Project and Program Management in eHealth

Foundational Curricula:
Cluster 10: Leadership & Management
Module 19: Project and Resource Management
Unit 1: Project and Program Management in eHealth
FC-C10M19U1

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Unit Objectives

- Define project management and program management
- Describe the project management triangle
- Describe the project management star
- Name the steps of the Health IT Project Life Cycle, and identify features of each
- Identify the basic principles of health IT project/program management including developing and maintaining the project plan, setting and keeping project milestones, producing deliverables, and adhering to critical pathways
- Describe one or more elements of an health IT/eHealth information systems/engineering project or program

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Project/program management

- "A **Project** is an individual or collaborative enterprise that is carefully planned to achieve a particular aim" (Oxford Dictionary of English, 2010).
- **Project management** is about applying knowledge, skills and tools to the activities of a project in a way that the project may achieve its objectives (Project Management Institute (PMI), 2013).
- **"**A **Program** is a group of related projects managed
in a coordinated manner to obtain benefits not available from managing them individually" (Project Management Institute, 2013).

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Health IT project/program management

- Because digitalization is such an important operational feature of business operations in the 2000s, as well as to remain competitive in the long term, healthcare organizations and other businesses in the industry are forced to continually invest in new IT systems. Therefore the successful management of implementation of IT projects has become extremely crucial in the healthcare sector.
- Successful IT project management ensures that what is being delivered is effective, efficient and economical for the organization.
- Project management is key to controlling the workflow of an eHealth project. It includes the development and management of the plans and actions, regulation of resources, and checking and reporting progress.

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Health IT project/program management (cont'd)

- In healthcare, the following factors are important when making implementing IT systems:
  - Service disruption is minimal
  - Costs are kept within budget
  - Appropriate education and help is available
- In fact, success in project management is often analysed by three important constraints:
  - Keep the project on time
  - Keep the project within scope
  - Keep the project within budget
- These three constraints are known as the project management triangle

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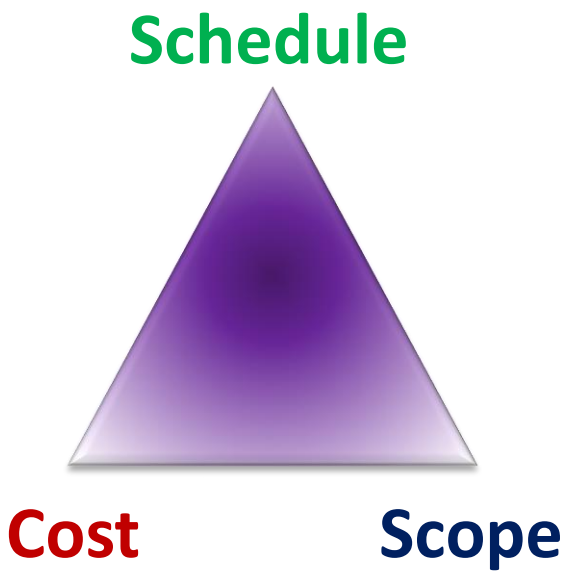
Project Management Triangle

- The **Project Management Triangle** (called also the Triple Constraint, Iron Triangle or "Project Triangle") is a model of the performance and constraints of project management. It contends that:
- The quality of work is constrained by:
  - the project's budget (**cost**)
  - adherence to time planned/deadline for the project completion (**schedule**) and
  - the boundaries of the outputs of the project (**scope**)
- The project manager can trade between these constraints.. Changes in one constraint necessitate changes in others to compensate or project performance and quality will suffer.
- For example, a project can be completed faster by increasing budget or cutting scope. Similarly, increasing scope may require equivalent increases in budget and schedule. Cutting budget without adjusting schedule or scope will lead to lower quality.



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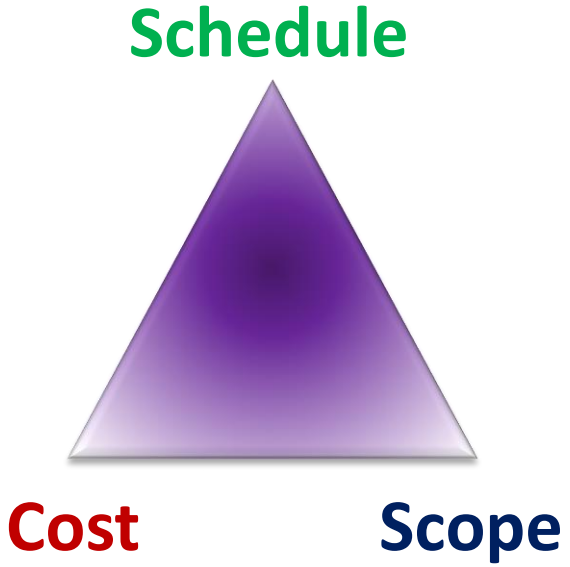
Project Management Triangle (cont'd)

- However, trading between constraints is not always possible. For example, pouring money (and people) into a fully staffed project in order to keep on schedule may in fact slow it down. Increasing the scope of a project without increasing the time or money investment will result in failure.
- Also in poorly run projects it is often impossible to improve budget, schedule or scope without adversely affecting quality.
- The Project Management Triangle is insufficient as a complete indication of project success because it omits crucial dimensions of achievement including impact on stakeholders, learning, change management, organizational culture, and user satisfaction.



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Project Management Star

- The **PMBOK** (Project Management Body of Knowledge), produced by the Project Management Institute, provides a set of standard terminology and guidelines for project management
- The PMBOK offers a star as an alternative method to the PM Triangle
- The PM star is an evolved model based on the triple constraint with 6 factors to be monitored and managed. This is illustrated as a 6 pointed Star that maintains the strength of the triangle analogy (two overlaid triangles).
- At the same time it represents the separation and relationship between factors of project inputs and outputs on one triangle and project processes factors on the other triangle. The star variables are:
  - Triangle 1 (process factors):
    - Scope
    - Cost
    - Time
  - Triangle 2 (inputs and outputs):
    - Risk
    - Quality
    - Resources

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Health IT Project Life Cycle

- Project management requires identification and control of all steps of a project life cycle. The defining characteristic of a process is its uniqueness. A project only happens once. However, common steps can be found in all projects.
- Project management involves initiating, planning, executing, controlling, and closing the work of a team to achieve specific goals and meet specific success criteria at the specified time.
- The project is designed to produce a unique product, service or result with a defined beginning and end (usually time-constrained, and often constrained by funding or staffing) undertaken to meet unique goals and objectives, typically to bring about beneficial change or added value.

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Health IT Project Life Cycle (cont'd)

The project management life cycle refers to the process used to create the outputs produced by the project. This incorporates not only management of the project, but also **technology management** (disciplines that allows organizations to manage their technological fundamentals, including strategy, forecasting, road-mapping, and project portfolio) and **change management** (all approaches to prepare and support individuals, teams, and organizations in making organizational transitions).

Project management, technology management and change management each also have subcomponents, listed below:

Project Management	Technology Management	Change Management
• Integration	• User Requirements	• Realization
• Scope	• Workflow	• Sponsorship
• Time	• Infrastructure	• Transformation
• Cost	• Software Configuration	• Training
• Quality	• Conversion	• Optimization
• Human Resources	• Interface	
• Communications	• Security	
• Risk	• Testing	
• Procurement	• Cutover	
	• Support	

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Health IT Project Life Cycle (cont'd)

- Relying on the project management, technology management, and change management disciplines individually does not ensure project success
- Integrating all three increases the likelihood of project success
- The steps or phases below illustrate applying Project Management Institute's *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)* (PMI, 2008)
- The goal of the life cycle is to integrate project management, IT management, and change management disciplines

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Health IT Project life cycle (cont'd)

1. *Initiate the project*
   - Major task: Create an overview of why project should be executed and outline what the benefits, costs and risk of the project will be.
   - Also, this phase is where the project's value and feasibility are measured. The project manager typically uses two evaluation tools in deciding whether or not to pursue a project:
     - **Business Case Document** – This document justifies the need for the project, including an estimate of potential financial benefits, a list of the risks, and ways to mitigate the risks.
     - **Feasibility Study** – This document evaluates the project's goals, timeline and costs to validate that the project should still be executed since its original proposal. It balances the requirements of the project with available resources to see if pursuing the project continues to make sense.
   - Projects that pass these two tests are assigned to a project team or project office.

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Health IT Project life cycle (cont'd)

2. *Plan the project*
   - Major task: Make a detailed plan of project schedule, budget, and people (human resources) who will contribute to the project and what they will do, and how progress of the project will be measured.
   - Once the project receives the green light, it needs a solid plan to guide the team, as well as to keep them on schedule and within budget. A well-written project plan gives guidance for obtaining resources, acquiring financing and procuring required materials.
   - The project plan gives the team direction for producing quality outputs, handling and mitigating risks, creating acceptance, communicating benefits to stakeholders and managing suppliers.
   - The project plan also prepares teams for the obstacles they might encounter over the course of the project, and helps them understand the cost, scope and timeframe of the project.

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Health IT Project life cycle (cont'd)

2. *Plan the project (cont'd)*
   - Major agreements and contracts are frequently signed during this step of the project. Common project management agreements include the following:
   - **Statements of work (SOW)**: This is a document that defines project-specific activities, deliverables and timelines for a contractor or vendor providing services to the organization. The SOW typically also includes detailed requirements, conditions and pricing, with standard regulatory and governance terms and conditions.
   - **Business associate agreements** (BAA): Any individual or entity that performs functions or activities on behalf of a covered entity that requires the business associate to access PHI (protected health information) is considered a business associate. All business associates that perform services for an organization in association with a project must sign a BAA, especially in the US with HIPAA covered entities.
   - **Service-Level Agreements (SLA)**: This document is a commitment between a service provider and a client such as a hospital organization and a vendor, or an IT contractor and a healthcare provider. Particular aspects of the service – quality, availability, responsibilities – are agreed between the service provider and the service user.

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Health IT Project life cycle (cont'd)

3. *Execute the project*
   - Major Task: Keep track of progress made on the project and any possible changes in the project plan. Communicate with the team about schedule, deadlines and key activities. Keep track on project schedule and budget.
   - This is the phase that is most commonly associated with project management. Execution is all about building deliverables that satisfy the customer. Team leaders make this happen by allocating resources and keeping team members focused on their assigned tasks.
   - Execution relies heavily on the planning phase. The work and efforts of the team during the execution phase are derived from the project plan.
   - Some terms you may hear on a health IT project include:
     - testing environment
     - production environment
     - training environment
     - data/code freeze
     - go/no go dates
     - migration
     - conversion
     - activation/cutover
     - Command Center

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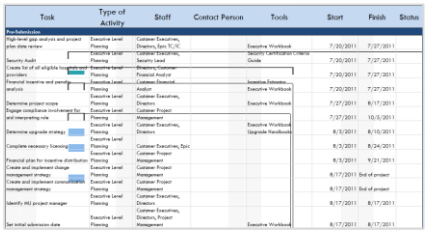
Health IT Project life cycle (cont'd)



3. *Execute the project (cont'd)*
   - Key terms associated with project execution:
     - **Milestone**: A milestone is a scheduling event that signifies the completion of one or more major deliverables. A milestone, by definition, has duration of zero and no effort, because there is no work associated with a milestone. It is a flag or checkpoint in the work plan to signify that some other work has been completed and shows how the project is progressing.
     - **Deliverable**: A deliverable is any tangible outcome that is produced by the project. All projects create deliverables. These can be documents, websites, presentations, hardware and devices, computer systems, new technology, etc. Internal deliverables are produced as a by-product of the project and are usually only seen and used by the project team. External deliverables are created for end-users, such as providers, patients or teams in a healthcare setting.
     - **Critical Path**: The critical path is the sequence of activities that must be completed on schedule for the entire project to be completed on schedule. It is the longest duration path through the work plan. If an activity on the critical path is delayed by one day, the entire project will be delayed by one day (unless another activity on the critical path can be accelerated by one day).
     - **Gantt Chart**: A Gantt chart is a bar chart that depicts activities as blocks over time. The beginning and end of the block correspond to the beginning and end-date of the activity.
     - **Issue**: An issue is a major problem that will impede the progress of the project and that cannot be resolved by the project manager and project team without outside help. Project managers should proactively deal with issues through a defined issues management process.

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Health IT Project life cycle (cont'd)

4. *Monitor and control the project*
   - Major task: Constantly monitor the project and control the progress. Sometimes combined with execution, these steps often occur at the same time.
   - Monitoring and control techniques can be split in to four areas:
     1. project plan monitoring
     2. project budget monitoring
     3. project monitoring through regular status and/or stage reporting, and
     4. project monitoring carried out at different levels by the project team
   - As teams execute the project plan, they must constantly monitor their progress
   - To guarantee delivery of what was promised, teams must monitor tasks to prevent **scope creep** (expansion of the project outputs beyond its original plans/goals), calculate key performance indicators, and track variations from allotted cost and time. This constant vigilance helps keep the project moving ahead smoothly.

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Health IT Project life cycle (cont'd)

5. *Close the project*
   - Major task: Document each step of the project, the updated budget and time spend on project. Give reviews for each team member and deliver the products or deliverables of the project. Summarize lessons learnt, and evaluate the project and arrange for support and maintenance post-project.
   - There are three major goals needed to close the project:
     1. Verify that there is user acceptance of the project's outputs and deliverables
     2. Ensure that the operational team is able to support the outputs and deliverables when the project and the project team have concluded their work; and
     3. Review the performance of the project against its baseline goals/requirements
   - Teams close a project when they deliver the finished project to the customer, communicating completion to stakeholders and releasing resources to other projects. This vital step in the project lifecycle allows the team to evaluate and document the project and move on the next one, using previous project mistakes and successes to build stronger processes and more successful teams.

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Health IT Project life cycle (cont'd)

5. *Close the project (cont'd)*
   - At the end of a project, the expenditure category usually moves from "capital-based" expenses to "operating-based" expenses, as they are now ongoing for the organization. An **operating expense** (OPEX) is an expense required for the day-to-day functioning of a business. In contrast, a **capital expense** (CAPEX) is an expense a business incurs to create a benefit in the future.

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Elements of an health IT project

- **Human element** –Patient care is a major driver, and it has to be balanced with income received by the facility. Welfare of the patient has to be properly managed within the framework of project management.
- **High tech** – personnel will have to manage advanced technology projects, projects that will take project management tools tailored to help the healthcare professionals easily plan, execute and control their projects.
- **Government often plays a big role** – Governments develop national policies and strategies which create a fertile regulatory environment for e-health projects, building capacity through, for example, training programs and on-the-job training for all health workers.

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Unit Review Checklist

- ❑ Define project management and program management
- ❑ Describe the project management triangle
- ❑ Describe the project management star
- ❑ Name the steps of the Health IT Project Life Cycle, and identify features of each
- ❑ Identify the basic principles of health IT project/program management including developing and maintaining the project plan, setting and keeping project milestones, producing deliverables, and adhering to critical pathways (BBB01)
- ❑ Describe one or more elements of an health IT/eHealth information systems/engineering project or program (BBL01)

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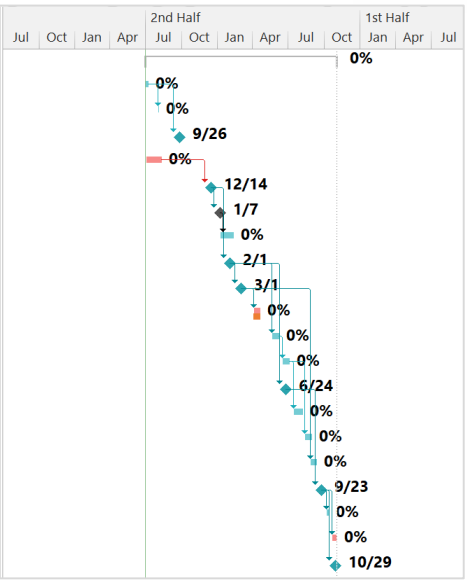
Unit Review Exercise/Activity

1. Consider a situation where your organization has an opportunity to replace a paper patient intake form with a digital patient intake form. Describe reasons why this project should be executed and what will be the benefits of it.
2. From the Project Management Plan on the right, answer the following questions:
   a) What tasks are the seven project milestones indicated by diamonds on the Gantt Chart?
   b) What tasks are the three critical paths, indicated by red bars on the Gantt Chart?
   c) When is the project scheduled to begin and end?

TRACKING GANTT

	Task Mode	Task Name	Duration	Start	Finish
0		**Project Management**	**350 days**	**Sun 7/1/18**	**Fri 11/1/19**
1		Kick-Off Meeting Planning	6 days	Sun 7/1/18	Fri 7/6/18
2		Kick-Off Meeting	1.9 days	Wed 8/1/18	Thu 8/2/18
3		Communication & Documentation Plan	12 days	Tue 9/11/18	Wed 9/26/18
4		Create survey tool	30 days	Mon 7/2/18	Fri 8/10/18
5		Survey	40 days	Mon 10/22/18	Fri 12/14/18
6		Case Studies	15.8 days	Mon 12/17/18	Mon 1/7/19
7		Gap Analysis	25 days	Mon 1/7/19	Mon 2/11/19
8		Heatlh IT Course	19.5 days	Mon 1/7/19	Fri 2/1/19
9		US-EU Collaboration Event	5 days	Mon 2/25/19	Fri 3/1/19
10		Early Deliverables Report	13 days	Wed 4/3/19	Fri 4/19/19
11		IEDM	15 days	Mon 5/20/19	Fri 6/7/19
12		Dissemination Action Plan	14 days	Mon 6/17/19	Thu 7/4/19
13		Stakeholder Engagement Event 1 (Workshop)	1 day	Mon 6/24/19	Mon 6/24/19
14		SKAD	16.9 days	Mon 7/15/19	Tue 8/6/19
15		Exploitation Plan	15 days	Mon 8/12/19	Fri 8/30/19
16		IWP	13.65 days	Mon 8/26/19	Thu 9/12/19
17		Stakeholder Engagement Event II (Workshop)	1 day	Mon 9/23/19	Mon 9/23/19
18		Final Dissemination Report	5 days	Mon 10/7/19	Fri 10/11/19
19		Final Project Tasks	10 days	Mon 10/21/19	Fri 11/1/19
20		Final Conference	1.5 days	Mon 10/28/19	Tue 10/29/19



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Unit Review Exercise/Activity (cont'd)

3. Provide definitions for the following terms:
   a) testing environment
   b) production environment
   c) training environment
   d) data freeze
   e) go/no go dates
   f) migration
   g) conversion
   h) activation/cutover
   i) Command Center

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Unit Exam

1. What are the three constraints of the project management triangle?
   a) schedule, cost and time
   b) cost, scope and schedule
   c) outputs, boundaries and cost
   d) schedule, budget and cost
2. The PMBOK star is an alternative model based on the triple constraint:
   a) Triangle
   b) Diamond
   c) Square
   d) Circle

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Unit Exam (cont'd)

3. Inputs and outputs in the project management star include all of the following, except:
   a) Resources
   b) Quality
   c) Scope
   d) Risk
4. Technology management components in the project life cycle include:
   a) integration, communications and procurement
   b) workflow, conversion and cutover
   c) realization, sponsorship and optimization
   d) all of the above

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Unit Exam (cont'd)

5. Regarding project management, technology management and change management:
   a) Relying on them individually ensures project success
   b) They are the only keys to success of a project
   c) Used in combination, they increase the likelihood of success when integrated into a project
   d) These concepts do not matter to project management
6. Health can be considered as an area largely unaffected by the development of digital technology.
   a) True
   b) False
7. Expenditures move from capital expenses to operating expenses at the close of the project.
   a) True
   b) False

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Unit Exam (cont'd)

8. The phase where a project's value and ability to pursue forward are in which phase::
   a) Initiate the project
   b) Plan the project
   c) Execute the project
   d) Monitor the project
9. The phase where major agreements are signed between contractors and vendors and the organization happens in which phase:
   a) Plan the project
   b) Execute the project
   c) Monitor the project
   d) Close the project
10. "The sequence of activities that must be completed on schedule for the entire project to be completed on schedule" best describes what term?
   a) Milestone
   b) Gantt Chart
   c) Scope creep
   d) Critical path

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