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DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY

Department of: Information and Communication Technology

Lab report no: 03

Lab report on: Agile approaches and their comparative analysis

Course Title : Software Engineering

Course Code : ICT-3209

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Session: 20-21

3rd year 2nd semester

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Date of performance: 30.11.24

Date of submittion: 06.12.24



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QUESTION 1: Different agile approaches and their
comparative analysis: how it works?

ANSWER: Agile methodologies are a set of frameworks and practices used to promote iterative development, adaptability, and collaboration in software development and project management.

Q. Scrum: Scrum is one of the most widely adopted agile

frameworks. It is based on iterative development cycles called sprints (usually 2-4 weeks).

How it works:

- The team works on a prioritized set of user stories from the product backlog during each sprint.



2. Kanban: Kanban is a visual management system that focuses on continuous delivery without the need for fixed iterations like Scrum. It allows for more continuous flow of work.

How it works:

The team visualizes all work items using a Kanban board and moves them through the columns as they progress.

3. Extreme Programming (XP): XP is a highly disciplined agile methodology that emphasizes engineering practices and close collaboration between developers and customers.

How it works: The development team

works in short iterations, typically 1-4 weeks, and

uses continuous integration to ensure high quality code.



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focusing on writing high-quality testable code.

4. Lean Software Development: Lean software development is derived from Lean manufacturing principles and focuses on eliminating waste, improving flow and delivering value to customers more efficiently.

How it works: focuses on streamlining processes, reducing bottlenecks, and improving the value delivered to customers.

5. Feature-Driven Development: FDD is an agile framework focused on delivering client-valued features in a structured



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How it works: The project is broken down into a list of features. Each feature is designed and built in a short cycle, with regular reviews and feedback loops.

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infiltration of other privacy invasive tools.

2. Different agile approaches and their comparative analysis applicability

Ques. 1) *Different agile approaches offer unique strengths and are applicable in different contexts, based on*

Project size, team structure, delivery tips and the nature of the work

i) Scrum applicability:

- Cross-functional teams with a clear product backlog and fixed priorities.
- Projects with well-defined goals and a relatively stable scope, but evolving requirements.

ii) Kanban applicability: Teams with

- Integrating continuous work-flows on projects that don't require fixed iterations.

iii) Extreme Programming (XP):

XP focuses on engineering practices to improve software quality and developer productivity. It emphasizes practices

like test-driven development (TDD),

pair programming, and continuous



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4. Lean software Development: Teams

- focus on efficiency and waste reduction, aiming to optimize flow, reduce waste, and improve efficiency in their workflow.
- Projects where value delivery and continuous improvement are the top priorities.

5. Feature-driven development:

- Large-scale projects where work can be easily broken down into most distinct features.

6. Product-driven teams: teams that prioritize delivering features in a structured, incremental manner.

6. Dynamic System Development method (DSDM):

- Organizations needing a formal



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agile process with roles and responsibilities.

- Large-scale projects requiring strong governance and clear project phases.

3. Different agile approaches and their comparative analysis in terms of cost-effectiveness.

When it comes to cost-effectiveness, agile methodologies vary in how they handle times, resources, team engagement, and overall efficiency.

1. Scrum cost-effectiveness: Scrum

• Prioritizes the most important features.

• The role of the scrum master



and ceremonies

2. Kanban effectiveness in cost: High cost effective for continuous delivery models or when the work is unpredictable and needs constant flow such as in maintenance or support teams.

3. Extreme Programming (XP): modern xp is cost-effective in projects where high-quality, maintainable software is a priority and when rapid feedback and iteration are needed.

↳ Lean software Development:

• Lean is well-suited for projects aiming to minimize waste and



maximize efficiency, making it highly effective for cost-conscious teams.

5. Feature-driven development:

- FDD is ideal for large-scale projects that are feature-driven and require clear planning. its detailed up-front planning and structure might increase initial costs.

6. Dynamic systems development method:

- DSDM is useful for large-scale projects that need strong governance and predictability. its overhead and formal structure may not be the most cost-effective for smaller



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