

Productivity Gains through Firm-Level Process Improvement

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Improving Corporate Productivity & Innovation 2011

The Conference Board of Canada
Insights You Can Count On



McGill

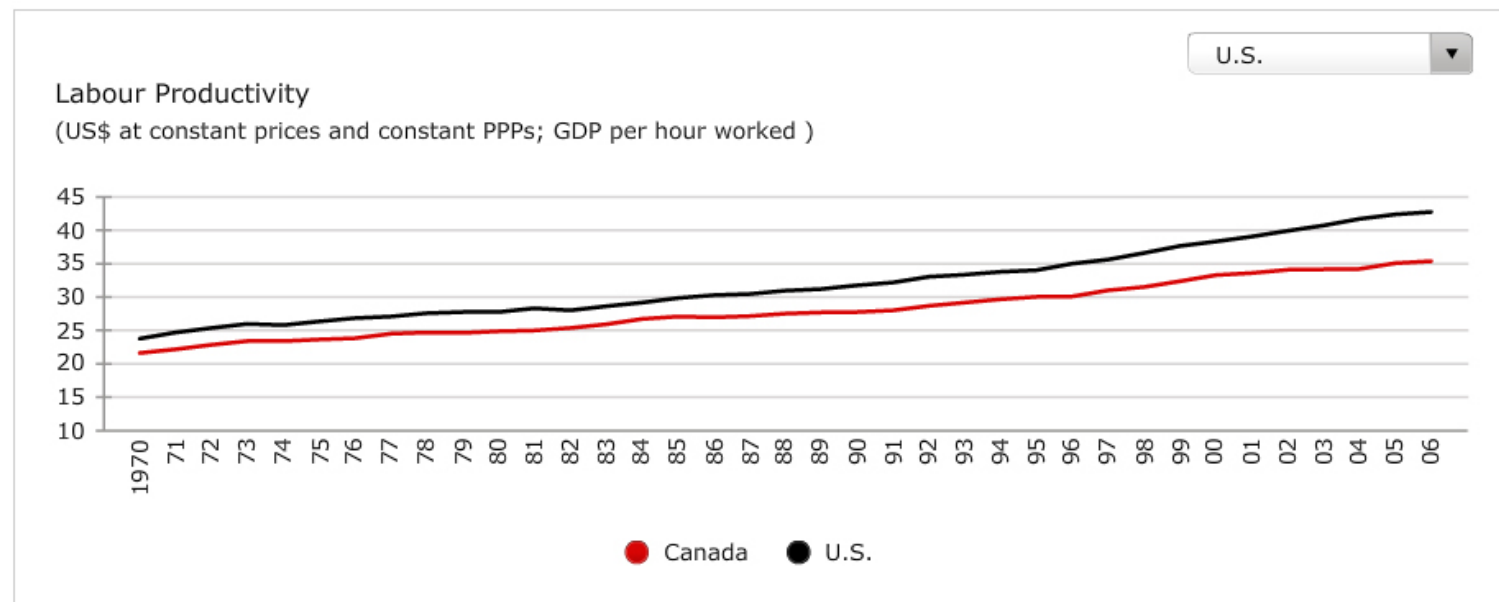
Outline

- Productivity crisis
- Productivity strategies
 - Export imperative
 - Move up the smiling curve
- Productivity tactics
 - Investing in human capital
 - Process improvement techniques
 - Getting connected (partnering)
- Wire Rope Industries example

Productivity crisis

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- Significant productivity gap between Canada and the USA since 1980 and especially since 2000.

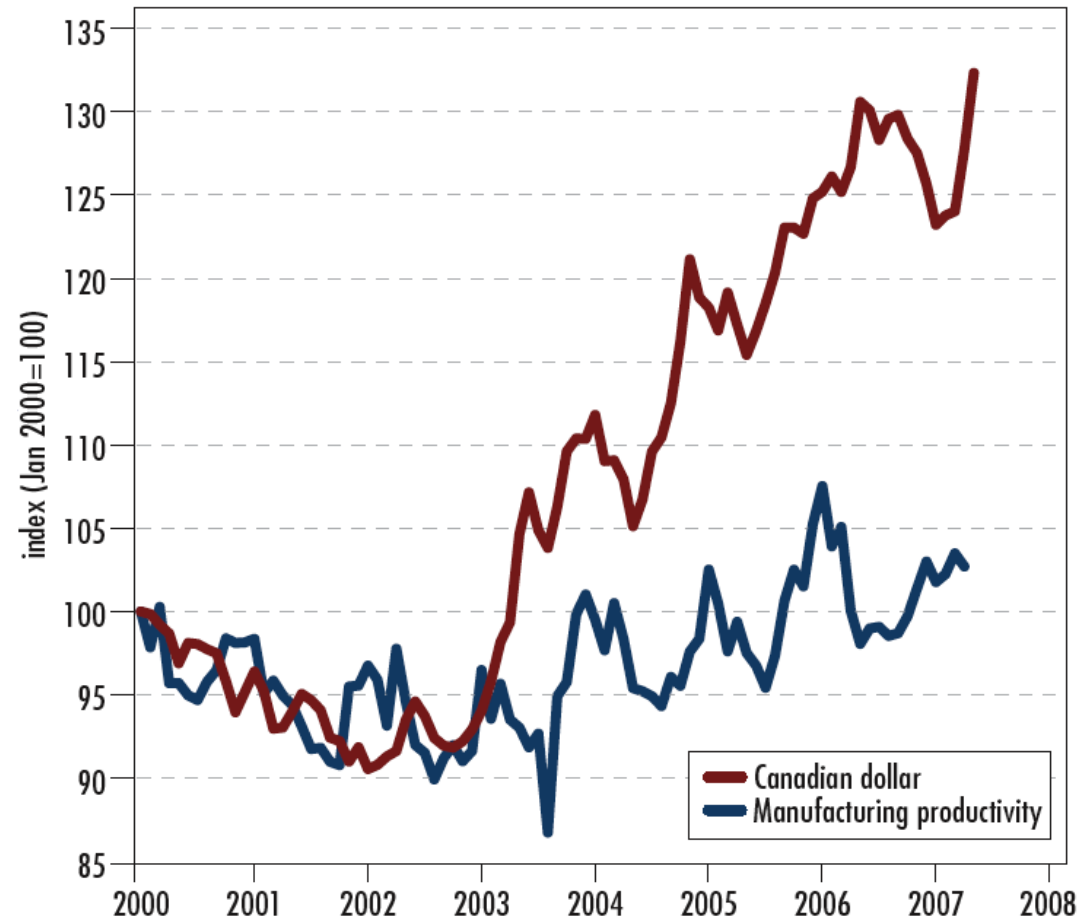


[*Labour Productivity Growth*, Conference Board of Canada, 2008]

Productivity crisis

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- 1976 the last year of Canada-USA dollar parity until recently.
- From 1980-2010, Canada has underinvested in people, processes, partners and markets.

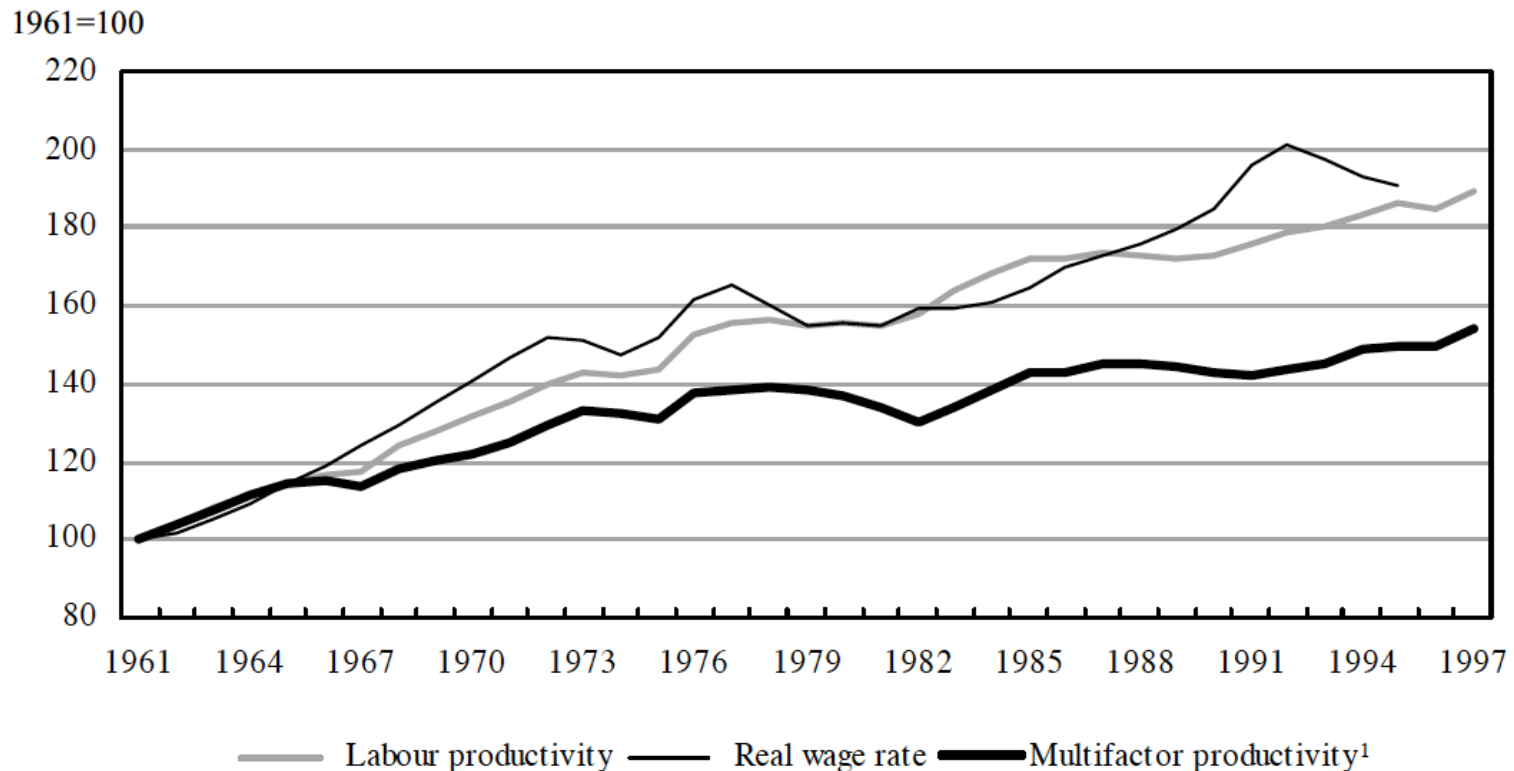


[Plant 2008, Jason Meyers]

Is productivity important?

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Salaries are driven by productivity.



Cumulative growth in labour productivity, multifactor productivity and real wage rate in the Canadian business sector [*Productivity growth in Canada*, StatsCan 2001]

Productivity strategies

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- Export imperative
- Move up the smiling curve

Export Imperative

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- About 40% of Canada's GDP is due to exports.
- Exports grew 30% between 2000 and 2008.
- Exports generate wealth.
- Studies indicate that exporting companies create jobs.

- Companies that export products and services require better competitiveness, thus productivity.

Recent performance

Trade surplus up in December 2010 (StatsCan)

- Natural gas, and also agricultural goods, industrial materials, machinery and equipment

Export Development Canada report

- In 2008, the growth rate of Canadian-owned affiliates was 2X the rate during the past decade.

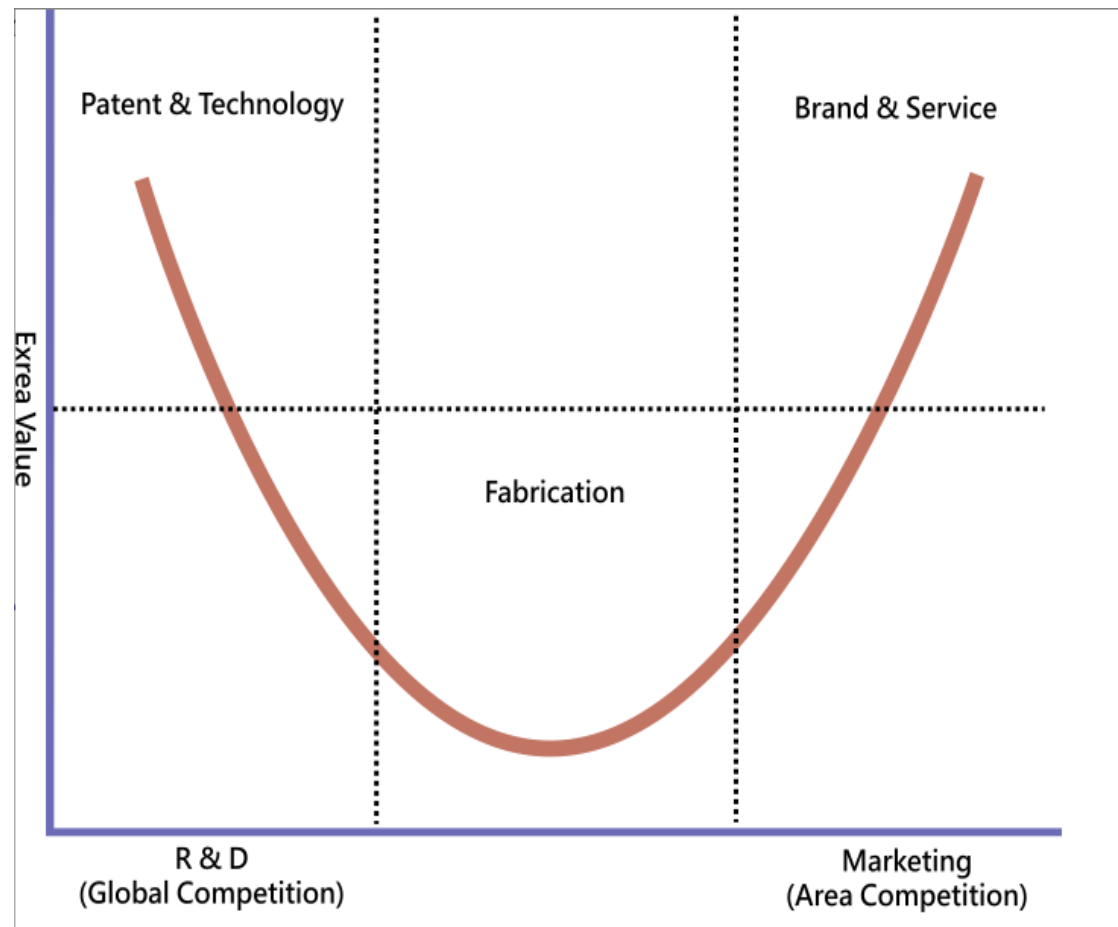
Integrative trade

- moving away from non-traditional markets
 - cross-border investment, investing overseas
 - integration of imports into exports
 - trade in services, and sales from foreign affiliates

Move up the smiling curve.

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Term created around 1992 by Stan Shih, the founder of Acer, an IT company headquartered in Taiwan. [Wikipedia]



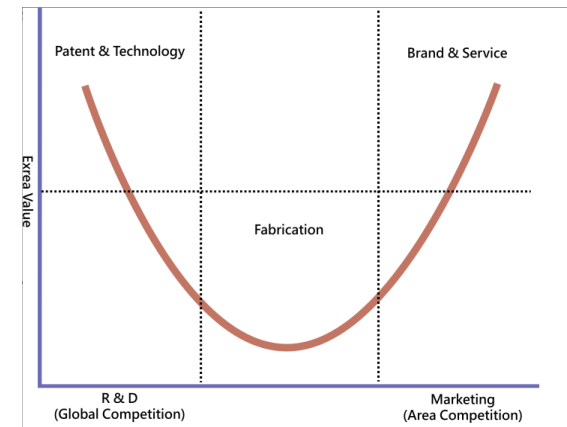
Smiling Curve

Productivity strategies

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Manufacturing/production companies (job shops, contract manufacturers, producers) must move up the smiling curve

- to the left, by becoming design companies based on core competencies and custom designs
- to the right, by providing services through the supply chain, then, establishing products with marketing and product branding.



Productivity strategies

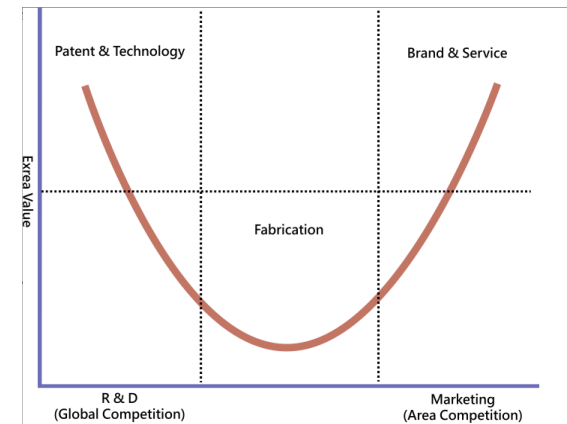
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All companies can move up the smiling curve, and if Canada is going to be competitive, they must

-to the left, by adding/exploiting engineering and customizing products and services

- to the right, by adding/exploiting supply chain services

- reverse logistics
- maintenance
- partnering to provide better services
-



Productivity tactics

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- Investing in human capital
- Improving business and production processes
- Getting connected (partnering)

Investing in human capital

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- Since the 1970's, productivity improvement has mostly been due to improvement in labour productivity.
- In many cases, capital productivity has declined.

How to increase labour productivity?

- Hire people with higher education.
- Train employees.
- Invest capital to improve labour productivity.
- Invest in IT tools.

Investing in human capital

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- Since the 1970's, productivity improvement has mostly been due to improvement in labour productivity.
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How to increase labour productivity?

- **Hire people with higher education.**
- Train employees.
- Invest capital for labour productivity.
- Invest in IT tools.

Train employees

- For every 1% increase in literacy scores, there is a 2.5% rise in labour productivity and a 1.5% rise in GDP/capita. (Statistics Canada report on 14 OECD countries.)
- Many companies hire new talent, but do not invest in training existing staff.
- For stable industries with not much labour growth, this leads to stagnation in productivity and innovation.
- Companies must provide quality workplace training and learning programs.
- Skills most in need:
 - problem solving
 - communication
 - basic employability
 - technical expertise
 - teamwork

Invest capital to improve labour productivity

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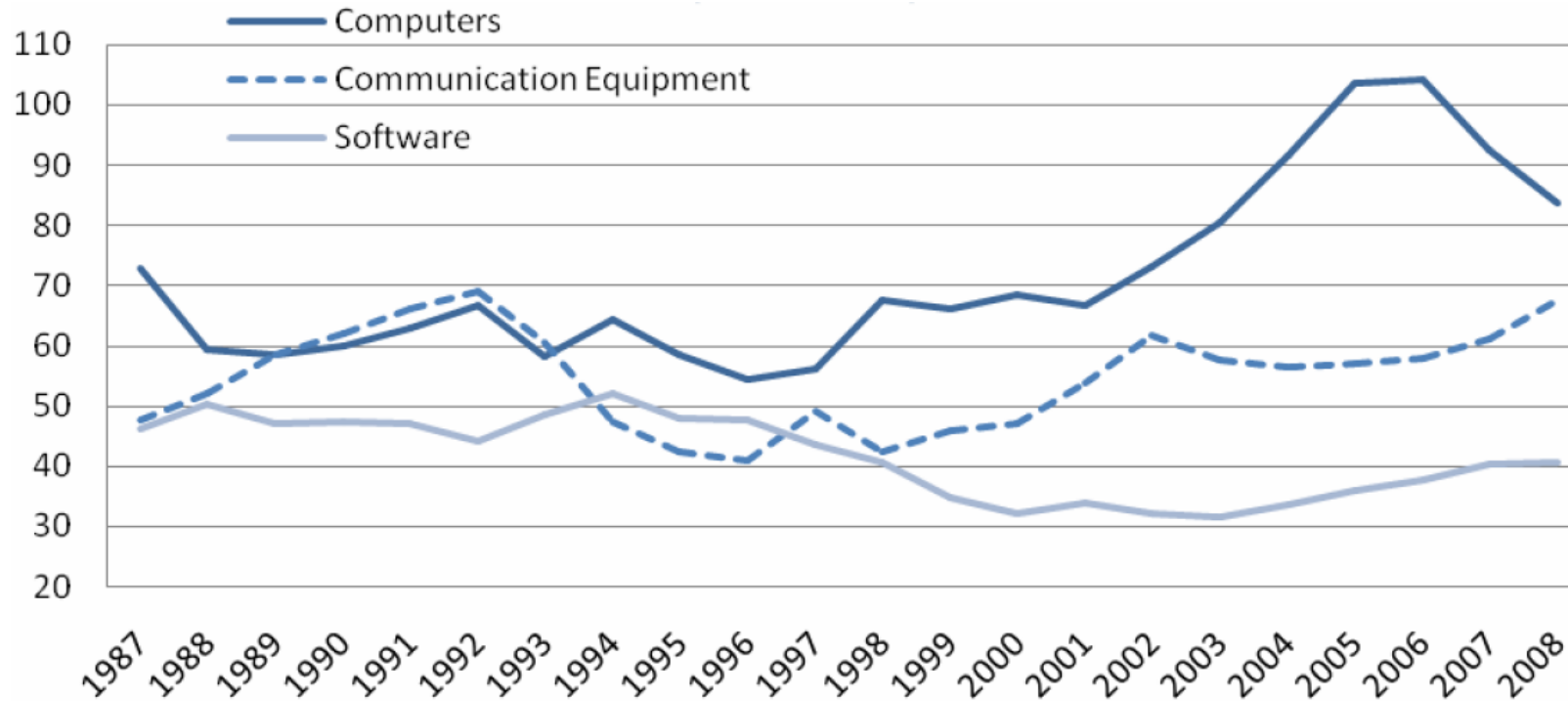
- 23.3% of Canadians have a university degree (2005).
 - Canada is 4th behind Norway, USA and Sweden in average years of schooling.
 - Why the lack of productivity?
 - Canada has a low capital-to-labour ratio.
 - Not enough is being invested to improve labour productivity.
 - Canada invests more in buildings and construction engineering (pipelines, telecommunications) and not enough in machinery and equipment, especially IT.
- [Sluggish productivity growth in Canada, 2008, Conference Board of Canada]*

Invest in IT tools

- IT investment has a much greater effect on productivity than other machinery and equipment, especially labour productivity.
- Canada invests in IT at 62% of that by the USA (2008).
- The USA has performed better than Canada and other countries due to
 - greater technology adoption
 - faster technology diffusion, and
 - more structural change due to the adoption of IT.

Invest in IT tools

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The share of total nominal investment by ICT component (Canada/US)

[Canada-U.S. ICT Investment Gap in 2008, CSLS 2009]

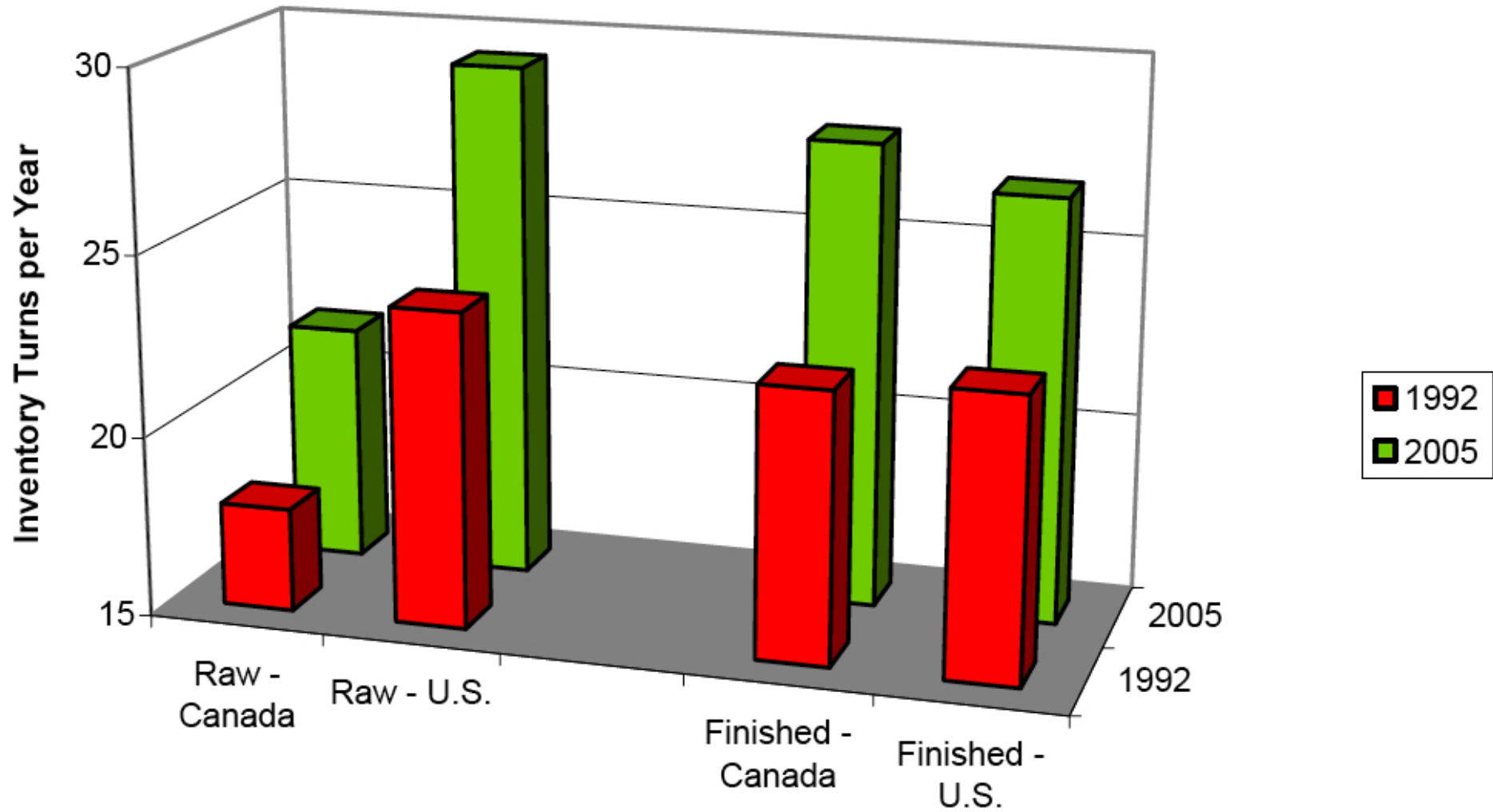
Improving business and production processes

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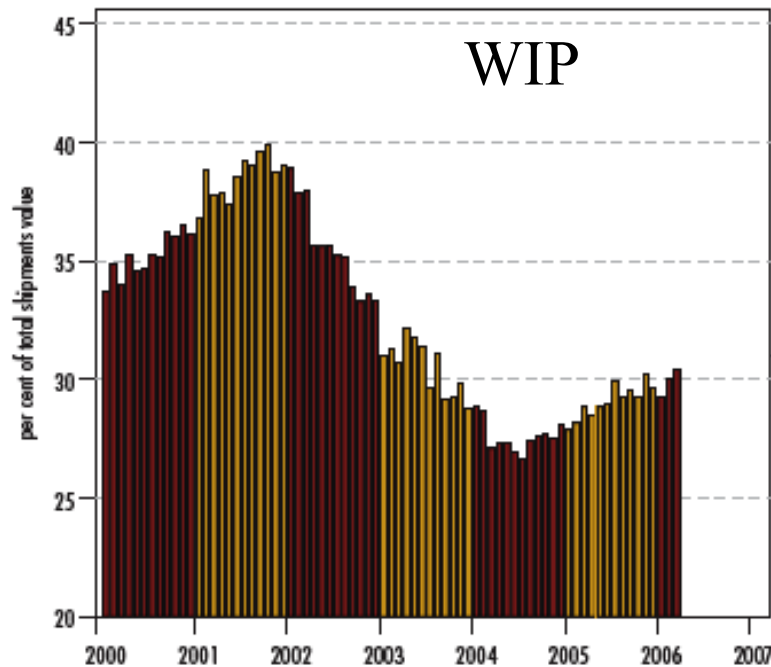
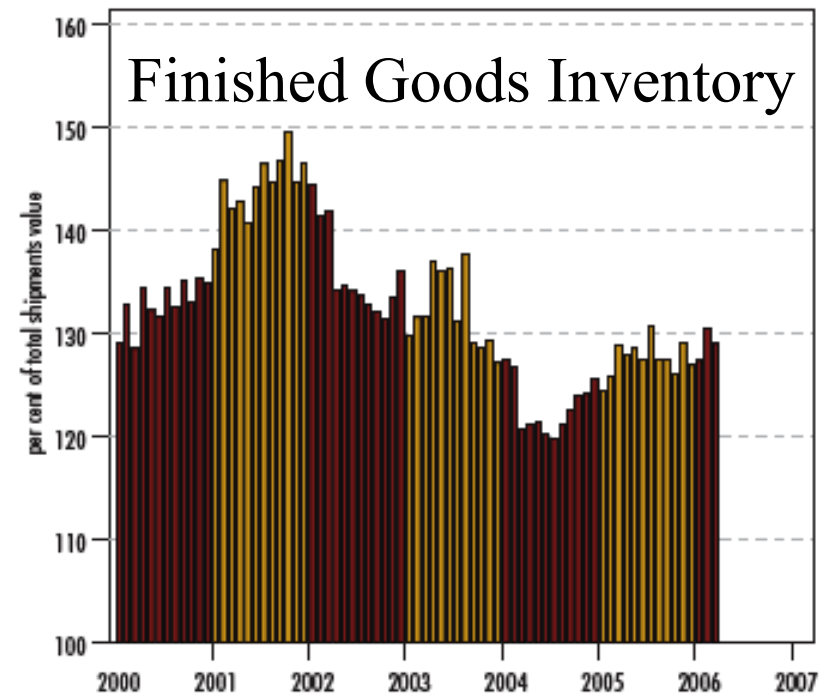
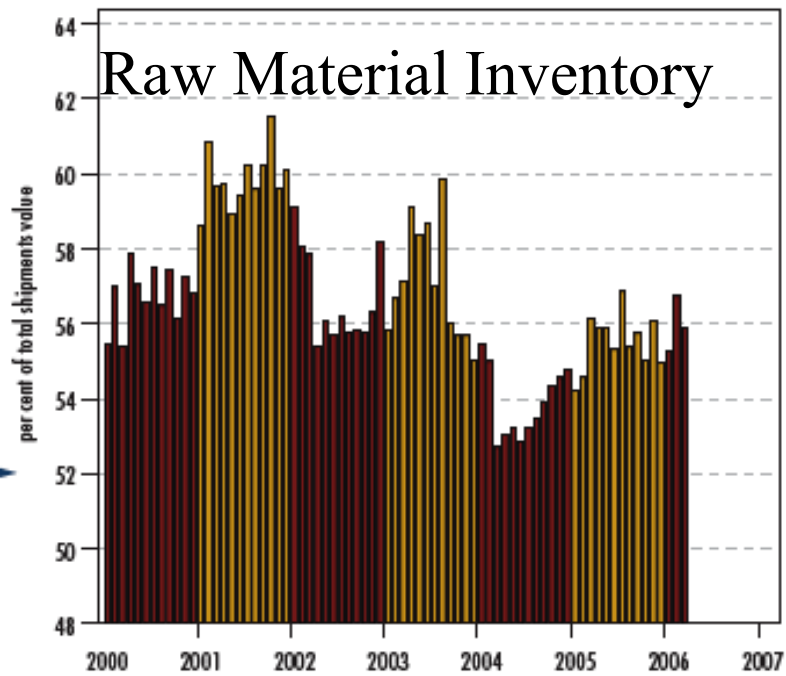
- Focused programs deliver benefits.
- Compete on timeliness
- Workforce retention

Improving business and production processes

- Focused programs deliver benefits.
 - Total quality management
 - Lean
 - Six sigma
- Reported benefits [CME 2008]
 - waste reduction, improved process efficiencies, lower lead times, higher inventory turnover, and on-time delivery



Manufacturing Inventory Turns for Canada and USA (1992-2005)



Inventories of Canadian
manufacturers and exporters
[Plant, 2008]

Productivity improvement techniques

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- A change in business and production processes requires
 - changing corporate culture
 - strengthening teamwork
 - investing in new technology to improve performance.
 - IT technology

Compete on timeliness

- *Faster, better, cheaper*
 - On time deliveries
 - Deliver custom products and services
 - Reduce the time from order to cash

Retention of labour

- Encourage workers to stay in the workforce longer as early retirements are a growing issue for a number of companies.
- More flexible work arrangements (e.g., shorter shifts, improved scheduling, or occupation redefinition) are tactics that Canadian manufacturing companies should consider.
- Use retired workers better.
 - Present pension systems work against retaining employees and using retirees.

Getting connected (partnering)

- Partners are members of a company or association who agree to carry on a business and who share the risks and profits of the business.
- Coordinate production and services
 - cost reduction, quality control, service levels
- Find a tactical fit
 - focus (cost, time, technology, market)
 - complementary skills

Wire Rope Industries Ltd.

- 5501 Trans-Canada Highway, Pointe Claire, Quebec
- Founded in 1886
- Products: wire ropes and steel cabling solutions
- Originally owned by Noranda and purchased 5 years ago by Bekeart (Belgium).
- Bekeart has been successful by focusing on operational excellence and is now also concentrating on commercial excellence.
- Wire Rope: a study in moving up the smiling curve

Wire Rope Industries Ltd.

- Several years ago there were 4 major players in Canada with little competition in the steel cable business.
- Wire Rope predominantly sold to the Canadian market.
- Today 50% of the Canadian market is serviced by foreign companies.

- Wire Rope strategy
- Global reach (supply chain)
 - Purchase semi-finished product and complete the product in Canada. [integrative trade]
 - Wire sourced from around the world for price reduction.
 - Global markets: China, Australia, Russia,... [export imperative]

Wire Rope Industries Ltd.

- People are the key.
- New talent
 - MBAs in the commercial area bring aggressive business development and a scientific approach.
 - MMMs and others in operations and supply chain bring new techniques for price reduction and partnering.
- Existing talent
 - Knowledge of the industry
 - Learn new methods.
- The Wire Rope team has developed a new corporate culture as well as success.
 - In 2010, revenues were up 18%.

Wire Rope Industries Ltd.

- Focus: global niche market (mining)
 - Cable producers in developing countries do volume manufacturing.
 - They do not have the special knowledge required for niche markets including mining.
 - Due to safety concerns in mining, Wire Rope has been very successful due to the high quality of its cables.
 - China has 225 cable manufacturers. None can compete in cables for mining.

Wire Rope Industries Ltd.

- Partnering
 - Adds value
- Integrated offering
 - Partners to train users in proper cable usage.
 - Tire sensors which warn of imminent failure (Michelin)
 - Cable lubricators to increase cable longevity (Medicine Hat company)
- Value added services
 - Local installers
 - Service providers
 - One stop shopping

Wire Rope Industries Ltd.

- Better product design
 - Wire Rope worked with McGill University to improve existing cable products through the Value Engineering Workshop.
 - 8% cost reduction in product cost
 - same high quality performance
 - same manufacturing process
 - low implementation cost

Summary

- Move up the smiling curve
- Improve labour productivity
- Invest in IT
- Find the correct business positioning
 - strategy
 - tactics
 - partners

Questions