

Impacting the Bottom Line

A process perspective in evaluating and realizing cost reduction opportunities...

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Director C.I.
13-Jun-2013

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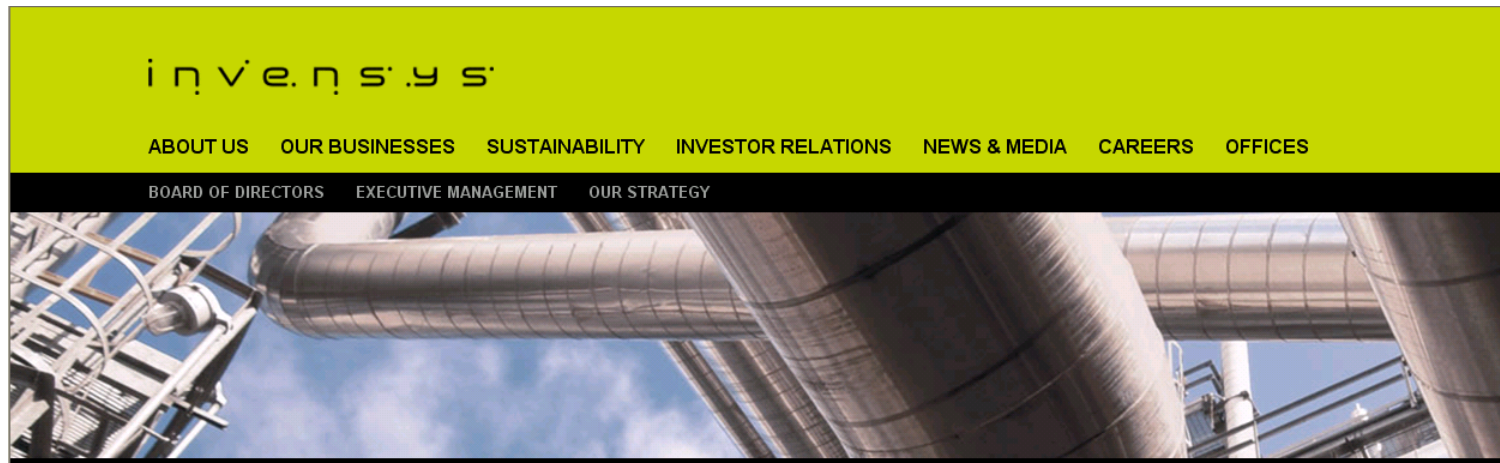
Outline

- Introduction
- Opportunity and Approach
- Results
- Conclusion

Introduction

- Director C.I.
- Diverse work experience
- Certified MBB & BB
- Worked with DFMA back in the mid 80's
- Introduced DFMA in 2012 at Invensys

Invensys



Company Profile

Who are we?



Invensys is a global works in partnership industrial and comm and supply advance their operational pe From oil refineries a companies and app market-leading soft enable our custom automate their prod


maximising safety, efficiency, reliability and ease of use. Active in over 180 than 16,500 people across four business segments: Software, Industrial Au and Appliance.

Everything that we do is about enhancing our customers' productivity. Our customers in plants and facilities around the world, helping to give them a c up their processes, improving accuracy, saving time, cutting waste and bod

- Based in London
- Publicly listed (LSE: ISYS)
- Four lines of businesses

Invensys

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ISYS INVENSYS PLC ORD 10P
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Summary | Interactive chart | Prices and trades | Fundamentals | Technical analysis | News analysis | News

Price	+/-	Var %	Volume	Last close
396.90	▲+5.10	+1.30%	1,040,393	396.90 on 10-Jun-2013


Bid	Offer	Trading status
396.60	397.00	Post-Close

High	Low	Special conditions
398.10	389.40	NONE

As at 10-Jun-2013 16:56:43 - All data delayed by at least 15 minutes.

Latest news

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Invensys Appliance



RANGE
Solutions-driven
Innovation



PARAGON
Increased Versatility



Robertshaw.
Easy and efficient

Cost Reduction Challenge

Commercial team requested improvement to margin...

Challenges

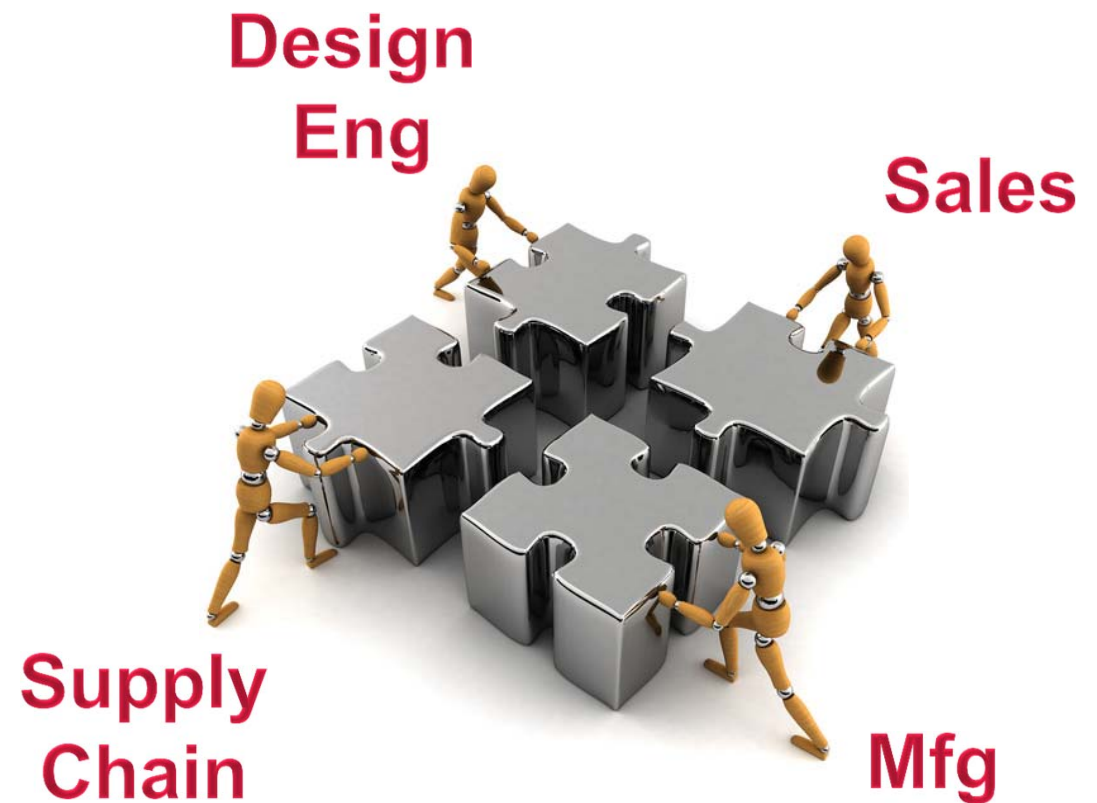
- New product launched
- Product line design
- Limited application



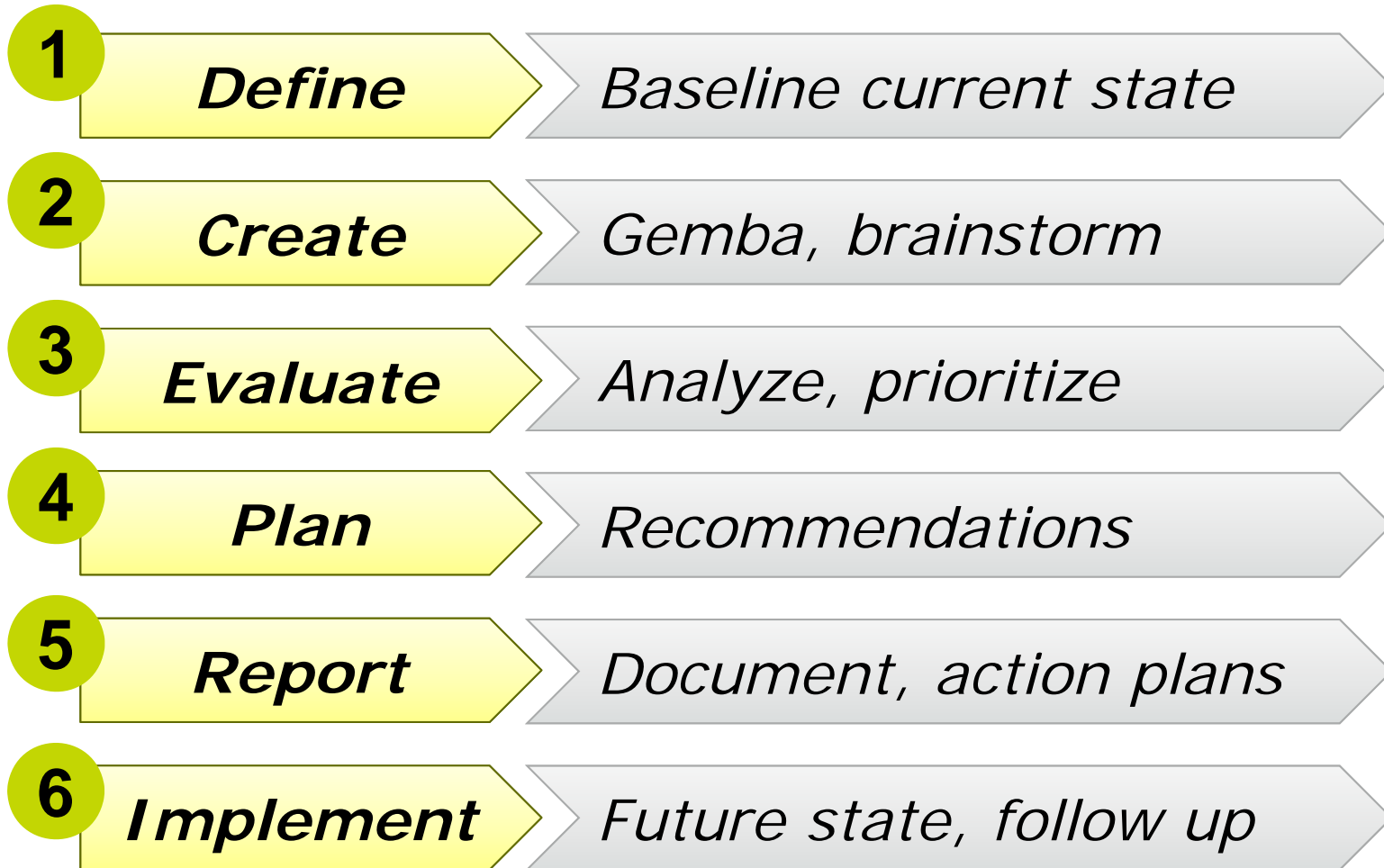
Approach

VAVE event with cross functional team

- DFMA tool
- Pareto Chart
- Parts

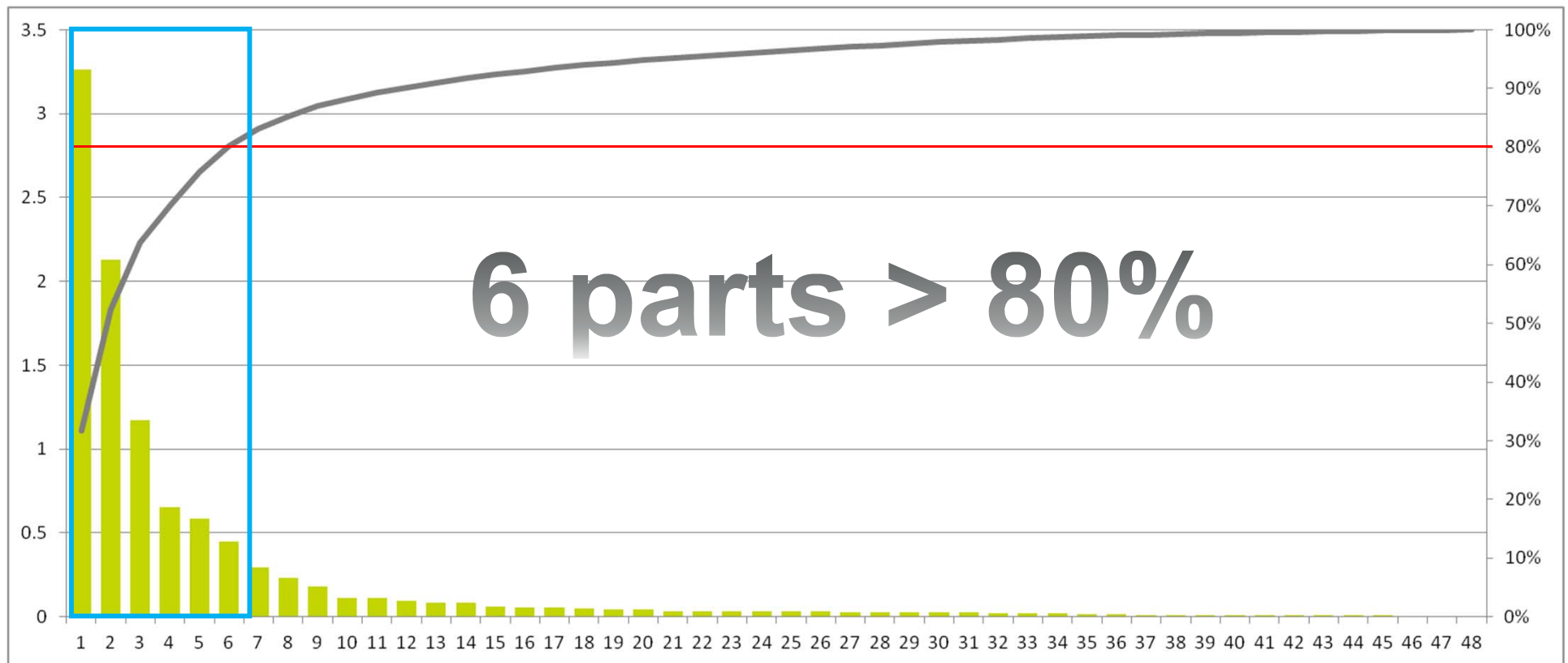


VAVE Phases



Define

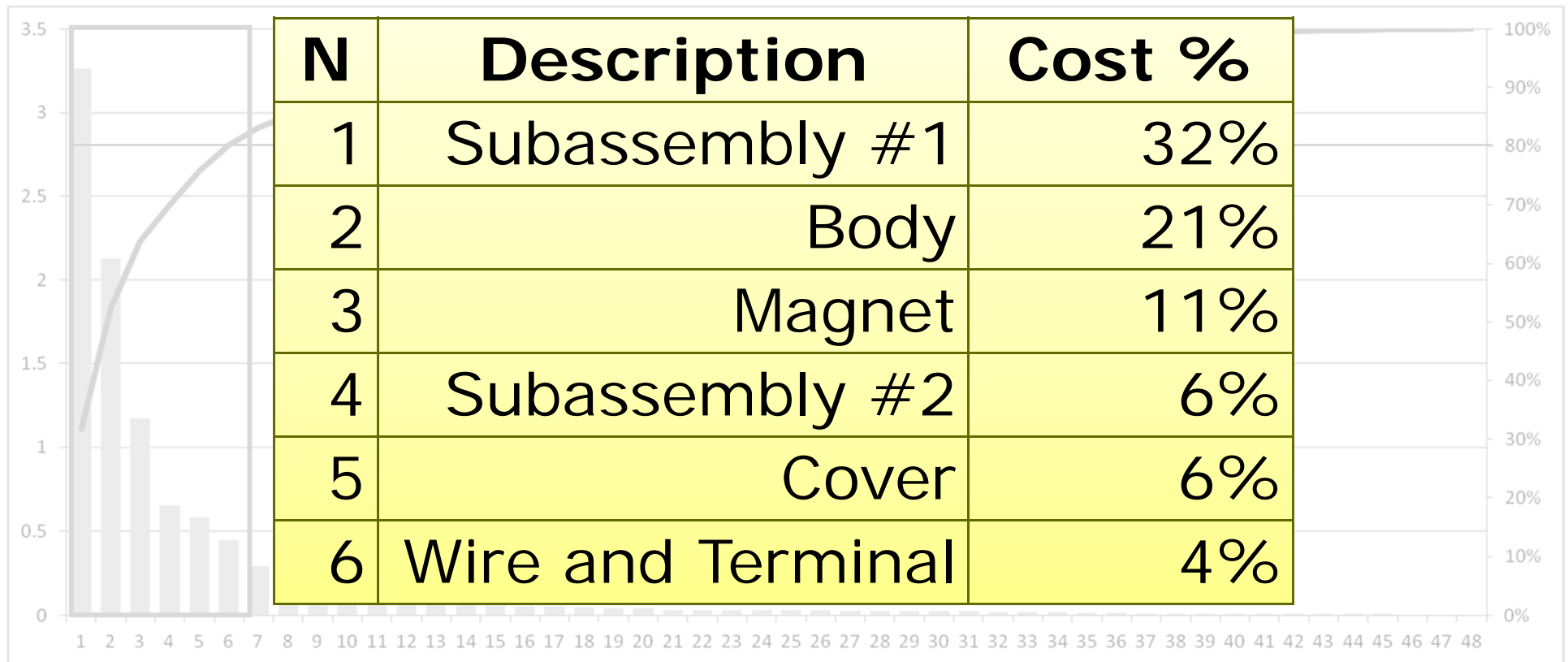
Pareto Analysis



6 parts > 80%

Define

Pareto Analysis

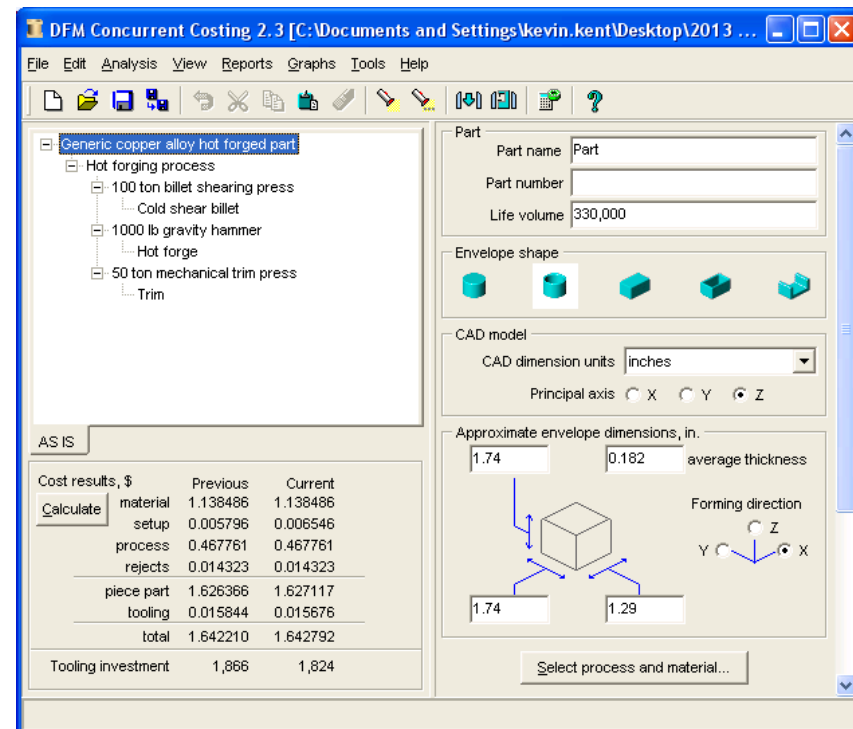


Create

- Review cost categories
- Discuss design function intent
- Assess material options (**DFM**)
- Assess process options (**DFM**)
- Review against “Minimum Part Criteria” (**DFA**)

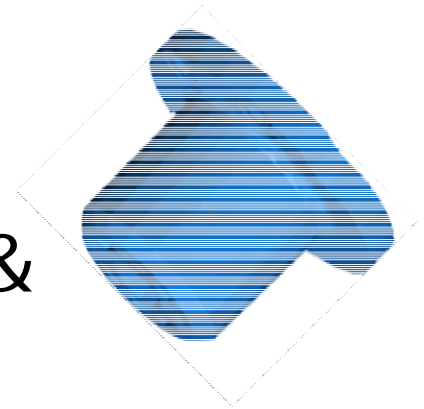
Evaluate

- Create models in Pro-E
- Analyze alternative concepts in DFM
- Capture results



Subassembly #1

- Most expensive part; forged & machined brass bushing
- Design intent: assembly & leak-proof
- Alternative material: injection molded plastic (**DFM**)
- Alternative sub-assembly: add 2 parts



Result: Achieved 30% savings

Body & Cover

- Reduce material content
- Equipment capacity
- Insource machining operations

Result: Achieved 7% savings

Magnet

- Assembled with screws
- Alternative assembly

DFA Results	Current	Future
Number of entries (including repeats)	4	2
DFA Index	13.6	24.5
Number of different entries	3	2
Theoretical minimum number of items	1	1

Result: Achieved 1% savings

Subassembly #2

- Assembly with screws
- Alternative assembly

DFA Results	Current	Future
Number of entries (including repeats)	6	3
Number of different entries	6	3
Theoretical minimum number of items	3	3
DFA Index	28.8	41.4

Result: Achieved 3% savings

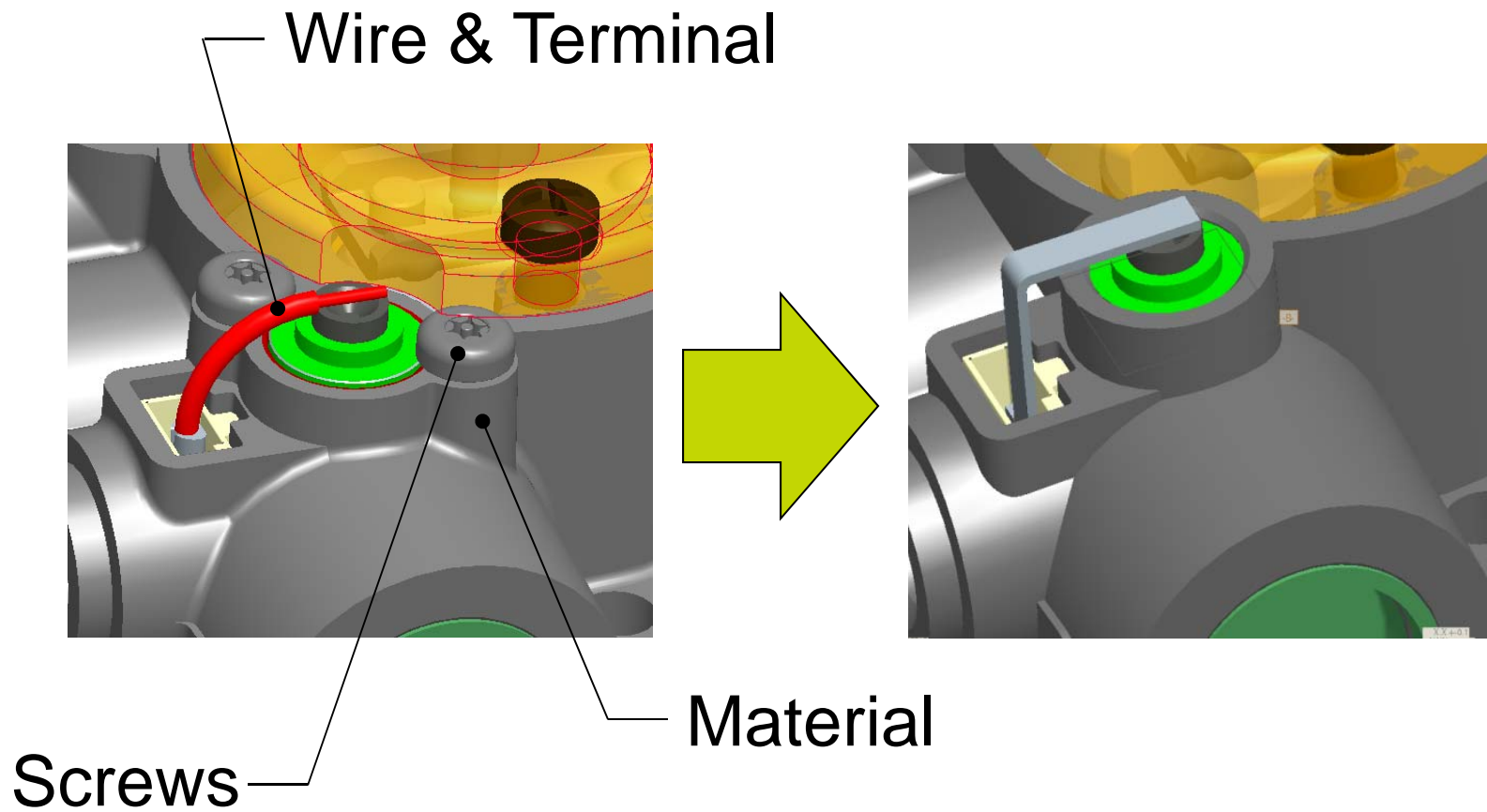
Wire & Terminal Subassembly

- Assembled & soldered
- Alternative assembly

DFA Results	Current	Future
Number of entries (including repeats)	9	2
Number of different entries	8	2
Theoretical minimum number of items	3	1
DFA Index	15.1	27.3

Result: Achieved 7% savings

Example of Improvements



Overall Impact

N	Description	Savings %	Cum %
1	Subassembly #1	30%	30%
2 & 5	Body and Cover	7%	38%
3	Magnet	1%	39%
4	Subassembly #2	3%	42%
6	Wire and Terminal	7%	51%
7	Subassembly #4	4%	55%
8	Labor content	30%	85%
9	Others	17%	102%

Conclusion

- Cross functional group necessary
- Structured event organized the approach
- **DFM & DFA**: Crucial role in validating creativity



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