# Leadership in Agile Project Management - A Web Application Case Study

Vu Hoang Anh Nguyen – T00638696

Open Learning School of Business and Economics

MNGT 3731 – Leadership

Instructor Dawne Bringeland

April 17, 2022

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## Introduction

The ability to deliver projects on schedule, within budget, and in alignment with business objectives is critical in determining the limit on highly competitive global business conditions. In the quest to improve project outcomes, alternative approaches to organizing and conducting development have arisen. Prominent among the new approaches is a class of system development methodologies commonly referred to as Agile methods. Agile methods adopt a more flexible and responsive approach to project development (Yang et al., 2009). To be successful, Agile methods require a different leadership style and approach than do traditional methods. In this report, I analyze a project that I am leading and show how I demonstrate self-understanding, trust-building, developing successful interactions, and feedback in an Agile environment.

## Project Description

Our software development team is a small-scale team that consists of 8 members. Our product is the Online Booking System for Buses and Transportation Services (OBS), which is a web-based application that allows users to choose and book their suitable inter-city transportations, such as buses, trains, and ferries in Canada. The application enables visitors to check transportation services' ticket(s) availability, buy ticket(s) and pay the ticket(s) online. Learning from travel advising websites such as Budbus, Traveloka, and more, our team's product will provide services to search for suitable transport media based on users' starting point, destination, and preferred departure time. Not only does the application give existing options for inter-city rides but it will also inform the users about the price and different evaluations delivered by other users using the platform. From provided information combined with users' reviews, the project's goal is to assist users in making the right decisions while saving their time and effort.

# Project Development

## Framework

The project uses Agile project management, which is a set of values and principles centred on team cross-functionality, self-organization, and collaboration. It promotes the development of iterations, open collaborations, and process adaptability throughout the life cycle of the project. It chooses to do things in small increments, with minimal planning, rather than plan at length. This helps to minimize the overall risk and allows our project to adopt changes more quickly. There is also an emphasis on stakeholder involvement (Kumar & Sowmyavani, 2012). We choose SCRUM – an incremental and iterative agile methodology for managing product development – as our software development framework. Scrum is adaptable, fast, flexible and designed to deliver value to the customer throughout the development of the project. Our primary objective in choosing Scrum is to satisfy the customer's needs through an environment of transparency in communication, collective responsibility, and continuous progress. The development starts from a general idea of what needs to be built, elaborating on a list of characteristics ordered by priority (product backlog) that the owner of the product wants to obtain (*What Is Scrum Methodology? & Scrum Project Management,* 2022).

With Scrum, our product is built in a series of fixed-length iterations called sprints. Sprints are fixed duration cycles during which the product is built and is delivered for feedback. A sprint is one iteration of consistent length (4 weeks) throughout the development effort.

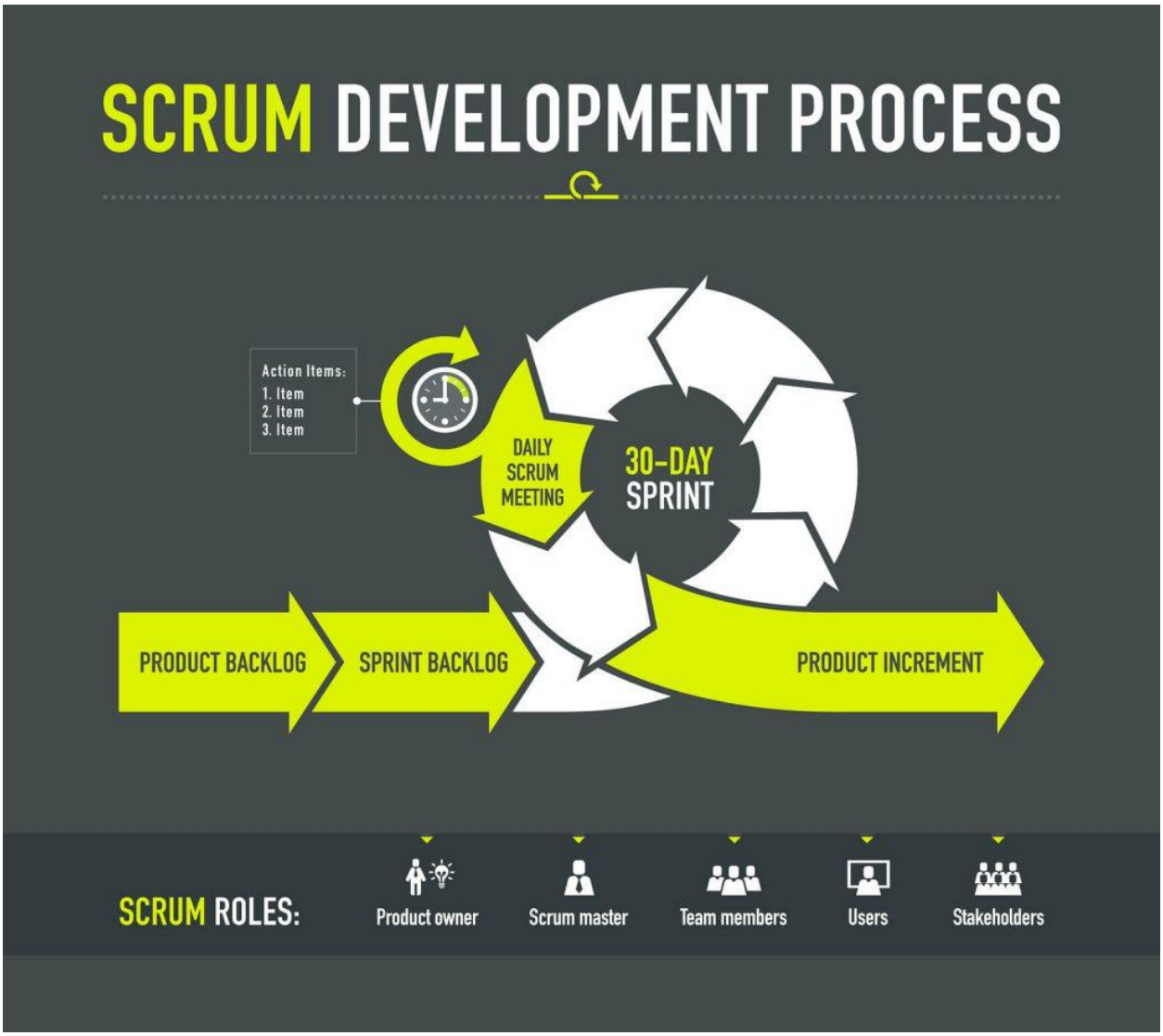


Figure 1: Scrum Development Process

Our Scrum team consists of the following roles:

- Product owner (PO): The representative of the stakeholders and customers who use the software. In our case, the product owner is our client's representative. He translates the vision of the project to the team, validates the benefits in stories to be incorporated into the product backlog, and prioritizes them on a regular basis (*What Is Scrum Methodology? & Scrum Project Management,* 2022).

- Scrum Master: The person who leads the team guiding them to comply with the rules and processes of the methodology. The Scrum Master manages the reduction of impediments to the project and communicates with the Product Owner. The Scrum Master is in charge of keeping Scrum up to date, providing coaching, mentoring and training to the teams in case it needs it (*What Is Scrum Methodology? & Scrum Project Management,* 2022). In my team, I am the Scrum Master.
- Scrum Development Team: A group of professionals (developers, programmers, designers and testers) with the necessary technical knowledge who develop the project jointly carrying out the stories they commit to at the start of each sprint (Khristich, 2022). We have 7 members on the development team.

Our Scrum process relies on 3 key artifacts:

- Product Backlog: It is the initial planning process of Scrum that defines and prioritizes Scrum steps necessary for the successful completion of the project. The Product Owner and Scrum Master collaborate to groom the product backlog before sprint planning begins. It is a living document that is continually refined, revised, and reordered throughout the development process.
- Sprint Backlog: The sprint backlog is a microcosm of the product backlog that lists the tasks to be completed in a single sprint. User stories that describe the product's desired functionality are included in a sprint backlog.
- Product Increment: A Scrum product increment represents the sum of completed items during a sprint. For a new increment to be "completed", it must be readily usable and available for release (Khristich, 2022).

## Phases

For our project, there are 15 processes that are grouped into 5 phases: Initiate, Plan and Estimate, Implement, Review and Retrospect, and Release. We apply the sample processes instructed by SCRUMstudy (2014).

### *Initiate*

The Initiate phase includes the following processes:

- Create Project Vision – In this process, the Project Business Case is reviewed to create a Project Vision Statement that will serve as the inspiration and provide a focus for the entire project.
- Create User Stories – In this process, User Stories and their related User Story Acceptance Criteria are created. User Stories are designed to ensure that the customer's requirements are clearly depicted and can be fully understood.
- Create Prioritized Product Backlog – In this process, User Stories are refined, elaborated, and then prioritized to create a Prioritized Product Backlog for the project.
- Conduct Release Planning – In this process, the Scrum Team reviews the User Stories in the Prioritized Product Backlog to develop a Release Planning Schedule, which is essentially a phased deployment schedule that can be shared with the project stakeholders. The length of Sprint is also determined in this process (4 weeks).

### *Plan and Estimate*

The Plan and Estimate phase includes the following processes:

- Approve, Estimate, and Commit User Stories – In this process, the Product Owner approves User Stories for a Sprint. Then, the Scrum Master and Scrum Team estimate the effort required to develop the functionality described in each User Story, and the Scrum Team

commits to delivering the customer requirements in the form of Approved, Estimated, and Committed User Stories.

- Create Tasks – In this process, the Approved, Estimated, and Committed User Stories are broken down into specific tasks and compiled into a Task List. A Task Planning Meeting is held for this purpose.
- Estimate Tasks – In this process, our Scrum Team, in Task Estimation Meetings, estimate the effort required to accomplish each task in the Task List. The result of this process is an Effort Estimated Task List.
- Create Sprint Backlog – In this process, our Scrum Team holds Sprint Planning Meetings where the group creates a Sprint Backlog containing all tasks to be completed in the Sprint.

### *Implement*

The Implement phase includes the following processes:

- Create Deliverables – In this process, the Scrum Team works on the tasks in the Sprint Backlog to create Sprint Deliverables. A Scrum board is used to track the work and activities being carried out. Issues or problems being faced by the Scrum Team are updated in an Impediment Log.
- Conduct Daily Standup – In this process, every day a highly focused, time-boxed meeting is conducted referred to as the Daily Standup meeting. This is the forum for our Scrum Team to update each other on their progress and any impediments they may be facing.
- Groom Prioritized Product Backlog – In this process, the Prioritized Product Backlog is continuously updated and maintained. A Prioritized Product Backlog Review Meeting is held, in which any changes or updates to the backlog are discussed and incorporated into the Prioritized Product Backlog as appropriate.

### *Review and Retrospect*

The Review and Retrospect phase includes the following processes:

- Demonstrate and Validate Sprint – In this process, our Scrum Team demonstrates the Sprint Deliverables to the Product Owner and relevant stakeholders in a Sprint Review Meeting. The purpose of this meeting is to secure approval and acceptance from the Product Owner for the Deliverables created in the Sprint.
- Retrospect Sprint – In this process, the Scrum Master and Scrum Team meet to discuss the lessons learned throughout the Sprint. This information is documented as lessons learned which can be applied to future Sprints.

### *Release*

The Release phase includes the following processes:

- Ship Deliverables – In this process, Accepted Deliverables are delivered or transitioned to the relevant stakeholders. A formal Working Deliverables Agreement documents the successful completion of the Sprint.
- Retrospect Project – In this process, which completes the project, organizational stakeholders and Scrum Team members assemble to retrospect the project and identify, document, and internalize the lessons learned.

## Challenges

Although Scrum seems to be lightweight and simple in its setting, providing our team with basic rules and practices to get started, applying it is not simple and it takes time and effort. As soon as our team starts the projects, real-life challenges jump up. The top challenges that our team faces are resistance to change, misunderstanding process, difficulty in maintaining time-boxing, managing changes in scope, and team vs individual performances.

### *Resistance to change*

Our team has been familiar with Waterfall, which is a linear and sequential approach. This project marks our transformation to Agile – an incremental and iterative approach. I experience passive resistance – a member pretends to go along with the process, do stand-ups, and give lip service to the ideas, but his attitude is, "What is the purpose of this transformation?". To ensure that everybody gets enlightened in the proper way, I invite an expert in the field who can help us with specific practices through training and coaching in the early days.

### *Misunderstanding process – Teams work separately*

In the first two months of the project, I realize that although my team is following an Agile approach, we are implementing a variation of the Waterfall method. There is a case where developers working on features for the next sprint while quality assurance (QA) engineers are reviewing code from the previous sprint. Therefore, we just cut the waterfall framework into smaller pieces but don't provide the benefits of real Agile. Instead, the development and testing of code need to happen in the same iteration – enabling the team to truly adapt and respond to changes, and be collaborative, which are key elements in Scrum. After realizing the problem, I immediately reorganize the processes based on the Scrum framework. Next, I arrange more pieces of training in Agile/Scrum, create an internal support network to help drive and lead changes, and provide agreement on the same understanding/definition of concepts between members.

### *Difficulty in maintaining time-boxing*

I am the Scrum Master who is responsible for maintaining the time-boxing of activities, such as the Daily Stand-up. Time-boxing is used to define the upper limit of duration for activities and events and manage our daily workload. However, there are cases where

participants lack focus, which derails the meeting and leads to inordinate delays. Furthermore, meetings can be skipped or postponed due to emergent work, and the advantages of transparency, inspection, and adaptation of Agile are lost. To overcome this difficulty, I maintain clarity on the agenda of each meeting, explain the importance of strict time-boxing, and if anyone tries to go off-topic, I explain that their issues can be dealt with separately as the team's time is valuable.

### *Managing changes in scope*

Although we try to manage the scope and direction of the work from the beginning, new work can randomly be thrown at the team, or we are asked to move in a different direction. My team gets very confused in these situations. To solve this problem, each change needs to be approved after a negotiation between the Product Owner and the team, to be facilitated by the Scrum Master. Furthermore, as a Scrum Master, I work with the Product Owner to collect feedback on a daily basis, which will help to clear the chaos and give clarity to the team members.

### *Team vs individual performances*

Our Scrum Team must function as one, and work toward achieving team goals rather than creating individual value. However, there are team members who try to create individual success and do not get together cohesively with the team, which causes problems in progress. The members need to understand it is the overall performance that matters, and individual appraisals must factor in this approach.

# Leadership in Agile Project Management

To overcome the challenges that are listed above and ensure that the project goes smoothly, leadership behaviours of the Scrum Master are required. Throughout the project, I perform self-awareness, build trust, develop successful interactions, and provide feedback.

## Self-understanding

After reflecting on the results of the self-awareness questionnaires, I find opportunities for improvement to better contribute to the project.

- Openness: I have an average score of openness. I would love to improve my openness score so that I will be able to learn new things and accept others' ideas quickly. This is important to the project as the members of my team always have different ideas and listening to and filtering ideas is a mandatory step to finding the best solution to a task.
- Emotional stability: I have an average score of emotional stability. I would love to be more calm, stable, and better at managing my anger. This would help me to be more professional in the workplace.

To convert these two opportunities into strengths, I practice reflection on my behaviours. After a day of work, I carefully rate each of my actions related to openness and emotional stability and find out what could be done better.

## Building trust & developing successful interactions

Trust is important because it is the foundation around how human relationships revolve. Trust is essential to boost members' engagement and motivation. When trust is present in our environment, the members can feel psychologically safer, are proud of where they work and are more willing to go above and beyond to achieve team goals. In an organization, working with

people from diverse backgrounds and personal styles is an integral part. Each member brings their own habits, expectations, needs, and interests to the team, and each interaction between the members offers the possibility for building a bridge to the future. According to Tien (2019), The Scrum Values should be supported by the whole team:

- Product Owner needs to trust the Scrum Team that they will do their best to create DONE increment at the end of Sprint(s) and gives us a space to be self-organized.
- The Development Team needs to trust the Product Owner for his/her vision.
- Development Team member trusts each other, not only in their strengths but also in their weaknesses.

To define things that a Scrum Master needs to do at various times to develop and maintain trust and successful interactions in the team, I need to understand the various stages that a team and the team members go through and how I can help the trust to transit between these stages. I use Tuckman's 4-stage model, which described the distinct phases of development as the forming – storming – norming – performing model of group development.

### *Forming stage*

Forming is the first stage when my team members is getting to know each other. It is the first step in the transition from being a group of people into a properly functioning team. During this stage, my members slowly get to know each other, get comfortable with each other and start to build strings of confidence and bonds of trust in each other as well as with their leader (Turaga, 2013). As a Scrum Master, it is critical to help the team to get to know each other and work with them through this stage in a positive and nurturing way. In this stage, to enable trust, I perform the following:

- Keep Information Flow Transparent: The forming stage is where most team members do not know much about the vision and the goal of the team. As a Scrum Master who has access to this information, I talk to the team members and constantly keep them appraised of the happenings and the goals and the priorities being set in the team. The more transparent I am, the more transparent the team members are and the easier it is to start building a bond of trust.
- Define the Purpose and Goals of the Team: I ensure that the team knows the purpose and direction of the team, which is set by the Product Owner so that we can work together.
- Clarity in Roles and Responsibilities: A team member needs to feel that she is important to the team and that amongst the other team members, she has a particular role to play and has a specific responsibility that she is going to be working on. I constantly rotate certain roles to ensure that no frustration is felt until I find who fits into as well as is comfortable in which role.

### *Storming stage*

As the members start to get comfortable with each other in the forming stage, they soon start to voice out their opinions and ideas easily. This leads to a number of viewpoints and thus begins the storming stage. Here, the team members can be defensive or can question the various other team members and the management. This is the stage where the conflicts and potential conflicts in a team surface, and the team is given a chance to resolve them effectively (Turaga, 2013). In this stage, to maintain trust, I consistently perform the following:

- Resolve Conflicts Constructively: No two people always agree on opinions, and so there is every chance of potential conflicts happening. I try to build a positive and safe environment

within the team so that the team members can express their ideas and opinions comfortably and still maintain a sense of positivity.

- Understand Decision-Making Processes: I keep the team members in the loop and inform them of the decisions and the reasons behind those decisions.
- Appreciate the Differences in Each Other: I help the team to be aware of the various different thoughts and ideas, thus enhancing the positivity in the team.
- Show Respect for Individuals: When conflicts become personal and the individuals start to talk against other individuals rather than the views, the value placed on each other tends to reduce. I help the team members to separate their egos and personalities from their opinions and ideas, thus helping the team to maintain bonds of trust.
- Be Assertive: When conflicts happen, some members, to ensure that they do not create a disruptive environment, may choose not to voice their opinions. Over a period of time, these team members will slowly start preferring not to be heard, and this is bound to create some discomfort in the team. I identify the subtle silence of these individuals and talk to them and help them to express themselves so that the openness in the environment stays.

### *Norming stage*

My team is currently in the norming stage. In this stage, the members slowly get used to working with each other. Conflicts are lesser and the team members start to work more productively and comfortably with each other to accomplish goals (Turaga, 2013). I need to continue to find opportunities to sustain and transition trust by encouraging and recognizing both individual and group achievements. I also need to have consistent communication within the group and with myself. To smoothly transition trust and enhance interactions, I consistently perform the following:

- Have Regular One-on-One and Team Meetings: Daily team meetings and one-on-one interactions with the team members help sustain the levels of transparency and belongingness in the team
- Adapt One's Style by Understanding Others': Although everyone wants to achieve the goals, the method of approach is different, and the team members need to adapt to each other's approaches and work together for results. I take along the team members with different styles of communication and encourage them to work together adapting to each other's styles so as to enhance the effectiveness and efficiency and retain the fundamental bond created in the team.
- Informal Team Events and Team Building Activities: Activities such as dinners and coffee chats help the team members to gel well and interact with each other in informal contexts. I frequently create such simulated situations where the team can discuss collaboratively and achieve higher levels of synergy.
- Big Picture and Milestone Progress: I constantly keep the team members updated on the vision and provide constant feedback on the progress of the project and ensure that the entire team is moving on together in the right direction towards the end goal. I also keep the team focused not on the individual directions but the big picture so that the team keeps moving forward with the same level of trust and collaboration.

### *Performing stage*

My team does not reach this stage yet. In this performing stage, all the team members easily participate and collaborate with each other effectively and independently by working with each other without needing to put in a conscious effort. The team members tend to complement each other to achieve results (Turaga, 2013). When we transit to this stage, I will continue to help

enhance the trust within the team by creating capsules and smaller environments of trusting teams working together. The strategies that I will carry out include:

- Communication Within the Team: I will ensure that the channels of communication stay open and that the information flows seamlessly.
- Create Ownership Within Individuals: I will give authority and freedom to one of the team members for a particular responsibility and asks the others to align with that person. The same will be done for each task, with one person managing the task and others helping her/him. This might help in enhanced mutual trust and bonding.
- Celebrate Successes: To sustain the bonds of commitment, it is essential for my team to feel good and celebrate our successes and achievements. Celebrations are a key to keeping the motivation and the performance levels high. This also helps keep the information flow within the team and everyone is aware of what the others are working on and succeeding on, keeping the level of collaboration high.

## Feedback

### *Providing Feedback*

Feedback is critical for enhancing both individual and team performance. It is important that I provide regular, ongoing feedback to all of my members. The feedback I provide should be timely, immediate, and not delayed or reliant on memory where it may lose its impact or significance. To collect reliable information to be able to give effective feedback, I gather information by:

- Observing an individual's performance in the workplace
- Reviewing the individual's performance against the agreed work objectives

- Asking the individual to complete a self-assessment
- Undertaking discussions/surveys with other members

Two types of feedback that I use are Positive and Constructive Feedback.

– Positive Feedback – applies to situations where a member has performed well. It consists of simple praise and highlights why or how the job is done well. I describe specifically what the member has done, rather than making broad generalizations. An example of positive feedback that I give is: "The effort you put into ensuring the information for tomorrow's sprint meeting was greatly appreciated by everyone who attended".
– Constructive Feedback – highlights how a person has behaved/performed and how they might do better next time. When describing a member's action, I focus on specific observable facts. An example of constructive feedback that I give is "You have zoned out in the last half hour of the meeting."

### *Recognizing Contributions*

Member recognition has been identified to be a highly effective motivational instrument, that can have a significant positive impact on member job satisfaction and performance as well as overall team performance (Amoatemaa & Kyeremeh, 2015). I use several types of recognition:

– Written or verbal public recognition: I integrate verbal or written recognition into your culture to show genuine and regular appreciation for small victories. I also use the team's social media to regularly highlight employees' accomplishments and successes at work, even those in their personal lives (birthdays, graduation, etc.,).
– Recognition by award: The awards are given out monthly at team meetings through a wall of fame to acknowledge everyone's efforts. I create some unique recognition titles for each

member to show how much they are appreciated for the unique way they contribute to the team, for example, “Queen of Customers Award” or “King of Fixing Bugs Award”.

– Monetary recognition: Because we are a small team and our budget is tight, I use gift cards as monetary recognition. I make the extra effort to learn where my members like to shop and buy my members their preferred cards when they achieve excellent work.

## Lessons for personal leadership development

Working as a Scrum Master for this project provides me with an opportunity to learn several lessons for my personal leadership development. This is my first time working in an Agile environment, and I learn how to overcome common issues as a Scrum Master. Furthermore, I learn how to reflect on self-awareness questionnaires to find my strengths and opportunities. I also learn how to build trust and develop successful interactions during team development stages (forming – storming – norming – performing). Finally, I learn how to provide feedback (positive – constructive) and recognize members’ contributions.

## Conclusion

Throughout the report, I analyze the project’s method, phases, and challenges. Moreover, I demonstrate how I apply self-understanding, trust-building, developing interactions, and feedback to develop a successful software development team. I learn various lessons for personal leadership development, which helps me to perform better in future projects.

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