



BITS Pilani

Pilani | Dubai | Goa | Hyderabad

Work Integrated Learning Program

M. Tech. Software Engineering

Agile Software Processes - SEZG544

Assignment – 1

Name – Hemant Tiwari

BITS Student ID – 2022MT93184

Semester – 1st FY 2022-2023

Case Study – 1

Breaking Down Silos Between PM & Dev. by T-Mobile

YouTube: <https://www.youtube.com/watch?v=7SGHStr4tZQ>

Question 1 – What are Silos and how were they formed? What techniques and tools did T-Mobile employ to effect this change in their organization?

Answer 1 – The term silo is not really a Project management term, but it is often used in a project management context. For example, when you say that the teams on a project work in silos, it means that *“each individual team works independently of the other team, and the teams don't know anything about each other's work.”*

Few of the silos in an organisation are –

- i. HR-CPO vs CIO vs CEO
- ii. DevOps team vs Product team
- iii. Product Management vs Development
- iv. Team silos: UX, Dev, QA
- v. Business vs Technology
- vi. Performance metrics: Biz vs Dev
- vii. Technology vs Technology
- viii. People vs Customers
- ix. Doing Agile vs Being Agile
- x. Enterprise Culture vs Development Culture
- xi. "Regardless of size, every enterprise is now a software company
- xii. Waterfall at the top vs Agile/ DevOps at the bottom
- xiii. eNPS vs cNPS
- xiv. Role silos Project Manager vs Scrum Masters, Technical Product Manager vs Product Manager vs Product Owner

Thus, if Product Management and Development teams work in silos, this means that they know nothing about the progress of each other unless, of course, the information is passed from one team to the other.

The Silos are formed through following ways,

1. Agile Manifesto – The Agile Manifesto or Manifesto for Agile Software Development is written for and by the software developers. Its objective was to solve the issues faced while Developing a Software. Therefore, it only talks about the Software Development and does not take into

consideration the Project Managers or Stake Holders, etc. Thus, it has created an Agile Software Development bubble within organisation.

2. Scrum Guide – The scrum guide focus more on roles, and the processes, practices, and services across roles. But it is not looking at the flow of values across the roles and the roles are very siloed. There are clear responsibilities and clear boundaries between those roles i.e., scrum Guide states that, “*Business*” is responsible for “*What?*” and “*Development*” is responsible for “*How?*” and the difference between the objectives of the teams causes the friction and silos between the teams.
3. Organizational Structure – “*Conway Law*” states that organizations design systems that mirror their own communication structure i.e., structure of an organization and how people work has a direct impact on the Software architecture.
4. Perception – The silos are formed from different perceptions as well such as,
 - a. The way we breakdown information
 - b. Misconception and Labels
 - c. Unconscious Bias

The techniques and tools employed by T-Mobile to effect this change in their organization are,

- i. Inception / Discovery Workshop
- ii. Design Thinking/ Empathy Mapping
- iii. DevOps & Continuous Delivery
- iv. Big Room Planning
- v. Value stream mapping
- vi. Continuous Improvements
- vii. Gherkin Testing
- viii. Story Mapping
- ix. Business Metrics
- x. Product Retrospective

- xi. [Business office hours](#)
- xii. [Continuous Demos](#)
- xiii. [Feedback Velocity](#)
- xiv. [Swarming](#)
- xv. [Pair & Mob-programming](#)
- xvi. [Big Room Retrospective](#)
- xvii. [Leadership Retrospective](#)

Question 2 – How do you incorporate this into your own organization?

Answer 2 – We can incorporate the techniques and tools into our own organisation by –

- i. Working on the Same Problem Statement.
- ii. By following Value Driven Agile Practices.
- iii. Value Stream Mapping
- iv. Organising Workshops such as Inception / Discovery Workshop
- v. Story Mapping
- vi. Sprint Planning
- vii. Refinement and identifying the MVP User Stories
- viii. Collaboration between the teams
- ix. Working on the Feedback velocity by,
 - a. Weekly customer reviews deep dive
 - b. Round Robin Reviews
 - c. Feedback cycle time
 - d. "Quick Wins" sprint capacity
 - e. Real Customer Interaction
 - f. Business shadow or User involvement
 - g. Developer Rotation
 - h. Real time demo: 1 or multiple demo a day
 - i. Telemetry and qualitative feedback from Business And so on
- x. Develop empathy across Product Management & Development
Sustained trust between Customers and whole team across the E2E product development.
- xi. Continuous Improvement and Learning by Implementing the different Retrospectives.

Case Study – 2

Use Case Overview:

United Arab Emirates is planning for the international event, where they are expecting 13 country football teams participate, these matches will run for 21 days. UAE event management organization have hired your company to develop the software products required for the event management.

Your team is going to work for the product called “Facify-me” [Facilitations System] which will be primarily used by football team members & Coaches to know their respective schedule and location of their matches and practice games arranged in local grounds.

Product Backlog:

“Facify-me” should serve for:

1. **Total User base:** (260 Team Members + 26 Coaches + 50 Facility Support Team + 10 Facility Admins + 5 Executives + 10 Buffer)
2. **Total Grounds:** 7
3. **Practice Matches:** 7
4. **Total Matches:** 23

Prioritized Features to be developed:

1. User registration should support only registered member (assumption, you have the registered user’s list from the UAE event management and use the provided user base number).
2. “Facify-me” should provide dashboard summary on app home page.
3. Facility Admin should be able to book the grounds with approval of any Two Executives.
4. Ground list should only show Available / Free ground list at the time of booking by multiple Admins.
5. Ground should be made automatically available when the schedule is cancelled. Each ground should show Four slots.
6. Upon every schedule confirmation respective team member and coach should get a notification on their mobile application Coach should be able to make request for any changes in ground selection or Schedule changes.
7. The request for change in Ground and Schedule should pass through the approval from Facility Admin Team and any of Two Executive.

With reference to above *Product Backlog* and *prioritized feature development* your team has been asked to plan for *Sprint backlogs* were,

Sprint Life: 2 Weeks

Team Size: 8 (1 Product Owner, 1 Scrum Master, and 6 Development Team Members)

Question 1 – "Estimate the effort for the above features expressed in Story Points" and state any assumptions you made.

Answer 1 –

Based on the above requirement we can make the following assumptions –

1. Infrastructure setup in beginning of sprint.
2. Dev deployments every sprint, QA/UAT deployment in consecutive sprint
3. SMS functionality third party integration
4. Story points will be in Fibonacci series- 1, 2, 3, 5, 8, 13.
5. Based on the 7 features requirement let's assume that each feature can be sub divided into 5 Small User stories of each 5 or 8 Points.

Thus, from Assumption 5,

If we take into consideration each user Story to be of 5 points.

⇒ Total effort required will be = $7 * 5 * 5 = 175$ points.

If we take into consideration each user Story to be of 8 points.

⇒ Total effort required will be = $7 * 5 * 8 = 280$ points.

Question 2 – Identify Sprint's required to attain the above Product Backlog Development.

Answer 2 –

Based on the above requirement we can make the following assumptions –

1. Story points will be in Fibonacci series- 1, 2, 3, 5, 8, 13.
2. Assuming 5 working Days in a Week and 8 hours Daily.
3. Assuming efficiency of each team member is 80%
4. Based on the 7 features requirement let's assume that each feature can be sub divided into 5 Small User stories of each 5 or 8 Points.

Thus,

Length of Each Sprint = 2 Weeks (10 Working Days)

Team Size = 8

⇒ 1 Team members capacity in 1 Sprint = $10 * 1 = 10$ points

Since, it is assumed that the efficiency of each team member is 80%

Thus, 1 Team members capacity in 1 Sprint = $10 * (80/100) = 8$ points

⇒ Total teams (8 members) capacity in 1 Sprint = $8 * 8 = 64$ points

Therefore, from **Answer 1**

If we take into consideration each user Story to be of 5 points.

⇒ Total Number of Sprints required will be = $175 / 64 = 3$ Sprints Approx.

If we take into consideration each user Story to be of 8 points.

⇒ Total Number of Sprints required will be = $280 / 64 = 5$ Sprints Approx.

Therefore, we will be needing 3 to 5 sprints to complete the backlog.

Question 3 – Determine sprint backlog for each Sprint

Answer 3 – Based on the above requirement we can sub divide the Features into user stories –

1. User registration / Registration page
 - a. UI page / Login page / Registration page
 - b. Backend DBBusiness logic: Validate the input, check the access level
2. Facify-me app home page
 - a. Dashboard summary no of games, teams win, next match, Team details, Available slots for Ground
3. Book the grounds
 - a. Facility Admin, two Executives approvals
 - b. Approval by mail, need to be stored in DB
4. Ground Availability
 - a. Ground list should only show Available/Free ground list at the time of booking by multiple Admins.
 - b. Ground should be made automatically available when the schedule is cancelled.
 - c. Each ground should show Four slots (Schedule).
 - d. Up on every schedule confirmation respective team member and coaches should get a notification on their mobile application SMS system third party
5. Change request
 - a. Coach should be able to make request for any changes in ground selection or Schedule changes.
 - b. The request for change in Ground and Schedule should pass through the approval from Facility Admin Team and any of Two Executive

Please Refer the Excel Sheet Attached with the Assignment for Details of the Backlogs.

Question 4 – Evaluate the Velocity of the Sprint Execution

Answer 4 –

As we can see for the Excel Sheet attached,

Total Capacity at the end of Sprint 1 = 63

Total Capacity at the end of Sprint 2 = 64

Total Capacity at the end of Sprint 3 = 62

Total Capacity at the end of Sprint 4 = 64

Total Capacity of all four Sprints Combined = 253

&

Total No of Sprints = 4

$$\Rightarrow \text{Sprint Velocity} = \text{Total Capacity Combined} / \text{No of Sprints} \\ = 253 / 4 = 63.25$$

Thus, Sprint Velocity = 63.25