An Introduction to DAS Ltd

To enhance the ability of our clients to make considered, affordable strategic decisions

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Agenda

- Company brief
- Case studies
- Questions and discussion

What we do

If you have a complex decision to make, if no-one else can help in the time available, and now you have found us, maybe DAS Ltd can:

Augment your capability to make that critical decision

Our approach

- Wholly independent of third parties; our analysis is not influenced by outside interests and puts your needs first
- More than a management consultancy:
  - bridging the gap between strategy and implementation; DAS supports decision making by distilling complex issues into clear practical outcome focused implementation options for your consideration
  - depth of market knowledge; understanding of stakeholders in our core sectors of Defence, Government and Energy informs our work for you
  - seek to deeply understand; time taken to understand the issue and holistic operating context (technical, commercial, operational, human and legal) from your perspective and that of your regulators and clients; internal and external
  - don't generate expensive time hungry paperwork; DAS structure information in the format you wish to communicate your decision to stakeholders
- International in outlook; 45% of our turnover is from overseas assignments
- Listen, seek to understand and then apply systems thinking/engineering to evaluate options
- Accredited by UKAS to ISO 9001:2008
- Confidentiality is key; we operate from a secure, 24-hour guarded and serviced office suite; within the UK national security provisions

Our people

- Values:
  - Not afraid to be a critical friend; challenging in a positive task focused manner
  - Value long-term relationships based on the quality of their work
  - Leave their ego at the door; they are there to achieve your objectives
  - Every individuals safety is more important than £
  - Hard working with a “can do” attitude
  - Proven ability to work with highly sensitive client information; key to everything they do
- A core team of professionally qualified leads and graduates supported by associates:
  - Maintains experienced capability to understand your requirement with the flexibility to cost-effectively deliver assignments with teams and specific expertise
  - Professionally qualified leads; many years organisation leadership experience and delivery track record in our market sectors
  - All our people are incisive driven individuals
  - Associates provide specific subject matter or functional expertise
  - All develop themselves and our IPR; each person is equipped with system analysis techniques to identify and examine the root information and context that will underpin your decision

Our people have worked alongside

Defence	Government	Blue Chip	Energy
○ BAE Systems	○ UK MoD	○ Clarion Events	○ BP
○ QinetiQ	○ National Audit Office	○ De La Rue	○ Marine Current Turbines
○ Thales	○ New Zealand MoD	○ Vanguard Strategy	○ EDF Energy
○ General Dynamics	○DEFRA	○ Lansdowne Partners	○ Magnox
○ L-3	○ NHS	○ Marie Curie Cancer Care	○ Shell
○ Supacat	○ Dstl	○ Leighton Contractors Pty	○ PETROBAS
○ HESCO Bastion	○ Canadian Parliament	○ The Carlyle Group	○ AMEC
○ Exponent	○ AWE	○ NHS	○ Technip
○ Niteworks	○ US DoD	○ Foresight Associates / Coca-Cola	○ Conoco

Last year 92% of the previous years DAS Ltd clients re-engaged us on new projects
New clients formed 31% of the total number of clients last year

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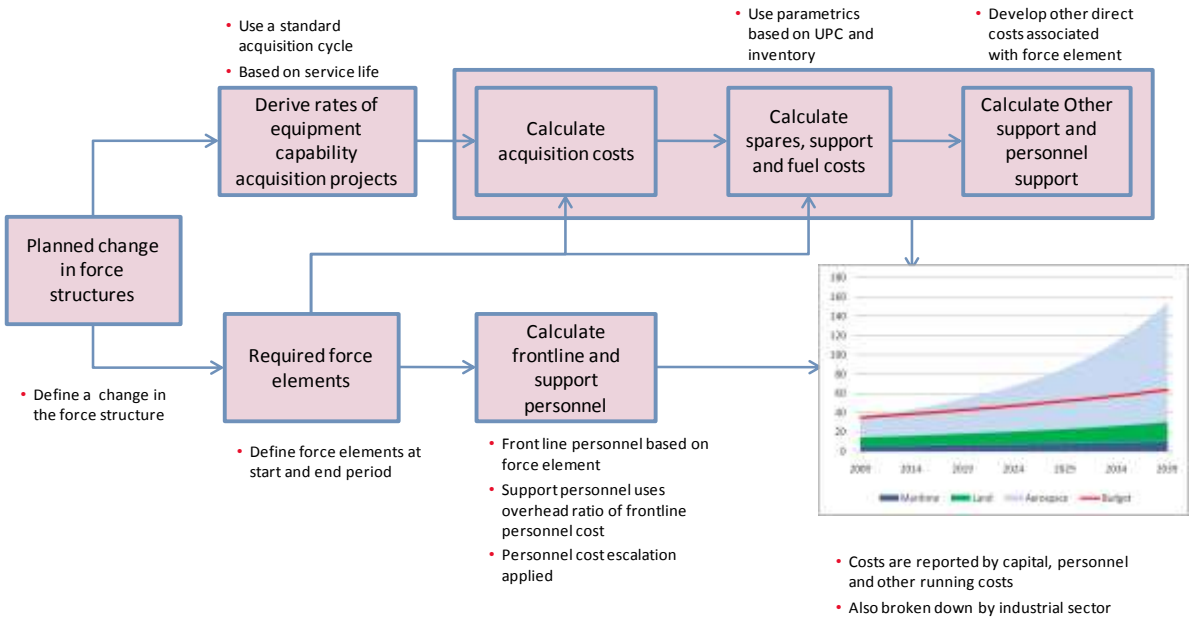
Case Studies (1)

- **Budget & Cost Modelling for Management**

We undertook , as a private venture investment, the construction of strategic cost model built on historical trend data to enable the accurate and predictive forecasting of the likely cost of future military force structures. This model was subsequently deployed by Army to inform the likely cost of their future force structure within the overall UK Forces force structure proposed post-SDSR.



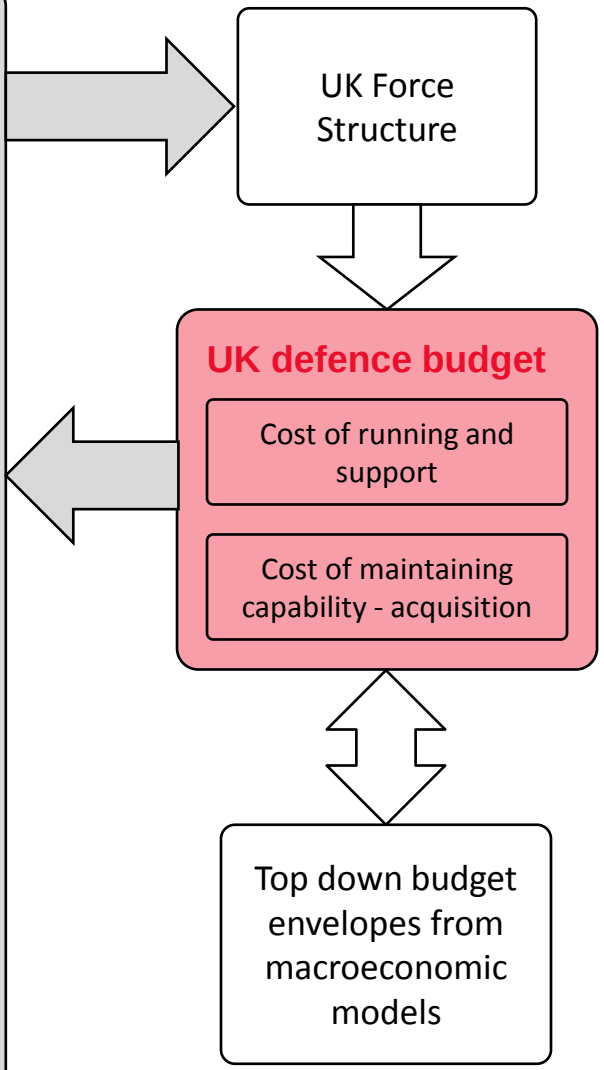
We can develop force structure-based futures, develop a cost and compare to the macro-economic budget envelopes

Force structure options

- Force structures described through elements (high value assets, regiments etc)
- Costs based on manning, operating, "tooth to tail" overhead and cost of acquisition to maintain capability

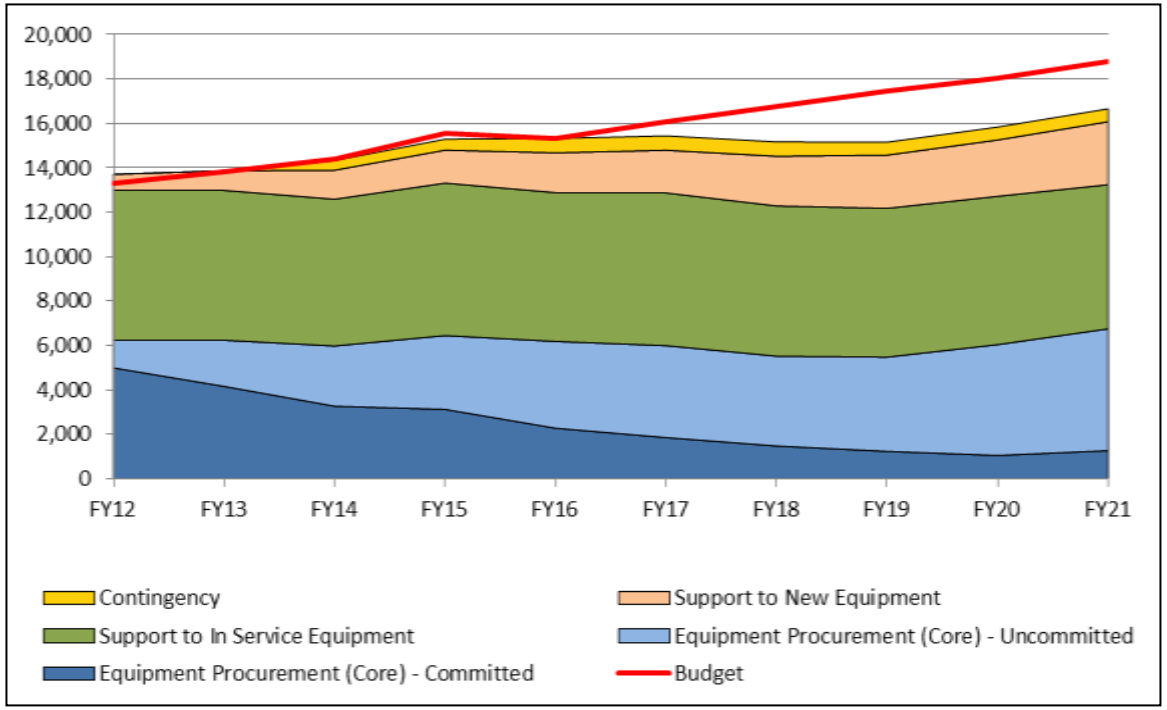
- Scenarios can be rapidly developed, for example

SDSR/Carter 2020	Repeat Carter exercise 2020	Eliminate Deterrent 2020	Eliminate Carrier Strike 2020
• Fully implement SDSR and Carter	• Armoured infantry • Armoured Units • Light Role Infantry • Rocket Artillery • Engineer Units • Logistics Units • Attack Helicopters	• SSBN – withdraw fleet (4 boats) • SSN – withdraw 2 boats • MCMV – reduce by 1 ship • ASW vessels – reduce by 2 ships • Survey Vessel – reduce by 1 ship • EA tactical aircraft - reduce by 1 squadron – not removed, taken out as part of SDSR	• CVF platforms – withdrawn • JSF buy reduced – 4 squadrons withdrawn • Destroyers 4. • Logistics support 6. • SSN escort 2 • Merlin/MASC 1 sqn ASW & 1 sqn Ca • Strategic AAR/transporter 1 sqn • Trainer aircraft reduced according to existing ratios



Latest MoD reporting suggests that total defence spend by 2020 planned to be around £42bn cash

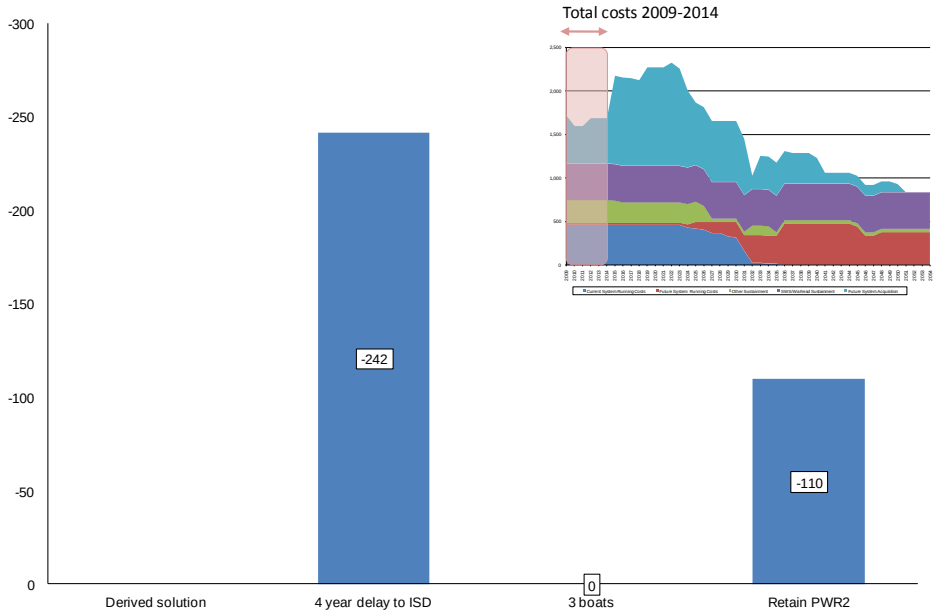
UK defence EP post Round 12 (Feb 2013) (£M cash)



- Report stated EP will be 45% of total defence budget by 2021 (para.4)
- This would equate to Defence Spend of around £31-34bn (FY11 constant) (@2%pa inflator, DEL or Defence Spend basis in MoD report)
- We can see that this is considerably more than our forecast
  - Political will to maintain the %GDP for defence
  - Optimistic GDP forecasts post CSR

Case Studies (2)

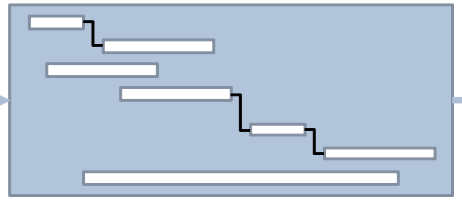
- **Programme Enterprise Modelling**
  We utilised business modelling techniques in order to be able to synthesise large volumes of data down to a manageable level for a programme of national strategic importance. The output provided key decision makers, for the first time, to be able to respond, at the speed of a strategic discussion, to specific questions or alternative strategies proposed by government



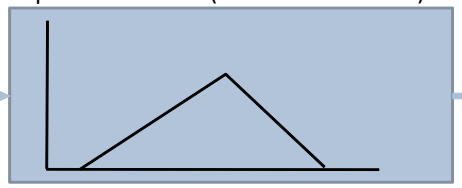
Key components of the model

Required inputs

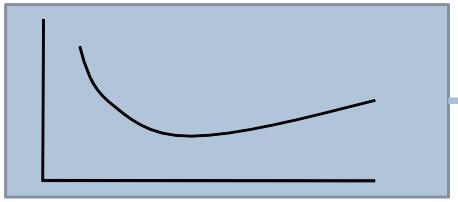
Programme dates, dependencies



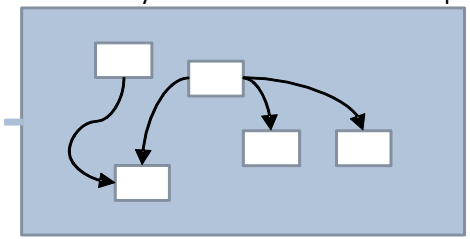
3-point estimates (cost and timescale)



CERs – impact of timescale on cost



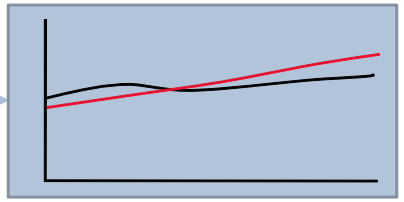
Driver analysis used to inform model inputs



Individual activity attributes

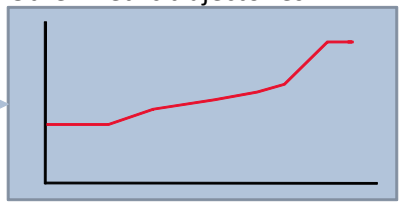
Output types

Budget vs cost profile



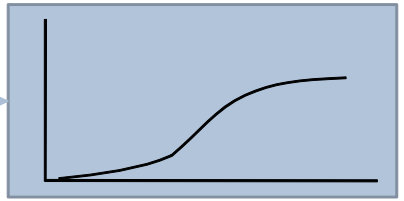
- Assess budget vs spend deltas
- Examples may include cost breakdowns by project/ DLoD , budget holder etc

Other metric trajectories



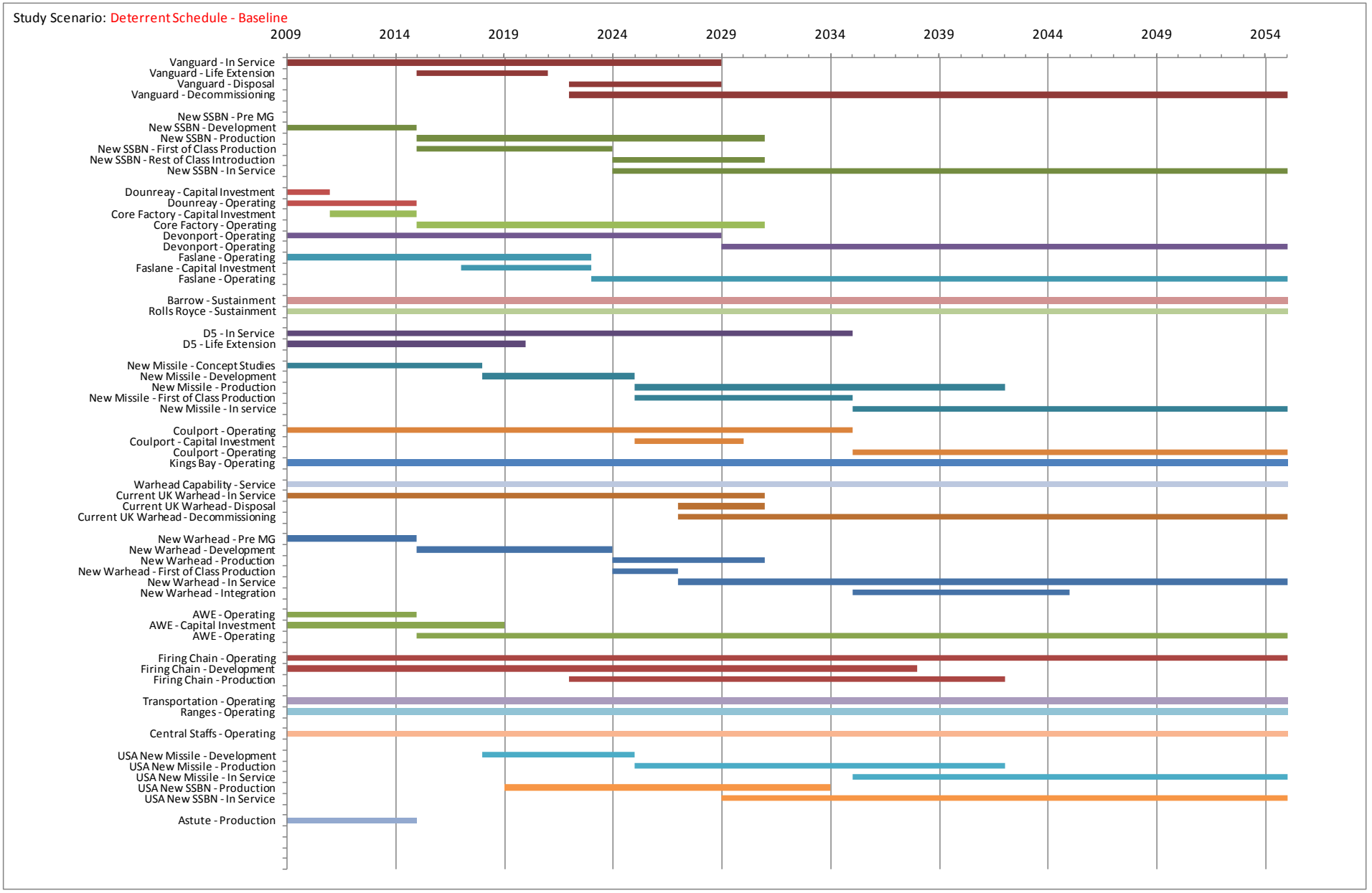
- Project progress used to calculate other metrics
- May include capability measures

Cum prob S-curves (cost/time)



- Risk analysis used to give confidence on key milestone dates
- Confidence intervals on total budget needed within various breakdowns e.g. may include budget holder/ DLoD

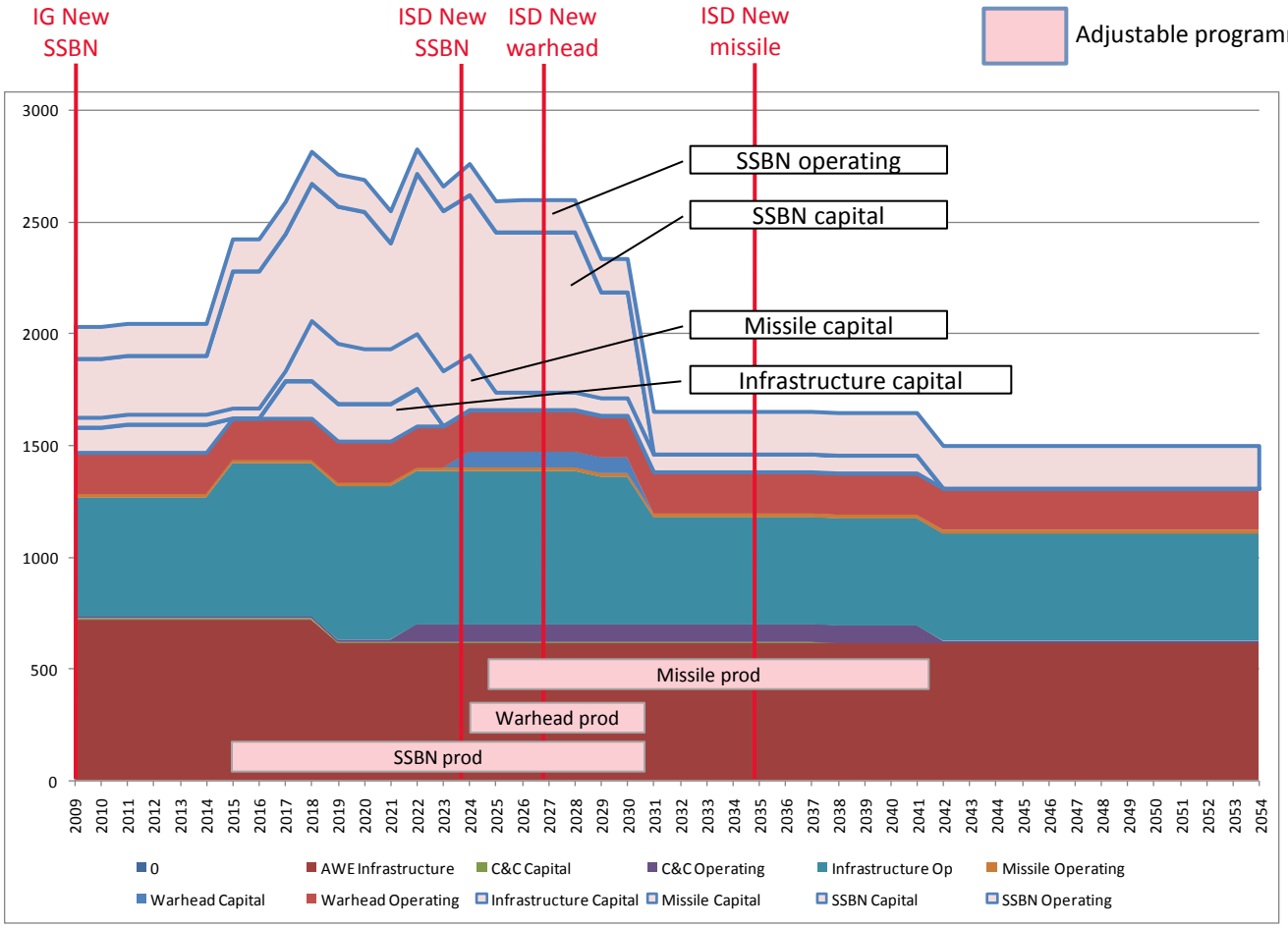
We can develop and visualise the programme on a single sheet



We can rapidly visualise resulting costs profiles - a possible deterrent plan baseline

Illustrative

Total annual Successor cost (£m at constant 2008 e.c.) broken down by key cost elements

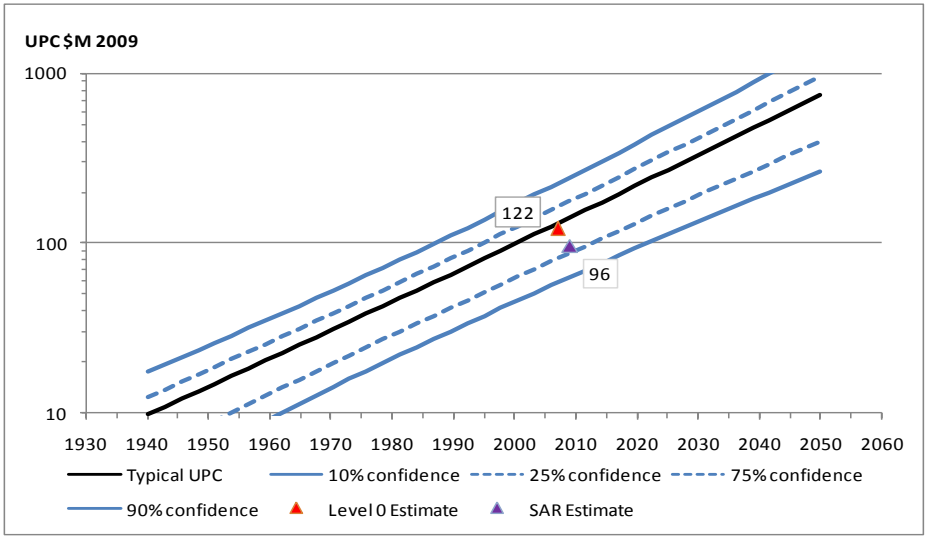


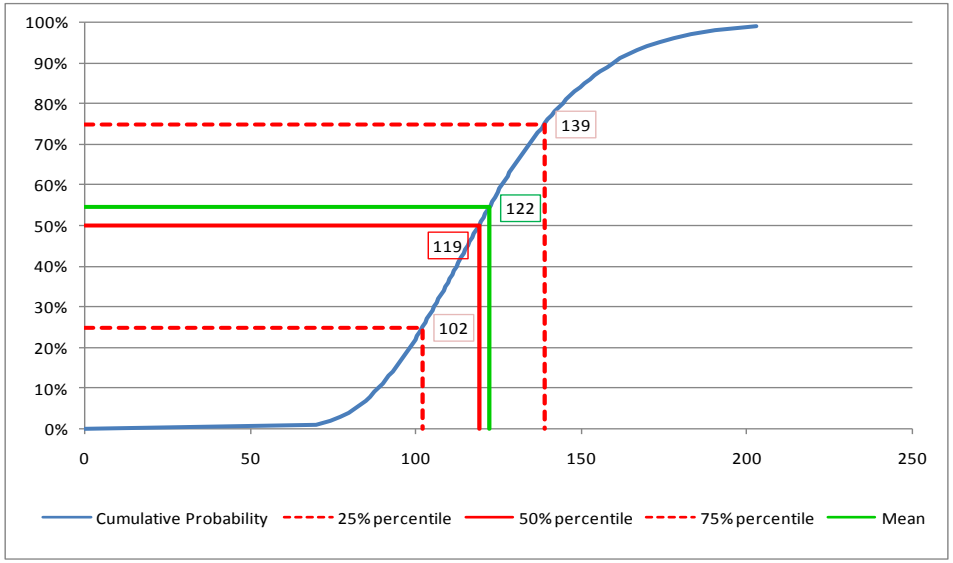
- Only a limited number of programme elements can be realistically adjusted to meet affordability and/or schedule targets
- These include:
  - SSBN acquisition
  - SSBN operating
  - SWS acquisition
  - Infrastructure capital investment (AWE has been assumed to be ring fenced)

Case Studies (3)

- **Equipment Cost Forecasting and Analysis**

  We are able to provide independent estimates of the WLC's for a wide range of defence equipment from the earliest stage of the life cycle. Using our in-house developed cost models we can also undertake an assurance functions on estimates provided by industry and other sources. Our models are built on an extensive data base of project outturn costs collected from open literature sources have been used for both government and industry.





Cost Forecasting Results

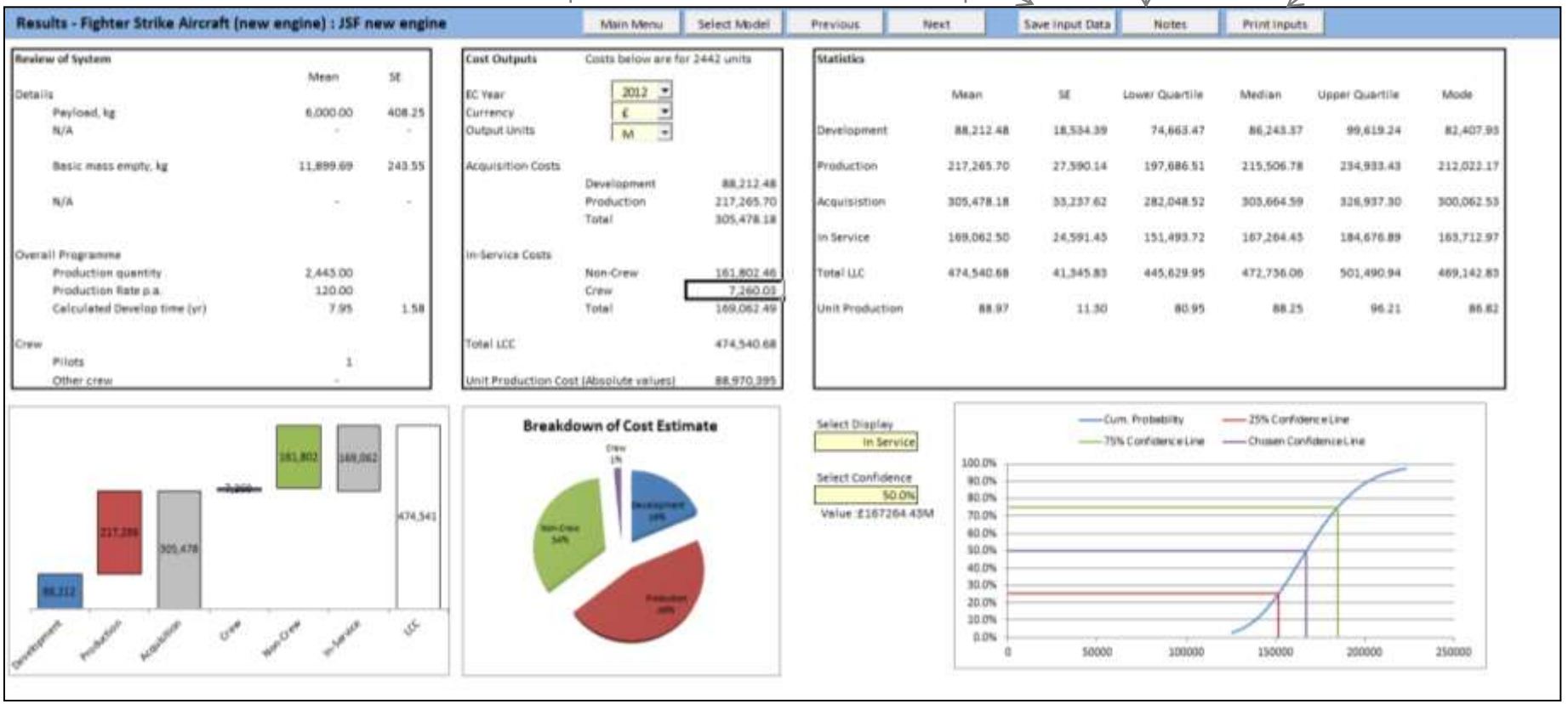
- This results screen contains a review of the system, cost estimate and statistics

Navigation buttons to return to main menu, change model, return to last input form or display more results

Save button allows user inputs to be saved

Notes button to record details about current dataset

Print button to print user inputs



Cost Forecasting Context Results

- The second results screen shows the estimate in the context of outcomes and trends of past projects of a similar kind for weight, cost and time

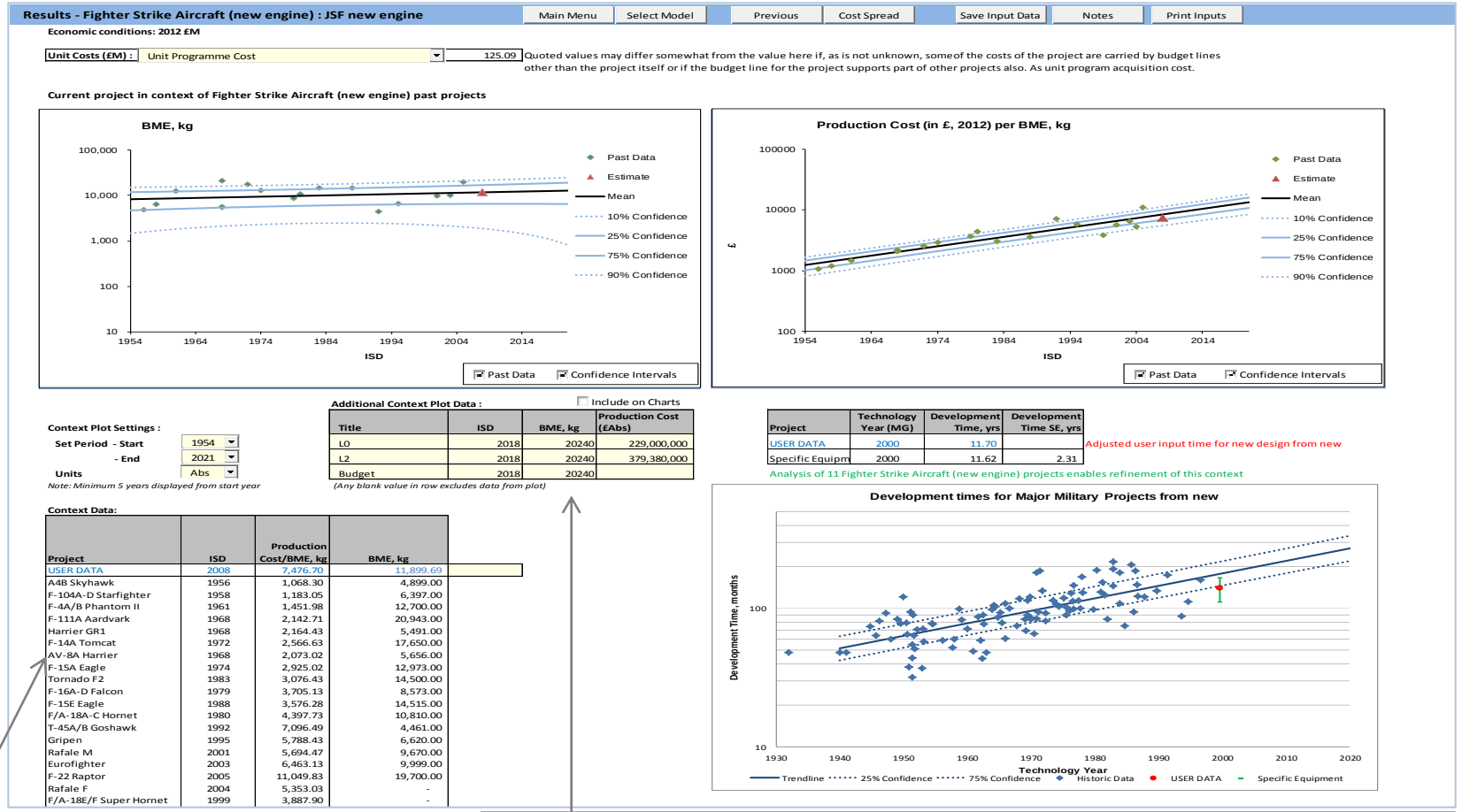
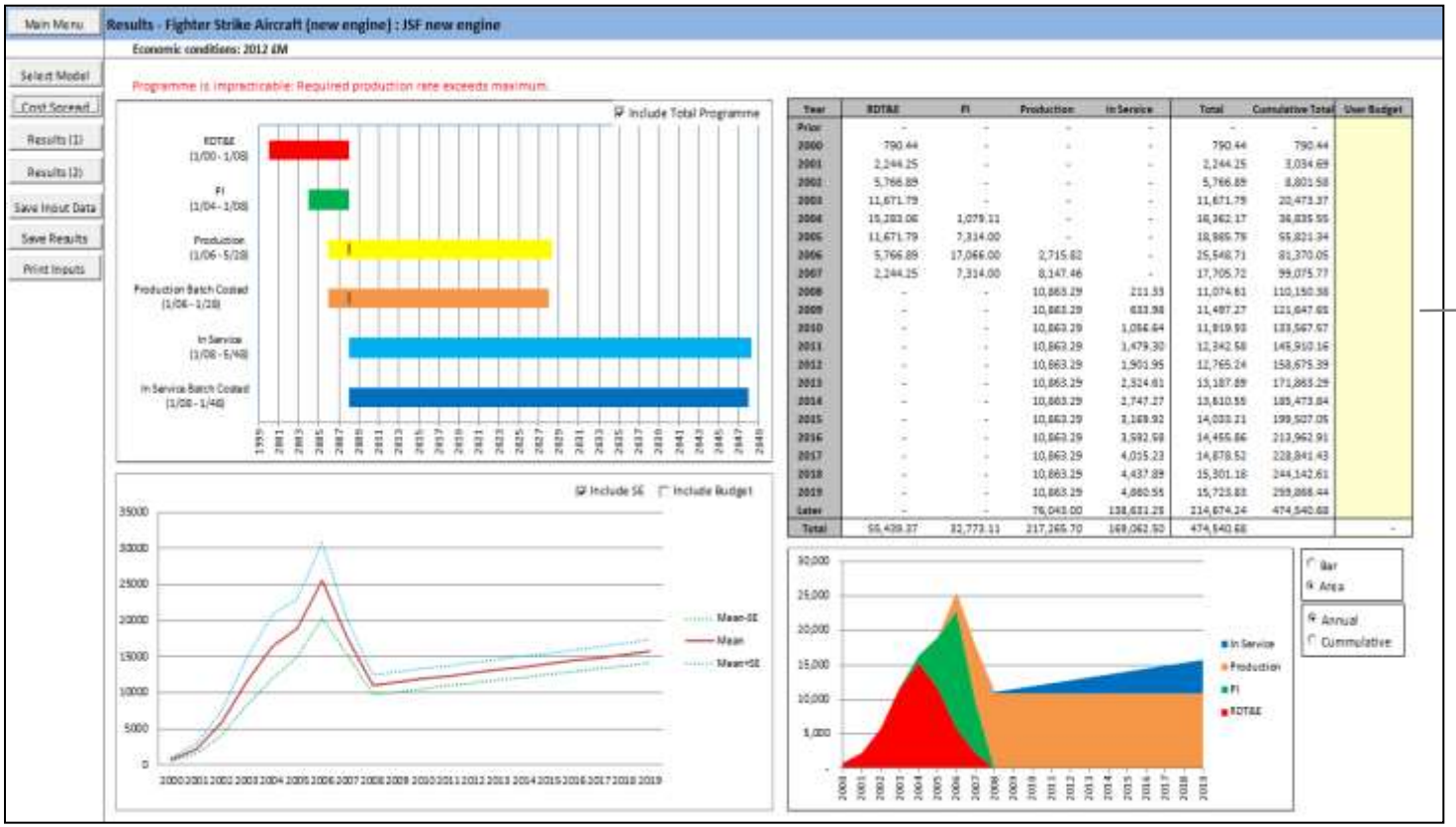


Table shows historical data points

Additional user defined points can also be added to each context plot

Cost Forecasting Spread Results

- The Cost Spread results contains outputs in the form of a programme Gantt chart, a breakdown of cash flow costs, line graph of total costs and table breakdown of costs

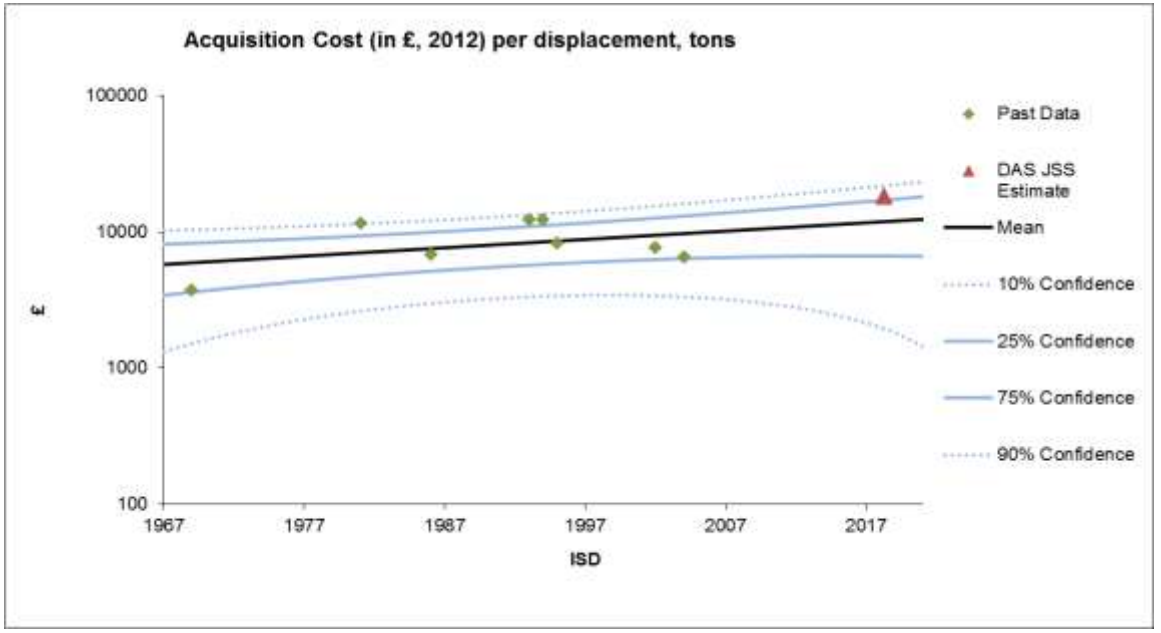


Inputs for user budget can be displayed against total cost

- These results can be saved for use in the Budget model

Cost Analysis: Historical Trend Analysis (HTA)

- The following chart shows the DAS estimate (red triangle) in the context of historical cost data for logistic supply ships.



Historic Data Points	ISD
Amsterdam	1995
Berlin	2002
Blue Rover	1969
Cimmaron	1981
Fort Victoria	1993
H.J.Kaiser	1986
Largs Bay	2004
Supply	1994

- This estimate sits within the trend lines but to the higher end which reflects the capability of the desired JSS platform.

Cost Analysis: HTA User Selection

- The DAS HTA model allows the user to change the data used to generate either the trend line or the predicted range for both cost and time analysis.

User Data Selection:

Y/N	Data Point
Y	A4B Skyhawk
Y	AV-8A Harrier
Y	F-104A-D Starfighter
Y	F-111A Aardvark
Y	F-14A Tomcat
Y	F-15A Eagle
Y	F-15E Eagle
Y	F-16A-D Falcon
Y	F-22 Raptor
Y	F-4A/B Phantom II
Y	F/A-18A-C Hornet
Y	F/A-18E/F Super Hornet
Y	F/A-18F Super Hornet
Y	Gripen
Y	Harrier GR1
Y	Mirage 2000-5 Mk2
Y	Rafale M
Y	Rafale F2
Y	T-45A/B Goshawk
Y	Tornado F2
Y	Typhoon (Eurofighter)

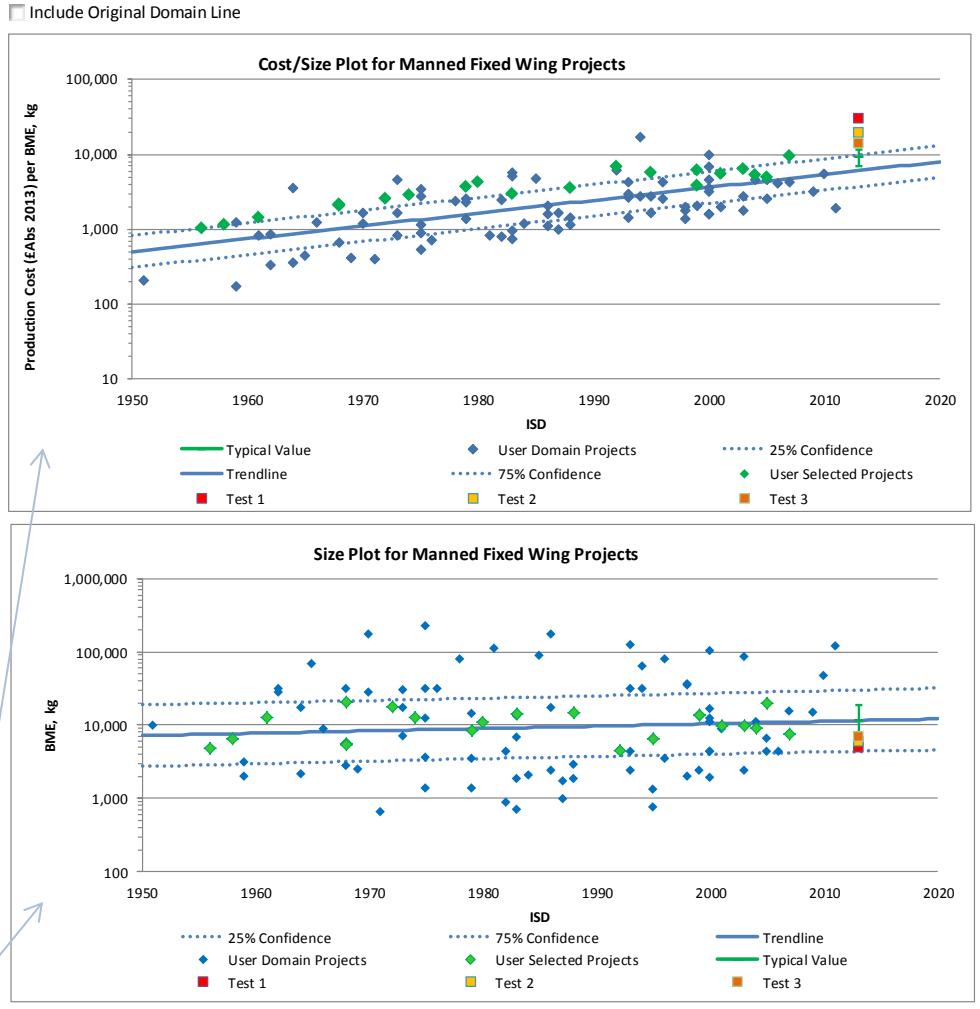
User Domain Selection:

Y/N	Sub Groups
Y	Fighter Strike Aircraft
Y	Bomber Aircraft
Y	Tanker/Transport Aircraft
Y	Primary Trainer Aircraft
Y	Advanced Trainer Aircraft
Y	Electronic Platform Aircraft (AEW)

Change selected sub groups to change domain trend line and historic data points shown in blue

Change selected data points to change predicted range, and historic points shown in green

Graphs to right are updated automatically



Case Studies (4)

- **Cost Benefit and Option Analysis**

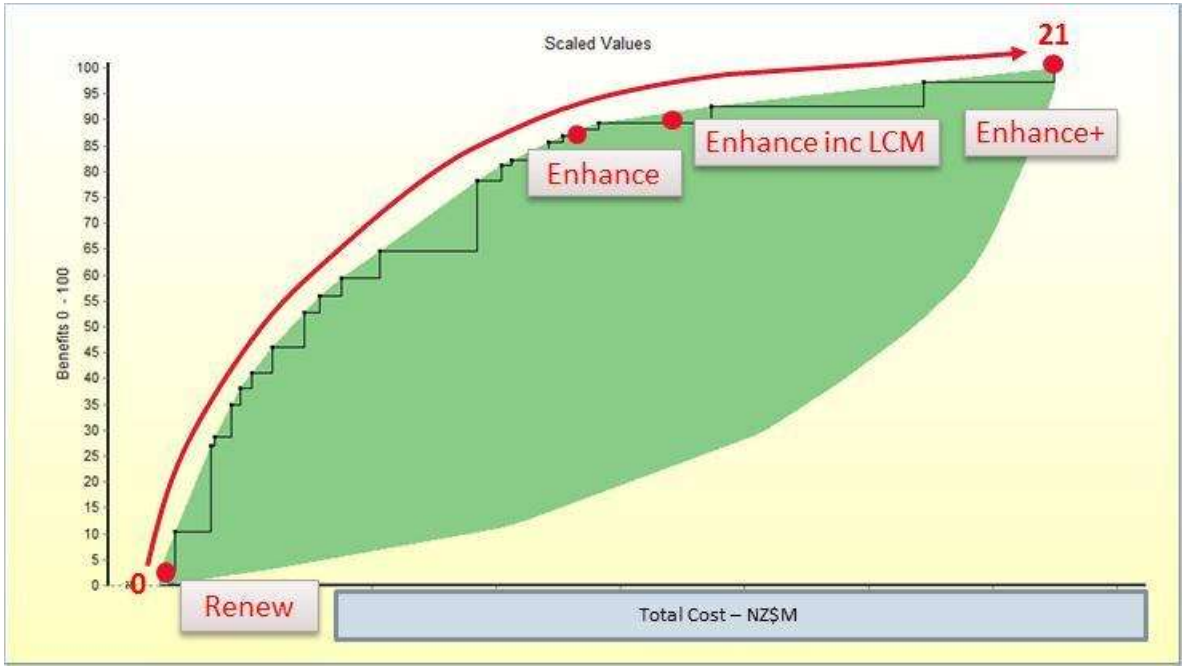
We undertook the cost benefit analysis using Multi-Criteria Decision Analysis, or MCDA. It allowed for the overall ordering of options preference choices whilst recognising:

- The need for a structured and auditable framework to disaggregate decision making.
- Accommodation of judgement and hard data.
- A mixture of monetary and non-monetary objectives.
- Sensitivity analysis to test robustness of decisions and outputs.
- Consensus building between decision makers.

Our approach was to develop a model that represents the various capability options that are available to deliver the total MPSC solution

Measuring the impact of aspirational concepts on the cost benefit envelope

Value envelope for commercial build positioning (normalised benefit and costs UAC NZ$M 2012 e.c.)



- Enhance option lies on the value frontier representing a best value for money option
- The Enhance plus LCM is only marginally sub –optimal. This is due to Ice Class 1A position ahead in the order of priority

Order of Priority	Option Traded In
0	Renew
1	Military Stability
2	2x Shaft and Tunnel
3	Ships Ops & CPR
4	As New + Crane
5	2Shaft,Tunnel+Thrust
6	Role 2+ Surgical
7	Weatherdeck LIMS
8	70+50(austere)
9	Mini Typhoon GS
10	65t Cranes
11	Organic NH90
12	18kts
13	Hybrid Propulsion
14	120 Berths
15	Vehicle Deck LIMS
16	As Option2 + CH47
17	Ice 1A
18	Deep Magazine
19	2 x LCM
20	CIWS
21	20kts

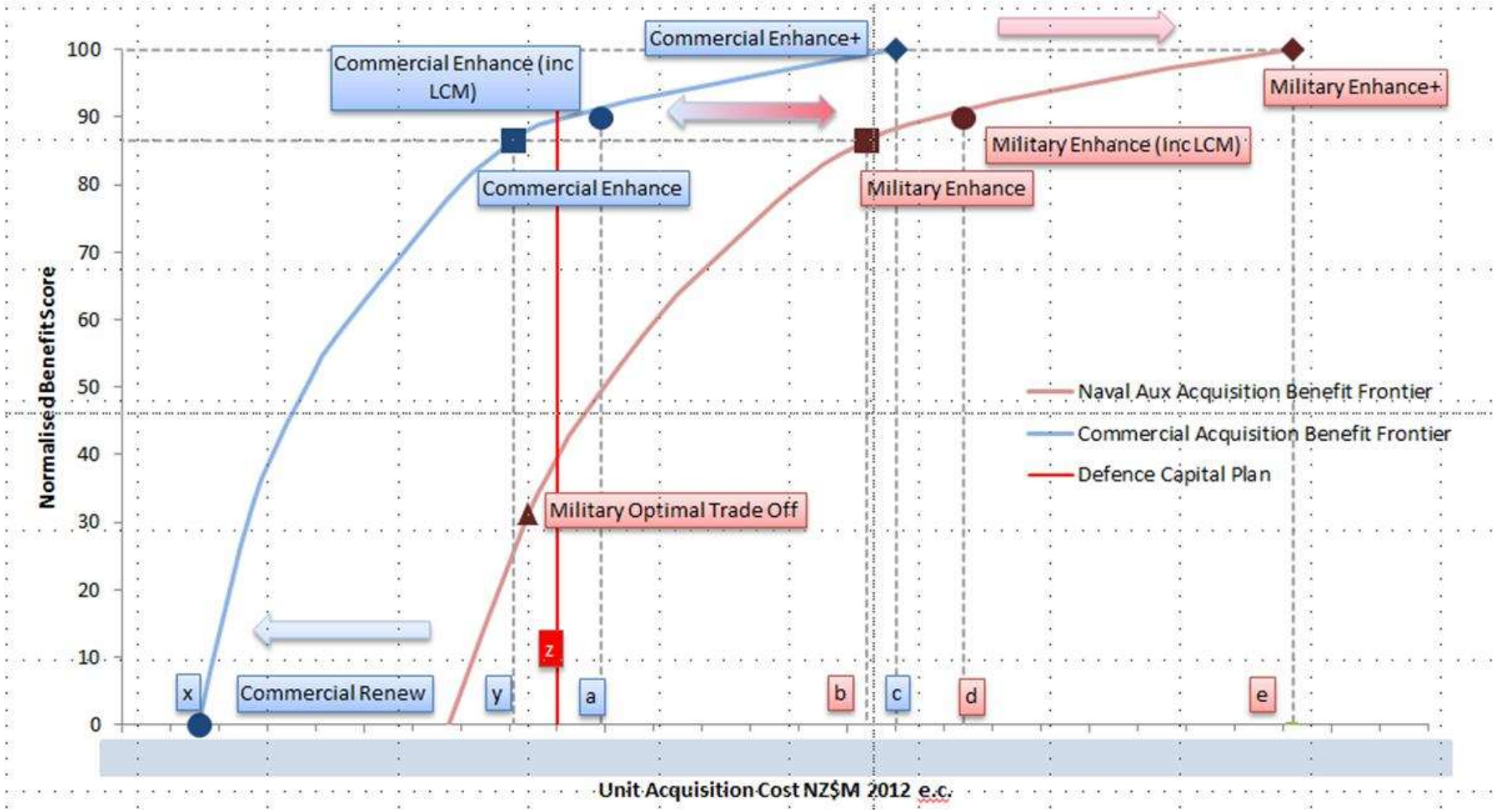
Renew

Enhance

Enhance+

Combining the value frontiers for commercial and military pricing positions allows comparisons to the Defence Capital Plan

Value frontiers for commercial and naval auxiliary build positioning (normalised benefit and UAC NZ$M 2012 e.c.)



- It appears that if commercial price positioning by the shipyard can be achieved, then the Enhance option falls within the endorsed budget
- Achieving this will be an important aspect of the procurement strategy

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Questions & discussion ?

We would welcome the opportunity for a more focussed discussion aligned with any specific requirements. Please visit our stand or speak to me later.

Contact Details

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