IDENTIFYING AND MANAGING RISKS IN CONSTRUCTION PROJECTS

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Arcadis LLP
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AGENDA

➢ Introduction
➢ Risk Management
➢ Types of Construction Risks
➢ Risk Management process
  ▪ Identify
  ▪ Assess
  ▪ Response
  ▪ Review
➢ Collaborative Risk Management
➢ Emerging Risk Management Approaches
INTRODUCTION

“No construction project is Risk Free
Risk can be managed, minimised, shared, transferred or Accepted.
It cannot be ignored.”

Risk Management – The commercial Imperative
........Sir Michael Latham 1994

Understanding the true risk picture
Risk management is the practice of minimising threats and maximising opportunities in the most effective manner by identifying, analysing, and managing all threats and opportunities which impact the achievement of the objectives.

Using risk and opportunity management to drive success

“Risk more than others think is safe. Care more than others think is wise. Dream more than others think is practical. Expect more than others think is possible.”
SO WHAT IS RISK?

• Threat – negative side of uncertainty

• Opportunity – positive side of uncertainty
  – Uncertain event, should it happen, will impact positively on the project’s results.

• Risk event – covers both, threats and opportunities

Risks comprise:-
  – Causes *(a situation that already prevails)*
  – Risk *(an uncertainty that arises)*
  – Effect *(impact on the projects objective)*

The consequence may affect cost, time or fitness for purpose (as informed by success criteria or value drivers e.g. inspirational design, staff satisfaction or the value drivers such as ‘reduced impact on the environment’)

RISK METALANGUAGE - THREE PART STRUCTURE:

“As a result of *<one or more definite causes>*; *<uncertain event or condition>* may occur, which would lead to *<one or more effects on objective(s)>.*”
DIFFERENT TYPES OF PROJECT RISKS

The most common project risks are:

- **Cost risk**, typically escalation of project costs due to poor cost estimating accuracy and scope creep.
- **Schedule risk**, the risk that activities will take longer than expected. Slippages in schedule typically increase costs and, also, delay the receipt of project benefits, with a possible loss of competitive advantage.
- **Performance risk**, the risk that the project will fail to produce results consistent with project specifications.
- **Governance risk** relates to board and management performance with regard to ethics, community stewardship, and company reputation.
- **Strategic risks** result from errors in strategy, such as choosing a technology that can’t be made to work.
- **Operational risk** includes risks from poor implementation and process problems such as procurement, production, and distribution.
- **Market risks** include competition, foreign exchange, commodity markets, and interest rate risk, as well as liquidity and credit risks.
- **Legal risks** arise from legal and regulatory obligations, including contract risks and litigation brought against the organization.
- **Risks associated with external hazards**, including storms, floods, and earthquakes; vandalism, sabotage, and terrorism; labor strikes; and civil unrest.
CATEGORIES OF CONSTRUCTION RISKS
## RISK MANAGEMENT PROCESS

**Initiation**
- Establish process, define objectives, governance

**Identification**
- Identify risks to the objectives

**Assessment**
- Assess likelihood and impact(s) to the objectives

**Response**
- Agree actions, and allocate ownership to eliminate, reduce, transfer or contain the risk

**Review**
- Add risks, review risks, close risks – update actions and record progress

### A systematic approach to control the level of risk to mitigate its effects.
ABILITY TO INFLUENCE CONSTRUCTION COST OVER TIME

Opportunities reduce with time
80% of costs are committed at concept stage

Time

The value zone

Potential for change
Resistance to change
Cost of change

Cost

RISK INITIATION
MANAGING RISKS TO ADD VALUE

It has to make a difference!
RISK CULTURE

➢ What risk are you prepared to take?
➢ What’s the reward?
➢ What sort of reward is important to you?
➢ What are the constraints to you taking a risk?
  ✓ Political?
  ✓ Economic?
  ✓ Social?
  ✓ Technical?
  ✓ Legal?
  ✓ Environmental?
Introduction to Risk Management methodology
• Roles and Responsibilities
• Resourcing and budgeting
• Timetable and frequency of reviews
• Scales and ranges for scoring and interpreting severity
• Thresholds for trigger responses
• Reporting formats
• Monitoring and tracking progress

Roles and Responsibilities - Customer Needs
IDENTIFICATION OF RISKS

- Risks have to be identified in order to manage them
- Risks should come from the Project Team.
- All risks should be specific to the project
- Get to the root cause – probe and clarify with the project team
- Understand the team’s appetite for risk
- Be aware of the team’s preconceptions – what’s their view towards the project
- Understand their phobias and previous experiences

IDENTIFICATION TECHNIQUES

- Brainstorming
- Mind Mapping
- Questionnaire
- Prompt lists (categories)
- Check lists (questions)
- Interviews/consultation

“Risk is like fire: If controlled it will help you; if uncontrolled it will rise up and destroy you.”
— Theodore Roosevelt
RISK IDENTIFICATION

Threat:
Negative side of uncertainty

Opportunity:
Positive side of uncertainty

Issue:
Will occur/is occurring and has an impact.

Risk Event
May occur/Will have an impact

Causes
(a situation that already prevails)

Risks
(an event or set of circumstances which may occur)

Effects
(impact on the project's objective)
Risk is commonly measured by estimating the likelihood that a risk will occur and the impact of its consequence(s), should it occur.

Risks may be assessed **Qualitatively** or **Quantitatively** depending upon the ultimate use of the results.

- **Qualitative** – the data is to be used only to set up a system for managing risk.
- **Quantitative** – the results are to inform a risk allowances (contingencies).
- **Quantified Schedule Risk Analysis**

### Risk Analysis Techniques

#### Qualitative
- Ranking options
- Comparing options
- Descriptive analysis

#### Quantitative
- Probability analysis
- Sensitivity analysis
- Simulation techniques

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CONTINGENCY ALLOWANCE

- The Contingency Allowance usually contains three line items:
  - Risk Budget (Scheme Appraisal)
  - Inflation Allowance
  - Optimism Bias

- The QCRA results should be read in the context of the above contingencies.

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<th>Contingency areas</th>
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<td>Risk Budget</td>
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<tr>
<td>Inflation</td>
<td>xxxxx</td>
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<td>Optimism Bias</td>
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<tr>
<td>Total Contingency</td>
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HOW THE LONDON 2012 GAMES MANAGED COST AND CONTINGENCY

Risk & Uncertainty
Emerging Issues
Current Issues
Scope of Future Works
Work Completed

Uncertain
Certain

AFC
RISK RESPONSE

Five T’s

T**ake** / exploit opportunity

T**erminate** showstoppers and biggest risks

T**reat** / reduce risk by surveys, re-design, other materials or appointing a specialist

T**ransfer** / **insure** risks, allocate differently, take out bond, include in Contract

T**olerate** (Business as usual) monitor risk without taking specific additional mitigation actions

Respond to the risk: make risks explicit so that decisions can be taken as to who should bear them.
RISK REVIEW

- Integrated part of project activity (incl. reporting)
- Regular and focused
- New risks, risks to close, update assessment and actions

- Show metrics – trends over time
- Prioritise
- Relate to other activity
- Timing
A shared risk is a risk with no single owner, where more than one entity is exposed to or can significantly influence the risk.

Shared risk includes risks that extend across entities and potentially the community, industry, international partners and other jurisdictions. In large, complex entities, shared risk can exist within the entity as well as between them.

Although they will differ in scale and nature, shared risks have a number of distinguishing characteristics.

A shared risk may have no naturally apparent owner. Unlike simpler risks, no one entity may be able to manage the risk on their own. Shared risks often require a network of distributed responsibilities and relationships.

Shared risks can have complex causes, and can be influenced by the actions (or inaction) of a range of participants in different ways.

Should a shared risk be realised, they can affect different organisations in different ways, and can have complex and widespread impacts.

The growing use of collaborative approaches by government such as through shared services public-private partnerships and inter-agency task forces means that shared risk is becoming more prevalent.
EMERGING RISK MANAGEMENT APPROACHES

Fusing risk management approach with innovation, can create a powerful, value-driving partnership.

RISK GOVERNANCE MODEL:

➢ Allow strategy and innovation teams to make strategically intelligent mistakes within a clearly understood governance framework that in turn, enables a culture that not only tolerates risk but also embraces failure as an integral part of the innovation process.

➢ Risk management groups work as standard setters, providing a common language the business could use to translate strategic challenges into specific, measurable risks, and providing such risk governance expertise as oversight committees and assessment procedures.

PORTFOLIO MODEL:

➢ Use risk management methodologies and tools to measure uncertainty—both positive and negative—and to provide realistic estimates of outcomes that can facilitate decision making.

PROCESS MODEL:

➢ A risk management process that can shorten learning cycles, recognize failures early and make timely course corrections—a process that facilitates a companywide dialogue around which risks are acceptable and how much risk is appropriate, based on potential returns.
RISK MANAGEMENT – MAKING A REAL DIFFERENCE

WHAT YOU MAY NOT KNOW!

- London 2012 total budget £9.7bn, with contingency of £1.9bn – Risk Advisory saved £585m more than any other discipline for the games
- On average if a client spends £20k on a programme of risk work the estimated savings are generally on average 25 times that figure
- Effective Risk Management helps projects to see further and go further

RISK MANAGEMENT

- Improves delivery certainty
- Concentrates minds and actions on the big issues
- Puts organisation in control with a measurable process
- Enables better, informed, decisions
- Enables link between the contingencies and risks
- Improves communications and understanding
**KEY LEARNINGS**

**Risk Management** is the process of identifying and then actively managing risks for projects with the aim of making the project more likely to succeed.

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**Risks**
(an event or set of circumstances which may occur)

- **Risks**
- **Causes**
- **Effects**

**Risks Process**
- **Assessment**
- **Identification**
- **Management**
- **Review**
ANY QUESTIONS?

Please complete the feedback survey which will be emailed to you.