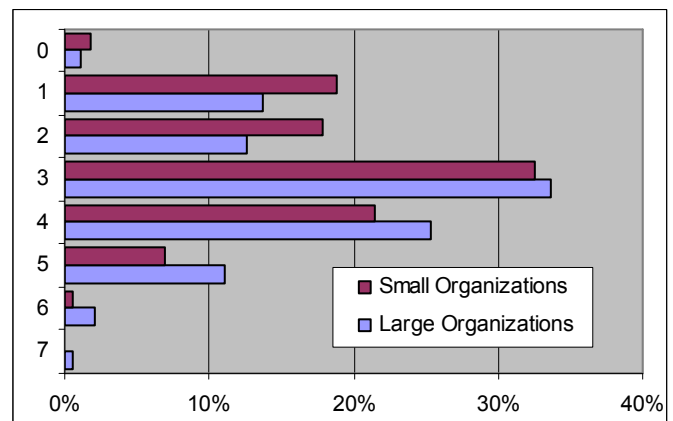


Figure 11: Number of tools used to manage release artifacts such as product backlog, requirements and stories

Iteration Planning and Tracking

One of the primary reasons we distinguish release planning and tracking from iteration planning and tracking is due to the duration and traceability of the artifacts in each process area. While the release artifacts require communication *outside* the development team and maintainability over many months, iteration artifacts are typically transient in nature and do not require external oversight or visibility.

The primary artifacts tracked *inside* iterations are the release items selected for the iteration, the associated tasks identified to complete those items and their estimates. There may also be additional items such as an iteration goal, iteration review feedback and team retrospective notes.

Probably the two most identifiable agile tools for tracking iterations are a task board and burn down chart. Often these tools are displayed on a wall, whiteboard or corkboard in a common team area. They re-enforce the team goal and promote team cross-functional teamwork. Alistair Cockburn references these tools as “*Information Radiators*” as they are used to provide a constant reminder and focus to the whole team and those around them [2005 Alistair Cockburn *Crystal Clear: A Human-Powered Methodology for Small Teams*, pg. 54].

Given various recommended manual tracking methods we expected to see more manual tool usage during *iterations* than during *releases*. We were incorrect. There are fewer manual tools in use at the iteration level versus the release level (see Figure 12). Two tools showed significantly higher use during release tracking: wikis and office tools. Surprisingly, traditional tools showed a significant increase for iteration tracking.

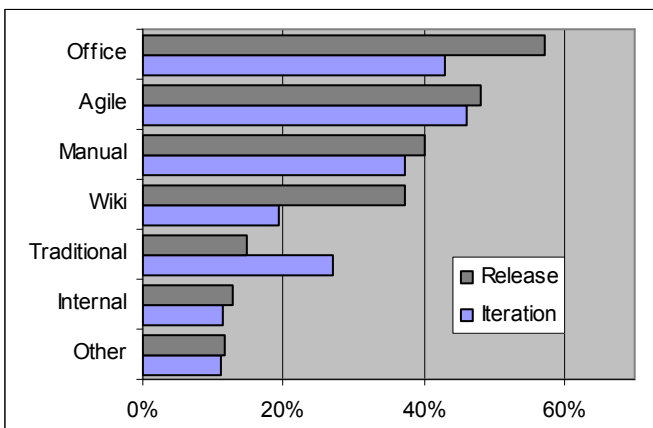


Figure 12: Percentage of tools used for iteration tracking compared to release tracking

NOTE: We see no significant variance between large and small development organizations in the tooling preferences to manage iterations versus their tooling preferences for

managing releases - larger organizations preferring office and traditional solutions more than smaller organizations.

Why are office tools and wikis used less for tracking iterations than releases? Lower use of these tools may indicate dynamic nature of iteration artifacts, which are more difficult to manage in multi-user environments. Yet, we don’t see an increase in the use of manual tools (e.g. a task board) which we believe provides the most dynamic and flexible solution.

So, why don’t more teams use more traditional manual agile tools to manage iterations? As we will see later, traceability and tracking play a big role in all companies choosing to use non-manual process tools.

Another reason organizations don’t tend to use manual tools to manage iterations is that traditional issue tracking systems tend to offer a better alternative, including: ease of use, flexibility and workflow support. Tracking of work items and tasks follows a very dynamic but regular workflow. Items get selected for an iteration, they are assigned to or picked by specific team members, are marked *in process*, and then *complete*. Other team members can see progress against those items and coordinate iteration activity accordingly. In addition, all product defect details are already in the system, reducing the need for redundant data entry.

Traceability to Tests and Defects

Agile processes recommend that cross-functional development teams work together on the same release items, in the same iteration. This focus enhances product functionality and product quality by increasing the communication bandwidth among those responsible for development, test and documentation activities.

Following this lead, APM tool vendors are looking at ways to provide full lifecycle (end-to-end) traceability from release artifacts through tests and defects. Our survey is designed to understand if companies are beginning to leverage this functionality.

Figure 13 and Figure 14 show the types of tools in use to manage test cases and defects, respectively. Here we see a dramatic shift in tool usage compared to those used in release and iteration management. *Traditional* tools (especially in larger organizations) are more likely to be used to manage test cases and defects; though office tools are still favored by many for tracking test cases.

Furthermore, APM tools appear to be gaining ground in managing both test cases and defects. We expect to see an increase in this area in the next few years.

Agile Project Management Tooling Survey Results

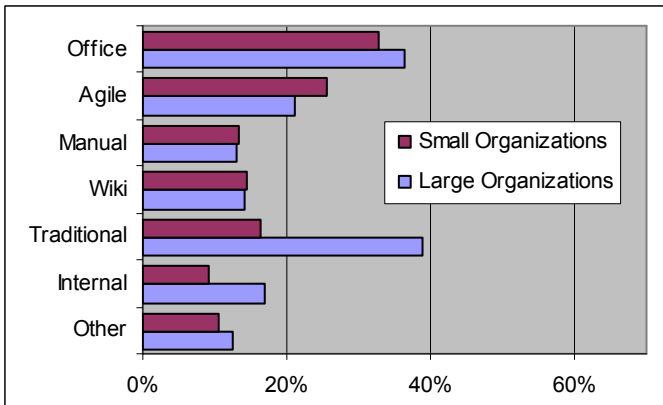


Figure 13: Test case tracking tool types in use

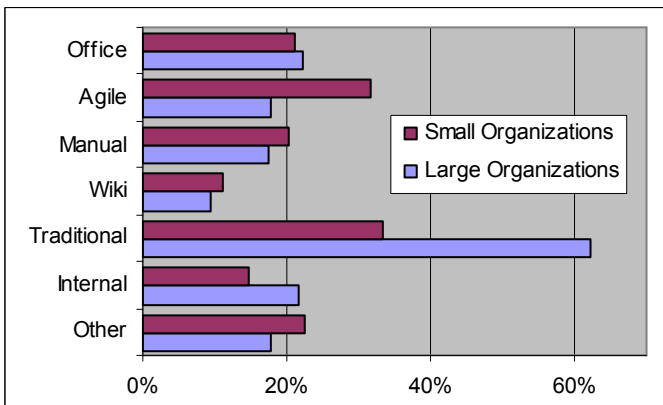


Figure 14: Defect tracking tool types in use

Among organizations using an APM tool for release tracking, 93% also use it for iteration tracking. Yet, only about 50% of those organizations use their APM tool for tracking defects and test cases. So while we see multiple tools used for release tracking (an average of 2.89), most organizations use only one tool to manage their defects and tests - more likely their traditional issue and test tracking tool pre-dates their agile transition. The average number of tools used for each process area is shown in Figure 15.

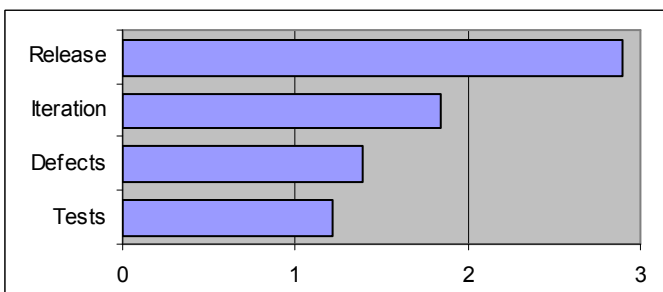


Figure 15: Average number of tools per agile process area (all organizations)

One reason organizations leverage existing tools for issue tracking issues may be that their use of these

tools extends beyond the development team's usage and into the sales and support organizations, for example. Such extensive usage permits better management of the entire customer relationship. The investment required to modify the operational procedures of ancillary organizations is much more than most development organizations are willing, or able, to take on.

Similarly, testing tools tend to have a tight relationship with automation engines that schedule, run and report on automated tests, and integrate with automated build procedures. In addition, they are often heavily dependent on a specific operating environment. It requires a tremendous investment to replace or augment an existing database of regression test cases, test scripts and other build procedures.

APM tool providers like Rally Software and VersionOne provide a software service model and a rich API set that allows tight integration with customer relationship management (CRM) systems from Salesforce.com and automated test management systems from Mercury Interactive and others. These end-to-end artifact relationships can begin to help companies transition their whole organization into an agile approach.

One area of confusion for a number of responders was how to classify a product like Fitness? Is it an agile tool or a wiki? We put it in the wiki category, but some indicated it as an agile tool and still others classified it as "Other". In any case, agile tool vendors are also looking at Fitness as another potential integration point to extend their products.

APM Tools of Choice

60% of organizations responding to this survey are using a specific agile project management (APM) tool to manage at least part of their agile process. As we have seen thus far, most APM tools are used to manage releases and iterations. Development organizations have yet to fully deploy their APM tool for defects and test case management.

Enterprise-class APM tools from VersionOne and Rally Software are the tools of choice for almost 30% of development organizations (see Figure 16). These findings represent about half the companies using a tool.

The next two most widely used tools are open source options, ScrumWorks and XPlanner, with 9% and 6% usage, respectively. The final quarter of responders are split among many other solution options from Microsoft, JIRA, ExtremePlanner, TargetProcess, Conchango ScrumVSTS and others.

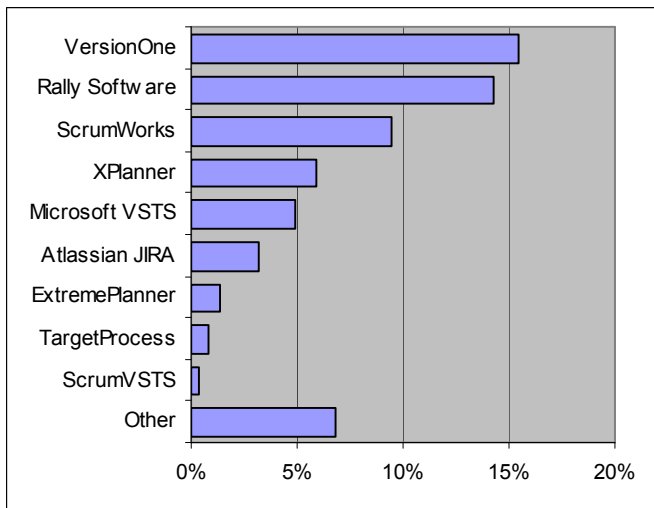


Figure 16: APM tools in use across all organizations

Breaking down responses by small and large organizations, we see an interesting trend. While 60% of both large and small organizations use dedicated APM tools, smaller organizations are more likely to *purchase* a commercial APM tool (think VersionOne or Rally) while larger organizations have a higher tendency to deploy open source tools or use internal tools (see Figure 17).

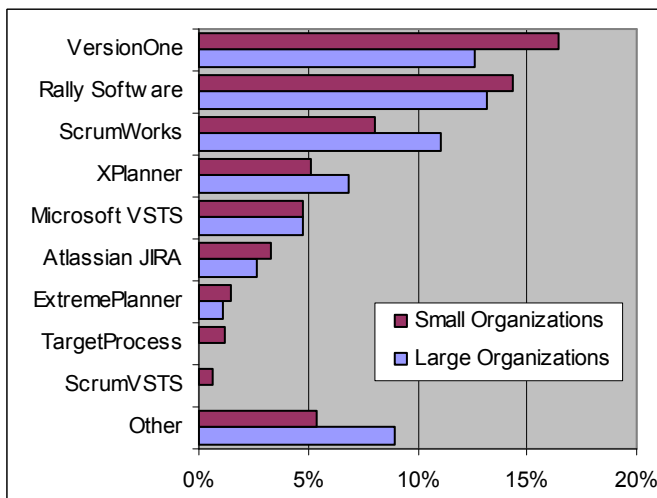


Figure 17: APM tools in use separated by organization size

Why are smaller organizations more likely to purchase a commercial APM tool? First of all, commercial tool vendors provide incentives to small teams to get them started using agile project management tools - in some cases a free five-member edition is available. Secondly, looking back at early and partial adoption within larger organizations - they may not have reached critical mass to drive a formal tool selection process required to bring in a commercial solution. And finally, we believe it represents a still emerging market that is being justified in smaller environments first.

Reasons for Selecting an APM Tool

Our primary assumption in this survey, that larger organizations would be more likely to deploy an agile project management tool, has proven false. Our data shows that both large and small organizations are equally likely to deploy an APM tool. So why are organizations deploying an APM tool?

For larger organizations, scaling to support multiple teams fell (surprisingly) nearly to the bottom of the list. Even scaling to support distributed development fell below Traceability and Tracking, the number one choice for selecting an APM tool in larger organizations (see Figure 18).



Figure 18: Reasons cited for selecting an APM tool (large organizations)

For smaller organizations, scalability and distribution were predictably not a primary motivation for choosing an APM tool. Though, it did surprise us that in over half the responses, helping support a faster and more efficient process is the top choice. And similar to larger organizations, traceability and tracking emerge as second choice for smaller organizations (see Figure 19).



Figure 19: Reasons cited for selecting an APM tool (small organizations)

Organizations that do not have an APM tool today cite a variety of reasons. Over one-quarter don't feel they need an agile project management tool. Yet, another one-quarter are considering a commercial or open source deployment. Furthermore, there doesn't appear to be much difference in opinion between small and large organizations (see Figure 20).

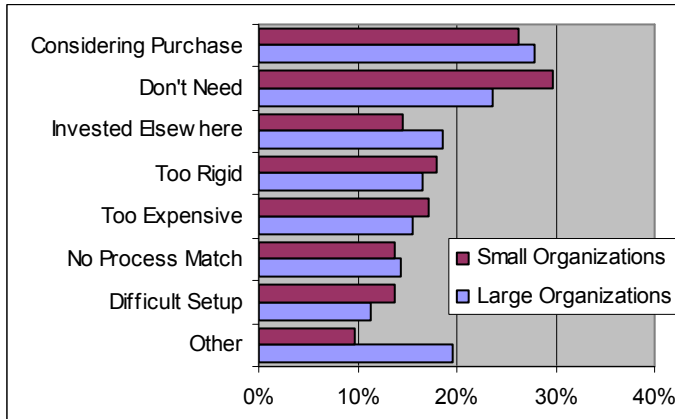


Figure 20: Reasons cited for not using an APM tool

Conclusions

Smaller organizations are adopting agile more quickly

Smaller organizations are adopting agile methods more quickly than larger organizations (or at least are more willing to respond to agile surveys). 64% of responses are from organizations with fewer than 100 employees doing development.

Agile process adoption is still on the upswing

73% of larger organizations and 40% of smaller organizations have less than half of their development staff following an agile process. This limited penetration is a primary driver to the tooling choices made (or not made) by those organizations. Many are using tools selected at the team or department level, versus tools selected at the corporate level.

Scrum is the most followed agile process

60% of our responses indicate that Scrum is the primary agile process in use currently. Many organizations compliment Scrum with other agile practices from XP and Lean software development methodologies. Scrum is preferred more by larger organizations than very small organizations, which may equally prefer XP.

All organizations are deploying APM tools

60% of all organizations (large and small) are deploying dedicated APM tools. Smaller organizations are selecting tools primarily for efficiency and productivity, while larger organizations choose them primarily for traceability. Currently, scalability and team distribution do not appear to be major criteria influencing tool choice.

Organizations of all sizes are using multiple tools

The average number of tools used to manage release artifacts, iteration artifacts, defects and test cases are 2.89, 1.84, 1.39 and 1.22 respectively.

Office productivity tools are still very popular

Office productivity tools are the most popular type of tool for managing release artifacts and second (to APM tools) for tracking iteration artifacts.

Online tools are outpacing manual tools

Manual tooling options have taken a backseat to some online tooling options such as office productivity tools and new APM tools.

Smaller organizations purchase more commercial tools; Larger organizations acquire more alternative solutions

Smaller organizations are more willing to purchase commercial tools than are larger organizations. Larger organizations incorporate more simple team-based solutions that do not require corporate approval or acquisition. They use more open source and other previously purchased tools.

Traceability and Tracking artifacts very important

Traceability and tracking rated the highest for larger organizations and second in smaller organizations as the primary reason for selecting an APM tool.

Tooling Trends

This section identifies a few tooling trends to look for in the coming years based on the survey results and our industry experience.

APM tooling adoption will continue to rise

Based on the following trends, we expect to see a continued strong growth in dedicated agile project management (APM) tool adoption:

- Expanding APM tool deployment options
- Increasing tooling functionality and breadth
- Small and large organizations continue to adopt agile processes and practices
- Growth in the number of distributed teams and their need for distributed team support
- Identification of traceability and tracking as one of the most important factors to tool selection
- 25% of organizations without an APM tool are considering purchasing or deploying one

Commercial APM tool purchases by larger organizations will increase

Currently, most large organizations use team level solutions selected locally. In most cases this means using existing or open source solutions which do not require corporate level evaluation and selection. As

agile adoption rates within larger organizations continue to rise, we believe those organizations will begin to evaluate and select strategic tooling to support the entire organization and enable cross-team coordination, communication and management.

APM tooling for tracking tests and defects will rise

APM tools can track defects and test cases effectively. As APM tool adoption increases, we will continue to see a rise in the number of organizations using APM tools to track tests and defects.

Integrated APM tooling options will increase

We will see an increase in integrated agile packages that incorporate wiki, office and manual tool solutions. Wikis incorporated directly into agile tools to provide traceability between the structured and unstructured data. Office file imports and exports are provided by many APM tools today. There is also an increase in iteration task and status integration with IDE tools. Organizations are also leveraging integrations to print out their tool-stored user stories onto note cards. These are then placed on a task board for manual tracking.

Office Collaboration will hold strong

We expect to see office solutions hold strong in many organizations due to a number of new collaborative office products due out soon. Microsoft Office 2007 supports new collaboration features to assist team coordination. Microsoft Groove, a new team collaboration solution, is also due out early in 2007 and will provide a team/project portal incorporating integrated data in a collaborative environment. In addition, Google and others are coming out with new online collaborative office solutions. These solutions will enable multi-user solutions that will displace some traditional single-user solutions, such as Excel and Word.

Microsoft VSTS adoption to rise

We hadn't anticipated seeing such a rapid adoption of the Microsoft Visual Studio Team Server (VSTS) solution considering that their solution is quite new to market and their accompanying MSF for Agile Software Development has been criticized by some agile communities as not holding true to the agile manifesto and principles. Given the power of Microsoft's marketing engine and their tightly integrated development environment, we anticipate their solution to increase in popularity as organizations begin to transition to the new Team Server environment.

Appendices

Appendix A: Data Gathering & Analysis

Timing

Responses were gathered over the period of three weeks in October, 2006.

Data Gathering

A survey was created to capture input from organizations that have adopted at least one agile software development process. The survey contains 16 questions: 7 questions pertain to the company represented by the survey respondent, 8 questions pertain to the development organization's use of APM tools to support agile processes, and 1 question solicits open-ended feedback on survey questions or anything in particular responders want to add about their organization's tool usage. For the actual survey, see *Appendix B: Survey & Raw Data*.

Publication

The survey was publicized through a number of agile gathering places and forums including these agile Yahoo! Groups: *scrumdevelopment*, *extremeprogramming*, *agileprojectmanagement*, and *agilemanagement*; *InfoQ Online Magazine*, vendor announcements and agile blogging circles were also used.

Participation

570 responses were received, but only 525 were used for results analysis. 45 responses were removed through a data cleansing process (see *Data Integrity*).

To encourage broad participation and the inclusion of a valid email address, a chance to win an iPod Shuffle was offered as an incentive to responders. One survey was drawn at random after the survey submission deadline. Over 90% of responders included their email address.

NOTE: Email addresses were removed from final results to protect the privacy of those responding.

Data Integrity

A primary goal of this survey is to assure the validity of the data collected. Given that survey results could be used by tool vendors to showcase their install base in comparison to others, we took extra precautions to make sure the data we received was valid.

Steps to validate the data included recording the IP Address of the responder, time of the response and a web browser cookie to restrict multiple submissions. While it is recognized that browser cookies can be bypassed with minimal effort; over 90% of the responses included an email address and all responses captured the IP Address. This provided the ability to correlate and validate results and remove any suspect responses. Each IP Address was resolved to its domain owner to determine the company or service provider and correlate the location of the indicated response.

Furthermore, to assure there was no covert vendor influence, we analyzed all submissions specifying a

particular vendor's tool. We analyzed each group with respect to the time, IP Address, company, country, and email address to determine suspicious responses designed to manipulate the survey results. In all, 40 responses were removed through this process.

Finally, since the survey targets only those organizations having implemented at least one agile process, five additional responses were removed from analysis because they indicated use of a waterfall methodology.

Appendix B: Survey & Raw Data

This report, the raw data and the original survey form are all available online at:

<http://trailridgeconsulting.com/surveys.html>

Appendix C: Survey Feedback

The final goal of the survey is to evaluate the survey itself. Through an open question responders are asked to comment on *all the other survey questions* as well as comment on important *un-asked questions that were not included* in this 2006 survey edition. One third of responders included feedback and most was positive. All comments are included in the raw data results.

There are several themes that emerge from the feedback comments that we want to share here.

Tool Effectiveness

One theme reported is a desire to know how organizations rate the tools they currently use. Another desire is to know the reported strengths and weaknesses of various tooling options. Our survey assumed that if an organization is using a tool, a rational methodology was applied during its selection and that it is currently delivering value. This appears to be an invalid assumption, possibly due to a separation between those responsible for acquiring a tool and directing its usage, and those required to use it.

A few responses indicate once using tool X but have switched to tool Y for one reason or another. A question allowing the responder to rate tools should be considered for subsequent survey; though correlating their a rating to a specific tool may prove difficult because many organizations use a wide range of tools.

Tools beyond agile project management

Another theme wanted to explore tooling beyond agile project management tools. Responders indicate that software build tools, development tools, unit testing tools, configuration management tools, etc. should have been included in this survey. While there is merit

in doing so, this survey is specifically focused on agile project management tools and thus the questions were purposefully limited to agile project management tooling. Future surveys might consider evaluating other tooling areas to determine additional correlations to agility.

Allow multiple choice for agile process

A number of responders indicate difficulty in choosing the *primary agile process* used in their organization. Many claim a combination of methods including Scrum, XP and Lean. While there is merit in understanding that organizations use hybrid processes and practices, we also feel that forcing selection of a *specific primary process* provides essential information that would otherwise be lost.

Future surveys might ask the responder to rank a list of agile processes in descending order of importance (or usage) within their organization. This approach may allow determination of primary and supportive agile processes when several are in use.

Unrecognized and new agile tools

Existing tools continue to evolve and new tools emerge at a rapid pace. This is especially true in an agile development context where *doing the simplest thing possible* is recommended. This principle can drive teams to use existing tools, adapting them to fit a chosen agile process. This principle can drive new agile tool vendors and open source solutions into the market. It may also prompt market entry by existing *non-agile tool vendors* who seek to enhance their existing product lines to include agile process support.

Jira was our clear winner in the unrecognized agile tool category. While we have used Jira previously for more traditional issue tracking, we had not considered it to be an "agile" project management tool. From our results, we now see that the industry recognizes it as one. There are also a few other new players like Project Cards, Trac, IceScrum Wiki, and eXPLAIN PMT.

Appendix D: Survey Independence

While it is recognized that Trail Ridge Consulting is a partner with Rally Software and VersionOne, this survey was neither funded nor influenced by either tool vendor. Every attempt was made create a fair and balanced view of the agile project management tooling market. If you have any questions regarding the survey process, data or results analysis, please feel free to contact us.