Canadian

PLANT

INSIGHTS AND STRATEGIES FOR INDUSTRY LEADERS

Business Outlook: 2011

Innovation Advantage

Sponsors:

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Machines Italia

Turning innovation into productivity.

a project by Italian Trade Commission


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Executive summary

Joe Terrett
Editor,
Canadian PLANT

When **Canadian PLANT** surveyed Canada's manufacturing firms last year asking how they viewed their prospects in 2010, the general feeling was amber-light optimism. This year manufacturers who responded to the survey are in more of a soft green mood.

PLANT's 2011 Business Outlook "Innovation Advantage" survey attracted 384 responses from senior executives – most of them leading small to medium-sized enterprises – who are concerned about economic conditions, but nonetheless expect orders and sales dollars to increase, as well as prices and profits (but to a lesser extent).

They see the economy picking up over the next three years and they're preparing for expansion with plans to hire employees, invest in process improvements, facilities, technology, training and innovation.

This year's survey looked more closely at competitive issues and SMEs' efforts to innovate and improve productivity. The results demonstrate they consider innovation to be an important part of the game plan, but when asked to identify their competitive advantages, quality was the top choice, while innovation appeared well down the list.

That's not to suggest they aren't innovating. Spending on research, development and commercialization of new products is growing steadily, with a rate increase of about 10% expected for 2011, but 49% are not taking advantage of the SR&ED tax credit offered by the federal government. In fact, 24% were unaware of any financial incentives available from any level of government. Factors holding up new product launches include marketing and commercialization, internal resources and defining market opportunities.

Productivity is a major issue for 77% of the respondents. Looking at their workforces, they identified the need for further improvement in technology, innovation, creativity, management and teamwork.

This concern shows in their investment plans, which lean towards process improvement over new machinery and equipment and technology, but there is also recognition that skills must be improved and many are turning their attention to more training.

Those considering new markets will be focused more on North America, but some plan to see what the rest of the world has to offer and intend to venture into Europe, South America and the BRIC countries.

The survey results reveal an active, entrepreneurial manufacturing community that is aware of the challenges they must address, but their responses also highlight some gaps. Insights from a panel of manufacturers brought together to discuss the survey are included in this report, and they offered some bullet points for manufacturers to consider as they innovate and grow their businesses here and abroad.

- There are only two reasons to be in business: to get customers and sell products.
- Any decision you make, ask, "Is the customer saying thank you faster? Are we more efficient; more effective?"
- It's the customer, not manufacturing, that sets the value of your product.
- Your innovations must be competitive and manufactured efficiently.
- Understand where your intellectual property comes from and how it's applied in your various markets.
- You need leaders, doers and creative thinkers. Leaders must be fearless and have a clear vision. Drive innovation by sustaining a culture of creativity. Involve everyone and listen to what the folks on the shop floor have to say. The doers will make it happen.
- There's a lot of cool technology out there. Leverage it.

One last bit of advice. Don't be afraid to think big and look for business beyond North America. That's where the greatest opportunities for growth reside. The world awaits.

Sponsor's message

What makes Italian manufacturers so successful? What lies behind world-renowned brands and sought-after products bearing the "Made in Italy" label?

One would argue it is creativity; another would say style and design and yet another would say it's craftsmanship and the quality of materials used. All three arguments are correct. Yet they only provide part of the answer. We believe that the key reasons for their success are the technology, machinery and equipment used to produce their products.

In the aftermath of the global economic downturn, the future for manufacturers in advanced economies such as Canada and Italy lies more so within niche specialization, product differentiation, and continuous innovation rather than focusing on higher output and capacity.

Different ways of manufacturing goods, such as mass customization and continuous innovation, have imposed a new set of requirements on machinery manufacturers. Providing the kind of machinery that meets these demands is a complex challenge and will likely require the kind of modular design and manufacturing that only the very best machinery manufacturers can achieve.

North America manufacturers can address these issues through the use of flexible, innovative, efficient solutions that are available from Italian machinery manufacturers.

We trust that a strong manufacturing sector is key to our future, and that closer cooperation between Italy and Canada, in this context, has the potential to strengthen both our countries by driving competitiveness and creating new jobs and wealth on both sides of the Atlantic.

To learn what Italian machinery and equipment manufacturers can do for your company visit www.machinesitalia.org or call us at 1-888 ITALTRADE.

Most sincerely,

Antonio Lucarelli
Italian Trade Commissioner

Sponsor's message

As Canadian manufacturers continue along the road to economic recovery, Grant Thornton LLP is proud once again to support **Canadian PLANT's** Business Outlook survey. The survey gives our country's manufacturers and exporters an opportunity to share their views and experiences from the year that has passed, and their goals and expectations for the year to come. In a very real way, this survey is the barometer of an industry that is constantly reacting to the change in temperature that is the global economy.

In comparison to last year, where the industry looked upon 2010 with a sense of cautious optimism, this year's survey points to full-fledged optimism, albeit with acknowledged challenges. There is a clearly shared view among most Canadian manufacturers that the industry is in expansion mode. They're looking to invest in new employees, new lines of business and new geographic markets, with improving sales, controlling costs and increasing productivity the focal points of their strategies going forward. Investing in innovation and process improvement, while managing the many other risks that could impact their businesses, will be critical to their future success.

Despite the optimism, the survey uncovered a number of themes that keep manufacturers awake at night. They know they produce high quality products; however, to enhance competitiveness the costs to produce that quality needs to be lowered. Expanding to new geographic markets will open up significant opportunities to increase their revenues, but the uncertainties that come with foreign expansion makes it an anxious proposition for many.

There's also an understanding of the need to focus on long-term strategy and risk management, but many have been so focused on ensuring that their companies continue to operate in the near-term, their ability to truly focus on long-term objectives has been hampered. For those that can continue to grow, improve their productivity and proactively manage their risks and implement sound strategies, the opportunities are endless.

I'm excited to say that all signs point to the future of Canadian manufacturing being very bright. Our manufacturers continue to prove they're up to the challenges they've been dealt in an ever-changing global economy. And as a firm dedicated to serving the industry, we're committed to putting our knowledge and strength behind helping manufacturers meet those challenges and succeed by increasing productivity, creating a continuous improvement culture – and everything in between – in the months, years and decades to come.

Jim Menzies, CA
National Leader
Manufacturing and Distribution
Grant Thornton LLP

Competing for the future

Survey says SMEs are optimistic but there's room to improve their innovative capabilities

Participants in Canadian PLANT's Business Outlook: 2011 roundtable discussion (L-R): Al Diggins, president and general manager, Excellence in Manufacturing Consortium; Jim McCoubrey, president, Troy Sprinkler Ltd.; Michael Hlinka, CBC Radio; Mark Lichtblau, corporate vice-president, El-En Packaging Co. Ltd. and Haremar Plastic Manufacturing Ltd.; Bjorn Tranebo, vice-president and general manager, Wheelabrator Group; Jim Menzies, national leader, manufacturing and distribution, Grant Thornton LLP; Thomas Beach, president, Handling Specialty; David McPhail, president, Memex Automation Inc.; Denis Saint-Yves, director of operations, Drummondville Plant, Siemens Canada; James Johnson, trade analyst, Italian Trade Commission; Sandra Cusato, national marketing manager, Grant Thornton; and Rosanna Lamanno, senior manager, assurance and business advisory service, Grant Thornton.

PHOTOS: STEPHEN UHRANEY

By Joe Terrett, Editor

The global economy is responding to the idea of recovery after last year's massive economic meltdown, albeit slowly, and Canadian manufacturers are shaking off the pounding they sustained from lost sales, lost customers, seemingly endless lay-offs, trade barriers and precarious financial challenges, as they look ahead hopefully to better times and fatter bottom lines.

But they are facing a very different business and trade environment than the one they left behind on the sunny side of 2008. Manufacturers have put most of their eggs in one basket, relying almost exclusively on the lucrative commercial trade that has thrived on both sides of the Canada/US border. With the US economy still on the ropes, they can no longer count exclusively on those eggs or that basket. Opportunities for sales and market expansion lie beyond North America in the fast growing, developing economies of the world. Are Canadian manufacturers, most of them falling within the small and medium demographic, ready to invade new, foreign markets and stand toe-to-toe with nimble, global competitors?

That's the focus of a recent survey of 384 senior manufacturing executives from across Canada, most (83%) from small and medium-sized enterprises, who were asked about the challenges they face, the markets where they

“We’ve seen many of those nice opportunities come and go because we’re dealing with banks that are very resistant.”

—Al Diggins

“If we make a misstep in the calculation of equipment, it’s going to cost us an enormous amount of money. You need to think about what it’s going to cost you.”

—Bjorn Tranebo

intend to do business and how competitive they see themselves to be.

The results suggest they consider innovation (86%) an important aspect of their competitive strategies, and 86% of them see themselves as innovative in their markets. Seventy-seven per cent identified improving productivity as a major issue.

To succeed in the new world economic order, economists, business analysts and other commentators are emphasizing the importance of productivity, efficiency, and the ability to innovate and commercialize. Their collective view is that Canadian manufacturers come up short in all of these areas, and there is no shortage of opinions on what they’re doing wrong. From a lack of investment to tepid innovation, the statistics and the analysis are condemning.

Canada is home to some great innovators: Research In Motion and its ubiquitous Blackberry come to mind; but when it comes to innovation, we’re a D-level performer, according to a

Conference Board of Canada ranking released earlier this year.

Its *How Canada Performs* report card places us 14th among 17 peer countries. Of the 12 measurement indicators, we get one B, two Cs and nine Ds. That lone B is for the number of scientific articles published per one million population.

And Canada ranks second to last on the new indicator – the number of

BUSINESS CHALLENGES

Total 384

Increasing sales, cost control and being competitive are the biggest challenges for the coming year. Economic conditions are also a concern. Business expansion is seen as more of a challenge over the next three years.

	Year	3 Years
Increasing sales/orders	41%	33%
Controlling/Reducing costs	41%	34%
Economy – general	37%	28%
Being competitive	36%	33%
Improving productivity	32%	29%
Marketing and sales	30%	24%
Maintaining sales/orders/ Staying in business	29%	24%
Canadian dollar increase	28%	20%
Financing/Cash flow/ Accounts receivable	27%	14%
Gain market share	25%	28%
Training/Finding skilled workers	23%	30%

	Year	3 Years
Business development/ expansion	23%	35%
Decreasing revenue/sales	22%	11%
New product innovation/ new technology	20%	30%
Growth/Managing growth	19%	29%
Securing jobs and workers	19%	18%
Quality	18%	12%
Maintaining/meeting product demands	18%	15%
Overseas competition	17%	22%
None/No answer	8%	11%

NOTE: Items less than 2% not shown

Mark Lichtblau sees a need for greater emphasis on designing, engineering and filing more patents.

international trademarks filed per million population – a measure of services sector innovations and non-technological innovations. Ten countries had at least twice our share of trademarks by population. As for patents filed, we're way behind the US, our chief competitor, holding just 1.36% of world patents compared to the US at 30%.

Canadian labour productivity is also underperforming. Out of 33 Organisation for Economic Co-operation and Development (OECD) countries, we weigh in at 17. Labour productivity growth has limped along at a 0.8% rate, and is 75% of US productivity, down from 90% in the early 1980s.

Yes, there's room for improvement. That theme was evident both from the survey and a subsequent roundtable discussion hosted by **PLANT** in early November featuring 10 panelists including manufacturers, an analyst, an executive from a global chartered accountant and management consulting firm, and a trade analyst.

When asked about challenges for 2011, survey respondents identified process improvements, productivity and creative thinking, to name a few. But that doesn't mean manufacturing is failing.

"The people stock in this country is excellent. I don't think the country is taking advantage of it and marketing it globally well enough. People have forgotten about us as manufacturers, engineers and innovators," said Tom Beach, president of Handling Specialty, an engineering and manufacturing company with locations in Grimsby, Ont. and Niagara Falls, NY.

The company has been around for 26 years. In the course of exploring global markets, he's run across manufacturers and buyers overseas who have no idea of Canada's industrial capabilities.

"We're an SME...$20 million of revenue, 55 employees. We're a little gaffer in the grand scheme of things but we can tell the world what the heck we're doing."

ROUNDTABLE PANELISTS

Thomas Beach
President
Handling Specialty
Grimsby, Ont.
Engineers and manufactures custom lift equipment.

Al Diggins
President and general manager
Excellence in Manufacturing Consortium
Owen Sound, Ont.
Not-for-profit organization for manufacturers that facilitates member development of global competitiveness.

Michael Hlinka
CBC Radio
Toronto
Business commentator.

James Johnson
Trade analyst
Italian Trade Commission
Business Outlook sponsor.

Mark Lichtblau
Corporate vice-president
El-En Packaging Co. Ltd. and Haremar Plastic Manufacturing Ltd.
Vaughan, Ont.
Manufacturer of garbage bags (El-En) and polyethylene film products (Haremar).

Jim Menzies
National leader, manufacturing and distribution,
Grant Thornton LLP
Toronto, Ont.
Business Outlook sponsor.

Jim McCoubrey
President
Troy Sprinkler Limited
Owen Sound, Ont.
Fire alarm, suppression and detection systems

David McPhail
President
Memex Automation Inc.
Burlington, Ont.
Provides factory floor data communications and efficiency systems.

Denis Saint-Yves
Director of operations, Drummondville Plant
Siemens Canada
Drummondville, Que.
Manufactures electrical products.

Bjorn Tranebo
Vice-president and general manager
Wheelabrator Group
Burlington, Ont.
Designs, delivers and supports surface preparation machinery on a global scale.

Thomas Beach doesn't think Canada is taking advantage of its "people stock" and doing a good enough job marketing it globally.

Part of Beach's vision is marketing both his company and Canada as a manufacturing powerhouse. He'd like to see the federal government take more responsibility for promoting manufacturing to global markets. Strategies such as lean are valid for day-to-day operations, but they can only go so far.

"If we're to be different between now and five or 10 years from now as a country, how we're looked at and how we're respected [will be determined by] how we're going to market ourselves to the world," he said.

Further down the table, Jim Menzies nodded in agreement. As national leader, manufacturing and distribution with Grant Thornton LLP in Toronto, Menzies has worked with enough manufacturers to discern why some succeed and some fail. Marketing plays a bigger role than manufacturers might expect.

"The ones that have been successful in the past few years are the ones that have been able to go outside of the Canada/US borders and actually sell and market and develop their products throughout the world," Menzies said.

It goes back to the question: why don't Mexicans drink Molson? It may sound whimsical, but the example speaks to the significant lack of Canadian products in global markets, he added.

"If you go into any of the pubs and bars around here, you'll get Heineken, you'll get Corona, you'll get Carlsberg – all the foreign beers, right? But you go to a pub in Mexico, you're not going to get Molson, you're not going

Risk management

Preparing for the show stopper

By Erika Beauchesne

When Jim Menzies walks into a manufacturing plant, he asks two questions. "What could stop the show around here and what are you doing about it?"

Grant Thornton LLP's national leader of manufacturing and distribution says he's shocked by the response he often gets from clients – none.

"Many of them have a blank look on their face and they haven't really thought it through," he says.

If he weren't regularly exposed to companies' gaps in risk management, Menzies said the results of the 2011 **PLANT** business outlook survey would be news to him.

The survey found 31% of businesses don't have a formal process in place to identify and mitigate risks and another 20% weren't sure they had one.

More than half of all companies see market conditions as the biggest risk, which could explain why so few have adopted a formal risk management plan.

"Many companies, this year, have been just trying to stay in business and are managing by the seat of their pants. They aren't really looking at the long-term implications; everything is short-term," Menzies said.

Still, the mere 41% of respondents with a formal plan is an improvement from the 35% who responded in the 2009 survey.

Menzies expects the number could keep going up in the coming year, once businesses have had the chance to "catch their breath" from the downturn.

"My hope would be that companies learned from what they've gone through and instead of putting themselves in a situation where they're reacting, they're being proactive before risks bite them in the rear," he said.

Until then, respondents are busy mitigating risks in their own way, with 62% trying to maintain quality and 58% concentrating on identifying the risks in the first place.

Other common mitigation methods included monitoring internal financial indicators (57%), insisting on official paperwork for orders, such as purchase orders or letters of intent (53%), and monitoring the credit records of customers and suppliers (52%).

At least two of the five manufacturers at the **PLANT** roundtable confessed they lacked a formal risk management plan.

"That's one of our weaknesses," admitted Mark Lichtblau, corporate vice-president of the Vaughan, Ont. companies El-En Packaging Co. Ltd. and Haremar Plastic Manufacturing Ltd.

They've yet to implement an all-encompassing policy, instead creating plans that focus on risks specific to their industry. "We do have key areas, for example disaster recovery for software, which is integral to our business," he said.

Respondents identified market conditions as the biggest business risk, but competition was a close second, concerning 51% of companies, followed by currency fluctuations and foreign competition for 33% and 32%, respectively. Only 8% considered bankruptcy/closure a risk and, despite a year marked by automotive recalls, just 14% mentioned product quality.

That surprised panelist Jim McCoubrey, president of the southwestern Ontario company Troy Sprinkler Ltd., which provides fire alarm, suppression and security products.

"Millions and billions of dollars of recall costs and the number one issue is market conditions and competition?" asked McCoubrey, who is chairman of the Excellence in Manufacturing Consortium, a Canadian association representing manufacturers and exporters.

McCoubrey says his company has at least two employees whose sole job is to manage product quality, which he called a "huge liability" in his industry.

Motioning around the conference room, he asked fellow panelists to imagine "a building like this where we might put the firm alarm and sprinkler system in and as we sit here, get a false alarm and the sprinkler comes on and we're all drenched."

Right direction

Picturing those kinds of worse-case scenarios can point companies with no formal plan in place in the right direction, according to Menzies.

He admits implementing a risk management plan can seem "daunting" at first.

"But it's actually pretty straightforward because you only have to think of two factors – what risks would have the most significant impact on my business if they were to occur and how likely is it that the risk will occur," he said. "That's where you need to be spending your time."

And it will take time, said Bjorn Tranebo, vice-president and general manager of the Wheelabrator Group, a Burlington, Ont.-based machinery manufacturer.

"We realized that we needed to do cash flow analysis and understand the customer and do a credit check...it's not something that came suddenly, it's something we learned to grow with," he said, adding they only recently finalized their policy.

As a manufacturer dealing with "very heavy capital," he considers the time invested worth it.

"If we make a misstep in the calculation of equipment, it's going to cost us an enormous amount of money," he said. "You need to think about what it's going to cost you."

Erika Beauchesne is an online reporter with Canadian Manufacturing.com.

MITIGATING RISK
Total 156

Those with a formal risk management process take a variety of steps to mitigate risks, the most common being quality control, risk identification and monitoring financial indicators.

	2010
Maintain quality	62%
Identify risks	58%
Monitoring internal financial indicators	57%
Insist on official paperwork for orders	53%
Monitor credit record of customers/suppliers	52%
Be lean	52%
Long-term planning	51%
Formal audits and checks	49%
Know risks to customer/suppliers	44%
Diversify product offerings	41%
Long-term contracts with suppliers/customers	39%
Insurance	38%
Set up contingency plans	37%
Formal risk management plan	34%

“We’ve got some companies on the verge of buying new equipment that think they’re running 65% and 70%; you show them 35% and 40%, and they’re shocked.”

—David McPhail

“We apply little bits and pieces in our manufacturing plant – but to really come up with a strategy from A to Z in terms of lean, I don’t think it’s perfectly understood in Canada.”

—Denis Saint-Yves

to get Labatt’s...As manufacturers, we do a great job maybe, within our own borders, but advertising and marketing ourselves outside of Canada and the US is something that few companies do very well.”

In many respects, Canada is a branch plant economy where the “mind and management” of many companies lies outside our borders. That leaves manufacturers open to the caprices of politics. When a recession hits, owners will decide where to cut. Intuitively, it won’t be in their home country.

“Some of the branch plants in Canada will subsequently close because the champion of the manufacturing [plant] is usually [in] the US,” said Jim McCoubrey, president of Troy Sprinkler Ltd. and chairman of the board for Excellence in Manufacturing Consortium (EMC), based in Owen Sound, Ont.

Established in 1979, the company supplies fire alarm, fire suppression and security products. In his long career, McCoubrey has seen plants shuttered after being bought by US parent companies. In his view, a Canadian owner wouldn’t have let the plant close so easily.

“They’ll do whatever they can, whether or not it’s quality, innovation, competitiveness of any kind to ensure that plant remains open; that plant is productive. But when you’re a multinational, politics will rule. Personal preferences will dictate a lot of business decisions.”

Multinational ownership plays another role, he added. It cloaks the amount of true innovation taking place in Canada. The softer number of Canadian patents compared to US patents could be part of the reason Canada isn’t known for research and development.

“I’m sure the patents that our engineers in Canada develop roll up under a multinational. I ran a plant up in Owen Sound for years. We had an R&D group; we had hundreds of patents. That applies in every little community across the country and, because many of the companies are multinational, we don’t get credit, as a country, for developing those patents.”

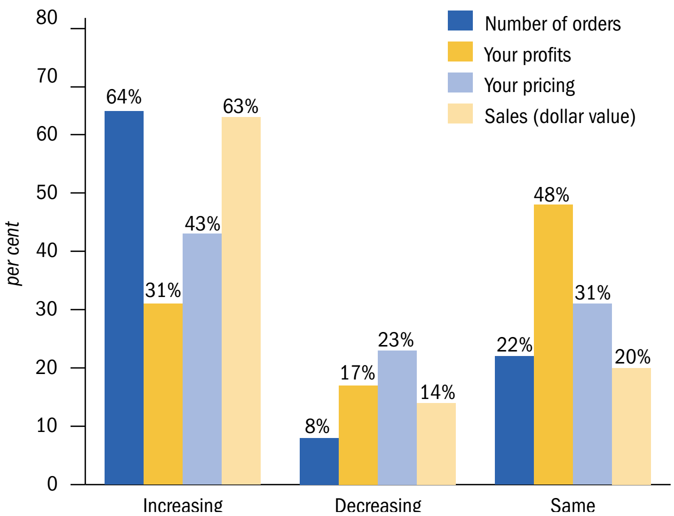
James Johnson, a trade analyst for the Italian Trade Commission, wondered how open “innovation” is to interpretation. “Making whatever you are doing cheaper, faster and better is still innovation. Cost and quality go in there. If your innovation has new features, it doesn’t have to be patented.”

Michael Hlinka, a business commentator

ORDERS, PRICING, PROFITS, SALES 2011

Total 384

Manufacturers expect orders and revenue will increase next year, but prices and profits are not estimated to grow at the same rate. About half of the respondents expect prices to remain the same.



David McPhail says there's a lot manufacturers can do to make their processes more efficient using existing equipment.

for CBC Radio who looks at international economies and what they do, also took issue with the notion that Canadian manufacturers don't innovate. "I think it's an absolute canard, I think it's nuts, I think it's just flat out wrong," he said. "Most respondents (24%) cited quality as their advantage. In terms of quality, you innovate to make your product better… The essence of business is…not to innovate, it's to innovate so you have better products."

"Absolutely," agreed Denis Saint-Yves, director of operations at the Siemens Canada's Drummondville Plant, a manufacturer of residential breakers and loadcentres, safety switches, panelboards and meter centres. Ninety-three per cent of its production goes to the Canadian market, and the rest goes to the US. "Innovation is not only about patents, it's quality. We're a branch of a bigger company so many times the patents are held in the head office and they don't show up in the country's statistics."

However, innovation did not rank highly as an advantage in the survey results. It's down the list at 6%. Following quality were customer services (16%), unique products/service/niche

BUSINESS INTENTIONS
Total 384

The general strategic direction over three years is expansion. More hires are planned and there will be a greater focus on new geographic markets and upgrading plants compared to 2009.

	Tracking 2009	Year	3 Years
Hiring new employees	39%	44%	44%
Adding lines of business	38%	23%	33%
Enter new lines of business	34%	21%	31%
Enter new geographic markets	29%	19%	33%
Downsizing employees	18%	11%	4%
Expanding plant size	12%	11	23%
Acquiring other companies or lines of business	17%	8%	20%
Downsizing lines of business	12%	6%	2%
Downsizing plant size	7%	5%	4%
Selling of company	--	4%	11%
Merging with another company	6%	3%	8%
Closing of company	5%	3%	4%
None/No Answer	12%	30%	20%

COMPETITIVE ADVANTAGE
Total 345

Product quality is mentioned most often as a competitive advantage. Less than 10% feel they have a competitive advantage in pricing. Innovation is identified by 6%.

	2010
Product quality	24%
Customer services	16%
Unique product/service/niche market	14%
Expertise/Experienced workforce	12%
Customized/Personalized/Flexible solutions	9%
Responsiveness	8%
Competitive pricing/Good value	7%
Innovation	6%
Technology	6%
Reputation/history	5%
Global reach/market	4%
Location	4%
Small, locally owned	4%
Diversity of products/services	3%
On-time delivery/quick delivery	3%

NOTE: Items less than 3% not shown

market (14%), expertise/experienced workforce (12%) and customized/personalized/flexible solutions (9%). The chief disadvantage identified by18% of the companies is cost.

Mark Lichtblau, corporate vice-president of El-En Packaging Co. Ltd. and Haremar Plastic Manufacturing Ltd., manufacturers of plastic films and bags based in Vaughan, Ont., sees a need for a greater emphasis on designing, engineering and filing more patents. "I have this feeling, especially in my markets, that people are not focused on innovation. They want to add value somewhere in the stream or the channel, but they don't want to develop the channel or the products."

Al Diggins, EMC's president and general manager, pointed out SMEs do have ideas and they have patents; what they don't have are sympathetic bankers who will provide the financing to get those ideas to market. "We've seen many of those nice opportunities come and go because we're dealing with banks that are very resistant. We're talking to a few banks right now about …getting bankers back in the system that understand manufacturing and aren't afraid to get their fingers dirty."

Most of the respondents (96%) are dealing with

Avoiding layoffs

Retaining top workers a priority

By Erika Beauchesne

Al Diggins can find at least one positive about the economic downturn. Tough times forced aging workers with expertise to stick around.

"Guys who were going to retire in the last couple of years and the next two years can't," said Diggins, president of the Excellence in Manufacturing Consortium and panelist at the Business Outlook roundtable.

He said that helps manufacturing at a time when skilled employees are becoming increasingly sparse. "For every two of us retiring in the next three, four, five years, there's less than one coming to work for us."

From 2008 to 2009, employment in manufacturing declined from close to 2 million to almost 1.8 million, according to Statistics Canada.

Some of the hardest hit sectors were paper, where jobs dropped from 90,600 in 2008 to 74,300 in 2009 and fabricated metal products, down to 153,600 jobs from 177,500, and transportation from almost 270,000 jobs to 227,000.

Panelists agreed that retaining top workers is a priority and some said they did everything they could to hold on to them when the going got tough.

"We took jobs at the lowest margins I've ever taken," said Thomas Beach, president of Handling Specialty, a designer and manufacturer of material handling systems.

The company also broke up large projects and had its manufacturing operations south of the border do the sub-structure.

"Did we pay a little bit more for logistics to bring it back and forth? Yeah, we did, but we felt it was far more important to keep these people in our US facility," Beach said.

Still, the company had to cut labour costs somewhere so it gave workers the option – lay offs or a 10% wage reduction for half a year.

They chose the pay cuts.

"I think the culture must have something working well for them to spontaneously vote for less pay than to lose a team mate," he said.

Fellow panelist Bjorn Tranebo said his company, the Wheelabrator Group, took a similar approach to avoid layoffs.

"We had 20-, 30-year veterans in our facility. They have a lot

Al Diggins notes tough times have forced aging workers with expertise to stick around.

of knowledge of how to put these machines together and how they work," said Tranebo, vice-president and general manager of the machinery manufacturing company.

"What do you want to do?" Tranebo asked the workers, who opted for a reduced workweek to make sure they kept everybody there.

Tranebo said that kind of "family environment" in small companies pays off in the long run when workers will pitch in to help the business out.

"Do whatever you can to keep them there, they will pay you back later in spades," he advised.

While panelists managed to maintain their top employees, not all manufacturers were so lucky.

As companies recoup from the downturn and start looking at spending again, they should invest in building their skilled labor back up, said Beach.

"We've done just about everything we can to make sure we don't lose anybody. We will need that talent and that skill on the other side of this."

Erika Beauchesne is an online reporter for Canadian Manufacturing.com.

productivity by investing more heavily in training (58%) than technology (50%), automation (33%) and outsourcing (23%). Training is on the agenda for 22%, technologies for 26%, automation for 20% and outsourcing for just 9%.

Lean manufacturing

Most panelists agree lean manufacturing is key to productivity improvement and innovation, but adoption among the survey respondents is just under half at 49%. Another 14% intend to implement some aspect of lean.

We all know about some of the lean concepts, noted Saint-Yves. "We apply little bits and pieces in our manufacturing plant – but to really come up with a strategy from A to Z in terms of lean, I don't think it's perfectly understood in Canada."

As a former lean manufacturing specialist, one thing has always astonished Bjorn Tranebo, vice-president and general manager of the Wheelabrator Group in Burlington, Ont., a manufacturer of surface preparation machinery and systems.

"It's the inability of Canadian industry to make processes scalable so [companies] can grow when it's good times

COMPETITIVE DISADVANTAGE
Total 345

Consistent with what they feel are their key business challenges, most SMEs feel costs are their greatest competitive disadvantage.

	2010
Costs	18%
Small company	8%
Canadian dollar/currency exchange	7%
Distance from market	7%
Limited/declining market/customer base	5%
Competition/increased competition	4%
Lack of skilled workers	4%
Marketing	4%
Overhead costs	4%
Overseas competition	4%
Delivery times	3%
High labour wages	3%
Government regulations	3%
Old/aging equipment/technology	3%
None/Don't know	2%

NOTE: Items less than 3% not shown

“We’re an SME...$20 million of revenue, 55 employees. We’re a little gaffer in the grand scheme of things but we can tell the world what the heck we’re doing.”

—Thomas Beach

and retract when it’s not so good, and still be a very profitable operation. [With] the currency being strong, all of a sudden it highlights our costs. But why is cost so important? Because we don’t have scalable processes.”

What’s needed, he said, is a strong foundation based on understanding of, among other things, standard work and process flows. But lean is not just about manufacturing.

Wheelabrator found out through a lean event that it was making too many purchases, and each one cost $125. It turns out about 5,000 of those purchases could be eliminated. “That’s money we were just throwing out the window.”

Lean doesn’t have to be complicated, noted David McPhail, president of Memex Automation Inc., a manufacturer of plant floor data systems, also in Burlington.

REVENUE CONSTRAINTS
Total 384

Logistics and competition are perceived as the main barriers to growth outside of the North American market.

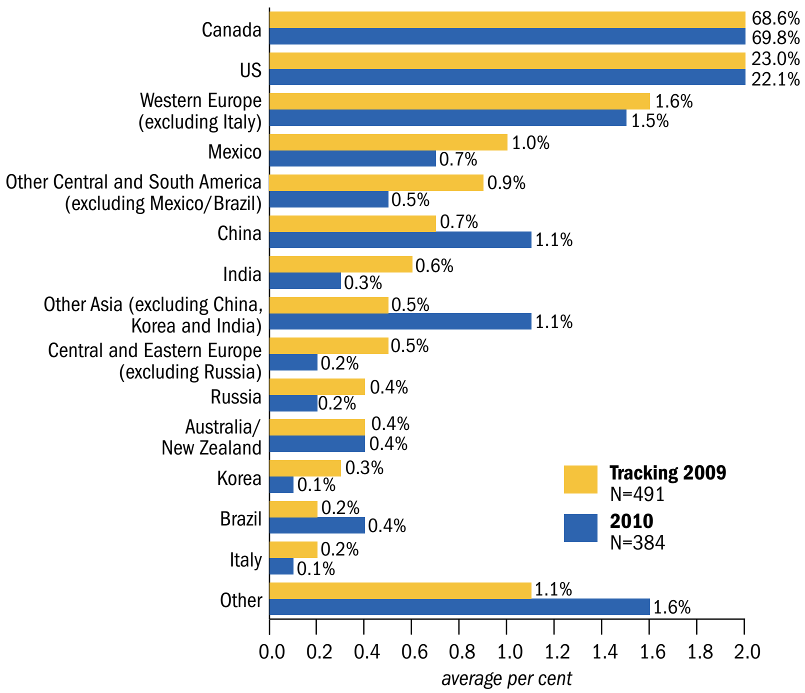
	2010
Transportation issues/logistics	39%
Competition	39%
Currently fluctuations	24%
Market demand	24%
Global sourcing/supplier issues	21%
Internal resources	20%
Government policies	20%
Managing risk	19%
Protectionism/tariffs	16%
Financing	14%
Other	2%

“...When you’re a multinational, politics will rule. Personal preferences will dictate a lot of business decisions.”

—Jim McCoubrey

REVENUES BY COUNTRY/REGIONS

A significant proportion of manufacturers’ revenue comes from Canada and then the US, which mirrors last year’s results.



Focus on simple principles, such as capacity and equipment utilization, in concert with capital appropriation for new equipment.

"We've got some companies on the verge of buying new equipment that think they're running 65% and 70%; you show them 35% and 40%, they're shocked."

By applying better scheduling, leaving less stock on the floor and letting the operator be more involved in problem solving, he said a tremendous amount of improvement can be made with existing equipment.

"Capital appropriation is expensive," said McPhail. "You decide today to replace a piece of equipment on the shop floor, it may be 18 months before that thing is up and running and actually producing a saleable product. That's a long time. If you come into that capital on the front end, you've got to follow through with the process all the way."

Companies recognize a need for more development of innovative thinking/creativity (43%), technical skills (42%), teamwork (41%), supervisory management (40%), technology knowledge (39%) and problem solving (38%). And they're doing something about it. Sixty-nine per cent offer skills training.

When Lichtblau's company lost a chunk of business, after getting over the initial shock, they saw it as an opportunity to retrain. "We said, 'Well, what a great opportunity to change the way we're running these machines. What a great opportunity to change the way we're working on the floor. Now I have the opportunity to be (for example) number one in safety.'"

Saint-Yves said product engineers at his plant got training on the plant floor. It was an opportunity for them to combine manufacturing engineering with their R&D skills, and experience a change in mindset. "In the past, those product guys didn't know how what they were designing was going to be made on the floor."

SKILLS DEVELOPMENT
Total 384

Areas requiring further development revolve around technology, innovation and creativity, as well as management and teamwork. About seven out of 10 companies offer skills training.

	2010
Innovative thinking/Creativity	43%
Technical skills	42%
Teamwork	41%
Supervisory/Management	40%
Technology knowledge	39%
Problem solving	38%
Industry specific skills	32%
Computer skills	31%
Advanced machinery and equipment	30%
Project management	30%
Workplace Safety	24%
Verbal communication	23%
Interpersonal	19%
Lean/6 Sigma familiarity	18%
Learning	18%
Written communication	17%
Office and clerical skills	14%
Reading	5%
None	4%
Other	1%

Investment plans

Almost all of the respondents (91%) have investment plans for 2011. This year and next, process improvement tops the list of priorities for 46% of the manufacturers, training is second at 38% and 39%, followed by machinery and equipment (33% and 37%), and R&D (37% and 35%). About 9% have no investment plans for next year.

Investment plans for facilities next year average over $1.2 million, about 12% more than the anticipated $1.1 million investments in machinery and equipment. Those not investing or developing new products are more concerned with just keeping their companies afloat.

PRODUCTIVITY IMPROVEMENT
Total 384

Most companies (96%) have taken initiatives to improve productivity. Instead of outsourcing they're investing more in improving internal resources (people over technology). Future investments are expected to continue in the same vein.

	Have taken	**Plan to take**
Employee training	58%	22%
Investing in techniques	50%	26%
Lean manufacturing	49%	14%
Automation	33%	20%
Outsourcing manufacturing	23%	9%
Outsourcing support roles	10%	9%
None	4%	2%
Other	3%	1%

Developing a competitive advantage

By Erika Beauchesne

David McPhail is a big advocate of taking the government's money.

As president of Memex Automation Inc., a shop floor data communications provider, he has been using federal grants and tax credits to fund his company's research and development (R&D) for several years. When he tells people in the US about the programs available to Canadian companies, "they're flabbergasted."

They say, 'Oh, you guys have a serious competitive advantage.'"

McPhail agrees with them, calling the R&D funding "foundational to our business" and crucial to innovation.

Despite this, only 65% of companies in the **PLANT** Business Outlook survey knew about, or took advantage of, financial incentives or funding from government.

The survey found 26% were aware of the programs, but hadn't used them while 24% were unaware of them.

Of the companies that have taken advantage of the funding, 34% used it at the federal level, 25% at the provincial level, and 3% municipally.

Even as the economy picks up, those numbers may not improve much over the coming year, when only 7% of companies expect to spend more than 10% of their revenue on R&D and commercialization of new products – about the same per cent as last year (7%).

Around half (52%) plan to dedicate between 1% and 5% of revenue to R&D and commercialization, while 15% don't plan to throw any money into it.

Canadian companies were hesitant to significantly invest in R&D, identifying several challenges to bringing new products to market.

Cited as barriers were marketing and commercialization (35%), followed by internal resources/expertise (33%) and defining market opportunities (32%).

Nearly one fifth (21%) said financing was a barrier, but it's one area where businesses can tap into the government's resources.

Canada Revenue Agency's SR&ED program gives businesses of all sizes and across all sectors cash refunds and/or tax credits for expenditures on eligible R&D work in Canada.

Qualifying R&D could range from creating new devices or processes to basic support work in engineering or design.

The survey found less than half (41%) of companies took advantage of the SR&ED – a percent that hasn't changed since the previous year's survey.

McPhail doesn't understand why more companies aren't using the incentive, which he called "one of the best unique competitive advantages we have over the US," noting the application process has recently been streamlined, making it less arduous.

Panelists pointed out the SR&ED is just one of several programs available to companies.

They mentioned the Canadian Manufacturers and Exporters SMART program that provides funding for small and medium manufacturers in Ontario with productivity improvement projects such as lean design and quality improvement.

Panelist Jim McCoubrey gets why some companies are hesitant to apply for government incentives.

The president of Troy Sprinkler Ltd., a fire alarm, suppression and security products provider, said his company just went through the SR&ED process and was approved.

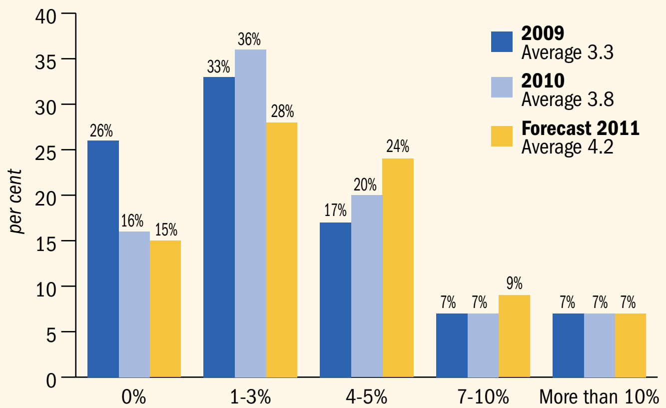
TAX CREDIT
Total 384

Similar to 2009, about 40% of respondents took advantage of the SR&ED federal tax credit.

	2009	2010
Total Yes (NET)	**41%**	**41%**
Yes-2009	–	33%
Yes-2010	–	29%
Yes-prior to 2009	–	29%
No	**55%**	**49%**

R&D INVESTMENT
Total 384

Revenue for R&D and commercialization of new products is on an upward trend, with about a 10% rate of increase expected for 2011.



NEW PRODUCT CHALLENGES
Total 384

Similar to last year, marketing and commercialization, internal resources and defining market opportunities are the primary barriers to bringing products to market. Financing is less of a barrier in the current year.

	Tracking 2009	2010
Marketing and commercialization	31%	35%
Internal resources/expertise	31%	33%
Defining market opportunities	34%	32%
Financing	30%	21%
Regulatory issues	12%	17%
Lack of clearly defined development process	13%	12%
Finding suppliers	7%	11%
Trade barriers	10%	10%
Other	7%	1%
No barriers	12%	9%

But he jokes the government auditing process had "our financial people sweating."

Businesses worried about managing the financial aspect of a grant or tax incentive can turn to a consultant, according Jim Menzies, national leader, manufacturing and distribution, at Grant Thornton LLP.

Menzies, who has helped companies through the process, said the feedback he's getting is positive.

"What we've heard back from our clients is, 'Gee, this is an actual government program that works,'" he said, adding the main thing holding people back from using the programs is ignorance.

"They don't know about it in many instances or they don't realize that they actually do these types of activities to qualify."

McPhail said he was initially cautious to apply for the same reason.

"But the part that switched me on to R&D was it doesn't have to be revolutionary change in the market space, it has to be incremental change within your organization."

He said if the work helps your organization get better and there's scientific research and experimental development behind it, "the government wants to reward you to take a risk."

More information on the SR&ED program is available at **www.cra-arc.gc.ca/txcrdt/sred-rsde/bts-eng.html**.

Erika Beauchesne is an online reporter for Canadian Manufacturing.com.

For Lichtblau, it isn't about when to invest: he believes there has to be continuous change. "One of the greatest things you can do for a company is develop a culture of change so that you're continuously training, you're continuously adapting, you're continuously investing in capital and new machinery for efficiency or for innovation. Because you're doing this in good times, you're ready to ramp up, and in bad times you're able to adapt to the market."

Like many other Canadian manufacturers, McCoubrey's company didn't invest in capital equipment over the years because of the low value of Canada's dollar. "Hopefully, that's changed over the last two years, the recession sort of kicked us in the butt and I think that's probably why Canada's productivity numbers are the way they are compared to other countries because we could hide behind the lower dollar."

Now Troy Sprinkler is taking a different approach and moving into other markets. "Typically, we would sell our product through direct sales offices. We're going to dealers now with a different product line. We are selling some overseas and we find in the Middle East want North American manufactured products, not Far East products."

Saint-Yves said the last two years have been a good time to invest and that's what his plant has been doing, but

INVESTMENT PRIORITIES
Total 384

Process improvement is the top priority for 2011. Secondary priorities are training, machinery and equipment and R&D. About 9% have no investment plans for 2011 (a marginal decline from last year).

	Tracking 2010	Priorities for 2011
Process improvement	46%	46%
Training	38%	39%
Process/Production machinery and equipment	33%	37%
R&D	37%	35%
Plant facilities	22%	25%
Energy efficiency	22%	23%
Business intelligence	18%	17%
Advanced technologies	20%	16%
Automation	17%	16%
Green technologies/Sustainability	16%	16%
Other	3%	2%
No investment planned for 2011	12%	9%

“The ones that have been successful in the past few years are the ones that have been able to go outside of the Canada/US borders – and actually sell and market and develop their products throughout the world.”

–Jim Menzies

he reminded the panel that it’s not just about machinery: investment must also be made in production systems. “It’s about lean manufacturing, lean processes and management of your workforce, and your production systems. If your processes are much better, you will have either more cash flow or more savings that will allow you to invest later.”

When Handling Specialty took a hit from the automotive industry in 2001-2001, the company decided to prepare for the next downturn by diversifying into other markets, such as aerospace. “We wanted to make sure that we were going to be resilient the next time it came around,” said Beach. “You need to invest forward.”

The company also focused on what it was good at and invested in selected final assembly, project management, tests, sign-off and commissioning. The machine shop was outsourced and partnerships have been formed.

“We invested in the supply chain and outsourcing has worked marvellously,” said Beach.

China can play a part in general costs. Troy Sprinkler has had purchasing people in China for 25 years, and it has quality people visiting suppliers. Not that companies should risk their latest intellectual property there, but McCoubrey acknowledges there are some things manufacturers in China or perhaps India can do better in high volumes. And Troy Sprinkler has a manufacturing rep that buys and stocks batteries, ensuring there are no quality issues. “It works very, very well and has kept our costs down.”

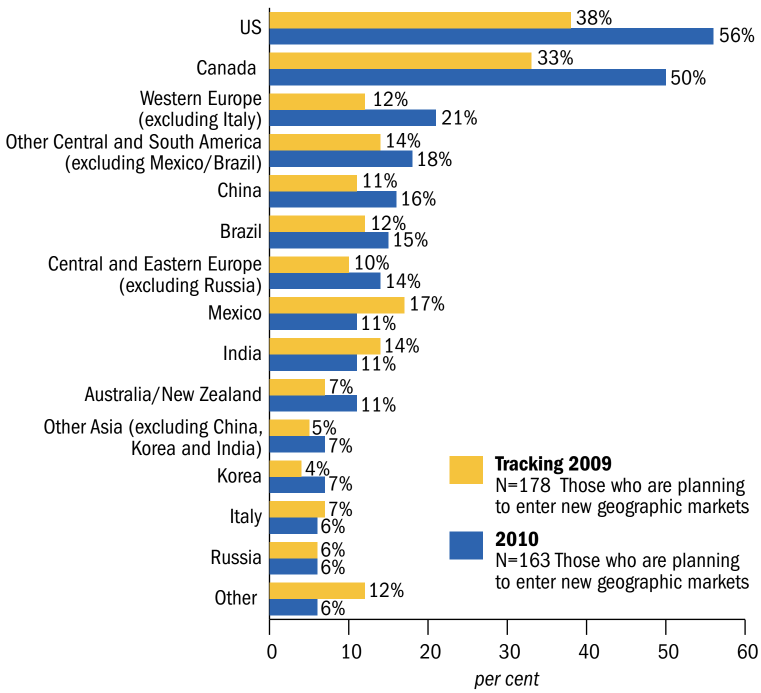
The company partners with Canadian manufacturers, too. It consolidated its cartoning with two suppliers who are now getting $2 million worth of business rather that one tenth of that, and Troy Sprinkler has eliminated 20,000 square-feet of carton space.

“I have this feeling, especially in my markets, that people are not focused on innovation. They want to add value somewhere in the stream or the channel, but they don’t want to develop the channel or the products.”

–Mark Lichtblau

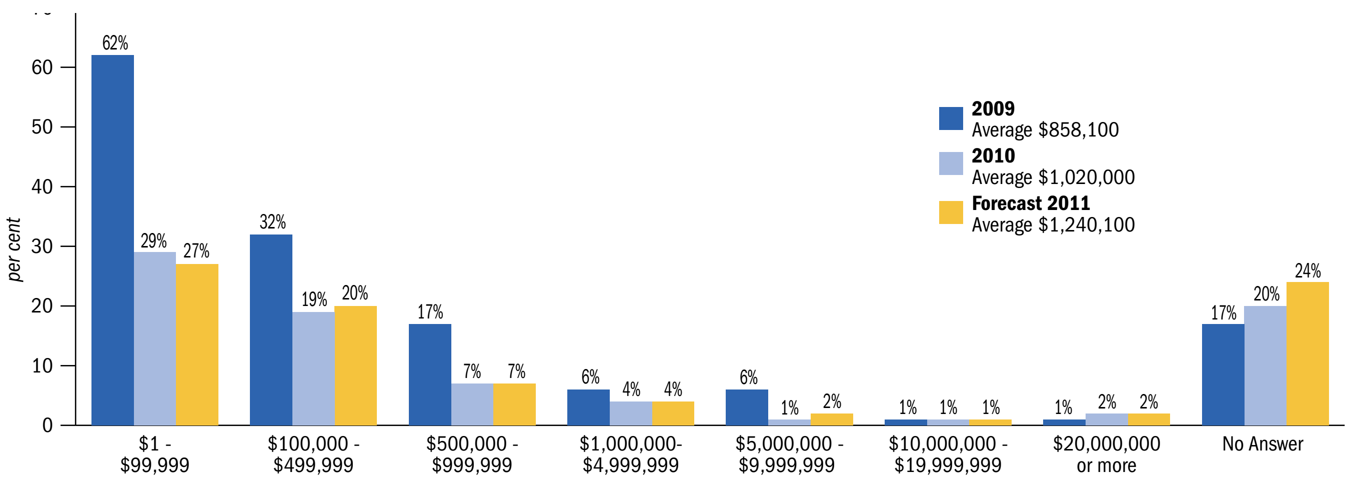
ENTERING NEW MARKETS

There will be a stronger focus on developing new markets in Canada and the US, followed by Western Europe, but a reduced focus on the Mexican market.



INVESTMENTS IN EXPANSIONS, FACILITY UPGRADES

SMEs will be putting slightly more money into expanding and upgrading their plants than what they plan to spend on machinery and equipment in 2011.



Business outlook

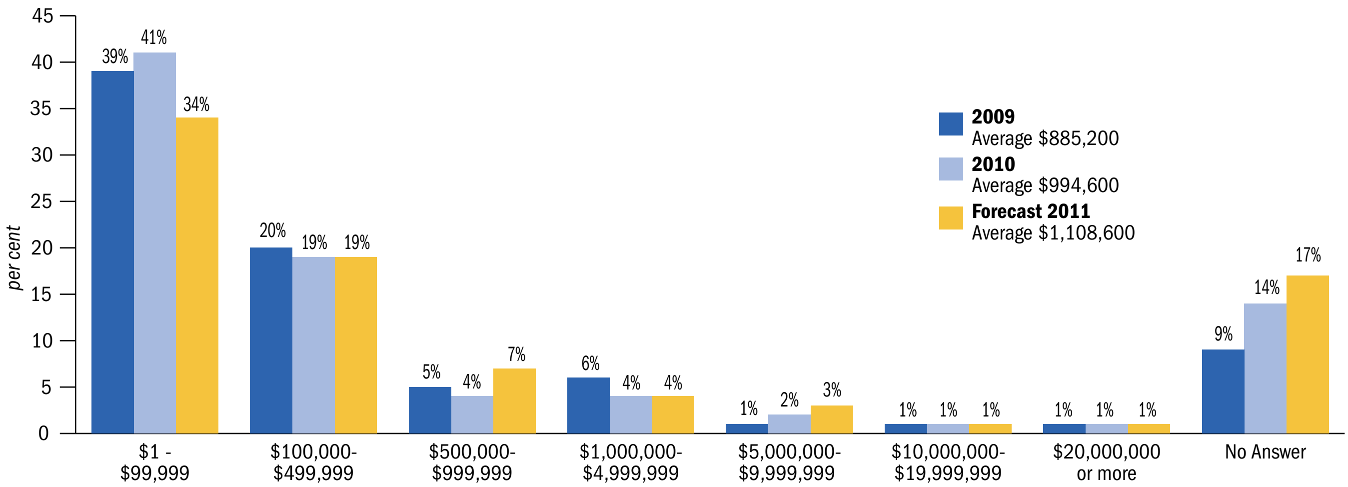
The economic analysts are forecasting sluggish growth this year, and Hlinka expects low growth in developed markets of the world for the next 10 to 20 years. "If there is going to be growth, it's going to be in the developing markets of the world… I think it's going to be a very difficult overall economic climate."

Nonetheless, senior executives have moved from being "cautiously" optimistic in last year's forward-looking survey to optimistic this year: 64% are predicting orders will be up, an improvement over last year (58%); and 63% are expecting the dollar value of sales to increase. There will be less movement for pricing (up for 31%) and profits (up 43%), although both are above last year's expectations (23% and 37% respectively).

There is some concern about general economic

INVESTMENTS IN MACHINERY, EQUIPMENT, TECHNOLOGY

There have been modest increases in machinery, equipment and technology investments since 2009. Manufacturers will spend an average of $1.1 million in 2011.



conditions in the near future, but they expect business conditions to improve over the three-year outlook.

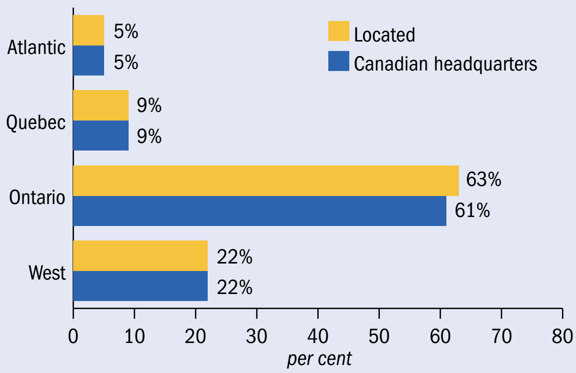
Increasing sales, cost control and being competitive are the biggest challenges over the coming year and will continue to be three years out. Topping the list of concerns for 2013 are business development and expansion (35%), controlling costs (34%), closely followed by increasing sales and being competitive (both 33%), training and finding skilled workers, and new product innovation (both 30%) and managing growth (29%).

Businesses appear to be gearing up for expansion over the next three years, with 44% planning to hire new employees, 33% entering new geographic markets, 31% adding new lines of business and 23% expanding their plants. Some manufacturers expect to be working with others to attain their goals. Thirty-one per cent expect to collaborate on new product design and development, 26%

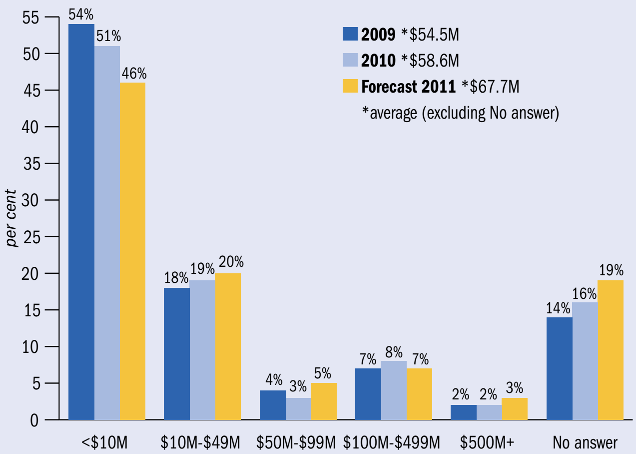
Profile of respondents

Most respondents are small manufacturers with fewer than 100 employees. More than 80% of the companies are privately owned and two-thirds are family owned. Average annual revenues of almost $68 million are expected.

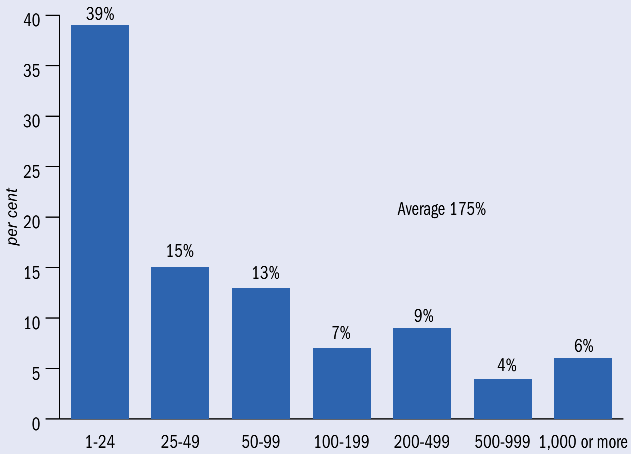
LOCATION
Total 384



REVENUE
Total 384



NUMBER OF EMPLOYEES
Total 384



Bjorn Tranebo (right) is astonished by Canadian industry's inability to make processes scalable to fluctuations in market demand.

on distribution to new markets, and 25% on marketing of current products.

As it was in 2009, most of their business comes from Canada (almost 70%) and the US (22%), with BRIC countries placing a distant third (2%), followed by Western Europe (1.6%).

Transportation issues and competition (both 39%) are the main barriers to growth outside North America, followed by currency fluctuations and market demand (both 24%); however, financing appears to be a major issue for just 14% of respondents.

Of the 163 respondents who plan to explore new markets, 56% said they'd focus on the US, Canada (50%), Western Europe (27%), and on Central/South America (18% excluding Mexico and Brazil), China (16%), Brazil (15%), India (11%) and Russia (6%).

Wheelabrator, in a very heavy capital investment part of business, doesn't expect to be out of the downturn until 2013.

"We got into it late," said Tranebo. "We had a relatively healthy backlog so we could work on it but right now everybody's sitting on their [wallets]."

He said the strong Canadian dollar is another hindrance. "We didn't have to improve as much because we could hide behind that weaker dollar and still be competitive. Now that we have a strong dollar, we have to show the same kind of competitive edge [as the US]. The Americans have been used to it for 10, 15 years – they have a little bit of a head start on us."

Wheelabrator considers Mexico rather than China or India to be its low-cost manufacturing location. "I think because of the crisis we're seeing more of this near-sourcing than before. We can't afford to have that amount of capital sitting in inventory across the ocean," said Tranebo.

With sales booming in the Latin American market, he said local manufacturing is the way to beat the currency.

A bank economist mused recently that he sees Canadian manufacturing shrinking steadily. "We have to make our way in the world but we can't do it by assembling things. We've got to be the people not assembling the vehicle, but redesigning the vehicles, financing the vehicles…We have to be the doctors to the world and the lawyers to the world."

While there are some who may agree, or at least reason that Canadian manufacturers must focus on the higher-value links in the global supply chain, the entrepreneurs who are the lifeblood of small and medium-sized companies appear to be in no hurry to throw in the towel.

The sector is worth more than $600 billion to the national economy. In a good year it accounts for about 15% of economic output and employs nearly 2-million Canadians. Like certain car companies during the recession, Canadian manufacturing should be too big to fail. It will be up to Canada's SMEs to prove that is the case in the years ahead.

Files from Lisa Wichmann, editorial director, Industrial Group, Rogers Media.

Comments? E-mail joe.terrett@plant.rogers.com.

"...The essence of business is not to innovate, it's to innovate so you have better products."

—Michael Hlinka

"Making whatever you are doing cheaper, faster and better, is still innovation. Cost and quality go in there. If your innovation has new features, it doesn't have to be patented."

—James Johnson