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**Rapid and Agile Software Development  
(ICT3162)  
Individual Assignment - 01**

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# 1. Agile Frameworks

## 1.1 SCRUM

The project owner creates a backlog which contains a list of tasks which are needed to accomplish for project finalization. Then, the SCRUM team analyzes the backlog and the tasks in the backlog are divided into further small tasks to manage easily. After, the team creates a sprint backlog and plans the implementation. Then, the length of the sprint is decided. All the time, regular meetings are conducted for information sharing. When every sprint ends, the result is reviewed by the stakeholders.

## 1.2 DSDM

DSDM's success is due to the philosophy "that any project must be aligned to clearly defined strategic goals and focus upon early delivery of real benefits to the business." Supporting this philosophy with the eight principles allows teams to maintain focus and achieve project goals.

### **The eight Principles of DSDM:**

1. Focus on the business need
2. Deliver on time
3. Collaborate
4. Never compromise quality
5. Build incrementally from firm foundations
6. Develop iteratively
7. Communicate continuously and clearly
8. Demonstrate control

## 1.3 Lean Software Development

Lean focuses on optimizing development time and resources and eliminating waste. It follows MVP (Minimum Viable Product) strategy which helps to speed up the development

process. It focuses on releasing a quick product to the customer rapidly. Lean focuses on learning from customer feedback and eliminating unwanted processes. Lean Software Development has seven principals which helps to develop software more efficiently.

1. Eliminate Waste
2. Build Quality In
3. Create Knowledge
4. Defer Commitment
5. Deliver Fast
6. Respect for People
7. Optimize the Whole

## 2. Benefits and Trade-offs of Agile frameworks

### 2.1 SCRUM

#### **Advantages**

##### ***Adaptable and flexible.***

Scrum is appropriate for a wide range of environments and scenarios where there aren't always clear requirements and a flexible approach is required.

##### ***Involves low costs***

Adopting the Scrum approach can be cost-effective for an organization, as it usually requires less documentation and control.

##### ***Innovation and Creativity***

A Scrum team is a group of people who come up with excellent ideas and discuss them. Scrum promotes an Agile mindset and an environment that encourages ideas from everyone on the team, such that the business value can be maximized.

#### **Disadvantages**

##### ***Requires extensive training***

Although using the Scrum framework can potentially deliver quick and high-quality results, it requires a well-trained and skillful team to properly implement it.

### ***Difficult to scale***

Scrum implementation on a larger scale necessitates intensive training and exact coordination, making it difficult to use for large projects. Although there are approaches to adapt Scrum to larger projects, they are sometimes difficult to grasp and implement at the outset of a new project.

### ***Require major transformations within the organization***

It's possible that adopting the Scrum framework will necessitate some organizational changes. Some elements of the process may necessitate collaboration and teamwork among different departments, and the company must manage and coordinate these partnerships in a way that permits them to take place.

## **2.2 DSDM**

### **Advantages**

- It's easy for everyone within the business to understand how the project is progressing
- The DSDM model prioritizes business cases, ensuring that any projects they deliver have critical business value
- High user involvement.

### **Disadvantages**

- Can be impractical for small companies since implementation can be costly
- DSDM doesn't encourage developer creativity
- Projects follow by a specific standard, even if other more sophisticated options are available

## **2.3 Lean Software Development**

### **Advantages**

### ***A Decrease in Cost***

Profit maximization is at the heart of lean management, and businesses may do more to keep expenses under control. Various factors influence the selling price, including product quality and market conditions. Lean procedures aid in cost reduction, allowing all savings to be applied to a company's profit.

### ***Increased Quality***

The goal is to reduce the amount of product defects and reworks. This means that processes will be streamlined to eliminate errors, saving both time and money.

### ***Increased Employee Morale***

Lean management is a strategy in which managers communicate with employees on their job and the process on a regular basis. Employees may feel more empowered to make better decisions because they are aware of their current situation and how they may develop to do better work.

## **Disadvantages**

### ***The Problem of Inventory***

To reduce carrying costs, lean management entails lowering the amount of stock kept on hand. If inventory operations are disrupted, the company's ability to meet its customers' needs may be affected.

### ***Difficult to Change Over***

Lean management approaches may not always be well received by employees. It will take a lot of patience and a thorough reworking of work processes to execute this style. Leaders must be open and honest about all changes that will occur in the organization. Workers who aren't convinced about the transfer should be given some opportunity to ask questions.

### ***High Implementation Cost***

When a company employs lean management, all systems and production processes are likely to be eliminated. Companies that are not prepared for the increasing costs of bringing in new equipment and training programs may face significant charges as a result.

### 3. Potential Obstacles of Agile Frameworks and the Major Risks and Issues

#### 3.1 SCRUM

A high defect rate often indicates that the team has diverted its attention away from the current sprint goal and is instead concentrating on defect resolution. Teams may begin to adopt agile concepts and demonstrate self-organizing behavior with proper training and coaching. Scrum ceremonies, on the other hand, can grow boring over time, and teams might get complacent.

#### 3.2 DSDM

Business Representative is not well-versed in all aspects of the job and frequently misses meetings. The squad's assets are only for a limited time. The needs will not be supplied in their whole. You already have a complete set of system progress required circumstances.

#### 3.3 Lean Software Development

Support problems can limit your generation output. Any requirement not included in your Just-in-Time planning could risk the entire system. Understand how merged changes affect your team's engagement and how compelling future pushes will be.

### 4. key Strategies for avoiding obstacles of Agile Frameworks.

***Communication among teams and stakeholders.***

People must have a broad idea and knowledge about Agile development and frameworks to fit in with Agile. If development teams are tightly bonded with traditional development methods, they have to educate and turn to Agile methods without turning back to previous traditional ways. People should get support to adapt to the change.

### ***Distribute authorities and encourage team members.***

By distributing authorities and encouraging team results to save a lot of time. Team members do not have to wait until the approval and start their work by themselves is better than wasting valuable time. Team members can take the lower level decisions about implementations and it will be easy for managers as well.

### ***Improve feedback dissemination***

Developers must have received their feedback quickly and more clearly to actively participate in development progress. It will speed up the whole process and improve the flow of the overall development process. If face to face feedback isn't available due to Work from Home situations, it can be used team management software to handle the situation.

### ***Customize Agile***

Agile methods are customizable and can be altered according to the company's needs. Agile frameworks are flexible and can be adapted according to the needs of the software development process. Following a customized Agile framework leads to low wastage and high productivity, but those changes must be done with caution and they have to plan well before adapting to the process.

### ***Improve the consistency of Agile Processes***

Agile must be practiced through a long time within the company and all the stakeholders must have expertise in Agile and its frameworks. Then the software development process will be more consistent and it can be easily modified according to the company needs because the team has the expertise and knowledge about Agile principles and frameworks.



## References

1. Scrum.org. 2022. What is Scrum?. [online] Available at:  
<<https://www.scrum.org/resources/what-is-scrum>> [Accessed 11 April 2022].
2. Docs.microsoft.com. 2022. What is Scrum? - Azure DevOps. [online] Available at:  
<<https://docs.microsoft.com/en-us/devops/plan/what-is-scrum>> [Accessed 11 April 2022].
3. Scrum.org. 2022. What is Scrum?. [online] Available at:  
<<https://www.scrum.org/resources/what-is-scrum>> [Accessed 11 April 2022].
4. Agile-frameworks.com. 2022. DSDM. [online] Available at:  
<[https://agile-frameworks.com/\\_dsdm/dsdm.htm](https://agile-frameworks.com/_dsdm/dsdm.htm)> [Accessed 11 April 2022].
5. Sharma, L., 2022. DSDM Guide - Dynamic Systems Development Method. [online] TOOLSQA. Available at: <<https://www.toolsqa.com/agile/dsdm-guide/>> [Accessed 11 April 2022].
6. Indeed Career Guide. 2022. Dynamic Systems Development Method: Advantages and Disadvantages. [online] Available at:  
<<https://www.indeed.com/career-advice/career-development/dynamic-systems-development-method>> [Accessed 11 April 2022].
7. Imaginovation.net. 2022. [online] Available at:  
<<https://imaginovation.net/blog/lean-software-development-complete-guide/>> [Accessed 12 April 2022].