Risk Management in high-risk industries – a review of risk management successes and failures

Risk Management in construction

A review of risk management successes and failures

Vincent Ho

President of the Institution of Occupational Safety and Health

IOSH and its members

The Chartered body for safety and health professionals

- 47,000-plus members in 130 countries
- Networks worldwide and across industry sectors
- 180,000 delegates in over 70 countries trained each year
- Provide free tools and resources for businesses
- Impactful research for evidence-based practice
- Campaigner on occupational cancer
- Influencer of government and business
- A thought leader on safety and health issues

What is risk management?

Risk is the:

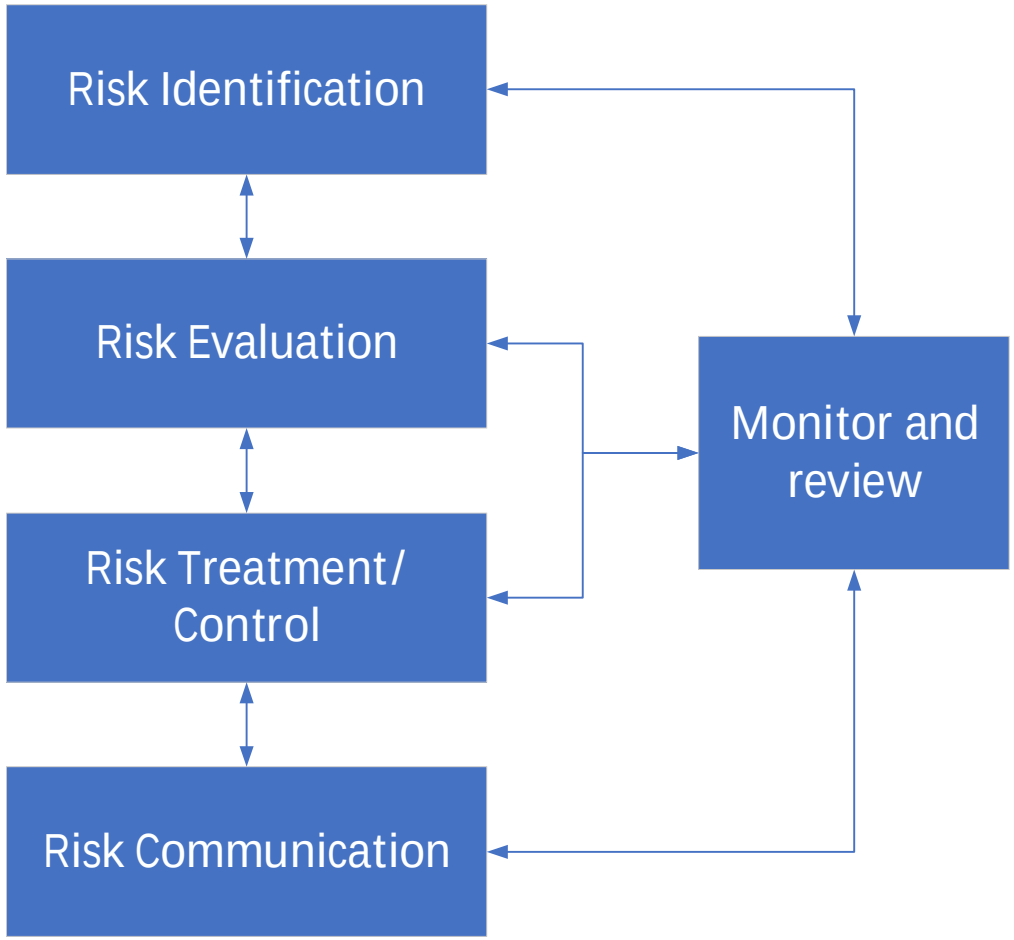
- The probability of injury, damage, liability, loss, or any other negative occurrence caused by hazards. These can be caused by either external or internal influences.*

Risk management is the:

- The identification, analysis, assessment, control, and avoidance, minimisation, or elimination of unacceptable risks within an organisation.*

*IOSH definitions

What is risk management?



Design risk management in construction

Risk ‘thrives’ at interfaces*:

- Physical
  - between foundations and superstructure
  - changes or alterations to an existing structure
- Procedural
  - Determining responsibilities at the interfaces
  - Communication between designers
  - Handovers from one party to another; such as from one phase of a project to another. (e.g. from one design team to another or from construction to commissioning/operation).
  - Demarcation (communication between adjacent, but separate undertakings).

*Taken from Design Risk Management Guide V1.1 – Institution of Civil Engineers

Design risk management in construction

Risk arises from a wide range of causes including:

- the task itself, its complexity, its location and the environment in which It is performed

- management procedures e.g. changes to requirements such as operational needs following the initial design, and managing the design and checking process itself

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https://www.osha.gov/doc/engineering/2008_r_02.html

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- Four synthetic slings were used instead of the required eight chain blocks specified by the manufacturer to support the 11,279-pound steel collar;
- One of the slings used to support the collar had prior physical damage;
- Slings were not attached at the collar points specified by the manufacturer;
- Slings were attached to the mast in a way that compromised their capacity; and
- Padding for the slings at the mast's sharp edges was not provided.
- Each collar half was only suspended at two points

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Risk management failures of the project

- Lack of risk identification of potential failures
- Risk evaluation errors
- Questionable risk control measures
- Inadequate communication

Construction success stories

Heathrow Terminal 5 construction

London Olympic Park construction

Risk Communication in construction

Safety and communication
initiatives at the Olympic Park (OP) – London Olympics 2012 – IOSH research
www.iosh.co.uk/olympicpark

Investigation of the impact of safety and communication initiatives across a range of organisations working side by side at the Olympic Park

Three key goals:

- to examine the range of health and safety initiatives used at the OP in terms of the messages communicated to workers

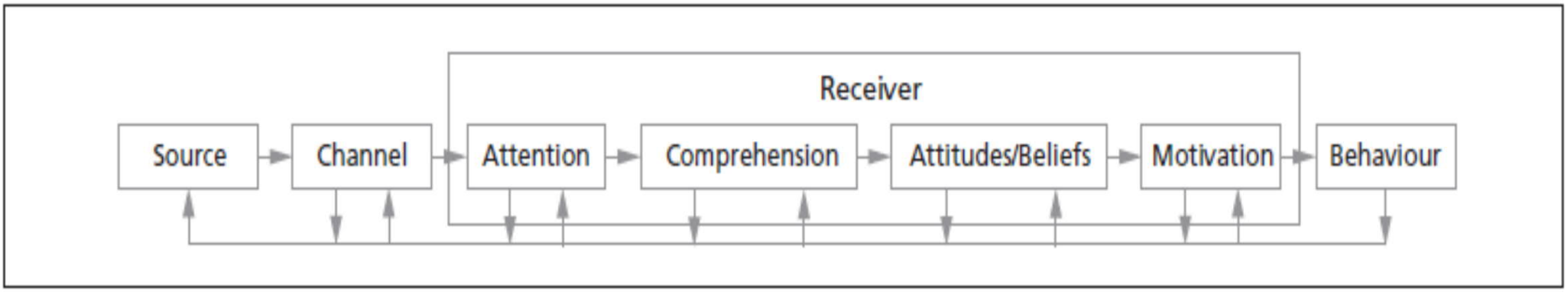
- to evaluate workers' awareness, attitude and behaviour

- to evaluate the transfer of knowledge around, and out of, the Park.

Olympic Park – London Olympics 2012

Communication model

Understanding of communication process in OP



Communication–human information processing model

What did the Olympic Park do right?

Review of communication methods

- Multi-directional communication
- Cross-contractor communication
- Senior leadership involvement – client, delivery partners, contractors
- Formal communication systems in place
- Lessons learnt and good practice events were shared

Outcomes of Olympic Park project

What did good risk management achieve?

Construction was completed on time

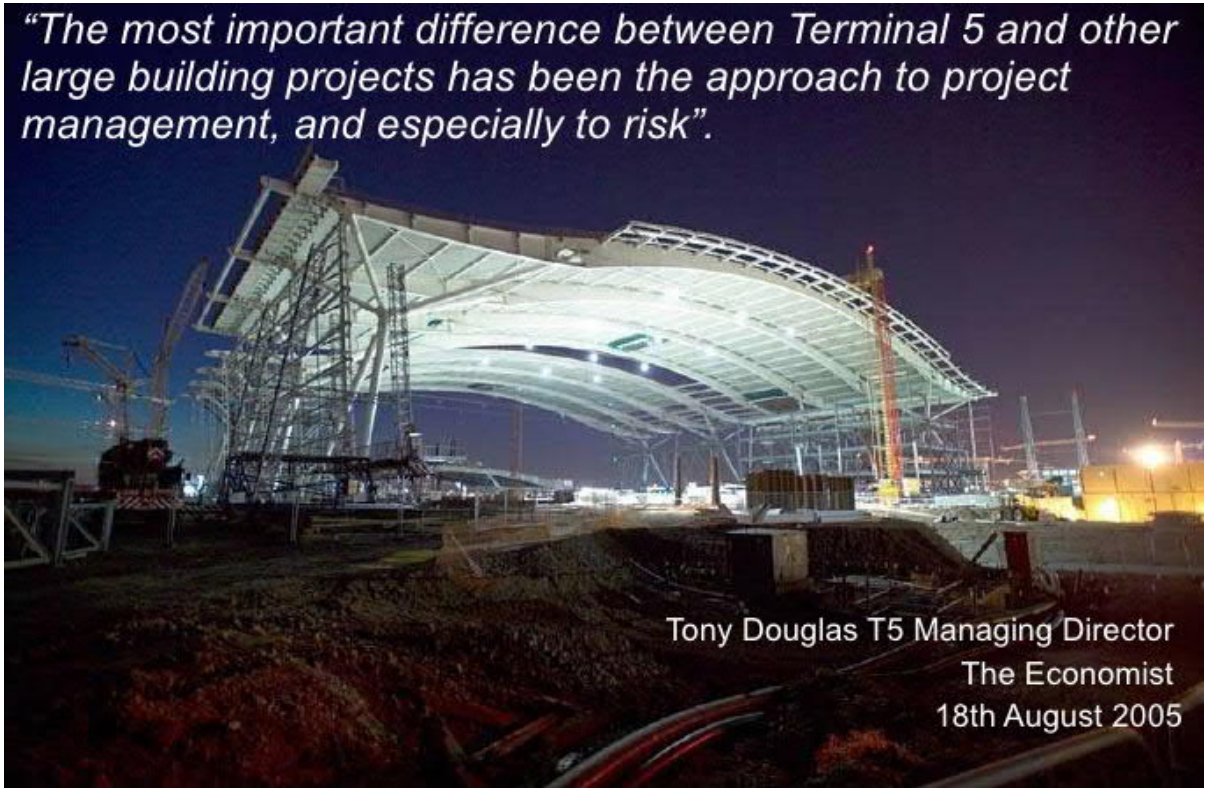
Construction was completed within budget

There was not a single fatality

The project provided £6bn worth of business

Heathrow Terminal 5

Construction approach



T5's approach to Risk Management

The two pivotal components of the T5 delivery strategy to manage risk innovatively were the T5 Agreement and the T5 insurance strategy. Together these promoted the philosophies of*:

- All risk on client
- Shared liabilities
- Cultural Commitment

*Taken from *Case study 2 – Heathrow Terminal 5 - a new paradigm for major programme risk management Jeremy Harrison, Mike Bartlett*

T5’s approach to Risk Management

Risk communication - Worker engagement*

One part of the project, the Terminal 5B (T5B) section, has developed effective methods of ensuring workforce participation, and became the first section of the project to achieve one million safe working hours without a reportable accident.

They used a safety committee to lead on improvements to safety communication within the project.

*Taken from HSE case study: Heathrow Terminal 5 Project

T5’s approach to Risk Management

Risk communication - Worker engagement*

- Near miss reporting
- Safety alerts produced
- Daily activity briefing

*Taken from HSE case study: Heathrow Terminal 5 Project

Outcomes of the Heathrow Terminal 5 construction project

Figures

- Over two million hours worked without a reportable accident*
- A safety record four times better than the industry average
- By 2008, 50,000 people, employees, and key stakeholders had been involved in the construction.
- The project opened in 27th March 2008, 3 days ahead of the 2001 schedule and was within the £4.3Bn budget set in 2003.

*UK's RIDDOR regulations 1995 (superseded by 2008 and 2013)

Conclusions

Risk management evolution

- All risk management elements are important to ensure a safe and profitable project.
- Worker involvement and communication of risk is vital
- Cross-contractor involvement and share commitments lead to safer sites

Thank you – Any questions?