DFMA® Methodology, Support for a Winning Whirlpool Business Case

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Improving Lives ... One home, one family at a time

World's #1 major appliance company

$18 billion in revenue

Products sold in more than 170 countries

Leading Portfolio of Brands

DFMA Methodology at Whirlpool

Engineering

Target Costing

Competitive Costing

Business Units

New Business Creation

New Business Creation

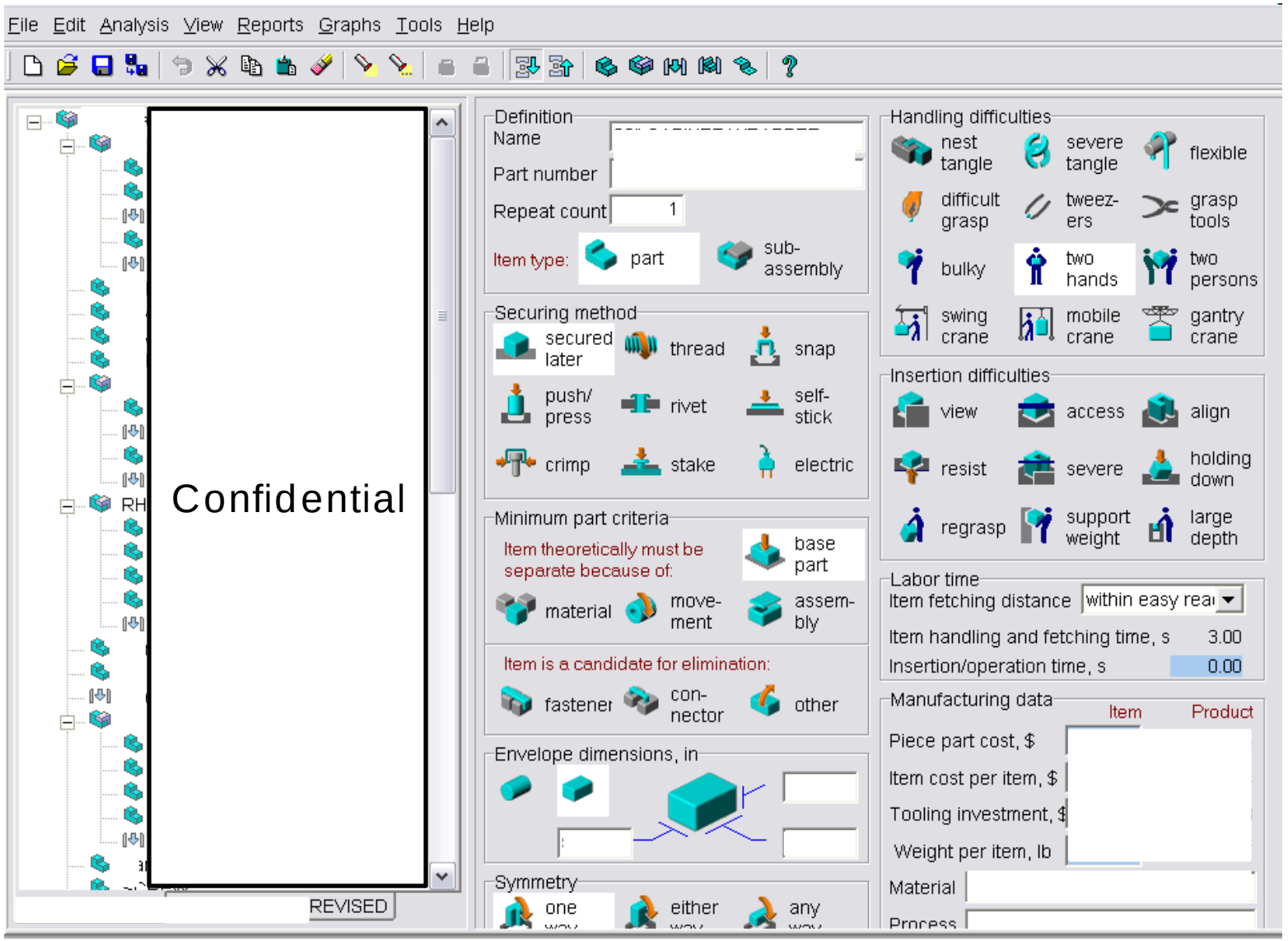
New Business Creation

The Workshop

Coordination & Cooperation

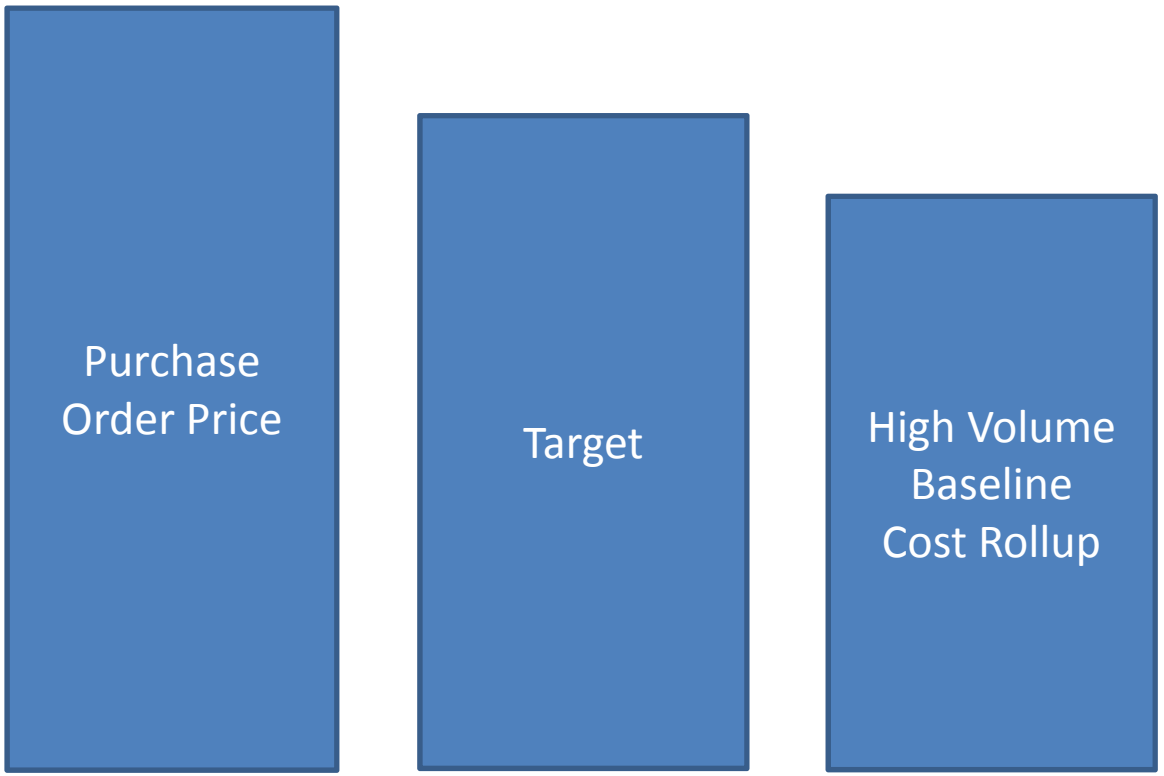
- Measured
- Weighed
- Photographed
- Record Attributes

High Volume Baseline



The Output

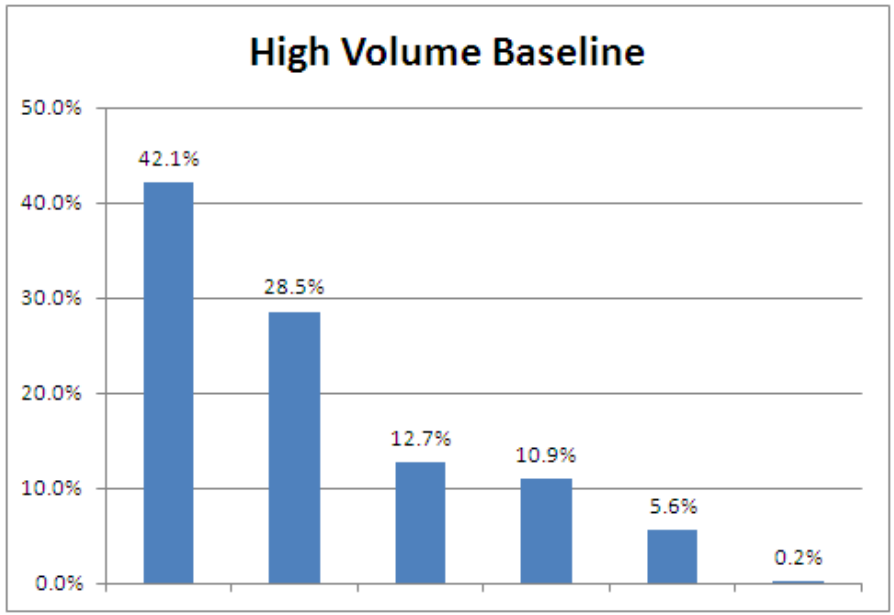
72 components

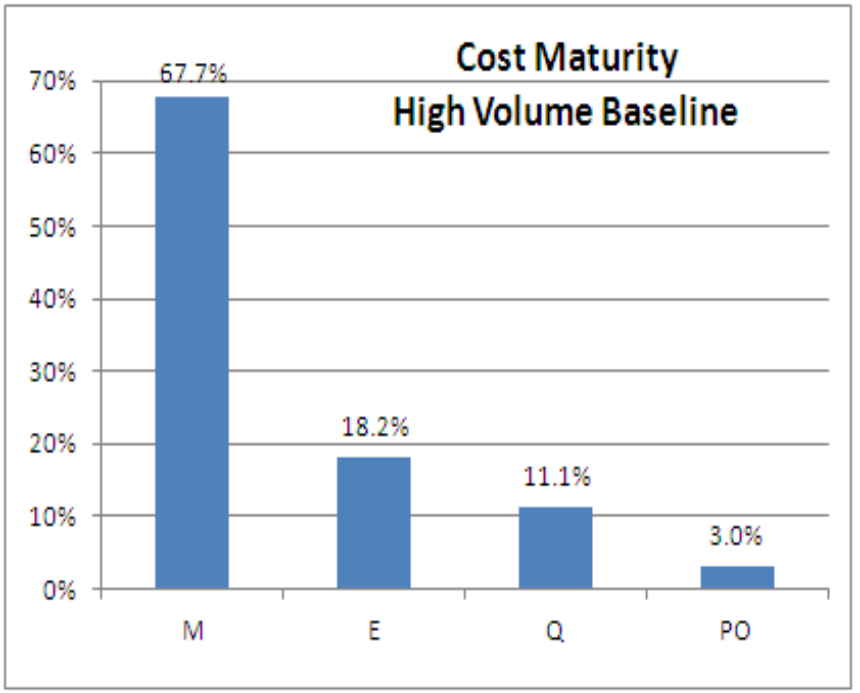


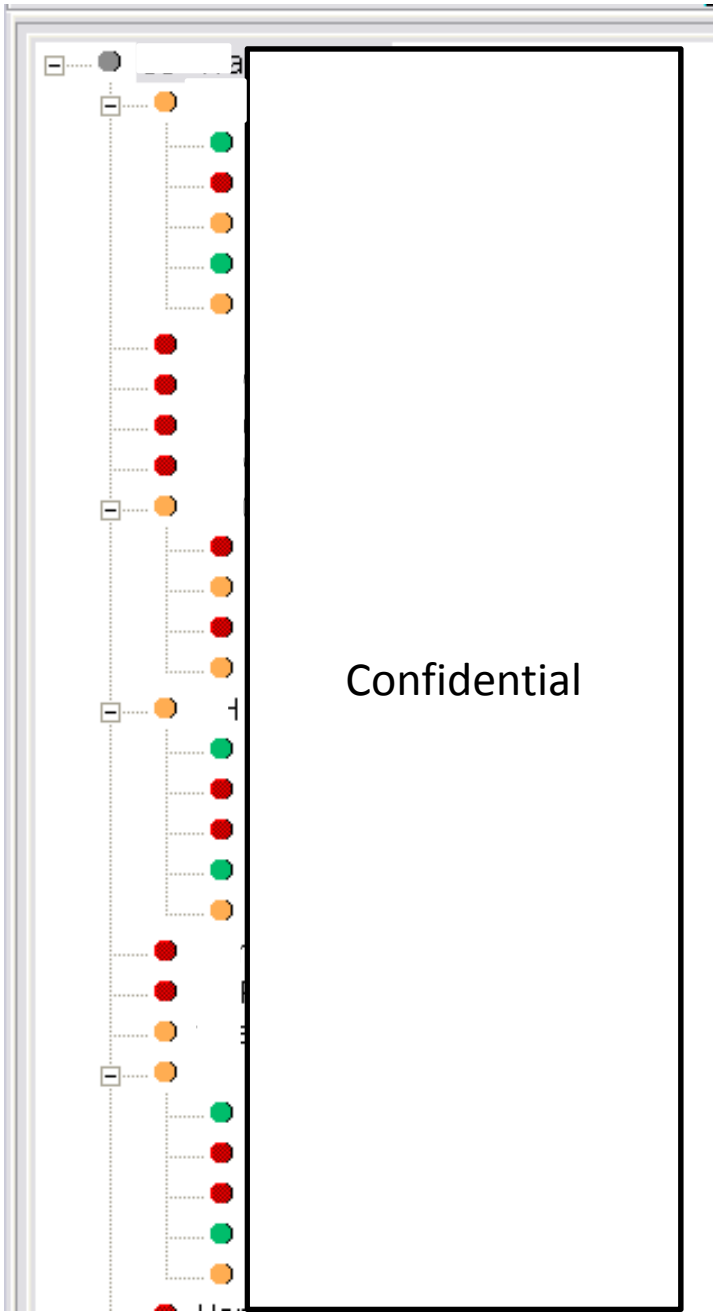
The Analysis

No.		Name	Part number	Type	Repeat count	Total count	Securing method	Minimum items	Minimum part criteria	Handling problems	Insertion problems	Ergonomic problems	Tool fetching and preparation	Item handling time, s	Insertion operation time, s	Total labor time, s
▶	⊟			Main												
2	⊟			Sub	1	1	Sep. op		None				0.00	1.95	1.50	3.450
3				Part	1	1	Sep. op	1	Base par	X		X	0.00	3.00	0.00	3.000
4				Part	1	1	Sep. op	0	None	X		X	0.00	3.00	0.00	3.000
5				Lib Op	18	18							0.00		7.00	126.000
6				Part	1	1	Sep. op	1	Base par	X		X	0.00	3.00	0.00	3.000
7				Lib Op	18	18							0.00		7.00	126.000
8	△					**39**		**2**								**261.000**
9				Part	1	1	Sep. op	0	None				0.00	0.00	0.00	0.000
10				Part	6	6	Rivet	0	Fastens				2.90	1.80	5.10	44.300
11				Part	2	2	Self-stick	0	Connect:		X	X	0.00	1.80	6.20	16.000
12				Part	1	1	Snap	0	None				0.00	1.95	1.80	3.750
13	⊟			Sub	1	1	Sep. op		None				0.00	0.00	0.00	0.000
14				Part	1	1	Push	0	Connect:		X	X	0.00	1.95	7.20	9.150
15				Oper	1	1	Thread						2.90	0.00	3.20	6.100
16				Part	1	1	Sep. op	0	Connect:	X	X	X	0.00	3.00	3.40	6.400
17				Oper	1	1	Thread						2.90	0.00	2.30	5.200
18	△					**4**		**0**								**26.850**
19	⊟			Sub	1	1	Sep. op		None				0.00	1.95	1.50	3.450
20				Part	1	1	Sep. op	1	Assembl				0.00	1.95	1.50	3.450
21				Part	1	1	Sep. op	0	None				0.00	1.95	1.50	3.450
22				Part	1	1	Sep. op	0	None				0.00	0.00	0.00	0.000
23				Part	1	1	Sep. op	1	Movemer				0.00	1.95	1.50	3.450

The Analysis







The Opportunities

Temporary Fasteners

Mounting & Fasteners

Executive Summary Comparison - DFA

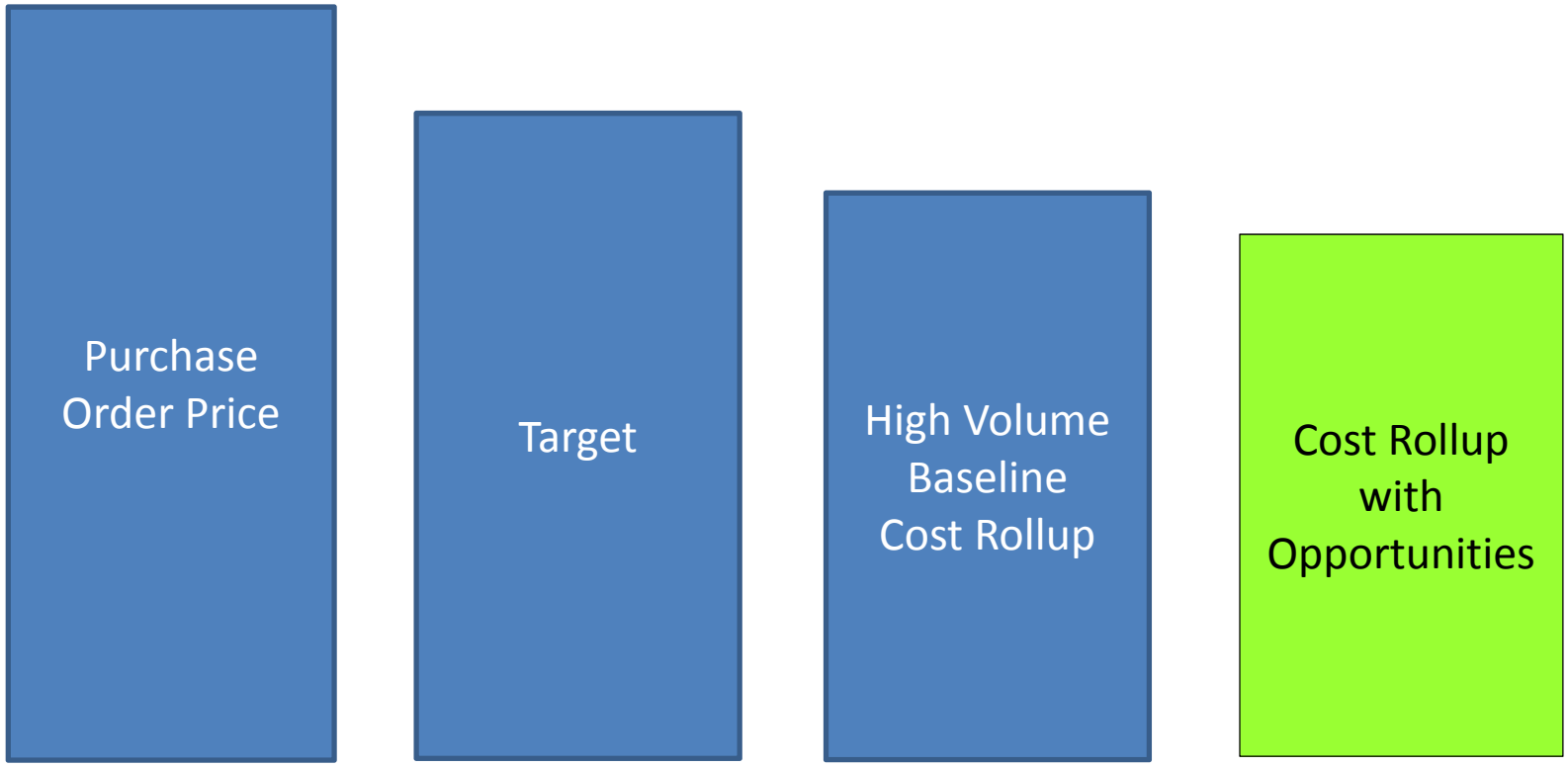
Boothroyd Dewhurst, Inc.

Monday, March 25, 2013 10:01 AM
High Volume Baseline

High Volume Baseline.dfa
Product: High Volume Baseline_original

Per Product data		HIGH VOLUME BASELINE	HIGH VOLUME BASELINE-REVISED
Entries (including repeats)	Component parts	72	43
	Subassemblies partially or fully analyzed	6	4
	Subassemblies not to be analyzed (excluded)	0	0
	Standard and library operations	91	91
	Total Entries	169	138
Labor Time, s	Component parts	219.950	130.050
	Subassemblies partially or fully analyzed	10.350	10.350
	Subassemblies not to be analyzed (excluded)	0.000	0.000
	Standard and library operations	425.000	425.000
	Total Assembly Time	655.300	565.400
Labor Cost, $	Component parts	0.998	0.590
	Subassemblies partially or fully analyzed	0.047	0.047
	Subassemblies not to be analyzed (excluded)	0.000	0.000
	Standard and library operations	1.929	1.929
	Total Assembly Cost	2.975	2.566

The Opportunities



Next Steps

- Executive Approval
- Value Engineering Workshop
- DFA analysis