# Project Management Assignment 1

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# Part 1:Introduction (what the report is all about)

Agile is a popular work culture that welcomes changes during the software development process as timely communication plays an important role during any development process. This paper will research three popular Agile methods: Scrum, Kanban and Extreme Programming (XP).

So why this welcoming-changes style Agile become popular ,what happened in the old development style Waterfall ? There are several problems with Waterfall as list.

At first, a plan must be completed before any work begins, and in most cases, the plan is completed without fully understanding the project. Once development is complete, the situation is usually sent back to the planning phase, the project needs to be restarted, or the developer is criticized for not understanding the plan.

If there is no communication, this bad cycle can happen many times with wasting time and human cost.

The reason for software development Agile is to provide value to customers with small increments, and to collect feedback from customers and feed back into the process. Above all, Agile is more efficient and flexible for software development.

Let me give an example of one obvious advantage from Agile providing value to customers in small increments. When a demand is devided into several parts , developers could quickly complete several small demand to display to the client to ensure the right direction they hope and the functions they really need. As with the cost assending in the real market, the client often may choose only some functions , because they think some functions are enough to use so they will ask the developers to stop the rest developing plan to save money.

# Part 2:Research Methodology:

The methodology of the paper is firstly to research the origin of Agile. To learn about three methods Scrum, Kanban and Extreme Programming (XP) I should research the history of Agile .I research different passages and websites like Youtube to understand it . I give a brief description of its origins, its main points, its management, and any qualifications that may be available for the Scrum, Kanban and Extreme Programming (XP). The paper also make a comparison about each branches of Agile.

At last I draw a conclusion about the three methods.

# Part 3:Content

## Method 1: Scrum

To implement Agile ,Scrum is one of the most popular ways. It is an iterative software model which follows a set of roles, responsibilities, and meetings which never change. The organization into small, self-organizing teams are broke down by Scrum.These teams then break down the functions they are responsible for, breaking them into small, easy-to-manage work items that they solve in a timebox iteration called sprint.

Three key roles are needed for the framework to work well in Scrum. At first, the product owner, the person who are responsible for defining the features required for the product. Product owners have smart ideas that turn into products.

Secondly, the Scrum master is the team's servant leader, responsible for protecting teams and processes to manage meetings and keep things going.

At last, a team can be made up of developers, testers, writers, and anyone else who helps build the product. Actually, team members often play multiple roles. In some days, developers may end up testing, or testers may end up writing. Either way, the team will work hard to complete the product.

Take LEGO group experience example, after receiving an assignment to build a lego city during one hour. Mostly of the team don’t know what to do to start the task . If at this moment a master could stand out to assign the drawing the building work ,team member will quickly find their role to complete the job together. High frequently commute is good enough to solve some problems quickly which may become a time waste thing to a alone member in a team .

Let's take a look at the Scrum workflow. Starting with the product Backlog, product owners can build a range of sensible ideas and functions that can enter the product.

The product owner prioritizes the list and brings the most important items to the team. The Sprint program is where the product owner and the Scrum master discuss the highest priority users who can enter the following sprint. The output of the sprint plan meeting is the sprint backlog. This is a list of user stories that have been submitted to the next sprint.

According to the discussion of the sprint planning meeting, the whole team and product owners have a good understanding about what is involved in each user story. Sprint is a one- to three-week timeframe, and the promised work in the sprint backlog will continue until completion. The daily scrum is held as a standing meeting and the team discusses what they did and what they are doing and any blocked items during the sprint. The sprint result is a potential deliverable.

Potentially transportable means that the product owner could decide if it is ready for transport or if it needs any other functionality before shipping.

By the end of the sprint, a sprint review and a sprint review meeting will take place. A sprint review is where the team shows their work to the product owner, and the review is where the team can do something to improve their processes.

Scram includes repeating this workflow for each sprint.

## Method 2: Kanban

Kanban was originally invented by Toyota engineers, and Kanban in Japanese stands for "visual signals" or "cards." Kanban is suitable for both software and non-software development.

The workflow is visualized in Kanban: the task is broken down into small, Sprint period and written on a card stuck to the Kanban board.

Kanban board has different columns. As the work progresses to different stages (eg, ready, in progress, ready for review, etc.), the card is moved accordingly.

Restricting ongoing work is the cornerstone of Kanban. For example, if the team processes five projects at a time without making progress, then we should reduce the number to two or three so that we can manage the work and make progress. Choose the most important and valuable work items. Always committed to the next most important thing.

Eliminating waste is crucial. Track and optimize the average time required to complete a project (sometimes called “cycle time”) to make the process as efficient and predictable as possible.

Kanban's process visualization technology makes it ideal for co-located teams that are dealing with backlogs that change frequently (for example, Kanban is usually used by the support team).

## Method 3: Extreme Programming (XP)

XP sometimes include only two members. XP is a framework that focuses on ensuring the quality of delivered software, such as Test Driven Development (TDD) and XP provides engineering solutions for this purpose.

The XP team (composed of all the people involved in the project) participates in the release plan and the iteration plan. They work in a very short development cycle, so you can often merge the changes required by the customer (working in the field on the team).TDD and Refactoring can improve quality, speed up the release process.

## Similarities and differences

Scrum vs Kanban

What Scrum and Kanban have in common is that both are "pull" systems.

Without too much detail, the “pull” system ensures that work is transferred from the product Backlog to the customer as soon as possible. The “pull” system also helps identify bottlenecks in the process, which helps ensure that the work is backlogged from the product to the customer in the shortest amount of time.

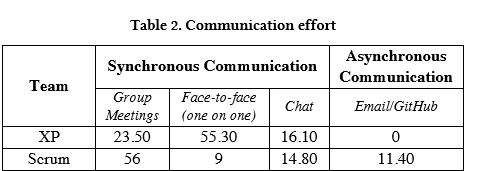
Scrum teams often use the board to track work progress. It is called the Scrum Board or the Kanban Board.

Kanban did something different. Kanban is a continuous process. There is no Sprint Backlog. The "pull" system in the kanban takes place in different ways through work schedule restrictions. Each column on the kanban has a work plan limit related to team abilities.

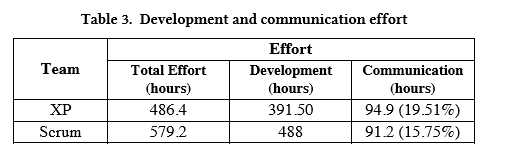
Scrum is more descriptive than Kanban, Kanban avoids defining roles and teams, and has no formal conference structure. Kanban also does not specify iterations - although they can be merged if needed. What happens between product Backlogs is also the difference between Scurm and Kanban.

Scrum vs XP

Scrum is a methodology that focuses more on productivity, while XP is more focused on engineering.



(Taibi, Lenarduzzi, Ahmad, & Liukkunen, 2017)



(Taibi et al., 2017)

## Appropriate uses

Scrum is better suited for teams that can use collective time for projects or products. It brings more ways to structure, helping teams improve productivity via frequent communication and planning, while still being free to decide how to design a solution.

For teams with a growing backlog of projects, Kanban is a very useful way to limit ongoing workload while improving efficiency while respecting existing roles and responsibilities.

XP adds another level of complexity, with a strong focus on quality by insisting on a series of core engineering practices that maintain code cleanliness and software stability.

# Part 4: Conclusions

The purpose of this comparison is never to choose the "best" approach, but to explore the differences between them and to sort out the possible reasons for selecting a method in a particular situation. All three methods follow the principles set out in the Agile and are designed to provide as much value as possible to the customer as much as possible. The difference between them is the result of trying to adhere to the agile principle in a completely different context.

As we saw in the comparison, you can add/subtract elements from methods to find a framework that fits your specific context. Getting there may require some trial and error, but if you insist that the agile principle(welcome changing) is most important in your mind, then you will definitely be on the right path.

# Part 5:List of references (APA format)

Taibi, D., Lenarduzzi, V., Ahmad, M. O., & Liukkunen, K. (2017). Comparing Communication Effort within the Scrum, Scrum with Kanban, XP, and Banana Development Processes. *Proceedings of the 21st International Conference on Evaluation and Assessment in Software Engineering - EASE’17*, 258–263. https://doi.org/10.1145/3084226.3084270