

RISK MANAGEMENT

LECTURE 5

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RISK SECTION OBJECTIVES

Introduce the students to the **concepts of risk management** and the different **tools to analyze risk** and estimate time and cost contingencies.

The course is envisioned to provide its participants with an insight on **management and controlling risks in construction projects**, in addition to develop models for optimum cost and markup estimate.

The course also sheds light on various topics on advanced techniques for **improving decision making** in the domain of **risk planning and management** will be introduced.

RISK SECTION **OUTCOMES**

After completing the course, participants will be able to:

1. Define Risk and Uncertainty;
2. Understand characteristics of risk events;
3. Understand contracts and its relation with risks;
4. Plan for Risk Management;
5. Perform Risk Identification;
6. Perform Risk Analysis (Qualitative and Quantitative);

RISK SECTION OUTCOMES

7. Perform Risk Response Planning;
8. Perform Risk Monitoring and Control ;
9. Utilize Tools and Techniques such as [Sensitivity Analysis ; Scenario Analysis, Probability Analysis, Decisions Tree Analysis, Fault Tree Analysis, PERT Technique and Monte Carlo Simulation];
10. Utilize Risk Analysis Packages (Crystal Ball, PERT Master);
11. Estimate optimum markup for competitive bidding.

WHAT IS A **PROJECT** ?

“**Project**” is a **temporary** endeavor undertaken (has a **progressive elaboration** characteristics) to create a **unique product, service, or result**.

WHAT IS A **PROJECT** ?

“**Projects**” are a result of one or more of the following strategic considerations

- A market (**Demand**)
- An organizational (**Need**)
- A customer (**Request**)
- A technological (**Advance**)
- A legal (**Requirement**)

WHAT IS A **PROJECT MANAGEMENT** ?

- **Project Management** (PM) is The application of **knowledge, skills, tools,** and **techniques** to project activities **to meet the project requirements.**
- Managing a Project includes:
 - (**Identifying**) requirements
 - (**Establishing**) clear and achievable objectives
 - (**Balancing**) the competing demands for quality, scope, time, and cost
 - (**Adapting**) the specifications, plans, and approach to the different concerns and expectations of the various stakeholders

WHAT IS A **PROJECT RISK** ?

- The word “ **RISK**” is Quite Modern,
- It appeared in the English Language in mid **17th century**
- In the second quarter of **18th century** it appeared in the **insurance** transactions.
- In the late of **19th century** it appeared in the construction industry

WHAT IS A **PROJECT RISK** ?

- **Risk** is an **uncertain** event or condition, If it occurs, has a **positive** or a **negative** effect on at least **one** project objective, such as **time, cost, scope, or quality**. "PMI(2004)"
- **Risk** is A **combination** of **probability of the occurrence** of a defined hazard and **magnitude of consequences** of the occurrence. "ISO(2009)"



RISK IN CONSTRUCTION

Political

Social

Stack Holder

Legal

Economical

Technology

Financial

Environmental

Health

Safety

RISK IN CONSTRUCTION

A typical construction project may involve all forms of risks (**contractual**, **financial**, **operational**, **political** and **technical**).

It is considered "**truth**" that no single project may be able to **eliminate risks completely** (Mills 2001).

Construction industry has a **very poor reputation** for **managing risks**, with many projects failing to meet **deadlines** and **cost** targets (Mills 2001).

RISK MANAGEMENT

- A formal ordering process for **identifying**, **analyzing**, and **responding** to risk events to obtain the optimum or acceptable degree of risk elimination or control (Al-Bahar 1990).

RISK MANAGEMENT

- **Managing risks is** an integral part of good management and fundamental of **achieving good business** and **project outcomes** and **effective procurement** of goods and services;
- **Risk** should be considered at the **earliest stages** of project **planning**;

RISK MANAGEMENT

- It is important for the **project sponsor**, the **main contractor** and the **sub-contractors** where relevant to use an **effective** and **consistent risk management process**
- Process should promote **transparency** and **effective communication** between the parties to facilitate effective and quick **management of risks**

PROJECT RISK MANAGEMENT

- Is a **process** aims to have attitudes about risk to be made **clear** wherever possible.
- A **consistent approach** of risk to meet the organization's requirements should be developed for each project, and communication about risk and its handling should be open and honest.

PROJECT RISK MANAGEMENT

Project risks include all those risks that might impact **cost**, **schedule** or **quality** of the project;

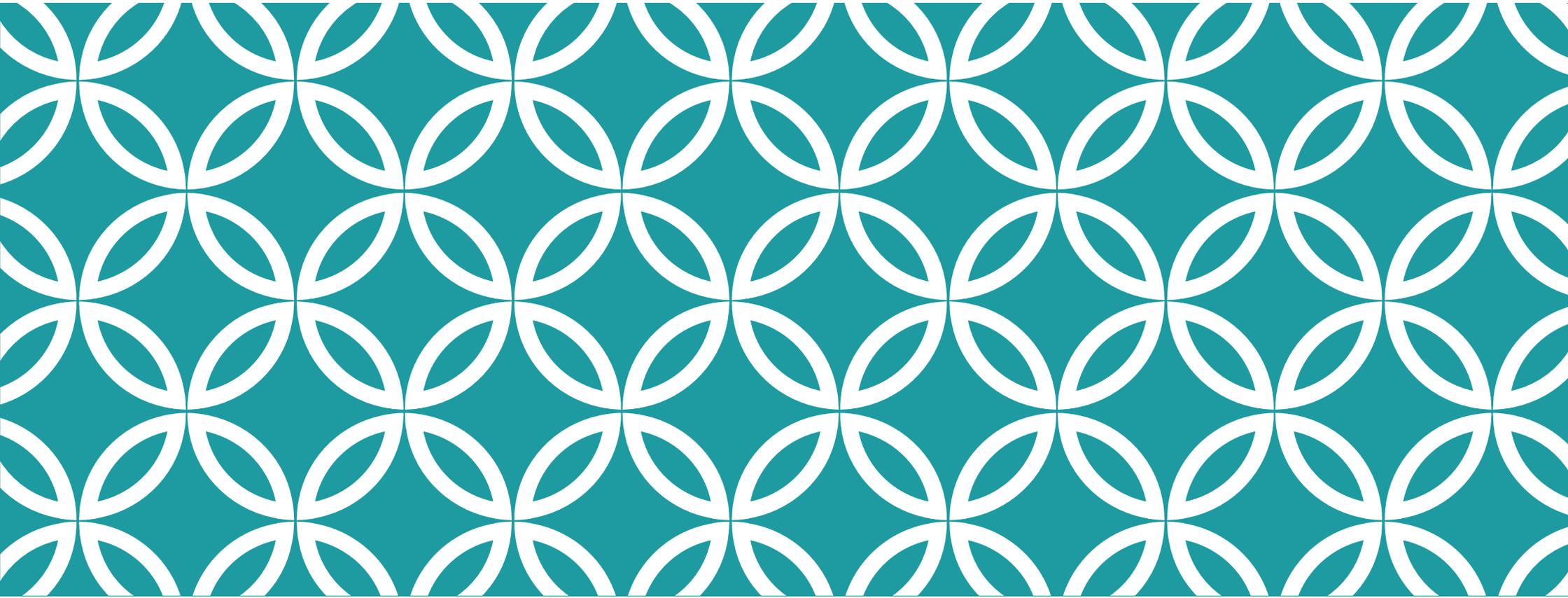
Operation risks include all those risks that might impact the **design**, **procurement**, **construction**, **commissioning**, **operation** and **maintenance** activities including major hazard and catastrophic events.

RISK MANAGEMENT OBJECTIVES

- **Assists** project managers in setting **priorities**
- Allocating **resources**
- Implementing **actions and processes** that reduce the risk of the project
- **Minimize** adverse impacts to project scope, cost, schedule and others

BENEFIT OF RISK MANAGEMENT

- **Minimize** the risks of not achieving the objectives of the project and stakeholders and take advantage of opportunities ;
- **Facilitate** better business and project outcomes;
- **Provide** insight, knowledge and confidence for better decision making; and
- **Increase** certainty and reduce overall risk exposure;



THANK YOU |