



Excellence in Manufacturing
Consortium
pour l'Excellence Manufacturière

Manufacturing: Moving Forward

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Sr Field Service Advisor
Excellence in Manufacturing Consortium

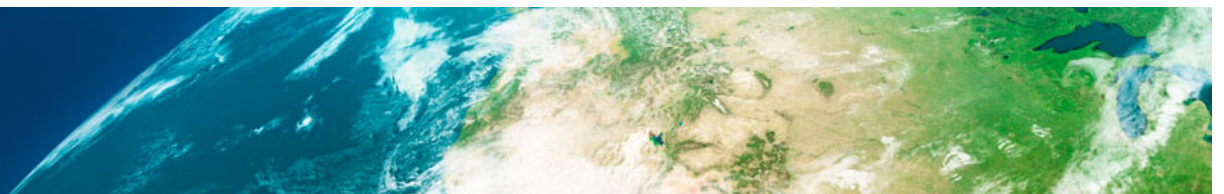


Agenda

- Excellence in Manufacturing Consortium (EMC)
- Why Manufacturing?
- Current challenges
- Strategies to Survive and Thrive
- Current Trends
- Implications for Workforce Planning Boards



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We started with 18 manufacturers.



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About EMC...

- Formed by manufacturers to facilitate development, as a strong community infrastructure of business.

Now Going on 24 Years...

- Diversity of members provides a great model for manufacturers to 'work together'.
- Excellent 'incubator' for developing world-class activities, programs & services in many communities... industry-driven!
- Valuable model for industry development throughout Canada.



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Today we have over 900.



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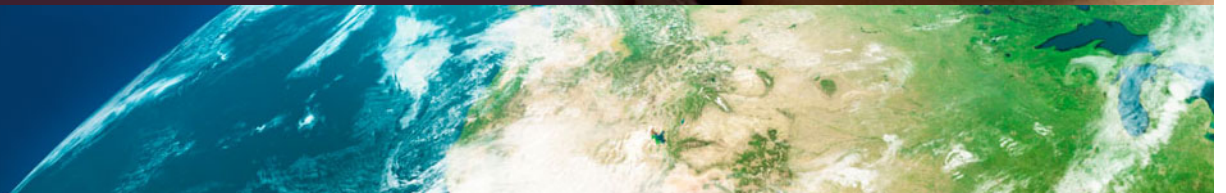


Have you heard?

**EMC is Canada's LARGEST
Manufacturing Consortium**



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**Excellence in Manufacturing Consortium
Ontario Consortium Regions**

- EMC Ontario Consortium
- Consortium Region Coverage
- Consortium Deploying in 2011 Existing Member Communities





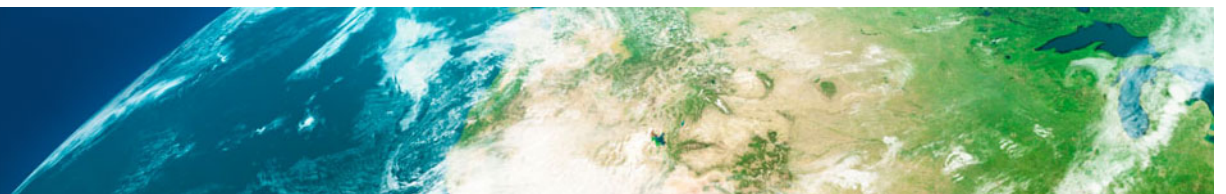
EMC's Role...

- Grass roots manufacturing networks...
...Connected Regionally, Provincially, and Nationally.
- Peer-to-Peer relationships within entire mfg. community.
- Provide advanced manufacturing expertise, services, training and other resources.

Foster mind-set of continuous improvement and sharing of ideas and best practices, to build manufacturing competitiveness.



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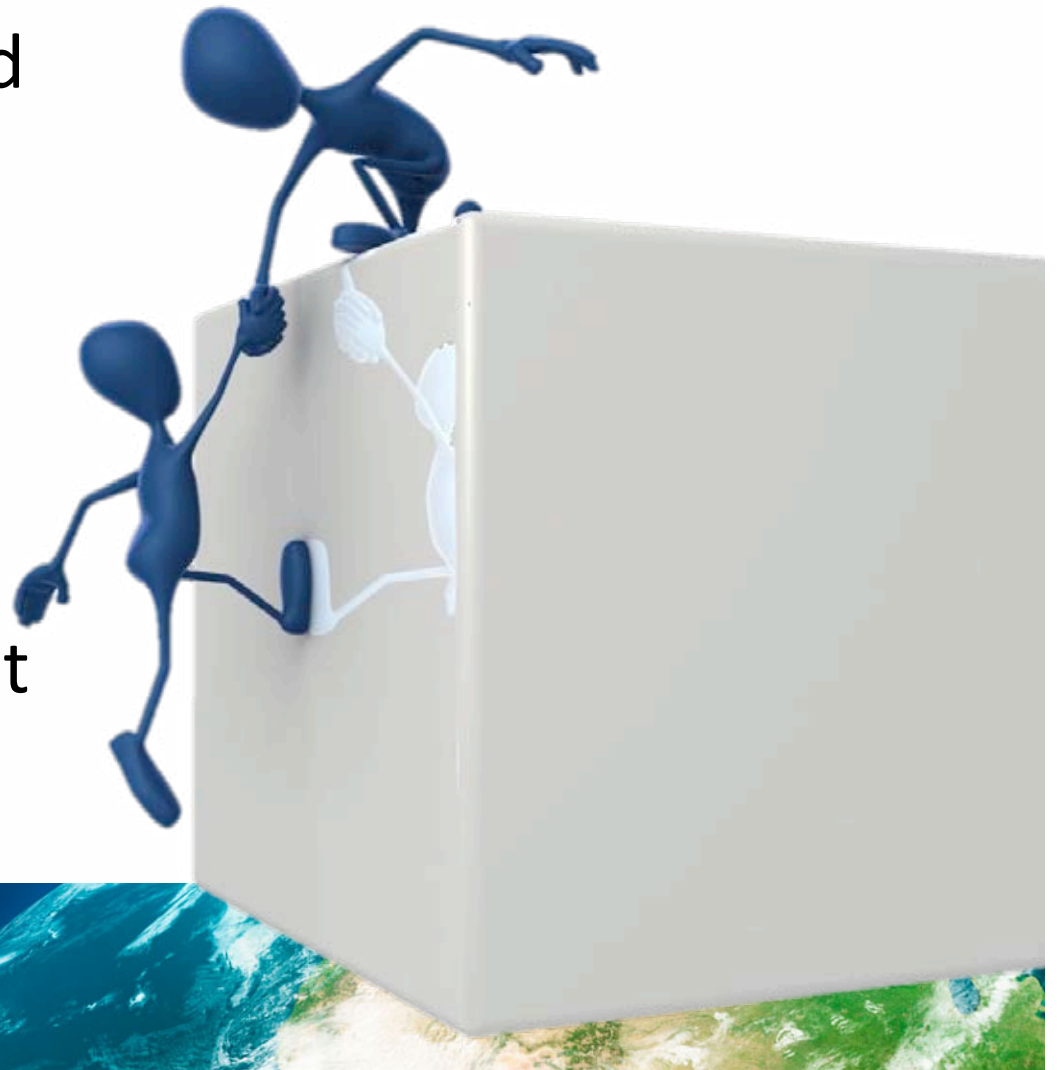
EMC's Mission Statement



Members sharing to optimize learning, expertise & resources to achieve world-class.

Building Competitiveness...

- Foster Innovation and Prosperity through **Partnerships, Linkages, Relationships & Networks** with Business, Industry, Government and **EMC!**



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Community Partners...

Province of Nova Scotia

- Department of Education
- Office of Economic Development
- Apprenticeship Training & Skills Development
- Department of Environment
- Department of Labour
- Regional Development Authorities
- Safety Group Pilot Deployment

Province of New Brunswick

- Business New Brunswick (BNB)
- Training & Employment Development
- Enterprise Networks (CEDA's)
- Atlantic Canada Opportunities Agency (ACOA)
- Safety Group Pilot Deployment

Province of PEI

- Economic Development
- Aerospace Association of PEI

Province of Ontario

- OMAFRA:
 - Rural Youth Job Strategies
 - Mfg. Community Development
 - Food Sector Initiative
- MEDT: Regional Initiatives
- CiT: Lean Deployment Initiative

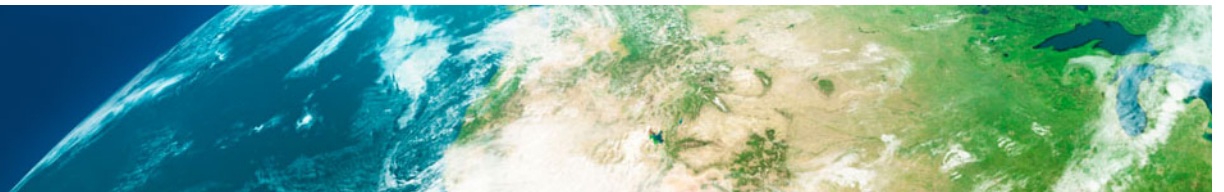
Government of Canada

- Industry Canada
- NRC ~ IRAP
- HRSDC
- Community Futures Dev. Corp's
- ONSITE

Textiles Human Resources Council



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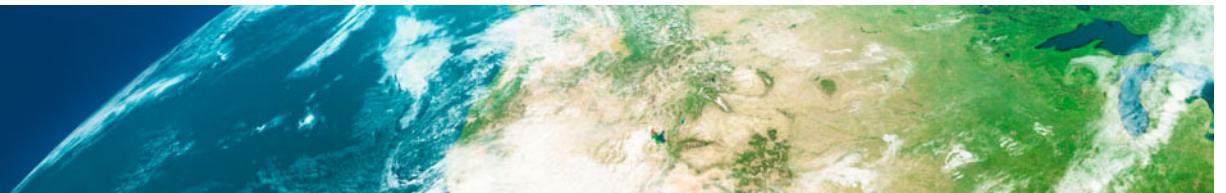


Manufacturers Working with Manufacturers

**All Employees of Member Companies are
Considered EMC Members!**



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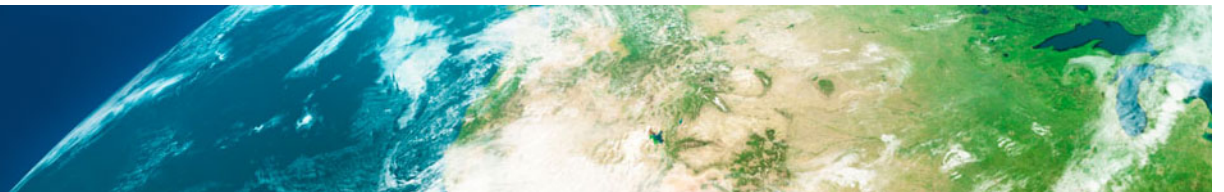
EMC Members...

Share with Pride!

- Peer-to-Peer Networking
- Open Exchange of Ideas & Expertise
- Best Practices Sharing & Benchmarking



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EMC Knowledge Network Delivers...

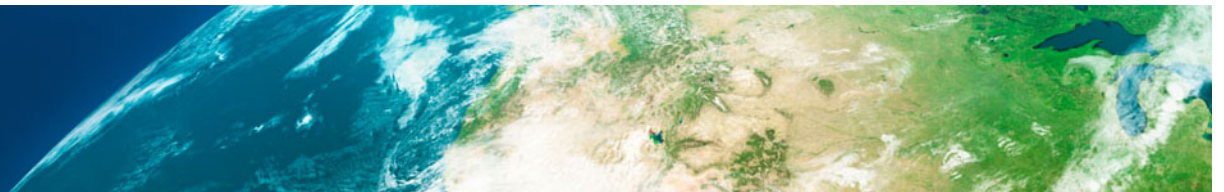
Strategic Interest Groups (SIG's):

**“Delivering
Knowledge
that Sticks”**

- Owners & CEO's/Sr. Managers
- Lean Manufacturing
- Human Resources
- Continuous Improvement
- Health & Safety
- Finance & I.T.
- Logistics/Purchasing
- Engineering
- SIG Keynote Events
- Environmental Management



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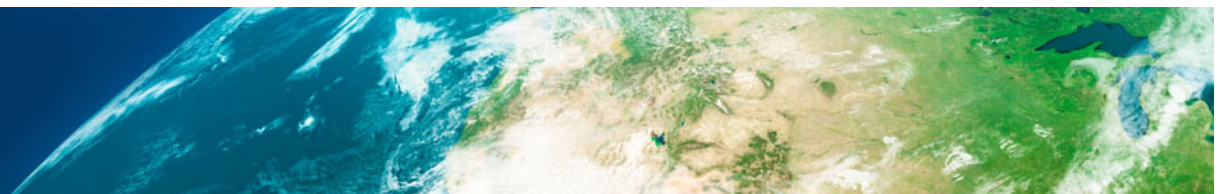
EMC is Lean and Linked...



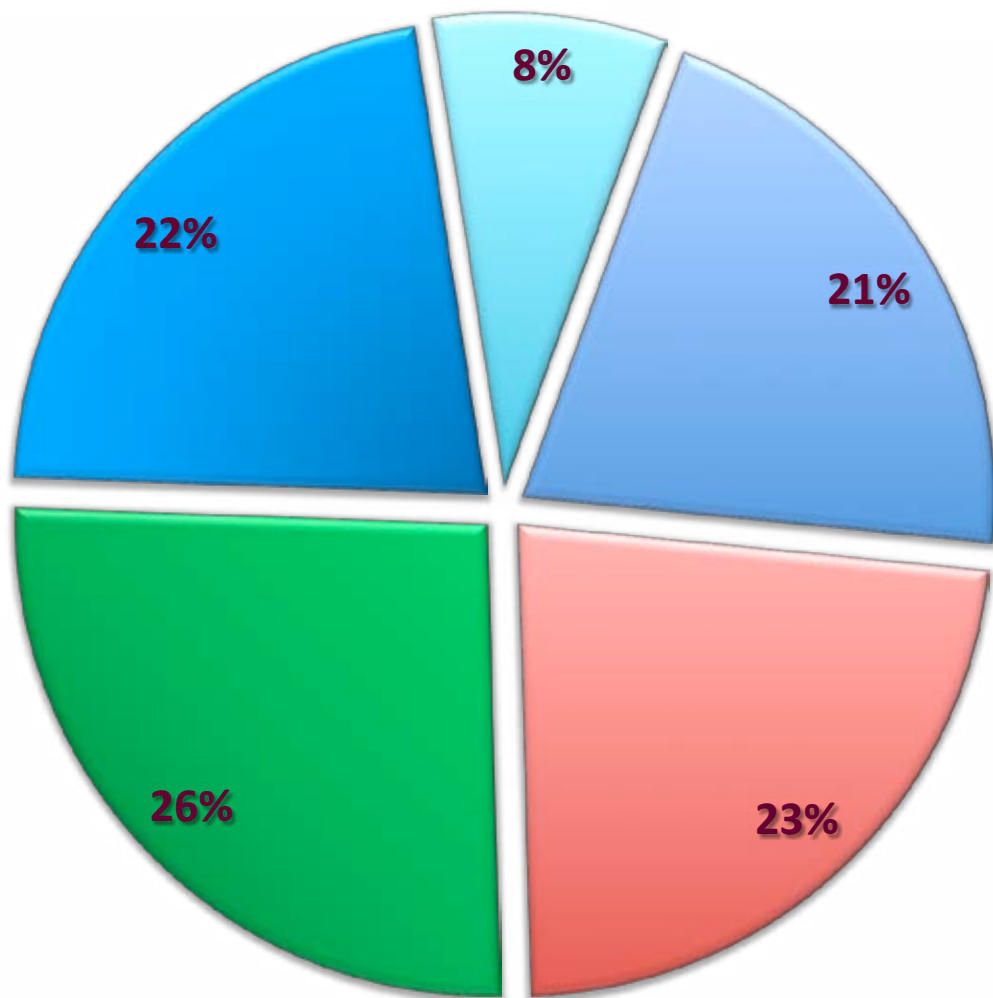
- Over **150,000** Individual Members!
- EMC: **950+** Corporate Mfg. Members!
- Over **5000** members engaged each week!
- Communication reach to all sectors: **100,000+** touch points every week!
- **53** Consortium Regions



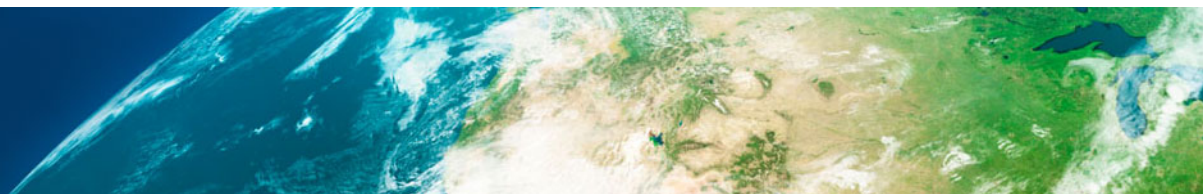
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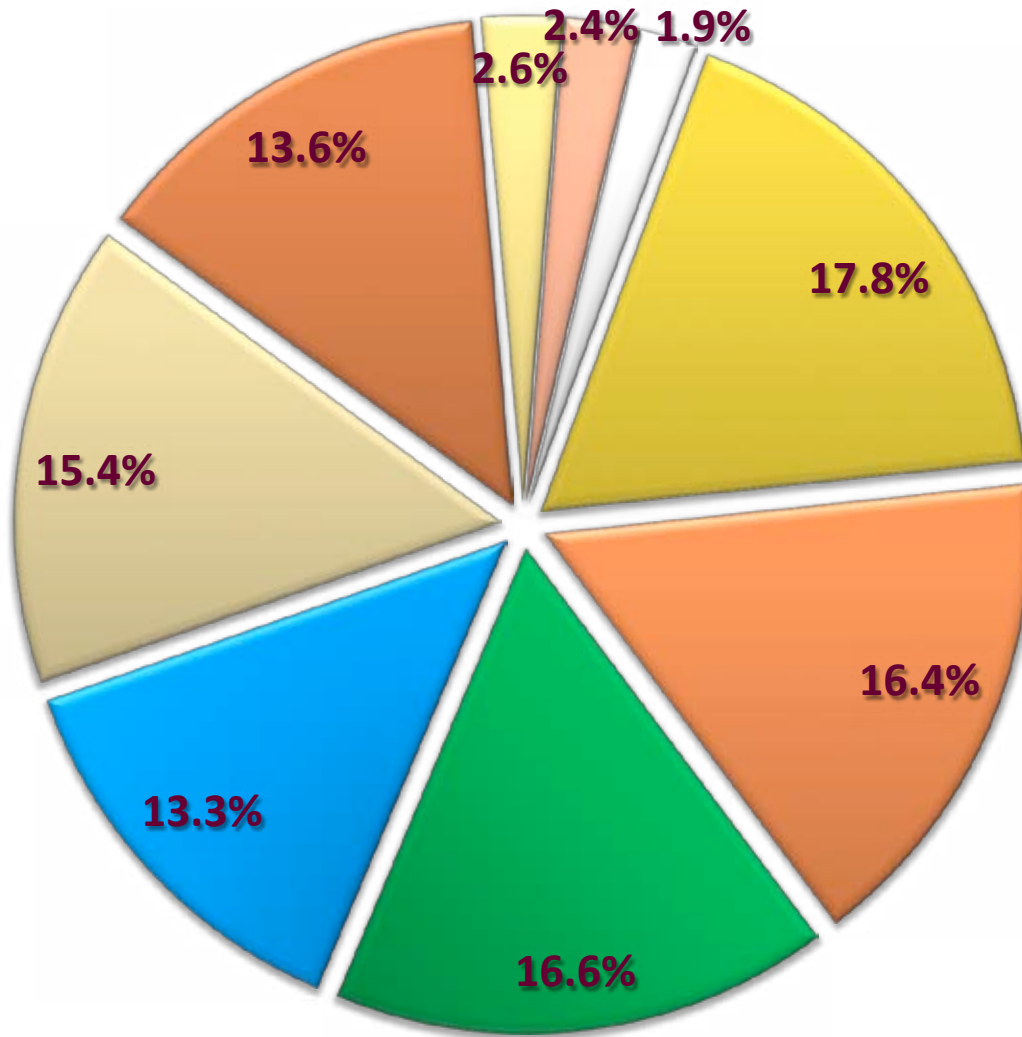
EMC Membership: By Size...



-  < 50
-  50 - 100
-  100 - 200
-  200 - 500
-  500+



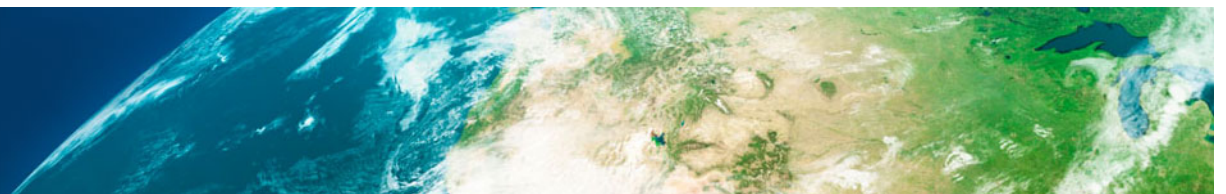
EMC Communications: By Sector...



- Automotive & Transportation
- Plastics
- Food & Beverage
- Wood Products
- Metal Processing
- Textiles
- Aerospace
- Pharmaceutical
- Other



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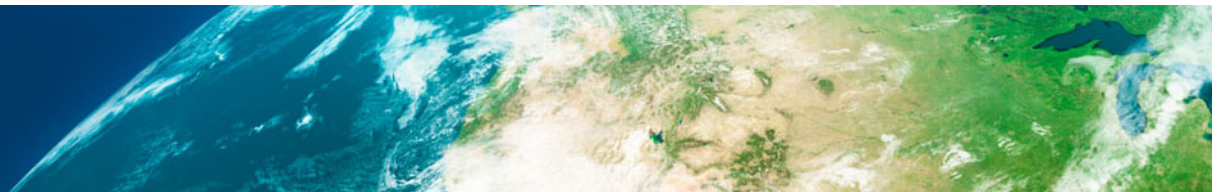
We Listen to Our Members & We Have learned...



“Nobody knows the issues that affect manufacturing, better than the manufacturers themselves. Bringing 900+ manufacturers together to ‘share and learn’ from one another in so many ways makes innovation ‘a way of life’”



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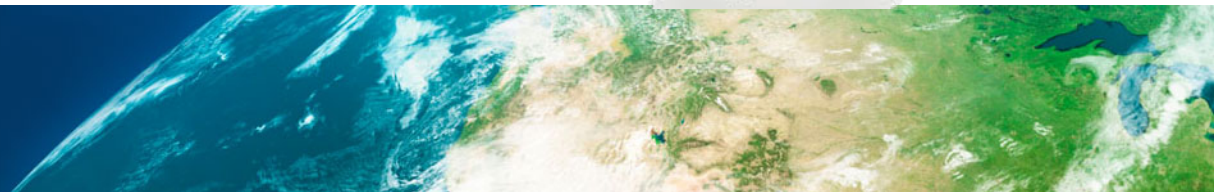
We Listen to our Members!

EMC Services and Opportunities

- EMC Web 2.0 Network
- EMC Food Sector Network Initiative
- EMC SR&ED Initiative
- THRC Online Training Programs
- EMC Energy Initiative
- EMC Purchasing Co-Operative
- EMC WSIB Safety Group
- World-Class Training: Lean, Human Capital, Health & Safety, Online Health & Safety Training
- EMC's New 360° of Environmental Health and Safety
- Informal Assessments

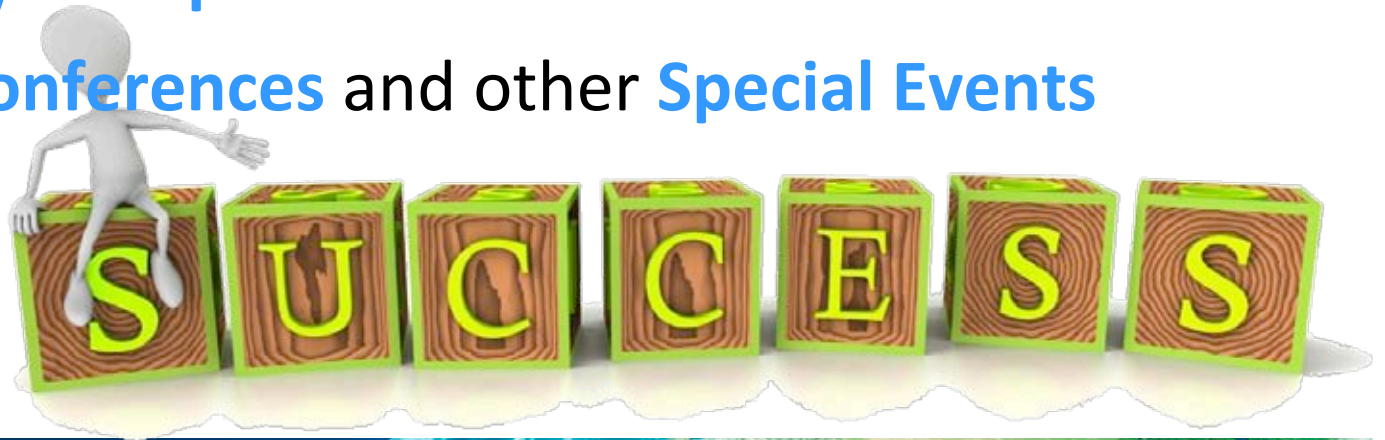


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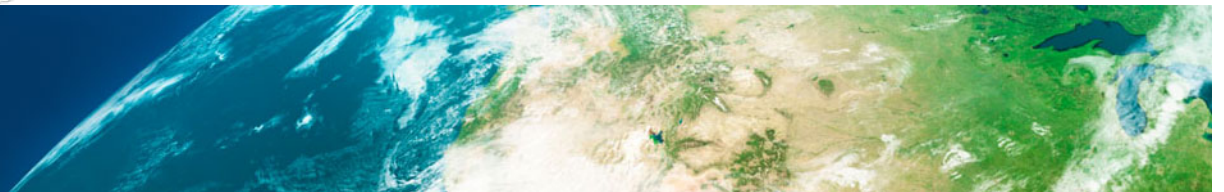


1,000+ Events Annually...

- **Peer-to-Peer Networking Events**
(Strategic Interest Groups)
- Advanced Manufacturing, HUCAP and Lean **Training Programs**
- Industry **Briefings & Webcasts**
- **WSIB Safety Group**
- **Member Conferences** and other **Special Events**



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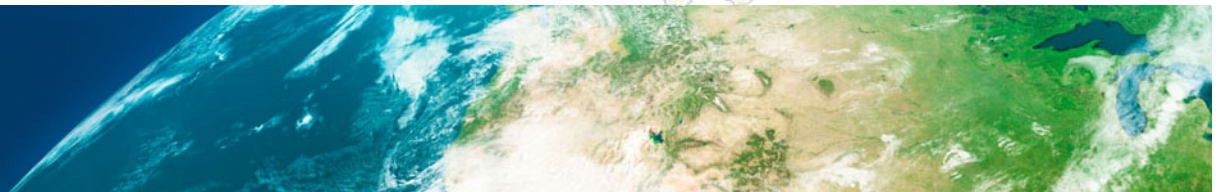
EMC Knowledge Network Delivers...

EMC is a 'Clearing Centre' for Information:

- If we don't have the answer here, we can put you in touch with someone who does. EMC members utilize our knowledge network so they do not have to re-invent the wheel.



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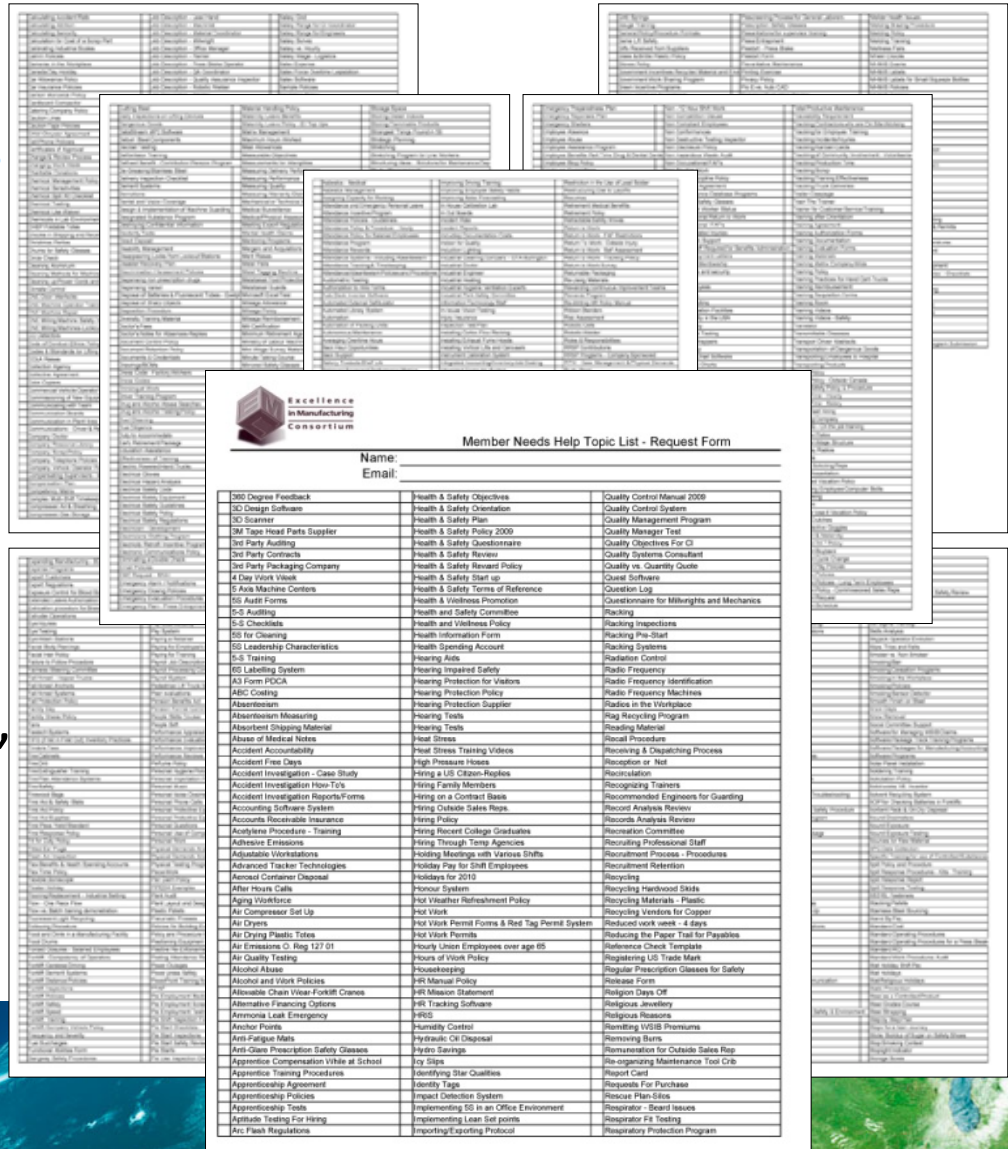
Member Needs Help Service

Helping Members Share.

Huge MNH Archive:

- Draw on other industry & subject matter experts for information on manufacturing issues.
- Call upon EMC to source answers to your questions, concerns and problems.

OVER 1,400+ TOPICS!



Member Needs Help Topic List - Request Form

Name: _____
Email: _____

360 Degree Feedback	Health & Safety Objectives	Quality Control Manual 2008
3D Design Software	Health & Safety Orientation	Quality Control Systems
3D Scanner	Health & Safety Plan	Quality Management Program
3M Tape Heat Parts Supplier	Health & Safety Policy 2009	Quality Manager Test
3rd Party Auditing	Health & Safety Questionnaire	Quality Objectives For CI
3rd Party Contracts	Health & Safety Review	Quality Systems Checklist
3rd Party Packaging Company	Health & Safety Request Policy	Quality vs. Quantity Quote
4 Day Work Week	Health & Safety Start up	Quest Software
5 Axis Machine Centers	Health & Safety Terms of Reference	Question Log
5S Audit Forms	Health & Wellness Promotion	Questionnaire for Millwrights and Mechanics
5S Auditing	Health and Safety Committee	Racking
5S Checklists	Health and Wellness Policy	Racking Inspections
5S for Cleaning	Health Information Form	Racking Pre-Start
5S Leadership Characteristics	Health Spending Account	Racking Systems
5S Training	Hearing Aids	Radiation Control
6S Labelling System	Hearing Impaired Safety	Radio Frequency
ISO Form PDCA	Hearing Protection for Visitors	Radio Frequency Identification
ABC Coating	Hearing Protection Policy	Radio Frequency Machines
Absenteeism	Hearing Protection Supplier	Radios in the Workplace
Absenteeism Measuring	Hearing Tests	Ray Recycling Program
Absenteeism Shipping Material	Hearing Tests	Reading Material
Abuse of Medical Notes	Heat Stress	Recall Procedure
Accident Accountability	Heat Stress Training Video	Receiving & Dispatching Process
Accident Free Days	High Pressure Hoses	Recognition or Not
Accident Investigation - Case Study	Hiring a US Citizen-Resides	Recruitment
Accident Investigation How-To's	Hiring Family Members	Recognizing Trainers
Accident Investigation Reports/Forms	Hiring on a Contract Basis	Recommendation Engineers for Guarding
Accounting Software System	Hiring Outside Sales Reps	Record Analysis Review
Accounts Receivable Insurance	Hiring Policy	Records Analysis Review
Acetylene Procedure - Training	Hiring Recent College Graduates	Recreation Committee
Adhesive Emulsions	Hiring Through Temp Agencies	Recruiting Professional Staff
Advantage Workstations	Hosting Meetings with Various Shifts	Recruitment Process - Procedures
Advanced Tracker Technologies	Holiday Pay for Shift Employees	Recruitment Retention
Armored Container Disposal	Holidays for 2010	Recycling
After Hours Calls	Arson System	Recycling Hardwood Sticks
Aging Workforce	Hot Vapour Refreshment Policy	Recycling Materials - Plastic
Air Compressor Set Up	Hot Work	Recycling Vendors for Copper
Air Drying	Hot Work Permit Forms & Red Tag Permit System	Reduced work week - 4 days
Air Drying Plastic Tubes	Hot Work Permits	Reducing the Paper Trail for Payables
Air Emissions G. Reg 127.01	Hourly Union Employees over age 65	Reference Check Template
Air Quality Testing	Hours of Work Policy	Registering US Trade Mark
Alcohol Abuse	Housekeeping	Regulating Prescription Glasses for Safety
Alcohol and Work Policies	HR Manual Policy	Release Form
Allowable Chain Vise-Forklift Cranes	HR Mission Statement	Religion Days Off
Alternative Financing Options	HR Tracking Software	Religious Jewellery
Anonymous Leak Emergency	ISO	Religious Reasons
Anchor Points	Humidity Control	Remitting USIB Premiums
Anti-Fatigue Mats	Hydraulic Oil Disposal	Remitting Burns
Anti-Glare Protection Safety Glasses	Hydro Savings	Remuneration for Outside Sales Rep
Apprentice Compensation While at School	Ice Sales	Re-opening Maintenance Tool Crib
Apprentice Training Procedures	Identifying Star Qualities	Report Card
Apprenticeship Agreement	Identify Tags	Requests For Purchase
Apprenticeship Policies	Impact Detection System	Rescue Plan Sales
Apprenticeship Tests	Implementing 5S in an Office Environment	Respirator - Beard Issues
Appitude Testing For Hiring	Implementing Lean Set points	Respirator Fit Testing
Arc Flash Regulations	Importing/Exporting Protocol	Respiratory Protection Program



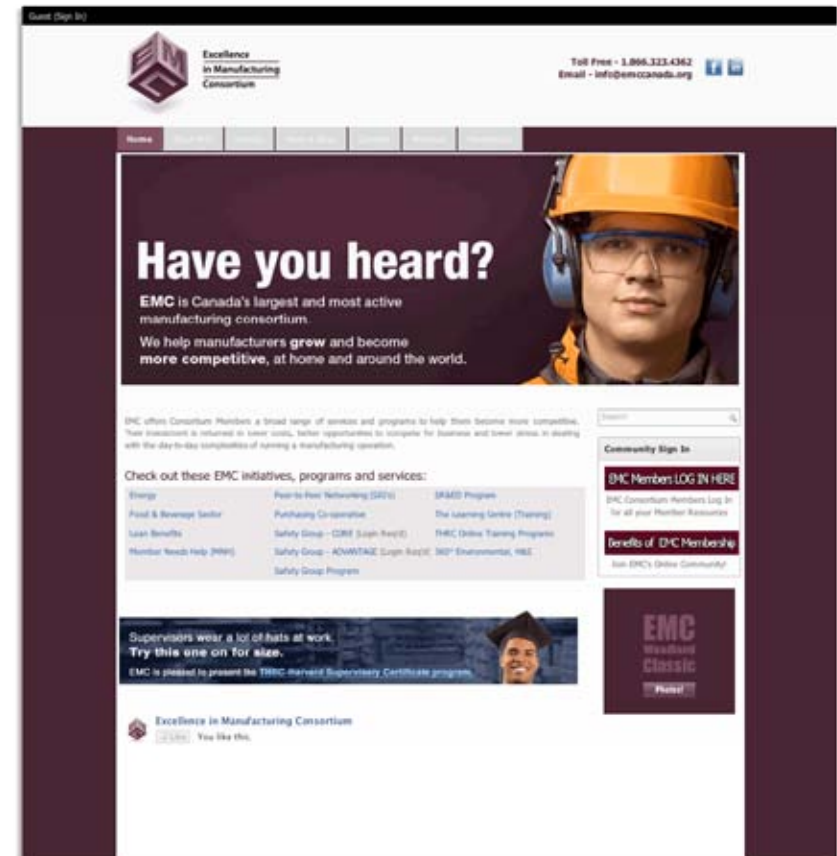
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EMC's Web 2.0 Initiative

Canada's Largest Manufacturing Consortium...

- Web 2.0 Development began in 2008
- New Network Launched January 2009
- 53 EMC Consortia
- Events & Information, Blogs, Forums, Wiki's
- Thousands of online manufacturing professionals registered and GROWING!
- Manufacturers networked regionally, provincially and across Canada... Literally COAST to COAST!
- EMC Launches iMiN in March 2011

www.emccanada.org



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EMC Member & Public Networks...

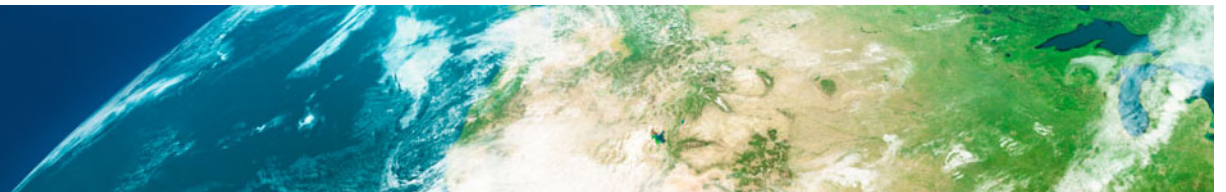
Opportunities for Manufacturers, Industry Stakeholders, Business and Community Partners...



- Engage EMC's Grass Roots networks - online;
- Profile and Promote your business;
- Connect to **NEW CLIENTS** and **DIVERSIFY** into new industry sectors / markets;
- **Marketplace: Classifieds / Directories**
 - ⊕ Promotion to external markets
 - ⊕ Industry & Service Provider Directories
- **Manufacturing Jobs Portal:**
 - ⊕ Job Board
 - ⊕ Resources (Apprenticeships, Co-op, Interns)
 - ⊕ Access Labour Market / Displaced Workers
- **Manufacturing Capabilities Index (Future)**



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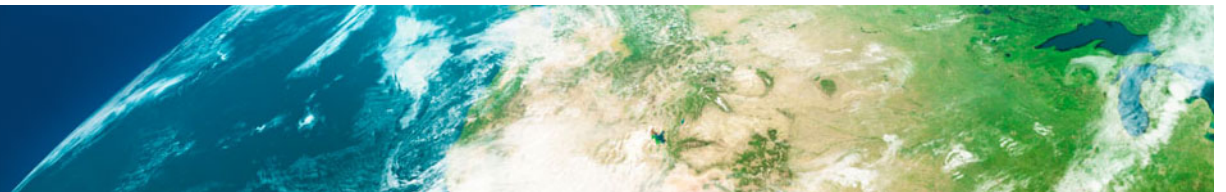
Social Media for Manufacturers

**EMC is Creating the
New Network
for Manufacturing in
Canada!**

**An industry
'Facebook'... with a
purpose!**



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Grow your business with iMiN!

- iMiN (Interactive Manufacturing Innovation Networks) is a National Manufacturing Network.
- Join for free!
- Grow your business
- Reduce costs
- Access government programs



Partners:



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Building a National Network



“i Manufacture in Canada”

- Meshed network of all provincial iMiN's for coast-to-coast collaboration;
- National focus on industry needs;
- Grow international exposure for Canadian manufacturing capabilities;
- Future network development phase;



Canada



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Why is Manufacturing Important?

There are three primary methods of creating new wealth in our economy:

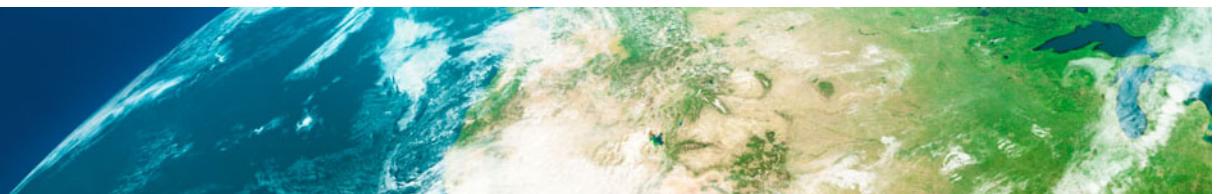
1. You **BUILD** it.

2. You **GROW** it.

3. You **DIG** it out of the ground.



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Why is Manufacturing Important?

Jobs

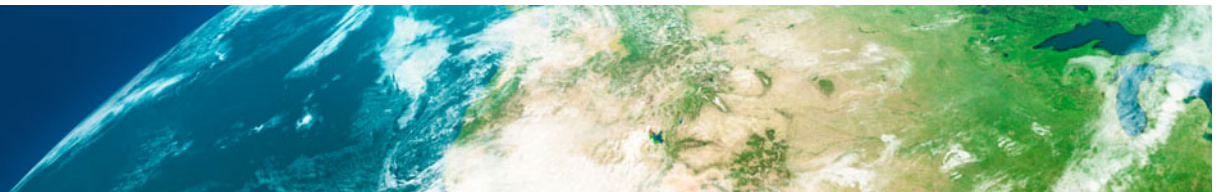
- Diversified employment: Manufacturing employs people from all skill and education levels, from entry level non-post secondary hourly positions to skilled trades, engineers, and PhD level researchers in some cases.
- More than 1.8 million Canadians are employed in manufacturing – about 15 per cent of the Canadian workforce. (In 4 Counties: 15%)
- Canada's exporters employ over two million Canadians directly and another three million indirectly.
- One in every three jobs in Canada depends on exports.

Wages

- Manufacturing wages are the **fourth highest** sector in Canada next to Mining, Gas/Electricity/Water Supply sector, and Financial sectors.



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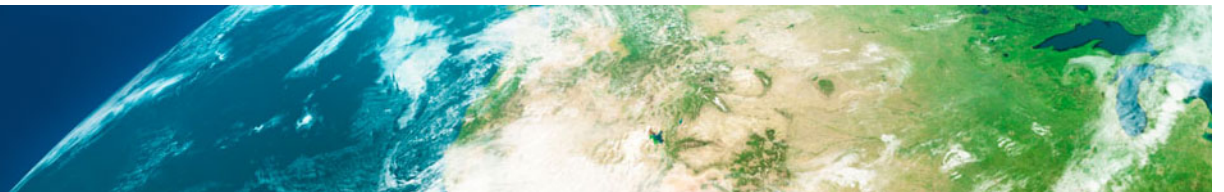
Why is Manufacturing Important?

Economic Impact

- Manufacturing has the largest multiplier of all sectors of the economy
- Every \$1 of manufacturing in Canada generates \$3.05 in total economic activity.
- Manufacturing accounts for 12 per cent of the total Canadian GDP.
- Exports account for 30 per cent of the total Canadian GDP.



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Why is Manufacturing Important?

Trade & Production

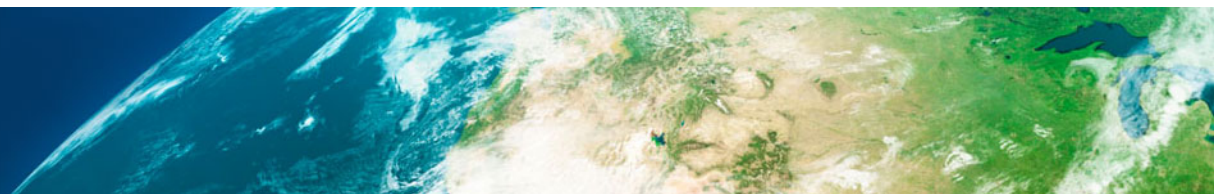
- In 2010, merchandise export volumes increased 7.5 per cent, led by automotive products (55 per cent increase).
- Canadian manufacturing sales topped \$540 billion in 2010: an increase of 10 per cent from one year prior.

Investment and Innovation

- Manufacturing accounts for two-thirds of all business investment and private sector R&D in Canada.



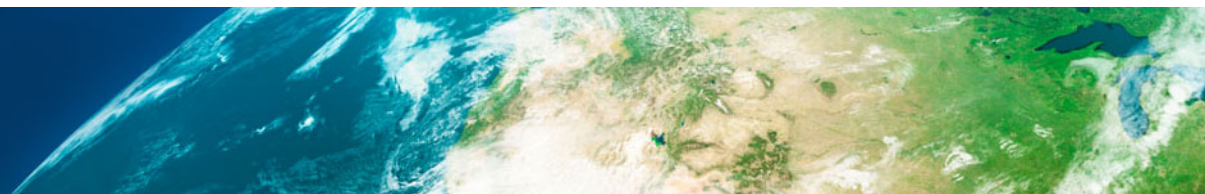
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Critical Issues Affecting Manufacturing



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Critical Issues...

Industry is Under Pressure due to:

- The China Syndrome- Offshore competition
- The Aging Workforce: Within the next decade:
 - For every 2 people who retire, only one person will be available to replace those positions
- Canadian Dollar
- Rising Cost of Business



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Strategies to Survive and Thrive

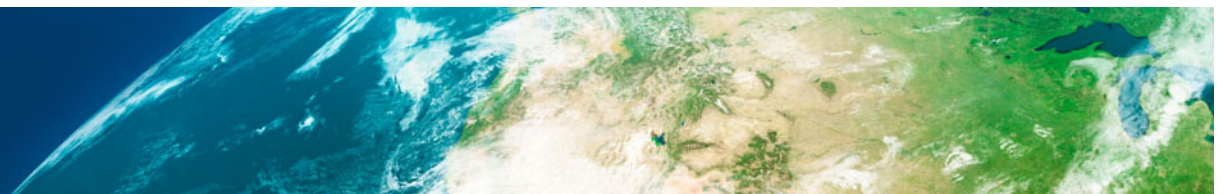
The success of manufacturing companies today hinges on their ability to understand and employ lean principles in their operations

Lean Principles- Toyota Production System (TPS)

1. Specify and Create Value
2. Map Value Stream
3. Create Flow
4. Create Pull
5. Perfection- Continuous Improvement



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Strategies to Survive and Thrive

Lean Principle #1: Specify and Create Value

- Know your market/customer needs/wants
- Know what your customer perceives as value that they are willing to pay for
- Build and manage customer relationship to continue to understand what they see as value
- Anything outside of their perception of value is waste- Customer defines value



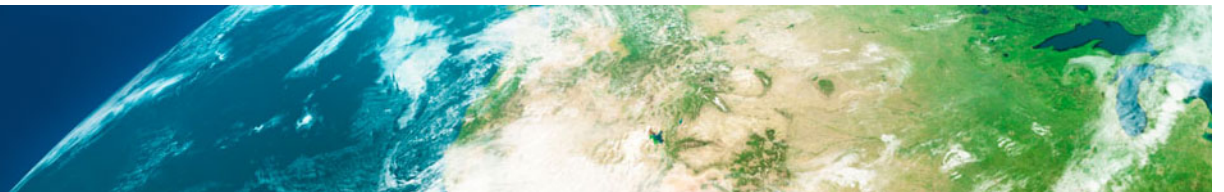
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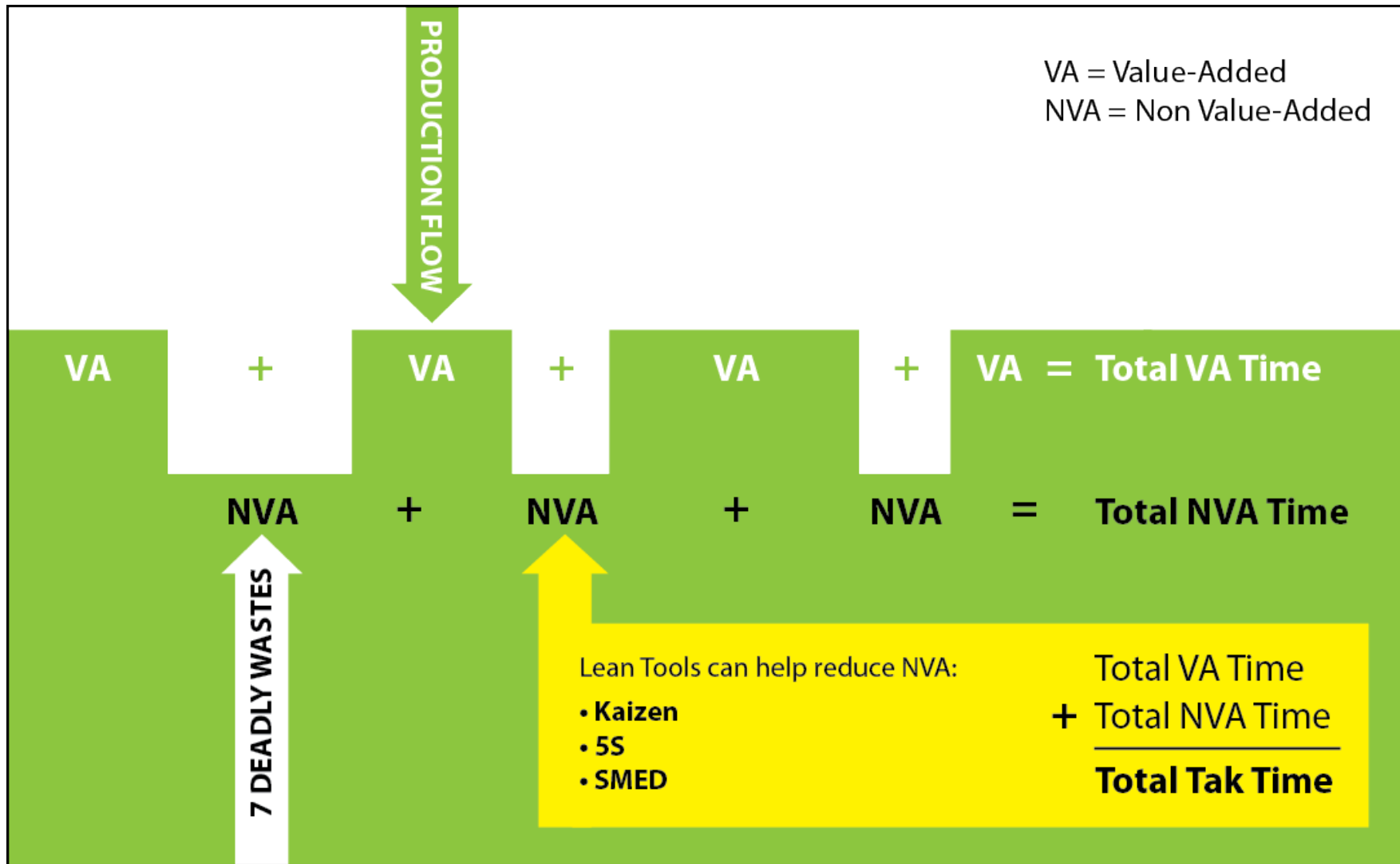
Strategies to Survive and Thrive

Lean Principle #2- Map Value Stream

- A value stream is all of the activities involved in making the product (Tak time)
- These activities can be production, but also pre-production, engineering, sales, purchasing, etc
- All of these activities cost money
- All activities are either: Value added (Touching the actual product), or Non-Value-added (waste).
- This thinking can be applied to administrative approaches to service delivery (i.e. health care, gov programs)



Lean #2- Value Stream Map



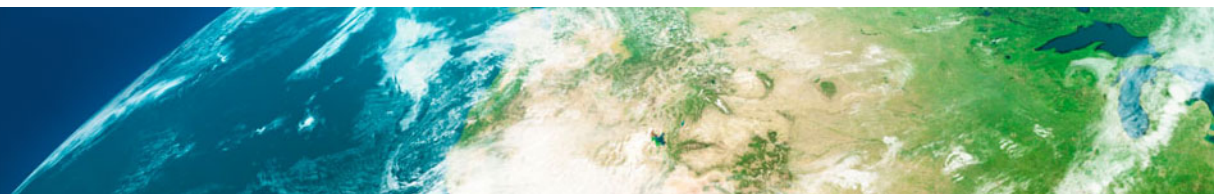
Strategies to Survive and Thrive

Waste- Muda

- Level 1- Unnecessary waste
- Level 2- Necessary waste



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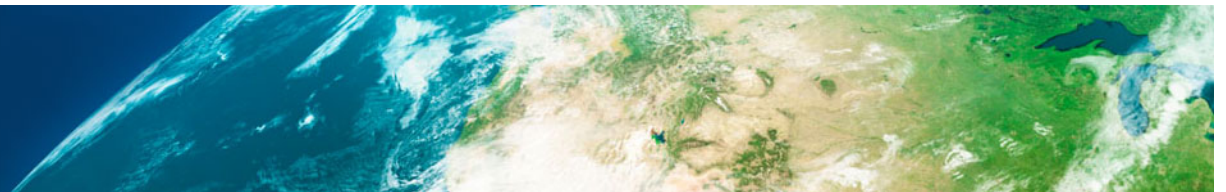
Strategies to Survive and Thrive

Seven Deadly Wastes- Muda

1. Over Processing
2. Over Production
3. Inventory
4. Waiting
5. Transportation
6. Motion
7. Defects



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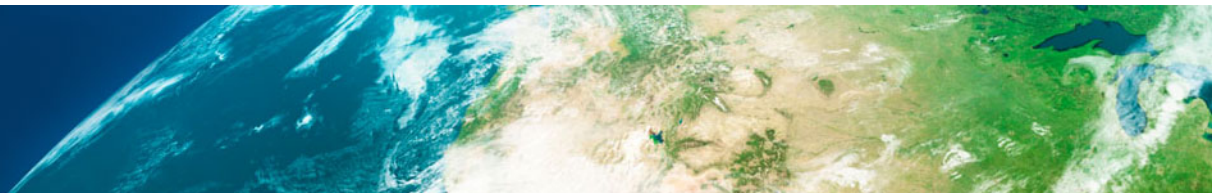


Strategies to Survive and Thrive

- Understand where to apply lean tools:
- Kaizen
- 5S Visual Workplace
- Kanban
- TPM
- SMED
- Standardized work
- Value Stream Mapping
- Six Sigma



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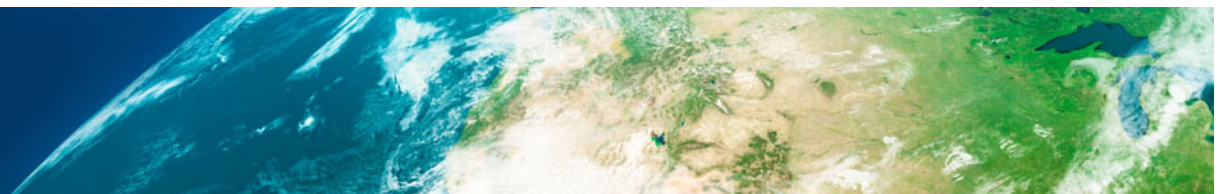
Strategies to Survive and Thrive

Lean #3- **Flow**:

Align value-added steps to flow
without interruption



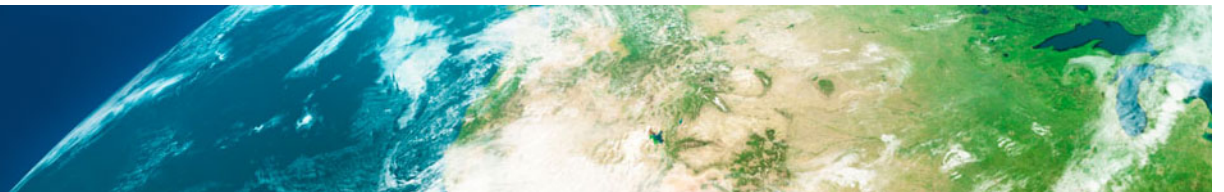
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Strategies to Survive and Thrive

Lean #4- **Pull Systems**: where product is manufactured to the pull of the customer.

- Example Kanban: Visual signal to replenish raw materials that reacts to the demands of production process just in time



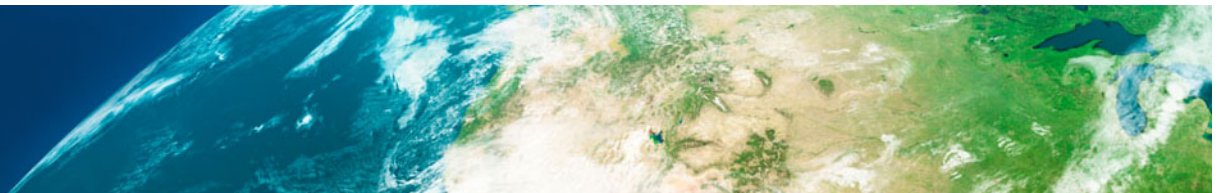
Strategies to Survive and Thrive

Lean #5- Create Perfection:

- Fostering continuous improvement culture by engaging the workforce to come up with solutions to help facilitate change
- Utilize lean tools to reduce non value-added activities
- Track, measure, and communicate results
- External benchmarking- Networking
- Sr Mgt supported: **Employee driven**
- Journey- not a destination



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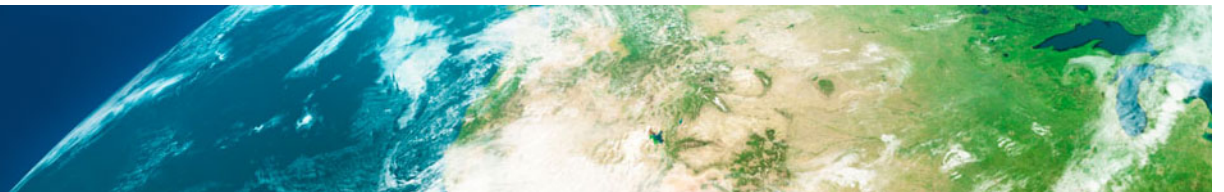


Some Current Trends

- Short Lead Times
- On Time Delivery
- Short runs/ Frequent Changeovers
- High Value-added Products
- Custom Engineered Products
- Niche Markets
- Emphasis on Customer Service and Quality
- Vendor Managed Inventory



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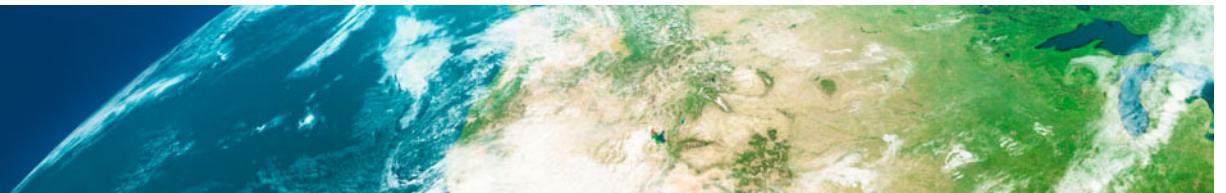


Workforce Planning Boards

- Skill sets required for manufacturing for entry level jobs have changed, and will evolve
- Leverage organizations/partnerships to link with industry: Get to know them and their processes
- Don't rely on mailed surveys alone for data
- Make sure stakeholders listen to and act on your findings i.e. school boards
- Keep manufacturing high on priority for workforce planning
- Future workforce for manufacturing: part of Canada's infrastructure to compete globally



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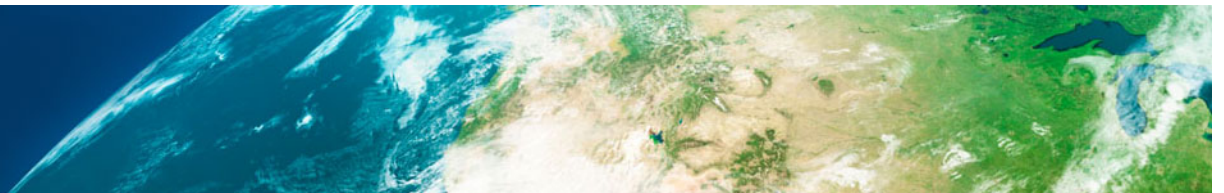


Final Thoughts

- Manufacturing is not going away!
- Manufacturing will always change and evolve
- Will always be an important part of our local/regional/national economy



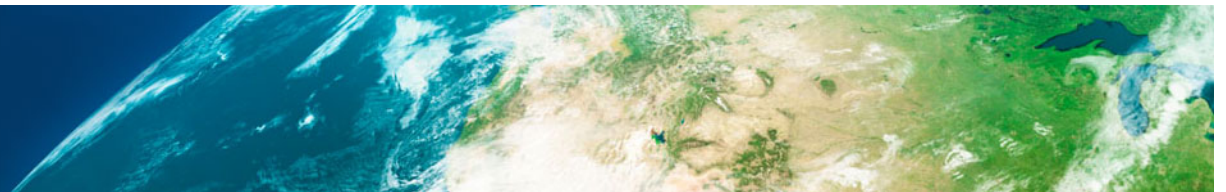
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Questions



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Thank you!

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