# CSVA - SCAV 2013 Annual Conference
# Montreal, Quebec
# November 25-26, 2013

## VA & Risk Management of Major Projects

**Denis Dagenais eng, AVS**

Safety • Quality • Sustainability • Innovation

HATCH™

# VA & Risk Management of Major Projects

- Safety Share (RR crossing)
- Presentation objectives
- Hatch
- Denis Dagenais
- Definitions
- Risk Management basics
- Facilitation ‘tips’
- Question period

# Safety Share

# Boundaries of the presentation

- **<u>Project</u> Risk Management / Risk Analysis**
- **Projects CAPEX = $ 1 Million to $ 4 Billion**
- **Threats and *(opportunities)***
- **<u>Technical</u> Risk Management**
  - **HAZID**
  - **HAZOP**

# Objectives

- Keep you awake !!
- Basics of Risk Management
- Lessons learned

**This presentation is being brought to you by the letters:**

# H and D

**Ref. Sesame Street (Kermit the frog)**

Safety • Quality • Sustainability • Innovation

Safety • Quality • Sustainability • Innovation

# Denis Dagenais eng, AVS

- Easthern North America Risk Management Lead
- Metallurgist Poly ‘82 / OIQ / CSVA-SAVE
- Manufacturing industry for about 26 years
- Consulting for more than 5 years
- Facilitated Risk Analysis workshops (more than 50)
- Projects from $1 M to $ 4 B - CAPEX

# Risk Management vs Value Engineering

## Value Management / Value Engineering

- Systematic method to improve Value
- A key feature is Functional Analysis

## Risk Management / Risk Analysis

- Identify significant threats *(opportunities)*
- Implement mitigation *(enhancement)*
- Workshops are mandatory

**Risk Management is one of the many tools to increase the Value of projects**

# Definitions

- **Risk**
  **Event which occurrence is uncertain**
  **Uncertain event or condition that could affect a project objectives or business goal**

- **Threat**
  **The outcome of the uncertain event (risk) is negative**

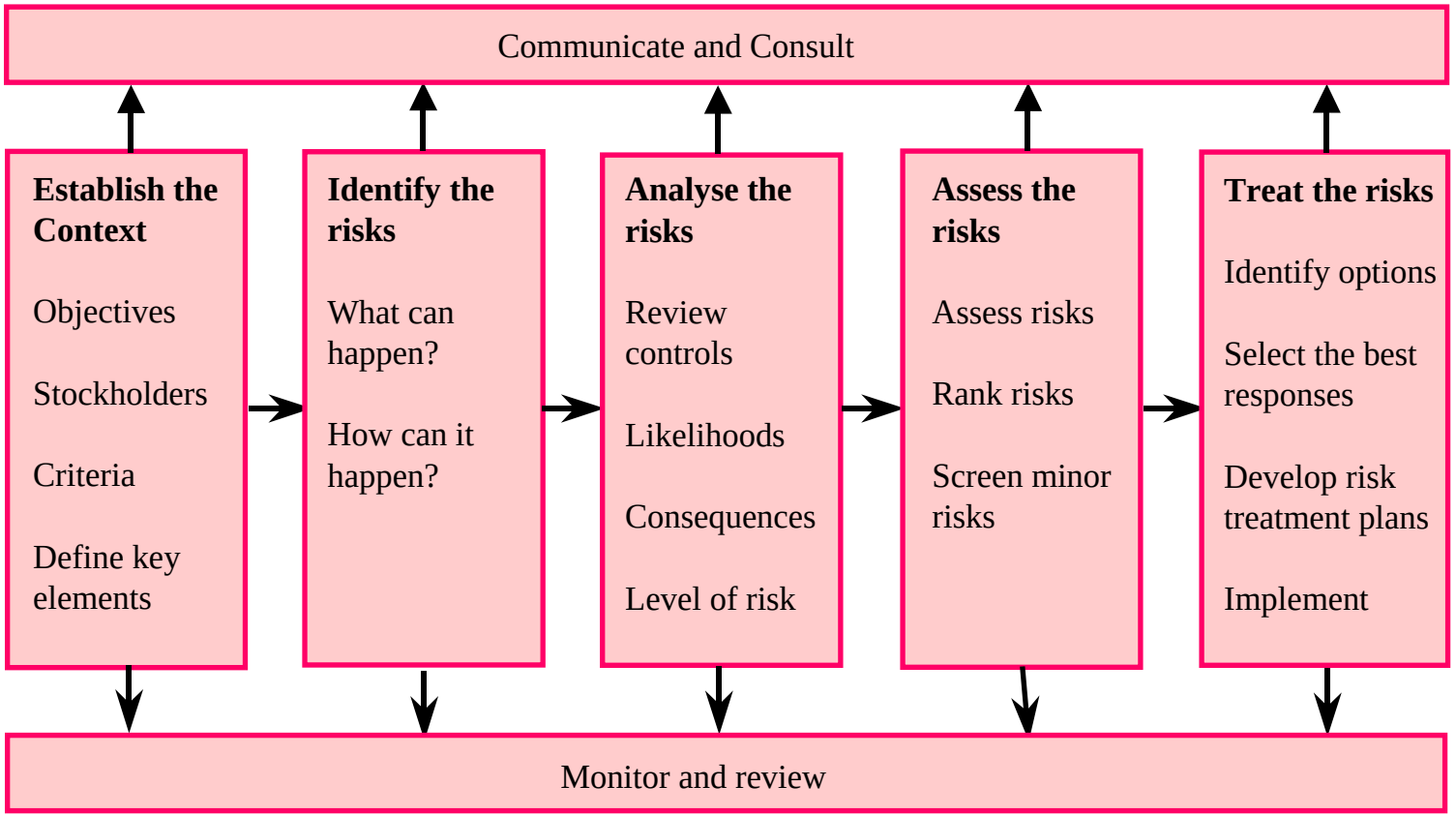
- ***Opportunity***
  ***The outcome of the uncertain event (risk) is positive***

- **Preventive *(enhancement)* action**
  **Reduces *(increases)* the likelihood of a threat *(opportunity)***

- **Attenuation *(improvement)* action**
  **Reduces *(increases)* the impact of a threat *(opportunity)***

# Risk Management Guidelines

## Phases of Risk Management




**NOTE: The guidelines / methods described are applicable regardless of the size and complexity of the project !!**

# A) CONTEXT

**Why does the client / project team asks for Risk Analysis ?**

- o Corporate requirement?
- o Understands and needs Risk Management?

**Is the project itself being threaten?**

- o Are project *raisons d'être* still valid?
- o Change is one of the few certainties

**Schedule driven or Cost driven (cannot be both)**

**Do not UNDERESTIMATE the context**

# B) RISK IDENTIFICATION

**Most significant part of the workshop**

- o Participants mind frame
- o Representatives with different responsibilities?

**Most needed facilitation skills**

- o Straight forward / diplomat
- o Task oriented / flexible
- o Good listener / impolite
- o Involved / unbiased

**The FACILITATOR manages the workshop**

# B) RISK IDENTIFICATION (cont'd)

**What are the objectives of the project**

- o In all cases (100%) the objectives are not well understood
- o What was said, is not what was understood

***Not all objectives are SMART***

- o *Significant*
- o *Measurable*
- o *Attainable*
- o *Realistic*
- o *Timeline*

***Good opportunity to share 'THE UNTOLD STORY'***

**CONTEXT and OBJECTIVES are MANDATORY**

# ‘’ Sending an American safely to the moon before the end of the decade (J.F.K. – May 1961)’’

# B) RISK IDENTIFICATION (cont'd)

## Threats *(opportunities)* identification and Causes

- **Credibility is paramount**
- **FACTS / Certainty**

## Risk Breakdown Structure (RBS)

- Financial
- Conformity
- Technical
- Infrastructure
- Project Management

**FEAR linked to threats is powerful**

***(Identify opportunities EARLY in projects)***

# B) RISK IDENTIFICATION (cont)



## Consequence / Impact

- o Take into account the existing controls
- o Credible consequences

## Existing safeguards / controls

- o Procedures / practices
- o Know-how
- o ‘Golden rules’
- o Corporate rules

**Identify NEW mitigation measures**

# C) RISK SEVERITY RANKING

## Basics of Risk Management

- Project related
- Resources are not INFINITE
- Zero risk is an unrealistic
- Endeavors involve a minimum of risk
- No ‘stupid’ risks
- Think out of ‘’the existing matrix’’

**The APPETITE for Risk is client / project specific**

# C) RISK SEVERITY RANKING (cont'd)

## Ranking CONSEQUENCES

- Project Matrix (5 X 5 most common)
- Remember existing controls / safeguards
- Catastrophic consequences = **INTOLERABLE**
- Some consequences can be **ACCEPTABLE**

## Ranking LIKELIHOOD

- Likelihood of event NOT of its consequence
- Remember existing controls / safeguards

**COLOR coding may lead to bias**

# Tools are at your service
## (not vice versa)

# Risk Matrix – Opportunities & Consequences

| | Opportunities | | | | |
|---|---|---|---|---|---|
| Table 2 | Vey Low | Low | Moderate | High | Very High |
| | -1 | -2 | -3 | -4 | -5 |
| 1 | -1 | -3 | -6 | -11 | -15 |
| 2 | -2 | -5 | -9 | -14 | -19 |
| 3 | -4 | -8 | -13 | -18 | -22 |
| 4 | -7 | -12 | -17 | -21 | -24 |
| 5 | -10 | -16 | -20 | -23 | -25 |

Risk Matrix-Opportunities

| | | |
|---|---|---|
| 1 | RARE | 1 |
| 2 | UNLIKELY | 2 |
| 3 | POSSIBLE | 3 |
| 4 | LIKELY | 4 |
| 5 | ALMOST CERTAIN | 5 |

| | Consequences | | | | |
|---|---|---|---|---|---|
| Table 2 | Minor | Moderate | Serious | Major | Catastrophic |
| | 1 | 2 | 3 | 4 | 5 |
| 1 | 1 | 3 | 6 | 11 | 15 |
| 2 | 2 | 5 | 9 | 14 | 19 |
| 3 | 4 | 8 | 13 | 18 | 22 |
| 4 | 7 | 12 | 17 | 21 | 24 |
| 5 | 10 | 16 | 20 | 23 | 25 |

Risk Matrix-Threats

# D) ACTION PLAN

**AVOID**

**TRANSFER**

**ACCEPT**

**MITIGATE *(enhance)***

**(INVESTIGATE)**

**Managing threats alleviates fear**

***(Managing an opportunity increases likelihood)***

# Is it worth the risk?

# D) ACTION PLAN (cont'd)

**Mitigation *(enhancement)* actions are:**

- ❑ **Prevent *(help)* it from happening**
- ❑ **Attenuate *(increase)* the impact if it happens**

**IGNORING a threat does not make it disappear !**

***(IGNORING an opportunity does not make it happen !)***

# MITIGATION = PREVENTION and/or ATTENUATION

# D) ACTION PLAN (cont'd)

## Mitigation actions are like objectives:

- ❑ Clearly defined realistic actions
- ❑ Responsibilities identified
- ❑ Time frame agreed upon
- ❑ Impact on schedule / project cost

**Do not end the workshop without key contacts NAMES**

# E) MONITORING

- ✓ Plan reviews in advance
- ✓ Prioritize highest threats
- ✓ Re-assess severity level
- ✓ Retire ‘closed’ threats
- ✓ Residual Threats vs Cost & Schedule

**Monitoring linked to project control essential**

# Poor Monitoring = time & money wasted

# Typical Risk Register

Project Risk Register

**Project:** **Document No.:**

**Update:**

| RISK IDENTIFICATION ,ANALYSIS & TREATMENT | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RISK IDENTIFICATION & EVALUATION | | | | | INITIAL RISK RATING | | | | TREATMENT PLAN | | | | | | | CURRENT | | |
| Risk ID | Risk Description | Causes (Why would this risk occur?) | Primary Effect(s) (This risk will cause the following to be jeopardized) | Controls in Place | Consequence Rating (1 - 5) | Likelihood Rating (1 - 5) | Residual Risk Rating | Rating Basis (input comments on how the rating elements were chosen) | Treatment Plan (Preliminary to be detailed in Bow-Tie) | Consequence Rating (1 - 5) | Likelihood Rating (1 - 5) | Treated Risk Rating | Responsible | When ? (Treatment Completion By?) | Last Update Revision (see "History Tracking " tab) | Risk Action Status (open/reduced/closed) | Risk Ranking (Current) | |
| | | | | | 5 | 5 | 25 | | | 3 | 3 | 13 | | | | open | 25 | |
| | | | | | 4 | 4 | 21 | | | 3 | 3 | 13 | | | | reduced | 13 | |
| | | | | | 3 | 3 | 13 | | | 3 | 3 | 13 | | | | open | 13 | |
| | | | | | 2 | 3 | 8 | | | 2 | 2 | 5 | | | | closed | 3 | |
| | | | | | 2 | 2 | 5 | | | 2 | 2 | 5 | | | | closed | 3 | |

Safety • Quality • Sustainability • Innovation

HATCH™

# Facilitation tips

- If stuck – go back to basics
- Be prepared !!
- It will not go as planned
- Have fun or ....

# What ever happens during the workshop !

# ??


Question
Time