Software Projects Management

Software Engineering Seminar

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Outline

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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`.

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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`.
- Close, daily cooperation between `business people` and `developers`.
- Motivated individuals should be trusted to get the job done.

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

- 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.

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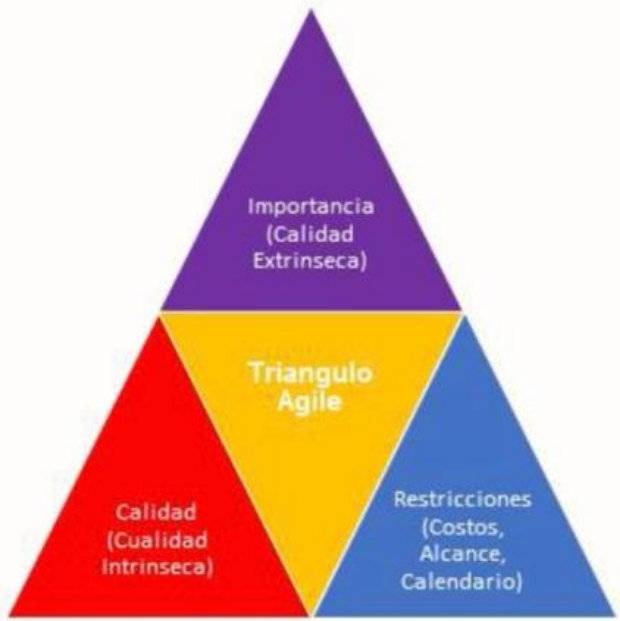
Project Triangles



Case Study: Kanban

- **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*.

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Case Study: Scrum

- **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

- **P**articipation: *Engaging stakeholders* at every level.
- **I**ndependence of Thought: Encouraging *diverse*, *innovative ideas*.
- **E**laboration: Developing and *refining ideas* and *processes*.
- **C**ommunication: Ensuring clear, *effective exchange* of information.
- **E**xploration: Embracing *continuous innovation* and *improvement*.

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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.

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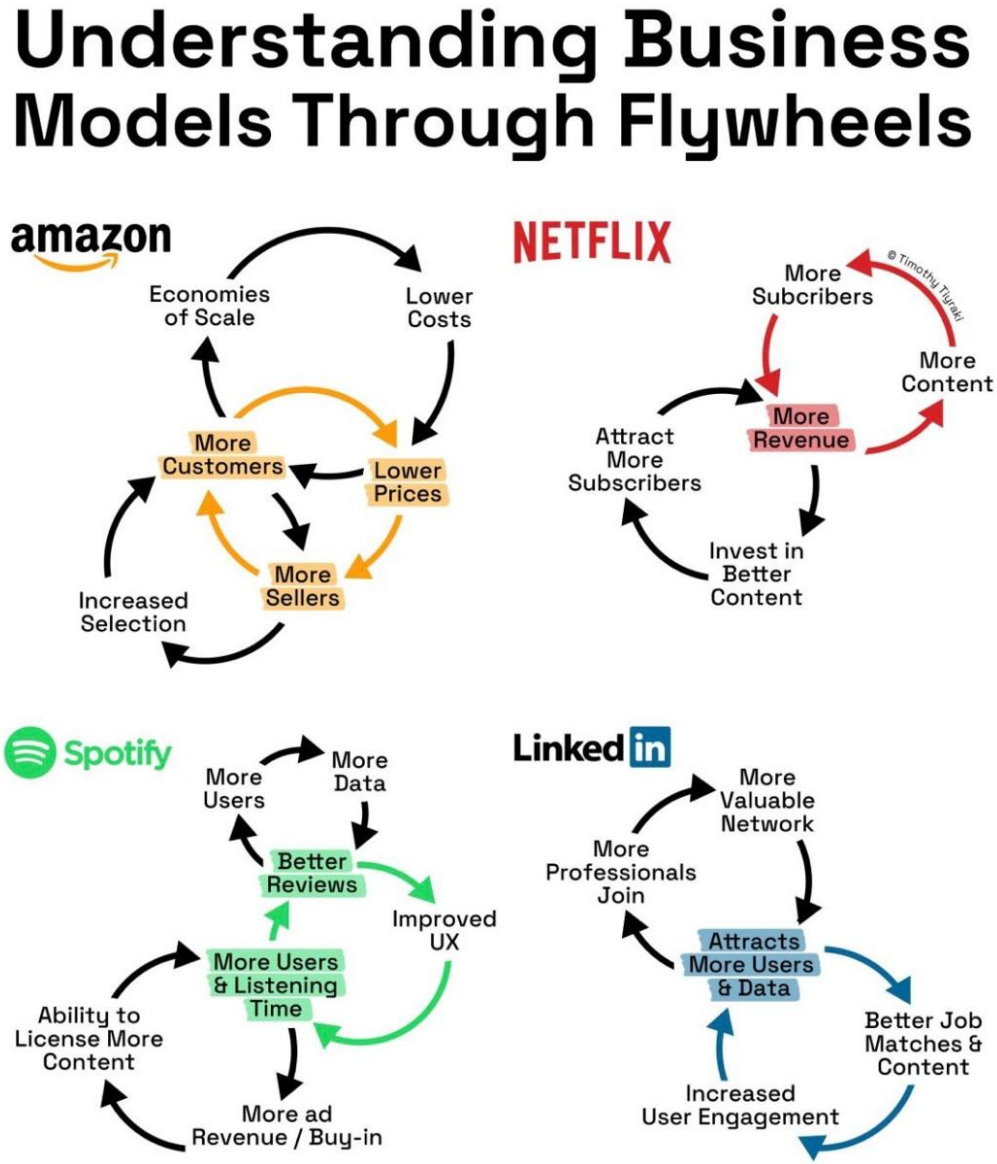
Business Models Examples



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*

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