State Of Our MTDM Sector and Where Do We Go From Here ?

CANADIAN TOOLING & MACHINING ASSOCIATION

February 28, 2008
CTMA Western Ontario Chapter Dinner Meeting

Outline Presentation

1. Overview of economy and Canadian MTDM sector
2. Look at Germanys' MTDM sector that is successfully competing world wide with costs well above our Canadian costs

The Canadian Economy

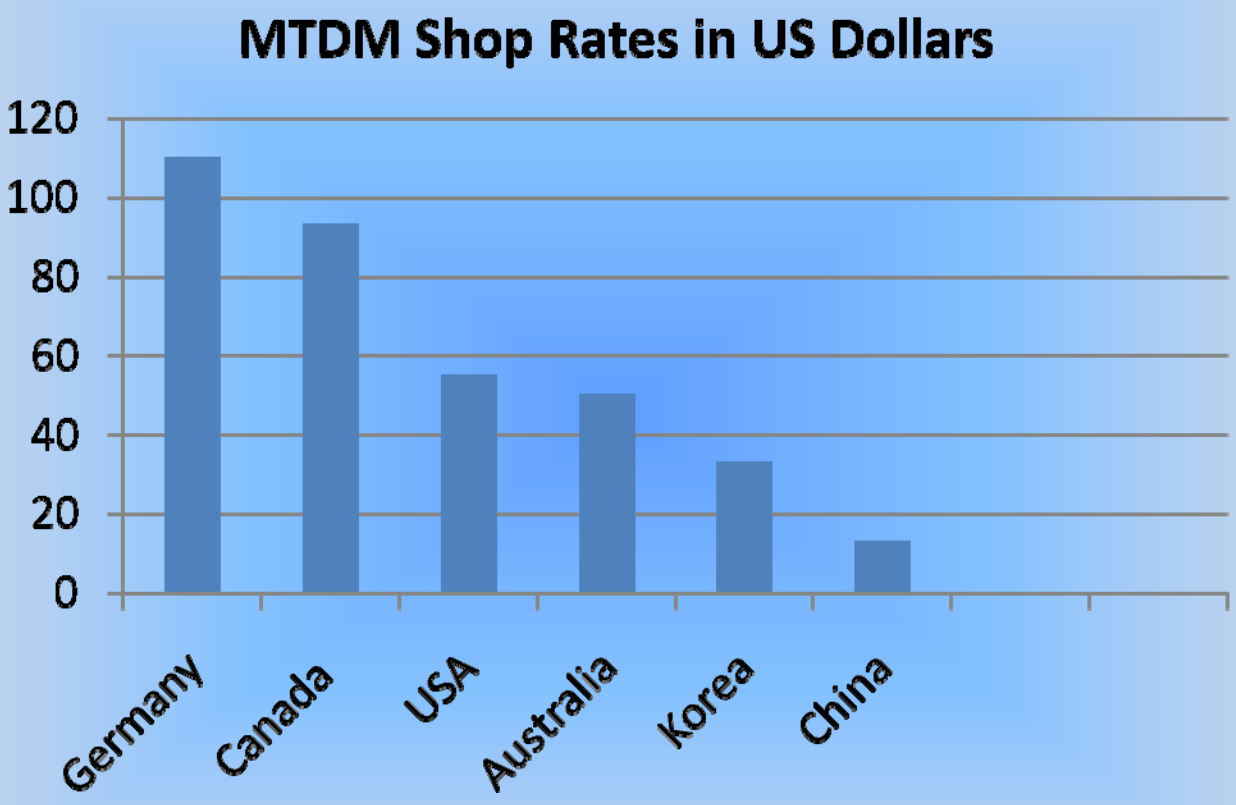
- Economy is strong and growing due to oil
- Employment is at a seven year high
- Raw material prices at record Levels
- Canadian Dollar at 20 Year High
- Interest rates are low but credit is tight
- Trade Balance is Falling Fast
- Manufacturing sector on major decline
- Competition from low labour rate countries
- The USA our major trading partner going into a recession

How Is The MTDM Sector Doing?

- We are now one of the highest cost MTDM source in the world
- Most of our customers are declining and releasing less work
- Our customers are sourcing their work in lower cost countries
- Customers are slow paying
- All our input costs are increasing

What Do We Have To Offer

- Program management and quality comparable to any in the world
- Tool design and knowhow second to none
- Tool materials, components and building technologies and quality equal to any
- Tool manufacturing and build on state of the art equipment
- Delivery and installation on your floor


MTDM Shop Rates in US Dollars
120
100
80
60
40
20
0
Germany
Canada
USA
Australia
Korea
China

- Germany with the highest shop rate is fully booked out well into 2008 and they are shipping tools into China
- They are competing against the Chinese MTDM sector in their own back yard

How is Germany doing this?

The Germany MTDM Sector is Succeeding Despite

- More stringent work place safety regulations
- Enforced 35 hour work week with no overtime permitted
- Highest labour rates for the least hours worked by any worker in the world
- High tax structures
- Little or no government assistance
- Tooling cost well above comparable Canadian costs

They are Managing their Customers Rather Than Letting Their Customers Manage Them

- They complete 100% of the Engineering and part analysis before they start the build – minimizing the costly and disruptive changes during the build
- They know their true detailed costs when they quote
- They plan the build to maximize their available resources
- **Do it once and do it right**

Make The Most Effective Use Of Available Technology

- Manufacturing resource planning and scheduling
- CAM optimization technologies
- Machine optimization technologies and controls
- Levering each man hour into multiple manufacturing hours
- Engineer to requirements – no over-engineering
- Lean techniques throughout the operation
- Continuous improvement and continually upgrading technologies
- **Stay on the leading edge ahead of the competition**

Manufacturing Resource Planning and Scheduling

- Full integrated manufacturing plan from detailed quotation – real time minute by minute on each machine
- What if capability…for emergency or machine breakdown
- Reverse plan from delivery back – everything feeds into final assembly process
- Concurrent planning to minimize in-house time for any one project or tool

Plan Then Execute

CAM and Machining Optimization

- Use best machining strategy for job – plunge milling, hard milling, 2+3, 5 axis, ……
- Cutter selection is key and efficiencies are always improving
- Tool holders are even more critical …. Shrink fit, carbide extensions …..
- EDM versus Milling
- Touch probe set up
- On machine laser running tool calibration

Use The Best Tools For The Job At Hand

Machine Optimization Technologies and Controls

- Inertial based controls are able to produce more than two times non-inertial based controls
- Machine calibration critical
- Use machine power available through proper tooling selection and feed rates
- Tool Changers and quick setup systems for work piece
- Consistent machine zero
- Off line programming

Levering Man Hours Into Multiple Manufacturing Hours

- Ultimately lights out machining
- Stagger program completions so that one man can service more than one machine
- Man hours used for programming during lights out
- Tool life management modified to your experience
- Machine to zero …. No spotting or fitting
- Machine to finish …. Little or no handwork

Engineer To Requirements

- If the customer requires 50,000 cycles do not build a tool that is good for a million cycles
- Do all the engineering required … for most of us that would increase the engineering content
- Complete engineering first, then build
- Understand the customers requirements then engineer to that

Lean Techniques Throughout

- Most Blocks of Steel Spend 80% of the time on the floor doing nothing
- Ideally the block should be worked on continuously from when it comes in until the finished product leaves our doors

Continuous Improvements

- This applies to all areas from sales and project management to final delivery
- How can we add value to this that our customer will recognize ?

Stay At The Leading Edge

- In the products and services you offer
- Be your customers source for new technology
- Be the only game in town with no competition

Approach To Tooling Inquiry

Canadian Tool Supplier

- Want to acquire the basic information necessary so that he can get on with designing and building the tool.
- The supplier then move forward and builds the tool to produce the part.
- **Build to print**

German Tool Supplier

- Objective is to understand the complete system for which he is designing and building the tool so that the tool is properly thought out for the overall process rather than the production of the part.
- The supplier then become part of the production team working with the customer to provide the best tool/part solution for the process.
- **Process solution**

A Customer's Tooling Inquiry Is Really

- A request for a production solution and an opportunity to build more than just the tool he requested

Thank You

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