

SOFTWARE PROJECTS MANAGEMENT

Software Engineering Seminar

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Outline

1 Agile Methodologies



2 Project Management



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Agile Methodologies

- Emphasize iterative development, customer collaboration, and flexibility.
- They are based on the Agile Manifesto, which values individuals and interactions over processes and tools.
- Agile methodologies are suitable for projects with rapidly changing requirements and high uncertainty.
- They promote adaptive planning, evolutionary development, and early delivery of valuable software.



Agile Manifesto Principles

- !!
- Customer satisfaction through early and continuous delivery of valuable software.
 - Welcoming changing requirements, even late in development.
 - Delivering working software frequently, with a preference for shorter timescales.
dev ~ max 2 days client ~ max 3 weeks
 - Close, daily cooperation between business people and developers.
 - Motivated individuals should be trusted to get the job done.
if it is need lead
- ~~business process~~, ~~business analyst~~
- ~~client~~ → ~~product owner~~



Agile Methodologies Characteristics

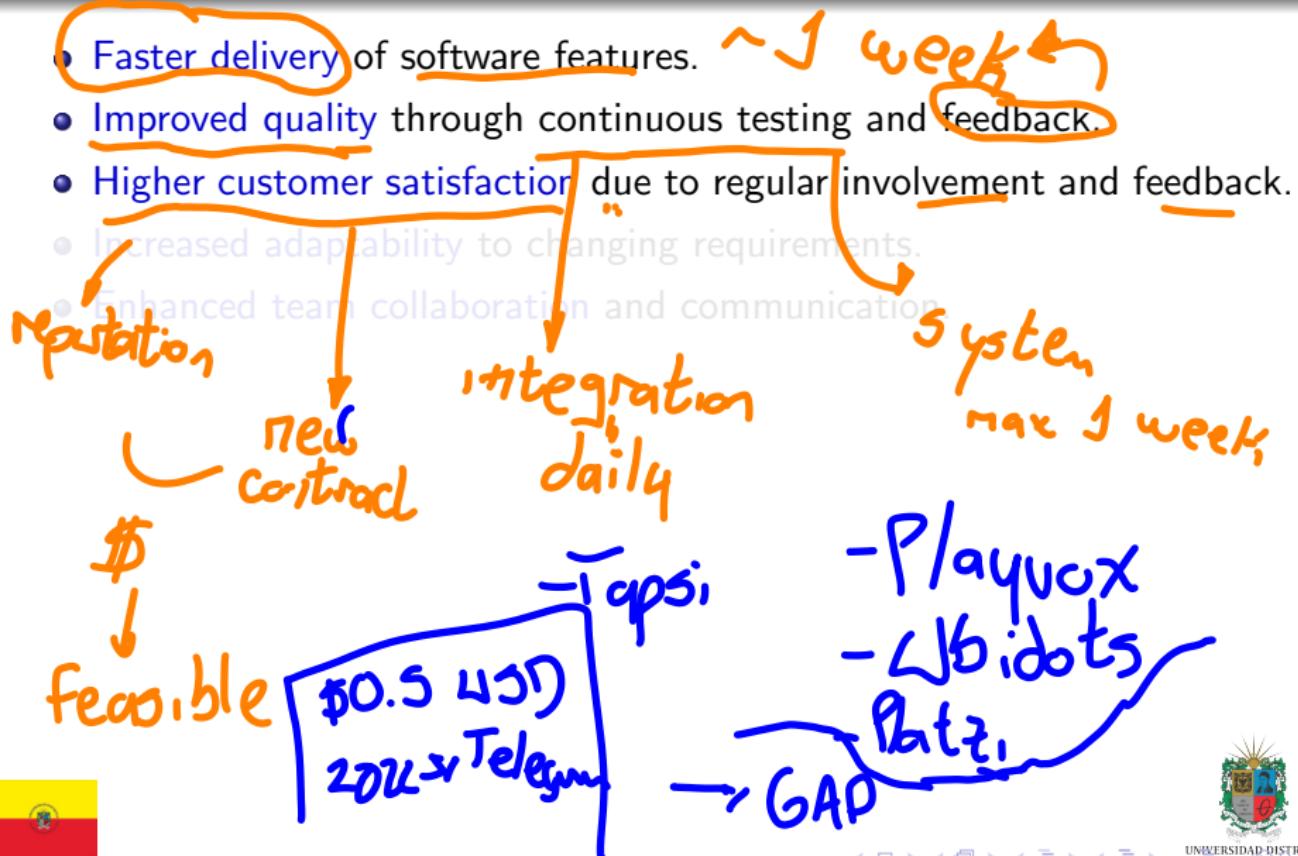
- **Simplicity** is essential, focusing on the essential features.
- Self-organizing teams are encouraged to make decisions.
- Face-to-face communication is preferred for effective collaboration.
- Regular **reflection** on how to become more effective, and adjustment of behavior accordingly.

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Agile Methodologies Benefits



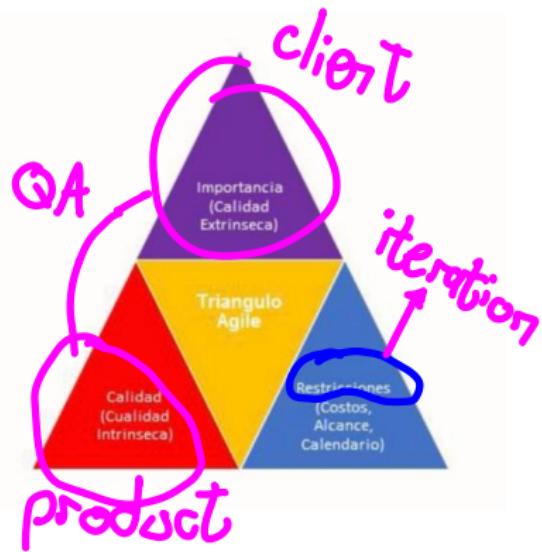
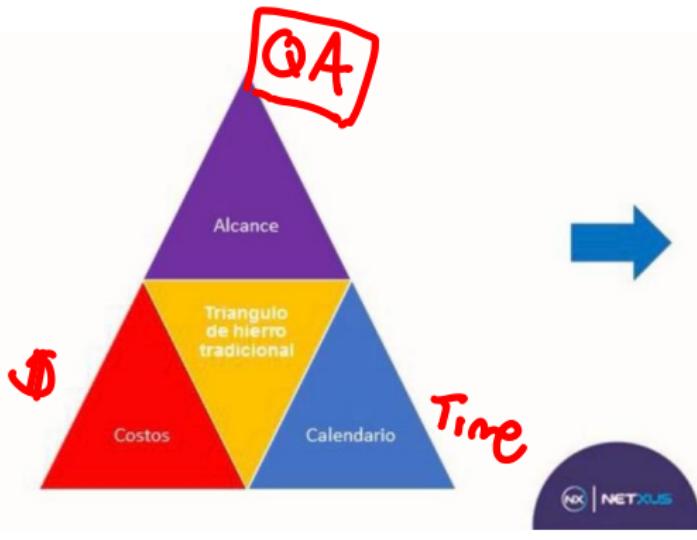
Agile Methodologies Benefits

- Faster delivery of software features.
- Improved quality through continuous testing and feedback.
- Higher customer satisfaction due to regular involvement and feedback.
- Increased adaptability to changing requirements.
- Enhanced team collaboration and communication.

daily through the day

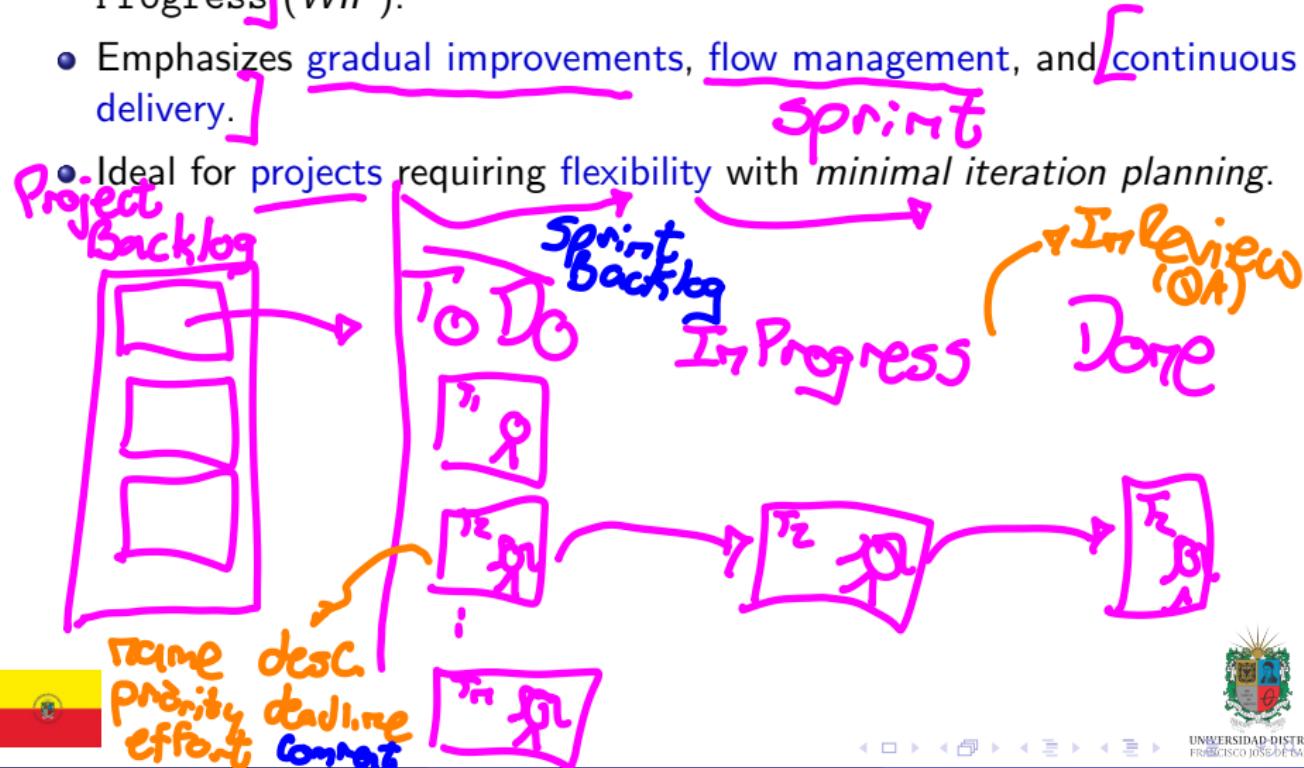


Project Triangles



Case Study: Kanban → Trello

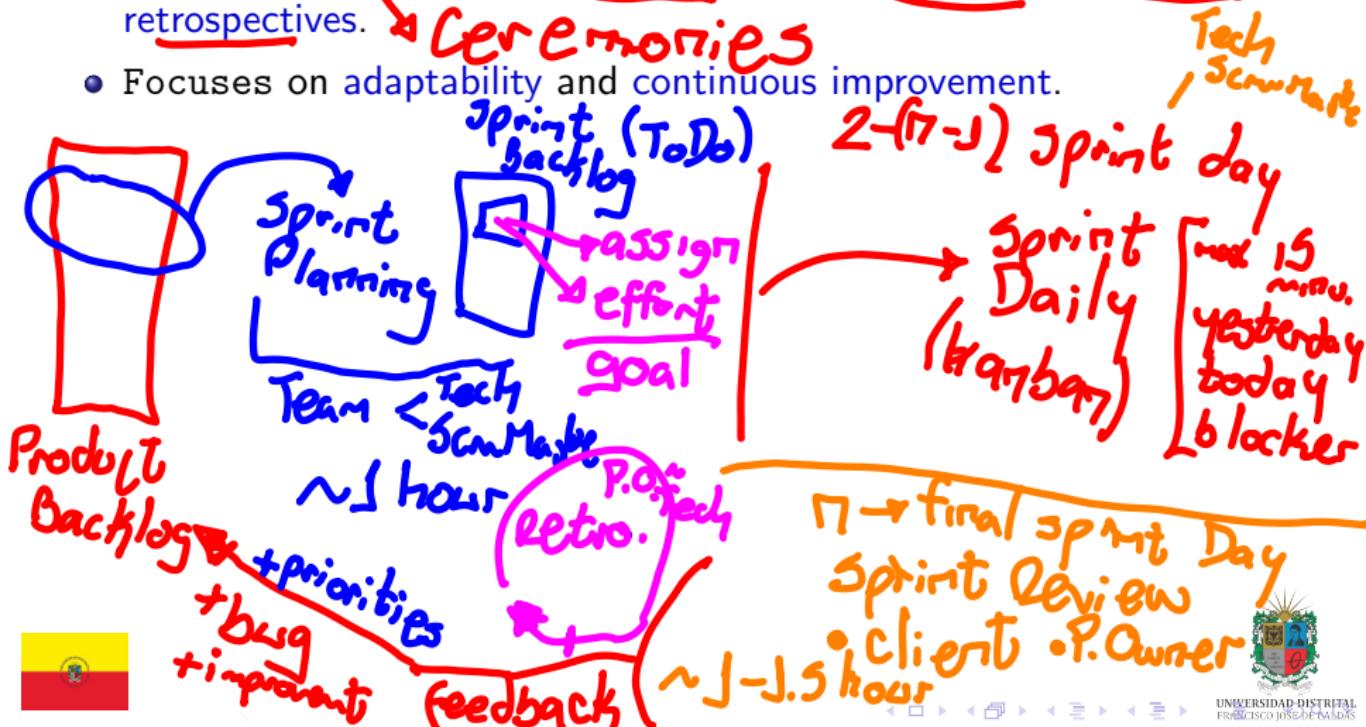
- **Kanban** visualizes work items on boards and limits Work In Progress (*WIP*).
 - Emphasizes gradual improvements, flow management, and continuous delivery.
 - Ideal for projects requiring flexibility with *minimal iteration planning*.



Case Study: Scrum

$\sim 1994 \Rightarrow 2005(6)$

- Scrum employs short, time-boxed iterations called sprints.
- Key practices include daily stand-ups, sprint planning, reviews, and retrospectives.
- Focuses on adaptability and continuous improvement.



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Enterprises: Bottom-Up and Top-Down Approaches

- **Bottom-Up Approach:** Analyzes an enterprise by examining its individual units or components, then aggregating them to understand the entire organization.
- **Top-Down Approach:** Starts with an overall vision or strategy and decomposes it into subsystems, departments, and processes.



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PIECE Framework for Enterprises

- **Participation:** *Engaging stakeholders at every level.*
- **Independence of Thought:** Encouraging *diverse, innovative ideas.*
- **Elaboration:** Developing and *refining ideas and processes.*
- **Communication:** Ensuring clear, *effective exchange of information.*
- **Exploration:** Embracing *continuous innovation and improvement.*



Enterprise System Typologies

- **Rational Systems:** Organizations driven by logical, structured processes and clear hierarchies.
- **Natural Systems:** Organizations viewed as self-organizing entities with emergent behavior.
- **Open Systems:** Enterprises that continuously interact with their external environment for information, resources, and innovation.



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Business Systems and Models

- **Business Systems:** Frameworks that encompass an enterprise's internal processes, operations, and strategies.
- **Examples:** ERP systems, CRM systems, SCM systems.
- **Business Models:** Describe how an organization creates, delivers, and captures value.
 - Examples include subscription-based, freemium, platform-based, and direct sales models.



Business Systems and Models

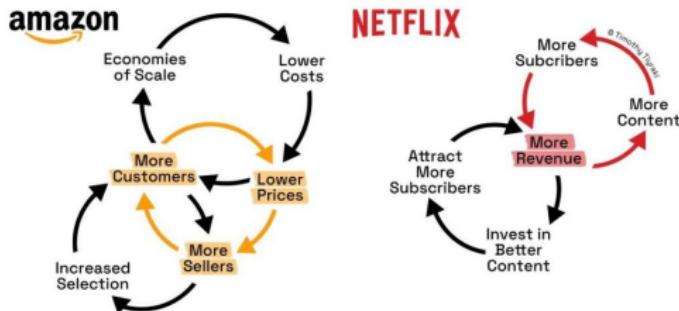
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Business Models Examples

Understanding Business Models Through Flywheels

amazon



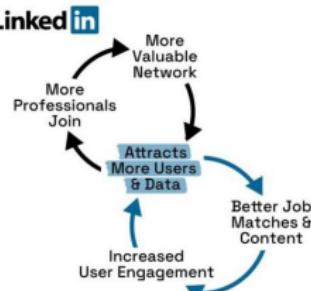
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Project Management in Software Engineering

- Project management is the process of planning, executing, and controlling software projects to achieve specific goals.
- It involves defining project scope (*objectives, requirements, boundaries, ...*), allocating resources (*human, financial, technical, ...*), scheduling tasks (*time estimation, task dependencies, ...*), managing risks (*identifying, assessing, mitigating, ...*), managing changes (*change requests, impact analysis, ...*), monitoring progress (*tracking milestones, deliverables, ...*), and ensuring quality.
- Effective project management is crucial for delivering software projects on time, within budget, and meeting customer expectations.



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Project Management Key Points

- Choosing the right **methodology** for your project is crucial. Consider factors like: **project size, complexity, team experience, and customer requirements.**
- Build a **strong team** with diverse skills and expertise. Encourage *collaboration, communication, and knowledge sharing.*
- Define clear **goals and objectives** for your **project**. Ensure that all team members understand the project vision and their roles in achieving it.
- Use tools and techniques to support project management, such as **project management software, version control systems, issue tracking systems, and collaboration tools.**
- Regularly review and adjust your project plan based on feedback and changing circumstances to ensure *continued alignment* with project goals.



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Thanks!

Questions?



Repo: www.github.com/EngAndres/ud-public/tree/main/courses/software_engineering_seminar

