



Agile Momentum – Success Embraces At the Enterprise Level

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Abstract - Agility is increasingly becoming the driving force in many organizations. Agile development - once a predominantly team-based practice, is grabbing the attention of the business. Software professionals are getting more knowledgeable about agile development and are now scaling it more broadly within their organizations. It's not just knowledgeable; the agile community is applying what they know about the methodologies more broadly in the workplace based on the success they have seen within single teams. Agile momentum has taken off and its successes are being embraced at the enterprise level. Agile helps organizations complete projects faster and more people are recognizing that agile development is beneficial to business. It is proved that implementing agile on the whole delivers what organizations hope for. Our research paper presents the recent trends happening with agile development with different sections providing several issues related to agility.

Keywords – Agile, Scrum, Principles, Processes, Survey

I. INTRODUCTION

One of the advantages of adopting an agile software development approach is a considerable raise in software quality. Amazingly there are two kinds of benefits for the customers who try agile. The first one is Quality and the second benefit is lower defect rates. Agile methods are a rising movement in the software field[5]. This realistic, people oriented method to software development demands software practitioners. Several adopters experienced enrichments in competence, superiority, work inspiration, and consumer satisfaction. User involvement is given high priority in the working style of agile, drawing user's right in to the heart the development process. While transferring to agile methodology from the traditional pattern it produced the benefits above expectations which replicated in the decrease in fault rate as well as producing high quality software[7].

The sections in this paper which is purely a research work, provides information regarding effective implementation of agile practices. Section-II presents how the scrum methodology is becoming the predominant factor for the successful implementation of agility in organizations. Section-III presents the summary of 2014 State of Agile™ survey.

II. SCRUM POTENTIALITY

A. Overview of Scrum

Scrum is applied to projects across organizations globally, which is significantly helping organizations to improve their Return on Investment. Scrum is one of the most popular agile methodologies [9]. It is an adaptive, iterative, fast, flexible, and effective methodology designed to deliver significant value quickly and throughout a project. Scrum ensures transparency in communication and creates an environment of collective accountability and continuous progress [1]. A key strength of Scrum lies in its use of cross-functional, self-organized, and empowered teams who divide their work into short, concentrated work cycles called Sprints. The Scrum cycle begins with a Stakeholder Meeting, during which the Project Vision is created. The Product Owner then develops a Prioritized Product Backlog which contains a prioritized list of business and project requirements written in the form of User Stories [4].

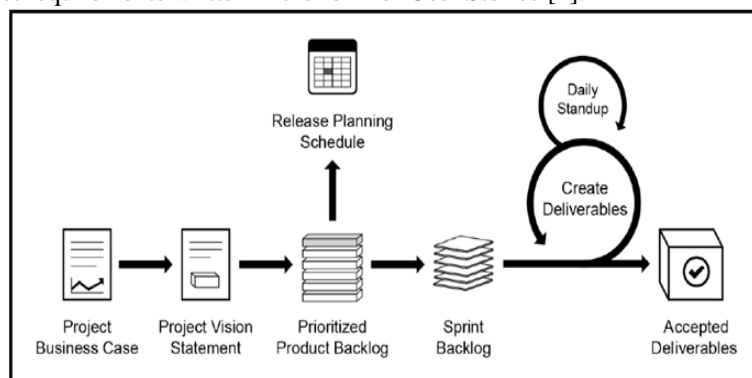


Fig. 1 Scrum Flow For One Sprint

Each Sprint begins with a Sprint Planning Meeting during which high priority User Stories are considered for inclusion in the Sprint. A Sprint generally lasts between one and six weeks and involves the Scrum Team working to create potentially shippable Deliverables or product increments[2]. During the Sprint, short, highly focused Daily Standup Meetings are conducted where team members discuss daily progress. Toward the end of the Sprint, a Sprint Review Meeting is held during which the Product Owner and relevant stakeholders are provided a demonstration of the Deliverables. The Product Owner accepts the Deliverables only if they meet the predefined Acceptance Criteria. The Sprint cycle ends with a Retrospect Sprint Meeting where the team discusses ways to improve processes and performance as they move forward into the subsequent Sprint.

B. Scrum Principles

Scrum principles are the core guidelines for applying the Scrum framework and should mandatorily be used in all Scrum projects. The six Scrum principles are:

1. Empirical Process Control
2. Self-organization
3. Collaboration
4. Value-based Prioritization
5. Time-boxing
6. Iterative Development

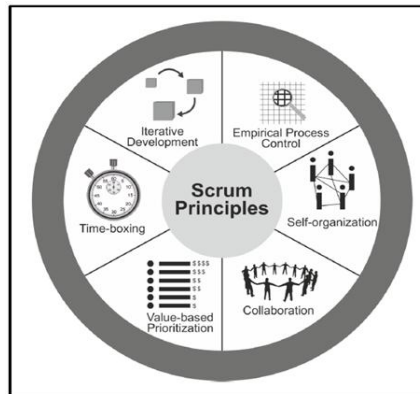


Fig. 2 Scrum Principles

Scrum principles can be applied to any type of project in any organization and must be adhered to in order to ensure effective implementation of the Scrum framework.

1. **Empirical Process Control** - This principle emphasizes the core philosophy of Scrum based on the three main ideas of transparency, inspection, and adaptation.
2. **Self-organization** - This principle focuses on today’s workers, who deliver significantly greater value when self-organized, and this result in better team buy-in and shared ownership; and an innovative and creative environment which is more conducive for growth[6].
3. **Collaboration** - This principle focuses on the three core dimensions related to collaborative work: awareness, articulation, and appropriation. It also advocates project management as a shared value-creation process with teams working and interacting together to deliver the greatest value[3].
4. **Value-based Prioritization** - This principle highlights the focus of Scrum to deliver maximum business value, from early in the project and continuing throughout.
5. **Time-boxing** - This principle describes how time is considered a limiting constraint in Scrum, and used to help effectively manage project planning and execution. Time-boxed elements in Scrum include Sprints, Daily Standup Meetings, Sprint Planning Meetings, and Sprint Review Meetings.
6. **Iterative Development**- This principle defines iterative development and emphasizes how to better manage changes and build products that satisfy customer needs. It also delineates the Product Owner’s and organization’s responsibilities related to iterative development[2].

C. Scrum Processes

Scrum processes address the specific activities and flow of a Scrum project. In total there are nineteen processes which are grouped into five phases.

TABLE I SCRUM PROCESSES

| Phase | Processes |
|----------------------|---|
| 1. Initiate | 1. Create Project Vision 2. Identify Scrum Master and Stakeholder(s) 3. Form Scrum Team 4. Develop Epic(s) 5. Create Prioritized Product Backlog 6. Conduct Release Planning |
| 2. Plan and Estimate | 7. Create User Stories 8. Approve, Estimate, and Commit User |

| | |
|--------------------------|---|
| | Stories 9. Create Tasks 10. Estimate Tasks 11. Create Sprint Backlog |
| 3. Implement | 12. Create Deliverables 13. Conduct Daily Standup 14. Groom Prioritized Product Backlog |
| 4. Review and Retrospect | 15. Convene Scrum of Scrums 16. Demonstrate and Validate Sprint 17. Retrospect Sprint |
| 5. Release | 18. Ship Deliverables 19. Retrospect Project |

D. Scrum vs. Traditional Project Management

Although there are similarities in Scrum and traditional project management methods with regard to definition of ‘quality’ (i.e., the ability of the product to meet the agreed Acceptance Criteria and achieve the business value expected by the customer), differences exist in terms of how the approaches address the implementation and achievement of the required quality levels.

In traditional project management methods, the users clarify their expectations; the project manager defines those expectations in measurable terms and gains agreement from the users. After detailed planning, the project team develops the product over an agreed period of time. If any of the agreed criteria are to be changed, changes can happen only through a formal change management system where impact of changes is estimated and the Project Manager gets approval from all relevant stakeholders.

In Scrum, however, the Product Owner collaborates with the Scrum Team and defines the Acceptance Criteria for the User Stories related to the product to be delivered. The Scrum Team then develops the product in a series of short iterations called Sprints. The Product Owner can make changes to the requirements to keep pace with the user needs and these changes can be addressed by the Scrum Team either by terminating the current Sprint or including the adjusted requirements in the next Sprint as each Sprint is of very short duration (i.e., one to six weeks).

One of the major advantages of Scrum is the emphasis on creating potentially shippable deliverables at the end of each Sprint cycle, instead of at the end of the entire project. So, the Product Owner and customers constantly inspect, approve, and accept Deliverables after each Sprint. Also, even if a Scrum project is terminated early, there is some value created prior to termination through the Deliverables created in individual Sprints.

III. AGILE MOMENTUM CONTINUES

Agile development - once a predominantly team-based practice - is grabbing the attention of the business. 2014 State of Agile™ survey found that more companies—and bigger companies—are scaling and embracing agile as part of the larger vision to deliver software faster, easier, and smarter. Ninety four percent (94%) of all organizations surveyed now practice agile [10].

In 2013, the majority of respondents had fewer than 1,000 people in their software organization. But in 2014, approximately 35% of respondents had more than 5,000 people in their organization, and 20% worked in very large organizations with more than 20,000 people.

In addition, 45% of 2014 year’s respondents worked in development organizations where the majority of their teams are agile. Contrast this with the 2009 report, which found that (31%) of the respondents worked in organizations with only zero to two teams practicing agile. Agile is spreading geographically, too.

From 2012 to 2014, the percentage of respondents who had distributed teams practicing agile jumped from 35% to 80%.

A. Actual Improvements From Implementing Agile

For four years running, the top three benefits of adopting agile remain the same: manage changing priorities (87%), team productivity (84%), and project visibility (82%).

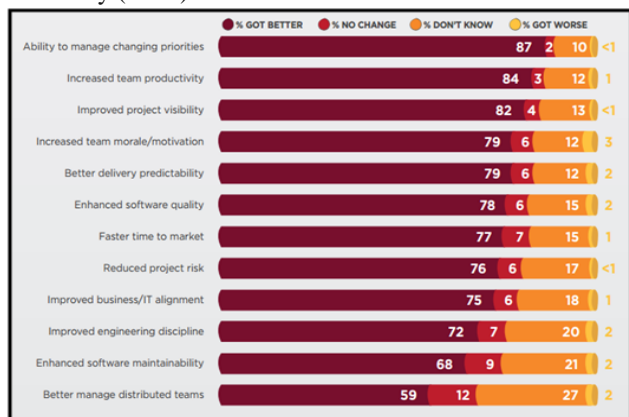


Fig. 3 Improvements From Implementing Agile

B. Reasons For Adopting Agile

Most respondents adopted agile practices to accelerate product delivery (59%) or enhance their ability to manage changing priorities (56%). However, in 2014, productivity (53%) has moved into the top 3, outranking last year's #3 response—improved IT and business alignment.

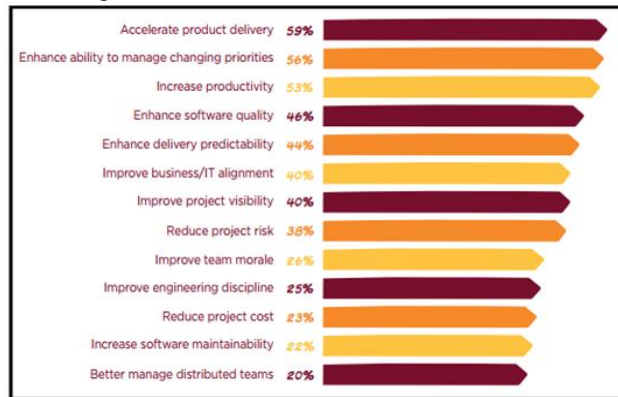


Fig. 4 Reasons for Adopting Agile

C. Agile Methodology Used

Scrum is the most widely used agile methodology across different organizations in which Most respondents (25%) worked for software/ISV companies. In addition, a significant number of respondents worked for financial services (12%) and professional services (11%) organizations.

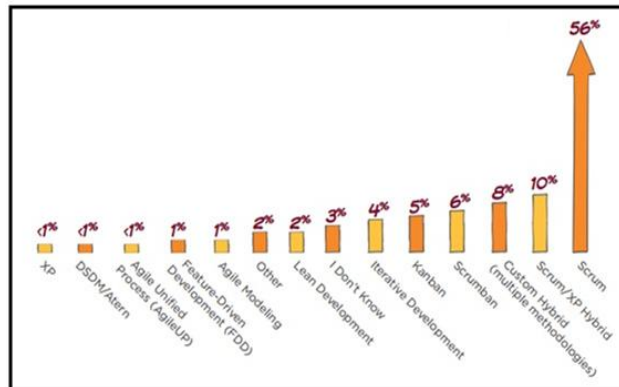


Fig. 5 Agile Methodologies Used

D. How is success measured...with agile initiatives

When asked how respondents gauge the success of their agile initiatives, the most-cited value indicator was on-time delivery of projects – followed by product quality and customer/user satisfaction.



Fig. 6 Success of Agile Initiatives

E. What Causes Agile Projects to Fail

In cases where agile projects were unsuccessful, most respondents pointed to lack of experience with agile methods (44%). Of note, two of the top five causes of failure were related to company culture – company philosophy or culture at odds with core agile values at 42% and lack of support for cultural transition at 36%.

- Lack of experience with agile methods – 44%
- Company philosophy or culture at odds with core agile values – 42%
- Lack of management support – 38%
- External pressure to follow traditional waterfall processes – 37%
- Lack of support for cultural transition – 36%
- A broader organizational or communications problem – 33%
- Unwillingness of team to follow agile – 33%
- Insufficient training – 30%
- Not applicable/ don't know – 6%

IV. AGILE MINDSET

In an interview with Jeff Nielsen, SVP of engineering at 3Pillar Global by Cameron Philipp-Edmonds - December 9, 2014, he covers the importance of an agile mindset and why it's the ideal mentality for taking enterprises to the next level. Jeff also looks to next year, giving insight into trends we can expect for the agile community in 2015[8].

The agile mindset is basically a belief that the best software gets created in a collaborative, iterative, trial and error type situation with lots of open communication, and lots of healthy interactions. In this age of the customer, people aren't going to put up with bad products. Bad software products can kill you literally in terms of your revenues and your reputation. The reason that an agile mindset is not just ideal but necessary is that it's the only way I know to build great products. In the age of the customer, it's not enough just to be good; you have to be great and in order to be great, the agile mindset is the way to do that.

With both internal and external perceptions, it's almost a little bit easier for small organizations to adapt and implement an agile mindset.

What happen with agile is that it becomes less of a thing in itself and more of an enabler towards working differently and thinking differently. For an organization that hasn't adopted agile and even a small scale, go out, hire a coach, try it. For organizations that have it working well at a small scale and are trying to figure out how to scale it, keep trying. This was a hot topic at the Agile 2014 conference: what is the right way to scale agile. There's no one way or even necessarily one model that's appropriate. Keep experimenting with that—with scaling and finding that balance between empowering teams and achieving overall coherency.

Agile is one of the key enablers of a company to execute on design thinking which is this intersection between, not solving a specific challenge, but improving your customer's overall situation, gaining empathy for the customer, figuring out what our constraints are and then figuring out how to create an improved situation and improved experience at a micro and a macro level.

V. CONCLUSIONS

A key strength of Scrum lies in its use of cross-functional, self-organized, and empowered teams who divide their work into short, concentrated work cycles called Sprints. Scrum ensures transparency in communication and creates an environment of collective accountability and continuous progress. The Scrum framework is structured in such a way that it supports product and service development in all types of industries and in any type of project, irrespective of its complexity. Also, agile momentum continues strongly and widely across different organizations and the most widely used agile methodology is scrum undoubtedly. Keeping aside the misconceptions related to agile, organizations can succeed at the enterprise level.

REFERENCES

- [1] Schwaber, K. and Beedle, M. (2002). Agile Software Development with Scrum. Upper Saddle River, NJ, Prentice-Hall.
- [2] Craig Larman, Victor R. Basili. Iterative and Incremental Development: A Brief History, 0018-9162/03/ © 2003 IEEE
- [3] Coram, M., and Bohner, S., "The Impact of Agile Methods on Software Project Management", In Proceedings of the 12th IEEE International Conference and Workshops on the Engineering of Computer-Based Systems (ECBS), April 2005, pp. 363-370.
- [4] Jeffries, R., Anderson, A. and Hendrickson, C. (2001). Extreme Programming Installed. Upper Saddle River, NJ, Addison-Wesley.
- [5] Leffingwell, Dean, Scaling Software Agility: Best Practices for Large Enterprises, Addison-Wesley Professional, 2007.
- [6] Anderson, David J., and Eli Schragenheim, Agile Management for Software Engineering: Applying the Theory of Constraints for Business Results, Prentice Hall, 2003.
- [7] Ming Huo, June Verner, Liming Zhu, Mohammad Ali Babar, "Software Quality and Agile Methods", COMPSAC '04, IEEE 2004.
- [8] <http://www.stickyminds.com/interview/agile-mindset-and-agile-trends-2015-interview-jeff-nielsen>
- [9] <http://www.scrumstudy.com/sbok-guide.asp>
- [10] <http://www.versionone.com/about-us/press-releases/article/VersionOne-Releases-9th-Annual-State-of-Agile-Survey-Results/>

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