

The Future Auto World: Round or Flat?

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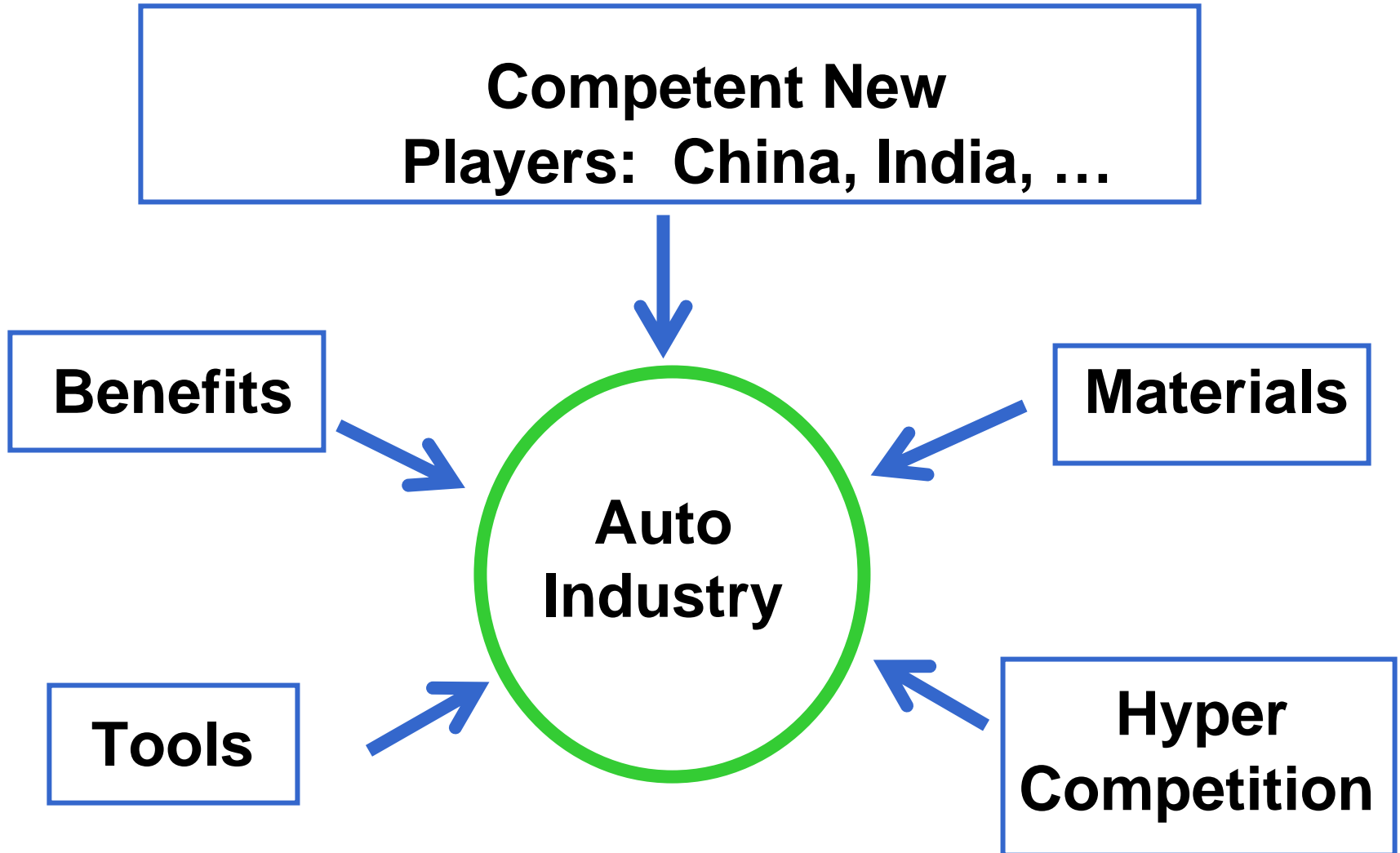
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The Perfect Storm



Auto Industry of the Future

**A World of
Vanishing Boundaries**

“Boomers go Boom”

- ◆ Consumer Behavior
- ◆ Socio / Political
- ◆ Health Care
- ◆ Skilled Workers
- ◆ World Issue

Auto Industry—Like Pro Football

Everyone is Fast and Hits Hard

Excellent Players-

- ◆ TAM's – Traditional American Manufacturers
- ◆ NAM's – New American Manufacturers

Competition

Relentless

Unforgiving

Domestic Manufacturers

Face \$2,000 - \$ 2,500

Cost Penalty

Difficult Times But Survivable

- GM
- Ford
- DaimlerChrysler
- Delphi
- Visteon
- Traditional Suppliers

Any Organization -

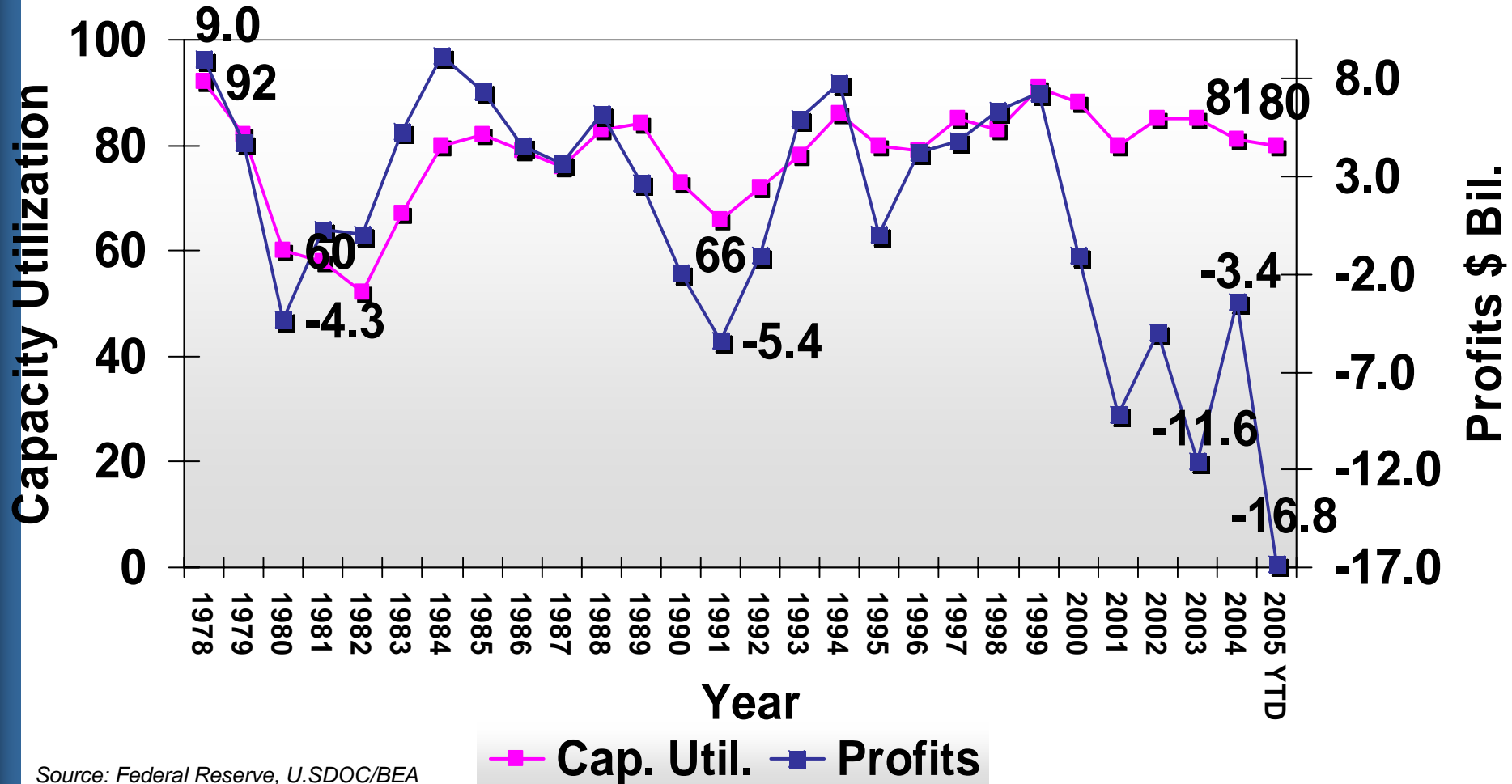
- ◆ Private or Public
- ◆ Stable Employment
- ◆ Old
- ◆ Defined Benefit
- ◆ Pension and/or Health Care

- *Has a Problem* -

Industry, Highly Unstable — Not in Final Form

There is Good News & Bad News: We Have a Crisis

U.S. Automotive Industry Capacity Utilization and Profits 1978 – 2005



Source: Federal Reserve, U.S.DOC/BEA

The Old Business Model is Broken

It's Change or Die & Shrink to Grow

Auto Industry 2007

- ◆ Successful manufacturers and suppliers
- ◆ Strong market
- ◆ Great products
- ◆ But—not everyone made it

The Future —

It's not what it used to be

Economic Contribution of the U.S. Automotive Industry

- ◆ Manufacturing
- ◆ Retail

Auto Manufacturing

Manufacturers 500,000 + jobs

Suppliers 1,800,000 + jobs

R & D Spending . . . \$18+ billion

Economic Contribution Per Job

Auto Mfr.	\$292,000
Average Job	\$ 73,500
Average Mfg.	\$120,000

Economic Multiplier

Auto Manufacturers – 7.5

New Vehicle Dealers – 2.5

Foundation for Excellence

- ◆ Smarter Industry
- ◆ Platform / Component Set Rationalization
- ◆ Faster, Better Product Development
- ◆ Manufacturing Flexibility
- ◆ Stronger Processes
- ◆ Discipline
- ◆ Supplier Competence
- ◆ Lean Everything

Market Share is Nice

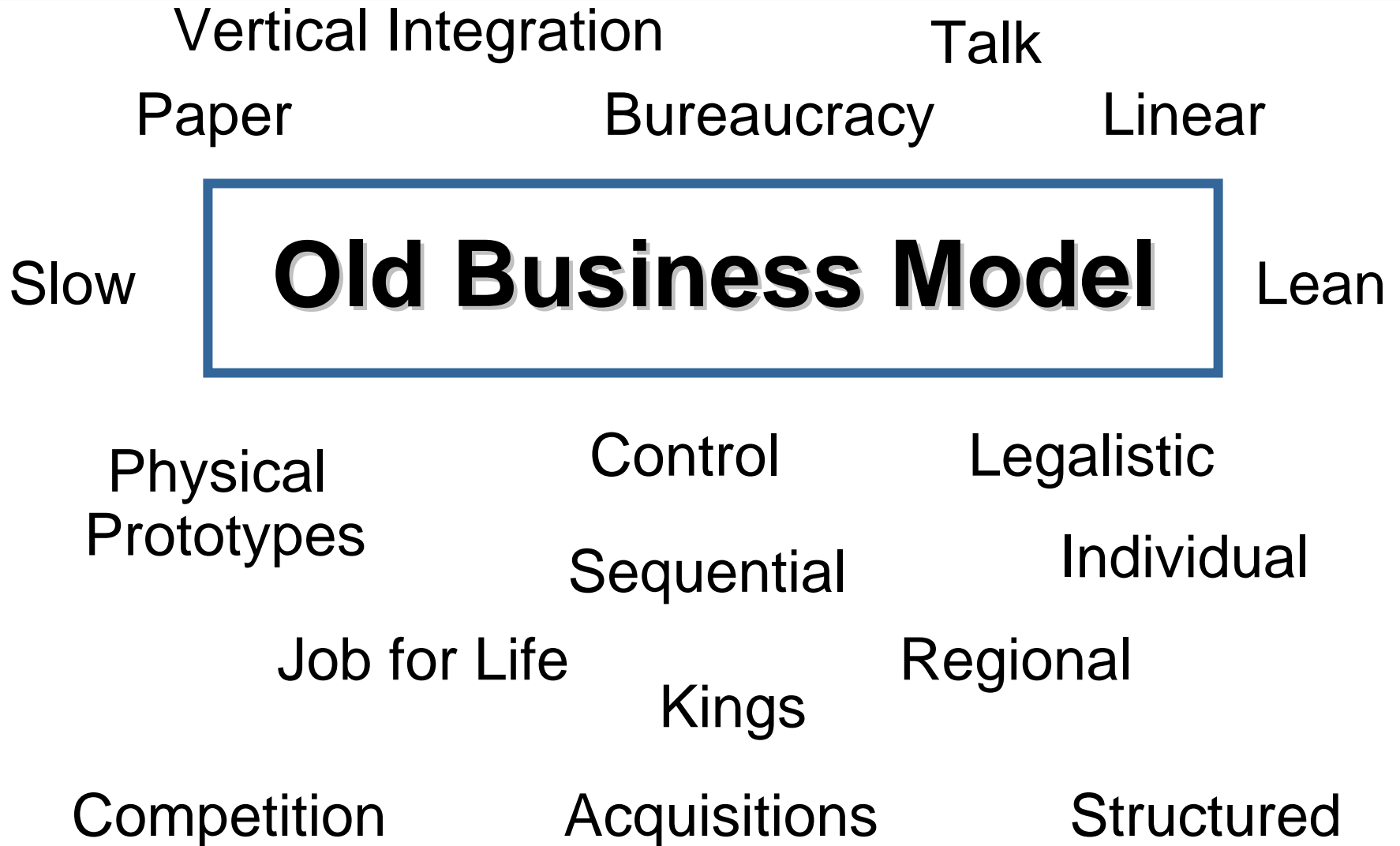
Profits are Essential

Future Profits

- ◆ Price Increase
- ◆ Market Share
- ◆ Cost Reduction

Cost Reduction — Survival Issue

- ◆ Low Investment
- ◆ Subsystem Optimization
- ◆ Global Sourcing
- ◆ Flexible, Lean Manufacturing
- ◆ Fast Product Development
- ◆ High Volume Platforms and Component Sets



Virtual Integration

Listen

Paperless

Anti-bureaucracy

Collaboration

Fast

New Business Model

Lean
Agile

Virtual
Prototypes

Empowerment
e-enabled

Trust
Team

People Flow

Coaches

Parallel
Global

Coopetition

Alliances

Flexible

New Business Model

- ◆ Auto Industry
- ◆ Industry
- ◆ Education
- ◆ Health Care
- ◆ Government

Lean / Agile

- ◆ Investment
- ◆ Engineering
- ◆ Manufacturing
- ◆ Everything

Examples: New Business Model

- Ford/GM Transmission Collaboration
- GM – DCX – BMW Hybrid Collaboration
- DCX – Toledo Plant
- GM Body Tooling
- Tool and Die Consortia
- Toyota Reinvention

Old Labor/Mgt Model Is Obsolete

Confrontation → Collaboration

Knowledge

The Competitive Edge

**It's nice to be smart and rich,
but smart is more
important than rich.**

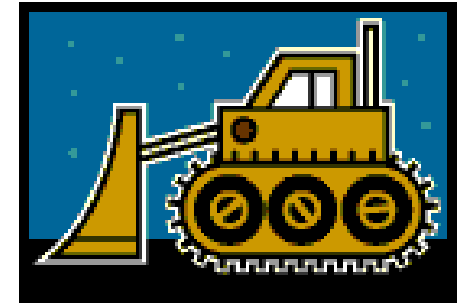
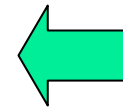
**Customer
Pull**

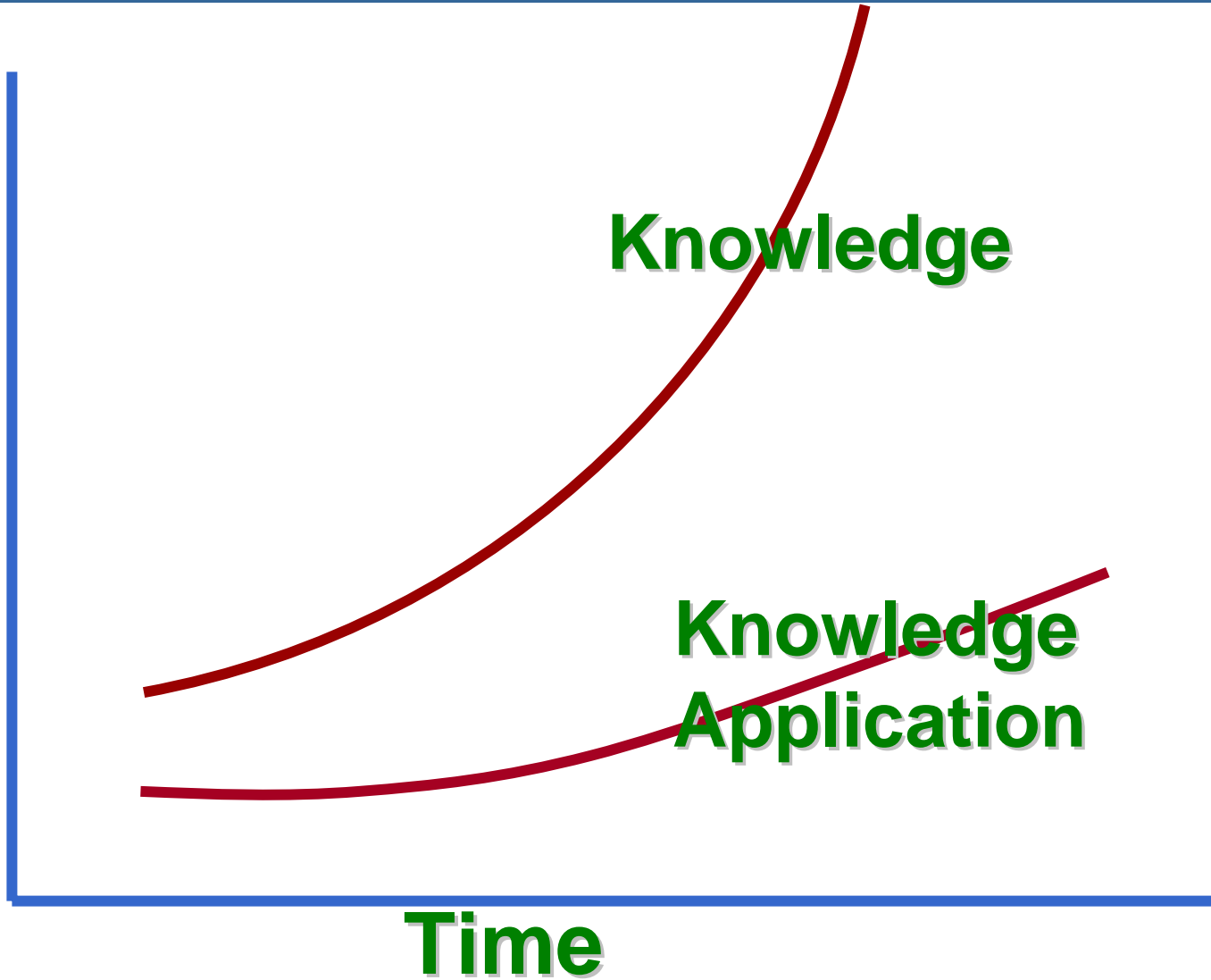
**Cars
and
Trucks**

**Technology
Push**



**Product
and
Process**





 **TIME** 

Fast

Spectator

**Have a
chance**

Slow

Dead

**Parade
has gone**

Dumb

Smart

Faster

**The
Future**

Fast

Smart

Smarter

Fastest

**Winner
(temporarily)**

Faster

Smarter

Smartest

Fast-paced change demands leverage of all resources

Communication

Collaboration

Cooperation

Alliances

Teamwork

Change is Tough
Not Changing is Tougher

It's All About People...

Relationships Are Important

The Future

- ◆ What will happen
- ◆ What we *think* will happen

2009

Passenger Cars	32
Light Trucks	26

Product Technology

At the edge of a revolution?

Future Power Plants

- **Gasoline**
- **Diesel**
- **Hybrid**

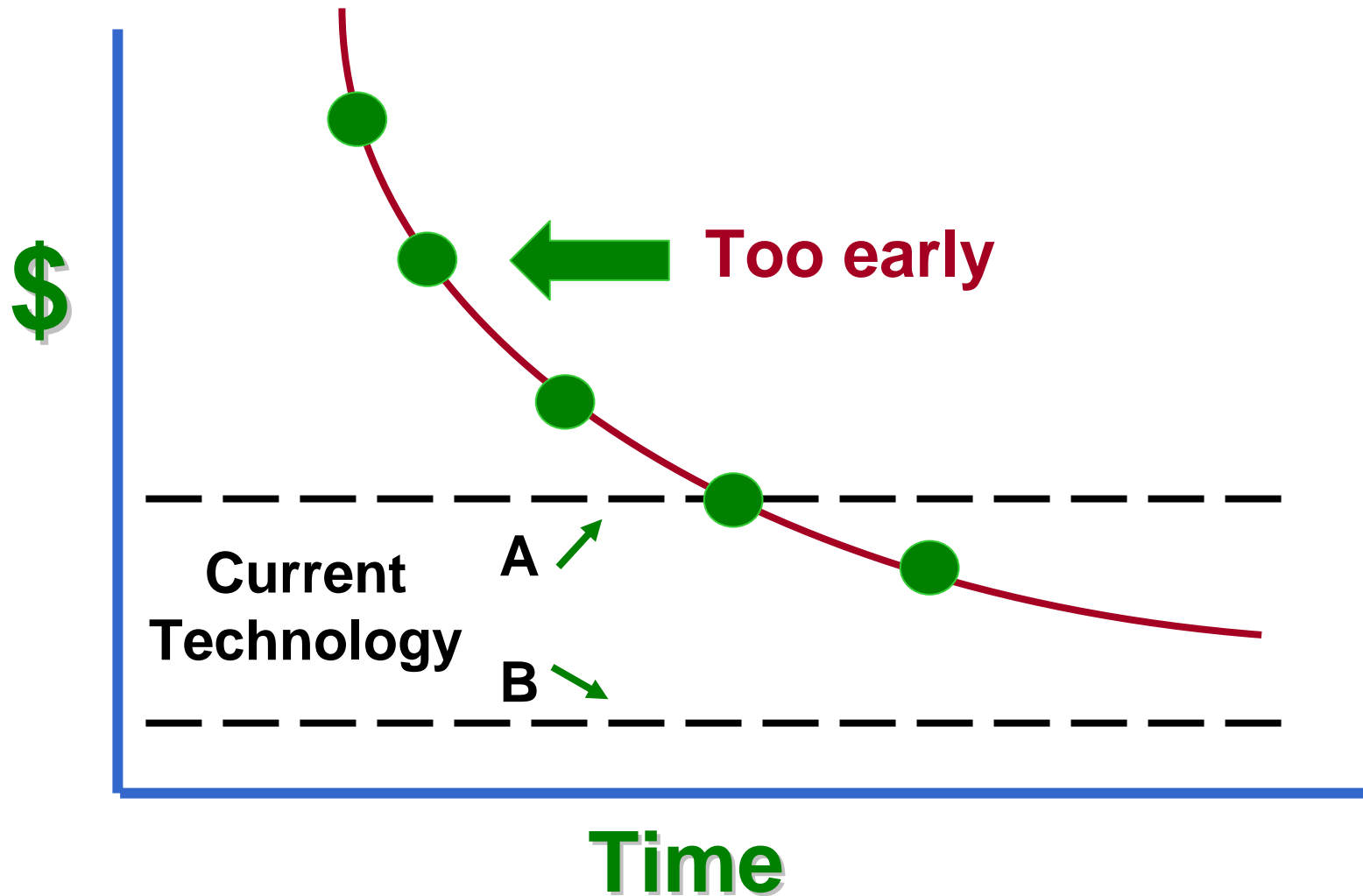
The Answer – ?

- **Petroleum**
- **Bio**
- **Hydrogen**

The Answer – ?

**Future Gasoline Price –
\$ 1.50 – \$ 3.50 /gallon**

Technological Progress—When to Commercialize



Electrical / Electronic Content

	Current	2009
Total Combined E/E	20	31.5
Electronic Content	10	20

Future Direction

It's All a Matter of Economics

Auto World — 2006+

- ◆ A Few Big Dogs
- ◆ Consolidation Continues
- ◆ Subsystem Optimization
- ◆ Super Suppliers – Tiers 1 & 2
- ◆ Lean — Agile
- ◆ Fast, Smart, Rich, Global
- ◆ Technology Revolution

World Class is a Moving Target