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Finding ROI for DFMA in Low Volume, High Mix Environments

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Quick Bio

Communication Systems-West

L-3 Communications – CSW

- State-of-the-Art provider of secure, real-time data communications - connecting space, airborne, ground and sea-based platforms
- Equipment on virtually every mission-critical aircraft platform, from the pioneering U-2 and P-3 to the unmanned Predator and Global Hawk.

Robert Male

- PhD in Mechanical Engineering
- Leader/Manager/Engineer with 25+ years in Product Development (GE, Teledyne, Danaher, Standex)
- DFMA fanatic, Dry Land SSBB, TLS

Cameron Sullivan

- BSME and MBA with 10 years experience
- Product Development, DFMA, Six Sigma and TOC
- Adjunct Professor in Mathematics

Is there ROI in low-volume DFMA?

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We can't do DFMA!

We are only making a few!

How do you justify DFMA for low volume ?

Market Space Model

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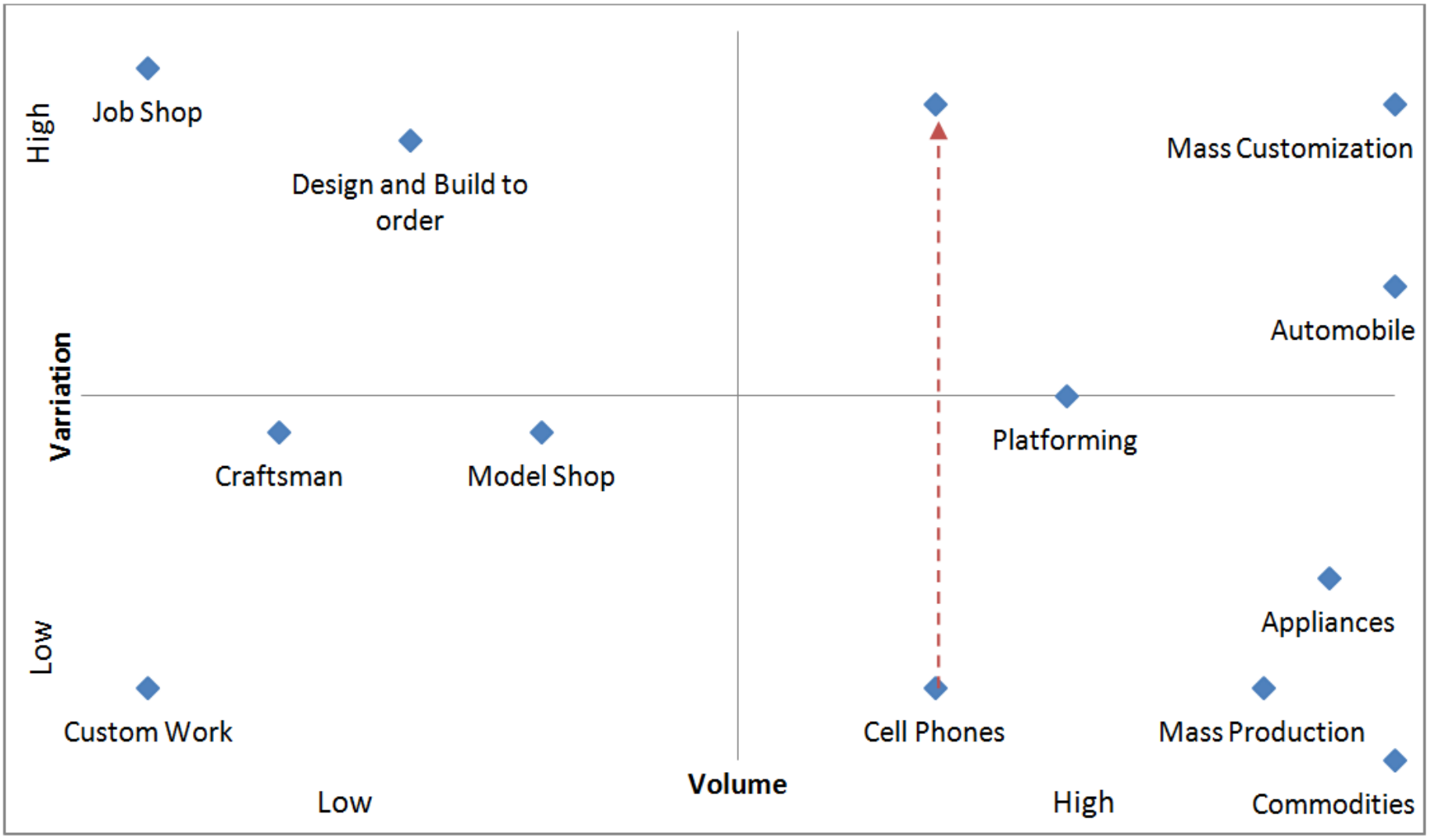

Equations of Interest

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$$ROI = \frac{Benefit - Cost}{Cost}$$

$$Value = \frac{Benefit}{Cost}$$

$$ROI = Value - 1$$

Cost of Product =

Material costs
Assembly Labor
Overhead
Non-Recurring Expenses
Rework costs
+ Scrap

Traditional Cost Focus Here
Direct Material & Direct Labor Costs
"Hidden" Costs of Producibility
Scrap & Rework Costs (COPQ)
Quality Assurance Oversight Costs
Capital & Tooling Investment Costs
Value Engineering Costs
Fixed Process Oversight Costs
Cost of Engineering Changes
Factory Energy Usage
Design-Driven Material/Part Availability
Designed-In Conservatism
Yield Driven WIP & Inventory Holding Costs
Highly Specialized Operator Skill Certification

ROI – How much is Enough?

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Because of the intrinsic benefits of DFMA, any positive ROI is worthwhile!

Good DFMA

- prevents problems on the factory floor
- frees resources to add value
- promotes on-time delivery

What opportunities are you missing due to fire fighting?

Monetizing Benefits

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- Shortened development cycle
- Reductions in engineering change orders
- Less Expensive parts
- Reductions of Internal churn (defects, rework, etc)
- Reduction of Lead Time!

Process to drive ROI with DFMA

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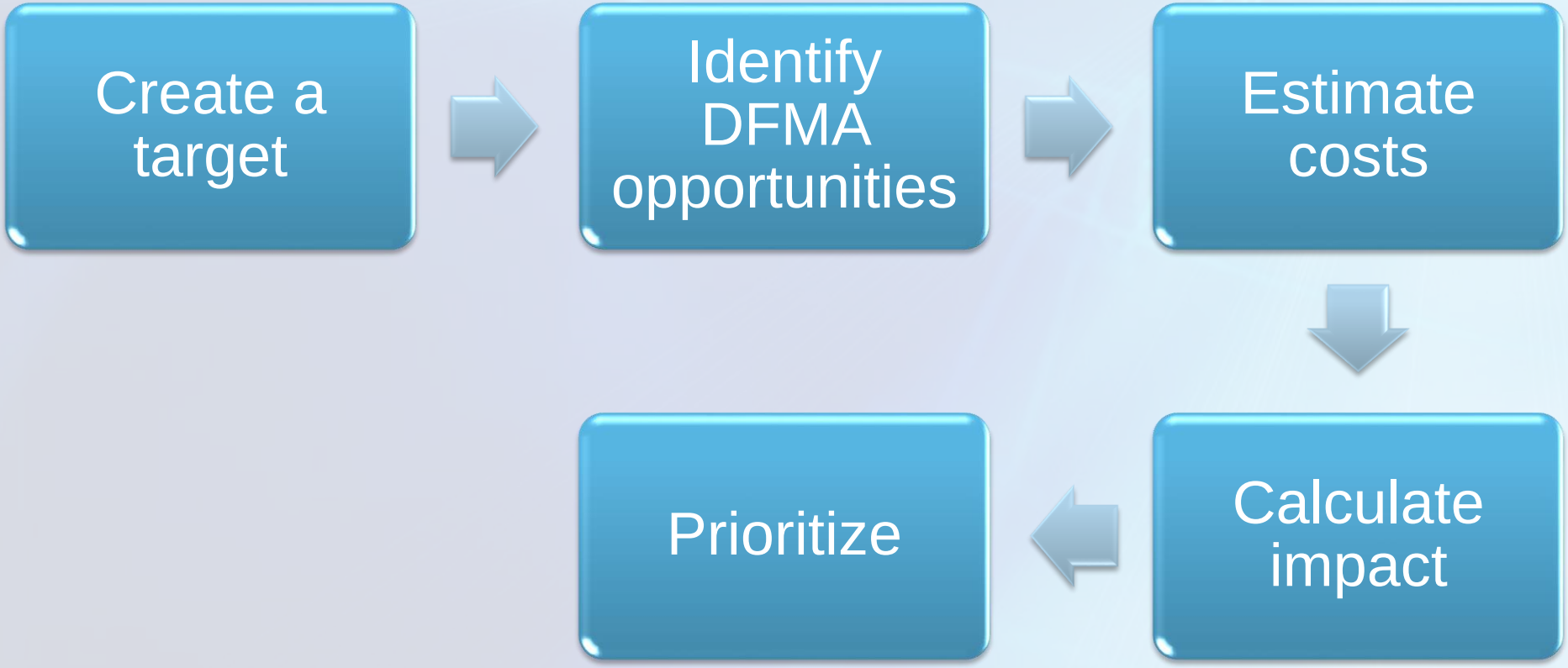

Selective Deployment

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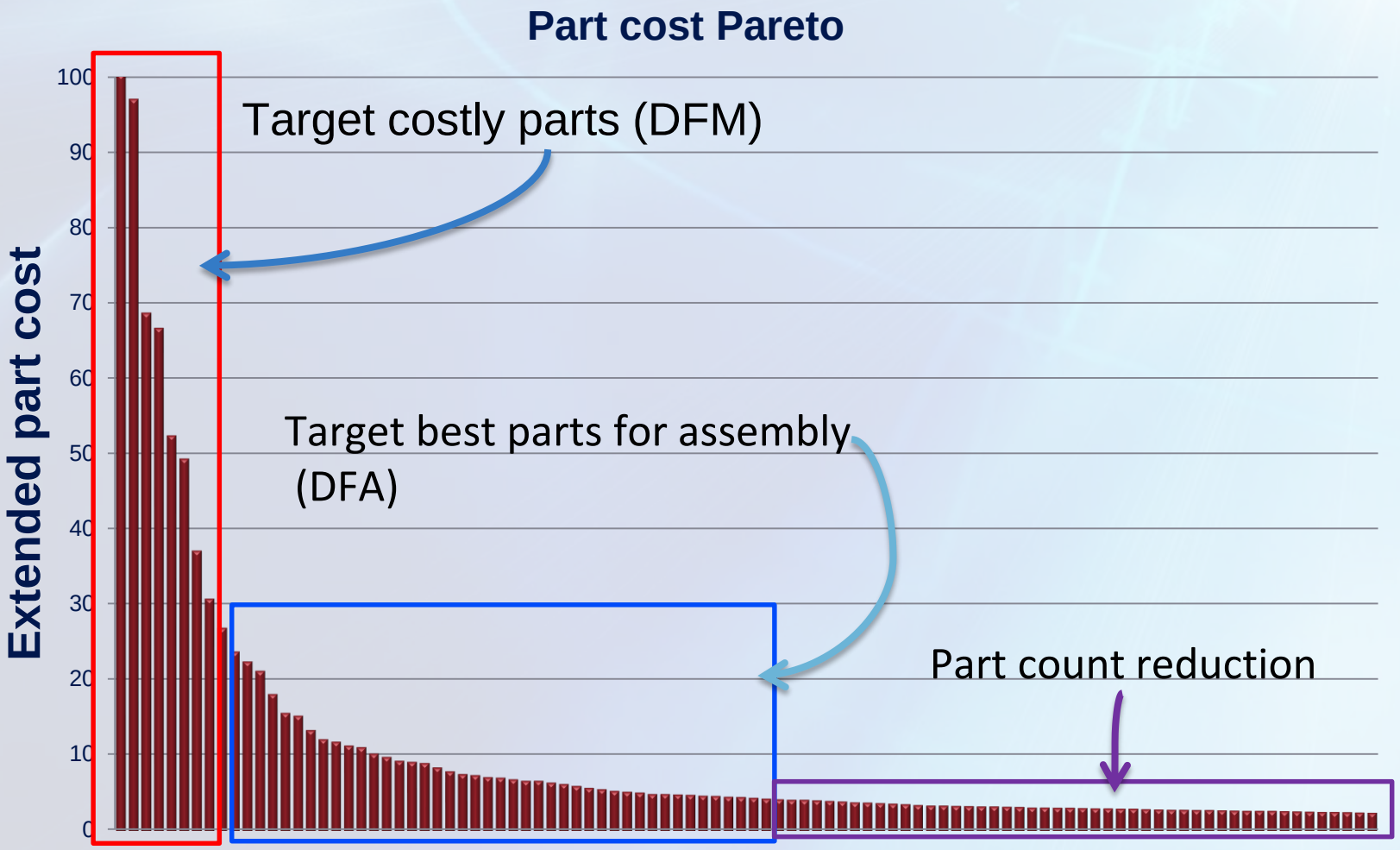
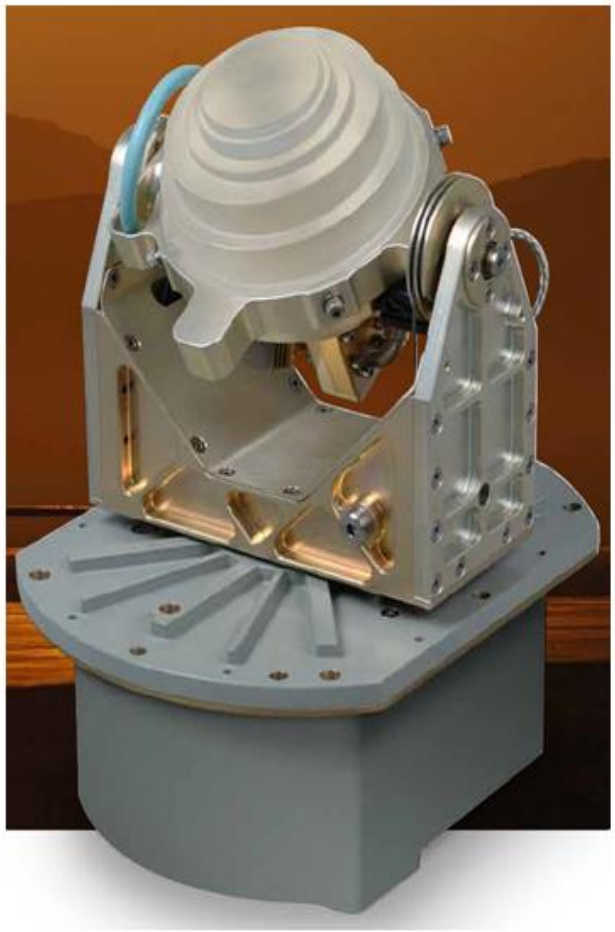


Examples of Selective Deployment



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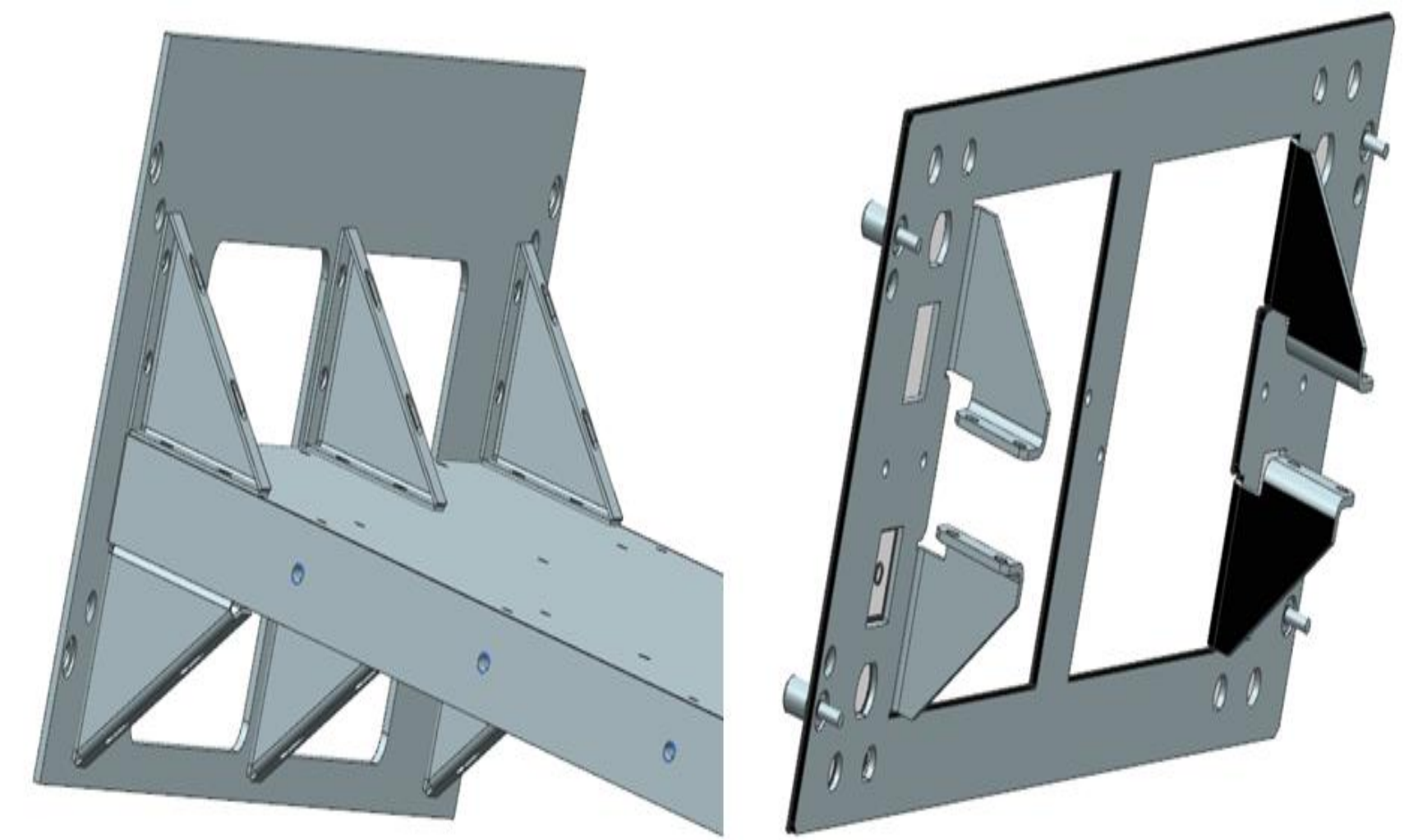

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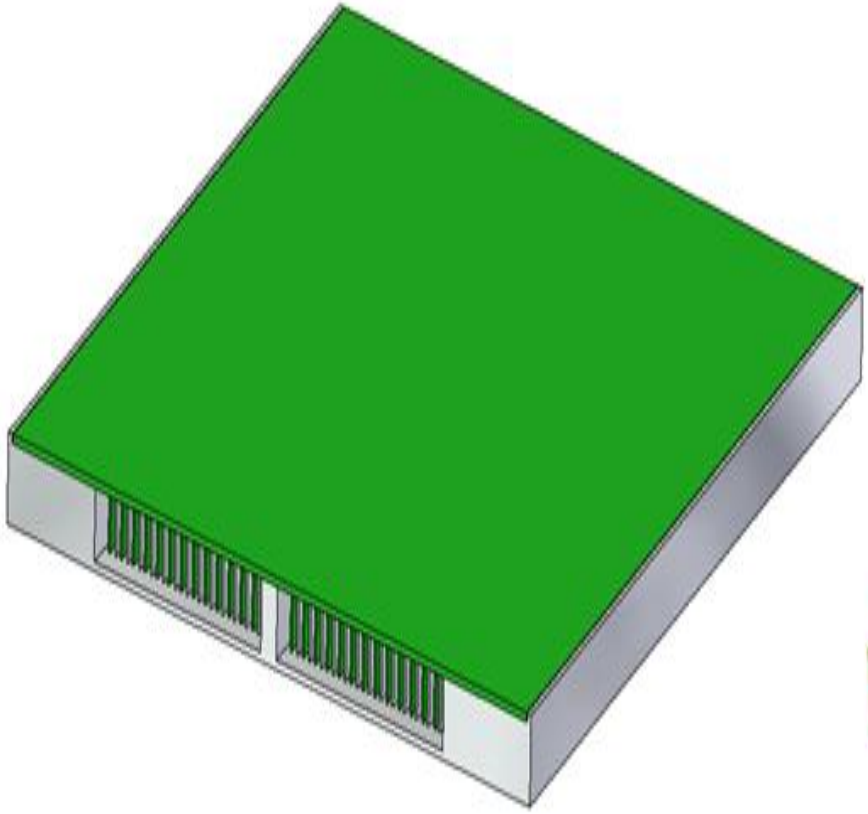

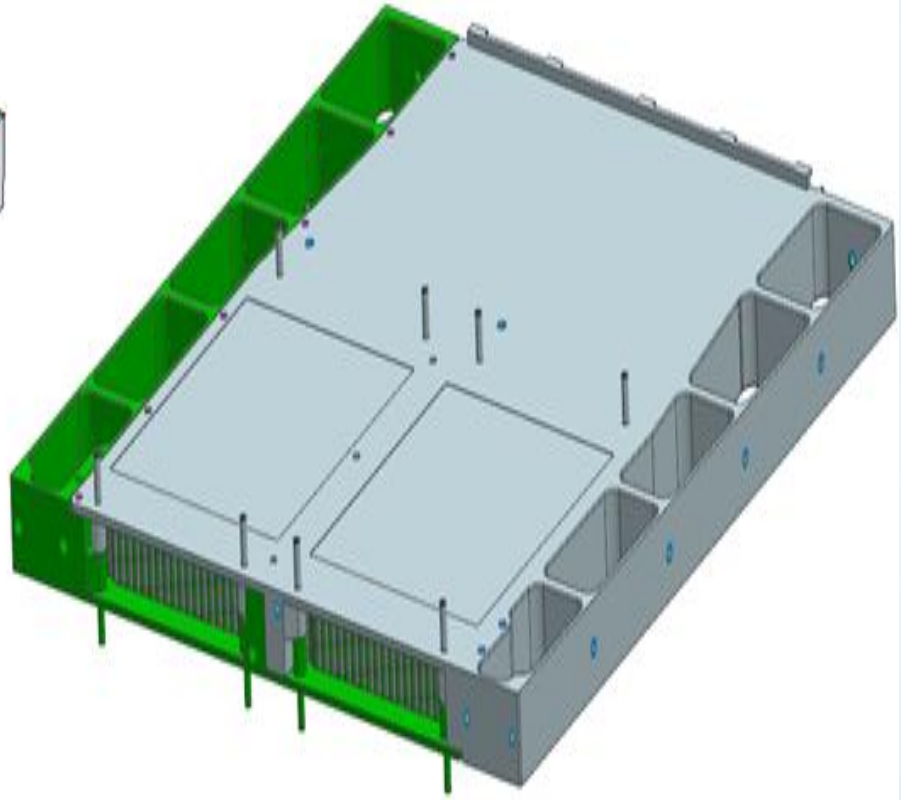

Summary

- The benefits of DFMA extend to the manufacturer as well as to the consumer
- DFMA works in low volume situations because it increases value.
  - Costs are contained
  - Resources are freed up
  - Better on-time delivery
- Selective deployment of DFMA will produce a positive ROI in low volume environments.

Questions?

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