Bahria University-Karachi Campus

Software Project Management

Fall-2024

Week 02

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WEEK 02 - AGENDA

1. What Is Project Management?
2. Understanding 10 Knowledge management Areas

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WHAT IS SOFTWARE PROJECT MANAGEMENT?

- Software project management is a specialized field within project management that focuses on planning, executing, monitoring, and controlling projects related to software development.
- It involves the application of project management principles and practices to ensure that software projects are completed successfully, on time, within budget, and with the desired quality.

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KNOWLEDGE AREAS & PROCESS GROUPS

1. Knowledge Areas:

- Knowledge areas refer to specific areas of *expertise* and focus that project managers and project management teams need to consider and manage throughout the life cycle of a project.

2. Process Groups:

- Process groups refer to the five *phases* or *stages* that encompass the entire project life cycle.
- These process groups provide a structured framework for organizing and managing project activities from initiation to closure.

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WHAT IS SOFTWARE PROJECT MANAGEMENT?

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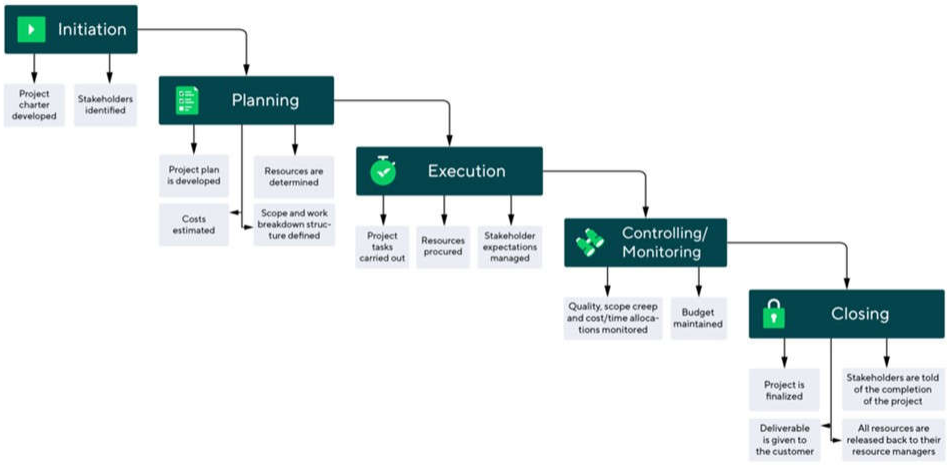

PROJECT MANAGEMENT TRIANGLE

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PROJECT MANAGEMENT TRIANGLE

- The *Golden Triangle* of project management is a visual aid with a triangle whose three sides represent the three core constraints affecting the overall quality of a project's end product
- PMT is also called the *Iron Triangle* because the three different sides (time, project cost, scope) can be thought of as exerting opposing forces against each other.
- This triangle also represents the *balance* that must be maintained between the triple constraints.
- In other words, if one variable changes, adjustments must be made to the other two to restore balance.

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PROJECT MANAGEMENT TRIANGLE

- For successful project execution, the project manager needs to carefully negotiate the relationship between the triple constraints to maintain a strong, rigid triangle.
- However, there are specific types of relationships between certain constraints that cannot be changed:
  - Directly proportional relationship
  - Inversely proportional relationship

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PROJECT MANAGEMENT TRIANGLE

- The relationship between scope, cost, and time is *directly* proportional.
- If you increase the scope of a project, the cost and/or time will also have to increase.
- Likewise, if you decide to decrease the scope of a project, there will be room for a parallel decrease in cost and/or time.
- The relationship between cost and time, however, is *inversely* proportional.
- These two constraints must be balanced by moving them in opposite directions.

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Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
9. Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	

PMI'S KNOWLEDGE AREAS

- **Example FYP: E-Commerce Website**

1. Project Integration Management:

- Definition: Coordinating and managing all project aspects to ensure successful execution.

- Example:
- Developing a *project management plan* that outlines how different aspects of e-commerce website development will be integrated, including design, development, testing, and deployment.

PMI's Knowledge Areas

2. Project Scope Management:

- This knowledge area involves defining and controlling what is included and excluded from the project scope to meet project goals.

- Example:
- Defining the specific features and functionality of the e-commerce website, such as product catalog, shopping cart, user registration, and payment processing.

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PMI's Knowledge Areas

3. Project Time Management:

- This knowledge area is about creating, maintaining, and controlling the project schedule, ensuring timely completion of project activities.

- Example:
- Creating a project schedule that outlines the timeline for different phases of the e-commerce website development, including design, coding, testing, and launch.

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PMI's Knowledge Areas

4. Project Cost Management:

- This knowledge area involves estimating, budgeting, and controlling project costs to ensure the project remains within its financial constraints.

- Example:
- Estimating the budget required for the e-commerce website project, including costs for software development, hardware, hosting, and marketing.

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PMI's Knowledge Areas

5. Project Quality Management:

- This knowledge area focuses on defining quality standards and ensuring that the project delivers outputs that meet or exceed those standards.

- Example:
- Defining quality standards for the website, such as load times, user experience, and security protocols, and ensuring they are met throughout the development process.

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PMI's Knowledge Areas

6. Project Human Resource Management:

- This knowledge area involves acquiring, developing, and managing project team members and other resources effectively.

- Example:
- Identifying and allocating roles and responsibilities to team members, such as web developers, designers, content creators, and project managers.

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PMI's Knowledge Areas

7. Project Communication Management:

- This knowledge area addresses the planning, distribution, and management of project information to stakeholders.

- Example:
- Establishing a communication plan to keep stakeholders informed about project progress, issues, and changes.

- This includes regular status meetings, conducting regular feedback sessions, and reports, gathering user requirements, and addressing any concerns or changes in project scope based on stakeholder input.

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PMI's Knowledge Areas

8. Project Risk Management:

- This knowledge area includes identifying, analyzing, and managing project risks to minimize their impact on project objectives.

- Example:
- Identifying potential risks to the e-commerce website project, such as technical challenges, security threats, or changes in market demand, and developing risk mitigation plans.

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PMI's Knowledge Areas

9. Project Procurement Management:

- This knowledge area involves procurement planning, contracting, and managing relationships with suppliers and vendors.

- Example:
- Selecting and contracting with external vendors or suppliers for services such as web hosting, payment processing, or digital marketing.

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PMI's Knowledge Areas

10. Project Stakeholder Management:

- This knowledge area focuses on identifying and managing relationships with project stakeholders to meet their needs and expectations.

- Example:
- Identifying and analyzing key stakeholders involved in the e-commerce website project, including customers, end-users, marketing teams, developers, executives, and regulatory authorities.

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PMI's Process Groups

1. **Initiating:**
   - **Definition:** Processes that define a new project or project phase.
   - **Example:** Defining the project's objectives, stakeholders, and initial requirements for the e-commerce website.
2. **Planning:**
   - **Definition:** Processes that create the project management plan and define project execution.
   - **Example:** Creating a detailed project plan that includes scope, schedule, budget, quality standards, and risk management strategies.
3. **Executing:**
   - **Definition:** Processes for carrying out the project plan.
   - **Example:** Building and developing the e-commerce website according to the project plan, including coding, design, content creation, and integration of third-party services.

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PMI's Process Groups

4. **Monitoring and Controlling:**
   - **Definition:** Processes for tracking, reviewing, and regulating project progress and performance.
   - **Example:** Tracking project progress, performance, and quality throughout the development process, and taking corrective actions when necessary to keep the project on track.
5. **Closing:**
   - **Definition:** Processes for finalizing all project activities and formally closing the project.
   - **Example:** Ensuring all project objectives have been met, conducting user acceptance testing, and officially launching the e-commerce website.
   - This phase also includes post-launch activities like maintenance and support.

Managing Scope Creep

- **Scope creep:** *When a project grows beyond its original scope with additional deliverables, an extended timeline, or more costs than originally planned.*
- Managing scope creep in software projects is crucial to ensure that the project stays on track, remains within budget, and delivers the desired results. Here are some strategies to effectively manage scope creep:

1. Clearly Define Project Scope:
   - Begin with a well-defined project scope that outlines the specific goals, features, and requirements of the software. Make sure all stakeholders understand and agree to the scope.
2. Create a Change Control Process:
   - Establish a formal change control process that outlines how changes to the project scope will be handled. This process should include steps for requesting, reviewing, approving, and implementing changes.

MANAGING SCOPE CREEP

3. Document Requirements:
   - Thoroughly document all project requirements and ensure that they are reviewed and approved by stakeholders. Use tools like requirement documents, user stories, and use cases.
4. Set Priorities:
   - Prioritize project features and requirements based on their importance and impact on the project's goals. This helps in making informed decisions when changes are requested.
5. Engage Stakeholders:
   - Maintain open and transparent communication with stakeholders throughout the project. Involve them in discussions about scope changes and their implications.

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MANAGING SCOPE CREEP

6. Estimate and Assess Impact:
   - When a change request is made, assess its impact on the project's timeline, budget, and resources. Provide stakeholders with a clear understanding of the consequences of the change.
7. Control Scope Changes:
   - Only implement scope changes after they have been formally approved through the change control process. Avoid making impromptu changes that are not properly documented and approved.
8. Negotiate and Compromise:
   - Sometimes, it may be necessary to negotiate with stakeholders to find a compromise that meets their needs without significantly impacting the project. Seek win-win solutions.

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MANAGING SCOPE CREEP

9. Track Changes:
   - Maintain a log of all scope changes, including their details, reasons, and approvals. This log serves as a historical record and can help in accountability.
10. Regularly Review Progress:
   - Conduct regular project reviews and status meetings to ensure that the project is on track and that any scope changes are being managed effectively.
11. Educate Stakeholders:
   - Educate stakeholders about the consequences of scope creep, such as delays, increased costs, and potential quality issues. Help them understand the importance of sticking to the agreed-upon scope.

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MANAGING SCOPE CREEP

12. Use Agile Methodologies:
   - Agile methodologies like Scrum and Kanban can help manage scope changes more effectively by allowing for flexibility and iterative development. Changes can be incorporated in future sprints or cycles.
13. Document Everything:
   - Maintain detailed records of all project-related communications, change requests, and approvals. Having a clear paper trail can be invaluable in managing scope creep disputes.
14. Seek Senior Management Support:
   - If scope creep becomes a persistent issue, seek support from senior management to enforce project boundaries and the change control process.
15. Learn from Previous Projects:
   - Analyze past projects to identify common sources of scope creep and develop preventive measures based on those insights.

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SPM-FALL-2024
25-Sep-2024
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29