

Future-Proofing HVM

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MANUFACTURING
SERVICES

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Defining EMS

Electronic Manufacturing Services.

Supply OEMS (I.e. *YOU, the owner of IP*)

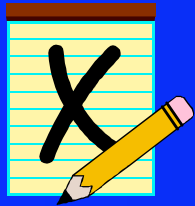
- *Procurement*
- *Electronic & Mechanical Assembly*
- *Test*
- *Despatch & Distribution*



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What is HVM?



HVM not like making rubber ducks



Generally lower volumes



Complex processes & parts



Specialist buyers & supply chain

What is required in HVMM?



Highly skilled operators



Advanced equipment

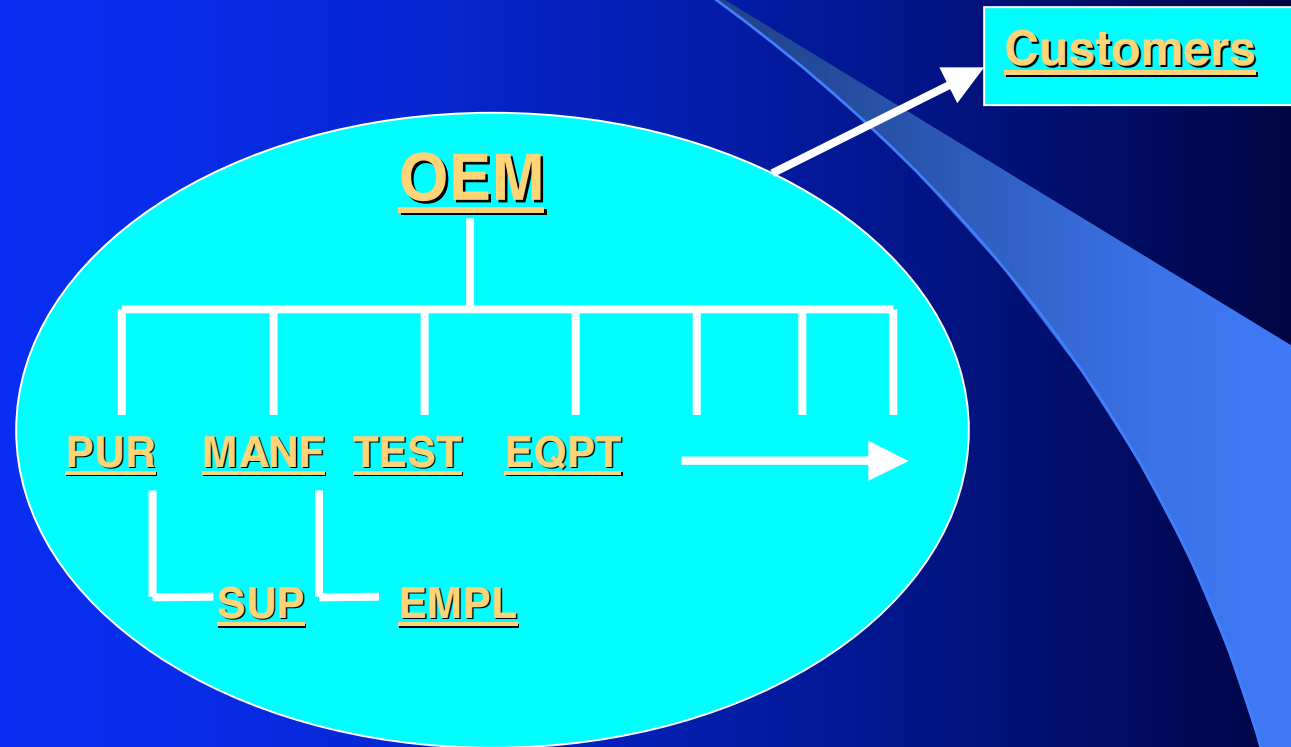


NPI Engineers & Test systems

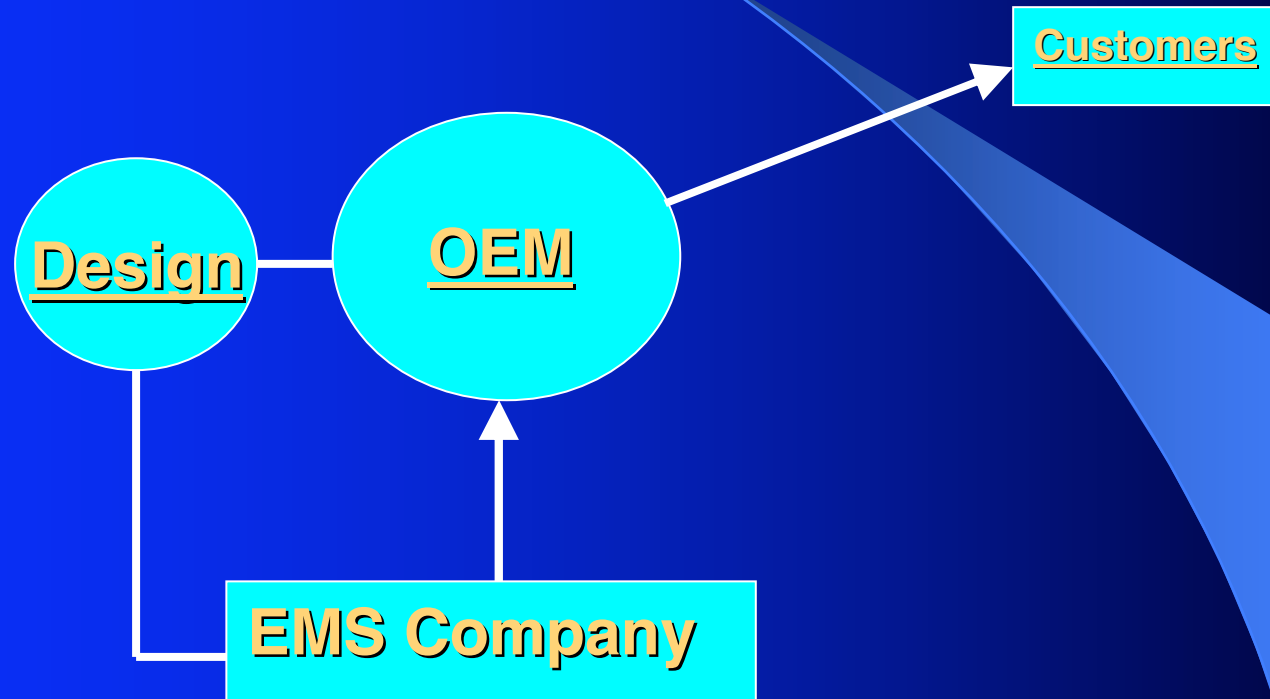


Flexible Infrastructure

Traditional OEM Model



New model for HVM



Your Objectives?

- **Product to market on time**
- **Focus on Quality, delivery & flexibility**
- **Think PROFIT not turnover**
- **Protect IP**
- **New developments and future growth**
- **Customer satisfaction**

Main Topics

- **The Time to Market**
- **DFM and New Product Introduction**
- **Production future-proofing**
- **Choosing your HVM Partner**

Time to Market Objectives

- What does “getting new products to market on time” mean?
- Does it mean “as fast as possible”?
- Time pacing or event pacing

Example of Time Pacing

- **Intel introduces new microprocessors at regular intervals rather than waiting for design breakthroughs or design pressures.**

(Source – The Lean Toolbox (2000) – John Bicheno)

Main Topics

- ~~The Time to Market myth~~
- DFM and New Product Introduction
- Production future-proofing
- Choosing your HVM Partner

DFM & New Product Introduction

1. **Early exposure to manufacturing**
2. **Advice on DFM**
3. **Rapid Prototyping**
4. **Closing the loop**
5. **The real time to market**

DFM & New Product Introduction

1. **Early exposure to manufacturing**
 - Allow manufacturing to see as much of the design as possible
 - Utilise library of common parts
 - Consider Disassembly & WEEE
 - Remanufacturing
 - Future-proofing your design

DFM & New Product Introduction

2. Advice on DFM

- DFM is critical to product lifecycle
- Ignoring DFM can be very expensive
- Sound advice from experienced EMS
- UK EMS Co's generally don't own IP

DFM & New Product Introduction

3. Rapid prototyping

– Case study – Link Research

- Fast turnaround prototypes
- Early sight of BOMs
- Open book procurement
- High degree of change
- Relationships

DFM & New Product Introduction

3. Rapid Prototyping - continued



DFM & New Product Introduction

4. Closing the loop

- Manufacturing feedback
- Recovery of Materials
- WEEE, End of life and Disassembly
 - 98 million cell phones in 2005
 - 50 million tons/yr electronic waste over all sources globally – landfill

(Source – National Geographic January 2008)

DFM & New Product Introduction

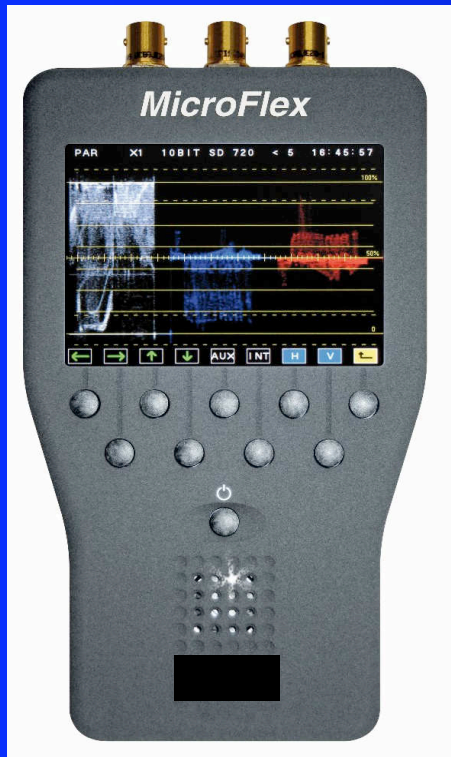
5. Time to Market

– Case Study – Company Z

- Exhibitions & Regular new product intro. Modular Design for future-proofing
- Fast track prototypes. Mechanical design
- Carefully planned design cycle
- World Market leader + many industry awards

DFM & New Product Introduction

5. Rapid Prototyping - continued



Main Topics

- ~~The Time to Market myth~~
- ~~DFM and New Product Introduction~~
- Production future-proofing
- Choosing your HVM Partner

Production Future-Proofing

- EMS Co's should ensure future investment in equipment will guarantee a period of sustained product development from the whole customer base.

Main Topics

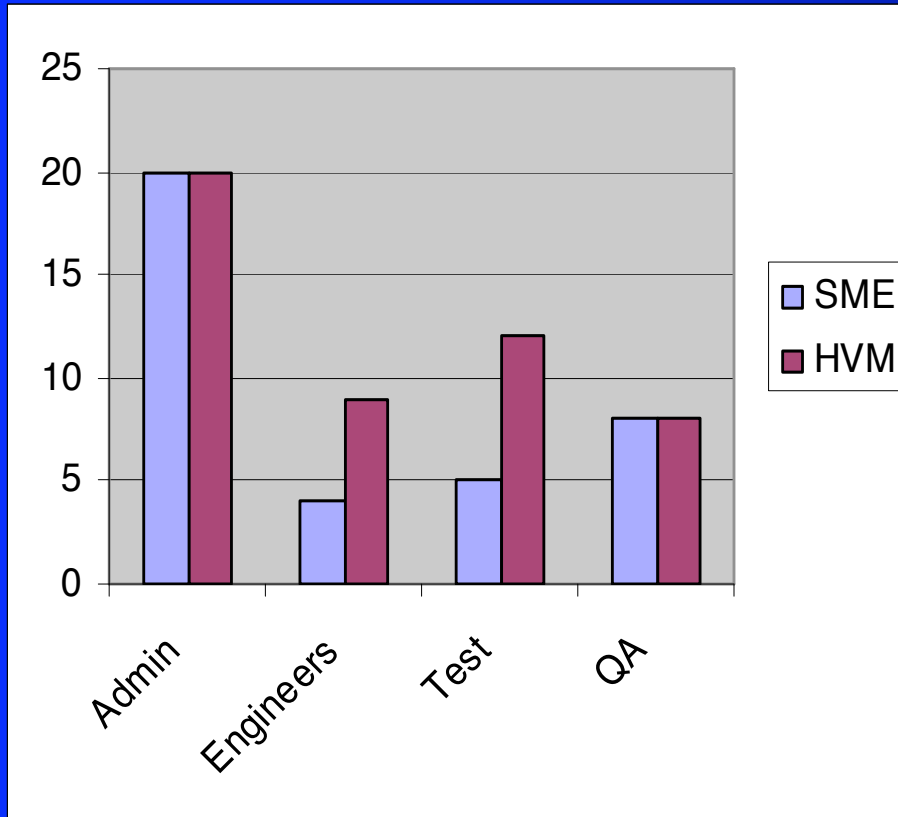
- ~~The Time to Market myth~~
- ~~DFM and New Product Introduction~~
- ~~Production future proofing~~
- Choosing your HVM Partner

Choosing your HVM partner



- **Equipment geared around flexibility and quality**
- **Able to provide high response to change**
- **Continually able to deliver on time**

Choosing your HVM partner



- Able to provide a lifetime engineer
- Focus on test and engineering capability
- Contribute towards reducing cost of ownership
- Provide a broad skills base

Main Topics

- The Time to Market myth
- DFM and New Product Introduction
- Production future proofing
- Choosing your HVM Partner

Summary

- **Time to Market – Time Pacing**
- **Early exposure to manufacturing**
- **Seek advice on DFM**
- **Future-proof design where possible**
- **Consider Disassembly, end of life & WEEE**
- **Develop EMS Partner for long term**

What we do

- **Dedicated EMS provider. No IP**
- **£8m turnover with 90 staff**
- **20 staff involved in NPI eng. and test**
- **Small to medium volume HVM only**
- **Operating from 2 sites in Bedford**
- **Privately owned. 2 shareholders**



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Markets we serve

- **RF & wireless broadcast**
- **Gas & flame detection systems**
- **Data logging & information retrieval**
- **Peripheral medical**
- **Agricultural**
- **Industrial & instrumentation**

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THANK YOU



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