# Module 2

Project Organization/Planning

Readings

- Lecture 2
- Chapter 2 in *Engineering project management*
- Project Management Institute. (2017). Part 1: A guide to the project management body of knowledge (PMBOK® guide): 3. The role of the project manager. In *A guide to the project management body of knowledge® (PMBOK® guide)*. (6th ed.). (pp. 51-68). PMI Publications.

Lecture

▼ What are system engineers?

The systems engineer often serves as the project manager's right hand; the two work in tandem to focus on requirements for the project.

The systems engineer is likely a subject matter expert, that individual will have a considerable amount of autonomous work and leeway to ensure that the project keeps on pace and on schedule.

▼ What is systems engineering?

Encompasses integration management, risk management analysis, quality management, lifecycle cost and disposal, as well as interface specifications, standards, and alternatives analysis for the project.

Enables the successful realization, use, and retirement of engineered systems.

Requires technical and non-technical knowledge.

▼ What are risk factors?

Systems engineers collaborate and inform the project manager regarding risk factors.

These can range from technical requirements to supplier risks that could affect the overall risk profile for the project.

▼ What is systems thinking?

Evaluating system functions as a whole is known as a systems approach or systems thinking.

▼ What are specific systems functions?

System engineers manage the manufacturing, construction, funding, and general management processes associated with the system.

▼ How do system engineers approach requirement solution development?

Systems engineers collaborate with experts and ensure that every advantage is pursued while mitigating risk factors and apprising the project manager of progress within the system.

▼ How are requirements obtained?

- brainstorming
- document analysis
- interface analysis
- focus groups
- stakeholder or customer interviews
- observations
- prototypes
- requirements workshops
- reverse engineering
- survey/questionnaires

▼ What is requirements management?

The process of analysis based upon information elicited from stakeholders or the customer.

These methods and activities are all ways of eliciting information to gain knowledge about the project and what will be required to bring it from idea to reality.

▼ What is project design methodology?

The framework by which the team can follow and execute all phases of the lifecycle and systems development process.

Has a critical impact on the success rate of the project.

▼ What goals can be achieved with design methodologies?

- Appropriate cost estimates are accurate, reliable, and complete.
- Stakeholders' desires and essentials are appropriately defined.
- All tasks are completed with a standardization and procedural approach.
- Common terminology and a process framework are established, allowing the team to have a shared expectation of process.
- Lessons learned are made part of the knowledge management database, and solutions are rapidly deployed.
- Conflicts are spotted early and resolved quickly.
- Deliverables are created and handed over according to project timelines and scope.

▼ What are some other project management frameworks?

Six Sigma, Prince 2, ITIL, and SCRUM

▼ What are technical project management skills?

Some of the biggest skills required include the ability to appropriately manage time, the ability to effectively communicate ideas and philosophies, strong decision making, and the ability to negotiate or problem solve in a manner that is effective and collaborative.

Strategic planning and forecasting are skills that are necessary for a technical project manager.

▼ What is forecasting?

Businesses use forecasts and data analysis to look at the viability of certain trends, find the performance history of a product, and determine how profitable a venture may be in the future.

Projects may be either given the green light or canceled depending upon how available data is used to successfully forecast processes.

▼ What is trend analysis?

A standardized forecasting activity that looks at historical patterns in order to determine future risks or benefits.

▼ What is cost-benefit analysis?

Assists project managers in finding an expected benefit for performing a task or function, especially when faced with multiple options.

▼ What is strategic planning?

It combines forecasting, risk management, and a great deal of scrutiny to navigate unforeseen challenges and opportunities to arrive at a successful project inception.

It decides where and how funding is allocated during projects.

It allows the project manager to evaluate the current performance of the project.

It produces questions like where are we now, where should we go, and how do we get there?

▼ What is SWOT analysis?

Evaluates environmental analyses, industrial analyses, and company analyses.

Chapter 2 in *Engineering project management (2.1 - 2.5)*

▼ What is the system method?

Increases the likelihood of successful system development by putting the focus on the behavior of the system as a whole rather than on its components.

▼ Why use the system method?

Why? We want to accomplish something that is greater than what is provided directly by each part; we want some emergent behavior, i.e. gears + screws + metal = bike.

Behavior emerges from union of parts. "The whole is greater than the sum of its parts."

Note: goal is desired not unplanned emergent behavior.

▼ What is the role of the systems method?

The role is to figure out what are all the parts we must have.

▼

▼

▼

▼

▼