

Bringing Success through Agility in Software Development: A Case Study

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1. Abstract

The goal for any software product development company is to delivery highest possible value to customer and in process of executing the same team members matures themselves professionally at highest degree. Having successful seasons is the goal in baseball, and having successful releases of a product is the goal of software development .At our organization management has decided to adapt Agile so that we can deliver high quality, right quality product rapidly and push the product into the market faster. Organization readiness assessment has been done and the result was at accepted level. I have an opportunity to work with two different product development team and come across both the side of the story where one team has successfully executed the product and delivered by following agile best practices and other product team was struggling to satisfy the customer with various side effects of release and delivery. Both the project adapted agile process.

Customer satisfaction result was good for the successful project; I will call the team as “Project_Satisfiedcustomer_A” and was not so good for say team “Project_NotsoSatisfiedcustomer_B”.

“Project_Satisfiedcustomer_A” team could satisfy end customer continuously quarter on quarter. “Project_NotsoSatisfiedcustomer_B” team was not able to address the expectation of the end customer, missed few of the deadlines and journey is on for improvement.

This paper will demonstrate factors which help agile projects to be effective and factors which cause issues with agile process.

- a) What are the various factors which influences successfully execution of the project
- b) What are the lesson learned and modeling the practices for any projects?
- c) Are we able to develop better software product as expected speed with expected customer satisfaction?
- d) How can we become more predictable with higher quality?
- e) What is the measurement? How many features delivered, which customer said, “excellent”?

I will not be able to disclose the name of the projects or products of the two team. But I am going to explain the nature of the work, culture and other factors which influences the success and failure of the projects and agility.

What kind of agility we are targeting? Below are the few

- a) Can we push the new product into the market as fast as we can? (Cycle time reduction)

- b) Improved Employee and Customer satisfaction by delivering right, quality product?
- c) Reduce development cost? Through Waste reduction, value generation etc.

Keyword: *Agility, Test driven Development, Competency, Requirement management,*

2. Introduction

I have two team to work with and my job is to spread agility or coach agile process. At the end of the day success and failure to deploy agile process is goes to me and my team. Both the team is unique the way team has been structured, the business these teams are working for and the customer, market they are serving, all are different. But core software development is same. Team has to deliver useable software which customer is expecting.

It has been communicated to customer that team will be following agile process and there are some changes in delivery process. Customer was getting involve and evaluating the delivered software for early feedback.

“Project_Satisfiedcustomer_A” is the team which is located in India. Total seven team members are based in India. They are physically collocated. Product owner and Architect are based in Europe. The product is planned to be release in two years, delivered in 2.5 years. Complete product development solutions to be used by a Business unit say a “Power Plant”. Product development was followed “Stage Gate Review” process for decision making. Gate-2 to Gate-5 took two years’ timeline which is from concept development to market release. It was a huge successful project from sales point of view. The team has undergone complete team building cycle, forming storming norming and transforming process, the complete journey. Gate-2 to Gate-5 was an agile software development process.

“Project_NotsoSatisfiedcustomer_B” is totally different nature of the project. The team is based in multiple locations in Europe. Testing activities are done in India. There are seven test team members working with various development teams in Europe. It was a research based project catering to multiple business units. There were Level 4 cases (Maintenance cases), which need to support by the developers from various location in Europe. There were new technological developments which is experimental in nature. It was a complete distributed agile development where lot of communication, collaboration was required. There were many challenges to deploy agile and reduce cycle time reduction. Product release varies from 1.5 years to 2 years. The project team yet to establish the high customer satisfaction and value generation (Work in progress).

Both the project is technologically very complex in nature where domain expertise (Industrial Automation) plays a critical role.



Fig 1: Team structure of the “Project_Satisfiedcustomer_A”. Shows collocated team with few distributed team members.



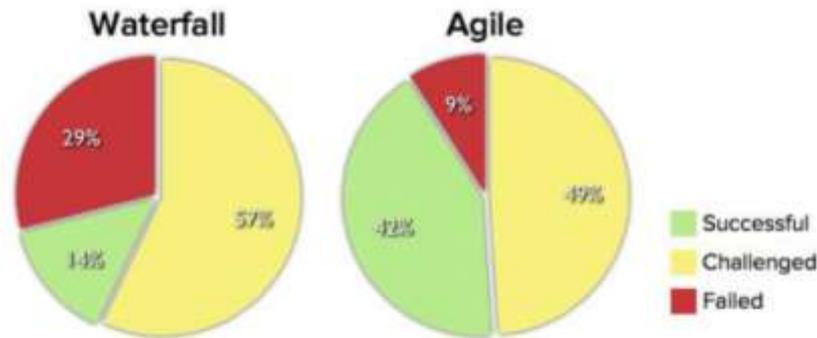
Fig 2: Demonstrates the team structure for “Project_NotsoSatisfiedcustomer_B”, Distributed agile team has many challenges to deal with.

I could able to list down these impediments and worked for improvement.

Why to use agile software process. Below data is from agile project execution survey

- Improved time to benefit by 69%
- Reduced cost by 57%
- Reduced effort by 62%
- Reduced critical defects by nearly 80%
- Reduced overall defects by more than 60%
 - Forrester Research

- 91% better schedule
- 97% better productivity
- 400% better satisfaction
- 470% better ROI
 - Dr. David Rico PMP, CSM



Source: The CHAOS Manifesto, The Standish Group, 2012.

Fig 2.1: Comparison of Software Project Success Rates – 2011 CHAOS report from the Standish Group

We also have experience and validated some of these data.
What I have learned from my involvement with these projects?

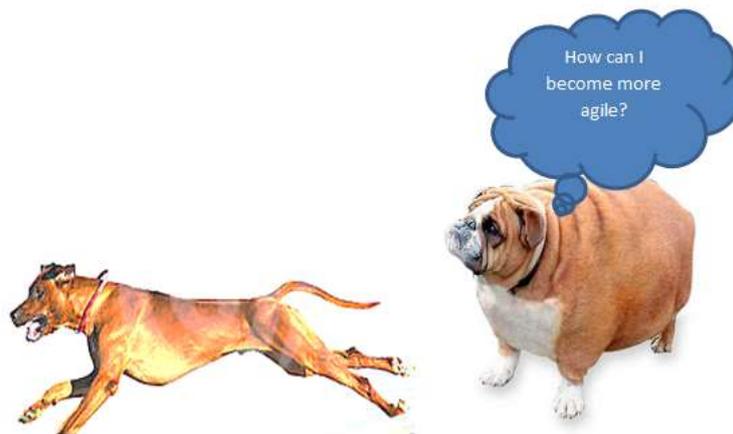


Fig 3: shows agile or agility means able to move quickly but decisively, to react to changing situations with speed and grace, to change direction while maintaining his or her balance and poise.

An overhead heavy weight process is a killer for agility. Team has to drop the unwanted baggage so that they are free to run at expected speed.

How can team ensure success by following certain practices? End result and customer input is the only evidence that team is performing and producing excellent output.

The roles designated by agile process play significant contribution of success and failure of the project. The leadership skill from each role can play significant value addition into the project. All these roles have to contribute continuously especially product owner and scrum master. There are no excuses if these roles are not producing value addition. Product owner and scrum master has major role to play in entire delivery cycle. Line management organization has to motivate, facilitate and energize the team members. Energy level once goes down it is the line management leadership team has to kindle the fire and energize. Agile philosophy believes all team members will be highly motivated, passionate, self-organized but most of the time team does not get the required expected level of skilled team members.

Leadership team or organization has to build the machine to create such team members to get the expected level of output.



Fig 4: Agile major roles which works as an integrated system to run the agile engine.

Customer satisfaction: Have we achieved highest customer satisfaction for both the project team? Team was taking input from customer in every sprint demo meeting plus there is a separate feedback form filled by the customer every six months. Team got inputs from different channel to improve and satisfy the customer need. At the end we got happy customer rating.

Predictability: One of the main factors which initially team identified need improvement is the date when software will be released i.e. improve predictability of the software release. Teams have started doing better estimation after several sprints and improve predictability. After some iteration it was easy for product owner to commit about the release date.

Face to face interaction, communication which play critical role, was missing in “Project_NotsoSatisfiedcustomer_B” as there was budget cut (Travel restriction). Team was not able to meet with each other in distributed agile project which cause certain soft skill issue. Collocated team was able to resolve all these types of issue rapidly though video conference was effective discussion but nothing like face to face.

Availability, knowledge of the product manager was excellent for both the team and was showing excellent result. Sometime “Project_NotsoSatisfiedcustomer_B” team members did not have the information immediately but it was available after some time (response time).

Developer’s competency: For both the projects, team members were competent and excellent and up to the necessary level to execute the project. “Project_Satisfiedcustomer_A” has many young developers where they had urge and hunger to learn rapidly by doing various approach. It was journey to build mature, competent “A” class team.

Collaboration with whole team was not up to the mark for some time for both the project and need elaborate discussion and detailed out. It has improved with lot of workout. This factor played significant roles for success and failure of the project. Culture fitness also play some role to smoothly handle this issue, good leadership practices remove all types of bottleneck and increase collaboration effectiveness. Organization Culture means that agile values and principles are accepted as being part of the way the organization works.

Knowledge sharing: Was not happening properly as expected level for the “Project_NotsoSatisfiedcustomer_B”. Not much used wiki, blog, sharing was mostly forced. But has been observed happening for the project “Project_Satisfiedcustomer_A” and sharing has improved significant domain knowledge and understanding about the customer needs.

There were lot of push require to get the work done: Initially few team members were self-driven but not all the team members. The culture slowly transformed but it took some time. Today most of team members are self-organized, they need minimal follow-up and they are self-driven.

Both the team is doing excellent test driven development: Test Driven Development was following at expected level. There are some noteworthy improvements needed for Acceptance Test Driven Development for team “Project_NotsoSatisfiedcustomer_B”.

Indicators for failure: Team members were closely watching out the signals for failure and correcting the project situation. They were looking for various smells and discussing at retrospect meeting. As an agile coach I have always looked for opportunity to find the points which need to align to meet the agility requirements.

“Project_Satisfiedcustomer_A” has fetched more revenue and more orders as customer was able to use the product and decide quickly. Order to delivery time has reduced so that team can improve the order predictability.

So What I am sharing?

Am I comparing one project with other project?

No, I am not doing Apple to Apple evaluation. What I would like to share is my learning from both of these team features which make them unique and successful. There are few factors which I realized significantly influences to successfully deploy agile or bring agility into the team. As a result of these steps, organization could able to bring agility into the system.

3. Develop a model which works for the organization

Below are the few factors which exhibited fabulous output when we have followed across all the areas. All these factors are important and agile coach has to ensure these have been followed religiously. No excuses in the below process to get excellent output. Team can look for these indicators and ensure all these factors are running smoothly.



Fig 5: Agility factors which influences the team and organizations.

According to me all these factors heavily influences success and failure of agile project and bring Agility.

Let us look into each factor. All these factors are must to bring agility. It improves collaboration, communication and bring clarity reduces wastage, reduce execution cycle time.

4. Customer Involvement

Organization is for the product or for the services provided to the customer. To know what is the needed to the end user, either organization has to be with the customer place or customer has to involve with the making process of the product or services. Otherwise customer representative has to be with the organization, or a role can be played by a Test manager or Product owner or a business analyst. Organization wants customers, managers, and developers to work closely with one another so that they are all aware of one another's problems and are collaborating to solve the problems.

The role has to be competent enough to understand the need of the customer and evaluate, assess and provide continuous value delivery to the end customer.

What we have observe that “Project_Satisfiedcustomer_A” team was consistently engaged with the customer and satisfying the need of the end user. Team were correcting the steps wherever require to meet the end result. Customer was correcting their expectation on continuous basis and team was improving their capability. Both the party was understanding each other better and the ambient was become a healthy team work. The “You” and “Us” has become “We”. In absence of these this kind of the engagement waste is high, rework is high and cycle time will be

more. Product owner or customer representative can measure the ROI and feedback to all for the improvement. Product Owner measures the doneness and grooms the backlog accordingly.

The entire sprint planning for successful value addition depends on the feedback and improvement steps which will become part of the product backlog comes from this kind of engagement. This entire process sprint on sprint make the team agile and bring agility.

“Project_Satisfiedcustomer_B” was not able to do this kind of exercise. It was not full-fledged and not consistent. Some time team were doing demo. There was not much continuous input for improvement identified.

Continuous delivery of the working software to customer gives opportunity to get early feedback and all types of improvements. Customer can come back with changes when product development is at early stage and changes are much easier and less expensive. Moreover customer can raise concern if some of the features which is not needful and we should not develop the same so that we can avoid non value added items.

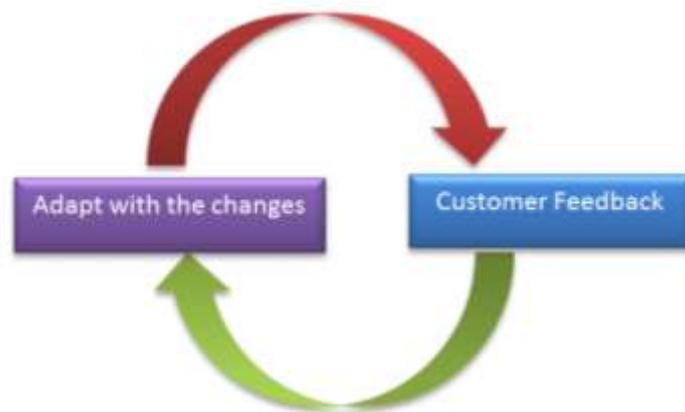


Fig 5.1: Agility comes with incorporating customer feedback rapidly and delivers the solution.

5. Retrospect

Scrum masters and product owners were playing great role to do continuous improvement. “Project_Satisfiedcustomer_A” team was getting most of the input from self and external demonstration about the work. Backlog grooming was a major activity which refines based on the input. Team retrospect provides refactoring input, improvement input which goes into sprint backlog. Competency development inputs come from retrospect and demo meeting.

Customer was appreciating about the sprint on sprint improvement. It was necessary for Product Owner to evaluate value when team is doing KAIZEN. Team is identifying all types of risks and sharing the same with all stakeholders well ahead.

Retrospect input were captured as backlog items. Every time team is reinventing themselves in new way. There was lots of learning on sprint by sprint. Organizational maturity was growing systematically. Whenever there is a sustainable velocity dip, team brainstorms and identifies the impediment to improve the velocity in next iteration. Just to ensure that team knows how fast or slow they are moving and team is on the right track (Self-assessment).

“Project_Satisfiedcustomer_B” was struggling to do this exercise as there were several other priority works were taking over their most of the time. Most of the team feels that this is not lean so this is a waste.

6. Team Members are Dedicated

One of the aspects we have observed team members should focused on one project. If the expertise resources are shared then team members are disturbed in multiple assignments and multi-tasking cause lot switching time which is a waste. It creates problem to the agility. Any amount of planning will not be helpful. There will be issues. Consistent resources are needed.

Team members have to be 100% for one assignment for a sprint. Sharing resource cause lot of long term issues. Organization need to find way to address this issue may be SCRUMBAN will help but need to explore. If there is an architect who has been shared into multiple assignments, he or she will not be able to do justice to most of the assignment (Switching time). On surface level every think looks good but most of the time we always view the tip of the iceberg and later we blame agile process or team members.

Continuous demo and deliver the working software to the end customer for review is an essential part of effective value generation.

Team members are responsible for each areas and they are accountable for the all the engaged areas. All the bugs and feature demo are shown by the same individual. Without showing demo there is no Done- ness calculation. Without showing demo sprint considered to be failed. Whatever may be the issue, show must go on!



Fig 6: Shows Excellent team work lead into a world class team and success (World cup cricket winner team 2011, FIFA world cup winner team 2010)

Alistair Cockburn's phrase, people are not "plug-replaceable programming units." If our projects are to succeed, we are going to have to build collaborative and self-organizing teams.

Small team good at delivery quality product as communication layer is less, decision making is fast and team should have right people on the bus. Collocated, collaborated team effectively address all the issue and trouble shoot problem faster and deliver end result very fast and changes as an when require, wherever needed.

At the end team gets a happy and satisfy customer. As it is journey team members discovers, who are the customers and what they need? And quantify the benefits.

Daily stand up helps team to discuss about the impediments. Some time few team members continue the discussion until they got solution for the impediments. Great part of this process is impediments are no more living like iceberg. Team discovers the size of the iceberg and address well ahead.

I could able to see the excellent team bonding, energy and team work in “Project_Satisfiedcustomer_A”. Team members has become like family members. Once in a month all the team members were going for outing funded by them. Most of the team members were average seven years of experience. *There was a trust from Product owner and architect that team can deliver and team also has constantly demonstrated the capability sprint on sprint.*

7. Top Management Support

There are some changes in agile way of working and our management has understood those changes and adapted the new way of working style. Command and control style does not work with agile; most of the managers are following collaborative way of working. In Agility team members decides what to deliver and by when. What is the most feasible speed to achieve team members knows better than anybody else. Same has to communicate to the end customer. Organization has adapted this kind of work.

Organization has to look for opportunity to improve the communication. For distributed agile team travel opportunity for face to face discussion is effective to remove the communication barrier. All types of communication tools would be essential to bring the team much closure. Collocated team is best when they clarified the doubt face to face, it improves team collaboration. There is daily scrum meeting, special impediment discussion meeting, sprint review meeting etc. was happening. There are several platforms where team members are collaborating, sharing and getting clarified for any doubts.

Top management has to bring agile coach and understand the agile practice and facilitate the same to enhance the agility.

Management has to look for opportunity to reduce the process overheads. Too much metrics, too much documentation too many meeting to know the status and report cripple the team members. Team should have just enough information. Team should spend most the time to do core work and value generated work. Management has understood that applying traditional governance to an agile project, and thereby unknowingly increasing cost, schedule, and overall project risk.

In the “Project_Satisfiedcustomer_A” and B, we have open culture where team can experiment and make mistake. Team members decide which items will take how much time, and they decide more or less about the backlog items.

Unfortunately many existing IT governance strategies are based on a *command-and-control*, Bureaucratic approach that often proves ineffective in practice. Organization will mature once they come out from old model, embrace new agile model and realize the benefit. Performance management system which needs to revamp to address the team performance, currently the system is focused on individual performance.

8. Time to Market

The project team which is under pressure to release the service or product or to be release under certain time line which is not realistic, cause lot of quality issue. Team cannot logically decide or provide creative solution as they are under pressure to produce something fast.

Team which does not have any end delivery date identified is also the victim of the same issue that they are not time bounded so they are in luxury to misuse most the manifesto of agile process. Especially the project which is research in nature, as there is no customer waiting for the end result, there is no pressure.

Project which are realistically committed and there is a very high level release date estimated and team members are continuously refining , improving , communicating the same to the end customer are real agile team. Teams are more disciplined, predictable and win the trust of the customer.

After few iteration product owner will start tracking the velocity of the team and based on the data Product Owner can communicate rough level release date so that end customer start planning for other activities like marketing , training and sales work.

“Project_Satisfiedcustomer_B” team was something like research type of the project which is working on next generation technology solution. Whenever product is ready team is supposed to release it. As there are lot of experiment, prototype involve and first time something of this nature has to be developed , even end customer also not sure how it looks like, this type of project are having lot of challenges

“Project_Satisfiedcustomer_A” was a two years delivery targeted project at high level planning. At the end customer was pretty much aware what is the expected from the deliverables at very high level. Customer was able to use the feature more or less at every sprint. So every iteration there is refinement and something which add value to customer.

9. Infrastructure

Infrastructure play significant role for team’s agility.

First with Application Lifecycle Management tool, to be effectively manage the product backlog from [*Design-to-Delivery*](#) complete visibility from a centralize tool is very effective. On a single click any individual should be able to know about the project complete information.

Next part is quality improvement, various testing tool, build tool, automation tool, and DevOps practices with tool. Tools improve the productivity and improve the execution efficiency. Organization has to facilitate this infrastructure.

Other part is effective communication, telephone infrastructure, video conference device, communication tool like instant messenger etc., high end target system or machine to improve the effectiveness of the collaboration and communication. Virtualization also helps team members to work from anywhere with minimal overhead.

Customer infrastructure also play critical role for Agility. If the team is agile and producing the deliverables but customer is not able to deploy and verify the software delivered, it will create bottleneck at the end phase. Top management has communicated the changed process for agility to customer and customer target system has changes over a period of time to adapt the agile process. Achieving Agility will not be successful if it remains with team level; it has to go at all level up in the organization and all directions.

10. Test Driven Development and Automation

We have tried Test-driven development which is a developer technique that drives the design by a micro cycle of test–code–refactor. ***Acceptance test-driven development which is a whole-team technique that drives the requirement discovery by a cycle of discuss–develop–deliver.*** Both write tests first, but their goals are unlike. Test driven development helped us to know what the expectation from customer is. If customer writes the acceptance criteria for each user story, it would be easy to start the execution cycle and speed up the development process and we have followed the same for most of the user stories. Acceptance test driven development helps to speed up the execution process reduce ambiguity and helps team to do the value generation. All the developers have to write the unit test for most of the features which will be part of daily build and team get coverage information too.

All the Developers own the Quality of the development items, not only test engineers. Test and development team works together. “Project_Satisfiedcustomer_A” team was able to implement these practices in excellent fashion as they are physically collocated (Easy to rapidly develop, deploy, troubleshoot through collaboration) and got the expected result. Everybody takes care about the quality of the product. All team members test the software even technical writer raised many bugs from deliverables. There is no role like “Test engineer”, “Quality engineer”, everybody own the product quality. “You build it, I break it” to “I build it and I break it”.

“Project_Satisfiedcustomer_A” team could able to achieve the complete automation , unit testing attached with daily build which deployed automatically which has integrated unit test, result showing the coverage and demonstrated build success or failure, also capture the automated regressing test result report. Team has dedicated developer who worked for few sprints to automate the test cases. Developers were acting as a tool smith to speed up the automation process. “Project_NotsoSatisfiedcustomer_B” team was also following the same approach more or less, but many improvements are on the way and needed.

“Project_Satisfiedcustomer_A” has broken the barrier between Developer and tester. There are some improvement require for “Project_NotsoSatisfiedcustomer_B” team.



From this phase to

Fig 7: Shows transition of mindset “You build it (developer) and I break it (tester) to “We build it and we break it”

When all these type of checking are happening on daily basis, team members are well aware where the potential issues are triggered from. Same code is ready after each iteration as potential deliverables which goes for acceptance test at the customer location at real target system.

11. Continuous Sharing and Learning

Lew Platt, former CEO of Hewlett-Packard, once said, “If HP knew what HP knows, it would be three times more profitable”. Team can learn by reading, performing hands-on work and sharing the learnings. Team members were sharing knowledge in monthly team meeting, through wiki and many other ways. That’s how competency of the team members is growing and they are becoming world class professionally. Team members are not in static learning culture.

The agile team success is mostly depending on the people or team members. *Agility comes mostly because of the maturity, mindset of the team members.*

Team members are willing to learn and change whenever require. Team members are willing to take feedback and adapt new way of handling the challenges. Team members are mature and creative and think out of the box. Team members share knowledge with each other and learn from each other, there is a tendency for improvement. In this process team members will become self-managed, mature, competent team.



Fig 8: Demonstrate every team members is unique and team can grow when learning from each other working together.

In every demo meeting team members demonstrates their capabilities, understands the system, and takes feedback and appreciation. Team members are often brainstorming, pair programming

for information and know each other well, boost team bonding. *There are more generalist than specialist in our team.* All team members are contributing in all types of work like documentation, testing, coding, design and presentation everything require for a success full projects delivery.

Team members are doing pair programing, building self-coding style and following the best practices for improvement.

Team members review each other's code, review test cases with customer with various business scenarios.

In retrospect meeting team members identifies waste and become lean on every iteration by addressing all the identified issues. Over a period of time every sprint demo maximizes value.

12. Refactoring and Impediment removal

Code tends to rot sprint on sprint if not taken care. As we add feature after feature and deal with bug after bug, the structure of the code degrades. Left unchecked, this degradation leads to a tangled, unmaintainable mess.

Team which is continuously producing output there is a possibility that none of the team members is looking into the futuristic view of the product. Design aspect has been missed. In our project technical debt was collected as a part of product backlog and pushed into the sprint backlog and based on the urgency same has been developing.

It is very much important that every sprint team should spend some time to refactor the code and design, also refactor test code as well. There is no point of fixing the bugs if the problem lies in at design level. Refactoring tasks should be part of the backlog and team should identify something as review process, or some other discussion.

Complexity of the work contributes many bottlenecks to the team. If the technological challenges are high and team is not spending much time on design, at later stage quality will become a big impediments. Competency of the team also role to play.

If the team is having an architect, it would be excellent support for a team to become agile, Impediment removal would be fast. Refactoring activity will be ongoing. Competency development will be systematic and on job. Also mature competent team can take care product refactoring on its own (through peer review).

“Project_Satisfiedcustomer_A” team there was excellent architect who is the guru of technology and domain knowledge. It helps the team to reach agility very fast as there is someone who is continuously grooming the team by review the code, design and refactoring. Impediment removal also very fast.

If there are too many change request comes in each iteration, it sometime slow down the execution process. Agile is for efficient change management. Well deigned product is easy to absorb the changes. *Team members have to look for all design “illties” while developing software and that is possible when team has refactoring related items identified and added into product backlog.*

13. Agility comes from Team not from Perfect Planning

It was Psychologist Bruce Tuckman who first came up with the memorable phrase "forming, storming, norming, and performing" back in 1965. He used it to describe the path to high-performance that most teams follow. Later, he added a fifth stage that he called "adjourning" (and others often call "mourning" – it rhymes better!). I could able to find similar types of stages for "Project_Satisfiedcustomer_A" from recruitment to team release. Small team; long lasting team members are very effective. Both the team members were working for last several years which was very effective to build solid domain competency and understand the customer need.

It is the people who develop the software. No amount of process ensures efficient delivery of the code and value generation. Software development is a decidedly human activity: requirements change, technology changes, people are added and taken off the team, and so on. Short inspect-and-adapt cycles prominent in Agile methodologies can help development teams to better handle the conflicting and unpredictable demands of some projects.

It is the highly passionate team members write the excellent world class technology which will be used by people and say "Ahaa".

Organization need to take care from candidate selection process to team building process for an excellent team. Team should have right people, with right skill may be less in number but competent people. Team members are having buddy identified within the team to help and get the guidance.

Organization can share the best practices from each team and as a result of that team members become world class professionals. Software requirement is bound to change. If requirement are not changing it is rotting. It is hard to plan with all prediction. So developers have to adapt the rapid changes and align accordingly.

14. Conclusion

Software development is hard – very hard. Excellent software development is even harder. Agile process deployment faces many challenges within an organization. Organization culture play critical role. Agile coach should effectively assess the feasibility and readiness of the organization to adapt agile. Agile adoption is a cultural change for the organization. It will take some time. Coach has to part of the journey to bring agility and identify, highlight and remove roadblocks to implement agile practices into the team. Every team, organization is unique and each project needs different treatment to handle the situation. There are many generic approaches but all this approach has to be custom made to make it happen. There is no silver bullet solution; all team has to pass through the journey for enlightenment.

The real challenges of agile deployment are the execution and deployment of agility. Everything is fine from theoretical point of view. Execution of this theory is massive long journey. If it is a small team like mentioned in this paper, it is much easy to embrace agility in execution.

All the above mention point is the observation from my few years of experience as an agile coach. I have not mentioned anything new; we have followed available best practices in the industry and hit the success. I am sure my perception will change when I deal with some other

type of project, product and program. But the mentioned few factors are core to any rapid development. Though I cannot generalize the solution but above point's works for any type of project as these steps addresses multiple problem areas with the team and organization.

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Mr. Chandan Lal Patary currently working as agile coach and Program manager at ABB. He has deep experience in developing Software product across various domains and has successfully executed many Projects. Chandan has worked on domain like Healthcare, Aerospace, Building automation, Power automation and Industrial Automaton under real time mission critical product development to large scale application development. Chandan has 15+ years of industry experience. He is certified PMP from 2008, Green Belt certified holder from 2005. Chandan is an agile practioner and Certified Scrum Master from 2011. Chandan holds a Bachelor's from National Institute of Technology (NIT-Agartala) in Electrical Engineering. He has completed one year Executive General Management program from IIM-Bangalore in 2007. He has published several management papers and speaker at various seminars. He is an active blogger (<http://buildandsustainorg.in/>). He can be reachable through email/LinkedIn: patarychandan@gmail.com