



advisory board **BRIEF**

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Commerce Through Microsystems — The Time is Now

Commerce is a national imperative.

Microsystems are increasingly prevalent in commerce — and therefore must merit national attention. The time is now for Canada to adopt a strategic and sustainable approach to microsystems, to ensure that these enabling technologies play a critical role in our national innovation and commercialization strategies. We cannot leave it to chance.

Canada has established a solid foundation. For over two decades, microelectronics has contributed significantly to the success of the information and communication technologies (ICT) industry. Now, microsystems enable growth in diverse sectors such as health care, aerospace, security, pharmaceutical, automotive, energy, and natural resources (see CMC's strategic plan at www.cmc.ca).

Microsystems are central to competitive economies of the future. If Canada is to exploit these enabling technologies for greater economic benefit, we must address issues of market failure. For example, proof-of-concept prototypes are often required to validate new technologies. These costly and complex devices are often beyond the natural reach of small and medium-sized companies.

Prototypes are critical prerequisites for attracting further investment. The opportunity for entrepreneurs to secure financing is constrained without working prototypes. Moreover, without continuous improvements in microsystems design and functionality, these companies cannot grow or further develop the technologies that so many industrial sectors rely on to remain competitive.

CMC Microsystems is Canada's prototyping organization. It offers Canadian researchers the opportunity to design, fabricate, package and test microsystems, enabling the development of microsystems devices, components and subsystems.

CMC serves the needs and opportunities of both academia and industry, by ensuring a steady supply of industry-grade tools, technologies and support for microsystems R&D. The highly qualified people who emerge from CMC's national program increase Canada's competitiveness.

To capitalize on the increasing global commerce in microsystems, this country requires a national, synchronized approach and further public intervention. Without concerted action, Canada risks being marginalized in the global microsystems sector.

Many of Canada's global competitors recognize the critical role that microsystems play in improving industrial productivity. The U.S., the European Union, Australia, Korea, India and Taiwan, among others, are all investing in and implementing aggressive microsystems initiatives. Canada cannot afford to be complacent.

CMC's strategic plan builds upon its core competencies to enhance support for training, research and development, prototype developments and multidisciplinary collaborations with a focus on integration of microsystems technologies. This plan calls for \$500 million in public

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and private investment over the next five years to increase and optimize CMC's enabling role in microsystems R&D and commercialization.

A good illustration of CMC's future direction is a proposed Microsystems Prototypes Network. This industry-facing initiative will directly address the technical and financial barriers facing Canadian companies, by bridging the gap between basic research, and product development executed in the private sector. This network will address the demands of the marketplace and respond to new opportunities. It will help move research concepts from the laboratory to the point that commercial product development is possible.

By helping to validate promising technologies with proof-of-concept prototypes, companies will be able to demonstrate their innovations to prospective investors.