State of the North American Pulp & Paper Industry
– An Update & Outlook –

Industry Competitiveness &
Transform To Survive & Dominate

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Overview

- The N.A. Industry – An Update – How Competitive?
- Enterprise Transformation . . .
  - ✓ The Context
  - ✓ Grasping The Potential Value – The Rationale
  - ✓ Key Elements
  - ✓ Illustrations
  - ✓ Framework
- Recap and Final Thoughts

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The N.A. Industry
– How Competitive? –

How Competitive?

- **North American Paper Industry:**
  - ✓ **Remains one of the largest world regions for paper consumption and enjoys significant fiber resources . . .**
  - ✓ **Competitiveness has been boosted by weaker U.S. dollar, *but is being strained by aging assets . . .***
  - ✓ **Has enjoyed a moderate, cyclical upturn, but solid returns are still lagging & *volumes are struggling . . .***
  - ✓ **With prices, and financial performance improving moderately – *maybe can extend through 2006 into 2007 . . .***
  - ✓ **…Many companies *may* have – *for a time* – more resources and opportunities to invest in their businesses since 1995.**

How Competitive?

2006 Volume Down, Prices Up

North American Grade	2006 YTD Change In NA Production	2006 vs. 2005 Average Price
Printing & Writing	-1.4%	+10%
Containerboard	+2.5% boxes, -2.1% board	+26%
Boxboard	0.0%	+4%
Newsprint	-7.5%	+8%
Chemical Paper Grade Pulp	+0.5%	+27%

How Competitive?

Selected Current Prices Report – *Continuing to Improve*

Grade	Date	Latest	Year Ago	% Chg
50lb UFS *(US$/ton)*	08/2006	$865	$710	+22%
60lb #3 CFS *(US$/ton)*	08/2006	$960	$880	+9%
42# Kraft Liner *(US$/ton)*	08/2006	$515	$395-$425	+26%
30lb Newsprint *(US$/tonne)*	08/2006	$675	$625	+8%
Pulp NBSK List *(US$/tonne)*	08/2006	$770	$620	+27%

How Competitive?

- **Competititiveness Is Multidimensional:**
  - ✓ **Mill Performance vs. International Competition** ***(i.e. North American vs. South Am. vs. European vs. Asian mills' productivity and quality)***
  - ✓ **Product Performance vs. Substitutes** ***(i.e. paperboard folding cartons vs. plastic packaging – newspaper vs. TV, etc.)***
  - ✓ **End-User Performance vs. International Competitors** ***(i.e. domestic vs. international manufacturers)***
  - ✓ **Financial Performance vs. Other Investments** ***(i.e. returns on paper investment vs. alternatives of similar risk)***

How Competitive?

- **Based On These Dimensions, Industry Participants Must Recognize:**
  - ✓ **Off-shoring and substitution by alternative mediums *are driving long-term demand below current levels***
  - ✓ **North America *has become increasingly uncompetitive* in pulp and paper production**
  - ✓ **The industry's cost based competition and capital rationing strategies *have eroded its asset base.***
  - ✓ **The composite financial performance of the industry has been pitiful looking back – and without a sustained upturn will further dissuade future investment – *even with the improved short-term environment . . .***

How Competitive?

Absent Strength of the US Dollar Issues – *North America Does Not Enjoy Low Cost Producer Status In Most Grades*

Grade Category	Low Cost Production Centers
Pulp	*Brazil*, Chile, Argentina, Indonesia and *Canada* (selected)
Printing & Writing Papers	*Brazil*, Russia, Indonesia, Thailand, Scandinavia, Western Europe
Newsprint	Eastern Europe, *Brazil*, Chile and *Canada*
Premium Folding Carton Grades	*Brazil*, Russia, Sweden, Chile and Finland

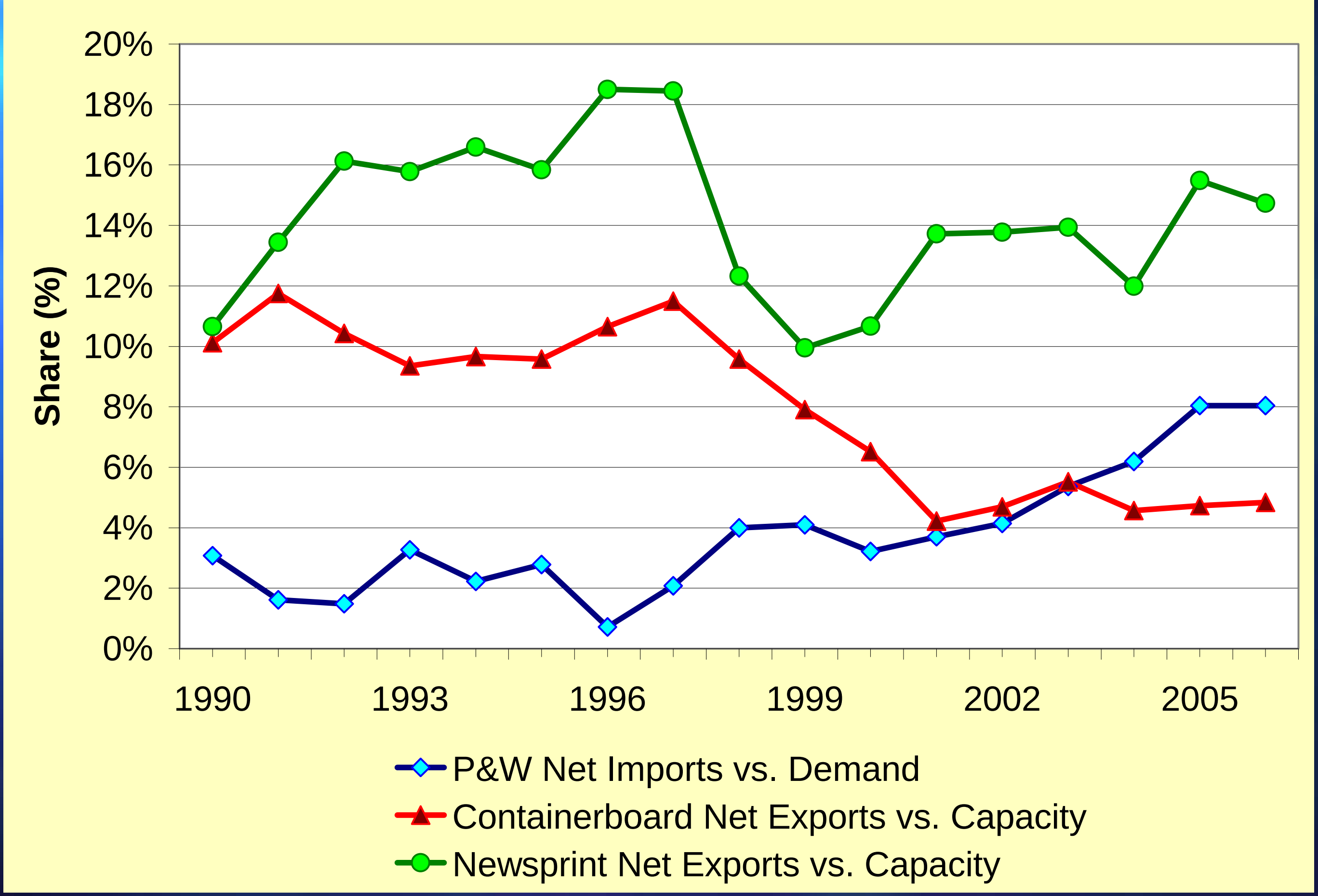
How Competitive?

High Volume North American Grades *Have Significant Substitution Threats*

Grade Category	Substitutes
Containerboard	Re-usable shipping containers, offshoring of manufacturing
Packaging Grades	Flexible packaging, offshoring of manufacturing
Printing & Writing Papers	Electronic communications, alternative advertising mediums
Newsprint	Electronic communications, alternative advertising mediums
Tissue	*No major substitutes*

How Competitive?

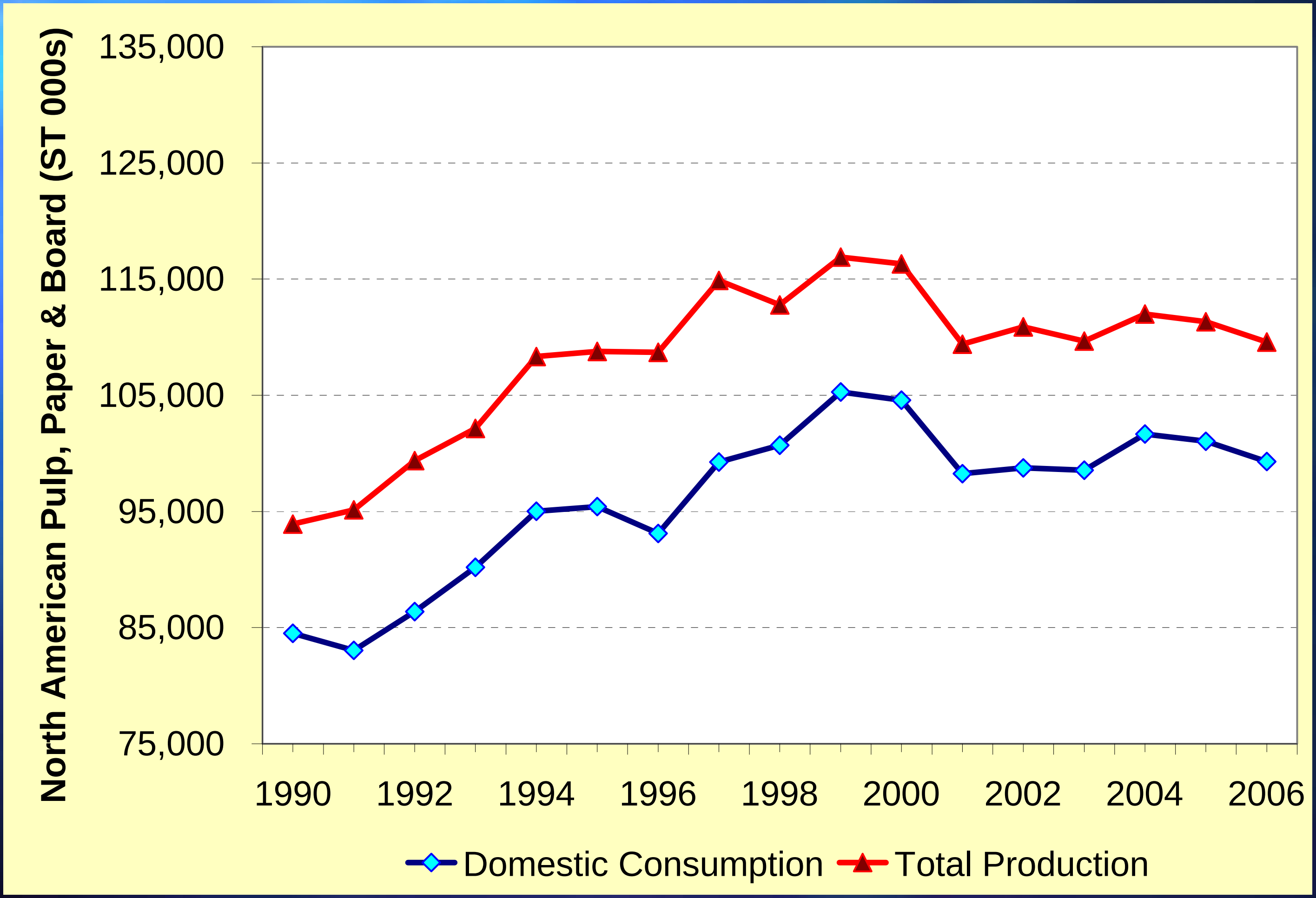
Trade Patterns Have Weakened For North American Producers In P&W, Containerboard and Newsprint



How Competitive?

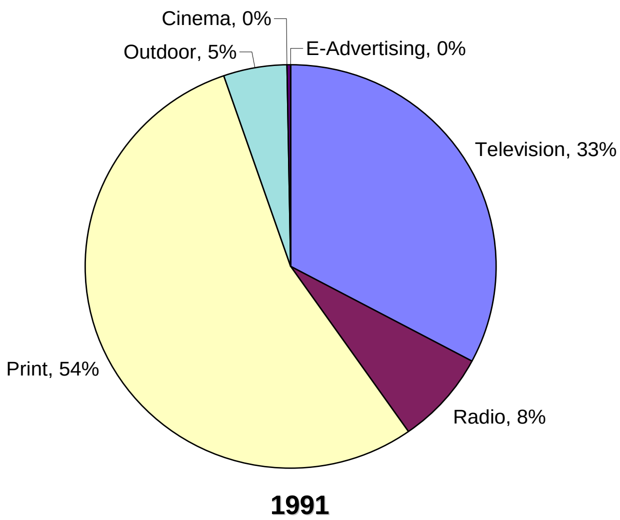
Substitutes, The Early 2000s Recession & International Competition Together Suppressed Domestic Production and Consumption

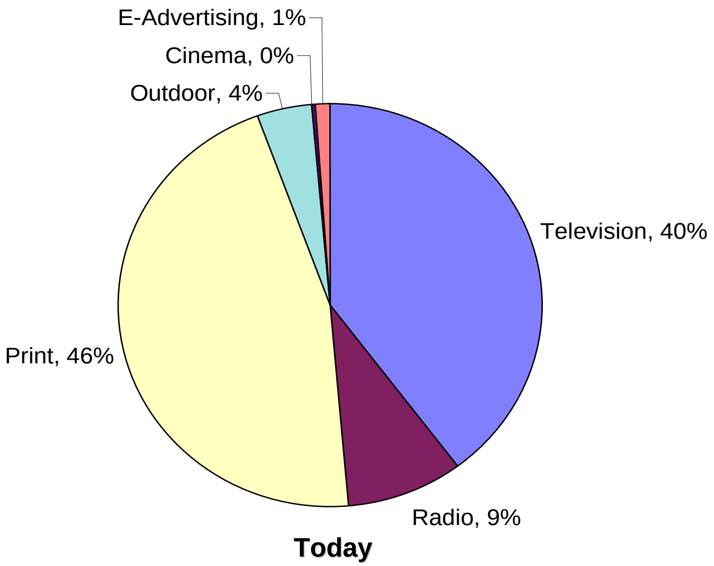
- Off 6% in 2006 From Its 1999 Peak



How Competitive?

Worldwide Print Advertising Has Lost Nearly 10 Points of Market Share Since 1991 – And Expectations Are For This Trend to Continue

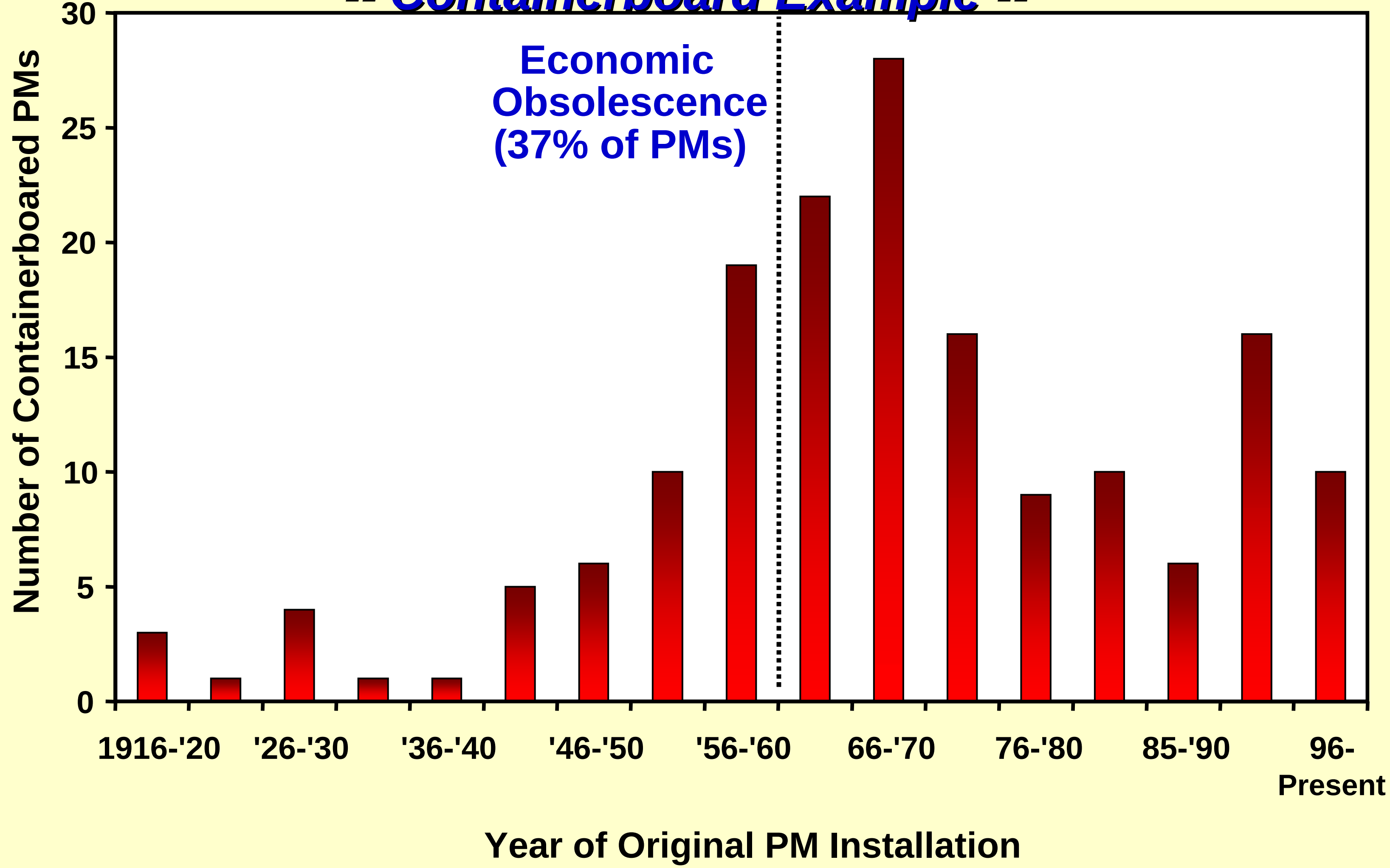




How Competitive?

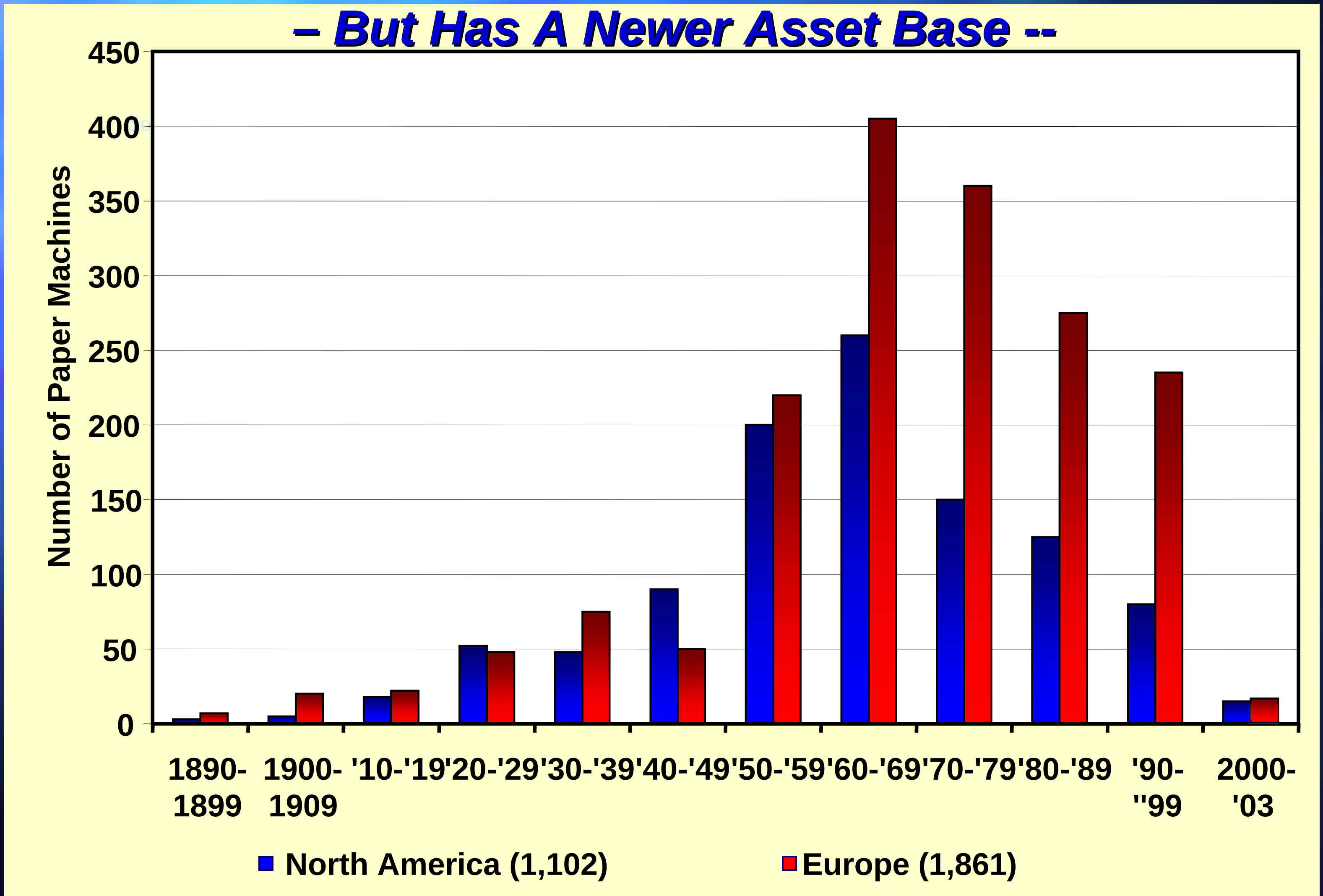
Large Share of North American Assets Are Approaching The End of Their Economic Lives

-- Containerboard Example --

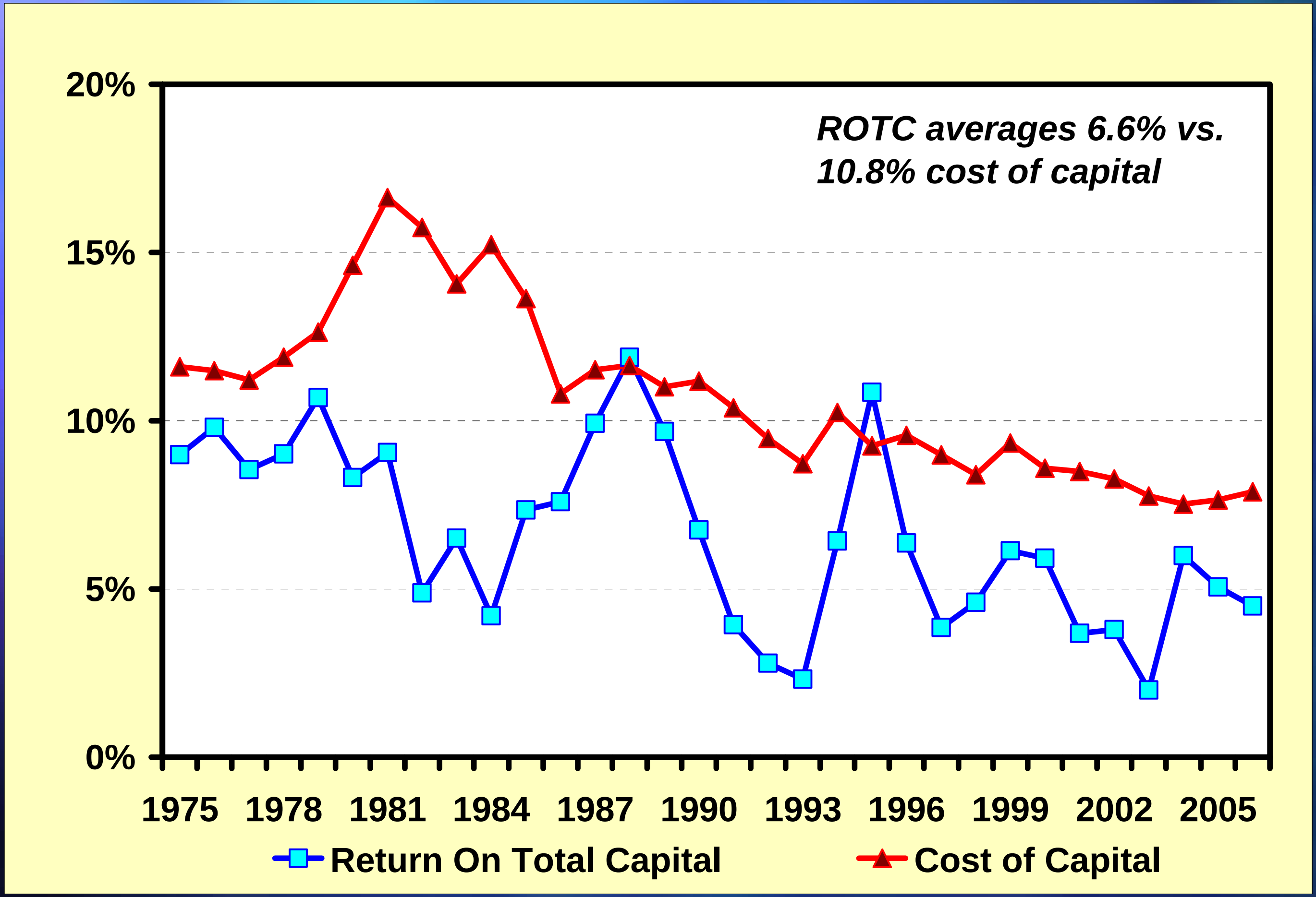


How Competitive?

Europe Is Facing Similar Demand & Competitive Issues



How Competitive?

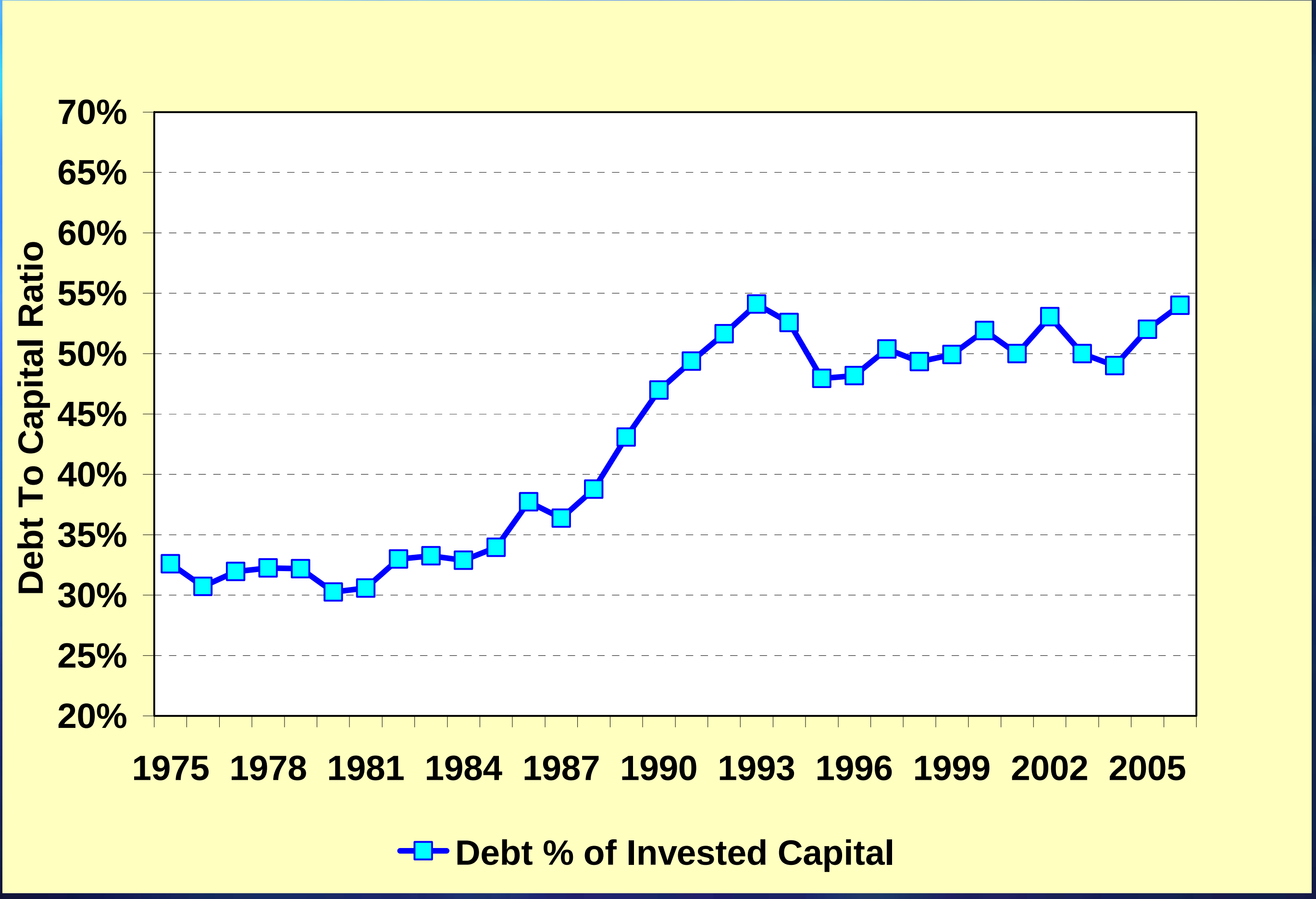


Returns Are Moderating After Approaching the Cost of Capital in 2004 / 2005 – Rational Investors *Will Not Allocate* Capital To A Poorly Performing Industry

How Competitive?

Increased Debt Levels Across Time

Significantly Limit Investment Opportunities & Flexibility



How Competitive?

- In essence then – the industry has been a poor performer since the 1970s – it faces a continually tough business environment – *in spite of today's decent upturn*
- And, as Noted – the North American Pulp and Paper Industry
  - ✓ Is *not the low-cost producer* on most grades, and
  - ✓ High-volume grades have *significant substitution and global market place threats*
- Wherein – traditional business models have been *stretched to the limit* with
  - ✓ The emergence of the *global marketplace*, and
  - ✓ The new power of rapidly moving *knowledge and knowledge transfer*

How Competitive?

- **Accordingly – participants must learn how to thrive under these often *intense, negative, and rapidly changing conditions***

…but individual companies *can* excel if they use the current short to mid-term upturn to chart a new course looking out . . .

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Enterprise Transformation

The Context

Grasping The Potential Value

Key Elements

Illustrations

Framework

Enterprise Transformation – *The Context*

- Enterprise Transformation *seems to be essential* if firms in this troubled industry sector *are to survive and dominate*
- But – typical N.A. pulp and paper companies have followed *a rather time honored & traditional approach* to enterprise management . . .
  - ✓ *That most often does not include the structures and initiatives for* consistent organizational change *and management aimed* at a persistent and ongoing process *of Enterprise Transformation*
- As a result, in part, industry performance . . .
  - ✓ *Has struggled greatly,*
  - ✓ *Investment has spiraled downward, and*
  - ✓ *Competitiveness has eroded in the global market place*

Enterprise Transformation – *The Context*

- However, individual suppliers and paper companies can leverage a sincere effort toward Enterprise Transformation to *begin to dominate, outperform and create value*
- *To understand how to embrace Enterprise Transformation as a real organizational working construct, we need to*
  - ✓ *First grasp* the value of enterprise transformation, *then*
  - ✓ *Better understand* what it is,
  - ✓ What is needed *inside our firms to allow them to establish and pursue it, and*
  - ✓ What are the key components of success or failure *in seeking a pathway driven by true Enterprise Transformation concepts, actions and outcomes . . .*

Enterprise Transformation

– Grasping the Potential Value –

An Example – *IBM's Transformation Results*

Business Process Re-engineering Results:

Hardware development time	67% Faster
On-time delivery	95%
Rate of "maverick" buying	From 45% to less than 0.5%
Customer satisfaction	+ 5.5 points

Infrastructure Simplified:

	1992	*2002*
CIOs	*128*	*1*
Data Centers	*235*	*18*
Key Applications	*145*	*55*
Networks	*31*	*1*

More – *IBM Transformation Results*

HR Operations Simplified:

	1992	*2004*
HR Operation Centers	*38*	*1*
Key Applications	*168*	*71*
HR Data Centers	*21*	*1*
HR U.S. Headcount	*3,650*	*1,438*
WW Ratio of HR/Employees	*1:59*	*1:109*

Human Resources delivering more with less through better efficiency

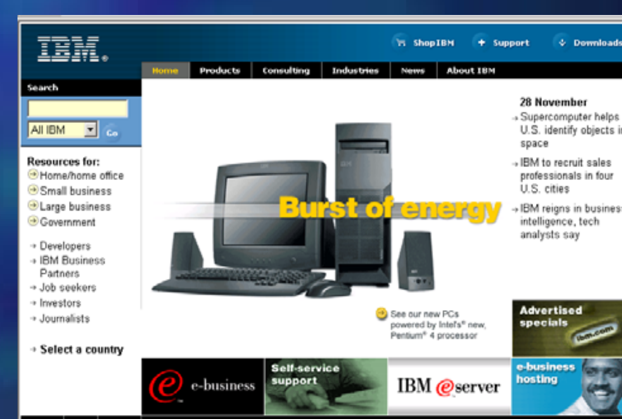
More – *IBM Transformation Results*

Operations Improved:

	FY1998	*2002*
e-commerce	*$3B*	*+$27B*
e-procurement	*$7B*	*+$40B*
Support transactions	*14M*	*+120M*
Distributed learning	*15%*	*+40%*

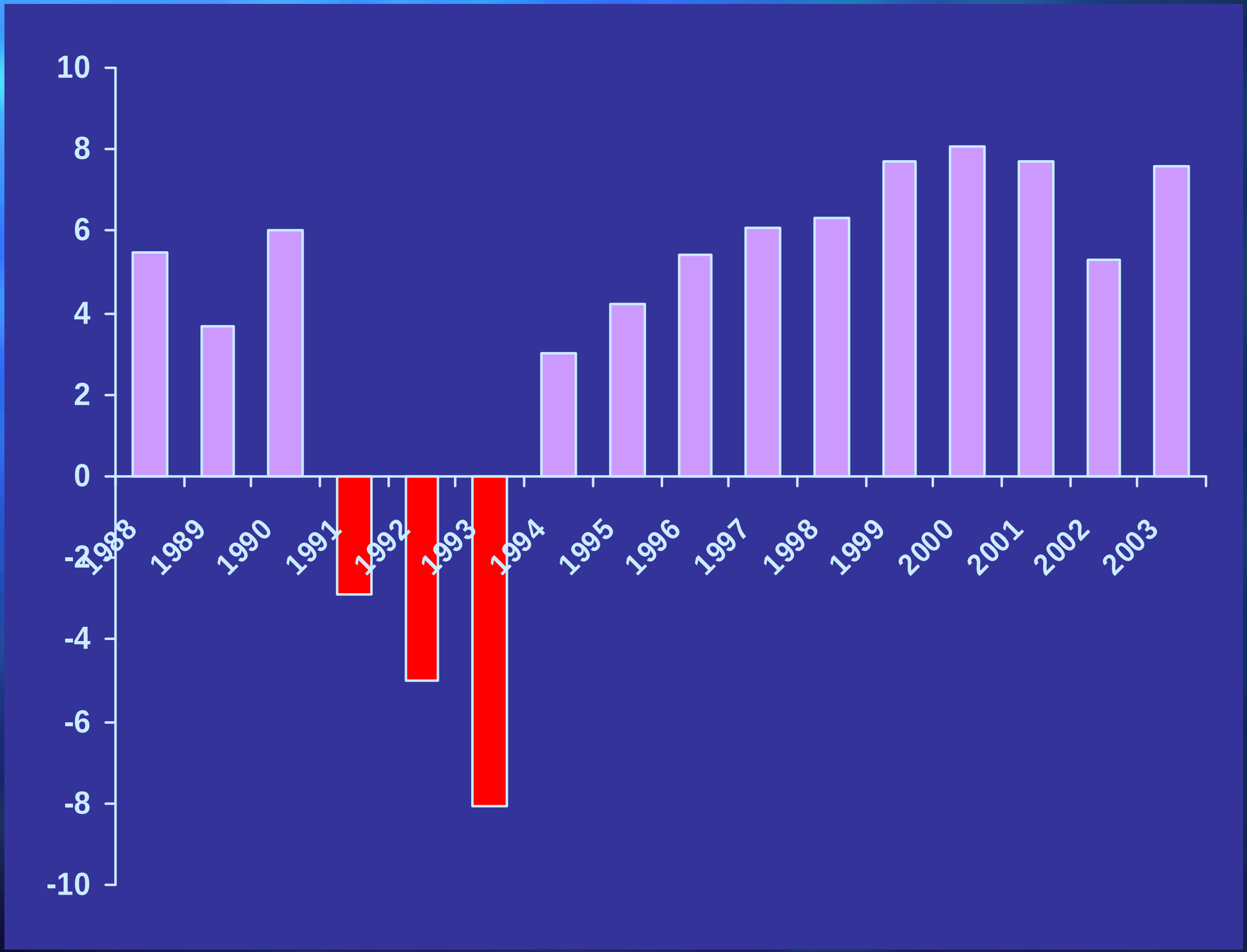
IBM Transformation Business savings:

More than $6.2B



More – *IBM Transformation Results*

IBM Net Income: 1988-2003 (*$billions*)



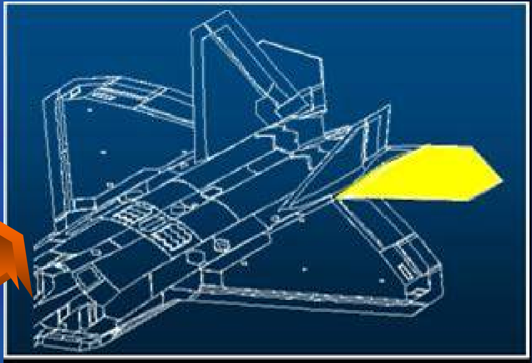
Plug Power – *External Indicators Of Enterprise Transformation Progress*

- All public milestones achieved – *5 consecutive years*
- Since 12/31/01 Market Cap Growth *has outpaced <u>all</u> competitors*
- Market indicator of *enterprise value/revenue multiple* has moved from significantly trailing the lead competitor in ’01, to becoming the current industry leader, 33% higher than the next highest multiple in the competitive group
- Recognized industry leadership – *validated by sustained new investment* in Plug Power . . .

Lockheed Martin – "Lay the Keel" for *Supply Chain Integration*

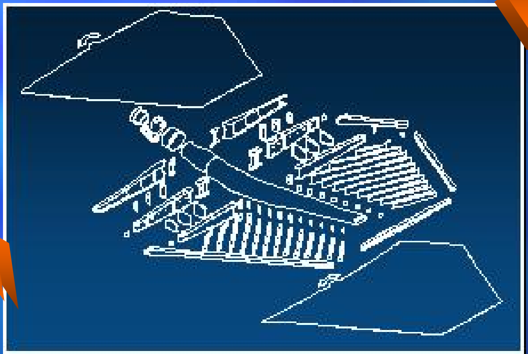
Example

Future State



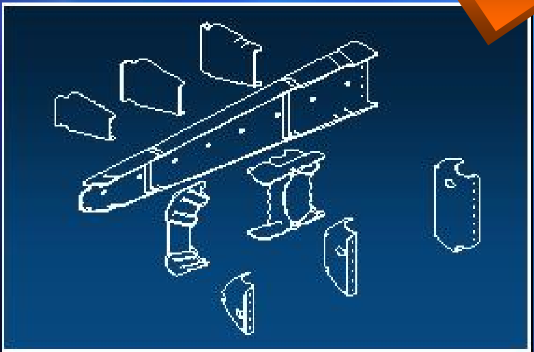
- 1,000 Suppliers
- Integrated Assembly

Transition



- 5,000 Suppliers
- Kits

Past



- 12,000 Suppliers
- Piece Parts

Enterprise Transformation *– Key Elements*

- Definition of Enterprise Transformation
- Enterprise Transformation Drivers
  - ✓ *Value Deficiencies Drive* Transformation
  - ✓ *Work Processes Enable* Transformation
  - ✓ Allocation of *Attention & Resources*
  - ✓ Management *Decision Making*
  - ✓ *Social* Networks

Enterprise Transformation – *Definition*

- Enterprise Transformation is driven by –
  - ✓ Experienced and/or anticipated *value deficiencies* that result in significantly redesigned and/or new *work processes . . .*
  - ✓ As determined by management's *decision making* abilities, limitations, and inclinations . . .
  - ✓ All in the context of the *social networks* of management in particular, and the enterprise in general . . .

Value Deficiencies – Drive *Transformation*

- Experienced or expected downside losses of value, e.g., *declining enterprise revenues and/or profits*
- Experienced or expected failures to meet projected or promised upside gains of value, e.g., *failures to achieve anticipated enterprise growth*
- Desires to achieve new levels of value, e.g., *via exploitation of market and/or technological opportunities*

Work Processes – Enable *Transformation*

- **Improve how work is currently performed, e.g., *reduce variability***
- **Perform current work differently, e.g., *web-enable customer service***
- **Perform different work, e.g., *outsource manufacturing and focus on service***

Allocation of Attention & Resources – *Key to Transformation*

- Anticipate and adapt to changes of external variables, i.e., *control the enterprise relative to the* "road ahead" *rather than the* "road behind"

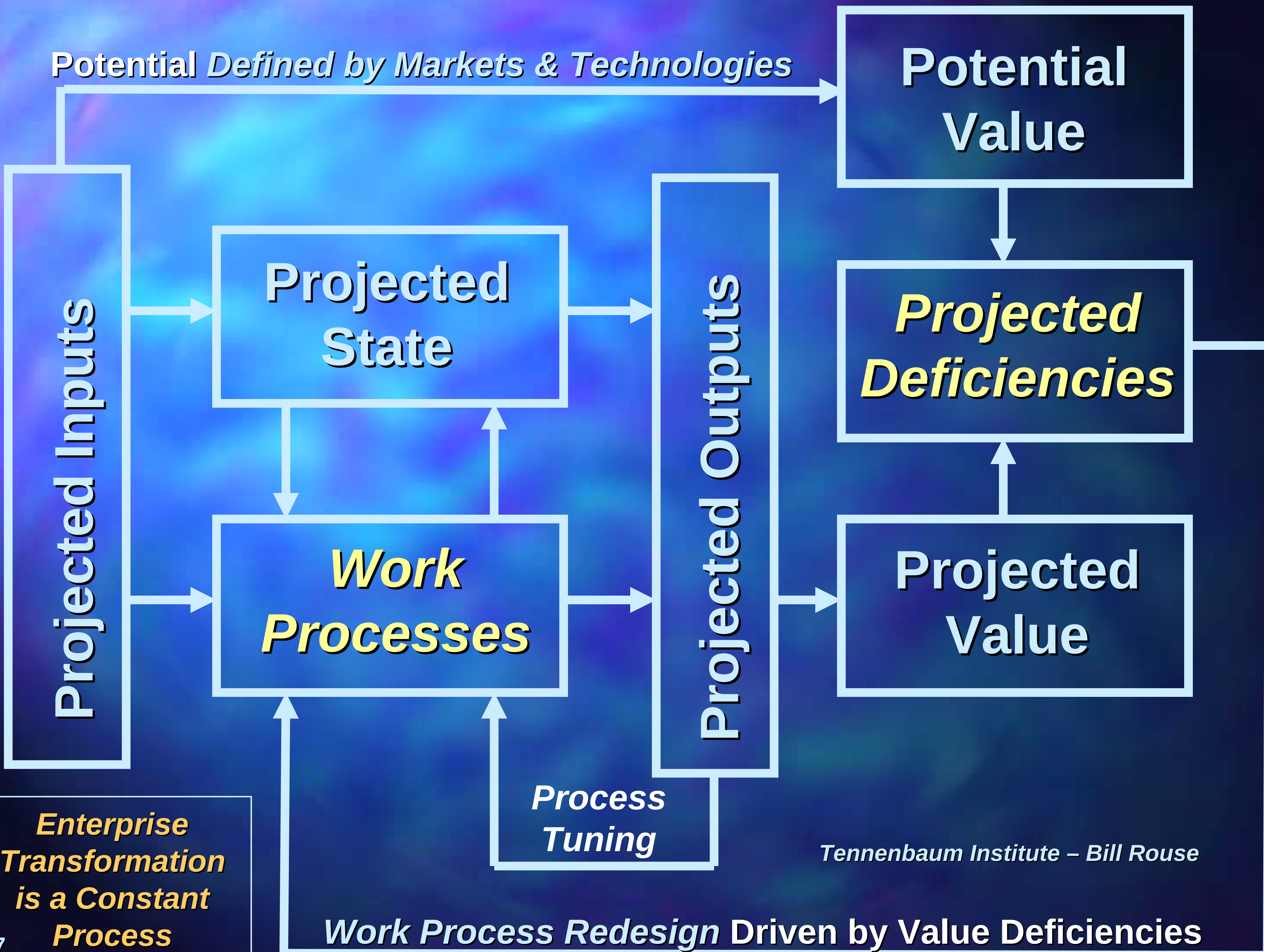
- *Cultivate and allocate resources* so as *to yield future enterprise states* with high projected value with acceptable uncertainties and risks

Management Decision Making – *Essential for Transformation*

- Phenomena
  - ✓ Folklore and fact of managers' jobs (Mintzberg)
  - ✓ *Optimizing* vs. Satisficing (Simon)
  - ✓ Organizational *Delusions* (Rouse)
  - ✓ Role of *Intuition* (Klein)
- Frameworks
  - ✓ *How managers address change*, ranging from tuning, to adaptation, to reorientation, to re-creation (Nadler & Tushman)
  - ✓ *Managers' modes of control*, ranging from scrambled, to opportunistic, to tactical, to strategic (Hollnagel)

Social Networks – *Essential for Transformation*

- Strong vs. Weak Networks (Burt, Granovetter)
  - ✓ Strongly connected networks result in *rapid and efficient information and knowledge sharing among members*
  - ✓ Weakly connected networks *have “holes”* – in many cases between strongly connected subnetworks
- Implications for Transformation
  - ✓ Weakly connected networks are *often better sources of new information* and novel ideas – but . . .
  - ✓ Strongly connected networks are *better at implementing change* once sense has been made of them



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Enterprise Transformation is a Constant Process

Examples of Transformation

For Value Deficiencies

That Drive Transformation

For Work Processes

That Enable Transformation

Value Deficiencies Examples – *That* Drive *Enterprise Transformation*

Value Opportunities **–The lure of greater success via market and/or technology opportunities**

Value Threats **– The danger of anticipated failure due to market and/or technology threats**

Value Competition **– Other players' transformation *initiatives prompt recognition transformation necessary* for continued success**

Value Crisis **– Steadily declining market performance, cash flow problems, etc. *prompt recognition transformation necessary* to survive**

Work Processes Examples – *That* Enable *Enterprise Transformation*

Markets Targeted – Pursuing global markets *such as emerging markets,* or pursuing vertical markets *such as aerospace and defense*

Market Channels Used – Adding web-based sales *of products and services such as automobiles, consumer electronics, and computers*

Value Proposition – Moving from selling unbundled products and services *to providing integrated solutions for information technology management*

Work Processes Examples – *That* Enable *Enterprise Transformation*

Offerings Provided – Changing the products and services provided – *perhaps by private labeling of outsourced products and focusing on support services*

Supply Chain Restructuring – Simplifying supply chains, *negotiating just-in-time relationships, developing collaborative information systems*

Outsourcing – Contracting out manufacturing and/or maintenance, *information technology support; etc.*

Offshoring – *Employing low-wage, high-skill labor* from other countries

Work Processes Examples – *That* Enable *Enterprise Transformation*

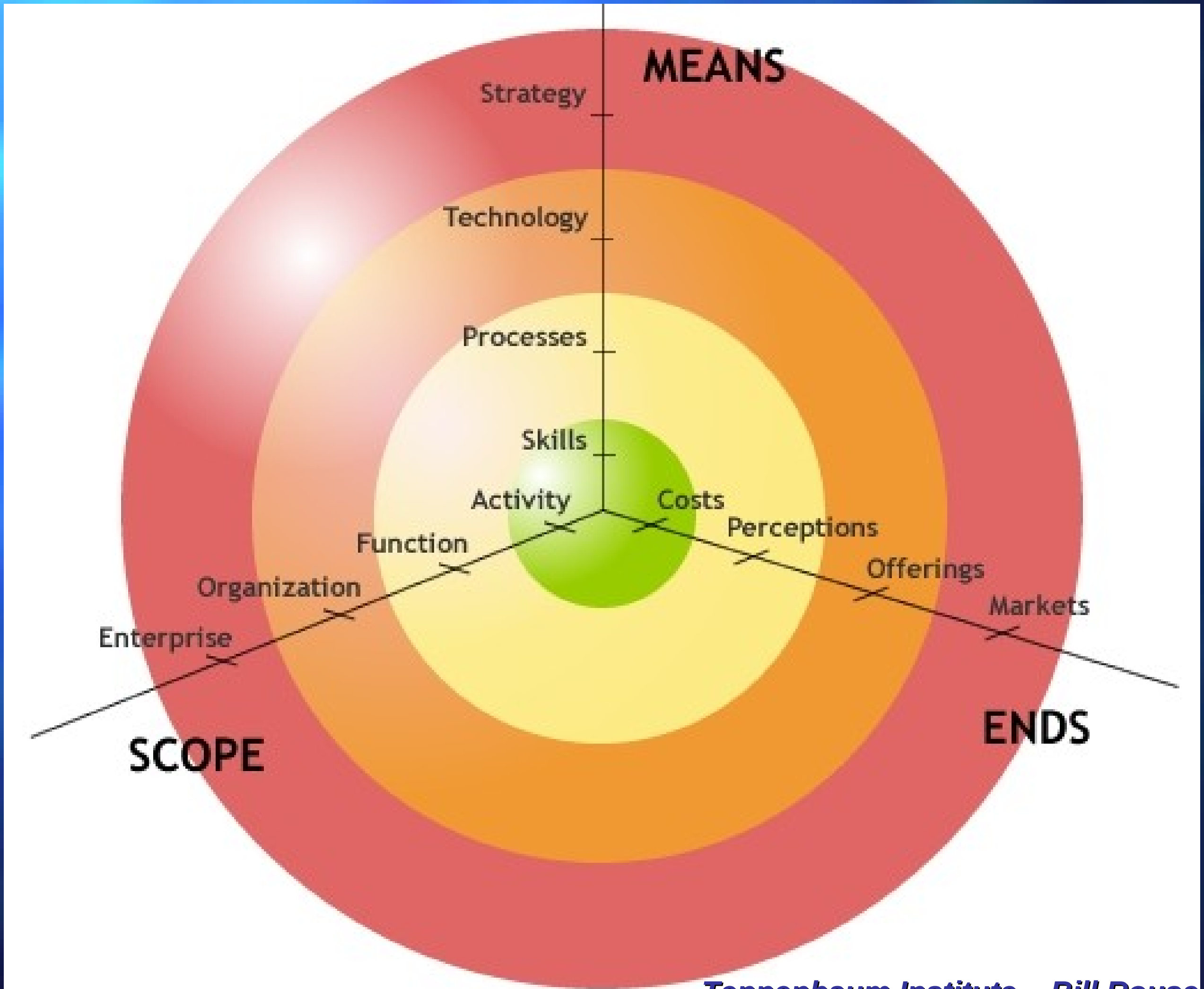
__*Process Standardization*__ – Enterprise-wide standardization *of processes for product and process development, R&D, finance, personnel, etc.*

__*Process Reengineering*__ – *Identification, design, and deployment* of value-driven processes; *identification and elimination of* non-value creating activities

__*Web Enabled Processes*__ – Online, self-support systems *for customer relationship management, inventory management, etc.*

Transformation Framework

– Focus on – Ends – Means – Scope –



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Recap & Final Thoughts

Transform to dominate or die . . .

Sic – Michael Oliff

Change is an essential ingredient to survival – Enterprise Transformation is the essential context for sustained organizational change to survive & dominate . . . or die

Recap & Final Thoughts

Thank You! -- Copies Available At

www.valueresolution.com -- And -- www.cpbis@gatech.edu

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