



Canadian
Manufacturers &
Exporters

Manufacturiers et
Exportateurs du
Canada



“Challenges Facing Manitoba Manufacturers”

**Presented by:
CME – Manitoba Division
Tony van Rosmalen, Vice-President
October 6, 2006
APEGM Professional Development**





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**We cannot afford to
be complacent about
manufacturing in
Canada**



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Some Scary Thoughts ...

- The Canadian dollar has appreciated in value by 50% over the past three years.
- Canadian manufacturers have lost 15% of US market share since 2003 – mainly to China.
- Canadian manufacturers export less than 5 days production a year to China and our manufactured exports to China fell last year by 20%.
- Manufacturing productivity in Canada is 20% lower than in the United States.
- The value of technology in place across Canada's manufacturing sector has dropped by 5% since 2000.
- Over 700 manufacturing firms closed in 2005.
- Employment in Canadian manufacturing has dropped by 200,000 over the past two years – and will fall by at least 100,000 in 2006 – but labour shortages are blocking growth in Western Canada.
- Your competitor is only a mouse-click away on your customer's computer.



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Today's Presentation:

- An overview of CME
- Manufacturing in Canada and in Manitoba
- The Issues and Challenges
- Actions & Opportunities
- Recommendations - Call to Action



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Canadian Manufacturers & Exporters

- Represents the interests of Canadian business, at both the national and provincial levels
- First established more than 130 years ago
- Members include Canada's leading businesses engaged in manufacturing and in the export of goods and services.
- Members represent 75% of the country's manufacturing output and 90% of exports.
- 80% of members are small and mid-sized



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Canadian Manufacturers & Exporters

- **CME's Mission:**
 - **To continuously improve the competitiveness of Canadian industry and to expand export business.**
- **Achieved through:**
 - **Effective advocacy**
 - **Information, programs and support**
 - **Opportunities for networking and professional growth.**
 - **Promoting advanced technology.**



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The Importance of Manufacturing in Canada

- Single largest business sector in Canada
- Directly accounts for 18% of Canada's GDP
- Every \$1 of manufacturing output generates \$3.05 in total economic activity – largest economic multiplier
- Approximately \$612 billion in annual shipments (2005)
- 2.1 million Canadians employed in manufacturing
- Wage levels 22% above national average
- Accounts for 2/3 of Canada's goods & services exports = \$450 billion (2005)
- Accounts for 2/3 of private sector R&D in Canada
- Has reduced GHG emissions 7.4% below 1990 levels



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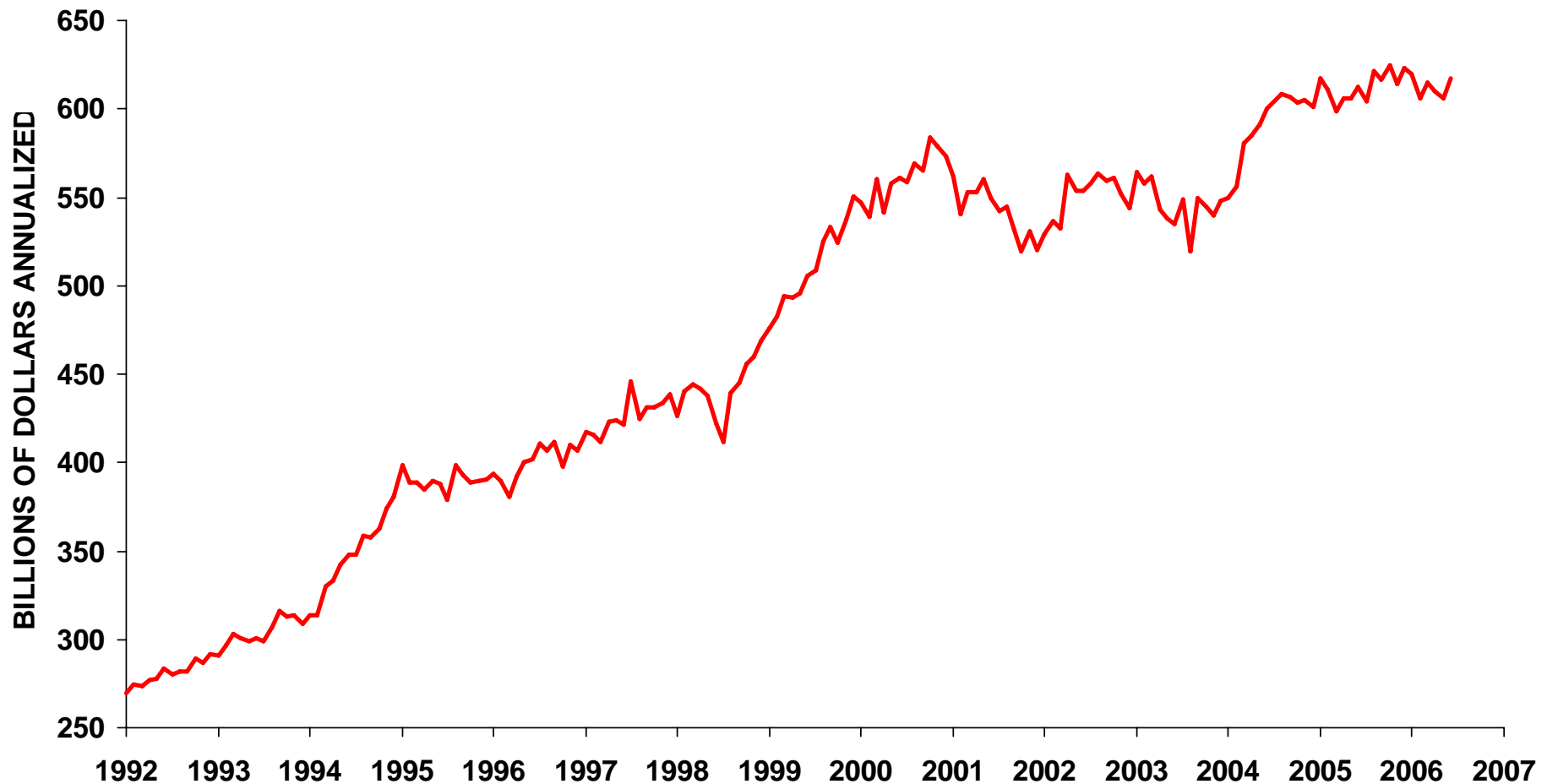
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Canada: Manufacturing Shipments





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Manufacturing in Manitoba

- Manitoba's largest industrial sector – 13% of GDP
- Manufacturing's multiplier provincially - \$2.70: \$1:00
- Employ 12% of Manitoba's workforce
- 68,000 direct jobs
- Account for 54% of Province's exports
- Approximately 2000 firms



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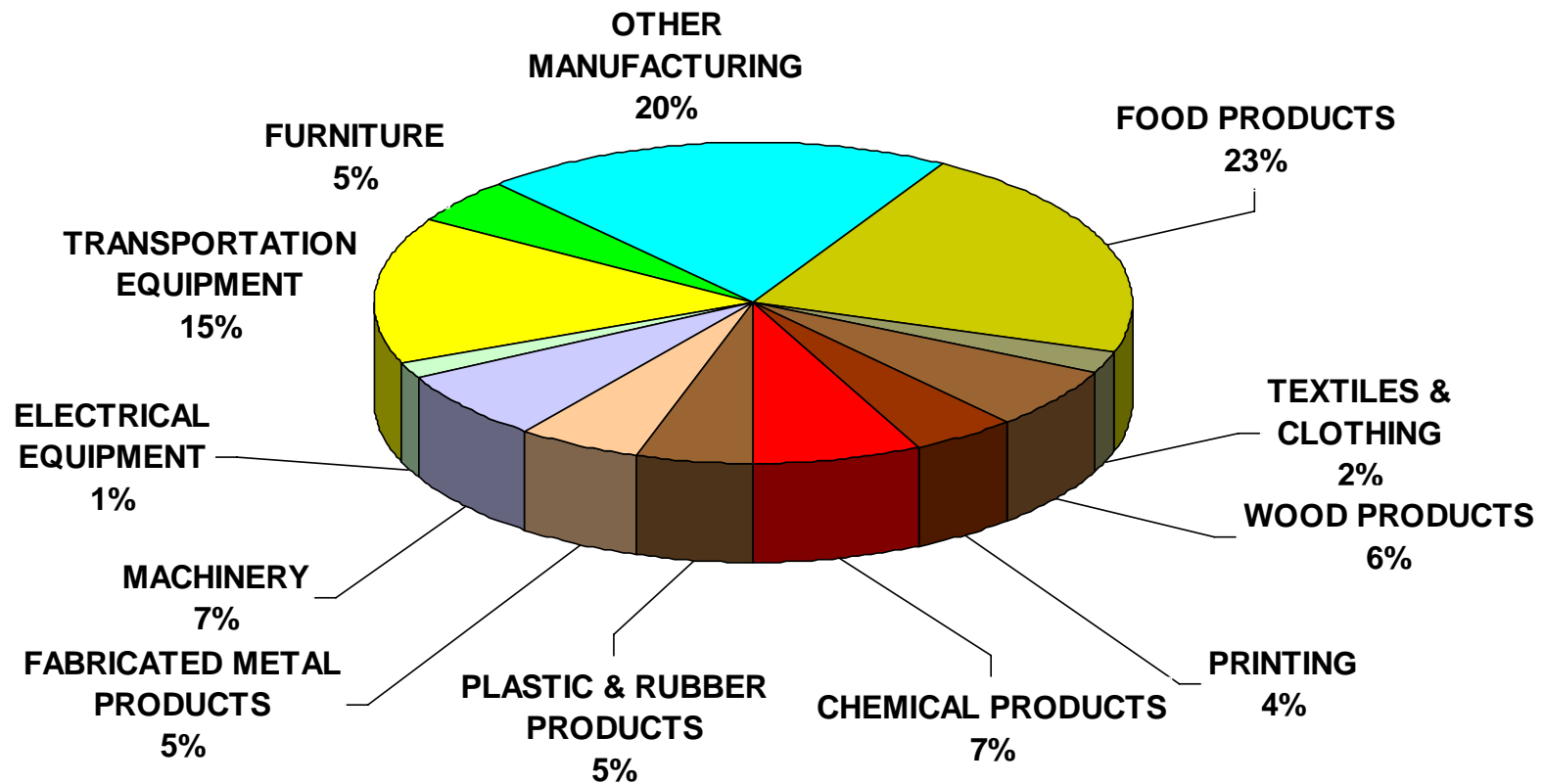
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Manufacturing in Manitoba





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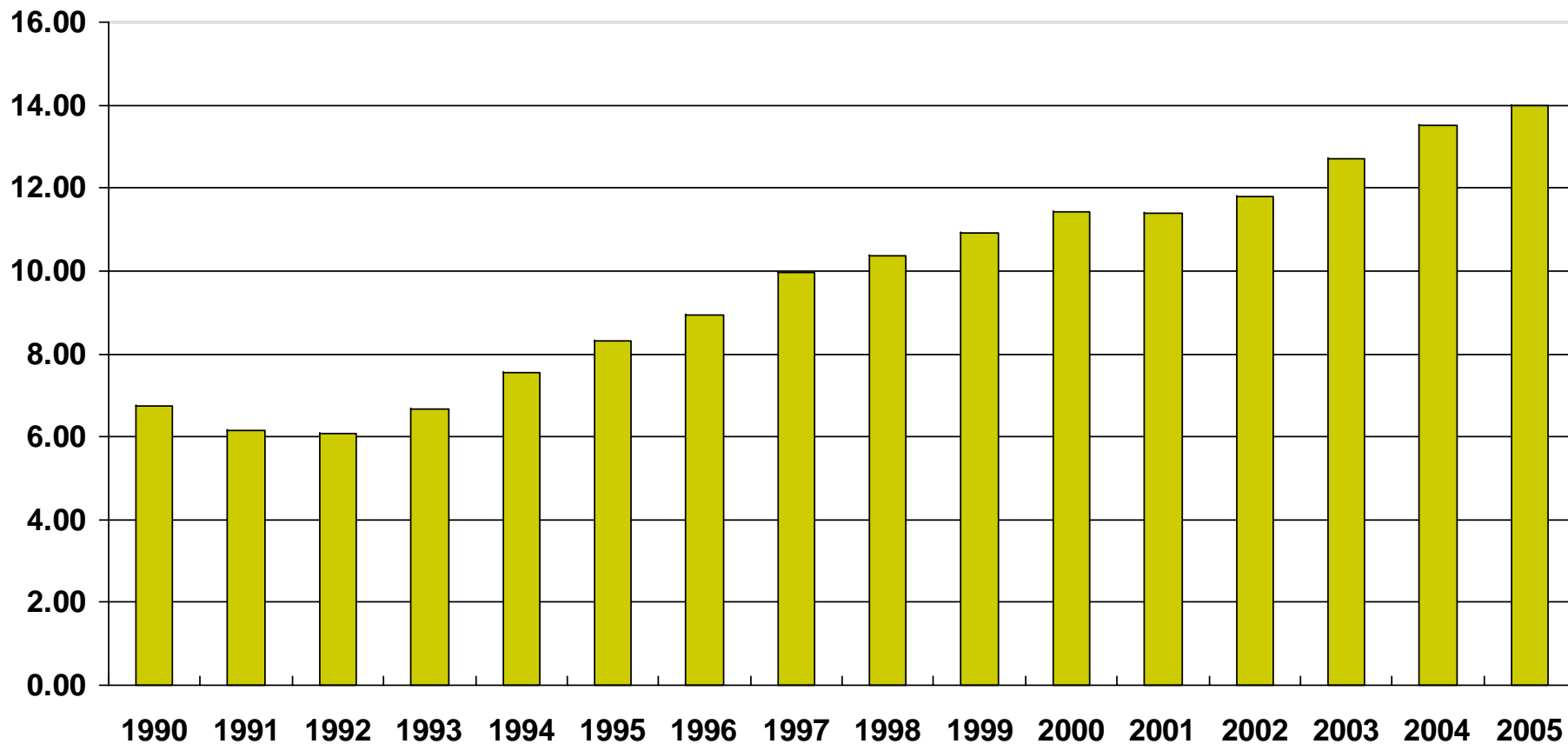
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Manitoba: Manufacturing Shipments





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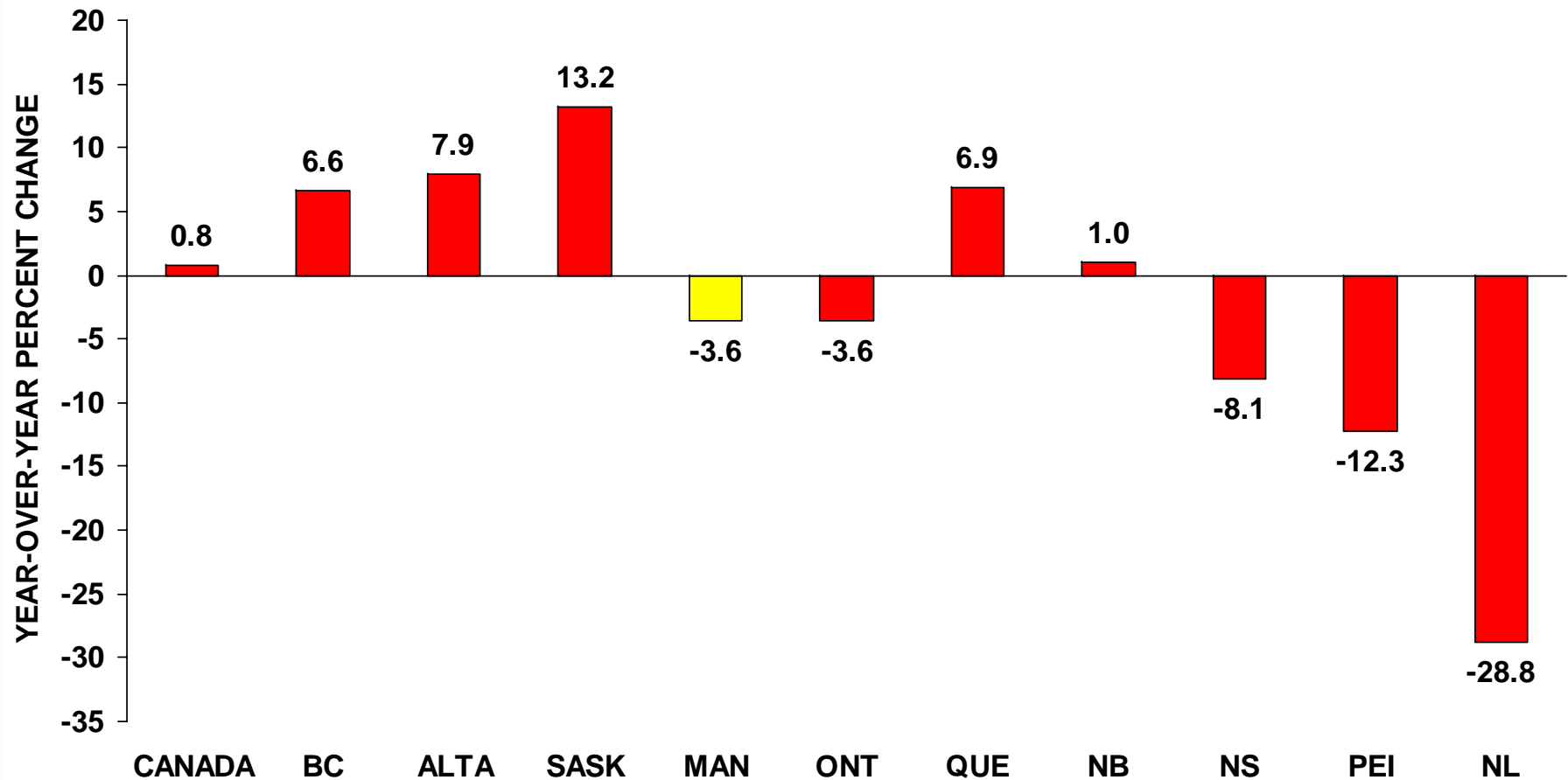
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Shipments Performance June 2005 – June 2006





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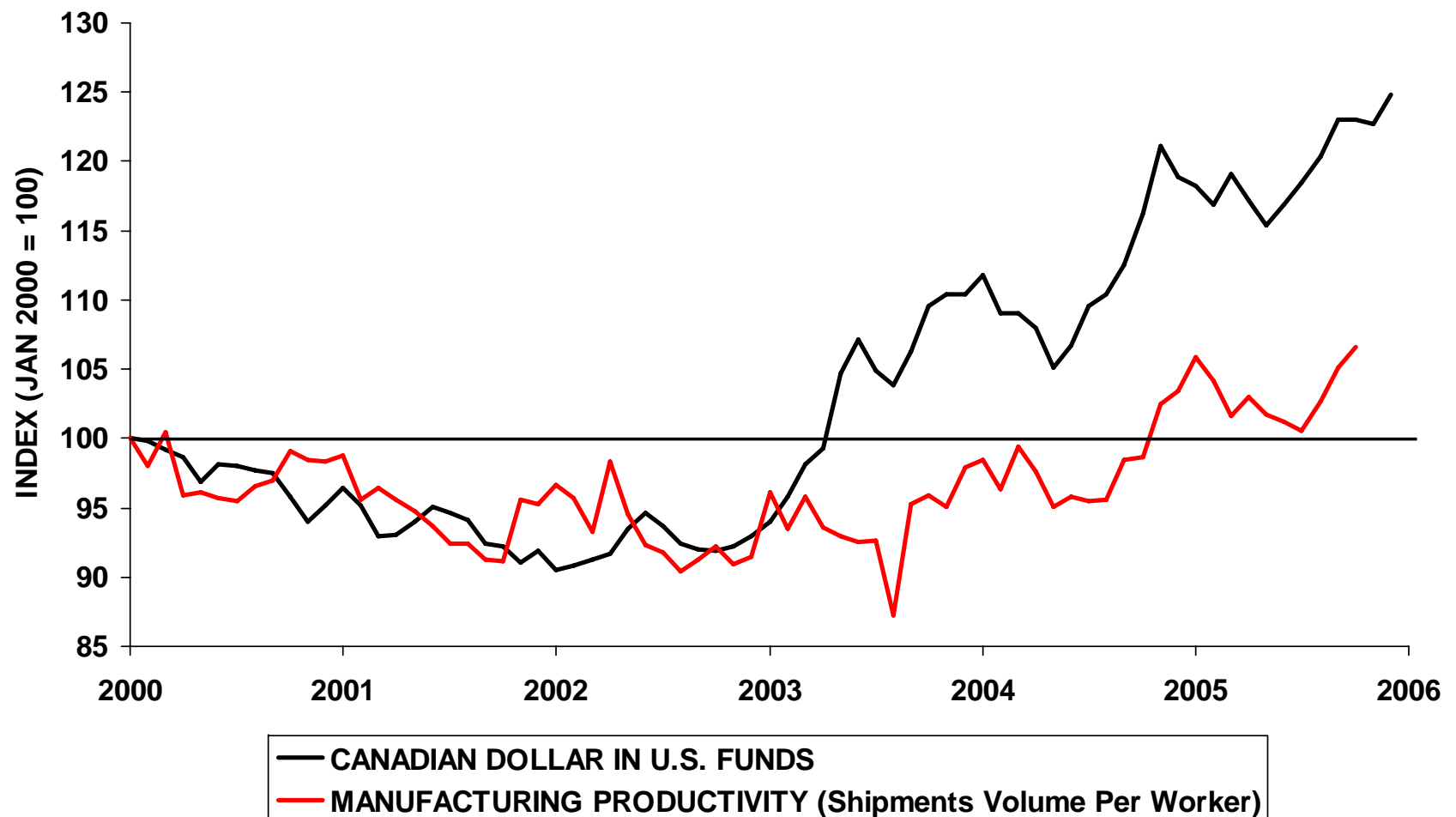
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Manufacturing Productivity





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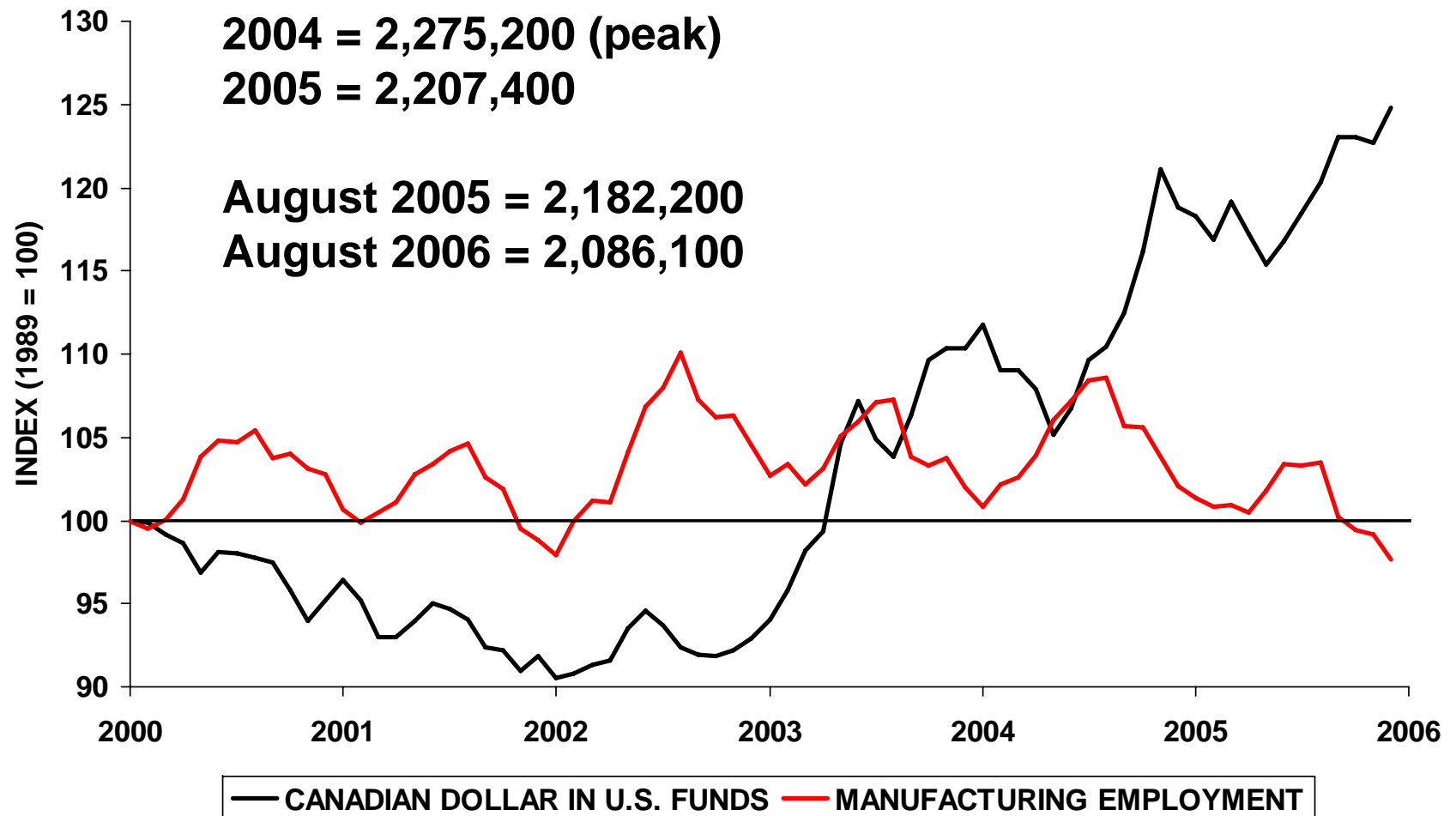
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Manufacturing Employment





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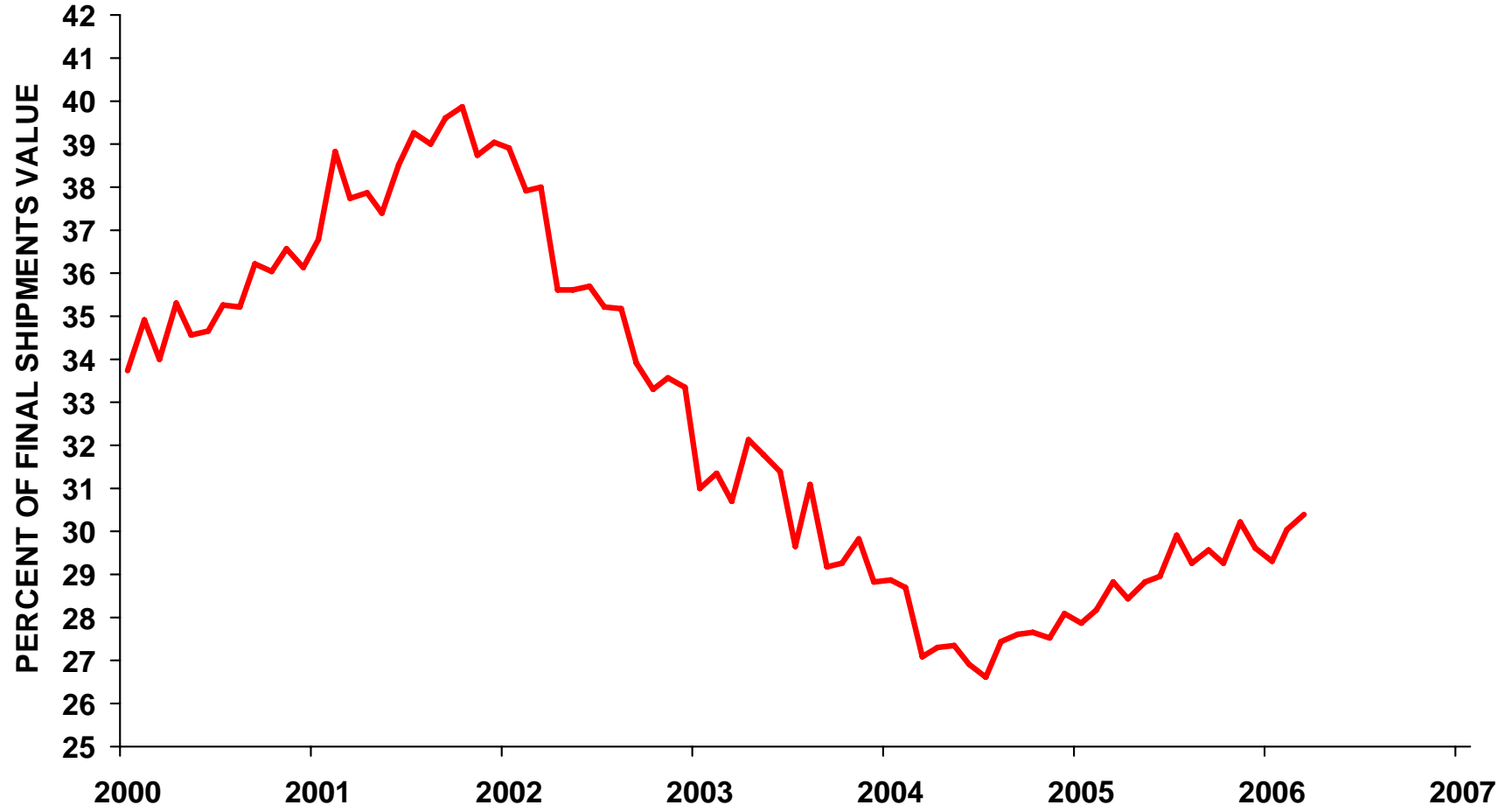
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Work in Progress to Shipments





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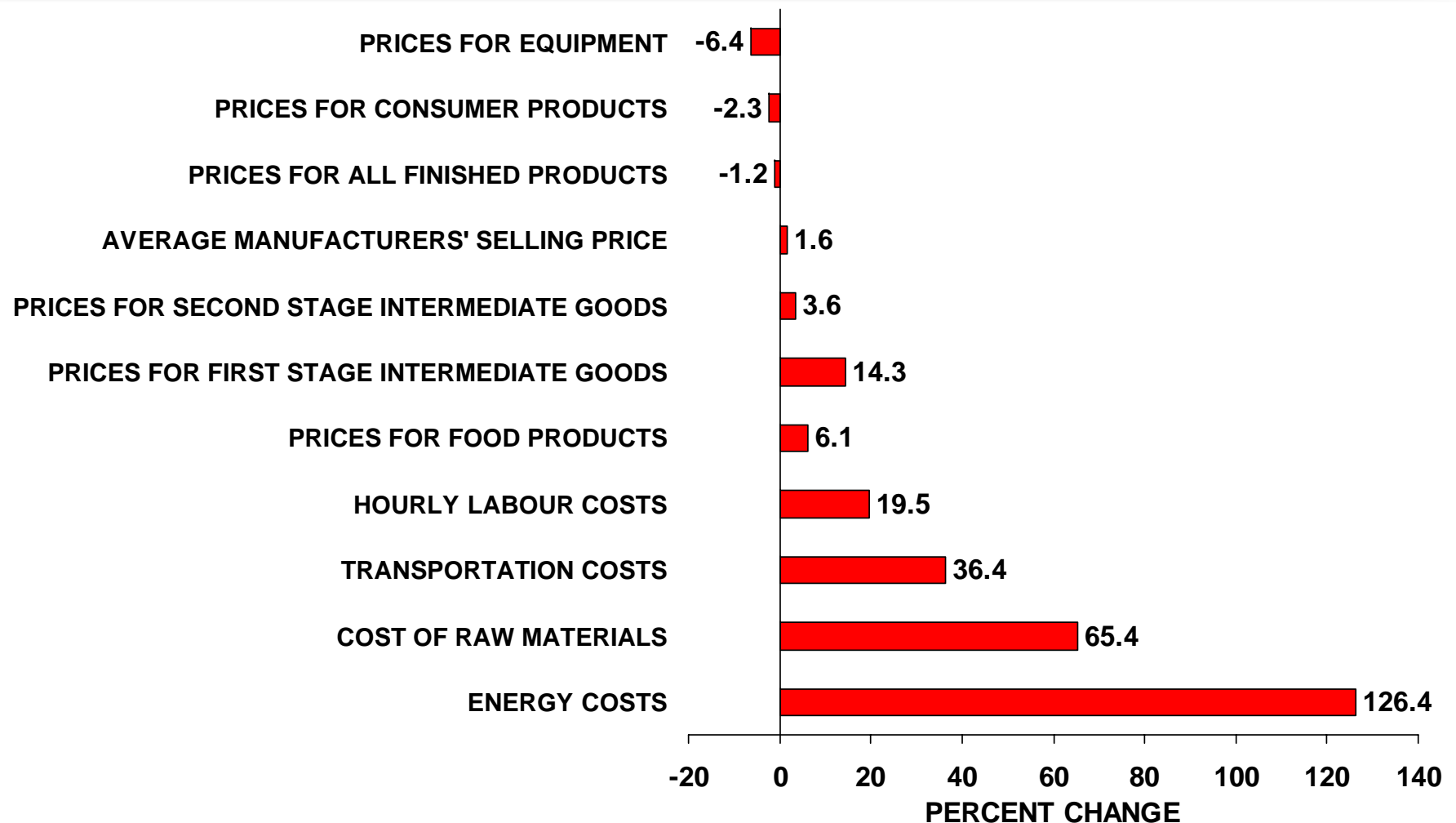
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Manufacturers' Cost Squeeze (1st Qtr 2000 – 1st Qtr 2006)





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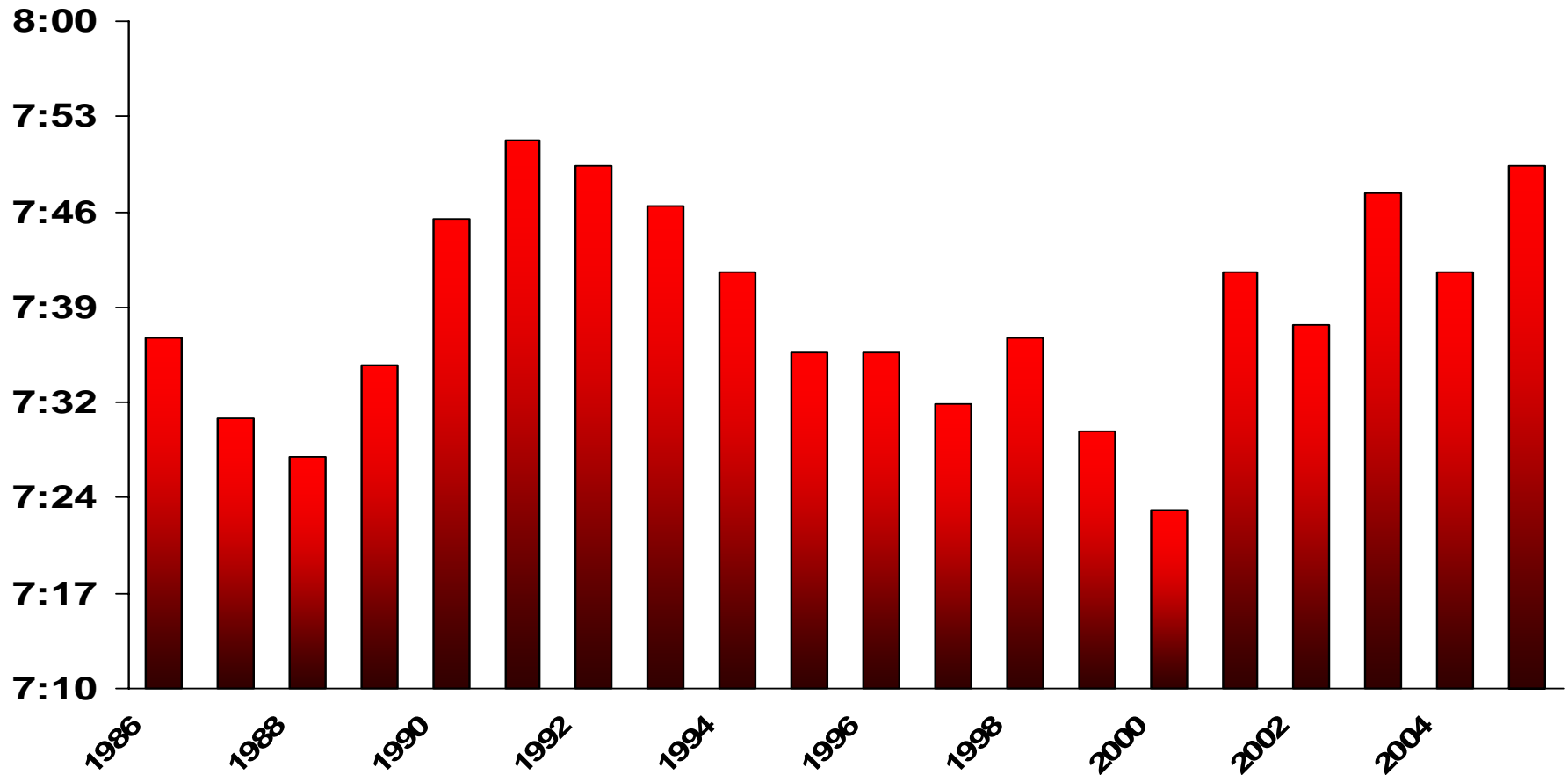
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Breakeven Time





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Strategic Challenges

- Higher dollar – falling prices
- Rising business costs
- Global competition – commoditization
- Global sourcing
- Changing patterns of customer demand
- Availability of skilled & experienced personnel
- Rapid pace of technological change
- Investment
 - Innovation & technology
 - Assets
 - People
- Business opportunities in other countries
- Managing change



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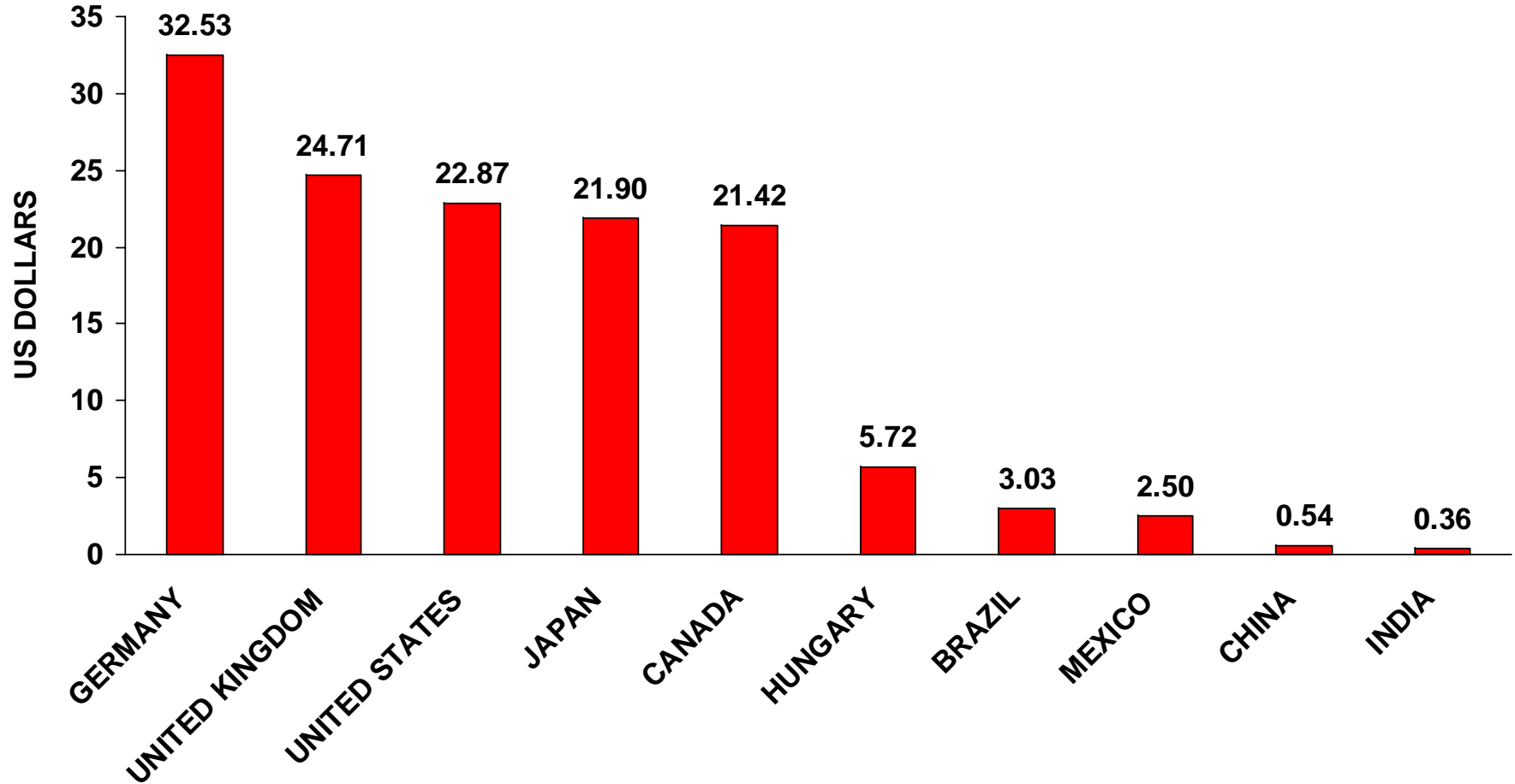
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Hourly Labour Compensation Rates in Manufacturing





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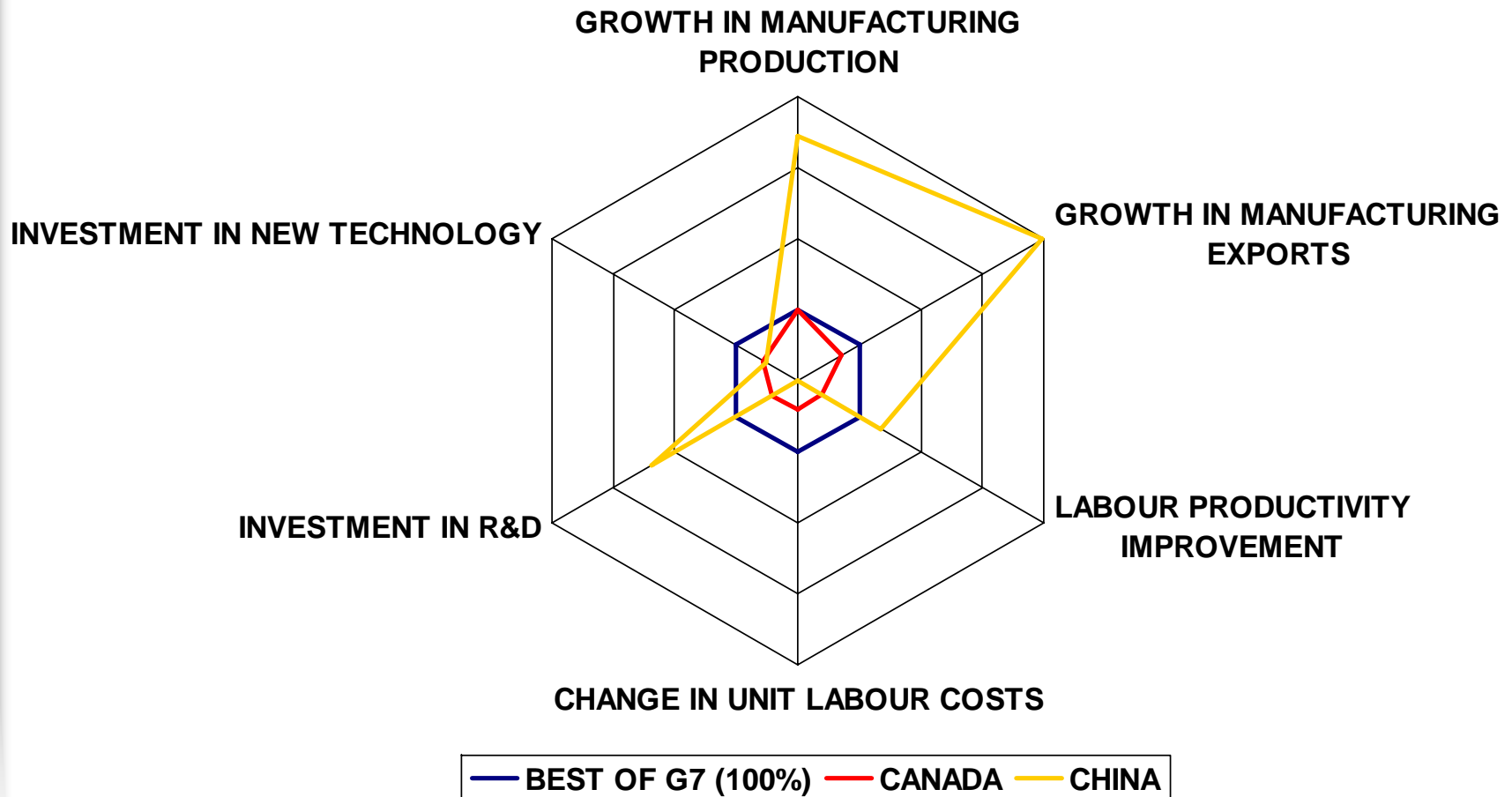
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Manufacturers' Excellence Gap





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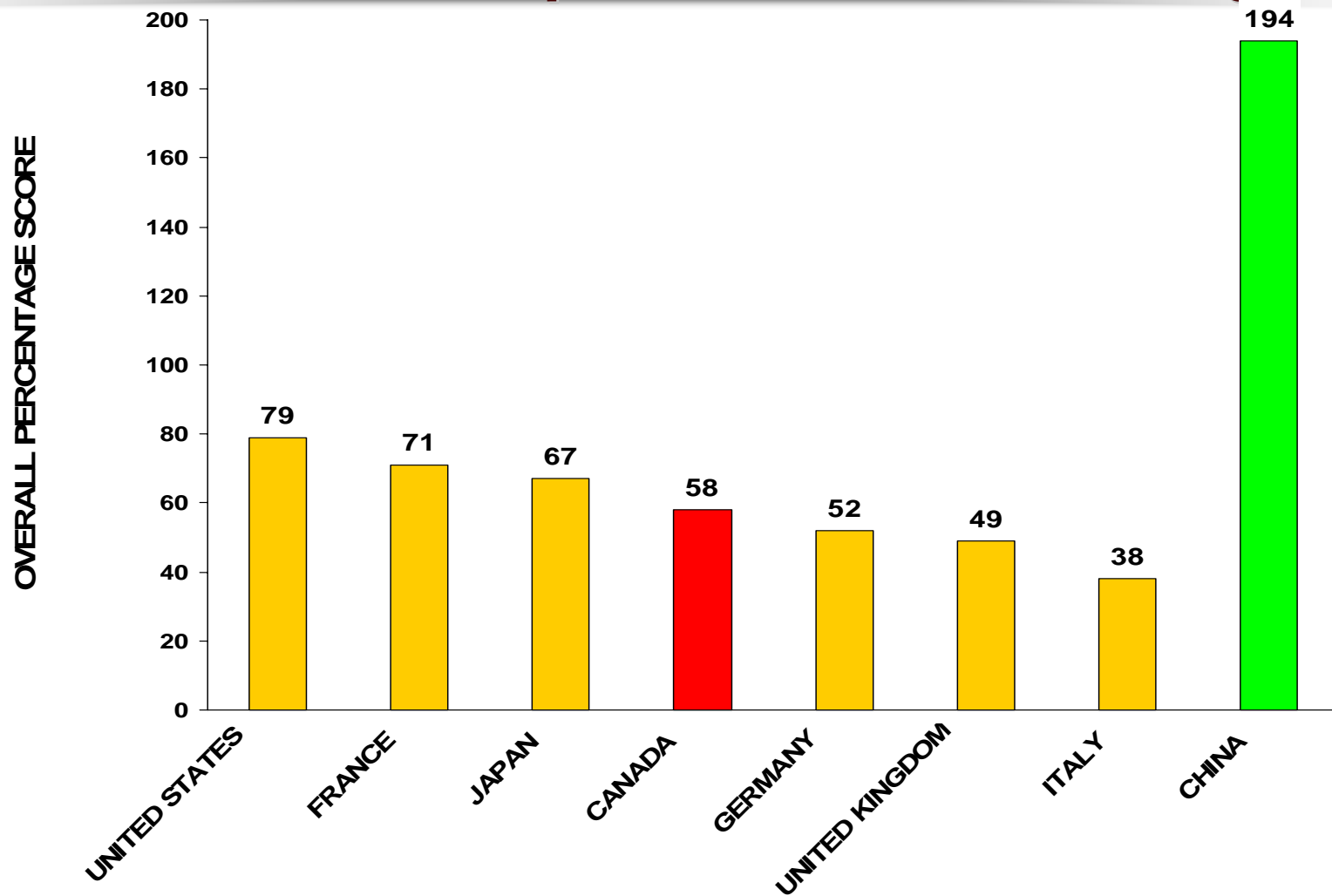
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How do we measure Up?

G7 & China Competitiveness Ranking





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Manufacturing is Changing

Old Paradigm

- Linear production systems.
- Domestic/North American markets & competition.
- Companies compete.
- Integrated businesses.
- Local sourcing.
- Mass production.
- Manual & technical skills.
- Stand-alone equipment.
- Value based on functionality.
- Compete on production costs.
- Products define market.

New Paradigm

- Global business systems.
- Global markets & competition.
- Value chains compete.
- Modular businesses & outsourcing.
- Global sourcing.
- Mass customization.
- Knowledge skills.
- Integrated automation systems.
- Value based on customer solutions/service.
- Compete on time & total delivered cost to customer.
- Customers define market.



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The Business of Manufacturing

- The business of creating & delivering customer solutions (value) via tangible goods
- Manufacturing is not just about producing things – It is about capturing the value in the knowledge inherent in customer solutions (“Intellectufacturing”?)
- It includes:
 - Product Research and Development
 - Marketing, Design, Engineering
 - Value Chain & Logistics Management
 - Production Systems & Maintenance
 - Innovation, Continuous Improvement & Quality Control
 - Information Management
 - Market Development, Distribution, Sales & Service
 - Business & Customer Financing
 - Life Cycle Management
- A system of global business networks – competing value chains
- Global knowledge, product, service, and logistics management



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Business Strategies Have to Change

- *“It’s never easy to climb into the crow’s nest in the midst of a storm...”*
- Focus on Customer & Supplier Success
- Focus on Solutions not Products
- Focus on new Global Opportunities
- Focus on Internal Excellence
 - Process Perfection
 - Elimination of Waste Everywhere
 - Bottom Line Results
- Focus on Achieving Results through People



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Threat or Opportunity



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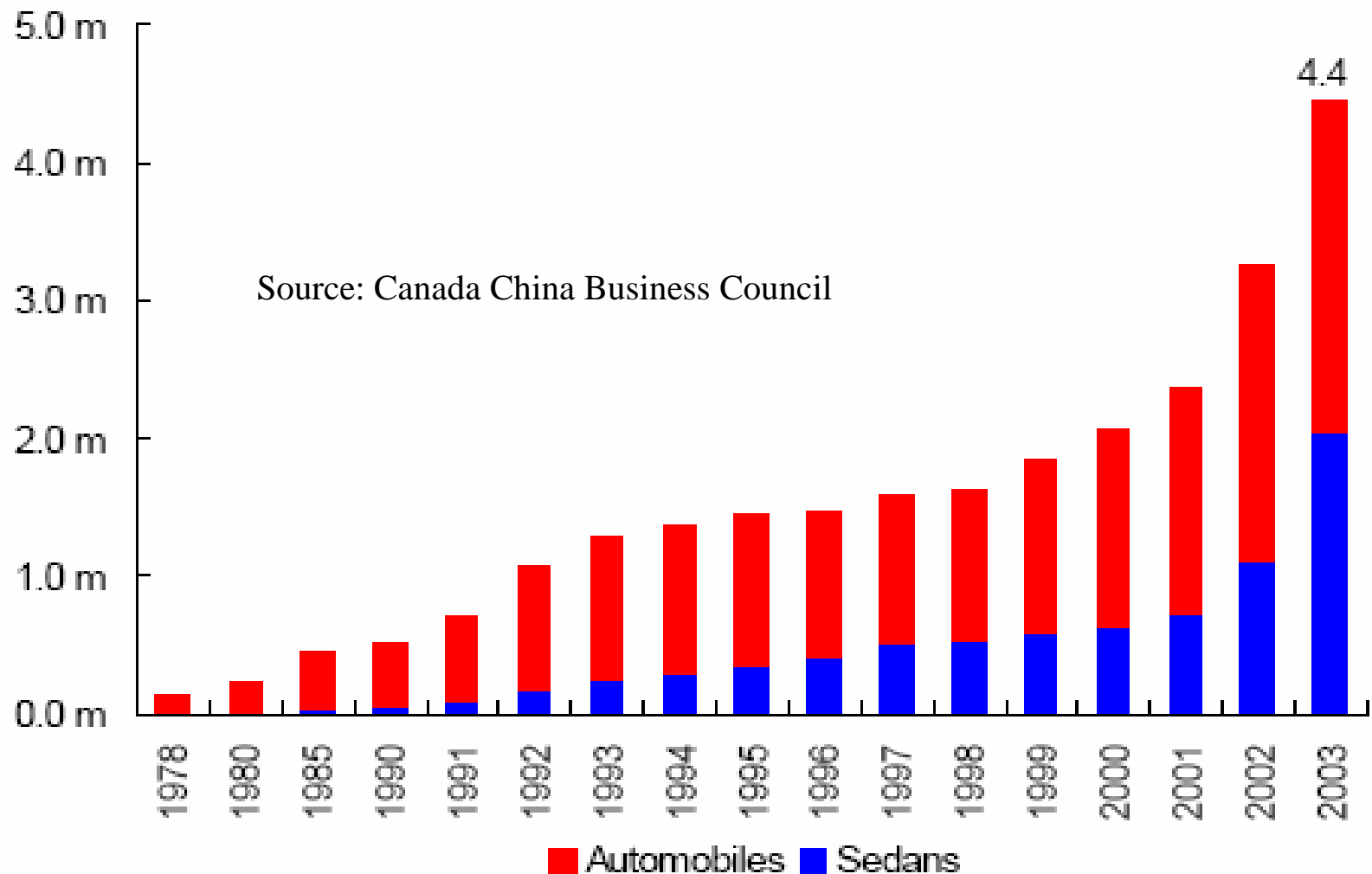
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Automobiles Growth





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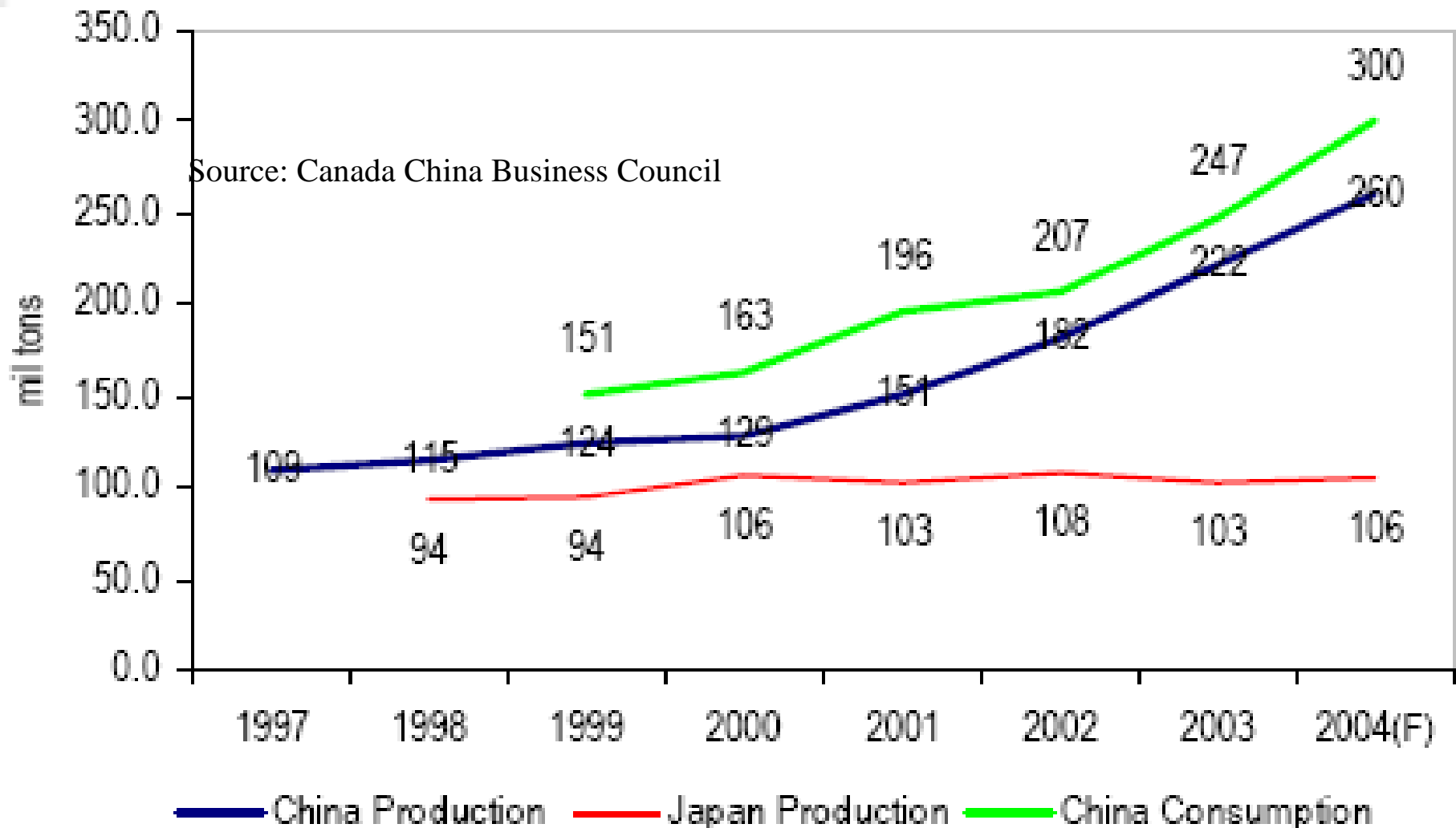
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Growth in Iron and Steel





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World's Top 10 Container Ports in 2004 ('000 TEU's)

Hong Kong

Singapore

Shanghai

Shenzhen

Pushan

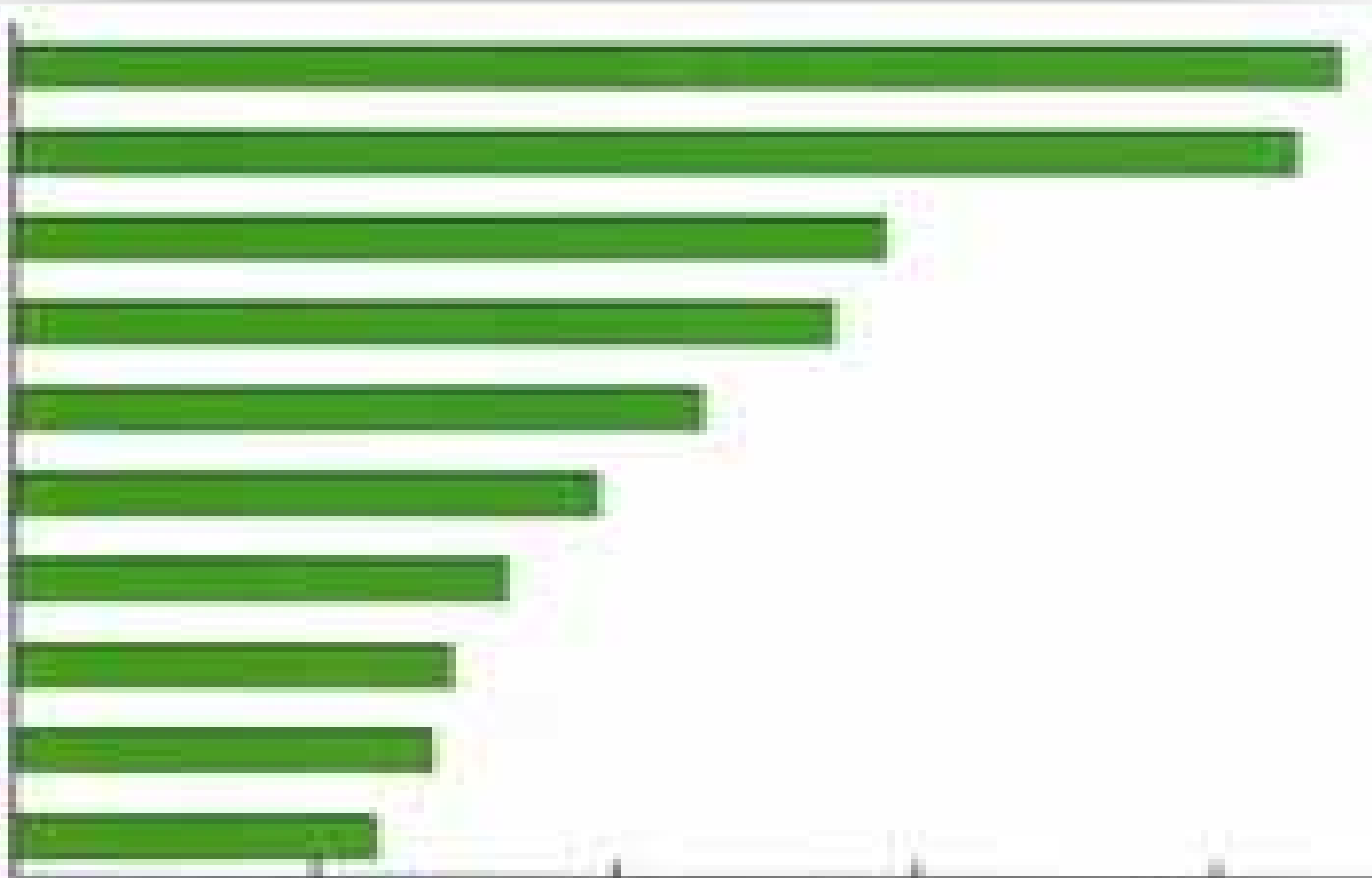
Kaohsiung

Rotterdam

Los Angeles

Hamburg

Antwerp





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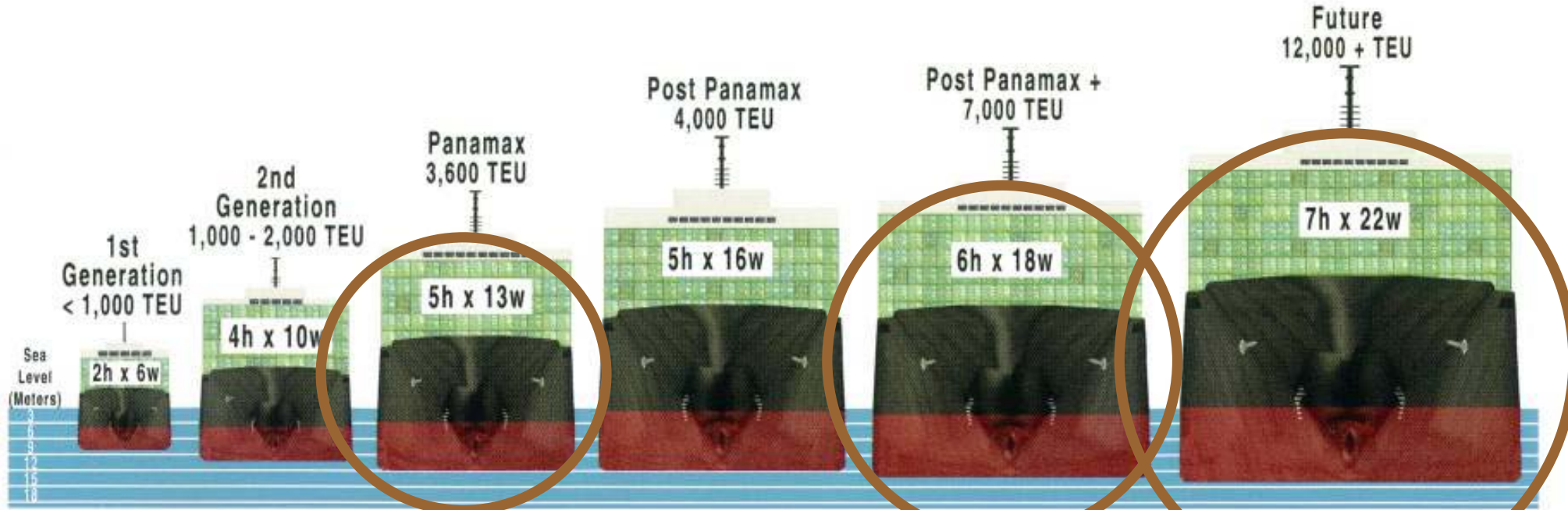
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Rapidly Escalating Vessel Size

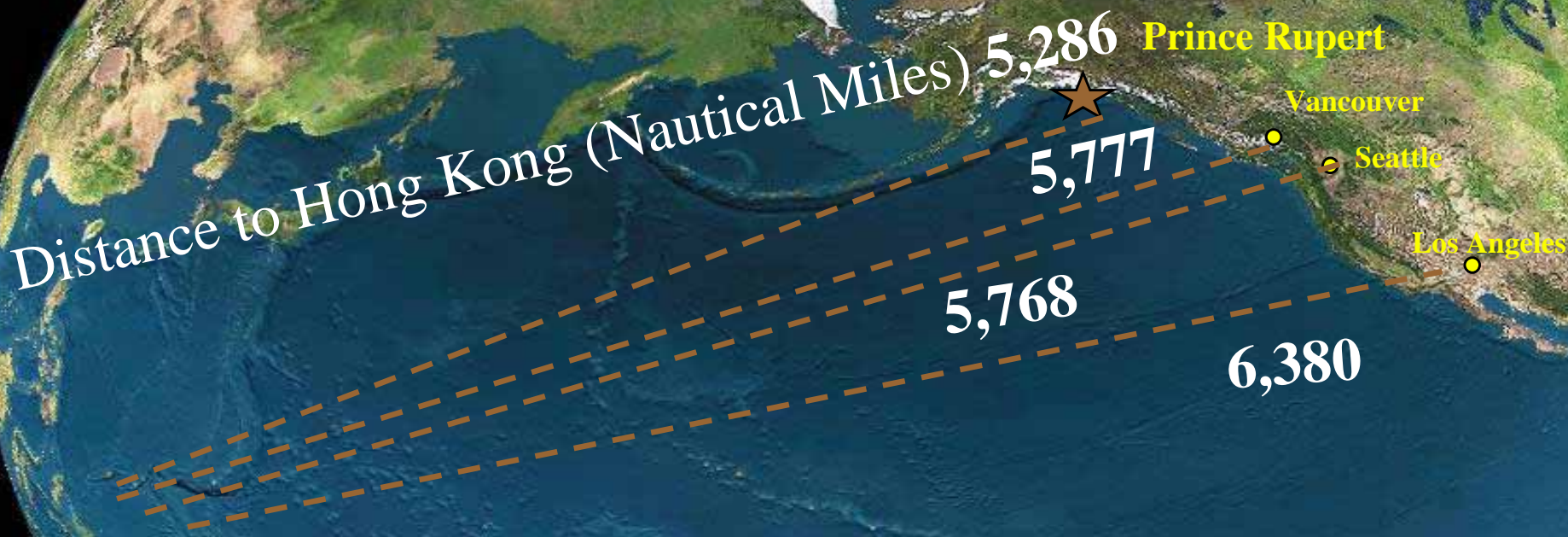


**Future Coastal
Freighters**

**Current 7-
9,000 TEU**

**Future 12-
15,000 TEU**

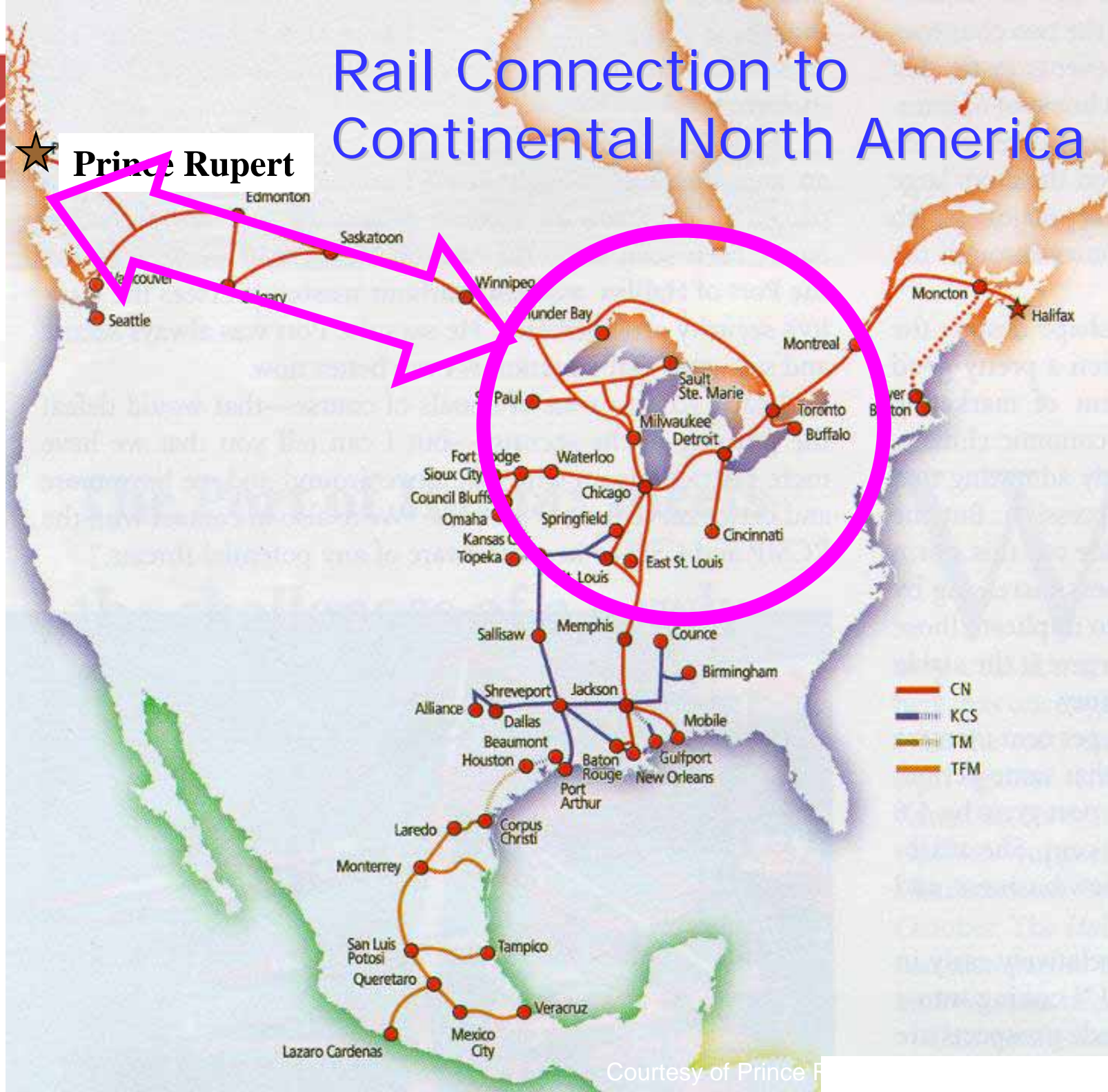
THE PRINCE RUPERT ADVANTAGE



Rail Connection to Continental North America



★ Prince Rupert



Courtesy of Prince Rupert



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Opportunities for Western Canada

- Returning empty containers will telescope Prairie provinces to the Pacific coast at minimal costs
- Forest Products, e.g. furniture, log homes, bio-fuels, doors and window frames
- Agri-food products, e.g. hay, grains, processed food, aquaculture, biomass
- Oil field services equipment, auto parts, robotics assembly and petrochemicals



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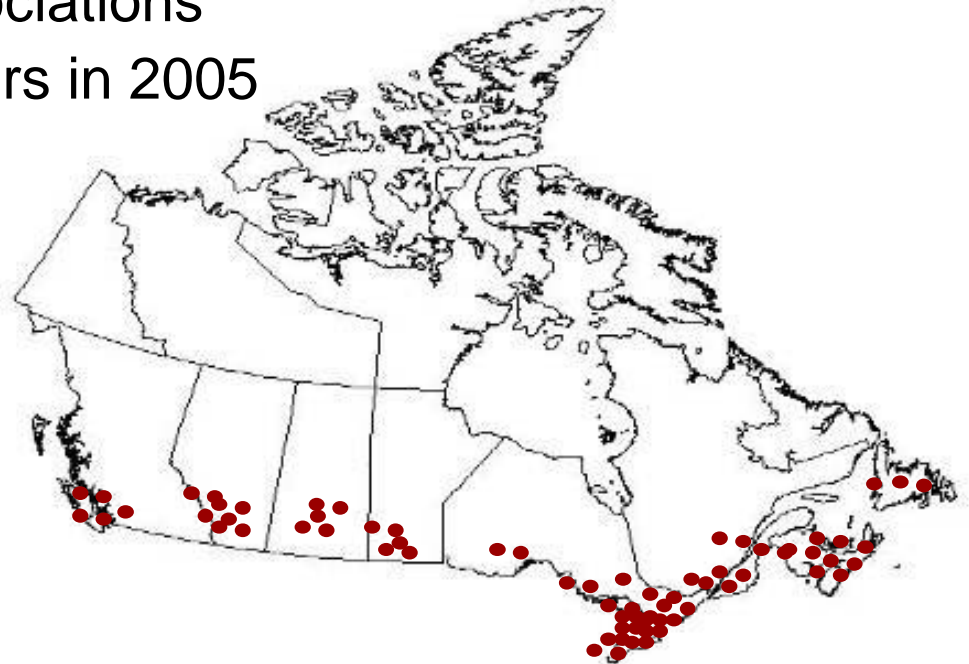
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Manufacturing 20/20

- Challenges & changes affecting manufacturing
- Future of manufacturing in Canada?
- 98 meetings involving more than 3,500 manufacturers and stakeholders – 50 meetings in Ontario
- Input from 15 industry associations
- Survey of 942 manufacturers in 2005
- National Manufacturing Summit (Feb. 2005)
- Reports on Innovation, Workforce Capabilities, & International Business
- Web www.cme-mec.ca





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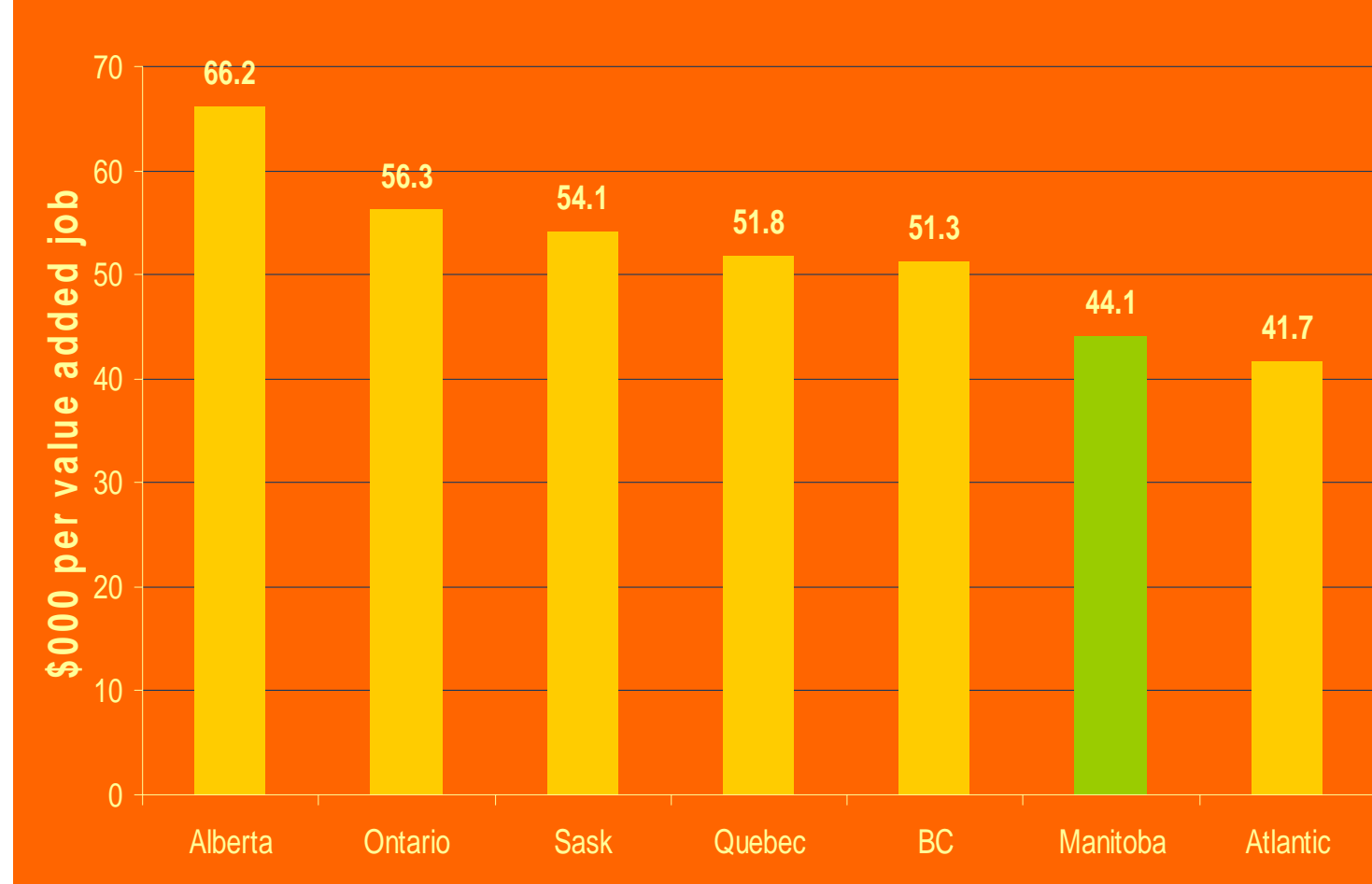
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Provincial Productivity

Table 3 Value Added Productivity by Province





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The Advanced Manufacturing Initiative (AMI)

- Launched in February of 2005
- To assist Manitoba's manufacturers and exporters to achieve significant gains in productivity and organizational effectiveness
- To enhance our global competitiveness



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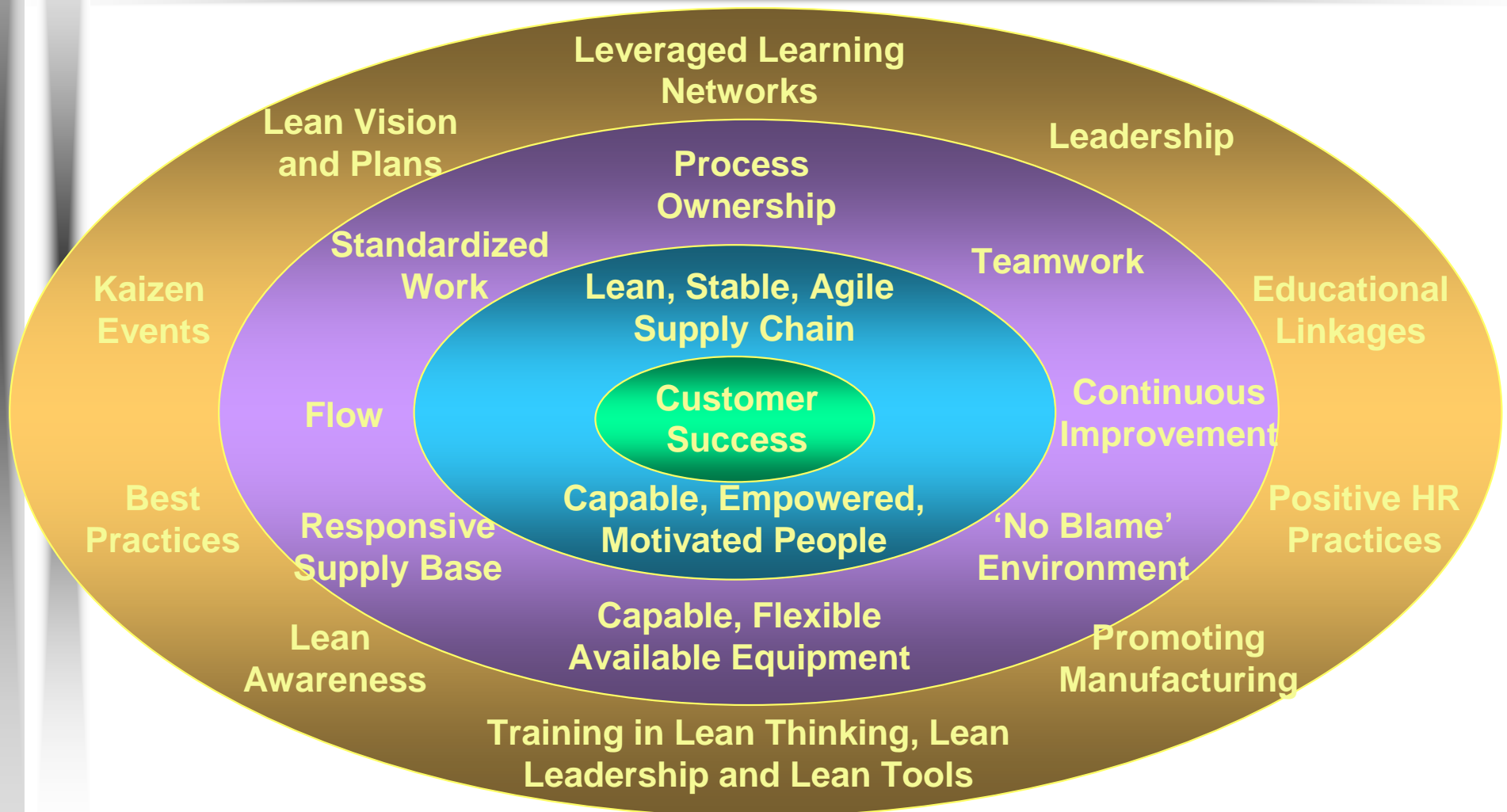
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AMI Operational Vision





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The AMI

- A “virtual centre”
 - Working with other associations and organizations to minimize duplication of efforts and maximize the impact of programs
 - Providing linkages to relevant programs and information outside of our province
 - Linking “problems” to “solutions” within our community



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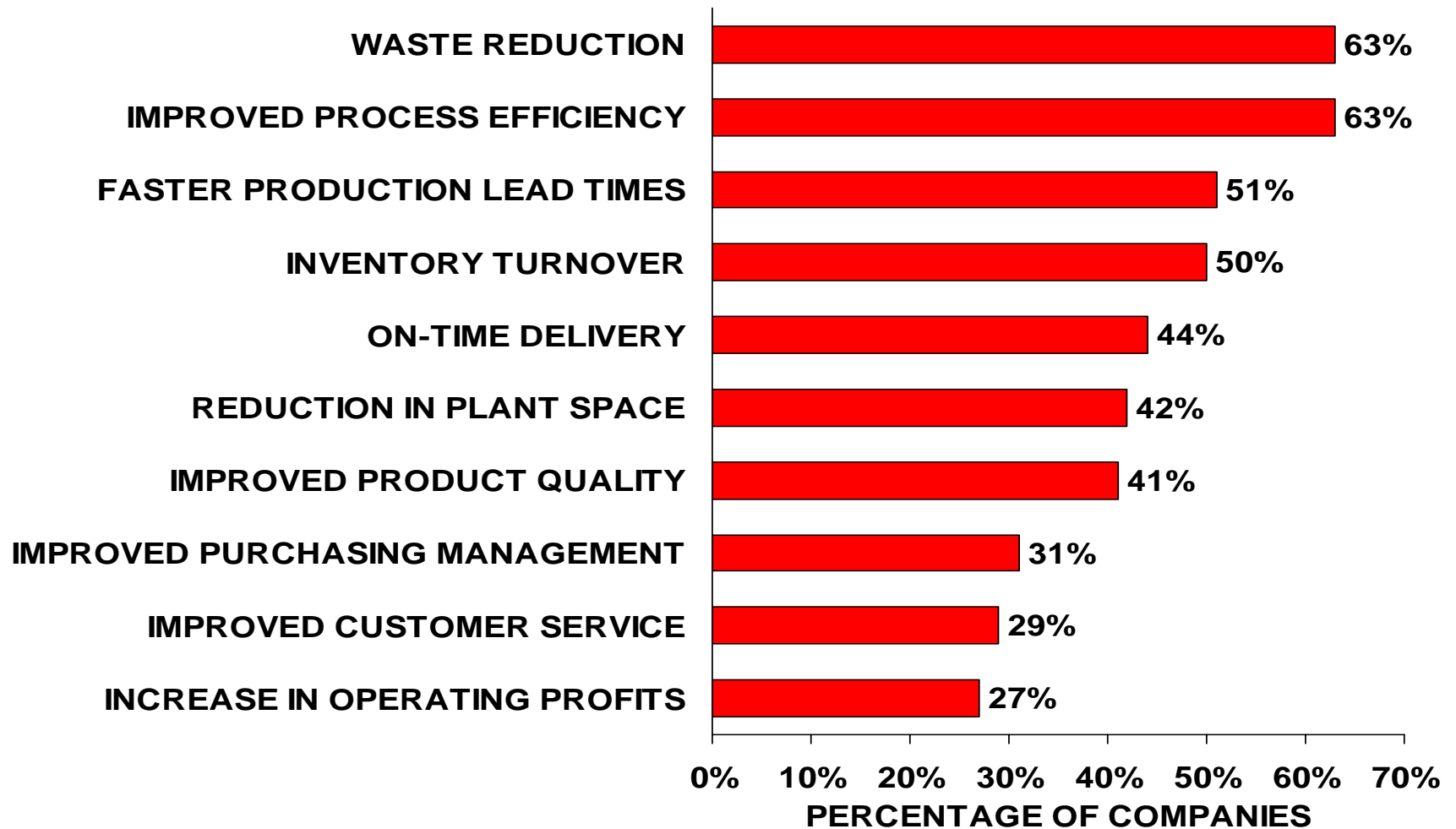
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OUR VISION FOR
THE FUTURE

**MANUFACTURIERS
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Benefits of Lean







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Batch to single piece flow





A “Before & After” Blitz Example



LEAN INFO CENTER

The corkboard features several posters related to Lean manufacturing, including:

- WASTE 01** - Waiting
- WASTE 02** - Transport
- WASTE 03** - Inventory
- WASTE 04** - Inappropriate Processing
- WASTE 05** - Unnecessary Motion
- WASTE 06** - Unnecessary Handling
- WASTE 07** - Defects

Other items on the board include photos of workers, a 'Kaizen Kit' checklist, and a '5S Kit - Aha' checklist.









Manufacturing Simulation



Measure	“As Is”	“Future State”
Throughput Time	2 – 5 days	1 day
WIP	26-27 parts	9 parts
Max Queue before Paint	13 parts	3 parts
Schedule Adherence	82%	100%



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AMI Success Stories

SME Examples

- **Paint manufacturer:**
 - 30% increase in productivity
- **Window and door parts manufacturer:**
 - 79% reduction in inventory
- **Envelope manufacturer:**
 - 125% increase in productivity
- **Plastic parts manufacturer:**
 - 70% reduction in machine set-up time
- **Commercial building manufacturer:**
 - 50% space reduction



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AMI Success Stories

Business - Metal Fabrication

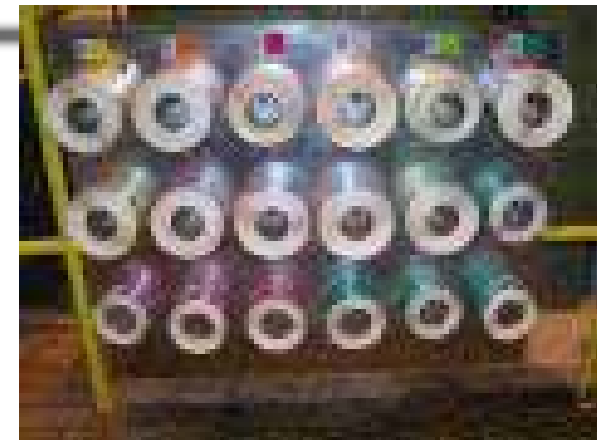
Focus – Machine Set-up Reduction

Approach – Kaizen Blitz

Time frame – 4 days +

Results:

- Kaizen 1
 - 42% set-up time reduction
 - 15% increased capacity
- Kaizen 2
 - 55% set-up time reduction
 - \$500,000 inventory reduction



Label Organization



Coil loading



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AMI Success Stories

Business – Fence Manufacture

Focus – Waste Elimination

Approach – Kaizen Blitz

Timeframe – 3 days +

Results:

- Kaizen 1
 - 86% set-up time reduction
 - \$20,000 cost saving
- Kaizen 2
 - 50% cycle time reduction
 - \$25,000 short-term cost saving
 - \$300,000 long-term cost saving



Slide for quick adjustment



Current state process map



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AMI Success Stories

Business – Trailer Manufacture

Focus – Capacity and Growth

Approach – Kaizen Blitz

Timeframe – 9 months

Results:

- 50% cycle time reduction
- 10 weeks to 5 weeks lead time
- \$1 M work-in-progress reduction
- 20% productivity improvement
- 50 to 60 trailers per month



6,000 Ft Expansion



3M Morden
Manufacturing



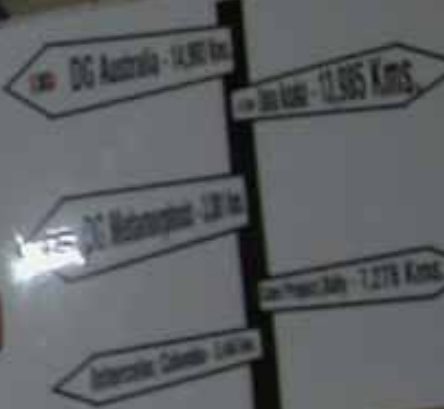
Ancast Lean Journey

Robert G. McBein, P. Eng



DG
THE DUHA GROUP

Journey To Lean



LISC INFO.

MINUTES

NEWSLETTER

5-S TRACKER UPDATE

Two copies of a newsletter titled "Journey To Lean" are pinned to the board. The newsletters contain text, images, and a small table.

Two copies of a document titled "Journey To Lean" are pinned to the board. They appear to be minutes or reports, containing text and some diagrams.

A 5-S TRACKER UPDATE table is pinned to the board. It is a grid with columns and rows, likely used for tracking progress or performance metrics.



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MCME Accomplishments

- **50 % percent reduction in warehouse space**
- **50 % reduction in plant space with the same output**
- **70 % increase in machining productivity**
- **On time delivery increased to 98% from 85%**
- **Inventory turns from 4 to 18**
- **66% reduction in suppliers**

- **Year on year reduction in working capital of 5%**
- **75% reduction in Warranty Claims**

- **Reduction in casual Absenteeism 66%**
- **2 weeks per year of training per employee**



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MCCI Accomplishments

- Productivity increase of 24%
- Space reduction of 30%
- Products return reduction of 37%
- WIP reduced from 4-6 days down to 0
- Inventory reduction of 30% = \$1,000,000

- 5S Program resulted in \$50,000/yr savings from \$25,000 one-time cost
- 6% reduction in selling price to customer while profit stayed steady and CDN \$ increased.

- Reduced scrap rate from 7-8% down to <4% -- World Class is 1%
- \$2,000 Energy Audit resulted in \$13,000/month saving.

Create and explore



A computer-aided design is a two-dimensional or three-dimensional digital model of a physical part or assembly. The model is used to create a physical part or assembly. The model is used to create a physical part or assembly. The model is used to create a physical part or assembly.

Manufacturing is a great place to get started in the industry because the province has Canada's largest concentration of computer-aided design companies. So get the best experience with knowledge in industry, professional services, and education. Find the best jobs in your area of the manufacturing process.

Manufacturers, for example, testing etc. (Canada's largest manufacturing sector) need a workforce. Almost all workers in manufacturing require knowledge and expertise with technology. Some workers, printing, in shipping. Others who use computers and special software to do the best and the most work in the industry of the best and the most work in the industry.

In addition to the latest already mentioned, mechanical engineers and machine design technicians are needed to take care of what the machines are doing. Quality control work will be required to make sure all aspects of the process are done properly and well.



Design is one of the most important parts of manufacturing. It is the process of creating a product that meets the needs of the customer. Design is one of the most important parts of manufacturing. It is the process of creating a product that meets the needs of the customer.



Logistics is the process of getting the materials and people you need for a job to the right place at the right time and managing them efficiently. Technology is an important part of this process. Logistics is the process of getting the materials and people you need for a job to the right place at the right time and managing them efficiently.



through careers in MANUFACTURING



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CME's Key initiatives

- MSEDPP
- AMI
- Manufacturing Week
 - Manufacturing & Trade Summit (Feb 22)
 - Manufacturers Hall of Fame
 - Manitoba Export Award
- ICOSMO



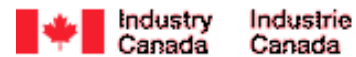
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Innovative Canadian Oil Sands Manufacturing Opportunities Portal Overview



Strategic Partners:



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icosmo – SELLERS

Sellers : Canadian companies who wish to get involved with oil sands opportunities

- Create, source and receive Oil Sands opportunities
- Hi-lite and showcase goods and/or service offerings
- Expand and customize products/processes to meet Oil Sands industry needs
- Forge relationships and secure Oil Sands business opportunities

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Concluding Comments:

- The focus must be on competitiveness, not just productivity.
- The challenges need to be given priority by all stakeholders
- Manitoba and Manitoba's businesses must become globally competitive – now!



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Concluding Comments:

- **For our Government, that means;**
 - **A competitive and supportive tax environment**
 - **A competitive, progressive and business-friendly regulatory environment**
 - **A clear vision and leadership**



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A Call to Action

- **Manufacturers**
- **Workers and labour groups**
- **Business & Professional groups**
- **Education systems**
- **Research centers**
- **Business and financial services sector**
- **Community leaders and economic development agencies**
- **Local, Provincial and Federal Governments**



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A Future for Manufacturing?

It's All About
Competing & Winning
in the Global Marketplace

**“Where your competitor is only one
mouse click away on your
customer’s computer”**



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Manufacturing 20/20:

www.cme-mec.ca/mfg2020/index.asp