

SOFTWARE PROJECTS MANAGEMENT

Software Engineering Seminar

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Outline

- 1 Agile Methodologies
- 2 Project Management



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1 Agile Methodologies

2 Project Management



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.
- **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 adjusting behavior accordingly.



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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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*.



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

- **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.



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Business Models Examples

Understanding Business Models Through Flywheels

amazon



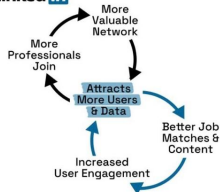
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Project Management in Software Engineering

- **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**.
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Project Management Keypoints

- Choose 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?



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