

## Distributed Agile Development: Practices for building trust in team through Effective communication

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### Abstract

Agile methods have been now widely popular and have been proved to be delivering high-quality software to the global users in shorter time frames and are effectively handling the continuous change on the requirements from the users. However, due to various reasons such as technical expertise scarcity, functional expertise scarcity, cost effectiveness, resource availability, globalization, necessity to work to the fullest taking the advantage of time zone variations and other factors; the teams can be geographically dispersed. We can call them Distributed Agile teams[1]. Given this globally distributed nature of the Agile team, the major challenge lies with the team communication and building trust across the team;

It is difficult to foster team bonding and collaboration with the distributed teams with few or no face-to-face interaction. The difficulties in communication and lack of trust in Distributed agile teams would have an impact on the productivity .Our objective is to suggest usage of some of the existing practices and propose a new practice KYTE to overcome the barriers of communication and building trust in Distributed Agile Teams ,which would contribute to the increase in productivity.

**Keywords:** Agile Methodologies, Distributed Agile, Team Communication, Building Trust, KYTE

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### 1. INTRODUCTION

[6]Software organizations constantly need to react to market dynamics, new customer requirements and technological innovations (Beck 2000; Lycett et al. 2003). The degree of market dynamics and needs has increased over the past decades creating a number of fast moving software organizations (Börjesson and Mathiassen 2004). The experiments and surveys on agile methods promise faster development thus improving the communication and collaboration inside agile teams and within the teams, customers and business units (Anderson 2003). Many organizations regard agile methods as a way of addressing key problems in software development; namely, the software takes too long to develop, costs too much and has quality issues upon delivery (Holström et al. 2006). Thus, agile methods (e.g. Extreme Programming [XP]; Beck and Andres 2004) and SCRUM (Schwaber and Beedle 2002) have been suggested as a way of responding to the changes, shortening the development time and improving communication and collaboration, especially in situations in which timing is a critical competitive advantage for an organization (Anderson 2003; Karlstrom and Runeson 2006). Communication and trust between team members is an important factor in software development and, thus, a relatively common success factor. These factors are even more important if the team is distributed.

In a Distributed Agile team environment the team members do not work in close proximity. They might belong to different Countries, Regions, Cit-ies, organizations, Cultures, Race, Origin and can be at different levels of expertise. For example the Product Owner sits in London, Business might be at China and the Scrum Master can be located in Bangalore, India along with few team members and some team members might be working from Hyderabad, India. Given this diversity; when work-ing as a team; it would be difficult to effectively communicate and build trust among the team members without a face-to-face interaction. How-ever; these methods can break these barriers to an extent. In this paper we propose a few more methods that would enrich the communication enabling to build the trust between the team mem-bers and lead to a productive Distributed Agile team. The various methods that are existent to overcome these barriers are as below.

## 2. Existing Communication Methods

The Existing Communication Methods; few of them:

Share your screen Using Remote Desktop, VNC, Net Meeting, Team Viewer etc for Screen sharing .This is very useful for demonstrating new features, reproducing bugs, working with customers, sharing Ideas / understanding, assisting in installations and much more.

Screen casts are video/audio recordings of the computer screen and a person talking; they are very useful for explaining a feature or module to another developer. Recording then viewing a screen cast is not as effective as sitting alongside someone explaining in real-time, but it has the tremendous advantage of re-playability. A series of screen casts explaining important parts of a system will get new team members up to speed quickly. The Knowledge transfer activity for the new joiners can be given with these screen casts.

Screen Shots. Don't just tell; show. Show another developer on your team what you mean; by taking a screenshot and showing them up.

Mockups. A distributed team leaves more room for misunderstanding of desired results. Counteract this by building a mockup (text files, paper, Excel, etc.) of what you want. These mockups can be very well shared across the distributed team by taking a photograph and sending them across or they can be shared via screen sharing too.

Issue Tracking. Mantis, Trac, Jira,MKS are a few of them. These tools manages and maintains lists of issues, their priorities, severities and status as on date as needed by an organization.

Source Control Systems. CVS, SVN, Clear Case, proforce,vss are a few of them and are helpful to have the project version history available locally to all the team member though they are dispersed geographically.

Phone calls Phone calls are cheap now a days. VOIP is the best for long distance calls. However; usage of Skype, IM, Office communicator which are available for online voice conversations are at their best.

Instant Messaging. Do not type longer conversation until and unless you require the chat transcripts to be recorded. The key value in IM is as a substitute for the awareness of who is available and working and for shorter and quick conversations/clarifications

Email is probably the most important tool. Used to keep a record of the communication. Use it to summarize discussions, MOM, conclusions arrived at, communication to group. Each of these methods/tools help in communicating the information across the team.However;Usage of these tools/methods without actually knowing the other person might not be that effective when compared to the usage of the same with a known team member personally. This gap comes with many apprehensions, assumptions we have about the other team member sitting on the other side of the globe or in the other city elsewhere whom you have never met. As we are dealing with the Distributed Agile team; we propose a few new methods to minimize the ineffective communication between the team members and hence build the trust between them to an extent.

### 3. Additional Practices

#### 3.1 KYTE: Know Your TEam Better



KYTE (Know Your TEam better) is a new process created keeping in view the challenges in distributed environment particularly lessened trust among the team members because of poor communication.

Teams tend to work for years together without knowing much about the other team members. There were instances the team members feel that they should have known the other team members better to communicate with them better. Effective communication would be possible with lessened apprehensions about the other members and having a oneness amongst the team.

KYTE is one step towards overcoming these problems to an extent. As the name says it is all about knowing the team better; better in terms of knowing the team members; their thought process; their culture; their expertise; their thoughts about us; their interest and to be crisp knowing anything about them which makes us communicate better with them.

The KYTE template provides the details of all the team members viz Team members name; their birthday; about them; where they are from (add a hyperlink to their native pointing to any of the website that provides the details); area of interests; favorites etc which helps the other team members to know a bit of what he/she is.

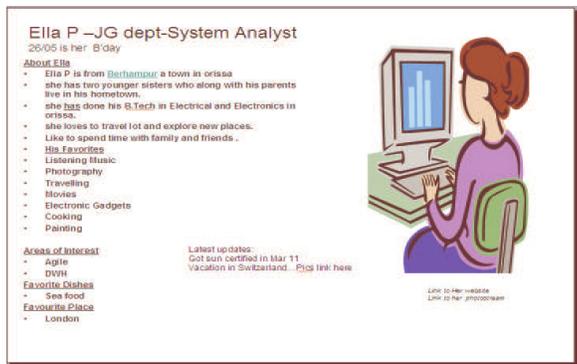
The details of the new team members should be added on need basis. The Template should be stored in a common folder enabling ease of access to do any updates on it. This should be shared across every quarter. Any recent photographs, photographs taken during festivals in last quarter and the festival details (provide a hyperlink for the festival, any of your photos) in their country would be good things to add any point in time. Below is the sample KYTE format.

Any New team member who is on-boarded to project will be asked to fill in those details and update KYTE template should be shared across team.

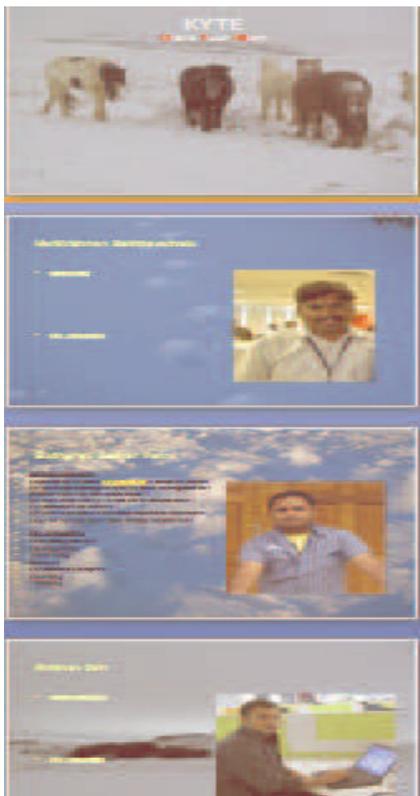
Details of the following people can be added to KYTE.

- Product owner
- Scrum Master
- Team Members
- Stake holders

Sample KYTE template for one team member



**KYTE Template with filled in Details of all team members**



**3.2 Use Pinup Boards**

Also as a part of the KYTE; Prepare a poster with simplest details of the team members photos, their name, location, designation, Company and pin it up to the pin boards at the desks. Below is a sample. You will eventually end up having a look at the team members once in a while and this would definitely help in giving you a feel that you know your team better.



A sample of team member details for putting on Pin up boards

### 3.3 Usage of Photograph in IM:

Practice to use the photograph of self in IM. This would definitely prove better when you are chatting with the team member. Usage of a webcam along with teleconference via phone or IM, skype etc which would be more beneficial.

### 3.4 WWU

WWU is we wish you. WWU is about wishing the other team members with a card at least once or twice a year. Pick up a nice card with a team motivating quotation on any occasion and send it across signed by all the team members. Though it looks simple; but it would definitely work wonders in conveying team members that we are with you. It would boost up the team morale. Pin the cards received on to the pin boards.

## 4. Adoption and Conclusion:

The practices described in this paper are proposed to a Distributed agile team. The team has not been using these practices before. Further, the plan for analyzing the impact of the new practices on comfort in communication and trust in team is measured based on a feedback from the team. The team is given a questionnaire and asked to answer them before and after usage of the KYTE and suggested practices in this paper.

The set of questions shared with the team is as follows.

1. Do all team Members know the other team members and their interests?
2. How well do members of your team share responsibility for tasks?
3. Do team members interact not only in meetings but also through other means like IM, Phone more effectively?
4. Do team members argue even it is not productive to do so?
5. Does the team engage in complex analysis, including listening and asking questions?
6. Does the team collectively own the situation in difficulties.
7. What do you feel is the overall comfort in communication across team?
8. Do you trust your team members?

The team were asked to select one of the five options as answers as below

- Extremely Well
- Very Well
- Moderately Well
- Slightly Well
- Not at all Well

The Answers were given rating as below

- Extremely Well -5
- Very Well -4
- Moderately Wel-3
- Slightly Well-2
- Not at all Well-1

The feedback received from the team is rated and summed up for each question and is as below Here Before (B) is before implementing this practices and After (A) is after implementing them Below is the data calculated from the feedback ratings.

**Table:1**

Sno	Feedback	Before (B)	After (A)
1	FB1	13	15
2	FB2	11	16
3	FB3	15	17
4	FB4	14	16
5	FB5	12	15
6	FB6	12	16
7	FB7	12	16
8	FB8	14	15

Here FB1 is Feedback for Question 1

Each value in the cell in Before (B) column is the sum of ratings given by the team members before implementing KYTE and suggested features

For example;in the above table Before(B) data related to FB1 is 13 which is sum of the ratings given by five team members  $2+3+3+2+3= 13$

Each Cell in After(A) is the sum of ratings after implementation

$C_b$ : Comfort in communication and trust within team before the adopting the new features are  
Sum(B)

$$C_b = \frac{\text{Sum(B)}}{\text{FB cnt} \times \text{highest score for FB} \times \text{team member cnt}}$$

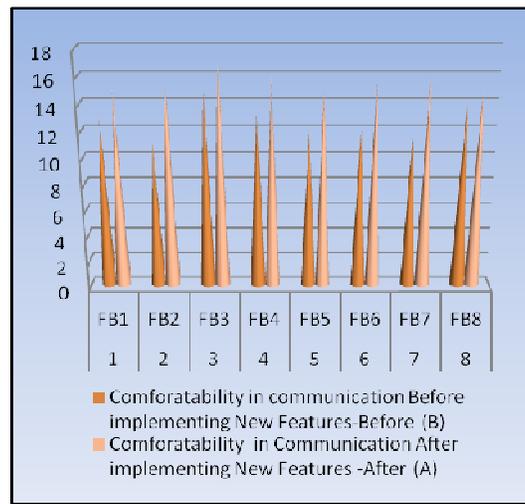
$$C_b = \frac{103}{8 \times 5 \times 5} = \frac{103}{200} = 0.515$$

$C_a$  : Comfort in communication and trust within team after adopting the new features is  
Sum(B)

$$C_a = \frac{\text{Sum(B)}}{\text{FB cnt} \times \text{highest score for FB} \times \text{team member cnt}}$$

$$C_a = \frac{126}{8 \times 5 \times 5} = \frac{126}{200} = 0.63$$

Below is the comfort chart representing the data in Table:1



To conclude; based on the above data;the total % of increase in comfort of communication and increase in trust by implementing these suggested and new features is as below

$$\text{Increase in comfort } C_{\theta} = C_a - C_b = 0.63 - 0.515 = 0.115$$

$$\% \text{ of Comfort Increase } C_i = C_{\theta} * 100 = 0.115 * 100 = 11.5 \%$$

Further; Productivity of a team is based on various factors and one factor being effective communication between the team and trust between team members. If there is a  $C_i$  increase in the communication comfort and trust between team members; then it caters to the overall increase in productivity of team. To summarize ;implementing the new KYTE practice and following the suggested practices proved to have a positive impact on the distributed scrum teams communication, the trust between team members and hence the overall productivity of the team.

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