



Editorial

May I wish all our clients and contacts a very happy New Year and hope that it brings new opportunities and prosperity to your operations. Invetech certainly enters the New Year in the midst of several major and highly challenging assignments, in particular in the healthcare and fast-moving consumer goods industries, as we continue to increase the international component of our business.

We have often been asked "How can Invetech add value across such a broad range of product development projects?" In part, the answer lies in the corporate culture at Invetech which is the subject of my recent article for CEO Forum's website, reproduced in this newsletter. In order to be able to apply our engineering capabilities to leading-edge solutions in diverse industries, Invetech has had to develop this unique culture where creativity is allowed to thrive in balance with commercial realities to deliver business success for our clients. I hope that you will get some insight into this dimension of our company and maybe apply some of our experiences to your own teams.

You will have read in previous newsletters of our growing international reputation in the biomedical sector and in this edition we announce some major new projects. This is an area that we are naturally very excited about, but it is important not to forget that much of our ability to innovate and retain our talented staff relies on constant exposure to diverse technologies and industries in our domestic market. What better project to stimulate and challenge our teams than to help in designing Australia's first Synchrotron?

This newsletter also highlights a number of projects in the manufacturing sector, including the highly successful Innovation Insights program of visits to world-class local manufacturing companies that we are undertaking on behalf of the Victorian Government. It is fitting that this innovative program introduces attendees not only to world's best technologies, but also to the business and learning systems necessary to foster a workplace culture that attracts and retains high-performing personnel.

Paul Wright
Chief Executive Officer

Synchrotron reveals lightness of beams

Invetech has been chosen to assist in the construction of the Southern Hemisphere's only major synchrotron facility to be located just a few kilometres from our Mt Waverley headquarters.

The Australian Synchrotron will provide world-class, leading-edge capabilities for Australia's industrial and research scientists to develop new products and improved processes, said Victoria's Minister for Innovation, John Brumby, when announcing that another Melbourne company, Metaltech Precision International, would take part in the facility's construction. (Invetech was subsequently employed by Metaltech Precision International to assist in this process.)

A synchrotron is a large machine (about the size of a football field) that accelerates electrons to almost the speed of light. As the electrons are deflected through magnetic fields they create extremely bright light.

The light is channelled down beamlines to experimental workstations where it is used in the advancement of R&D in such fields as: biosciences (protein crystallography and cell biology); medical research (microbiology, disease mechanisms); high-resolution imaging and cancer radiation therapy; environmental sciences (toxicology, atmospheric research, clean combustion and cleaner industrial production technologies); and agriculture (plant genomics, soil studies, animal and plant imaging).

But before any beamlines are turned on, the facility requires construction of a large outer ring, consisting of 42 girders and pedestals which form the rigid support structure for the synchrotron's giant magnets and main ring.

Metaltech Precision International's Managing Director, Denver Alvis, said that the company was delighted to be working on a prestigious project of great importance to Australia's scientific future.

"The award of the contract demonstrates that targeting niche projects of international standing like the Australian Synchrotron with our combined capabilities in high-precision machining and manufacturing is a successful strategy," said Mr Alvis.



Artist's impression of the new Australian Synchrotron



Taking shape ... within sight of Melbourne's central business district

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Frontline moves forward through lean thinking

When your client list includes heavyweights like Holden, Ford, Mazda, Royal Malaysian Navy, Mitsubishi, Tenix, GM Defence and the Royal Australian Navy, there wouldn't seem to be much need for improvement.

Kevin Hooper, CEO of Frontline Australasia, however, believed it was precisely the right time to conduct a review of the 16-year-old company's operations and turned to Invetech for help in identifying areas for improvement.

Frontline Australasia's first priority was investigating ways to streamline its manifold manufacturing operations for auto OEMs. (In addition to manifolds, Frontline's other main product lines include towbars, sportsbars and bullbars as well as a range of marine valves for the navy and defence contractors.)

"We've made huge productivity improvements in a relatively short time span, which included a major revamp of our shop floor layout and production systems for the manifold manufacturing operations.

"We've made significant reductions in time and cost while increasing product output from 450 to 585 units a day," Hooper said.

Much of the turnaround has been due to the adoption of lean manufacturing techniques introduced by Invetech as well as engaging the Frontline staff in the new methodology, processes and systems.

"This lean approach has worked so well that it will now form the blueprint for the adoption of a Lean Manufacturing Program across the entire organisation," said Jim Glover, Invetech Consultant.

Several Lean Thinking tools were introduced at Frontline, including Takt Time, Occupational Health & Safety systems and reduced waste techniques. Glover said that these tools were introduced following a comprehensive collection of data and analysis of the plant's operating processes.

This led to the introduction of several assembly line improvements, including an overhaul of the material handling component to prevent double handling, excess motion, travel distance and twisting as well as minimising lifting of heavy crates of finished goods.

Glover said they also noticed that different parts of the assembly line process were spread around the factory floor and featured differing heights. The new process has resulted in a far more user-friendly layout that features the best product quality, least waste and greatest level of safety.



A lean plant layout at Frontline

Glover said they also introduced Kanban, a Japanese term that is one of the primary tools of Just In Time (JIT) system. It signals a cycle of replenishment for production and materials. It maintains an orderly and efficient flow of materials throughout the entire manufacturing process.

"The concept behind the Kanban system is to reduce costs in high volume production lines. One way to do this is to smooth and balance material flows by means of controlled inventories. A Kanban system allows an organisation to reduce production lead time which in turn reduces the amount of inventory required," Glover explained.

Hooper said the lessons learned from this exercise also will be introduced to other parts of the Frontline manufacturing process. He said the company now also was looking to bring about further productivity improvements by establishing a purpose-built facility, rather than continuing to maintain their current multiple-building operation.

"Like many other businesses supplying to leading companies, we're under constant pressure to work more effectively and cost efficiently," Hooper said.

"We need to be equal if not better than the top 10 per cent in the world to grow our business," he concluded.

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"We've invested heavily in state-of-the-art plant and equipment as well as having a very highly skilled, stable workforce so that we can supply specialised components and advanced tooling capabilities," he added.

Invetech's role, according to Jim Atkin, Project Manager, is to carry out the design and engineering of a system that will be capable of positioning the magnets accurately, while keeping the effects of vibration to a minimum. "Minimising vibration becomes critical when dealing with beams of light that are about the width of a human hair (100 microns) and even smaller in height," Mr Atkin said.

The giant girders, weighing up to seven tonnes, must also have the facility for fine positional adjustment in increments of 20 microns in three planes.

Another key element is the Low Conductivity Water (LCW) System, which is used for cooling the magnets and other equipment within the synchrotron.

With the knowledge that other synchrotrons have experienced considerable vibration generated by their LCW systems, Invetech is adopting principles of 'best practice' during the design of the LCW system.

The objective of these principles is to minimise the generation of vibration, including the use of damping materials, while ensuring that any vibration is isolated from the other elements within the storage ring.



Internal view of construction of the new Australian Synchrotron

Paul Wright, as CEO of Invetech, Australia's leading technology, engineering and design company, provided this insight into "the innovation advantage: how innovation in processes, people and products creates value for your organisation" to "ceoforum.com.au", Australia's leading website for CEOs ...

Innovation: why it matters, what it is, and how to build an innovation culture

Paul Wright, CEO, Invetech

Why Innovation Matters

As CEOs look to grow their companies' revenues, they are increasingly turning to innovation. A recent global study by IBM, for instance, interviewed 456 CEOs and found that two-thirds of them were looking to innovation to grow revenues.

Successful innovation has also been strongly linked to financial performance; another study found that, across all industries, there was a high correlation between financial performance and innovation, as measured by the percentage from revenues obtained from products less than five years old. While companies producing average returns reported revenues in this category being only 2% of their revenues, those in the top quartile of financial performers had 14% of their revenues in this category. For companies in the top 10% of financial performers, a whopping 61% of revenues came from products less than five years old.

Defining Innovation

We define innovation as the successful exploitation of new ideas to increase customer value or create wealth for a company. As such, innovation can be applied by any company in any industry to new products, processes, business models and even strategic positioning. Innovation need not have a technological aspect, of course, but often the right combination of technology and business application can amplify the value-creation for the organisation.

Innovation also needs to be distinguished from its closely-related cousin: creativity. Creativity – the capacity to generate new ideas – is necessary but not sufficient for innovation. Innovation also requires good idea selection, and, where necessary, a willingness to kill new ideas and projects. An innovative company does generate lots of ideas, but it also has the capacity to process them – evaluate, improve and reject – very quickly. Another key difference is that creativity is usually unconstrained, 'blue-sky' thinking, whereas innovation has to be more outcome-oriented. Successful innovators need a real understanding of both the technical and commercial constraints under which a business idea must be implemented.

Culture: the innovation pre-requisite

Since all innovation requires creativity and opportunity, and opportunities can be identified by any individual in the organisation, innovation needs to occur on an enterprise-wide basis. Innovation isn't something that can be made to happen on the first Monday of each month! So regardless of the target of innovation – product,



process or strategy – that a CEO seeks to develop, the starting point is the same: culture. All innovation is, in a sense, dependent on having a supportive culture to develop in, so a CEO really needs to get this right first. Based on our own experience and our work for clients, here are some dos and don'ts to consider:

Do reward innovators internally, but make sure it is appropriate

CEOs know the power of rewards and recognition in reinforcing values, but this needs to be done appropriately. Having very public reward ceremonies where innovators are recognised by the CEO can be highly effective for some staff, while others may actually be embarrassed. This latter group may prefer a quiet phone call, or even just the simple acknowledgement of a few close peers.

Don't merely solicit ideas from staff, without ensuring adequate follow-up

Almost every workplace asks people how things could be improved, but, if these suggestions are not rigorously followed up (eg, feedback on receipt, ongoing status, and assessment of the idea) these 'suggestion boxes' can quickly become de-motivating and therefore counter-productive.

Do ensure people are confident in telling you (and others) bad news

While the confidence that a boss 'won't shoot the messenger' is important at all times for an employee bearing bad news, this is even more important in the context of innovation. Making innovation pay depends not just on backing good ideas, but also on killing what seemed like good ideas on the surface. Obviously this is harder to do in a time- and

cost-effective manner in an organisation where fears may justifiably be held about how bad news will be received.

Don't set up a dedicated 'innovation group'

As a cultural value, innovation should be everyone's responsibility. Setting up an innovation group may simply encourage people to take the view that innovation is 'someone else's job'.

Do promote risk-taking, but balance that with process accountability

Many innovations start with uncertain outcomes so, by definition, you need to take some risks when innovating. Even with the most rigorous idea selection and filtering processes in place, not every innovation project is going to work. Where things have gone wrong, as a CEO it's more important to focus on the process that was applied over the course of the project, rather than the outcome itself. You are then better placed to take away the necessary learnings, and assess the level of responsibility (if any) the staff involved should bear.

Don't imagine all your good ideas will come internally

Innovation rarely comes from having an internal group given the responsibility of 'coming up with ideas'. It most often emerges naturally in interaction with people external to the company, such as customers. Staff in customer-facing roles should be made particularly alert to the need to mine these interactions for innovation opportunities.

Do build flexible and diverse teams

As with open communication, having flexible and diverse work teams is particularly important in the context of innovation. A group of employees with a wide range of skills and personalities structured in a team that minimises hierarchy and deference is more likely to come up with innovative ideas and applications.

The CEO responsibility

As with any corporate initiative, CEOs need to 'walk the talk' to make sure innovation takes root in an organisation. This means promoting innovators (and removing blockers and/or counter-culturalists), showing an interest in day-to-day innovation activity, and being comfortable backing ideas whose outcomes may, initially at least, be highly uncertain. Get the culture right – and provide a good personal example – and you have built an excellent platform for innovation in your organisation.

Innovation Insights gives manufacturers competitive edge

More than 125 visits from 375 different companies occurred during the first two years of the Innovation Insights program, with over 2,200 attendees observing best practices at such operations as Hawker de Havilland, Holden Engine Operations, Nissan Casting, Caterpillar of Australia, and GlaxoSmithKline Australia.

"Innovation Insights is an excellent opportunity for manufacturers of all shapes and sizes to learn from one another in a hands-on setting," said Paul Wright, Managing Director of Invetech, program manager for Innovation Insights. "It also introduces them to new technologies, tools and techniques designed to help give them a competitive edge in today's global marketplace."

In launching Innovation Insights third year at a function in late January, then Victorian Minister for Manufacturing and Export, Tim Holding (recently appointed as the Minister for Police), said "Detailed analysis of participants shows the program is being used extensively by 'early adopters' who have taken part in multiple Insights visits to increase their knowledge and networks.

"The long-term benefits for Victoria are still being properly measured, but a similar program running in the UK has been estimated to help participants increase combined sales by over \$400 million and profit margins by over \$300 million," Minister Holding said.

What is known about local participants is that they appreciate the chance to walk onto shop floors and get their hands dirty with colleagues from host Insights companies.

"By using Innovation Insights, we are able to expose our employees to Best Practice sites that would otherwise be less accessible. The benefits of taking our employees into other workplaces, is that they can see first hand living, breathing examples of what we are trying to do and why we are trying to do it," added Mark Thomas, Operations Manager, Lyco Industries.

Wright said the program offers attendees up close and personal introduction to many innovative



programs, including lean manufacturing, six sigma/quality improvement, supply chain management, sustainable development, continuous improvement, advanced manufacturing, information management technology, occupational health & safety and human resources.

"While a key benefit of the program for attendees is its practical and hands-on nature, we've discovered that host companies often gain greater insight by sharing their own experiences as well as appreciate the opportunity to network and boost staff confidence levels," Wright said.

Indeed, Mark Dwyer, Managing Director of K&K Fasteners, said that while staff had learned new techniques during site visits, the most value from Innovation Insights occurred while hosting a visit. "This provided us with the opportunity to attempt to explain our improvement plans and have them critically but subjectively reviewed by our peers. And all for free!" Dwyer said.

Minister Holding added that Innovation Insights would highlight 'design' matters during its 2005 schedule. "Design is at the smart end of manufacturing and is critical to the growth and competitiveness of all industries. Good design at all levels of the manufacturing process cuts costs and increases productivity through more efficient use and manufacture of parts and components," he explained.

Innovation Insights, which is being managed by Invetech, a division of Vision Systems Ltd on behalf of the Victorian Government, includes the following support organisations: AEEMA, Australian Industry Group, AME, AMTIL, FIMMA, Geelong Manufacturing Council, ManSA, NorthLink, NIETL, PACIA, Peter Walsh Consulting, SmartLink, South East Networks, City of Greater Dandenong, WREDO and WorkSafe.

To find out more about Innovation Insights or to register online, go to: www.innovationinsights.com.au or call the toll-free number – 1 800 007 730 – to request a program brochure and registration form.

News

Invetech commences three new assignments in North America worth A\$10 million.

Invetech has recently commenced three new assignments in North America, consistent with its strategy to become a leading international provider of biomedical technology development services.

Under the terms of each assignment, details of the customer and products remain confidential. However, Invetech is able to advise in respect of each assignment that it has commenced:

1. a long-term engagement to develop and implement novel solutions for the manufacture of new pharmaceuticals. These will be applied in the areas of oncology, infectious diseases, autoimmune disorders and transplantation;
2. a long-term relationship with a leading biopharmaceutical manufacturing company to develop and manufacture tools and equipment that will be used in their drug discovery processes; and

3. work with a company that is at the forefront of molecular biology, incorporating nanotechnology into a DNA research platform that will be used for ongoing development of their technology.

These engagements are expected to generate more than A\$10m in revenues to Invetech by the end of 2005 and represent a significant milestone for Invetech's US operation in establishing a strong presence and brand recognition in providing services to the growing US healthcare sector.

Paul Wright, Invetech CEO, says: "We are very excited to be working in a number of groundbreaking areas of the healthcare industry. Our track record of completed projects, along with new projects commenced in 2004 and in the pipeline for 2005, have firmly established Invetech amongst the top tier worldwide for the provision of engineering and development services to the diagnostics and life sciences industries."

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