Construction Risk Attitude

- Avoidance Does Not Work -

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See also: A Simple View of Complexity in Project Management
The Meaning of Risk in an Uncertain World

Introduction

- Structure of Presentation
  - Case Studies
    - Wembley Stadium
    - Terminal 5 – Heathrow
  - Understanding Risk
  - Variability in Estimates
  - Conclusions

Case Study #1
Wembley Stadium

The owner WNSL entered into a ‘Guaranteed Maximum Price’ contract with ‘Multiplex’ to design and build the stadium for £326 million.

Case Study #1
Wembley Stadium

- The consequences of Multiplex’s ‘low bid’
  - £150 million loss
  - Multiple disputes with subcontractors
- The failure of ‘contracting out’ of all risk
  - WNSL lost £430 million
  - Stadium completed 18 month late
  - Everyone ‘walked away’ from the fight!

Case Study #1
Wembley Stadium

- The detrimental impact of ‘feedback loops’ making a bad situation worse:
  - Multiplex’s management became focused on ‘the fight’ to save/recover time and cost
  - The GMP contract “left no flexibility for problem-solving” (WNSL)
- But the opening was a great success!!

Case Study #2
BAA ‘Terminal 5’ (Heathrow)

£4.3 billion. Built on time and on budget. Highly Innovative contracting system.
Case Study #2
BAA ‘Terminal 5’ (Heathrow)

- BAA accepted **ALL** construction risks
  - Innovative project wide insurance
  - Paid for builders errors and mistakes
- The BAA ‘risk attitude’ (alliance contracts)
  - Confront and manage risks early
  - Invest in communication and team building
  - Reward success (but don’t punish mistakes)

Case Study #2
BAA ‘Terminal 5’ (Heathrow)

- Focus on the terminal roof

Case Study #2
BAA ‘Terminal 5’ (Heathrow)

- Terminal roof identified as a **Major Risk**
  - BAA paid for a prototype built early off site to understand ‘the risks’ (cost £2.4 million)
  - Improved erection processes were identified (serendipity)
  - Major cost and time savings achieved in the erection of main roof (3 months and £millions)

Case Study #2
BAA ‘Terminal 5’ (Heathrow)

- During construction BAA worked to mitigate Negative issues and exploit opportunities
- Construction risks were managed proactively
  - But these are tangible
  - The industry understands its risk profile
- **Then there was the opening!!!**

Case Study #2
BAA ‘Terminal 5’ (Heathrow)

- **What went wrong?**
  - BAA (builder) has problems with the baggage handling software (control systems)
    - Inadequate testing under full load
  - BA (operator)
    - Did not train staff properly
    - Did not test peripheral systems (staff car parking)
    - Did not have fallback plans and spare staff

Case Study #2
BAA ‘Terminal 5’ (Heathrow)

- **What went wrong and why?**
  - The ‘Halo Effect’ – great project, nothing can go wrong (but it did)
  - BA management appear risk averse / ignorant
    - Did not plan properly (where were the contingencies?)
    - Ignored warning from staff (not adequately trained)
    - Appeared to focus on ‘saving money’
  - The cost to date: over £20 million + Reputation
The Case Studies

During construction:
- BAA actively managed its risks
- WNSL tried to avoid ‘all risk’

At the opening:
- WNSL celebrated a great stadium (but stadiums are relatively simple)
- BA and BAA created a disaster through
  - inadequate planning and testing, and
  - inadequate risk management

Both are great buildings: but the **Risk Attitudes** of the three organisations heavily influenced outcomes

One of the key problems with most management cultures is their inability to live with uncertainty (risk agnostics?).

They expect people working for them to guarantee the future……

Understanding Risk

**PMBOK Definition:**
An uncertain event or condition that, if it occurs, has a positive or negative effect on a project’s objectives

**Key elements**
- Uncertainty + Effect
- Risks = Uncertainties that matter!

Understanding and managing variability

**Every** process has inherent variability
- Variability in cost estimating
- Variability in scheduling (time estimating)

**Variability is not a ‘risk’!**
- The uncertainty is how much variability?
- And the ‘risk’ is the level at which the variability starts to matter

Dimensions of uncertainty
- Positive -v- Negative (manage both)
- Variability -v- Events (or ‘knowns’)

This paper is focused on variability

Every process has inherent variability

**Normally** this follows a normal distribution

A Standard Deviation, or $\sigma$, identifies the degree of error in a set of data, not the reliability of one measurement!

$1 \ SD \ Always = 35%$

$\pm 1 \ SD \ Always = 70%$
Managing Variability In Estimates

- Every estimate is wrong!
- But how many managers expect accuracy?
- Identifying the likely range of outcomes
  - Based on the PMBOK
    - ROM = -50% to +100%
    - Detailed cost estimate -10% to +15%
    - Schedule estimates are significantly less accurate


Managing Variability In Estimates

- Factors to reduce variability
  - Knowledge of the work being estimated (data)
  - Well defined processes (precision)
  - Time to check evaluate and review (QA)
- Realistic acceptable risk limits
  - +/- 5% is not realistic
  - Proper contingencies are needed

Managing Variability In Estimates

- How ‘safe’ is acceptable?
  - Too safe and you don’t get the job
  - Too optimistic and you lose $$$$$$$$$$

Conclusions

- All projects are ‘risky’ ie, the outcome is uncertain
- Attempts to avoid ‘all risk’ are impossible and doomed to fail
- Managing risk is safer than ignoring risk
- Balancing risks and rewards is the key to success

Conclusions

- The key is a mature risk attitude
  - At all levels of management
  - But appropriate to the organisation
- 90% of ‘risk’ is about people
  - People create risks (Stakeholders)
  - People perceive risks (managers)
  - People accept, manage or avoid risks

Questions Please

More risk management papers see:

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