**Agile and Scrum**

**Agile methodology:**

It is a set of techniques, values and principles designed to guide and improve how software development teams work together to deliver new applications and updates.

**Purposes of agile methodology:**

Creating working software quickly, collaborating with customers frequently, and being able to adapt to changes easily.



**Comparison Between Agile and Waterfall Models**

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|  | **Agile Models** | **Waterfall Models** |
| **process** | Incremental | Linear |
| **Cost & Time** | Can be costlier due to changes but faster time-to-market | Lower cost in fixed projects, but slower to adapt to change |
| **Requirement** | Non-Fixed requirement | Fixed requirement |
| **Flexibility** | Highly flexible | Difficult to make changes once a phase is complete |
| **Customer Involvement** | Continuous customer feedback and involvement | Customer involvement is limited to the initial and final stages |

**Advantages & Disadvantages**

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|  | **Advantages** | **Disadvantages** |
| **Agile** | * Increased flexibility. * Reduced risks. * Continuous improvement. | * Difficult to evaluate project time and costs. * There is a high possibility of scope creep. |
| **Waterfall** | * Easy to track progress, identify risks, and manage project budgets. * Requirements stability. * The fastest project delivery | * Changes require significant replanning and adjustment to long-term plans. * Long delivery timeline and slow time to market. * Not suitable for complex projects with high risks. * Never backward. |

**When to Use Agile vs. Waterfall**

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| **Agile Models** | **Waterfall Models** |
| Project with changing requirements | Stable requirements |
| Fast market delivery needed | Strict budget and deadline |
| Customer involvement is high | Small project |