

A large brown bear is the central focus of the image, standing in a lush green field. The bear is facing right, with its head slightly turned towards the viewer. Its fur is a mix of light and dark brown tones. The background is a soft-focus green field, suggesting a natural habitat. The overall image has a slightly faded or semi-transparent appearance, allowing the text to be clearly visible over it.

# **SCAF Presentation: Assuring Defence Programme Costs**

20<sup>th</sup> September 2007

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**Business Estimating And Risk Analysts Ltd**

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# Agenda

- Background
- Challenge facing defence estimators
- Advances in Management techniques
- Is IT helping?
- Management Environment – Is change the enemy or the saviour?
- So how to assure defence programme costs?
- Case study
  - Project X description
  - Lessons (Bid, schedule, costs, leadership, culture, risk tool, relationship project manager to senior management)

A photograph of a brown bear standing in a grassy field, looking towards the camera. The bear is the central focus of the image, with its head and front legs visible. The background is a soft-focus green field.

# Background

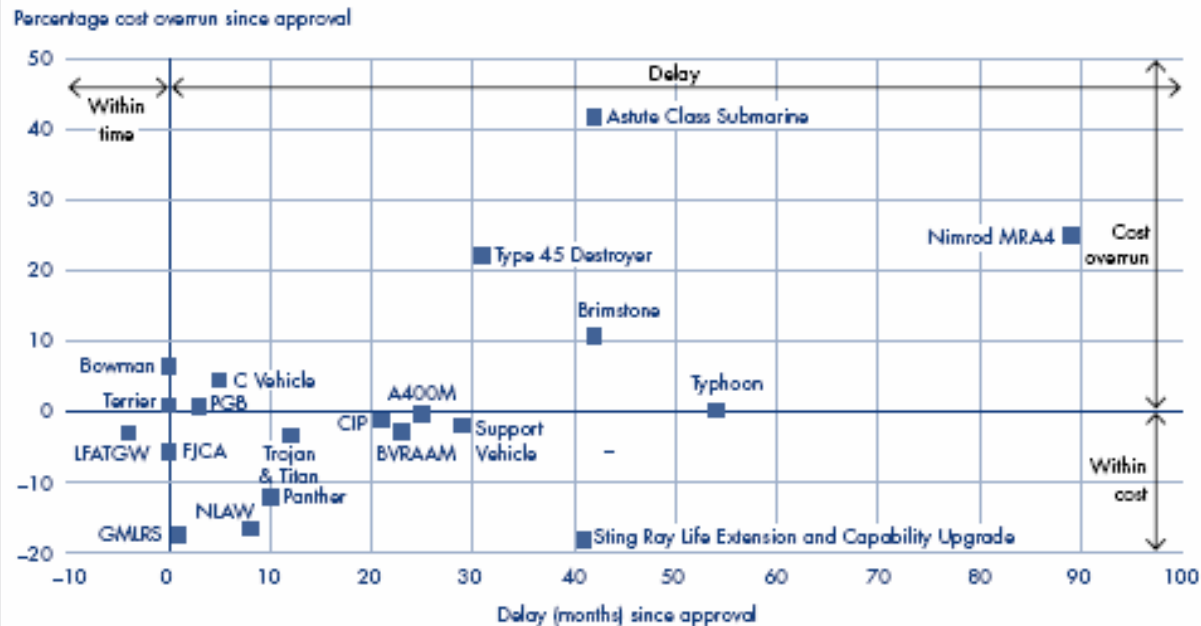
- **Quotes**

“Over their lives thus far, projects have been delayed a total of 433 months. 33 months of the total delay have occurred with the year 2005-06, a lower contribution to the total than in any Major Projects Report since 2002.”

Source NAO Major Defence Projects 2006-07

# The Challenge Facing Defence Estimators

2 Forecast time and cost positions in Main Gate projects as of 31 March 2006



**Key**

- |   |  |
|---|--|
| BVRAAM = Beyond Visual Range Air-to-Air Missile | CIP = ComBAT, DBL Infrastructure and Platform BISA |
| FJCA = Future Joint Combat Aircraft             | LFATGW = Light Forces Anti-Tank Guided Weapon      |
| NLAW = Next Generation Light Anti-Armour Weapon | GMLRS = Guided Multiple Launch Rocket System       |
| PGB = Precision Guided Bomb                     |  |

Source: National Audit Office

**NOTES**

- 1 No over/underspend is reported on Typhoon as the information is commercially sensitive.
- 2 No time advance/delay is reported on Future Joint Combat Aircraft as the in-service date has not been approved.

# Advances in Management Techniques

- Project Management Bodies
  - APM
  - PMI
  - IRM
- Project and Risk Management Qualifications
  - APMP
  - PMP
  - PRINCE2
  - MSP
  - M\_o\_R
- Programme and Project Support Offices
  - Process ownership
  - Performance Metrics
  - Portfolio Management



# Is IT helping?

- Hardware
  - Improved Accessibility
  - High Performance
- Software
  - Project Planning tools
  - Risk Management tools
- Integrated Products
  - Requirements, Project Planning, Risk Management
  - Document Management Systems
    - Lessons Learned
- Reporting
  - Performance Metrics
  - Portfolio Management
- User expectations

# Management Environment – Is change the enemy or the saviour?

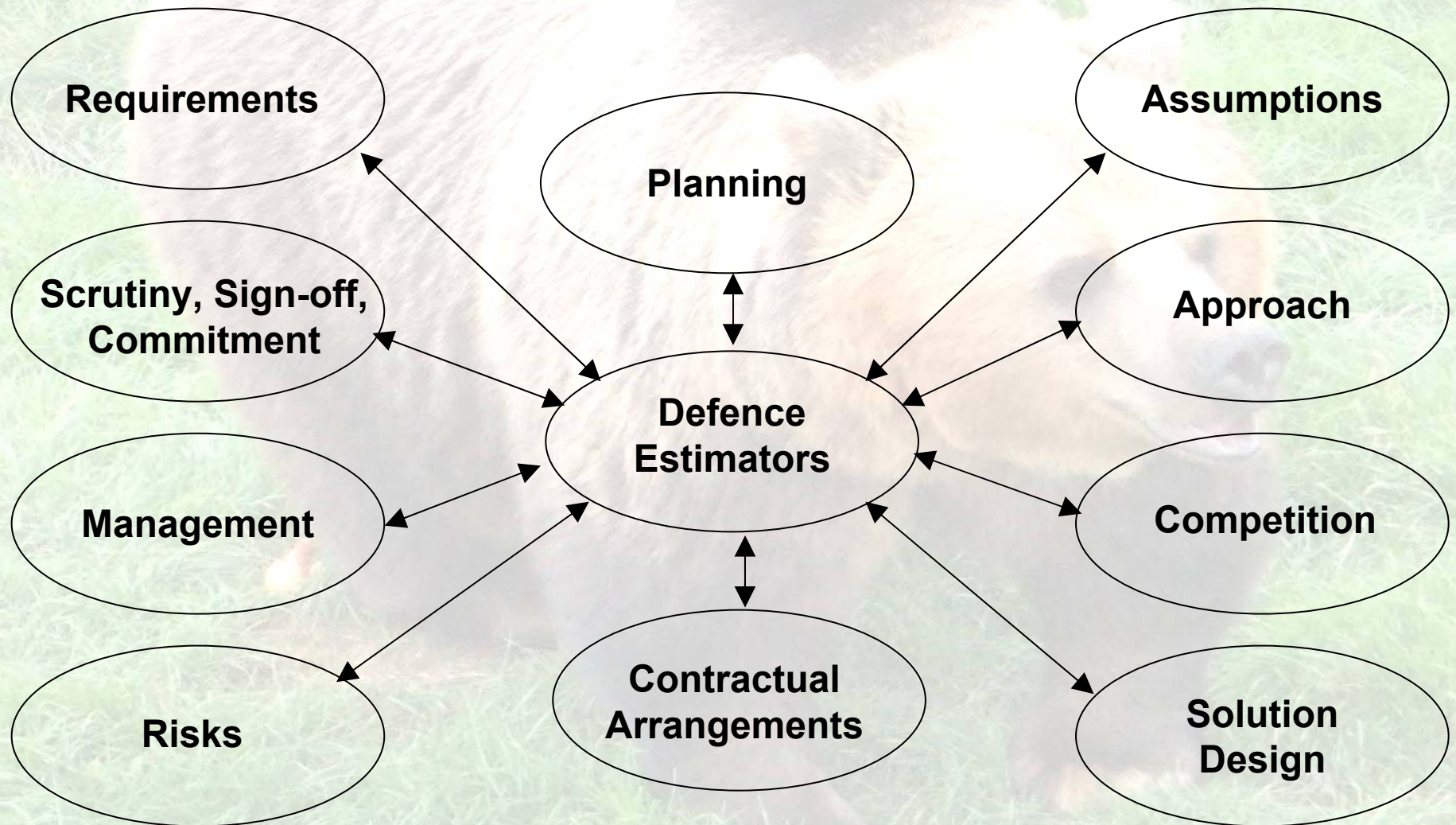
- Leadership
  - Setting the conditions for sustained team performance
- Dynamics of the project
  - Changes in Stakeholder communities
  - Staff turnover / retention / recruitment / training
  - Changes in priority
  - Budget / Timescale challenges
  - Changes in Requirements



## **... so how to assure defence programme costs?**

- Requirements
- Planning & Assumptions
- Risks
- Financial Management
  - Management reserve
- Contractual arrangements
- Competition
- Approach (Off-shore / On-shore)
- Techniques
- Scrutiny, Sign-off and Commitment

# ... so how to assure defence programme costs?



# Case Study

- Company X, major defence contractor
  - Mid 1980s. Risk management introduced via project risk team, in Systems Engineering Department on Project 1.
  - Early 1990s. Introduction of 3 point estimating and quantitative risk analysis through Estimating department.
  - Mid 1990s. Established a Risk Centre of Excellence, working across all project teams.
    - Risk management culture developed on Project 2
  - Late 1990s. Director level review identified a need for improved estimating.

A large brown bear is the central focus of the image, standing in a lush green field. The bear is facing right, with its head slightly turned towards the viewer. Its fur is a mix of dark brown and lighter tan, particularly around the neck and face. The background is a soft-focus expanse of tall grass. The overall tone of the image is natural and somewhat somber, fitting the 'bear' theme of the text.

## Early risk management, mid 1980s

- Move from 'cost-plus' contracting, to 'fixed/firm price',
- No company risk strategy, policy or process

# Project 1, Early risk management, mid 1980s

- Detailed technical risk assessment administered by Risk Team
  - Confidence assessment made of every requirement in every system spec
  - Risks discussed at every System Review Meeting
  - Suppliers involved,
    - No buy-in, hence dubious data quality
    - Some big risks were not revealed until no longer containable
  - Lack of ownership of risks
  - Fear culture, plus ostrich burying head in sand
    - Don't shoot the messenger!
  - Quarterly board-level reporting, - fire-fighting, not RM
  - Fire-fighting rewarded
    - Due to high profile of failing areas
- This project over-ran the contracted time-scale

## Company x, moving forward ... early 1990s

- 3 point estimating and quantitative cost risk analysis introduced for all bids through Estimating department.
- Director mandate for all major projects to have risk registers
  - Fear culture
    - Some risks not declared until no longer avoidable
  - Largely seen as a 'cheque book'
    - All impacts were quantified (£), - 'I told you so' mentality
  - Mostly struggling with ownership of risks
    - Risk managers, consultants, or risk teams seen to own the risks
- Most large projects had risk processes, - customer requirement
  - Tick in box approach
  - Inconsistent

# **Company Risk Centre of Excellence established mid 1990s**

- High-profile, board-level initiative to introduce consistent Risk Management across all projects
- Risk Process and Strategy Manager
  - Responsibility for process, training, tools, services
- Appointment of risk champions for all areas, - about 20
- Company-level Risk Policy and Strategy
  - Written by the Managing Director

## **Project 2, later 1990s, - later variant of project 1**

- A rigorous cost and schedule risk analysis was carried out as part of the bid for this contract.
  - An expert team helped gather the qualitative and quantitative risk data and 3 point estimates, by interviewing members of the project team.
  - This expert team were also part of the bid negotiation team to support the quantitative data.
- Project Launch Meeting focused on six key problem areas, - one of these was risk management

## **Project 2, late 1990s, - later variant of project 1**

- At project launch, a Risk Management working party established with representatives from across the team, including the Project Manager, plus Risk Process and Strategy Manager
  - Agreed and wrote the project risk management process, which was maintained as a live document and modified as required to introduce improvements, eg metrics
  - Defined agenda for Risk Review Meetings, again modified through time to reflect the changing focus of risk management

## Project 2 continued

- Project Manager showed the importance of risk management through his behaviours, not just by his words
  - He led the RM Working Party with a determination that risk management would be beneficial to the project, but he ensured that concerns were voiced and worked, and that buy-in was achieved
  - He delivered the Risk Management training.
  - He encouraged people to identify risks early and people were not afraid to declare new risks.
  - He chaired and led the Risk Review Meetings in such a way that attendees could see the value of their risk management.
  - People at all levels knew by his day to day questions and follow-up support that risk management was important to him
  - He sought buy-in and feedback from across his team

## Project 2 continued

- Feedback meeting after nine months
  - Attendees from across the team, plus me
  - One very vocal individual
    - The first six months had been a nightmare
      - They were dealing with all of today's problems, plus looking ahead to hedge off tomorrow's problems
        - » They were supported and encouraged to continue
    - Then they reached a plateau, where the hard work of looking ahead started to pay off. Project life became controlled and manageable, - risk management was paying back

A photograph of a brown bear in a grassy field, used as a background for the slide. The bear is facing right and has its mouth slightly open.

## My observations

- The Project Manager, and his ‘leadership by example’, ie his behaviours, had a rippling effect through the team
- Access to the teams’ shared risk tool, enabled me to see that the risk register was being updated on a daily basis

# Successful Project

- The project delivered to time and cost.
- Why?
  - Easy contract?
    - Follow-on production contract, - lots of obsolescence issues.
    - 70 risks at the bid phase, in excess of 1000 during contract delivery.
    - Few significant contract changes.
  - Good time and cost estimates?
  - Good risk management?
  - Good project management?
  - Good team, great leader?
  - Other factors?

# Post-contract analysis

- Lessons Learnt document, covering points above
- Analysis of quantitative probability data
  - Comparison of initial probability value versus whether or not the risk happened
  - Hypothesis, - the higher the initial probability assessment, the more likely the risk was to have occurred.
    - Hypothesis completely unfounded
      - Either the initial assessments were very poor, or the team were so good at risk management that they managed away risks that were judged as almost certainties



## Late 1990s, - need to improve estimating across the organisation

- A director level review identified a need for improved estimating.
  - Some parts of the organisation were not confident about producing 3 point estimates, and bad practices still existed, such as starting with the most likely, and then applying plus or minus 5%

## **Late 1990s, -need to improve estimating across the organisation**

- A one-day training course in 3 point estimating was developed in-house, by a team comprised of representatives from estimating department, project management and risk management.
- The training course took nine months to develop, and had numerous reviews by key senior players from across the organisation.
- We trained about 15 people every month for two years, and then reduced the frequency to every two months, etc. Within a few years we had trained hundreds of staff.

# Questions

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