Digital Project Management Nanodegree

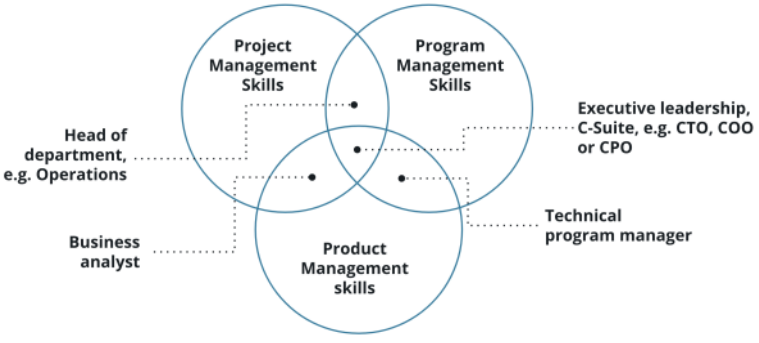
2023年11月14日 14:54

PMBOKU

Core Skills:

- Communication:
  - Be clear
  - Speak their language
- Writing:
  - Memo
  - Business plan
- Interpersonal skills:
  - Your ability to relate to/work with others
  - Good listener and observant
  - Collaborate and bring people together
  - Emotional intelligence:
    - The ability to handle emotions in a productive and positive way.
- Leverage management digital tools:
  - Jira/Asana

Here are the three main roles that use digital project management skills:
Project Manager: A project manager coordinates people and resources to get projects done on time and within budget.
Product Manager: A product manager uses technical and creative methods to develop or improve digital products.
Program Manager: A program manager selects a set of projects and initiatives based on business priorities and facilitates their execution.



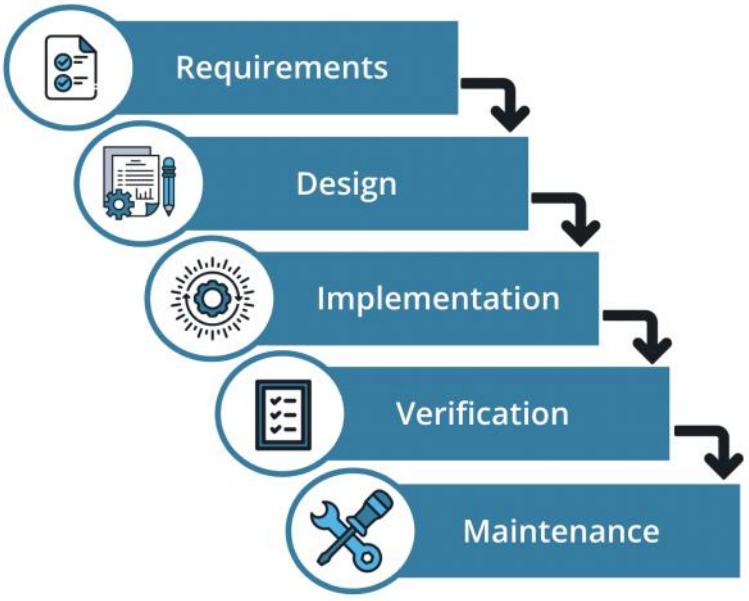
Digital Transformation
Digital transformation is the conversion of tools and processes into Internet-based resources. A digital project manager, in this case, could convert the delivery of products or services into or via a digital format, or lead the adoption of digital tools to optimize or even automate workflows and processes.

Change Management
Change management is the implementation of structures, mechanisms, and a culture in place that helps people adapt to any kind of change that could threaten the business. A digital project manager could, for example, update procedures and policy, adjust processes until a particular goal has been achieved, or implement resources due to new investment.

Methodology vs framework:

- **Methodology:** A set of methods or guiding principles for a field of study or discipline.
  - is like a compass that guides the steps you should take:
- **Framework:** A structure providing a set of steps or a plan for how to realize an idea.
  - is like a map that tells you what steps those are and in what order.

Stages of SDLC:



Methodologies and Frameworks discussed in this course

Methodology	Framework
Waterfall	SDLC
Agile	Scrum

Additional Resources

- The **Lean** Methodology, if you'd like to build a startup from the ground up;
- **Extreme Programming**, or XP, if you would like to become an ultra-efficient software developer;
- And the **Prince2** methodology for enterprise-level projects at large corporations.

Agile Methodology

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What is Agile and Scrum:

- Agile is a methodology that emphasizes adaptability and collaboration,
- Scrum is a specific framework within Agile that provides a structure for project teams to achieve their goals.
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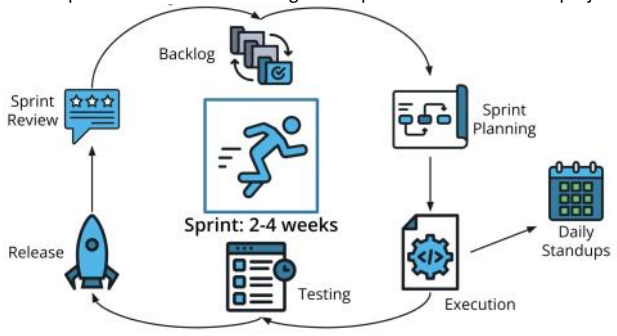


Scrum Framework Stages and Events

- **Sprint:** The time period Scrum projects typically work within is two to four weeks.
- **Backlog:** All the requirements for developing a product or process, also known as deliverables, are gathered into the backlog by the project manager.
- **Sprint Planning:** A meeting hosted by the project manager to prioritize the deliverables that will be worked on and in which order.
- **Execution:** This is where the team actually builds out the project's deliverables.
- **Daily Standups:** Throughout a Sprint, the project manager hosts a 15- to 30-minute huddle, where the team provides a status report of their tasks.
- **Testing:** Inspired by the Software Development Lifecycle, testing is the stage in Scrum projects where the team briefly tests the product or process and checks for errors.
- **Release:** If the deliverable is ready, it is launched and the team gathers feedback from users interacting with the product or process.
- **Sprint Review:** The final stage of Scrum projects, in which the project manager hosts a Retrospective meeting where the team discusses what they learned from the Sprint they just completed.

Summary of a Sprint Cycle (usually two weeks) Also called <u>Scrum Events</u>:

1. Sprint Planning:
    a. Set a sprint goal (ex: Designer able to create survey)
    b. Choose (Prioritize) a set of deliverables (user stories) from the greater set in product backlog and move it to the sprint backlog to accomplish the current sprint goal.
        i. The stakeholders (represented by product owner) prepare the product backlog (requirements)
        ii. The meeting is done with developers and stakeholder (product owner) to choose a set of deliverables.
    c. Acceptance criteria, priority, effort estimation is defined for each user story in the sprint backlog.
2. Daily Standup
    a. Short daily Standups where developers report each task status in that sprint (what is done, what is for today, what issues they have).
3. Sprint (Execution):
    a. Team work to build the user story in the sprint.
    b. Testing: Confirm the deliverable works as it is supposed to.
4. Sprint Review:
    a. Confirm the tasks match the acceptance criteria.
    b. Move completed tasks to "increment" column.
    c. Use feedbacks for the next sprint.
5. Sprint Retrospective:
    a. Discuss lessons learned (what was done well, what was NOT done well, what to improve).

Scrum Artifacts:

An artifact is something of historical interest that warrants being reexamined. In Scrum product development, artifacts are used to see what has been done and what is still in the queue.

1. User Story*:
    a. It's a concise, informal description of a software requirement, typically written from the user's point of view.
    b. Components (Role, Goal, Reason/Motivation, Acceptance Criterial)
2. Product Backlog:
    a. List of all desired work on the product.
    b. It exists as long as the product exist.
3. Sprint Backlog:
    a. A subset of product backlog items selected for a specific sprint.
4. Increment (shippable product):

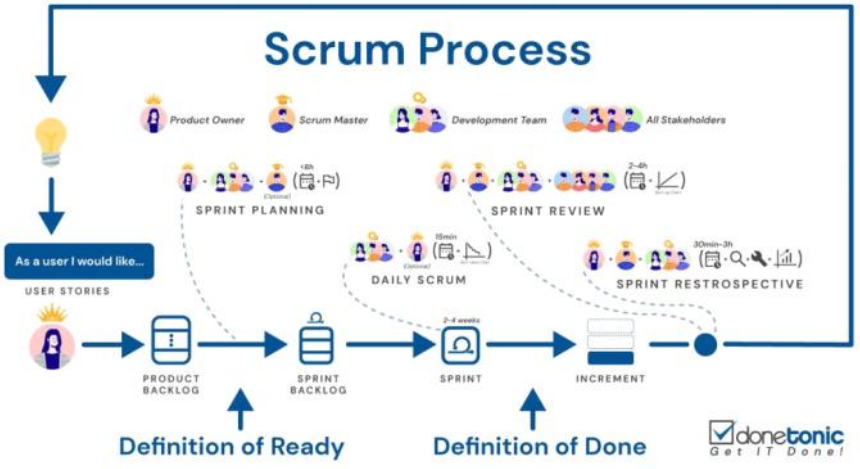
There are several Agile frameworks that are commonly used in project management. Some of the most popular ones include:

1. **Scrum:** Scrum is a widely used Agile framework that focuses on iterative and incremental development. It divides work into short cycles called sprints, typically lasting two to four weeks, where teams deliver a potentially shippable product increment.
2. **Kanban:** Kanban is an Agile framework that visualizes work on a Kanban board, allowing teams to manage and optimize their workflow. It emphasizes continuous delivery and limiting work in progress to improve efficiency.
3. **Lean:** Lean is an Agile framework that aims to eliminate waste and maximize value. It focuses on delivering customer value by continuously improving processes and reducing unnecessary activities.
4. **Extreme Programming (XP):** XP is an Agile framework that emphasizes close collaboration between developers and customers. It includes practices such as pair programming, continuous integration, and test-driven development to ensure high-quality software.
5. **Crystal:** Crystal is an Agile framework that adapts to the unique characteristics of each project. It provides a set of principles and guidelines to tailor the development process based on project size, criticality, and team experience

a. A releasable state of the product.
b. It consists of the sum of all the elements of the Product Backlog that have been completed

Scrum Board:

1. A Scrum Board is a visual representation of the Sprint Backlog.
2. Columns representing different stages of work (to do, in progress, done)
3. Tasks (user stories) are moved across these columns as they progress through the sprint.



*User story example:

- As a registered user, I want to reset my password so that I can regain access to my account.
- Priority: (Must have, should have, could have, won't have, etc)
- Story Points (effort estimation): To let the team have an estimation for the number of stories they can handle in one sprint.
  - a number to represent the complexity of the user story.
  - For a new team, you may use L,M,S to indicate large medium, small sizes of the user story.
  - Another way is to user planning poker method https://www.parabol.co/resources/planning-poker-guide/

Acceptance Criteria:

- There should be a 'Forgot Password' link on the login page.
- Clicking the link should prompt me to enter my email.
- After entering my email, I should receive a password reset link within 5 minutes.
- The reset link should expire after 24 hours.

Scrum Master:

- Maintaining good scrum practice
- Host meetings
- Manage the meetings (keeping the time, mediating discussions)

Product Owner:

- Provide requirements
- Provide acceptance criteria

Developers:

- Responsible for building the product.

https://youtube.com/playlist?list=PL-MNZI0BIXMptA9mX9JXzStQ1OQdQ4I5s&si=P7UMcBv7v0JsBYR5

Wish there was a way to +1 Fredrik's answer.
There's also a slightly different way I'd think about his third point: When you consider the continuous improvement aspect of Scrum, driven by the retrospective, the more often you have them, the more opportunities to discuss and implement improvements.
In general, with teams new to Scrum, I push for 2 week sprints (rather than 4 weeks). This helps us build our scrum muscles more quickly. Depending on how agile the new team is, there can be so much to absorb (you'd think that would argue for longer sprints, but my experience tells me that new teams will wander too much and lose the scrum focus). Some teams have no idea how hard it is to get "done" -- they've never done it (not without 4-6 weeks of QA and hardening). Some teams have never self-organized. Put those two together and you could have a month of chaos (so let's make it just 2 weeks and get to a quick inspection). And that's ignoring important technical practices they may also need to master.
Biting off a small piece of functionality while really nailing the "done" criteria is eye-opening and empowering and encouraging.

From <https://www.scrum.org/forum/scrum-forum/5666/reasons-choosing-month-sprint-over-two-weeks-sprint>

Project Management Lifecycle - **Initiation**

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Key Stages in the Project Management Lifecycle

1. **Initiation:** In this stage, a project manager selects a project worth investing in, finds out who will be involved in the project, and ties project goals to business objectives.
2. **Planning:** Project managers focus most on the Planning stage. They set the project scope, which consists of the timeline, budget, and quality standards. They come up with plans to acquire the right resources, organize the teams, and lay out the tasks necessary to keep the project within scope.
3. **Execution:** While the team is executing the project, the project manager manages resources, communicates with stakeholders, and responds to project disruptions or risks, so the project can keep moving forward.
4. **Monitor & Control:** In this stage, the project manager tracks the progress of tasks, whether requirements have been met, and creates reports for stakeholders to follow along.
5. **Closure:** Project managers close projects out by creating, sharing, and archiving documentation on how the project was done and its outcome.

Initiation:

- In this stage, the project scope needs to be clarified.
  - It is a document that defines the goals, deliverables, timeline, and resources that a project must be based on or executed with.
- Business case may also be created.
  - A business case is a project management document that explains how the benefits of a project overweigh its costs and why it should be executed.
  - The purpose of a business cases is to include all the project's objectives, costs and benefits to **convince** stakeholders of its value.

Ask these five key questions to understand the project context:

1. What are the main **business goals** this project should serve and why?
2. What is the **timeline**? When should the project start and end?
3. How much of a **budget** does the project have?
4. Which **resources** can be accessed for this project?
5. **Who** should and can participate in the project?

Business Goals can be:

- Save time.
- Save money.
- Generate money.
- Differentiation.
- Increase productivity.
- Create efficiency.
- Etc…

Timeline:

- Time the goals need to be met.
- Overall project time.
- Strict deadlines.
- Resource availability.

Budget:

- Amount of money allocated for the project.
- Whether certain money is designated for a particular function.
- Money for unexpected costs.
- Whether money availability changes over time or something else.

Resources:

- Required tools, software, licenses
- Do you have processes that allow the work that needs to get done? Ensure that there are clear guidelines and frameworks in place to facilitate the successful completion of project tasks.
- Do you have the right information or data?
- Are there any limitations to the resources regarding who can use it and when.

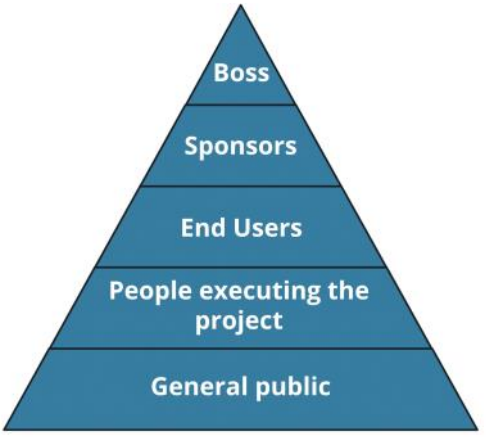
People:

- Who is available to work on this project?
- What are their skills?
- Are there sponsors? How they support the project?
- Finding substitutes.

Project Scope:

- A document to capture high-level concepts to be shared with stakeholders.
- It includes:
  - **Business goals:** A set of strategic, tactical, and operational targets that the business seeks to achieve with this project.
  - **Final deliverables:** The expected end result, i.e. a product or process.
  - **Type of work planned:** A high-level description of the functions needed in a project, e.g. engineering (coding, testing, …), editorial (writing, proofreading, …), etc.
  - **Timeline:** The expected start and estimated end dates for the project, as well as the frequency of releases if there are multiple deliverables.
  - **Budget:** The amount of money available to fund the project and cover its expenses.
  - **Resources:** The elements needed to carry out tasks or projects, including people, time, money, and tools.
  - **Acceptance Criteria:** Specific standards or thresholds a project's deliverables must meet before the project can be considered complete.

Potential Stakeholders:



<u>You can evaluate your stakeholders by considering the following four points:</u>

1. How **important** is the project to each stakeholder and why?
2. How can this stakeholder **influence** the project in both negative and positive ways?
3. What kind of **information** does that stakeholder need in order to stay informed about your project?
4. Plan the **best ways to communicate** the information they need in order to remain engaged throughout the project and to maximize their positive contributions.

- Learn how to leverage emotional intelligence to become a more influential leader in this book ***Political Savvy: Systematic Approaches to Leadership Behind the Scenes*** by author Joel R. DeLuca.

	Power Level	Influence Level	Assumptions and Risks
Stakeholder Name	High	Low	Potential impact
Stakeholder Name	Low	High	Potential impact
Stakeholder Name	Low	High	Potential impact

Execution Quotient (XQ):

- XQ helps determine whether your team has the necessary skills and expertise to successfully carry out the tasks required for a project.
- By evaluating the team's XQ early on, project managers can identify any skill gaps that may exist and take appropriate actions.
- This could involve bringing in new team members with the required skills or scheduling time for existing team members to learn and develop the necessary skills.

RACI chart:

- The RACI chart is a method for determining a team's XQ.
- It is a grid that lists project tasks and shows how each team member contributes to them.
  The RACI chart is built in three main steps:

Building RACI chart:

1. Translate the project's requirements into the tasks that your team will be performing.
2. List the members of your team and any stakeholders who will be actively engaged in the project.
3. For each task, mark who you think will be **responsible**, **accountable**, and who should **consult** or be **informed** on the task's progress.
4.

	Stake-holder name	Stake-holder name	Stake-holder name	Stake-holder name
Task Name				
Task Name				
Task Name				

- **(R)esponsible:** Stakeholders who will have the duty of executing actual tasks; there can be more than one *responsible* stakeholder per task.
- **(A)ccountable:** The stakeholder, normally a manager, who has the duty of approving whether a task is truly being complete; there can **only be one** *accountable* person per task.
- **(C)onsult:** Anyone who has valuable insight necessary to successfully execute a task; there can be more than one *consult* for each task.
- **(I)nformed:** A stakeholder who expects to receive information and updates about a particular task. Most stakeholders will fall into this category.

https://www.linkedin.com/pulse/leadership-quotient-how-iq-eq-xq-come-together-great-michael-edwards/

Fundamentally speaking, leaders must do three things:

1. Identify a desired future state of existence. This is a primary element of strategic leadership; **IQ** plays an important role here.
2. Inspire and motivate a group of people to want to achieve the desired future state of existence. These are vital components of successful people leadership – where **EQ** is critical.
3. Plan and organize people in such a way that they are able to deliver results that secures that existence. Planning and organizing are integral parts of operational leadership and require a high dose of **XQ**.

Project Management Lifecycle - **Planning**

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In the Planning stage, you put your project plan together by:

- Gathering all the requirements (intake forms, interviews, …)
- Determine the cost and benefit of the project, and
- Mapping out the schedule.

Cost-Benefit Ratio:

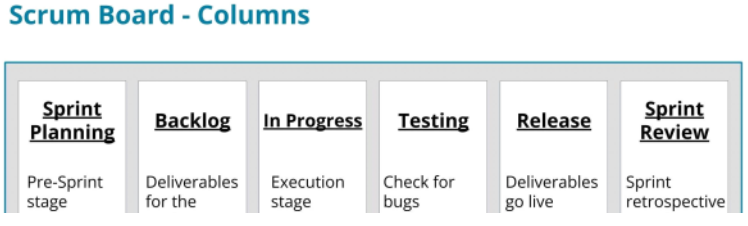
1. Get the **present value of the expected or future benefit**.
    a. It is potential financial gain that the organization anticipates as a result of investing in and completing the project.
    b. The formula is:
    c. Future Benefit / (1 + discount rate)^n where n is the number of years into the future.
    d. Discount rate is to consider the inflation and other things.
    e. 7% is recommended value
    f. Weighted average cost of capital (WACC) can be used to calculate a more precise discount rate for an organization.
2. Get the present value of the project cost. The formula is:
    a. Future Cost / (1 + discount rate)^n
    b. It is usually the given budget if the cost is paid upfront.
3. Get the cost-benefit ratio. The formula is:
    a. Present value of expected benefit / Present value of project cost
    b. > 1 net positive value
    c. < 1 net negative value
    d. = 1 break even

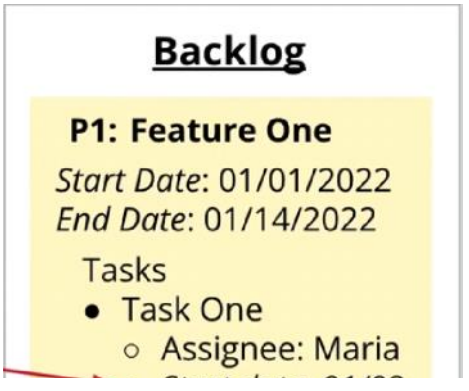
Cost benefit analysis doesn't take into account the **amount of time** needed to complete the project. Are you sure!

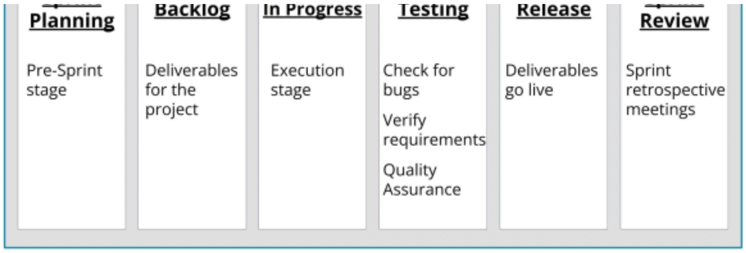
Mapping out the schedule: can be mapped visually using charts.

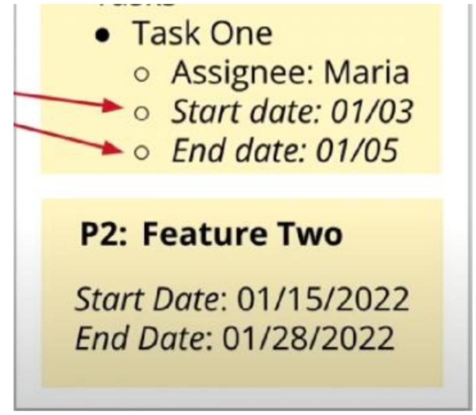
1. **List tasks**: Break down requirements into a list of actions your team can take to execute a project.
2. **Order tasks**: Figure out the order of the tasks based on the requirement's priority.
3. **Estimate duration**: Estimate how long each task would take.
4. **Create timeline**: Add dates to those tasks to create a timeline in either a Waterfall or Agile methodology.
5. **Assign tasks**: Add an assignee to each task.

- **Sprint Planning:** The stage in which digital project managers add requirements to the Backlog and prioritize the tasks into a set of Sprints.
- **Backlog:** A holding place for project requirements until a requirement gets pulled into the current Sprint in progress.
- **In Progress:** The stage in which a set of tasks, organized into a Sprint, are now being executed.
- **Testing:** The stage in which the deliverable created in a Sprint is tested to ensure it meets expectations and any detected errors are fixed.
- **Release:** The stage in a Sprint in which the deliverables are released to the intended end user.
- **Sprint Review:** The final stage in a Sprint, in which a team holds a Retrospective meeting to discuss what they learned in the last Sprint and demonstrate any released deliverables.









Water Fall method:

- You can organize tasks by **phases**, or the stages of your project management lifecycle, e.g., initiate, plan, execute, or the stages of the **Software Development Lifecycle**, e.g., design, implement, verify.
- Alternatively, you can organize your tasks by the major **milestones**, or deliverables in a project, such as the features you plan to add to an app.

TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION	WEEK 1					WEEK 2			
					M	T	W	Tr	F	M	T	W	Tr
Phase/Milestone													
[task]	[assignee]	[dd/mm/yyyy]	[dd/mm/yyyy]	[number of days]	Shade days to match task dates								
[task]	[assignee]	[dd/mm/yyyy]	[dd/mm/yyyy]	[number of days]									
[task]	[assignee]	[dd/mm/yyyy]	[dd/mm/yyyy]	[number of days]									
[task]	[assignee]	[dd/mm/yyyy]	[dd/mm/yyyy]	[number of days]									
[task]	[assignee]	[dd/mm/yyyy]	[dd/mm/yyyy]	[number of days]									
[task]	[assignee]	[dd/mm/yyyy]	[dd/mm/yyyy]	[number of days]									
[task]	[assignee]	[dd/mm/yyyy]	[dd/mm/yyyy]	[number of days]									
[task]	[assignee]	[dd/mm/yyyy]	[dd/mm/yyyy]	[number of days]									
Add Phase/Milestone As Needed													
[add tasks as needed]													

Project Management Lifecycle - Execution

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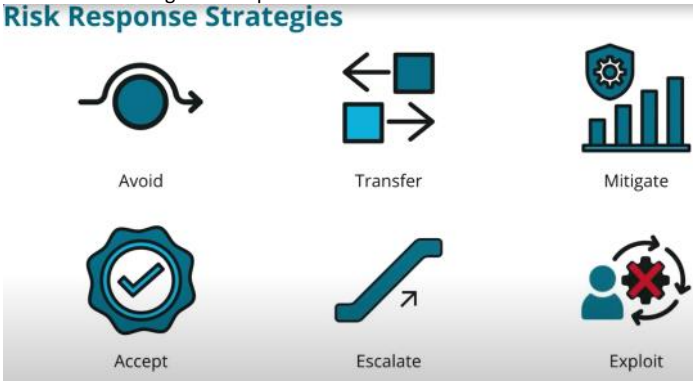
Execution: While the team is executing the project, the project manager keeps the project moving forward by managing:

- Resources.
- Communicates with stakeholders.
- Responds to project disruptions or risks.

Communication:

- During the execution the project manager must be aware of the project state.
- The project manager needs to update the stakeholders with the project state.
- To communicate effectively, PM needs to create a **communication plan.**
    - communication plan It has 4 sections:
        1. With Whom to Communicate
        2. What to Communicate
        3. When to Communicate
        4. How to Communicate
- Digital project managers may use a **Status Report**, a structured document that provides a summary of a project's progress.
- Status Report can have the following sections:
    - Basic Information (Project name, PM name, date, …)
    - Project Summary (condensed project scope)
    - Highlights and Blockers (achievements and challenges)
    - Project Health Check. Has three columns
        - Scope (time, cost, quality)
        - Status (ongoing, at risk, off-track)
        - Milestones (completed, pending)

Risks:

- Risks can be internal such as tight budget, etc.
- Risks can be external such as a rival company developing similar service at the same time.
- Risks can be unpredicted internal or external such as a pandemic or a skillful employee leaving the company during the project.
- There are 6 strategies to respond to a risk:
- 

Explaining Each response:

1. **Avoid** relates to adjusting plans so it prevents the risk from ever happening to or having an impact on your project. This strategy essentially makes the risk irrelevant to your project.
    - For example, having a tight deadline is a problem, thus we implement 2 features to make sure a version of the app is available by the deadline.
2. **Transfer** is the act of moving the risk to a different recipient by adding into the project plan a way to direct the risk in a certain direction.
    - For example, doing fitness exercises at home may result in injuries. Thus, we can put a disclaimer and clarify that the company is not accountable for any injuries may happen.
3. **Mitigate** relates to proactively adjusting plans or acquiring new resources to lessen the potential consequences as much as possible or preparing for the impact of the risk.
    - Conducting research at an early stage of the project corresponds to this type of response.
    - For example, Loss in-person customers. Thus, we can differentiate the in-person service and digital product.
4. **Accept** involves passively acknowledging that it will happen, or creating thresholds that trigger actions when the risk causes a certain type or level of problem.
    - For example, there are many competitors online. Thus, we can proceed as-is without doing

anything or we can set a threshold such as if <75 customers by the end of the year, then try to take further actions to increase the sales.

5. **Escalate** is the act of presenting the risk to someone with the right authority or skillset to properly respond. In this case, the digital project manager cannot sufficiently do so.
    - For example, conflict between 2 colleagues. The project manager doesn't have enough authority so he will escalate the issue to the founder.
6. **Exploit** involves creating an opportunity or solution out of a risk to take advantage of a problem's impact.
    - For example, Lose in-person customers. Thus, explain how the two solutions complement each other, getting customers to pay for both in-person service and digital product.

- When competing with another company, the only thing an organization can control is how it responds. So the risk response strategies that could apply in this situation are **Escalate**, **Avoid**, and **Accept**.

Project Management Lifecycle - Monitor & Control

2023年11月24日 10:34

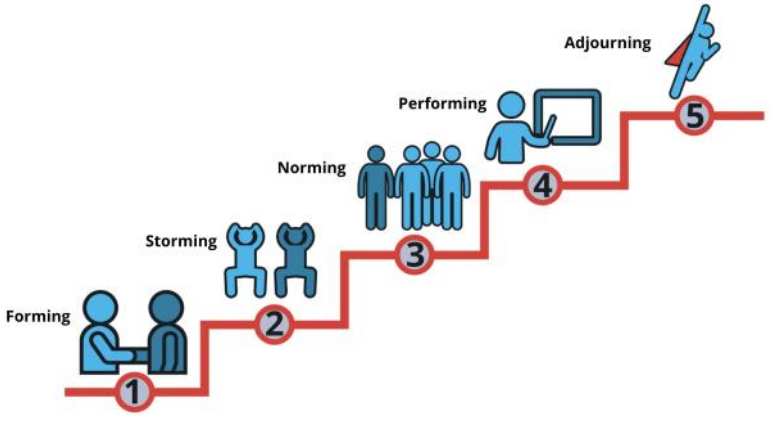
Monitor & Control: In this stage, the project manager tracks the progress of tasks, whether requirements have been met, and creates reports for stakeholders to follow along.

Tracking consists of three parts:

1. Enhance Team Performance
2. Making Project Goals S.M.A.R.T
3. Monitor Performance with KPIs

1. Enhance Team Performance.

The Tuckman Ladder: The model outlines five stages people naturally experience when starting on a new project.

- Monitor team development by identifying the stage team members are in.
- Apply support according to the stage.
- It can be used when you initiate the project.
- Schedule the techniques into the project plan.
    - Ex: create team tenets in the first meeting.
    - Ex: continuing education, dedicated mentors
- 

1. **Forming:**
    - Characteristics:
        - Team meets for the first time.
        - Orientation to understand role.
    - Strategies:
        - Collaborate on team tenets (brainstorm the values to work on)
        - Develop each member by assigning a task that energize them.
2. **Storming:**
    - Characteristics:
        - Realization of unpleasant work.
        - Realization of team relationships.
    - Strategies:
        - Host Problem solving dialogue and refer to tenet to reach solution.
        - Host fun team building activity to shift the focus on tensions.
3. **Norming:**
    - Characteristics:
        - Team generally gets along.
        - Playing their role to meet organization goals.
        - Needs to feel recognized
    - Strategies:
        - Public praise and acknowledgement.
        - Match team members with mentors to receive guidance.
4. **Performing:** When team members are working efficiently together.
    - Characteristics:

        - Working together efficiently.
        - Performing autonomously.
        - Needs challenge to grow.
    - Strategies:
        - Create opportunities in a project for team members to experiment and innovate.
        - Encourage members to further their education by learning new skill.

5. **Adjourning:**
    - Characteristics:
        - Team completes project.
        - May have to part ways after building strong bonds.
        - Team needs to find closure for the project and themselves.
    - Strategies:
        - Have the team present and articulate achievements.
        - Have a group celebration.

2. Making Goals S.M.A.R.T.

- Digital project managers monitor project outcomes to meet business goals.
- Measurable project goals help assess project alignment with business needs.
- S.M.A.R.T. goals provide a framework for setting specific, achievable, relevant, and time-bound project objectives.

S.M.A.R.T. stands for:

- **Specific:** *What the business needs specifically?*
    - Get specific desired results.
    - Business case is Digital Transformation.
    - To make it specific, "What is the specific result the organization wants?"
        - To create a new income stream.
- **Measurable:** *What number we are measuring for?*
    - Something tangible and quantifiable.
    - How much money should the project earn?
        - Consistently earn $500 a month.
- **Achievable:** *What is the Justification for the number?*
    - Realistic and feasible with the given resources.
    - How do we know we can it (a new income stream and earn $500 a month)
        - There has been an increase of customer demand from existing customers and online followers for more access to Torys' training knowledge.
- **Relevant:** *Whether the project is relevant to the broader business goals?*
    - Align Project with broader business goals.
    - How does the Digital Fitness plans project match business goals?
        - Business goal and project goal align well.
            - The broader business goal at Tory is to create a new income stream and access a broader set of customers with digital transformation.
            - The project goal is to provide services in a digital format to a certain number of new customers so it becomes a viable income stream.
- **Time-bound:** *What is the project timeline?*
    - Work with a deadline.
    - What is our target date?
        - Deadline in 3 months when Tory speaks at the Women's Wellness Conference.

Finally write the goal(s) by combining the letters in S.M.A.R.T.

- To deliver Tory Fitness knowledge in a digital product that leverages our customer base to sell about $500 worth of plans on a monthly basis.

Adjust project plan to incorporate metrics to measure:

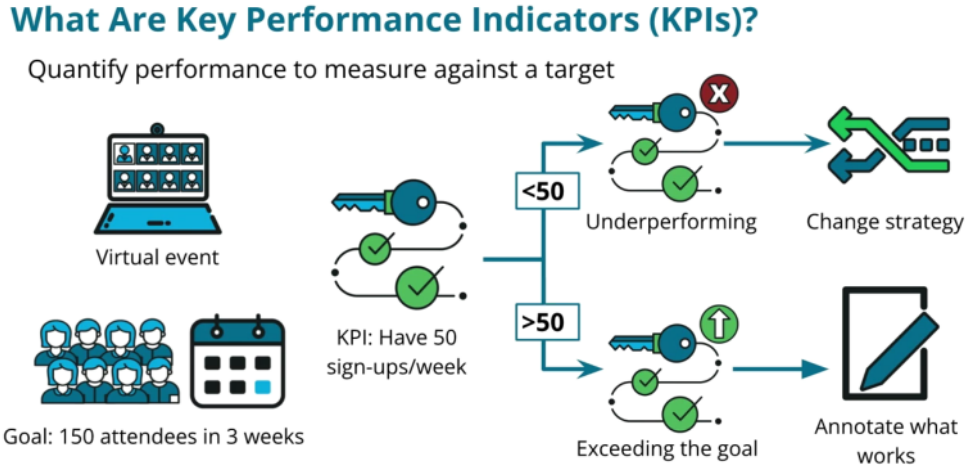
- Monitor revenue
    - How many plans sold a month and at what price.

Report to stakeholders to decide steps to reach the goal.

- Add new plans.
- Or create a new project that better meets the goal such as a different kind of digital product like a YouTube channel.

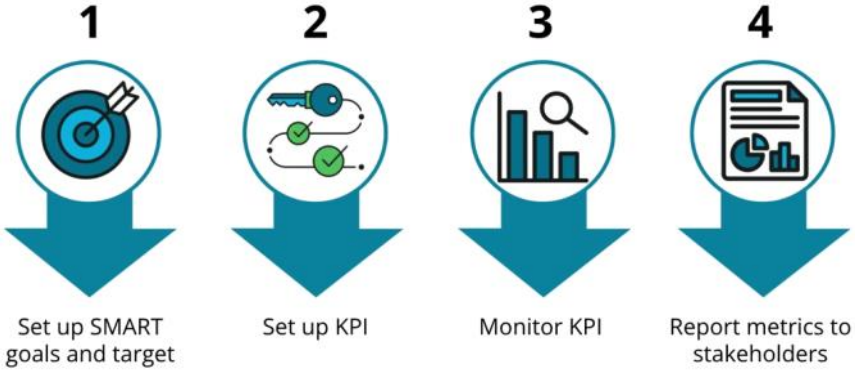
3. Monitor Performance with KPIs

Make use of Objective Data to measure how the team performs using Key Performance Indicators (KPIs)



- Key Performance Indicators (KPIs) are quantifiable measures used to gauge and compare performance.
- KPIs are used by companies and industries to assess their progress in meeting strategic and operational goals.
- KPIs vary between companies and industries based on their priorities and performance criteria.

Characteristic of KPIs:

- KPIs are derived from SMART goals.
- Once you have set your SMART goals, you can identify the specific metrics or indicators that will help you track progress towards those goals.
- 

Types of KPIs

- **Cost-Performance Index:** A formula that tells us if a project's costs are on target, under, or over the budget.
- **Schedule-Performance Index:** A formula that tells us if a project is running on time, early, or will go over the intended schedule.
- **Resource capacity:** You can track the number of resources needed for your project, which could include the right number of team members, and determine if your project is running low on resources, comfortable, or has a surplus.
- And so on...

Cost-Performance Index (CPI):

- CPI is a commonly used formula to measure the rate of expenses against the project budget.
- Main terms in CPI formula:
  - *Planned Value (PV):* total amount of money planned for the project
  - *Percentage work completed:* percentage of completed deliverables or tasks out of the total.
  - *Earned Value (EV):* The monetary value of tasks completed so far.
    - EV = PV * % of work completed.
  - *Actual Cost (AC):* The money spent on the project so far.
- CPI = EV/AC
  - =1: indicates the project performing on budget.
  - >1: indicates the project is performing well against the budget.
  - <1: indicates the project is over budget.

- when talking about CPI, it is assumed that the budget is distributed evenly for each percentage of work.
    - that means 20% of the work takes 20% of the budget.
    - Then we calculate the ratio to confirm if the spent money is within the budget or not.
- However, most of real-life projects can have non-uniform distribution of task-budget.
    - maybe the first 50% of the work needs 70% of the budget.
- In such cases, where different phases or portions of the project require varying percentages of the budget:
    - Calculate CPI per Segment: EV1/AC1, EV2/AC2
        - Here you get performance per segment.
    - Overall CPI Calculation: sum of EV / sum of AC
        - Here you get the overall project performance.

Considerations about CPI: from https://logikalprojects.com/insights/understanding-the-cost-performance-index-cpi-on-your-project/

- CPI will experience natural fluctuations over time.
- Operating range is defined to better evaluate the project using CPI.
- Operating range can be narrow for controlled environment: 1.05 > X > 0.95
- Operating range can be much larger in extremely unpredictable environment: 1.5 > X > 0.5
- Project management team decides the operating range beforehand.
    - Criteria: past project performance, industry benchmarks, expert opinion, etc.
- Project manager should work within the defined range to make improvements to efficiency so that CPI returns to 1.00
- 

CPI outside operating range:

- If the CPI is too high/ low, it indicates that something <u>besides inefficiency</u> is impacting the project performance.
- 
- <u>Under-performing projects:</u>
    - indicates a change or creep in project scope.
    - It is a symptom of additional time and material being used on out of scope work.
    - In the given example, the original scope was to build a 30-meter perimeter fence, but the actual fence built was 10 meters longer than contracted.
- <u>Over-performing projects:</u>
    - Are often overlooked because they exceed expected value for the money spent.
    - Evaluating over-performing projects is important to identify missed areas in the scope of work.
    - Missing scope items can lead to future costly repairs or completion.
    - Over-performing projects without missed scope can harm reputation and future work opportunities.

Project Management Lifecycle - Closure

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Closure: Project managers close projects out by creating, sharing, and archiving documentation on how the project was done and its outcome.

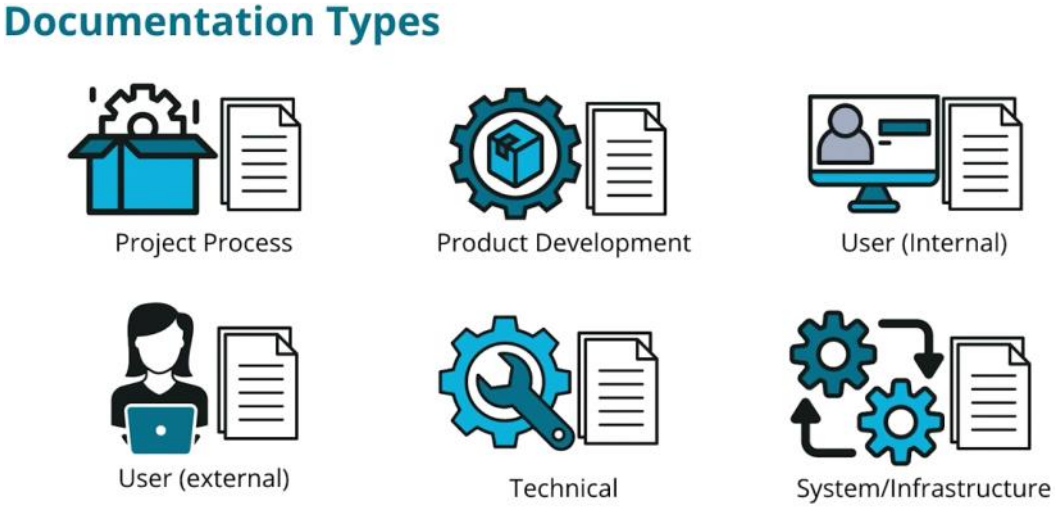
- Proper project closure is essential for generating long-term results and value.
- Digital project managers should create and share knowledge about the project and its deliverables with stakeholders.
- Archiving information is important for future reference and documentation purposes.

Digital project managers know a project is done when:

- They have verified all the project deliverables fulfill the requirements,
- They have ensured all the project deliverables meet the quality standards of the requirements and have no errors, and
- They have identified a person who has the expertise and skills to maintain and own your project deliverable.

Knowledge share is the act of documenting and distributing information generated in a digital project so that it enables others to learn from it and build similar skills.

- Digital projects generate materials about products, processes, project tasks and results, and other information about decisions, stakeholders, and the end user.
- The digital project manager is responsible for facilitating knowledge share and controlling access to information.
- There are six types of documentation that can be used to organize knowledge share.



1. **Project Process documentation**
    - shows information about how a project was organized and kept within scope.
    - Documents related to management methodology or framework.
        - Lessons learned
        - RACI chart

        - Stakeholder analysis
        - Risk response instructions
        - Project plan (Methodology & Visualizations)
    - Stakeholders:
        - Internal including colleagues creating similar future projects

2. **Product Development documentation**
    - shows what the product is and the thinking that went into developing it.
    - Documents generated by product manager and UX designer
        - User research
        - Information architecture (wireframes, ..)
        - Style guides (typography, color palette, ..)
        - Pricing models (expenses, pricing strategies like subscription based or … , pricing tiers)
    - Stakeholders:
        - Business leadership
        - Project sponsors
        - Marketing team
3. **Internal User Documentation**
    - Documents accessed by an internal end user on how to use internal tools
        - Written instructions, user manual
        - How-to video
        - FAQ's
    - Stakeholders:
        - Internal - colleagues
4. **External User Documentation**
    - Documents that help external end users use the product/process
        - User manual
        - How-to video
        - FAQ's
        - Step-by-step tutorials
        - Digital course
    - Stakeholders:
        - Customers (individual or corporate)
5. **Technical Documentation**
    - Code and/or technical resources that went into deploying a software release.
    - Created by engineers and technical experts.
        - Source code of product
        - Software architecture (tech stack)
        - Networking architecture (diagram)
        - Bug tracking reports
    - Stakeholders:
        - Internal - maintenance
        - Internal - future project
        - Government officials - trademark, patent
6. **System/Infrastructure Documentation**
    - Shows how products or processes are supported by internal technology (organizations entire technological system or infrastructure).
    - Created by engineers and technical experts from bird's eye view (broad perspective).
    - It shows how this project is a part of a larger system.
        - Source code showing interaction with the rest of the system.
        - Software and networking architecture of the entire infrastructure.
        - Troubleshooting help guides.
        - Organizational chart to show who is in charge of different parts of the system.

- Stakeholders:
  - Internal - maintenance
  - Internal leaders - Chief technological officer (CTO), chief operations officer (COO)

Knowledge Share as a Task

Knowledge Archive is the act of storing and organizing documentation of project knowledge on a digital device that is not accessed for daily operations, but instead retrieved as a reference for future projects.

Archiving tools include:
- Cloud services
- External hard drives
- Open-source repositories (GitHub,)

Archiving considerations: IT and legal department can be consulted to decide when and where to archive the documents.
- Confidential information:
  - Trade secrets
- Personal details on end-users
  - Medical info must stay confidential
  - Maybe government law forces to give end-users ability to delete their personal data.
- Be responsible of the information your project generates!

Documentation tasks for Luny app:
- UX Designer:

Adding Documentation Tasks for UX Designer

Task	Place in Timeline	Reason for Documenting
Document the customer research and how the prototype was made	Sprint 1, 2, and 3	Product development documents to help future teams build similar projects based on our learnings of the customer
Create an FAQ for app users on setting ad preferences	Sprint 3	External user documentation that gives customers explicit instructions on how to use the product

- Engineer:

Adding Documentation Tasks for Engineer

Task	Place in Timeline	Reason for Documenting
Document how the system was designed and built	Sprint 1, 2, and 3	Technical document to help future teams figure out how to resolve technical issues when building a similar project
Create a user manual for the Sales team on how to input ads	Sprint 1	Internal user documentation that gives coworkers explicit instructions on how to use the product
Create troubleshooting document	Sprint 1, 2, and 3	Internal user document for engineers to learn how to troubleshoot issues in app

- Project Manager:

Adding Documentation Tasks for Project Manager

Task	Place in Timeline	Reason for Documenting
Create a requirements document	Before Sprint 1	Project process document that defines the tasks that should be executed in the project
Create *Lessons Learned* document	End of Sprint 1, 2, and 3	Project process document necessary in a Scrum project to improve performance in the next Sprint.
Create and send Status Report	End of Sprint 1, 2 and 3	Project process document to engage stakeholders and help team track project progress.

Celebrate Project Closure and Use Portfolio to Showcase Project

- Motivates team members
- Approve future projects
  - Influence the organization to approve similar projects because your project outcome positively reinforces the decisions that led to this achievement.
- Proactively showcase your value
  - Create visibility around your team, making them feel appreciated and willing to take on bigger challenges.
- Get raise or promotion
  - Increase your chances of receiving a raise or promotion by showcasing your leadership in the project.