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CANADIAN MANUFACTURING'S SEARCH FOR COMPETITIVE DIFFERENTIATION

by Robert Angel

Robert Angel is President of The Gilford Group, a Toronto-based consulting firm that specializes in customer, marketing and performance strategies, and that works at the intersection of marketing, finance, organizational development, and technology. He can be reached at bob.angel@gilfordgrp.com.

Canadian manufacturers who improve their operations to be competitive are in danger of missing the point. These days, operational excellence is just a prerequisite for being in the market. Overseas competitors are improving their operations too, meaning that strategic differentiation is really what earns a competitive edge with customers. This is what successful manufacturers do.

Manufacturing in Canada at the cross-roads – once again

Canadian manufacturing is not having an easier time of it. Companies continue to shed jobs, sometimes whole plants, in alarming numbers.

For several years, manufacturers have had to contend with the pricing consequences of labor rates that are more than 40 percent above those of overseas competitors. They have also had to keep prices competitive despite a 30 percent rise in the Canadian dollar in less than four years. Few manufacturers have yet been able to reverse price cuts made as the Canadian dollar climbed. Now, they also face a looming worldwide business slowdown, rising materials costs, turmoil in global financial and housing markets, declining automobile demand and usage, and more.

Little Cheer for Manufacturing Exports

Canadian export outlook % growth:	2008	2009
Consumer goods	-18.0	-4.0
Motor vehicles & parts	-13.3	-2.4
Advanced technology	-11.0	-2.7
Industrial machinery/equipment	-3.1	3.4

Source: EDC Global Export Forecast July 2008

These factors make it especially difficult for exports, which account for 70 per cent of the goods made in Canada. The Export Development Corporation predicts double-digit export declines in 2008 followed by further shrinkage in 2009 (see box, "Little Cheer..."). The pain ought to be eased by a Canadian dollar that was below par for most of the past year. However, few manufacturers have yet been able to reverse price cuts made as the Canadian dollar climbed.

All this raises serious questions about what future competitive strategy ought to be. In this regard, Canadian manufacturers were asked to describe what they do to stay competitive. The issues were discussed in a series of manufacturing roundtables held under the auspices of The

Richard Ivey School of Business. Their answers can be summarized as improve process, culture, innovation, and customer experience (see the box 'How Manufacturers Say They Compete'). Today, some of these responses are looking increasingly tactical, yielding only incremental improvements; also, they are comparable only to what is done routinely by many manufacturers around the world. This is not to dismiss the importance of operational excellence in remaining competitive. However, operational excellence is now largely just the price of admission – and rarely a competitive advantage.

How Manufacturers Say They Compete

Between 2005 and 2007, nearly 300 Canadian manufacturers were asked to describe what they were doing to compete. Their answers can be encapsulated as follows:

Improve processes continually – practice 'lean' techniques, outsource non-core commodity processes, extend the value chain, etc.

Instil a collaborative culture – enlist help from the shop floor, engage staff, foster an employee brand, etc.

Innovate at the high end – set visionary long term goals, capitalize on specialized know-how (e.g. environmental services) to build niche market presence, invest in robotics, etc.

Provide what customers need – improve customer experience, treat customers as individuals, move key staff closer to customers to understand value, enlist customers into product/service design, etc.

Source: Manufacturing Roundtables, The Richard Ivey School of Business and others

What can Canadian manufacturers do strategically to differentiate themselves in the eyes of their customers? To answer this question, and to illustrate how strategic marketing can yield more than incremental improvements, we looked at the operations of several successful manufacturing companies. As documented in this article, each company has found unique characteristics to exploit. Some of the examples may appear intuitive, but they are all instructive for suggesting a range of strategic possibilities for increasing manufacturing competitiveness.

Turning process into a strategic service

Process effectiveness is becoming commoditized as more companies model themselves on the leaders. For example, it is getting harder to differentiate with Lean manufacturing – which includes continuous process improvement, flexible production, and removing waste without removing value. Toyota, the pioneer of Lean manufacturing in the very difficult automotive sector, has shared its approach with many manufacturers. However, Toyota can still differentiate itself on 'Lean', partly because its legendary rigor in continuous process improvement still sets it apart from competitors. However, even more important is the Toyota culture, which drives process improvement and is described later in this article.

Xerox illustrates how methodology can be a strategic competitive advantage. It differentiates itself through its Design for Lean Six Sigma (DfLSS) methodology that uses a Lean approach in designing products and services to meet customer needs. Xerox's Research Center in Canada is adopting this methodology and more than 90 percent of the staff involved is trained on the use of DfLSS for developing materials technologies.

Value chain adoption will also mean commoditization eventually. In the meantime, supply and demand discontinuities still create openings for value added process management and turning generic products into unique offerings. Value chains integrate the entire sequence of value creation from design and procurement, through production, to support and distribution systems

and ultimately, consumption. They include external participants like suppliers and customers as collaborators in an extended enterprise, often located around the world and anchored by investments in enterprise resource planning systems.

Take a packaged food supplier like Parmalat Canada. It can still find ways to differentiate its value chain, namely by investing in specialized manufacturing decision-support systems and integrated sales and operations planning processes that enable more speed and flexibility. Its competitiveness comes from its ability to react more quickly to the needs of today's marketplace. Parmalat Canada reinforces its brands like Black Diamond, Beatrice, Astro and Lactantia by positioning itself as a company that supports its customers' businesses. "We are helping our retailer customers with their own competitive positions, for example by collaborating on forecasting, demand management, product economics, and supply chain efficiencies," says Salam Akhtar, Parmalat Canada's Director of Supply Chain Planning.

Another example of value chain differentiation is Engineered Assemblies. It brings processed building products from Europe to Canada for further design. It adds additional Canadian materials, and provides consulting by Canadian experts on large institutional, commercial and custom home construction projects like university buildings, multi-residential hi-rises and some of Canada's most innovative custom homes, markets that were entered because of their strategic differentiation possibilities (see the box). It bundles specialized services with the product to fit unique characteristics of the sector. An irony is that most of the raw materials were originally extracted in Canada before being shipped to Europe for initial processing. Now, the processed material is being brought back to Canada for value-added manufacturing.

Engineered Assemblies Inc., Toronto

The story can be traced back to Europe. Companies like Rheinzink, Eternit and AgrobBeuchtel are manufacturers of materials used in construction, for example rolls of zinc sheeting that can be turned into building products.

On the face of it, Rheinzink has many of the same export challenges as Canadian manufacturers – a commodity material, a relatively high production labor cost, and a rising currency (the Euro has been going up against the Canadian dollar).

How can it be so successful exporting to Canada? Largely because of a deliberate valued-added marketing strategy. First, it has picked a sector, institutional residential and facilities construction, that is showing strong growth. Second, it is capitalizing on the emergence of a market for environmentally friendly buildings. Third, it has chosen a sector that needs a lot of help in design and construction to optimize costs and durability with new construction materials and techniques.

Engineered Assemblies Inc., a Toronto-based engineering company, provides intellectual property and expertise along with design and manufacturing facilities that turn materials into products. "Environmental requirements have revolutionized customer requirements, creating what are essentially new industries and completely new opportunities," says Engineered Assemblies' Blair Davies. "As a consequence, there is less pricing discussion. Materials costs are still a very important part of the business case but new functionality, especially for meeting environmental criteria, is also critical."

'Green' is one of the forces revitalizing North American manufacturing, as are infrastructure replenishment, biotechnology, resource extraction, transportation mechanisms and a host of other developments. "Change is driving widespread innovation and driving out those who want to keep doing things the way we have always done them," adds Davies.

Creating an entrepreneurial culture

Many manufacturers at the Ivey roundtables said they improve their organization's culture,

especially on collaboration, to improve competitiveness. But the question remains, is culture really making a difference? The manufacturers mentioned in this article are evidence that it does.

Toyota's Lean manufacturing processes are differentiated by its culture of teamwork and continuous improvement. The differentiator is a highly disciplined approach to quality. Toyota routinely makes sure that problems are tackled and fixed early, applying more experts than may initially appear to be necessary. Any higher immediate cost is recouped by getting complete resolution quickly. Culture can also create innovation. For example, Toyota's rigorous continuous improvement reviews led to the conception of hybrid vehicles before customer needs for smaller vehicles and less fuel consumption became clearly known.

"Lean and Just-in-time only work well when implemented with the requisite discipline – and a sense of urgency," says Ray Boorsma, Toyota Motoring Manufacturing Canada's assistant general manager of Information Systems. He sees many aspiring Lean manufacturers lacking that discipline. "The practice of 'Lean' starts to break down without rigorous attention to the details of quality, a deep understanding of long-term outcomes, and willing team participation in implementation," he adds. A longer-term view is especially critical in a capital intensive business like Toyota's. Two to three year re-tooling lead times lock in manufacturing processes and make it harder to respond quickly to changing consumer demand.

Culture is a critical ingredient in Research In Motion's manufacturing strategy as well. RIM has been characterized as emphasizing technical expertise and entrepreneurial spirit. Today, RIM reinforces that identity by keeping its core manufacturing and research and development in Canada. Having people together in the home base, as a matter of strategy, boosts morale. It also facilitates communication between research, manufacturing and other groups. This speeds up new product development. The collaborative aspects of keeping R&D at home and in the same location are seen by employees and customers as essential for specifying, testing and modifying product designs quickly and accurately.

The incremental cost of being in Canada is smaller than apparent at first, because Canadian labour rates can seem more competitive when taking into account the quality of Canadian skills. In any case, labour is often only a relatively modest part of total costs. This is especially true at RIM, which has been making substantial investment in robotics.

Finding innovation in the points of inflection

The classic definition of innovation is a market move that is "immense, incomplete and inimitable." Innovators serve their customers with products, services and processes that radically shape customers' perceptions and needs, creating new and enduring markets. Conceiving innovations requires breakthrough creativity, imagination and instinct. Implementing them requires perceptiveness, ingenuity and agility. We previously discussed this in "Putting an Innovation Culture into Practice" (*Ivey Business Journal*, January/February 2006).

"Innovation" is in danger of becoming a platitude. It is debatable the extent to which many Canadian manufacturers can lay claim to being engaged in real innovation. Increasingly sophisticated competition means much of what may once have passed for market-shaping innovation is today only incremental productivity improvement.

The Conference Board's June 2008 *Annual Report Card* gives Canada a 'C' on innovation, ranking us only 13th out of 17 countries. "Canada is losing ground to other countries that are better at exploiting their own advantages," according to the board's president, Anne Golden, as quoted by the *Globe and Mail's* Report on Business. "We appear to be riding high due to global demand for our resources, but this is not a sustainable course for our country." The examples of Cisco and Research In Motion illustrate that strategic approaches to manufacturing innovation strategy can be developed in Canada.

Cisco Systems has a corporate tradition of innovation. It takes one- and three-year continuous views of the market for communications and other technologies. "We are looking for impending points of inflection in the market, something that will change the dynamics of the market and that we can leverage into being first to market" says Paul McDevitt, Director of Enterprise Marketing at Cisco Systems Canada. When video was identified four years ago the choice was not universally seen as intuitive. Today the strategy now seems much more obvious.

Research In Motion capitalizes on several differentiating technical competencies, including two-way wireless data communications, 'push' e-mail retrieval, hand-held device design, and long-life batteries – as well as on carrier relationships and a strong brand. RIM's innovations benefit from the complexity of multiple technical competencies. Some competitors can tackle one or two of these competencies, albeit often in different combinations; however, they find it difficult to deal with all of them at the same time.

Institutionalized innovation – technology, complexity and quality – can sustain brand differentiation, and as RIM demonstrates, can be refined regularly to prevent catch-up.

Putting customer needs and experience at the center of strategy

The purpose of differentiation is to attract customers and fend off competition. This puts customer differentiation at the center of a manufacturer's business strategy. This is especially important since rapid product life-cycles and communications technology make much global competition local. For the manufacturers reviewed in this article, customers are the focal point of their differentiation strategies.

For example, at Xerox, listening carefully to the customer is the starting point for competitive differentiation. Xerox finds different customer requirements in different parts of the world, especially in the growth markets such as India, Russia, China, South East Asia, the Middle East, and Africa. "Our customer's needs from developed countries could be different from the needs of customers in developing countries," explains Dr. Hadi Mahabadi, Vice President and Director of the Xerox Research Centre of Canada. "For example cost sensitivity tends to be greater in developing countries. The key is to have a culture that starts with the customer's current pain point, and /or customer needs that are not currently being met. The 'Design for Lean Six Sigma (DfLSS)' methodology previously mentioned helps drive this. To illustrate, Xerox customers wanted to have the ability to print more pages with the same amount of toner. Researchers at the Xerox Research Centre of Canada used nano-technology to develop a process for making smaller-sized toner particles economically, with a less energy-intensive process that grows toner from very small-sized ingredients. The response from the customer was very favorable and now Xerox is using this toner in more than 10 different products. While this technology is protected by 400 patents, Xerox contends that it is its customer focused- research and DfLSS methodology that are the main sources of its competitive differentiation.

Cisco is an example of how customer support can be a differentiator. On selected products it provides validated designs that test the integration processes of other manufacturers' products to help its customers tie disparate technology together. "This is a competitive differentiation strategy," says Cisco's Paul McDevitt. "It not only provides assurance that the infrastructures will work, but has the added advantage of helping us understand our industry sectors better" through working with customers.

Celestica illustrates how a view of customer needs has led it to re-position its contract manufacturing business as a service, recognizing that the ability to make quality products cost-effectively has ceased to be a competitive advantage. Most electronics manufacturing has moved off-shore and much of it will likely stay off-shore because of massive scale, established infrastructure, and low costs. However, the North American customers remain on-shore, and that is the key to Celestica's competitive strategy. "We are using our Canadian manufacturing skills to solve our customers' problems and help accelerate their business success," says Mike Andrade, Celestica's Senior Vice President and General Manager, North America. "Customers in North America need manufacturing and engineering innovation experts on issues like product design that can minimize product failures, speed up time to market, and increase

environmental sustainability.” Celestica’s Canadian production lines are used extensively for product prototyping and design work. Volume production is more commoditized and typically done in low-cost locations, with manufactured components assembled close to Celestica’s customers.

Locating manufacturing closer to customers has the added benefit of reducing shipping costs inflated by rising fuel costs. This is a major factor in the repatriation of skilled jobs to North America.

Shifting from simplicity to complexity

The foregoing is intended to illustrate how certain Canadian manufacturers differentiate themselves on process, culture, innovation, and customer experience. The examples may not fit as neatly into these four categories as might be inferred from the article. In fact, they span all four in varying degrees.

This suggests a shift in competitive advantage from simplicity to complexity. Moreover, conventional wisdom says that companies must choose between innovation, relationships or operational excellence in setting organizational strategic style; a company supposedly cannot practice more than one of these three effectively at the same time. But as manufacturing gets ever more competitive, we may well have to learn how to innovate, form relationships, and achieve operational excellence at the same time. The global marketplace has become so skilled, adaptive and cost competitive that the boundaries between strategy and execution are blurring. The manufacturers that prosper will likely be those who change the rules. They will have the flexibility and determination to continually challenge what they do, thrive on complexity, and then do well things they may not have done before.

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About the Author

Robert Angel

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