

Question: Different Agile Approaches and their comparative Analysis.

Answer: In software engineering, Agile refers to a development methodology based on iterative and incremental process that emphasize flexibility, collaboration and customer centric approaches.

① Scrum:

↳ How it works:

↳ Iterative and incremental development with short sprints (usually 2-4 weeks)

↳ Roles: Product owner, Scrum master, Development team.

↳ Key events: Sprint planning, Daily stand-ups, Sprint Reviews, Retrospectives.

↳ Applicability:

↳ Suitable for projects with defined roles and deliverables.

↳ Commonly used in software development and product-focused industries.

↳ Works best for small to medium sized teams.

- ↳ Effectiveness in terms of costs:
 - ↳ cost-effect due to focused sprints and reduced wastage.
 - ↳ Continuous delivery reduced risk of major financial setbacks.

Example: A team developing an e-commerce platform uses scrum to deliver features, like a shopping cart, product search and payment integration incrementally.

② Kanban:

- ↳ How it works:
 - ↳ Focuses on visualizing workflows and limiting work in progress (WIP).
 - ↳ Uses a Kanban board with columns like To Do, In progress and Done.
 - ↳ Continuous Delivery, no fixed timeboxes.

b) Applications:

- ↳ Best for operations and maintenance project or ongoing support.
- ↳ Effective where work priorities frequently change.

- ↳ Effectiveness: in terms of costs:
 - ↳ Minimal overhead cost.
 - ↳ Improve workflow efficiency, reducing waste.

~~Example: A team managing IT support tickets~~

③ Extreme Programming (XP):

- ↳ How it works:

- ↳ Emphasizes technical practices like Test-Driven Development (TDD), continuous Integration (CI) and pair programming.
- ↳ Short Iteration with frequent releases.
- ↳ Customer involvement is integral.

- ↳ Application:

- ↳ Ideal for projects requiring high-quality code and rapid changes.
- ↳ Common in startups or environments with rapidly evolving requirements.

↳ Effectiveness in terms of costs:

↳ Initial costs may be higher due to pain

↳ Programming and testing effort.

↳ Long-term savings due to reduced defects

and maintenance.

Example: A financial software project where the

quality and accuracy are critical employs XP to ensure robust and reliable code.

After all, testing is not a cost, it's a way to work.

Development environment (IDE) has evolved

from graphical user interface

to web-based development tools.

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