



**B.Tech (CSE)**

**5<sup>th</sup> Sem**

**UE19CS302 – SOFTWARE ENGINEERING**

**Case Study Material Agile – Scrum**

**Team Members**

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**Contribution: -**

Q 1a. -> Anup Omkar – 50%, Achyuta Bhimsen – 50%

Q1b. -> Anup Omkar – 100%

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Q2. -> Akshay B K – 100%

Q3. -> Anurag R Simha – 100%

1. Answer the following questions based on your understanding in not more than 10 sentences.

- a. Identify from the observations, where all would you think Service Inc did not meet the intent of the Agile Manifesto (any 10)

Soln:

- i. Service Inc operates on air-tight requirements and freezes it before committing their resources whereas the Agile Manifesto value suggests **“respond to changes over following a plan”**.
- ii. Service Inc focused on building elaborate and exhaustive documentation whereas the Agile Manifesto value encourages **“working software over documentation”**.
- iii. ways of working of Service Inc engineering management is hierarchical (where the organization operates as top-down hierarchy with multiple layers and divisions) and bureaucratic (where individuals report to their bosses) which rules out the Agile Manifesto value **“Individuals and Interactions over processes and tools”** since, individuals can't form their own self-organized teams and won't be able to voice their ideas on their own.
- iv. The product owner discussed the draft with the centre manager and based on his feedback, there were few **online discussions** with the scrum master and team members, rules out one of the Agile Manifesto Principle which says that **“The most efficient and effective method of conveying information to and within a development team is face-to-face conversation”**
- v. The Stakeholders were not involved in meetings, it violates the Agile Manifesto Principle **“Business people and developers must work together daily throughout the project”**
- vi. Team members are responsible for emergency product issues and that tends to majorly upset the sprint deliverables, the test engineers have written the test cases in 3<sup>rd</sup> or 4<sup>th</sup> week of sprint, and there was no constant pace. This not followed the Agile Manifesto Principle, **“The Sponsors, developers and users should be able to maintain a constant pace indefinitely”**.
- vii. In the review meetings only the presentation was delivered and feedback was collected from all members but there were no measures taken to improve their productivity this goes against the Agile Manifesto Principle, **“At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.”**
- viii. Product owners in the teams have worked with the products ever since the centres have been set up but have never met a customer, which failed to respect the Agile Manifesto value, **“The Customer collaboration is important over contract negotiation”**
- ix. Since the product owners never met the customer they didn't deliver the product frequently to the customer, whereas Agile Manifesto Principle suggests to **“deliver working software frequently, from a couple of weeks to couple of months with a preference to the shorter timescale.”**
- x. Instead of rotating the team member's roles frequently they would have been concentrated on the completion of work, that's what Agile Manifesto Principle Suggests **“Simplicity – The art of maximizing the amount of work not done – is essential”**
- xi. Each team has a particular set of members already assigned to their roles by the Scrum master and make commitment on behalf of team instead of allowing team to organize themselves, here service Inc didn't meet the intent of Agile Manifesto Principle **“The best architecture requirements, designs emerge from self-organizing team”**

**b. Identify from the observations, where all would you think Service Inc deviated from what is expected from a SCRUM implementation. (any 10)**

**Soln:**

- i. The Scrum meeting organised in Service Inc. took 60-90 minutes including all discussions, but a daily scrum or stand-up meeting must be very short and completed within 10-15 minutes.
- ii. No Burndown charts prepared/updated after every scrum meeting.
- iii. Removal of impediments is not done and no impediment log is maintained.
- iv. The scrum master is the team role responsible for ensuring the team lives agile values and principles and follows the processes and practices that the team agreed they would use. The name was initially intended to indicate someone who is an expert at Scrum and can therefore coach others. The role does not generally have any actual authority, but in Service Inc scrum master keeps track of the assigned tasks, and makes commitment on behalf of the team which clearly shows authority.
- v. Each Sprint Team assigned specific roles by Scrum Master as testers and developers, this deviated from original scrum implementation where team members are free to choose and organize themselves to the roles required for the product development.
- vi. The most effective scrum teams are tight-knit. As seen from the survey, we see that product owners and scrum masters are rotated across sprints and this directs against the effective team ideals.
- vii. When a sprint begins, as the developers carry on story analysis for design and implementation, testers perform test analysis for the stories in the sprint backlog. Tester create the required test cases – both manual and automated tests. But the test engineers in Service Inc wrote the test cases in 3<sup>rd</sup> week and tested in 4<sup>th</sup> week. If the bugs occur during the testing phase, then the developers are left with no or less time to fix those in that sprint hence these things will be carried to next sprint backlog and so on. Hence this increases the time to deliver the complete final product.
- viii. At the sprint review meeting in Service Inc, two things were routinely done, Detailed presentation about just concluded sprint meeting and feedback was collected from all members, but there was no verification of increment against definition of done (DOD), no acceptance criteria and no stakeholders involved in these meetings.
- ix. Sprint review meetings are also when the product owner reworks the product backlog based on the current sprint, which can feed into the next sprint planning session. As seen from the survey findings, nothing of this sort was done in the sprint review meetings held by Service Inc.
- x. Service Inc didn't hold any Scrum Retrospective meetings which is one of the important event of Scrum framework where the issues in the previous sprint process are reviewed and plans for improvements to be enacted during the next sprint.
- xi. Typically, Sprint Planning Meeting must be completed within hours and determine which backlog items will be handled in next sprint meeting based on the product backlog and hence the update the Sprint backlog, but in Service Inc. after the Sprint planning meeting, task list was only a draft and the finalization of task lists is done at the end of 1<sup>st</sup> week.
- xii. The Product Owner's main job is to drive the working product frequently to the customer, meet the customer and update the product backlog according to the requirements/changes specified by the customer and must be representative of whole team. But as seen from the Service Inc survey, Product owners in the scrum teams have worked with the products ever since the centres have been set up but have never met a customer, it seems like Product Owner is unaware of his/her role and failed to meet the customer needs.

- c. Discuss each of the findings in the table and indicate whether the finding contributed positively or negatively in go/no go recommendation and indicate with ~5 sentences why it is so.

	Key findings	Positive/negative contribution to go/no go recommendation	Reason
1	From the experience and records it is clear that all daily scrum meetings, sprint review meetings happened without fail. Each of the team members took 10 minutes to update and for an 8-member sprint, daily stand-up meeting takes 60-90 minutes including all the discussions. Each sprint team has 1 scrum master, 1 product owner, 2 test engineers and 5 developers. Scrum Master and Product owners are rotated across sprints.	<b>NO GO</b>	<ul style="list-style-type: none"> <li>The Scrum meeting organised in Service Inc. took 60-90 minutes including all discussions, but a daily scrum or stand-up meeting must be very short and completed within 10-15 minutes.</li> <li>The most effective scrum teams are tight-knit. As seen from the survey, we see that product owners and scrum masters are rotated across sprints and this directs against the effective team ideals.</li> </ul>
2	In the 4-week sprints, quality engineers joined after 2 weeks as they are rotated among projects and there was nothing ready for testing till the end of 3rd week. The test engineers wrote test cases in the 3rd week and tested in the 4th week. This was the usual pattern	<b>NO GO</b>	<ul style="list-style-type: none"> <li>The test engineers wrote the test cases in 3<sup>rd</sup> week and tested in 4<sup>th</sup> week. If the bugs occur during the testing phase, then the developers are left with no or less time to fix those in that sprint hence these things will be carried to next sprint backlog and so on. Hence this increases the time to deliver the complete final product.</li> </ul>
3	<p>The project manager has been trained into the new role of Scrum Master. They are now doing these main tasks</p> <ul style="list-style-type: none"> <li>Deciding and assigning tasks among team members</li> <li>Keeping track of the assigned tasks</li> <li>Making commitment on behalf of the team</li> <li>Convince and motivate the team members on the commitments made</li> </ul>	<b>NO GO</b>	<ul style="list-style-type: none"> <li>The scrum master is the team role responsible for ensuring the team lives agile values and principles and follows the processes and practices that the team agreed they would use The name was initially intended to indicate someone who is an expert at Scrum and can therefore coach others. The role does not generally have any actual authority, but in Service Inc scrum master Keeps track of the assigned tasks, and makes commitment on behalf of the team which clearly shows authority.</li> <li>Each Sprint Team assigned specific roles by Scrum Master as testers and developers, this deviated from original scrum implementation where team members are free to choose and organize themselves to the roles required for the product development.</li> </ul>

4	Team members are also responsible for emergency product issues and that tends to majorly upset the sprint deliverables. The sprint backlog underwent changes till 3rd week	<b>NO GO</b>	<ul style="list-style-type: none"> <li>Agile Manifesto tries to maintain a constant pace of completed work but since the team didn't place a buffer and the members themselves were responsible for emergency product issues and caused the upset of the sprint deliverables.</li> </ul>
5	In sprint review meetings, two things were routinely done: <ul style="list-style-type: none"> <li>Detailed presentation about the just concluded sprint</li> <li>Feedback was collected from all members</li> </ul>	<b>NO GO</b>	<ul style="list-style-type: none"> <li>There was no verification of increment against definition of done (DOD), no acceptance criteria and no stakeholders involved in these meetings.</li> </ul>
6	After the Sprint planning meeting, task list was only a draft. The product owner discussed the draft with the centre manager and based on his feedback, there were few online discussions with the scrum master and team members following which task list is finalized by end of 1st week of the sprint.	<b>NO GO</b>	<ul style="list-style-type: none"> <li>Typically, Sprint Planning Meeting must be completed within hours and determine which backlog items will be handled in next sprint meeting based on the product backlog and hence the update the Sprint backlog, but in Service Inc. after the Sprint planning meeting, task list was only a draft and the finalization of task lists is done at the end of 1<sup>st</sup> week.</li> </ul>
7	In terms of metric, the backlog at the beginning of the scrum is more ambitious than the average velocity of the scrum teams recorded so far as the teams prefer to take ambitious targets. They were encouraged to do so.	<b>NO GO</b>	<ul style="list-style-type: none"> <li>Ambitious targets may be too large to be completed in a smaller time bound. The team members should prepare for the achievable backlogs to deliver the best.</li> </ul>
8	Product owners in the scrum teams have worked with the products ever since the centres have been set up but have never met a customer	<b>NO GO</b>	<ul style="list-style-type: none"> <li>The Product Owner's main job is to drive the working product frequently to the customer, meet the customer and update the product backlog according to the requirements/changes specified by the customer and must be representative of whole team. But as seen from the Service Inc survey, Product owners in the scrum teams have worked with the products ever since the centres have been set up but have never met a customer, it seems like Product Owner is unaware of his/her role and failed to meet the customer needs.</li> </ul>

## 2) How can Service Inc achieve 40% growth in margin while achieving only a 25% growth in revenue?

### Soln:

- Margin refers to the amount by which revenue from sales exceeds costs in a business, whereas Revenue is the income generated to the company by selling its products or services to the customers.

$$\bullet \quad \text{Margin} = \frac{\text{Revenue Generated} - \text{Expenditure to the company}}{\text{Revenue Generated}}$$

- A company can achieve high growth in Margin while having lesser growth in Revenue by reducing its expenditure which can be clearly seen from the above formula. This is termed as “**High-Low Profit Margin**” (i.e. with high margin but low revenue). Microsoft is one such example which started with low revenues but made a good profit and eventually ended up in making high profits with high revenue.
- Revenue growth depends upon the total sales turnover whereas the margin growth depends upon both revenue growth with decrease in the expenditures/costs.
- Service Inc. wanted to achieve 40% growth in margin while having only 25% growth in engineering by this stated method.
- Product Inc had been one key client of Service Inc. It had a large investment in Service Inc, and it visualized higher benefits in Service Inc coming up the value chain. With this in mind, the SVP came up with a year wise growth plan that involves making Product Inc agree on handing over execution of a part of their product line roadmap for growing products on a revenue sharing basis.
- Also the Service Inc were providing services to discontinued products, or near end of life or planned to be discontinued EOL products, which requires less human resource hence less expenditure to the company, which in other words more growth in profit. Since they were discontinued products, there would be less number of users for that product hence the revenue growth would be less.
- Currently Service Inc’s revenue is growing steadily at 12% year-on-year (Y-O-Y), whereas the margins are growing at 10% Y-O-Y, to increase the engineering services revenue by 25% and margin by 40% in the next 3 years. The product engineering services SVP of Service Inc started by seeking meetings with all his engineering services clients in order to understand what is amiss.

**3) What are the cultural differences between Service Inc and Product Inc that you think is a challenge for successful scrum implementation that would satisfy Product Inc?**

**Soln:**

Culturally, Product Inc and Service Inc are poles apart:

- Product Inc is a flat organization with open offices, where engineers and managers including VPs and SVPs share open cubicles, with the senior managers having offices in corners where engineers do not need to go often, and are designed with dedicated conference rooms for meetings. On the contrary, in Service Inc the organization was hierarchical and bureaucratic and, one can make out the seniority of a manager in the organization by the size of his desk and room that he has been allocated.
- Product Inc Works as a self-organizing team with iterative and incremental development, delivering progress after every two weeks, take valuable feedbacks from stakeholders, whereas Service Inc Operates on building tight requirements, tends to freeze it before committing their resources, have trained project managers on coordination, have skilled program manager on rigorous change management, builds an existing documentation.
- In Product Inc. Scrum master doesn't assign task but rather focuses on developing a high performance team for better product development, whereas in Service Inc. Project Manager who were trained to be scrum masters assigns tasks to scrum team, acts as manager and commits on the team's behalf.
- Product Inc's culture of having open conversations without having to make every single talk between employees a scheduled meeting. When Stan visits Service Inc., he talks directly to engineers and junior managers rather than seeking meetings with them in the presence of Service Inc. general managers. This was not very popular with Service Inc as they took pride in having a hierarchy in the office.
- Product Inc. was greatly concerned with its customers whereas Service Inc. gave more importance to contract over customer collaboration.
- Product Inc. always relied on certainty, on contrary constant change and uncertainty were the only truth in Service Inc.
- Product Inc were aware of scrum practices and was agile, on contrary, even though Service Inc claimed that they were practicing Scrum and Agile methodology is inefficient and practiced traditional approach in the name of Scrum.