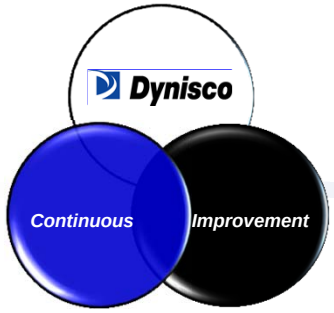


# Dynisco's DFMA Implementation: Overcoming the Fear of Change

Matthew Miles
DFMA and Value Engineering Manager

# Agenda

- Company Introduction
- Dynisco Continuous Improvement
- Existing Culture
- Implementation
- Results so far….


# Roper Industries

- Industrial Technology
  - 9 Companies
- Medical & Scientific Imaging
  - 10 Companies
- RF Technology
  - 7 Companies
- Energy Systems & Controls (ES&C)
  - 7 Companies

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Focused Management Teams *win* IN THEIR NICHES

# Dynisco Structure

DJ Instruments
A DYNISCO COMPANY

Industrial Segment

ALPHATECHNOLOGIES
A Dynisco Company

Rubber Segment

Dynisco

Plastic Segment

Viatran
A Dynisco Company

Industrial Segment

HAO YING

- Dynisco China

- Heilbronn, Germany

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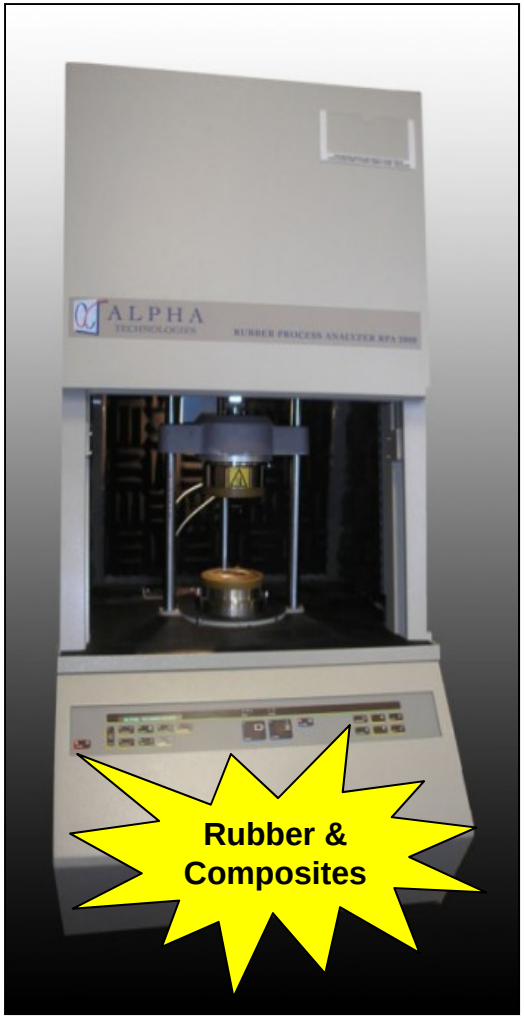
- DVI Malaysia

# Our Products







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# Dynisco Continuous Improvement

- John Biagioni – **VP Supply Chain and Operations**

- Kevin Dailida – **Director of Product & Process Improvement**
  - 3 Quality Managers
    - Bill Blazejewski, Fred Cooper, Pete Mihalick
  - 3 Continuous Improvement Leaders
    - Jim Shore, Pete Mancuso, Matthew Miles
  - Continuous Improvement Technician
    - Daniel Laine
  - 3 Consultants for DFMA & Lean (Macresco Edge, VAVE)

# Existing Culture

***"DFMA...I thought that's what I always did, design it and hand it over to manufacturing so they can assemble it."***

***"I'm afraid of this Lean stuff"***

***……Why?.....***

***"Because then I'm going to have to change!"***

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# Challenges

- 4 Buildings → 4 Cultures
- Leading Products → Complacency
- Perception
  - DFMA → Cheaper, No Time
  - Lean → Reduce Headcount
- Buyers → Just cut P.O.'s
- We're Human → We Fear Change

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# Nash Equilibrium

- Ideology of the Employees (Network) establishes the Culture
- No change occurs when the network exists as it always has…

## Coordination Game

| | | Husband: Movie | Husband: Dancing |
|---|---|---|---|
| Wife | Movie | A, a | C, c |
| Wife | Dancing | B, b | D, d |

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"Guerilla Transformation: Change an Insurgency into a Movement"

– Joseph Paris; Chairman, XONITEK Group of Companies

# Internal Disruptor

- Continuous Improvement Group
  - DON'T
    - Oversell Promises
    - Grand Plan with Great Fanfare
  - DO
    - Properly Engineered
    - Target
      - DFMA ➡ Engineering Groups

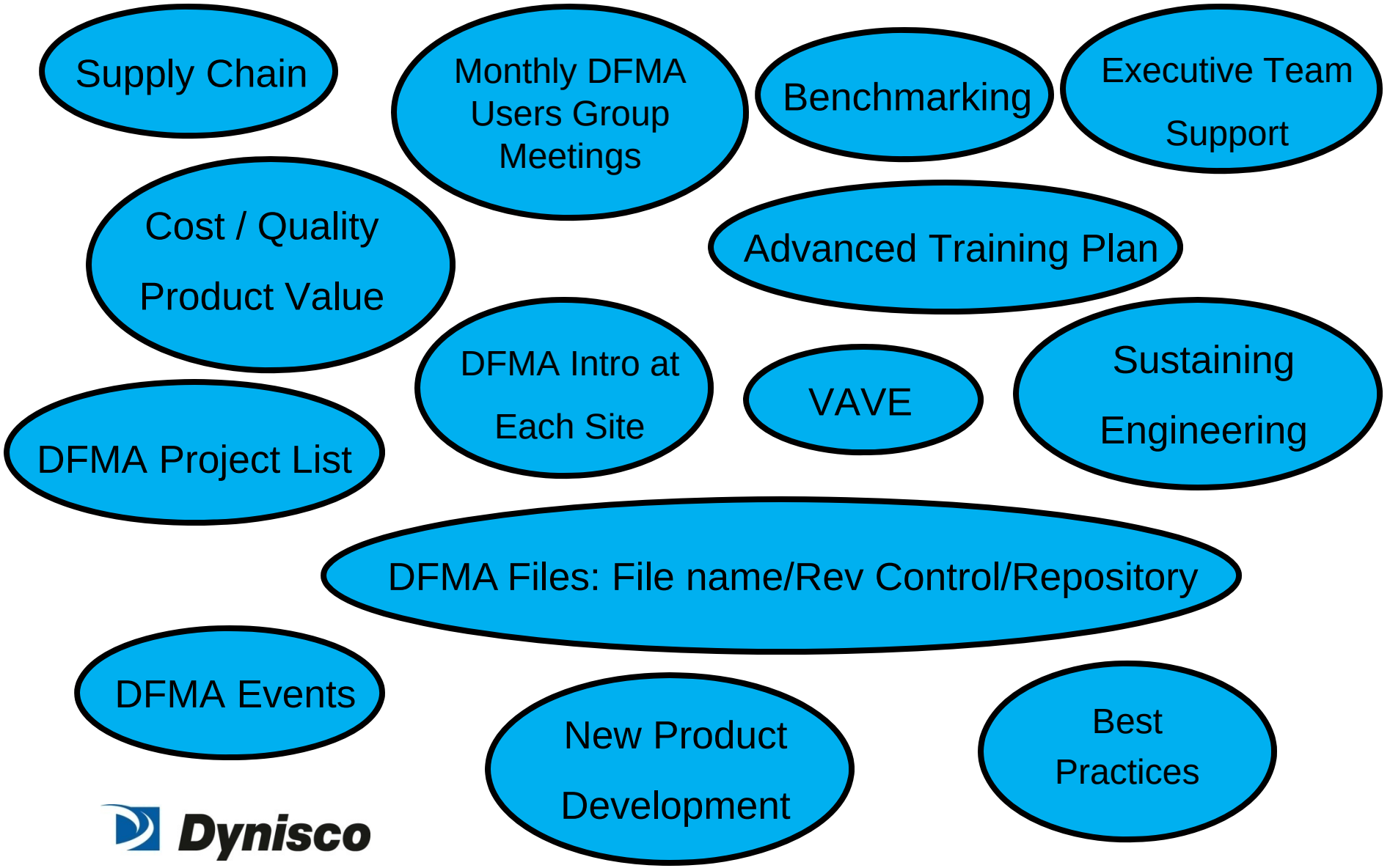
| Culture \ Company Initiative | Change | Stasis |
|---|---|---|
| Change | A, a | C, c |
| Stasis | B, b | D, d |

**GOAL: Create a sense of "want" in individuals….**
**….make them want to succeed with DFMA**

"Guerilla Transformation: Change an Insurgency into a Movement"

– Joseph Paris; Chairman, XONITEK Group of Companies

# DFMA Implementation

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# DFMA Implementation: Start Up

- DFMA Introduction at each site
- Establish Basic Structure
  - DFMA Files: File name/Rev Control/Repository
  - Best Practices/User's Guides
  - DFMA Project List
  - Monthly Updates


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# DFMA Implementation: Training

- Boothroyd Dewhurst DFMA Core Training
- Monthly Users Group Meeting
- Systematic DFMA Deployment
  - Customized for Dynisco
- GOAL: Design Engineers become the DFMA Drivers

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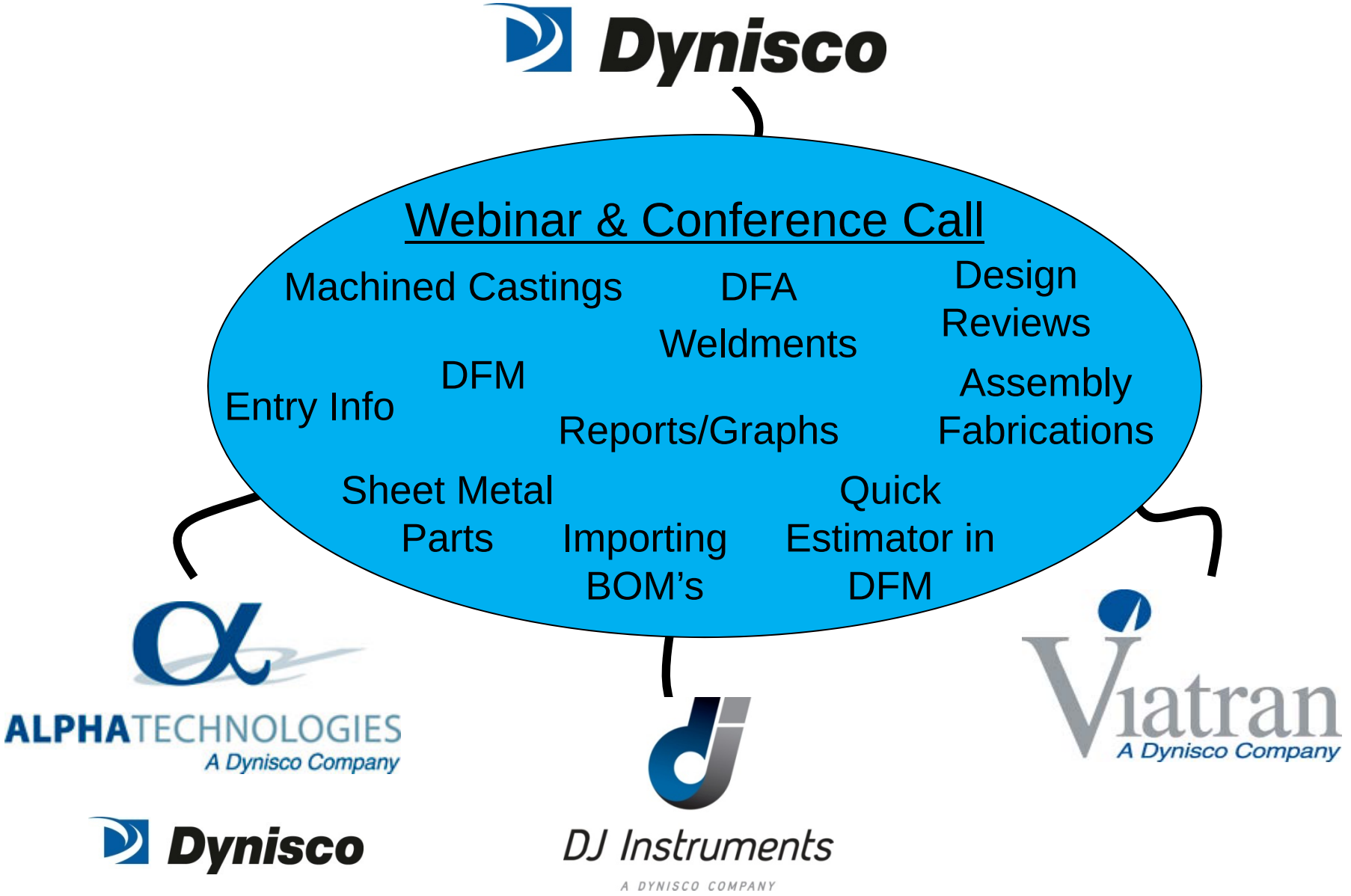
# DFMA Implementation: Monthly DFMA Users Group Meeting



# DFMA Implementation: DFMA Events

- Started on DFMA Project 1
- 3 to 4 Events per Project
- 2/3 Days of Conferences
  - DFMA review of the Design Iterations
  - Executive Team, Engineering, Product Managers, Operations, Quality, Supply Chain, Suppliers

# DFMA Implementation: Benchmarking

## Dynisco - Competitor Benchmarking DFMA Analysis

| Description | Units | Dynisco 1 | Competitor 1 | Competitor 2 | Competitor 3 |
|---|---|---|---|---|---|
| DFA Index | % | **6.9** | **4.5** | **3.6** | **9.1** |
| DFA Part Count (Parts & Processes) | # | 137 | 83 | 184 | 101 |
| Theoretical Minimum Part Count | # | 22 | 17 | 27 | 31 |
| Assembly Time | Min. | 16 | 20 | 41 | 21 |
| Total Assembly/Mfg Cost (Compared to Baseline) | $ | Baseline | -20% | -34% | -15% |
| Part 1 Cost (Compared to Baseline) | $ | Baseline | -34% | -87% | -43% |
| Part 1 Raw Material Weight | lbs. | 7.4 | 5.3 | 6.2 | 5.3 |
| Part 1 Finished Part Weight | lbs. | 3.9 | 3.2 | 3.5 | 3.3 |
| Part 2 Cost (Compared to Baseline) | $ | Baseline | 27% | 18% | 1% |
| Part 2 Raw Material Weight | lbs. | 5.4 | 6.4 | 7.9 | 3.5 |
| Part 2 Finished Part Weight | lbs. | 1.3 | 2.2 | 1.8 | 1.8 |
| Material | | Inconel | Inconel | Stainless | Inconel |
| Weld Process Used | | NA | EB | NA | EB |

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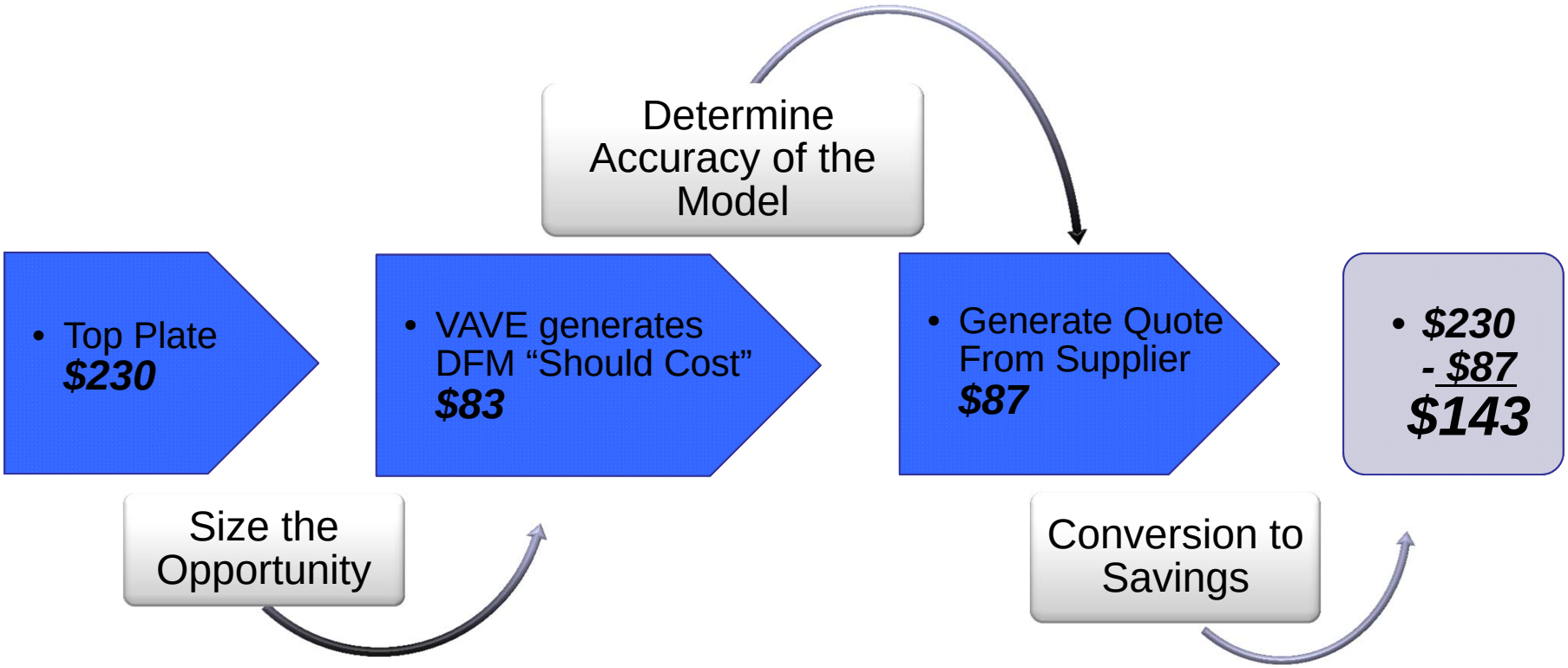
# DFMA Implementation: VAVE
# Value Analysis/Value Engineering

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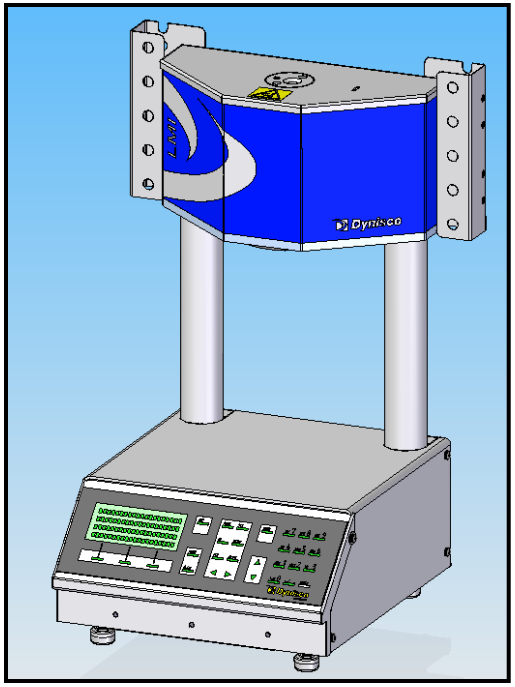
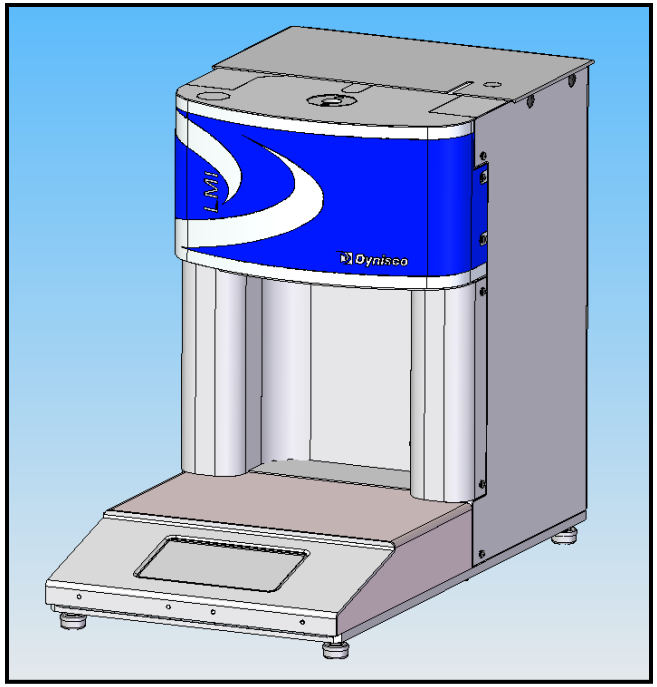
# LMI 4000 Melt Flow Indexer




| | Existing | **Refresh DFMA #1** | **Refresh DFMA #2** |
|---|---|---|---|
| Part Count | 200 | **223** | **209** |
| Theoretical Min. | 39 | **58** | **58** |
| DFA Index | 6.4 | **6.7** | **9.4** |
| Manufacturing Cost | Baseline | **+27%** | **-40% from DFMA 1 to 2** |

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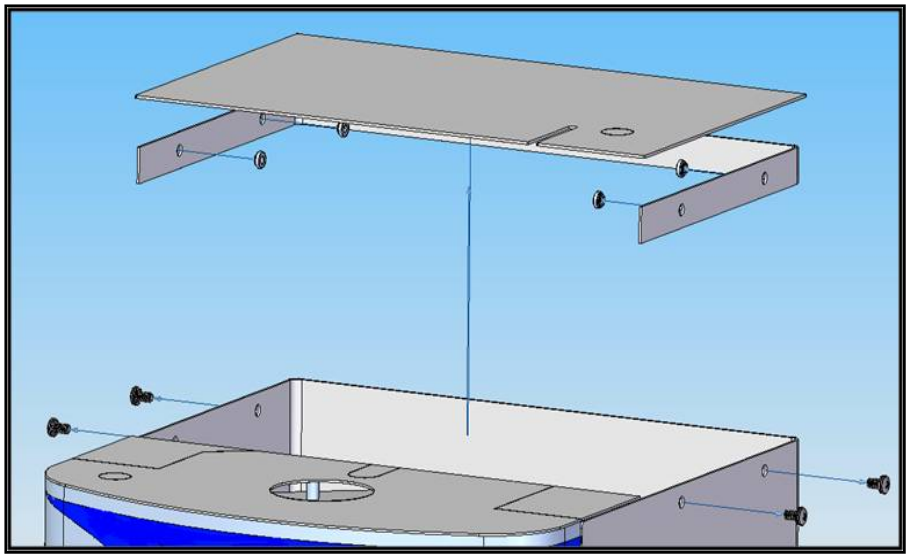
# DFMA Basics

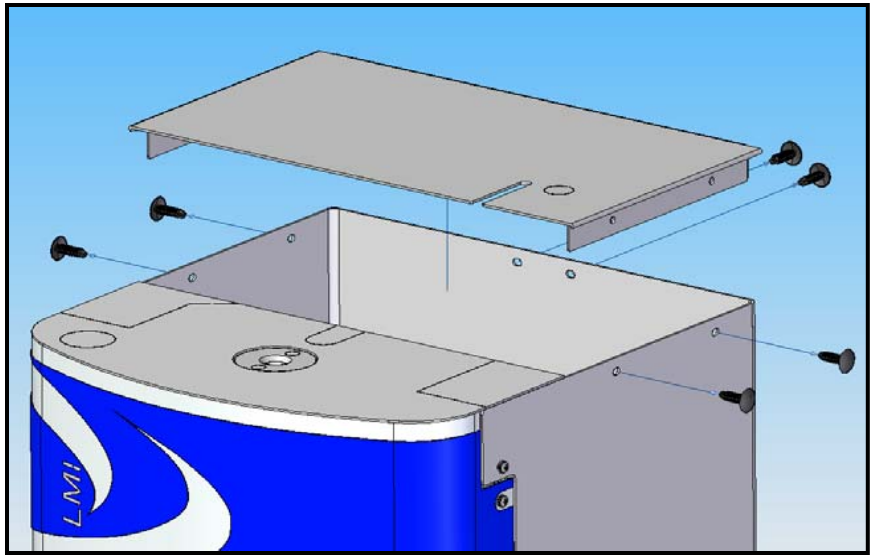
## 2-Piece, Welded Lid

## Pemnuts and Screws



## 1-Piece Lid

## Plastic Push-Pins

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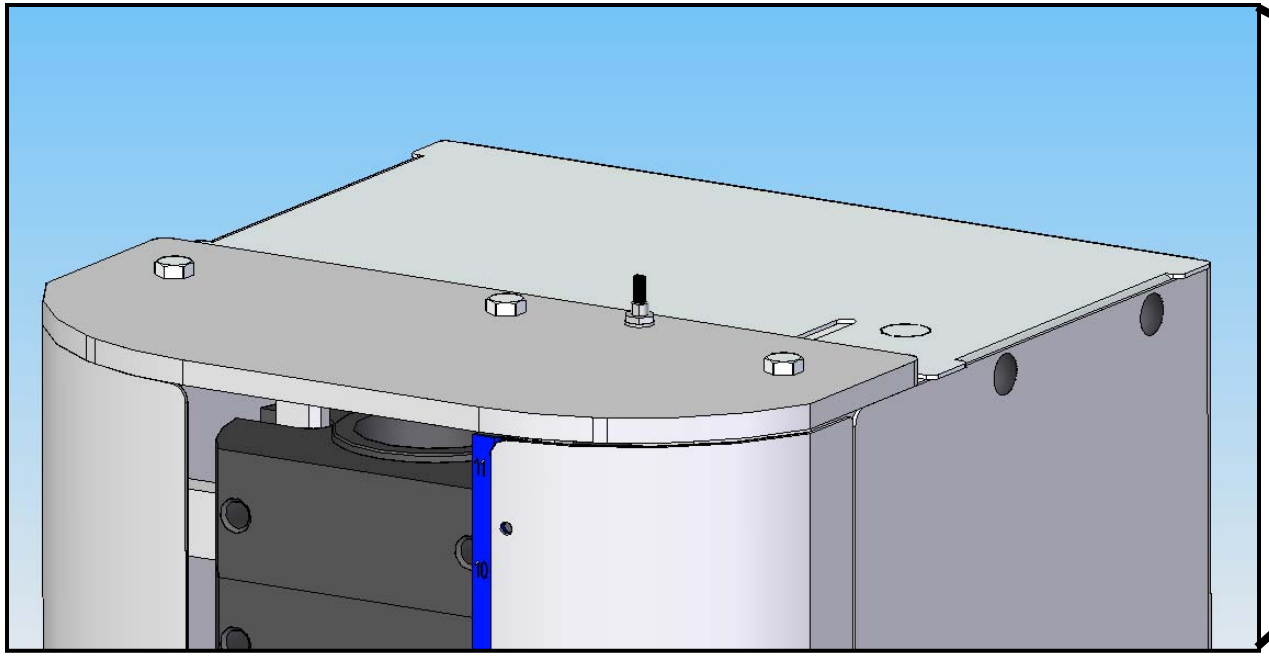
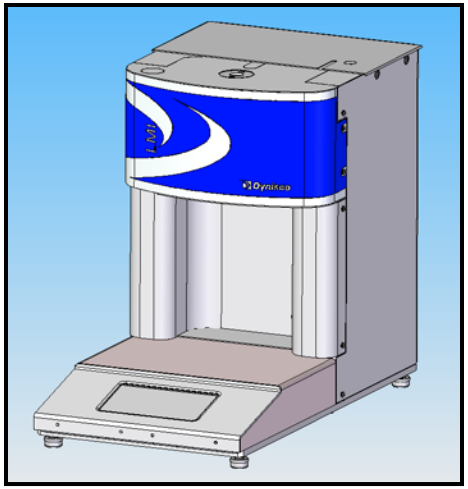
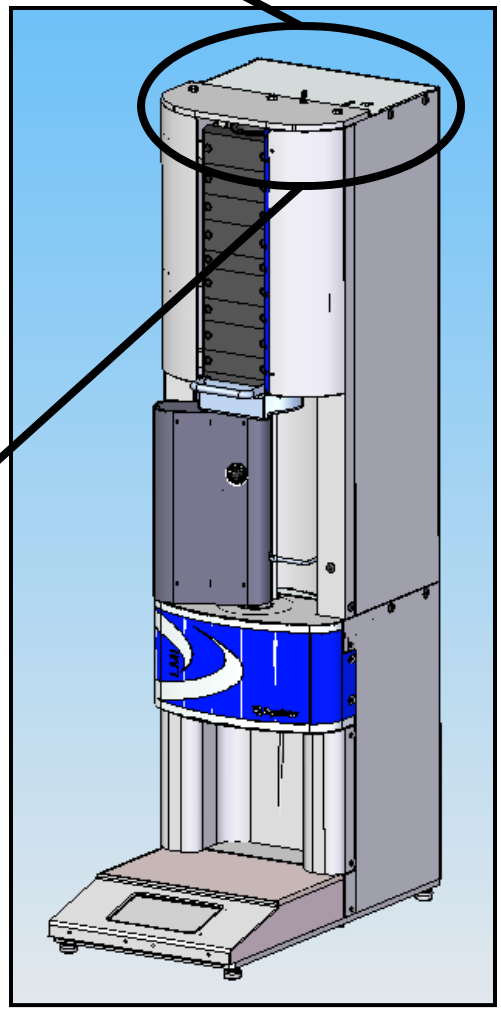
# Modular Design







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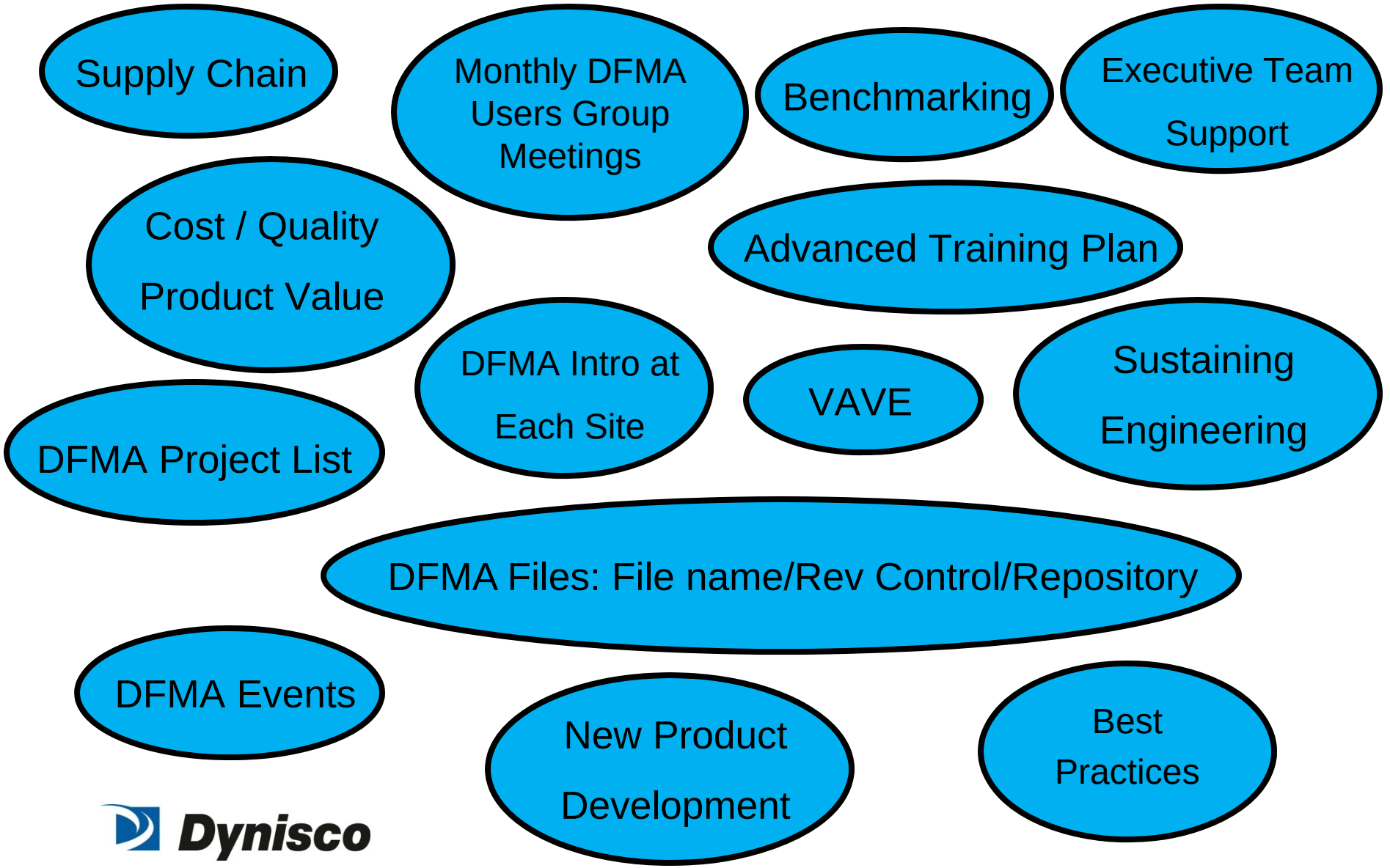
# DFMA Implementation

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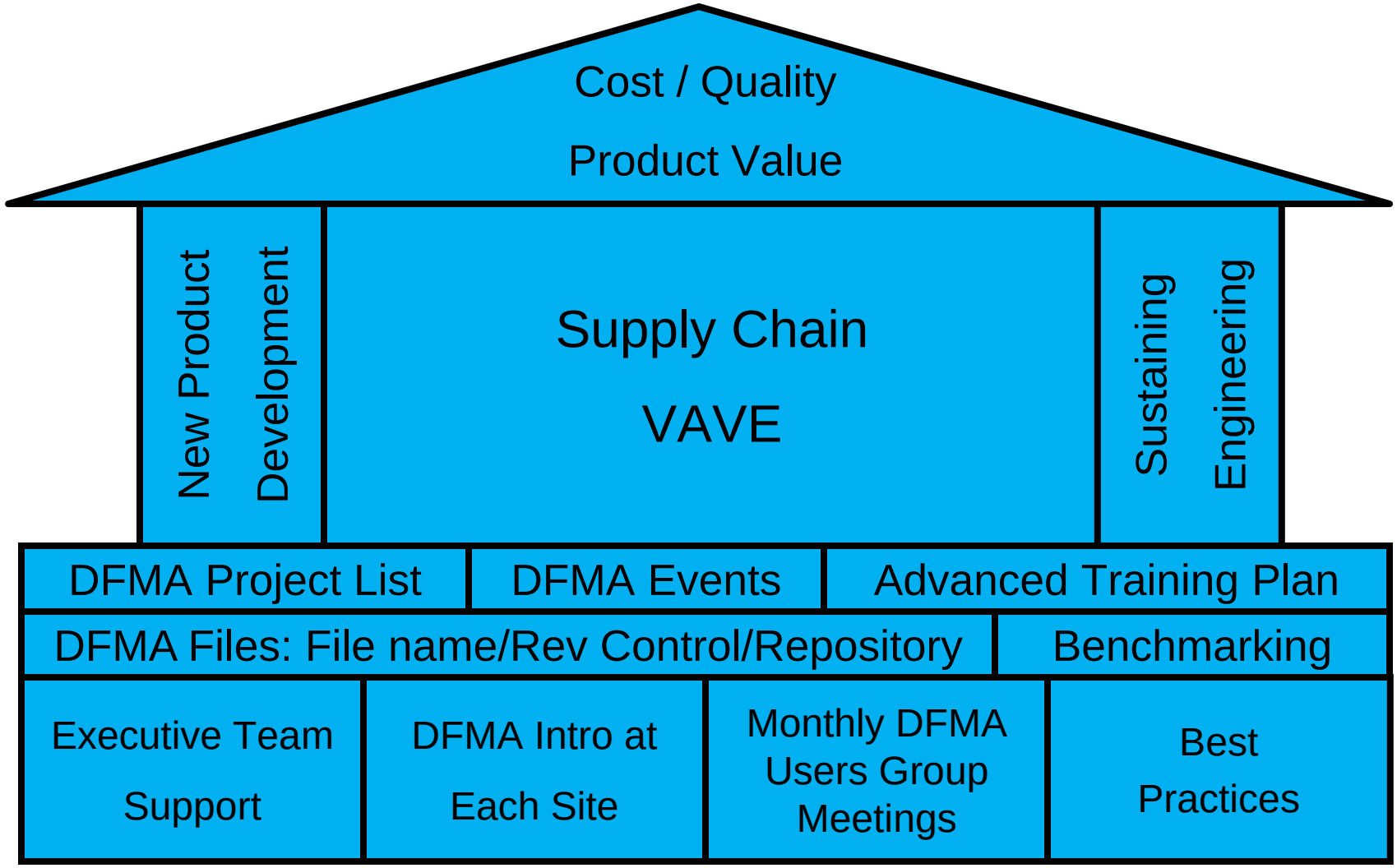
# DFMA Implementation

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# Evolution of Dynisco
# What's Changed

| Dynisco (2009) | | Dynisco – Evolved (2012) |
|---|---|---|
| Single CI consultant | → | CI Leaders at all major sites |
| DFMA late in Product Development Process | → | Revised PDP, DFMA sooner in the PDP |
| Fragmented Product Portfolio | → | Modular Product Portfolio (it's not easy….) |
| Piece Part Cost | → | Total Cost of Ownership TCO |
| Anticipated results | → | Actual results |

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# Thank you!

Questions?