Control Based Management to Self Organizing Agile Teams- A Case Study

Rajeev B.V
Siemens Technology and Services Pvt. Ltd
Bangalore, India
bv.rajeev@siemens.com

Vinod Hejib
Siemens Technology and Services Pvt. Ltd.
Bangalore, India
sh.vinod@siemens.com

ABSTRACT

Tough economic conditions, competition, ever-shortening time-to-market and need for better product quality has increased demand for more attention towards good project management approaches. Traditional Control Based Project Management Methodologies (TCBPMM) prevents change, by extensive planning before system is developed. The industry always demands for project management methodologies with the ability to adapt to changing needs of the users.

The paper focuses mainly on how we in SIEMENS setup agile approach with technical excellence and an objective to create T shaped teams, involving transformation from control based to self-organizing work culture. Also it mentions the encountered barriers like change resistance, delay in adapt, ambiguities, unidirectional thoughts, misconceptions, lack of coordination.

The team followed the principle “Happy team produces great work “. A Project Manager of a team works as "servant leader" enabling the team to perform to its fullest potential. The main goal of the project manager is team empowerment, efficient process with a look towards continuous improvement that satisfies both team & customer. A work agreement was set with core work points of Guiding, Coaching, Collaboration and Team based ownership. We aimed to create an environment of provide and seek constructive feedback on a regular basis, respect for every individuals is key, Embrace Transparency, Team-Shared leadership & recognize good work.

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KEYWORDS

Self-organizing, Agile teams, Scrum, Servant leader, Coaching teams, Team ownership.

1 INTRODUCTION

1.1 Traditional Project Management

The traditional project management (TPM) is a set of activities which begins from the project initiation phase throughout the closure of the project. The main activities between the initiation and closure of the project include planning, execution and controlling. The project manager is supposed to be the “boss” of the project and virtually controls everything. One of the main characteristics in the TPM is upfront “clarity” that is required at every stage on the software development life cycle before the team goes to the next level. For instance, requirements should be very clear and well documented with a formal sign-off before design activities can begin. “Change” at any stage is often looked down as a dreadful thing which impacts the famous triangle involving cost, quality or schedule. Planning is considered to more important than visualizing working software. This approach has its own share of advantages and disadvantages. Advantages include thorough requirement definition (if possible), proven design, good amount of documentation at every stage, detailed planning. Some of the challenges include over planning, difficulty in bringing changes, Time to realize and sometimes shortened testing to meet the schedule.

1.2 Agile Approach

Agile on the other hand, puts more emphasis on customer interaction and a scrum team that can deliver working software so that early feedback can be obtained. Changes are welcome at any stage and adapting to changes are not so costly compared to waterfall model. Agile focus is more towards “shared ownership” than “individual heroism”. The 4 core values of agile listed below emphasize more of a continuous customer interaction and team based leadership than extensive plan, documents and single person commanding and controlling.

1. Individual and interactions over process and tools.
2. Working software rather than documentation.
3. Collaboration with customer than contract.
4. Respond to change than following a plan.

Advantages of Agile include ability to respond to change, customer at the core due to frequent interactions, early feedback from market, team at the core, team well connected to business. Challenges include mindset changes, misuse of flexibility, challenge to scale.

2 ORGANIZATION

Siemens Technology and Services Private Limited is an in house global competence for software engineering. We work closely with Siemens divisions to engineer products and services globally. We are a team of nearly 2000 professionals forming a part of global network.

We cater to different verticals in Siemens divisions like Power and Gas, Wind power, Energy Management, Building technologies, Digital Factory Process Industries and Drives. [{HYPERLINK "http://www.siemens.co.in/about-us/ innovations/ stspl/ctdcin.htm"}] .

2.1 Team

We as a team in Siemens Technology and Services Limited are a part of Digital Factory division and are responsible for developing, enhancing, testing and delivering quality Motion Control products, which are used in Factory Automation systems. Motion Control is a mechanism which encompasses every technology related to the movement of objects. The Start drive - G120 is the modular, safe, reliable and energy-efficient device for Motion Control in automation industries. Using Totally Integrated Automation Portal (TIA-Portal) engineering framework Drives can be integrated, configured, parameterized and commissioned using appropriate interfaces. (Fig1).

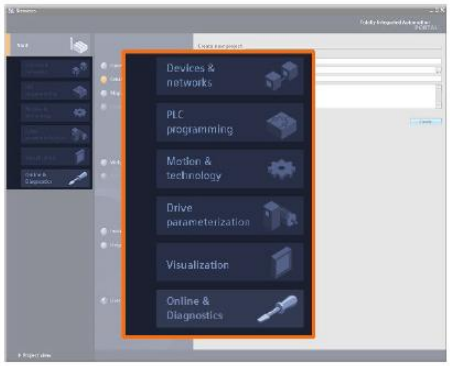

Fig1 - Start drive -G120 & TIA Portal

Our team organization is as shown below. We have 4 scrum teams with a Product Owner interacting with Chief Product Owner and Product management. The Project manger is a team facilitator engaged in team empowerment, process optimization, and delivering high quality work.

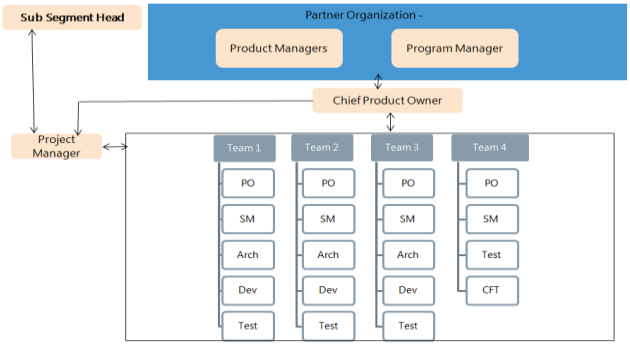

Fig2 – Team Organization

3 NEED FOR AGILE

The market situation today is very competitive and no one enjoys the monopoly as it was before. Customers are very demanding and they need quality software in a quick time. Benchmarks are set and broken quickly to a new level. On the other hand, today's millennial generation is very restless and they believe in rapid technical advancement and are not afraid to change.

At Siemens, following are the major factors that drove us towards Agile:

1. Shorter time to market. Our products take long time to release (typically 1 year)
2. Quality software with quick customer feedback.
3. Mindset changes – Changes are good and presents opportunity
4. Stay ahead in competition.
5. Usage of latest industry trends to make the product better.

6. Quick decision making. Failures are acceptable.
7. Ownership and transparency at all levels.
8. Reduce overhead by identifying waste (reduce bureaucracy).
9. Leverage team's strength. Teams are the valuable asset. Empower team by making them partners instead of simply executing what is asked for.

4 ACTION PLAN TOWARDS AGILE

We formed four scrum teams consisting of the below roles (Fig3):

1. Product Owner- Define the content of the backlog
2. Scrum Master – Facilitator of process, team coach
3. Team Responsible for delivery.

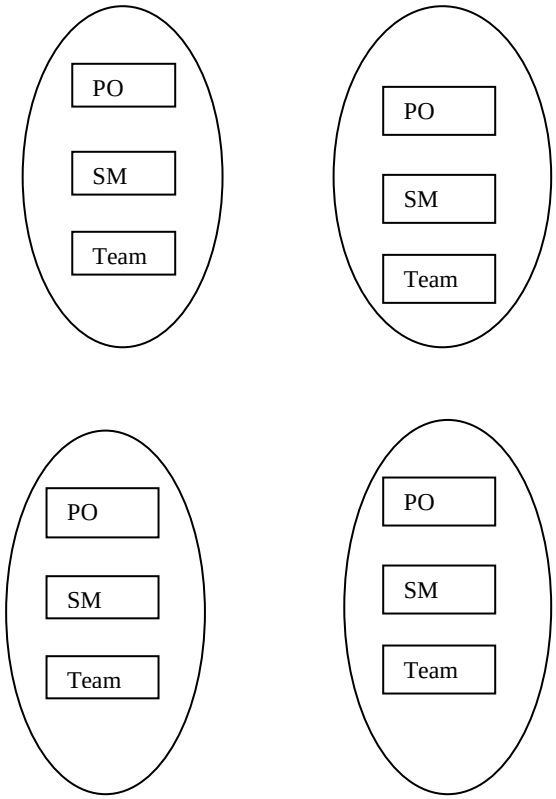

Fig3 – Scrum Teams

4.1 Initial Challenges

Each scrum team has 8-9 team members with software development to testing competencies:

1. Making the team understand the importance of scrum and its advantages to business and to team.
2. Making the team aware of scrum ceremonies
3. Mind set change in the team that Scrum master not is the "manager" of the team nor the Product owner is the "leader" of the team and that entire team had shared ownership
4. Creating transparency within team and highlight in case of issues that could adversely affect quality and schedule
5. Educating the Scrum masters that they are not solution providers but facilitators to empower the team
6. Visualizing the work done, Work-in-progress and blocking items
7. Making the team open up in Retrospective meetings

4.2 Brief on the changes brought in top-down

1. Scrum Master is relieved from Performance appraisals of their team. Scrum master is trained and educated to be agents of change and facilitate the product owner and the team on process and agile values
2. All necessary infrastructure, both software and hardware required to visualize the work put in place for the team
3. Encouragement of Ideas/Improvement areas from the team. The ideas are discussed by the management and low hanging fruits are implemented and updated back to the team at regular intervals. This started giving confidence to the team that their voices are heard.
4. Feedback is given to the team during regular intervals for instance during sprint reviews enabled the team to make necessary changes in accordance to feedback.
5. Suggestions from the team were recognized and highly appreciated.
6. Team members were trained on the job by agile coaches to bring in the spirit of agility within the team.
7. Emphasis placed more towards self organizing teams where team is at the core of decision making. The challenge here is the team always expects the project manager to make decisions for the team and also the project manager because of his position thinks that he/she is the boss. This always leads to one way flow from top to bottom and hence the team empowerment is always in question.

4.3 Changes towards Team Empowerment/ Ownership

Changes in mind set are not easy. Communication is the key. It's about the setting the vision and communicating the vision again and again whenever possible. Team empowerment should also couple with accountability. Otherwise it leads to ambiguity. The below sections were consciously rolled out with the intention of moving towards self-organizing teams.

4.4 Set Vision for the team

The product owner communicates the vision to the team. The bigger picture as to "why" this should be done is told to the team so that team understands the importance of what they do. Discussions and buy-in from the team is vital before coming out with the final vision charter

The Architects communicates the quality goals to the team. Motivational aspects of the importance of using right technology are communicated to the team and sought inputs from the team. Discussions with the team are vital before arriving at the strategy to manage the technical debt and technical improvements keeping in mind, the industry standards.

4.5 Create Work agreement

A clear working agreement is established with the team on different topics related to expectations on people management, process etc. Thus brought in transparency in behaviors and also sets accountability from different stakeholders in their areas of responsibility. The team also agreed upon the "Definition of Done" (DOD) to indicate the completion of work and also be accountable to the team for the work done.

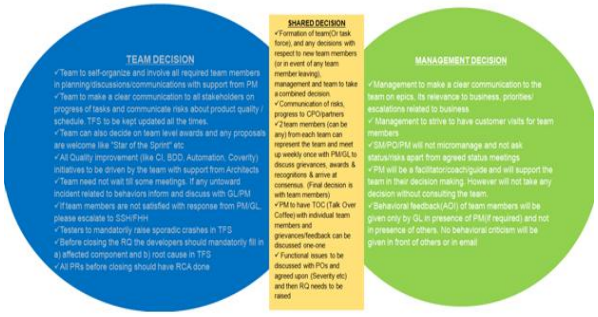

Fig4 – Work Agreement

4.6 Set Roles and Responsibilities

Clear roles and responsibilities were discussed and agreed with all stakeholders. This Roles and responsibilities matrix established a clear vision and accountability for each stakeholder in the project. Also in situations of conflict, this served as a reference to discuss on the conflicts.

Fig5 – Roles and Responsibilities

4.7 Team Involvement

Team is involved to seek out their ideas, knowledge in detailing out the user stories, splitting them further into implementable tasks. Estimation is sought with the team and consensus is arrived on the estimation. The meeting is facilitated by the scrum master. The product owner introduces the user stories to the team along with the priority. (Backlog refinement).

The team makes a decision if the user story introduced by the product owner is clear enough for estimation, if not the user story is returned back to the product owner to get further clarity. The outcomes of these sessions are a ranked backlog with estimation.

The team then meets to detail out the "how" or "implementation" details of the user story. Designs are discussed, risks, if any are identified. It is more of a detailed plan to implement a user story. The architects support the team in detailed planning. The job of the architects is to facilitate the team to arrive at right decisions, and not to enforce the methodology. They challenge the team with thought provoking questions.

4.8 Accountability

Once the plan is detailed and published, the accountability rests with the team to achieve the results. This motivates the team to achieve results as per their commitment. Transparency in communication is a part of vision & working agreement. Any risks in not meeting schedule or quality is communicated upfront by the team to all relevant stakeholders and escalated, if needed.

4.9 Provide feedback

Sprint demos and Retrospectives are the formal ceremonies where team gets feedback on what actions need to be sustained and what actions need to be improved. As a team coach, the scrum master also provides valuable feedback to the team members on their behaviors and process orientation which helps the team to constantly improve both on creating business value and personally as well. Our feedback orientation is more towards "doing" than towards "being".

4.10 Letting the team find their way

It's very important that the Team Architects, Product owner and the scrum master do not act as managers or boss of the team. They have specific responsibilities and they should keenly listen to the voice of the team. Part of their job is asking probing questions that will lead the team in the right direction and find out the right course of action. The key leaders are encouraged to create conducive environments where the team can take "fail to safe" experiments in taking strategic decisions. If successful, actions can be amplified, if not can be muted.

4.11 Acknowledge the team

Genuine one-one recognition towards the team went a long way to build trust with the team. It brought in added level of responsibility from the team. We never miss an opportunity to acknowledge the work done by the team.

5 CONCLUSIONS

In summary, fostering self-organized teams can be very easy depending on the organizational culture and Team's willingness to adapt to changes along with ownership aspects in mind. It is not easy to achieve the perfect self-organizing team, it is an evolving process.

Also it is important for the organization and the leaders to work with teams to help them align on what self-organization actually means and support them in finding their way back to work agreement. Once the self organization is in place it is also important to align our actions and decisions to support the teams in their journey ensuring the motivation is kept alive constantly.

Hence the established model efficiently worked for us and we saw a change in our teams saying "We are a self-organized team, you cannot tell us what to do".

6 ACKNOWLEDGMENTS

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7 REFERENCES

[1] Highsmith, J. (2009). Agile project management: creating innovative products (2nd Ed.). Pearson Education.

[2] Cooke-Davies, T. (2002). The "real" success factors on projects. International journal of project management

[3] Chow, T., & Cao, D. B. (2008). A survey study of critical success factors in agile software projects. Journal of systems and software

[4] Wageman, R. (1997). Critical success factors for creating superb self-managing teams. Organizational dynamics

[5] Wheelan, S. A. (2014). Creating effective teams: A guide for members and leaders. Sage Publications

[6] Shelton, P. M., Waite, A. M., & Makela, C. J. (2010). Highly effective teams: A relational analysis of group potency and perceived organizational support.Advances in Developing Human Resources

[7] Succeeding with Agile: Software Development Using Scrum by Mike Cohn

[8] SIEMENS Technical Journals and Repositories on Agile Project Management and Self organizing Teams.