

# Small Business Manufacturing in a Global Environment

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1

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## Introduction

Hard times for small  
U.S. manufacturers:

- ✓ Out produced
- ✓ Out innovated
- ✓ Out priced by our  
foreign competition



A machinist operates a lathe in 1942 at Consolidated Aircraft.

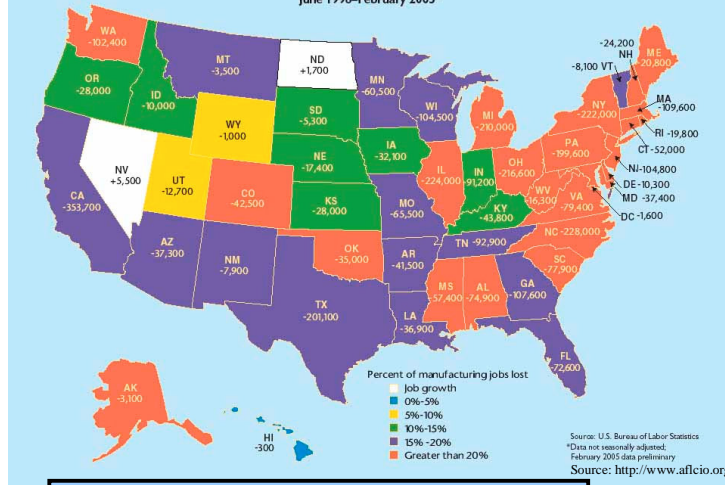
**Since 1998, nearly 3 million U.S. manufacturing jobs have been lost, many due to offshoring**

2

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THE STATE CRISIS: MANUFACTURING JOBS LOST

June 1998-February 2005\*



Number of Jobs Lost in NY: 222,000

3

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Consumer Goods are Gone  
Forever

- Wal-Mart imports \$15 billion per year from China
- 45 days to ship from China to Detroit



The Pied Piper of Offshoring

4

## Failure is the Rule, Not the Exception

"... it is readily believed ... that failure of organizations is abnormal. But in fact, successful cooperation ... is the abnormal, not the normal, condition. What are observed from day to day are the successful survivors among innumerable failures."

→ 1938, Chester Barnard, *The Functions of the Executive*

Managing a business is "easy", surviving is very hard. <sup>5</sup>

## Situation Assessment

Understand your customers, your own capabilities, and your competitors, including those offshore.



Evaluate strengths and tactical weaknesses of offshoring <sup>6</sup>

## Offshoring Advantages

High costs of domestic manufacturing:

- ✓ Healthcare insurance
- ✓ Litigation
- ✓ Energy
- ✓ Unionized labor
- ✓ Executive salaries
- ✓ Environmental regulations
- ✓ Taxes
- ✓ Healthcare

Domestic production & nonproduction costs continue to skyrocket

7

## Disadvantages of Offshoring

- • Longer supply chains
- Lower supplier reliability
- Greater financial risk
- Variable quality
- Slower delivery
- The instability of some foreign governments
- Intellectual property theft
- • High employee turnover
- Public and employee backlash from the loss of American jobs.
- Increasing cost of fuel
- Changing cost of goods due to the fluctuation in the U.S. dollar
- Transportation strikes
- More difficult communication
- Reduced flexibility
- Reduced responsiveness

Offshoring is no silver bullet

8

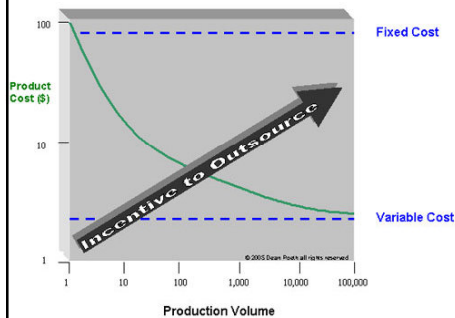
## Some Offshored Operations are Returning

- “Half the organizations that shifted processes offshore failed to generate the financial benefits they expected” (source: Harvard Business Review, 12/05)
- “Boston Consulting Group and Gartner predicted that 50% of the offshoring contracts would fail to meet expectations” (source: Harvard Business Review, 12/05)
  - GE moving some overseas operations from India back to U.S. (source: Time-Compression Technologies, March 2005)
  - Playmobil is moving offshored production back in-house (source: Harvard Business Review 12/05)
  - Lightwedge moved manufacturing in China back to Virginia (source: USA Today, 12/02/03).

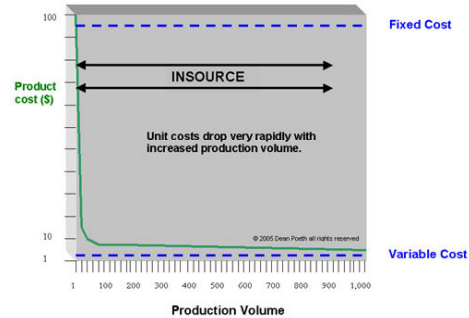
Not every product is offshorable

9

## Product Unit Cost Vs. Production Quantity



High volume?  
Goodbye America;  
hello China

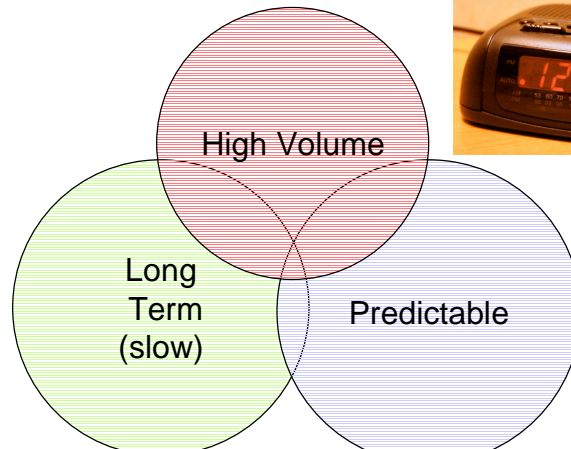


Low volume?

Adapted from DeGarmo 1997

10

## Offshored Product Characteristics



Products like this clock-radio are well suited for offshore manufacturing.

Don't push on this rope

11

## Opportunity

- Shift business focus 180 degrees:  
Target products/customers that require
  - A) Fast response
  - B) Low volume (short run)
  - C) High customer interaction
  - D) A business cornerstone (high criticality/risk)

Place your bets here

12

## A) Fast Response Requirement

- Speed is a significant advantage for the small domestic manufacturer
  - Product lifecycles decreasing at light-speed
  - Customers with urgent needs



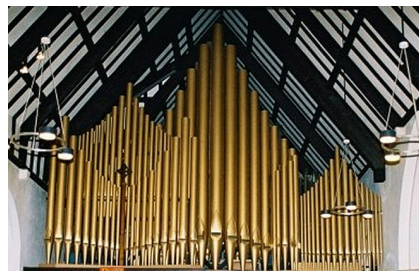
The US military urgently needed armor kits to protect the High Mobility Multipurpose Wheeled Vehicle (HMMWV or Humvee) during operation Iraqi Freedom.

***Speed trumps low cost***

13

## B) Low Volume Requirement: Small-lot Manufacturing

- Manufacturing a product offshore is, by its nature, inflexible
- Not economical when every part is slightly different
- Not economical for *custom* products



Every pipe in a pipe organ is different.

***Customer needs change, sometimes weekly.  
Use those changes to your advantage.***

14

## C) High Customer Interaction Requirement (customer service)

- Close to your customers
- Customer contact
- Design/manufacturing collaboration



The fitting of a prosthetic requires close interaction between the designer, manufacturer, and customer.

Focus here

15

## D) Business Cornerstone

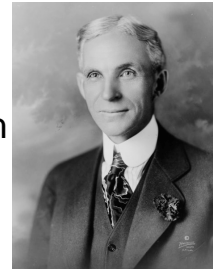
- Critical to your Customer's success
- Any problem and they fail
- Production is difficult
- "Failure is not an option" - Gene Kranz
- They must maintain control

Offshoring? Let the buyer beware.

16

## Hands-on Skills

- Managers need strong hands-on skills
  - Who ever heard of a football coach who never played football?
- Engineers who are experts at Pro-E but can't change a watch battery



Henry Ford, founder of the Ford Motor Company, had excellent hands-on skills.



**Hands-on training for managers and engineers**



**Get managers and engineers on the factory floor**

17

## For the Small Manufacturer:

- Target products/customers that require
  - Fast response
  - Low volume
  - High customer interaction
  - High criticality
- Managers and engineers with strong hands-on skills

**To Compete and Win in a Global Environment**

18

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- Barnard, Chester I., The Functions of the Executive, Harvard University Press, 1938.
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