

A New Methodology to eliminate "Projects of Concern" in all future Defence Design and Development Programs

This Case Study shows the difference in actual results between a failed initial design and a redesign using the newly developed Munro Methodology

This result is typical of many traditional design and development programs which produce design outcomes which are not manufacturable or serviceable and have a low Producibility probability

1. This section shows how you can now achieve a Paradigm shift in your program performance, cost & time for all defence program outcomes as demanded by the US "Defence weapons reform act 2009" legislation and reflected in US DoD 5000.02.

4. The Traditional design and development methodologies used in this example produced a design which actually resulted in 5 "no build" situations - equipment which was of low reliability, was not producible, and could not be easily serviced.

By using the new Munro Methodology we were able to accurately reconstruct the original design result actual outcomes - i.e. - we can now quite accurately predict with a high degree of accuracy at an early design stage the likely outcome of any program.

5. The New Munro methodology is able to consistently produce design outcomes which are manufacturable with high quality and low cost - in which the technology integrates and works - and which can be serviced, maintained and upgraded at high quality and low cost - for the whole of life. Typically this new process is able to consistently produce designs at an early stage with Producibility and Confidence indexes above 90% - and then deliver on those actual outcomes in a way that no other program can.

Effectively this new program now has the ability to prevent all forms of future defence industry "Projects of Concern" and deliver to the Defence Department the Capability it is seeking at the Cost level it wants - in the timeframe it needs.

2. Traditional design and development methodologies tend to follow established past practices (we have always done it this way)

The Munro process simply asks - if there are only 10 functions (for example) - then why can't I combine everything and have 10 parts or less

The outcome actually achieved will be quite radically different to the carried-forward design outcomes from traditional program design methods

3. Traditionally too much importance is placed only on reducing piece (Purchase) cost - without first questioning its very existence - the lowest cost is a part that does not actually exist - reducing parts always reduces total cost by more

Far too often a purchase decision based solely on piece price will (for example) defend an inferior 4 sigma design (a project of concern) over a better 6 sigma design which actually has a lower total accounted cost and a much better producibility outcome.

Design Profit[®] EXECUTIVE SUMMARY



Case Study - Ship Hydraulics System MARITEC

	Original Design Result	Munro Redesign Result	%
Manufacturing Readiness Level	1 → 5 No Build situations	9	+ 800%
Technology Readiness Level	8	9	+ 13%
Sustainment Readiness Level	3 → Unserviceable	9	+ 200%
Producibility Index	15% → Not producible	90%	+ 500%
Confidence Index	5% → "Project of Concern"	98%	+ 1860%
Parts	1668	32	- 98%
Steps to produce	65,144	570	- 99%
Actual Time (mins)	42,328 ~ 700 hrs	105 ~ 2 hrs	- 100%
Number of operators req'd	17.6 High Productivity	Gain 1.3	- 93%
Fastening Operations	585	35	- 94%
Ergo Dangers	89	0	- 100%
Poka Yoke Issues	320	0	- 100%
Throughput / week (Cust Reqmt)	1	1	+ 0%
Total Weight (Kg)	1818.00	135	- 93%
Carbon Footprint Life Cycle Costs	\$62.58	\$11.48	- 82%
Piece Cost	\$12,000.00	\$9,600.00	- 20%
Total labour Cost	\$28,219.00	\$71.00	- 100%
Q burden (cost of quality)	\$9,920.00	\$0.32	- 100%
Total Cost	\$50,139.00	\$9,671.32	- 81%
Investment Cost Engineering (NRE)	\$0	\$8,500	-
Annual Volume	35	35	-
Annual savings	N/A	\$1,416,369	-
Simple payback (weeks)	N/A	0.3	-

Note: before "cutting steel" MRL, TRL, SRL must be at level 6 - and ideally level 10 at the end of the program. (level 9 at start of final build)

Shows whether the Design Concept is in fact producible and the level of confidence that the design, when in the hands of the Customer, will achieve their needs in Functionality, Quality, Cost, Time, and Performance.

Shows how the original design has been changed to dramatically simplify the design - eliminate many unnecessary parts and fasteners - reduce labour and time and increase throughput - save weight and increase safety.

This simplification and reduction process also usually results in a much higher Sigma level of the design, dramatically better productivity and Innovation levels, reduced raw materials, reduced energy consumption and a much lower carbon footprint.

Dramatically Reduced Carbon Footprint

Typically your total overall costs can be reduced by between 20-80% by simplifying designs

Typically the Q burden (the total cost of quality borne by each part) can be reduced by 40-90%

Typically your investment costs are low - meaning there is usually a payback in the order of 5-30 weeks - after which the annual savings realised are full savings.

This example shows the outcome difference between a typical in-house original design and development program actual outcome - and what was then achieved using the new Munro Design System. With more than 25 years of history behind the data - Munro has verified their predicted outcomes made before you "cut steel" are accurate within 5% of the final outcomes at your program's conclusion. Delivering you a far better and much more Robust design that you know will be produced with very few problems, on time, on Cost, and below program Budget.