



# Challenges facing the manufacturing sector

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## Impact of Globalization (coupled with the Digital Revolution)

- ◆ Market protection through Quotas and Levees are getting dismantled
- ◆ Lead times have shrunk
- ◆ Operational inefficiencies can not be hidden
- ◆ Leveraging Information and Communication Technologies is a must for business survival



# Impact of Globalization (coupled with the Digital Revolution)

calling for

- ◆ Market Segmentation
- ◆ Market Innovations
- ◆ Global Benchmarking
- ◆ Intellectual Property as the key asset

High Quality, Low Cost is the basic norm

# Market Segmentation: Oil and Gas Industry

Oil prices remained low during most of the 1980s and 1990s. Leading firms resorted to conventional measures such as asset restructuring, cost cutting and technological innovation. However results have been lackluster.

A Few success stories ..

Renaissance  
Energy, Canada

Concentrated on Canada and acquired in-depth knowledge about oil and Gas fields; most successful explorer

Shell

Concentrated on Deep Water Exploration and Production; Most successful Deepwater player in the world now.



# Market Segmentation: Automotive Industry



Germany

**Concentrated on Precision  
Engineered High value high  
powered cars**

Korea

**Focused on mass produced  
low value small cars.**

# Technology Led Innovation



**The  
American  
Textile  
Industry : a  
Case Study**

**USA is the  
world's second  
largest cotton  
producer**

- **The Epitaph for America's Textile and Garment Industry was written decades ago. It is a Sunset industry.**
- **Only Tariffs, Quotas and other barriers have sustained it so far.**
- **Textile Mills are moving to Mexico**
- **Employment is dropping and so is share of locally manufactured goods.**
- **It was predicted ten years ago that only the Designers and the Distribution Centres will be in USA.**

# Technology Led Innovation



The  
American  
Textile  
Industry : a  
Case Study

A ray of hope :  
Technology to  
the Rescue

- **Already Electronic Ordering, Automated Distribution Centers and Inventory Management Systems tied to Customers are in place.**
- **Lean Retailing is in place.**
- **Now comes the Technology of “Lots of One “.**
- **Body Scans to capture customers size and shape.**
- **Online systems giving choice of design and cloth to the customer**
- **Custom made clothes delivered in a few days at home.**
- **Reduction in Stock out costs and unsold stocks to compensate for the labour advantage of other countries.**

# Market Innovation

Cross Selling of  
Products

Uses Web based  
technologies :

Uses a process called  
Collaborative Filtering to  
let a customer know what  
like minded persons are  
buying.

**Amazon.com**





# Innovation in Product Design

## Think Win Win

- ◆ Mechatronics
- ◆ Sony Walkman design

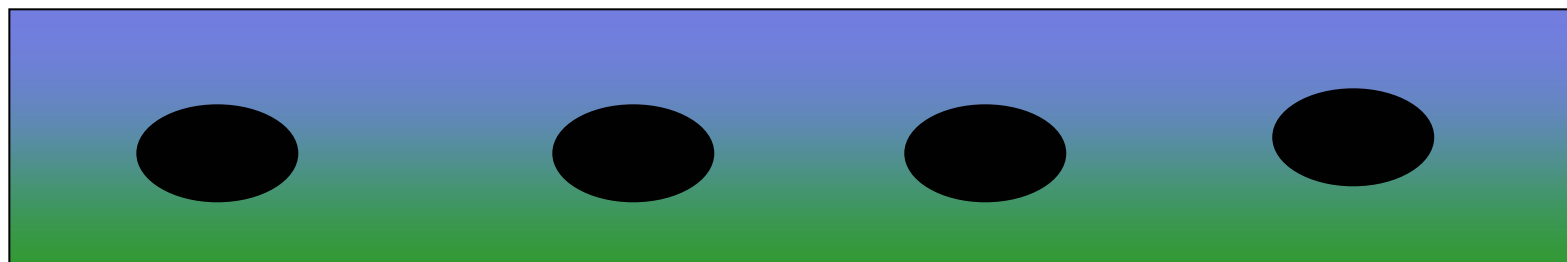
	Old Design	New Design
	-----	-----
Mech.Parts	97	45
Assembly		
Workers	60	10
Assembly		
Time Index	100	33
Price \$	39	32





# Bundled Services at GE

**Earlier Jet engines were sold as products; Now for a bundled fee GE sells**



**Guaranteed level of Engine uptime for the contracted period**

**Parts, repairs**

**Replacement engines**

**Financing**

**Now GE is in the business of selling Thrust Services; It has a backlog of such multiyear contracts worth about USD 20 billion**



# Paradigm Shift

1. Make to order vs Make to stock
2. Minimal forecasting
3. Integrated Order Management and Production Planning and scheduling
4. Collaborative design, procurement



# DELL and the PC Industry

1992 was the year in which the big players like IBM and APPLE decided to join and lead the price war in the PC industry. Prices were slashed upto 30 % across all brands leading to industry wide shakeout. Only the cash rich and the most efficient manufacturers could survive.

*DELL was an aggressive player who had built its business through mail order selling and a cost efficient assembly line. It bought out most components. It had to respond soon to survive.*



# DELL and the PC Industry

DELL chose to use the internet for total CRM with an online ordering and follow up system

Dell's brilliance:

- Dis-intermediation through net thus cutting costs further
- collect cash in advance
- completely custom built solution for every customer
- made to order; no inventories

## **SCOR Level 1**

### **Performance metrics :Supply Chain Management**

	Customer-Facing			Internal-Facing	
	<i>Supply Chain Reliability</i>	<i>Responsiveness</i>	<i>Flexibility</i>	<i>Cost</i>	<i>Assets</i>
Delivery performance	✓				
Fill rate	✓				
Perfect order fulfillment	✓				
Order fulfillment lead time		✓			
Supply Chain Response Time			✓		
Production flexibility			✓		
Total SCM management cost				✓	
Cost of Goods Sold				✓	
Value-added productivity				✓	
Warranty cost or returns processing cost				✓	
Cash-to-cash cycle time					✓
Inventory days of supply					✓
Asset turns					✓



## SCM Metrics for sample set of firms in India

Firm	Cash to Cash cycle	Inventory (days)	Asset turnover ratio	ROCE
Madura Coats	93.57	98.06	1.25	0.54
TISCO	44.01	93.09	0.53	9.13
Siemens	4.72	64.97	2.80	36.45
Aventis Pharma	72.99	84.54	2.22	35.62
Cadbury India	12.25	65.91	2.50	33.24
Whirlpool	13.18	53.61	1.69	9.74
Hero Honda	-16.80	13.84	7.64	90.42



# Steel Industry

**Steel industry has remained in slump for decades. Worldwide glut in production capacity has resulted in annual real price decrease of 2.7 % for two decades. Consolidation has been the conventional solution.**

**European steel makers have some innovative solutions..**



# Global Benchmarking :Steel Industry



Usinor spent USD 8.1 m on an artificial intelligence system to control furnace temperatures better thereby extending useful plant life from 9 years to 14; cut emissions of greenhouse gasses and conserved fuel.

ThyssenKrupp Stahl spent USD 287 m to eliminate second rolling phase ; to slash production time and to save energy costs



# Global Benchmarking :Steel Industry

TISCO has emerged in 2000 as the lowest cost producer of steel in the world. Continues to maintain that lead till date.

Thus paving way for its return to profitability and sustained growth

# Global Benchmarking :Retail Industry

Wal-Mart has leveraged Information Technology to cut inventory, gain sourcing advantage, feel the customer pulse to be the lowest cost supplier of a variety of goods .

Is the largest company in the world in terms of sales revenue.

Continues to innovate on SCM



# Global Benchmarking Passenger car Industry

Tata Motors has cut the R &D, Design and Product Engineering costs to 500 m USD ( one fourth of the cost incurred by international auto makers ) and break even period from 8 to 4 years.



# IP as the Key Asset Schlumberger

Schlum has focused on Geological data analytics to map out the oil field with accuracy

And made its business on data gathering and drilling for exploration secondary



# IP as the Key Asset Cut Flower Industry

Holland has become the center of world trade in Cut flowers by investing in Production of High Yield seeds, knowledgeable in Freshness preservation etc



# IP as the Key Asset

## Pharma industry

Dr.Reddy's Laboratories, Ranbaxy and BioCon have chosen the R &D route to own product patents to capture local and global markets





# New Era Leadership ( according to Peter Drucker )

- ◆ **Upwardly Communicating Organization**
- ◆ **Two way Communication with Customers**
- ◆ **Market Creation**
- ◆ **Eliminate Processes**



# New Era Leadership

**The Way we see the Problem  
Is the Problem .**

**Steven Covey**



# New Era Leadership

**The significant problems we face  
can not be solved at the same level  
of thinking we were at when we  
created them .**

**Albert Einstein**

