

Massachusetts Industries of the Future



Metal Processing Industry Round Table Session

March 1, 2002
Worcester Polytechnic Institute
Worcester, MA



Metal Processing Industry Round Table Session Summary

The *Massachusetts Industries of the Future* has established a new Metal Processing Industry initiative. This group currently includes manufacturers from sand and die casting, forging, powder metals and heat treating and interested stakeholders from government, private sector and academia. The following document summarizes information collected at the *Massachusetts Industries of the Future, Metal Processing Round Table*. This event, held March 1, 2002 hosted by Worcester Polytechnic Institute and sponsored by UMass and DOE, featured information on existing research, available services and discussion of strengths, challenges and opportunities for the industry. More than 70 representatives from industry, industry trade groups, state and federal agencies, non-governmental organizations, and academia met over the day to explore the creation of a sustainable program.

Strengths of the industry and vision of a partnership that supports the sustainable growth of the industry were illustrated during the morning session. Speakers from major academic research centers, federal and state agencies demonstrated the strong support for innovation, process improvement, materials and product development that already exist through R&D and direct service programs. Examples of this capacity included established programs that support energy efficiency and environmental protection through state, federal and academic institutions. Industry representatives shared views about the unique characteristics of the Massachusetts industrial sector. Major strengths of the industry in Massachusetts were articulated. Some of the key points made during the industry led session include:

- The state is a major center of new product development, research and development, and innovation.
- Massachusetts has high product value, value added over imports and niche markets.
- Massachusetts and New England have a well-developed industrial ethic and stable industrial infrastructure.
- Massachusetts has a world-class educational infrastructure.

The afternoon roundtable allowed participants to discuss challenges and opportunities for the industry and path that a partnership could support. These groups were asked to share their views in the following specific areas and other topics unique to Massachusetts industry:

- 1) Market Development
- 2) Materials Technology
- 3) Manufacturing Technologies
- 4) Environmental Technologies
- 5) Human Resources, Education, and Training

A table listing the challenges and opportunities follows summarizing the results from two roundtable groups are summarized. Opportunities are numbered to fit the 5 listed groups above. The group did not prioritize the listing.

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Summary of Round Table Discussion

Challenges	Opportunities	Area
Leveraging University Resources	<ul style="list-style-type: none"> Undergraduate and particularly graduate internships for local companies Tap into research expertise and on-going research programs 	5 2,3,5
Process (Quality) Monitoring and Control	<ul style="list-style-type: none"> Materials and process variations are the 'largest enemy' of high performance products that can beat the foreign competition Better education – Advanced process monitoring and control can help reduce product variations with reduced scrap, but many low-tech, available monitoring and control technologies are not being used. 	2,3 3
Engineering and Market Integration	<ul style="list-style-type: none"> Use materials engineering and understanding to act as a 'consultant' to the customer and add substantial value to your products Need a mechanism to protect advanced product development 	1 1
Opportunities for Waste Reduction or Conversion	<ul style="list-style-type: none"> Recovery of waste heat for re-use in process or for 'export' to co-location. Conversion of waste heat to other energy form (electrical, mechanical, etc.) Potentially requires advanced heat recovery, power conversion technology, and/or identification of potential 'customers'. Recycling or beneficial re-use of spent foundry sand Apply scientific approach to beneficial reuse 	3,4 4 4
Additional Marketing and R&D Assistance to Smaller Firms	<ul style="list-style-type: none"> Try to convince engineers and product developers to design parts that can be cast locally rather than machined overseas Help market advanced cast (or PM) products to local manufacturers Provide access to advanced technologies to smaller firms 	1 1 2,3,5
Access to capital for improvements – incentives to shorten paybacks?	<ul style="list-style-type: none"> Identify common issues to create groundwork for national forums to hear your issues and channel funds to needed research. Lean manufacturing” concepts applied to environmental issues 	4 3
Information transfer	<ul style="list-style-type: none"> Seminars on new materials from Universities Seminars on environmental issues Deliver information developed at the national level to the state? Access to information regarding required steps for implementation of new technologies or programs Access to information: creation of a material database Trade associations provide an existing forum for information exchange – IOF can provide more PR and public education Develop a meeting series at least annually that “people are afraid to miss” 	2 4 2,3,4 2,3 2 1,5 all
Industry is slow in adopting new materials and process.	<ul style="list-style-type: none"> Collaboration to develop a research center that can provide a beta test site Connect basic research to businesses on a day to day operational level . 	2,3,4,5 2,3
Lack of coordinated industry effort	<ul style="list-style-type: none"> Fraternization “Creative friction” - causes the companies to excel 	all 5
Cost of energy	<ul style="list-style-type: none"> Develop applications for cogeneration and heat recovery systems. 	4
Industry image and marketing merits of industry	<ul style="list-style-type: none"> IOF can provide more PR and public education 	1,5
Size of firms	<ul style="list-style-type: none"> Find competitive niche in the market based on technology Encourage teaming for cross-cutting technologies: (Advancing cleaner production, beneficial reuse, and innovative technology advancement.) 	1 2,3,4
Short lead times	<ul style="list-style-type: none"> Develop computer simulations that can cut down on lead time 	3
Human Resources	<ul style="list-style-type: none"> Industry associations help with training Identify training resources Companies can be brought together by training 	5 5 5

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Specific action items that were identified by the working groups that could be accomplished through the *MAIOF* initiative included:

- Technology Transfer
- Coordination of existing national efforts and professional/trade organizations
- Generate new ideas through research and development in the manufacturing and environmental technology arenas
- Fraternalization

All members agreed that additional meetings would be desirable and necessary to refine the areas of major importance as well as increase the scope and participation of interested parties.

The *Massachusetts Industries of the Future* Metal Processing Industry Initiative is now underway with support from more than 20 Massachusetts manufacturers, 3 state agencies, the Department of Energy - Office of Industrial Technologies, the University of Massachusetts, Worcester Polytechnic Institute, trade organizations and non-governmental organizations. The *MAIOF* team will use the ideas and opportunities developed by industry and stakeholders and form a roadmap that can direct the efforts of the partnership. As recommended by the group a second meeting is planned for late spring to follow up on the recommendations of the group and continue growth of the partnership.

For more information on the program please visit the *MAIOF* web site at <http://www.maiof.org> or contact Eric Winkler, *MAIOF* Team Lead, at the Center for Energy Efficiency and Renewable Energy, UMass Amherst, (tel.) 413.545.2853, (email) winkler@ceere.org.