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**“Investment Appraisal: What’s in it?”**

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# Practical Experience of Investment Appraisals

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Welcome to clear thinking

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**Caveat: I have not produced the guidance I am going to talk to you about, this presentation represents MY experience. PLEASE talk to the experts and seek advice as, by definition, each project is different.**

- What is an Investment Appraisal?
- Investment Appraisals in DE&S
- Clear Line of Sight through Project Documentation
- DE&S IA Template
- Stakeholders
- Lessons Learned



- **Before committing to high levels of capital spend, companies normally undertake an Investment Appraisal.**
- **An IA has the following features:**
  - assessment of the level of expected returns earned for the level of expenditure made
  - estimates of future costs and benefits over the project's life
- **The two basic techniques are:**
  - Return On Capital Employed (ROCE)
  - Payback Period
- **More complicated techniques include:**
  - Net Present Value
  - Internal Rate of Return

- **Return On Capital Employed (ROCE)**
  - $ROCE = \text{Annual Profits (BIAT)} / \text{Initial Capital Investment (\%)}$
  - **Advantages:**
    - It is simple to use
  - **Disadvantages:**
    - Does not provide a definite investment signal
    - It does not take time into account
- **Payback Period**
  - $\text{Payback Period} = \text{Initial Investment} / \text{Annual Cash Flow}$
  - **Advantages:**
    - It is simple
    - Favours quick returns, therefore can help company growth
  - **Disadvantages:**
    - It tends to ignore returns after the payback period
    - It does not take the time value of money into account

- **Net Present Value and Internal Rate of Return**
  - Both techniques require a discounted cashflow to be calculated
  - Therefore, take into account the time value of money
- **Discounted Cashflow**
  - Discounting cashflow allows you to put cashflows received at different times on a comparable basis
  - In Civil Service Projects the discount rate applied is shown in the table below:

Period of Years	Discount Rate
0 – 30	3.5%
31 – 75	3.0%
76 – 125	2.5%
126 – 200	2.0%
201 – 300	1.5%
300+	1.0%

- **Discounted Cashflow (Cont.)**

- In the Civil Service the discount rates are applied to constant costs to provide the Net Present Value
- This allows the options to be ranked in order of NPVs
- In Industry, a higher discount rate would normally be used and would be applied to outturn costs
- This rate would be based on Shareholder's expectations:
  - The rate they would expect their investment (shares) to grow at
  - Also, how risky the investment is perceived to be
  - For example, they may require a 12% return on a 'standard' project/investment, but would settle for 10% on a 'risk free' project/investment compared to 16% for a 'riskier' project/investment
  - I suspect that this is a similar conversation you have with a Financial Advisor when considering the correct investment (e.g. an ISA)
- The agreed rate can be used when determining the Internal Rate of Return (IRR)
  - The IRR is calculated by working out the discount rate in a given payback period that would give an NPV = 0
  - As defence has no 'income' this is not a technique used as an NPV will never equal zero

- **DE&S has no income, so what does this mean to the IA process?**
  - We tend to carry out an Economic Analysis, not a Financial Analysis
  - The HM Treasury Green Book is translated into 'Defence Speak' by Defence Economics
  - This interpretation is JSP 507
  - JSP 507 explains the Investment Appraisal and Evaluation process
  - DE&S also have a Financial Instruction that provides a template for an Investment Appraisal – the latest is FI 07/14 dated 31<sup>st</sup> October 2014
- **FI 07/14 states that:**
  - The aim of this Finance Instruction is to supplement centrally published guidance on the application of appraisals in the MOD.
  - An Investment Appraisal (IA) should be undertaken whenever a decision has to be reached that involves the commitment of new resources; or which would result in measurable benefits.
- **The Template in FI 07/14 Annex A provides detailed guidance on what needs to be completed within the IA report.**



- **When faced with the task of doing an Investment Appraisal what do most people think about?**
- **My experience is that they think about the Cost/Cost Model.**
- **In fact, they should think about the options that need to be assessed.**
- **Where are these options available from?**
  - **Concept of Analysis (CoA)**
  - **Options Analysis**
  - **Or similar document**
- **The appropriate document should have been produced early in the project's life cycle and been maintained**
- **There may be a project history document**
- **There should be a clear line of sight through the CoA, IA and Business Case**
- **Next consideration should be the structure of the report**
- **Then, where will the costs come from (Cost Modelling time!)**

- **Explanation of Requirement or Capability Gap**
  - What has generated the need for this expenditure?
- **Objectives of the Investment**
  - What is this expenditure expected to achieve?
- **Background**
  - Put the requirement in context
- **Specialist Advice**
  - This could be stakeholders or documents
  - As a minimum I would expect this list to include CAAS, CAAS CAT, Defence Economics, JSP 507, FI 07/14 and FI 04/15 (VAT guidance)
  - If you have taken specialist advice from FLC regarding the use of the equipment then include them
- **Possible Options**
  - This should be the same wording as used in the CoA and the Business Case – remember clear line of sight

- **Shortlist the Options**
  - I have found that amalgamating this and the Possible Options section can be achieved by the use of a statement after the options that are not being considered further, for example:
  - “Option 1 Do Nothing – This option will ... and all funding will cease. **This option will not meet the capability gap, therefore will not be considered further.**”
- **Identify and Quantify Costs and Benefits and Produce NPVs**
  - I have found that a table can be used for each option that has being costed, for example:

## Option 3 - xxx

### NPVs (£M)

10%	£a
50%	£b
90%	£c

### Benefits:

Option 3 will cost £xM (at 50% Outturn) less than Option 4.

### Dis-benefits:

Option 3 will require 3 months notice to equip troops in a z size military engagement, compared to Option 4 requiring 3 days notice.

- **Note:**
  - **Some confusion may be caused by the use of NPVs and Outturn in the same table.**
  - **The table should mention financial and non financial benefits/dis-benefits.**

- **Risk**
  - Fully quantified cost risks for each option should be included
- **Optimism Bias**
  - OB assessment on at least the top 2 options
- **Sensitivity Analysis**
  - Sensitivities should be checked to determine if the order of the options would change
  - e.g. economies of scale
- **Other Value for Money Factors**
  - Things that have no measurable financial impact but could impact the decision
  - e.g. sustainability

- **Affordability**
  - This is the Financial part of the document, does the investment meet the budgetary profile?
  - The numbers should be presented at Outturn (CDEL and RDEL) and should include VAT
- **Plan for Evaluation**
  - How and when will you evaluate the project and why was the evaluation date selected
  - DE&S guidance on project evaluation is in FI 09/14 dated September 2014
- **Recommendation**
  - State the recommended option and evidence that the VFM position is clear and any other factors that should be highlighted
- **Annexes**
  - e.g. MDAL (certainly key assumptions), Risk Register, Cost Model

- **Who are you doing the IA for?**
- **My experience is that it is at least:**
  - **The project Team (PM, PTL, FC)**
  - **The Operating Centre**
  - **The end customer (FLC) – they have the budget**
  - **CAAS**
  - **CAAS CAT**
  - **Defence Economics**
  - **Other members of the Scrutiny Community**
- **Note that CAAS and CAAS CAT are separate stakeholders**
- **Defence Economics will be looking for similar information to CAAS and CAAS CAT**
  - **It is important for these 3 stakeholders to agree**
- **Document stakeholder discussions**

- **Surprisingly, the words have been challenged more often than the numbers – especially the first few sections:**
  - **Explanation of Requirement or Capability Gap**
  - **Objectives of the Investment**
  - **Background**
  - **Possible Options**
- **Avoid the Goldilocks option – just right**
- **Be honest:**
  - **Sometimes the results are unpalatable**
  - **Sometimes projects should be stopped or delayed**



- **Do not underestimate the time taken to answer scrutiny questions**
- **Early engagement with scrutineers is essential**
- **Expect similar questions to be asked by many of the stakeholders**
- **CAAS have a V&Vs cost model for most Operating Centres (at least at Cat C and D level)**
- **Ensure the people using the numbers understand the difference between Constant, NPV and Outturn**
- **Don't forget the Clear Line of Sight through the documentation**

# Thank You

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