



Victorian Medical and Scientific Equipment Industry

Strategic Plan June 2002



The Victorian Medical and Scientific Equipment Industry Strategic Plan forms part of the Bracks Government's commitment to developing Victorian industry and creating an environment that supports continued business and economic growth.

Victoria has a strong mix of innovative businesses and industries. They operate in a competitive global environment where consumer demands, production techniques and distribution channels are constantly changing.

The Government's vision statement, *Growing Victoria Together*, stressed the importance of creating new jobs in this environment by supporting industry, establishing new business structures and linkages and embracing sustainable business practices.

The *Victorian Medical and Scientific Equipment Industry Strategic Plan* is one of a series arising from the *Strategic Audit of Victorian Industry* initiative, which was carried out by the Government in partnership with industry. The *Audit* focused on manufacturing sectors that have strong growth prospects and provide important goods, services and markets for other industries. The plan also builds on the Manufacturing Industry Consultative Council's report on *Victoria's New Manufacturing Future* (March 2001), and the Victorian Government's *Biotechnology Strategic Development Plan for Victoria* (June 2001).

This and other sector-specific industry plans will complement the Government's other business development initiatives, which include:

- the *Better Business Taxes: Lower, Fewer, Simpler* package (May 2001), delivering \$774 million worth of business tax cuts
- the business statement, *Building Tomorrow's Businesses Today* (April 2002), which delivers another \$262 million in business tax cuts (bringing the total to over \$1 billion), extends the freeze on WorkCover premiums, reduces regulation and red-tape, and includes measures worth \$102 million to boost skills, connectivity and innovation
- the *Agenda for New Manufacturing* (June 2002), a \$27 million blueprint to stimulate growth and innovation in manufacturing
- the facilitation of more than \$3 billion worth of new investment in manufacturing, creating over 7,700 jobs since October 1999.

Victoria's future depends on knowledge-intensive industries that provide high-paying, high-skill jobs — industries like medical and scientific equipment manufacture. This plan outlines how the industry and the Victorian Government will build on the sector's strengths and address the challenges of the twenty-first century.

I thank the industry, HWL Consulting Pty Ltd and the Office of Manufacturing for their work on the plan.

A handwritten signature in purple ink that reads "Rob Hulls". The signature is written in a cursive, flowing style.

Rob Hulls MP
Minister for Manufacturing Industry

Acknowledgements

This strategic plan is a collaboration between the Victorian Government and the medical and scientific equipment industry, the following members of which provided valuable input to the plan through their participation in workshops and discussion groups:

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An industry reference group representing the industry has reviewed and endorsed the plan.

Valued input was also provided by the Department of Human Services, Health Purchasing Victoria, the Industrial Supplies Office (Victoria) and the Overseas Projects Corporation of Victoria.



The Victorian Government and the medical and scientific equipment industry have developed this plan to secure the industry's long-term prosperity.

Victoria's medical and scientific equipment manufacturers have achieved levels of innovation, exports and technical skills well above the average for manufacturing industry. As pointed out in the *Strategic Audit into the Medical and Scientific Equipment Industry* (2001), "The industry has clearly exhibited entrepreneurial and competitive spirit, with strong links to the needs of the health care industry, and the research and development requirements of industries as diverse as minerals, biotechnology, agriculture, education and food production."

Diagnosis

Victoria's scientific equipment manufacturers are global providers of analytical tools and equipment for which there is growing demand as people seek a better understanding of our world. Five companies form an internationally recognised cluster and achieve export sales of between \$20 million and \$200 million per annum. The challenge for the scientific equipment sector is to build on its record of success.

Healthcare expenditure is increasing worldwide as standards of living rise and populations age. The biggest markets are in North America, Europe and Japan; however, new prospects are also emerging in Asia and the Pacific. The opportunities for Victoria's medical equipment manufacturers are seemingly limitless, but the global competition is fierce. The challenge for the medical equipment sector is to reverse the decline in local manufacturing and to tap global demand for their products.

	Total	Medical	Scientific	Trend
Manufacturing	\$470m	\$122m	\$348m	Medical falling; Scientific growing
Exports	\$424m	\$90m	\$334m	Medical static; Scientific growing
Employment	2,700			Growing 8% per annum

Prognosis

Our aim is to create a vibrant, integrated, export-driven medical and scientific equipment cluster, globally recognised for its innovation and excellence. This will mean applying science and engineering inventively to deliver world-class technologies that will enhance human understanding and improve healthcare globally.

We expect to see the industry:

- growing at 20–30 per cent per annum
- generating revenues of A\$1,500 million by 2007
- exporting A\$1.3 billion annually
- replacing an additional A\$100 million worth of imports annually
- employing 4,500 people full-time by 2007.

Initiatives

The initiatives outlined in this plan have two aims — to springboard the medical and scientific equipment industry into international markets, and to remove or diminish obstacles that are limiting the industry's growth. The initiatives are grouped under five headings:

- connecting — government, industry and markets
- growing — global export markets
- evolving — products, manufacturing and business
- developing — people, skills and training
- leading — opinion, advocacy and support.

The success of the plan depends on the Victorian Government and the medical and scientific equipment industry working in partnership. The Government has a vital role to play in establishing a supportive business environment that encourages expansive, confident decision-making. Medical and scientific equipment companies have an equally vital role, and must particularly improve their networking and coordination.

The Victorian Government is backing the medical and scientific equipment industry because of its outstanding export performance and significant growth potential.

The Industry Commission's report on the *Medical and Scientific Equipment Industries* (Report No. 56, December 1996) tells us that the sector achieves eight times more innovation, employs three times more staff with post-secondary qualifications, and ships five times more exports than the Australian manufacturing average.

The *Strategic Audit into the Medical and Scientific Equipment Industry* (2001), which was conducted as part of the *Strategic Audit of Victorian Industry*, sought to identify current industry needs and highlight areas where action could enhance the industry's growth potential. It noted that, "The industry has clearly exhibited entrepreneurial and competitive spirit, with strong links to the needs of the health care industry, and the research and development requirements of industries as diverse as minerals, biotechnology, agriculture, education and food production." The audit concluded that Victoria is ideally situated to support a world-class medical and scientific equipment industry, with advantages including:

- economic, social and political stability to support long-term investment strategies
- sound legislative and judicial systems, including strong protection for intellectual property
- excellent manufacturing infrastructure, including precision manufacturing capability
- a highly skilled workforce
- strong scientific and medical research institutions
- synergetic manufacturing industries (automotive, aerospace and information and communications technology).



For the purpose of this strategic plan, the Victorian medical and scientific equipment industry is defined as the designers and manufacturers of products or components for use in healthcare and scientific processes in any marketplace.

The focus of the plan is on enhancing the growth of medical and scientific equipment manufacturing. That said, the plan recognises that the industry also includes equipment importers and distributors who add value by providing advisory, warranty and repair services. These organisations form a vital link in the supply chain and are valued employers in Victoria.

Medical and scientific equipment is defined by two Australian and New Zealand Specialised Industry Codes:

- ANZSIC 2832 covers Medical and Surgical Equipment Manufacturing
- ANZSIC 2839 covers Professional and Scientific Equipment Manufacturing.

A limitation of analysis based on these codes is their inclusion of things like dentures and surveying and drafting equipment, which do not qualify as medical and scientific equipment, and their exclusion of things like glassware and optical instruments, which frequently do.

The medical and scientific equipment manufacturers produce both equipment and consumables.

Medical Equipment

This includes surgical instruments and appliances, implants, infection-control products, hospital supplies, electro-medical equipment, patient aids, syringes, respirators and veterinary instruments; equipment for sterilisation, anaesthesia, critical care, resuscitation, diagnostics, first aid, x-ray procedures, radiotherapy, nuclear medicine, dentistry, orthodontics, operating theatres, wards, obstetrics, physiotherapy, orthotics and special rehabilitation; and wheelchairs, baths, trolleys, beds and hygiene equipment.

Medical Consumables

These include hospital supplies, bandages, dressings, surgical tapes, wipes, gases, catheters, first-aid items, gloves, syringes, dental moulds and incontinence products.

Scientific Instruments and Equipment

These include analysers, autoclaves, balances, baths, bio-separation equipment, sample collection equipment, cabinets, centrifuges, chromatography, data-loggers, detectors, filtration equipment, fume cupboards, hoods, extractors, furnaces, gauges, generators, incubators, liquid-handling equipment, microscopes, ovens, pumps, spectrometers, vacuum equipment, measuring instruments, clinical diagnostics and laboratory equipment.

Scientific Consumables

These include acids, chemicals, gases, laboratory glass, markers, reagents, and paper, safety, plastic and other consumable supplies.

What is the the Victorian medical and scientific equipment industry's state of health today?

The industry audit revealed that total Victorian production of medical and scientific equipment contributed \$470 million to GDP in 2000, which was 32 per cent of total Australian production. Of the \$470 million worth of goods produced, \$424 million worth were exported, including \$334 million worth of scientific equipment (96 per cent of production) and \$90 million worth of medical equipment (72 per cent of production). This compares very favourably with the acknowledged export success of the automotive industry, which sold 52 per cent of its production overseas in 2000 (*Victorian Automotive Manufacturing Industry Strategic Plan*, December 2001).

The medical and scientific equipment industry directly employs 2,700 people in Victoria, and employment has grown at an above-average rate of over 8 per cent per annum over the past three years.

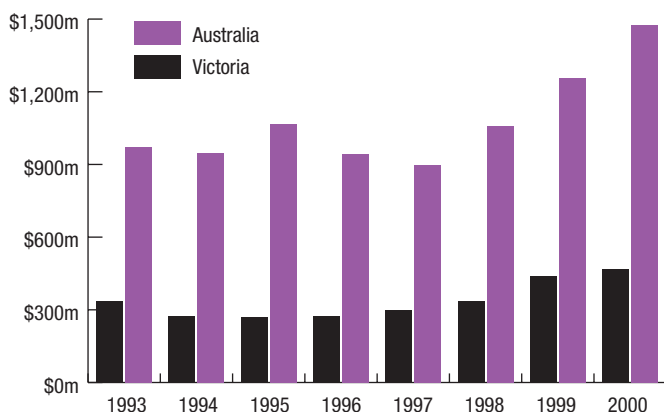
Diverging Fortunes

Victorian scientific equipment manufacturers increased their share of national production from 40 per cent in 1996 to 46 per cent in 2000, and increased their share of national exports from 22 per cent in 1993 to 62 per cent in 2000. They have achieved the concentration of resources and portfolio of products necessary to build significant global market share and brand recognition. Five manufacturers have achieved export sales ranging from \$20 million to \$200 million per annum; they are truly global companies.

Medical equipment manufacturing has fared less well. Victoria has lost a number of established manufacturers over the past ten years, their operations transferred interstate or overseas, or closed down completely. This is reflected in the ABS industry output data, which shows that Victorian medical equipment manufacturing as a proportion of national output declined from 17 per cent to 14 per cent between 1993 and 2000. This is largely attributable to two factors:

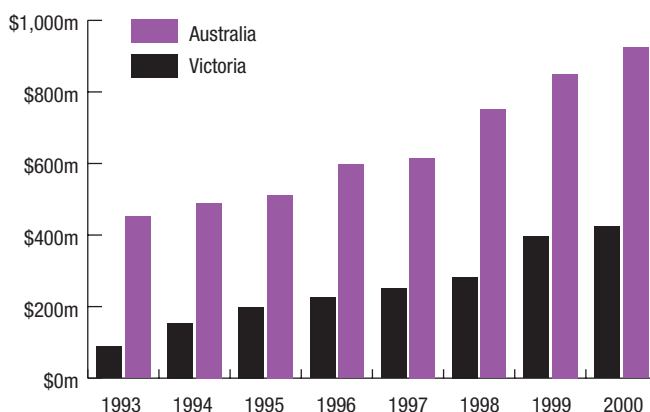
- Increased globalisation has seen several multi-national firms transfer their Victorian production facilities to lower-cost environments, such as India and Thailand. The loss of these larger operations has had a significant impact on production and exports.
- Most of Victoria's indigenous medical equipment manufacturers are small businesses, whose scarce financial and management resources have limited their access to international markets and caused a greater reliance on domestic markets.

Production — Victoria and Australia



Source: Australian Bureau of Statistics

Exports — Victoria and Australia



Source: Australian Bureau of Statistics and industry sources.

The Research Advantage

Victoria's strong scientific and medical research base provides multiple benefits to the medical and scientific equipment industry:

- it is a source of intellectual capital to be exploited by the industry
- it provides customers (or potential customers) for locally manufactured equipment and provides valuable feedback to guide product development
- researchers using locally manufactured equipment are potential international ambassadors for the industry, through their publications and conference presentations.

Rising Global Demand

Healthcare expenditure globally has been shown to increase in line with the standard of living. The biggest healthcare markets are in Europe, the USA and Japan; however, accessing these markets is difficult, as competitors are already deeply entrenched and buyers have existing brand loyalties. Healthcare markets in the growing economies of Asia represent a significant opportunity for Victorian medical equipment manufacturers.

Ageing populations also present an opportunity for the medical and scientific equipment industry. As healthcare improves, so too does the life expectancy of the population. And as people live longer, the demand for healthcare services and related products increases.

Technological Opportunities

While innovation is generally incremental in the medical and scientific equipment industry, with many small improvements steadily pushing a platform technology forward, occasionally a disruptive technology creates a completely new paradigm — changing competitive positions and spawning new products, auxiliary innovations, and even new industries.

Capturing a disruptive technology (whether initiated in Victoria or elsewhere) or a core component of it would give the Victorian medical and scientific equipment industry opportunities for rapid and sustained growth and a chance to win a more prominent place in worldwide markets. For scientific equipment manufacturers, this disruptive technology opportunity may well arise from the need for specialised tools for the rapidly emerging areas of biotechnology and molecular sciences. Opportunities for medical equipment manufacturers could come from the new microtechnologies and nanotechnologies that promise to alter medical diagnostic equipment in fundamental ways.

Microtechnology, nanotechnology and biotechnology are important to the medical and scientific equipment industry. In addition to stimulating new discoveries, they also promise to revolutionise the manufacturing process, providing the basis for new, clean production techniques and changing negative images of manufacturing.

One disruptive technology that changed everything in the 1950s was the atomic absorption spectrophotometer, invented in Melbourne by Dr Alan Walsh of the CSIRO. It gave Victorian scientific equipment manufacturing a vital boost that is still being felt today. Disruptive technologies currently being exploited by firms in other sectors include IVF and genomics.

What are the future prospects of the medical and scientific equipment industry in Victoria?

Our aim is to create a vibrant, integrated, export-driven medical and scientific equipment cluster, globally recognised for its innovation and excellence. This will mean applying science and engineering inventively to deliver world-class technologies that will enhance human understanding and improve healthcare globally.

We expect to see the industry:

- growing at 20–30 per cent per annum
- generating revenues of A\$1,500 million by 2007
- exporting A\$1.3 billion annually
- replacing an additional A\$100 million worth of imports annually
- employing 4,500 people full-time by 2007.

What needs to be done by industry and government to achieve our goals for the medical and scientific equipment sector?

The initiatives outlined in this plan have two aims — to springboard the medical and scientific equipment industry into international markets, and to remove or diminish obstacles that are limiting the industry's growth. The initiatives are grouped under five headings:

- connecting — government, industry and markets
- growing — global export markets
- evolving — products, manufacturing and business
- developing — people, skills and training
- leading — opinion, advocacy and support.

The Victorian Government and the medical and scientific equipment industry are committed to working together to implement these strategies.

Connecting Government, Industry and Markets

Successful long-term partnerships spring from effective communication between the partners and enable shared objectives to be delivered. Implementation of this plan is a shared objective of the Victorian Government and the medical and scientific equipment industry. It will not be achieved without the effective involvement of the industry and its associations.

The Victorian Government and the industry are committed to improving communications between:

- the Government and the medical and scientific equipment industry
- members of the medical and scientific equipment industry
- the medical and scientific equipment industry and its markets.

This strategic plan is all about improving the industry's ability to communicate and to represent its interests.

Australian Medical Solutions (AMS) was established as a medical product and services export network with assistance from the Victorian Government's Business Networks Program. It received further assistance from the Victorian Government to retain an executive officer. As a result, AMS was able to pioneer a group purchasing alliance with the Indonesian hospital association PERSI; to attend trade fairs in Indonesia and Malaysia with assistance from the Trade Fairs and Missions Program; and to undertake market investigation visits to the UAE aided by the Victorian Government Business Office in Dubai.

The Issues

Medical and scientific equipment manufacturers serve different markets and operate under different regulatory regimes. It is therefore preferable for the medical and scientific equipment sectors to be represented by different associations.

Industry associations must be equipped to provide strong leadership and coordination, particularly as the industry is a fragmented one, made up of many small manufacturers. Currently, the national associations

representing scientific or medical equipment manufacturers do not have the resources to support programs in pursuit of specific Victorian objectives.

Communication between the industry and the Victorian Government could be enhanced by establishing a clear line of communication between industry associations and sector managers within the Department of Innovation, Industry and Regional Development.

What We Have Done

The Victorian Government recognises that industry clusters, associations and networks, linking businesses within and across industries, are essential to building a competitive, innovative economy. It is committed to initiating or assisting their growth. With this in mind, we have:

- provided for the development of cluster maps for the food, health and automotive industries under *Building Tomorrow's Businesses Today*.
- appointed sector managers in the Department of Innovation, Industry and Regional Development to liaise with industry
- created single-point access to a wide range of government information through the Business Channel (online) and the Victorian Business Line (phone)
- assisted the formation of industry networks, including:
 - Australian Industry Defence Network — Victoria
 - Tooling Industry Forum of Australia
 - Australian Medical Solutions
 - AUSEN Oil Gas Equipment Network.

Shimadzu received a package of Victorian Government assistance to establish a new manufacturing plant in Dandenong, including help in identifying new suppliers and forming efficient trading relationships with them through the Supply Chain Management Program.

Next Steps

Enhancing Communication Between the Victorian Government and the Medical and Scientific Equipment Industry

- The Victorian Government will provide support to seed the establishment of separate industry associations broadly representative of medical equipment manufacturers and scientific equipment manufacturers in Victoria. The support provided will depend on a substantial commitment to the initiative by industry and could include:
 - subsidising the appointment of a full-time or part-time executive officer to strengthen the Victorian chapter of Science Industry Australia
 - subsidising the appointment of a full-time or part-time executive officer to assist the establishment of an industry association representative of Victorian medical equipment manufacturers, particularly early-stage and smaller manufacturers; this association could be established (a) under the auspices of a national body such as the Medical Industry Association of Australia or AusBiotech Ltd, or (b) as a standalone organisation, with affiliations to one of the national bodies to facilitate lobbying the Commonwealth.
- The priorities of both industry associations will be to:
 - recruit members so that they are broadly representative of medical and scientific equipment manufacturing
 - act as a conduit for communication, particularly between government and the industry
 - deliver value to members so that they can generate enough revenue from subscriptions and events to quickly become self-sufficient
 - develop and implement business plans that act on the initiatives in this strategic plan.

Enhancing Communication Within the Medical and Scientific Equipment Industry

- The new industry associations will be charged with promoting discussion, generating agendas and coordinating activities in pursuit of common goals. This may involve:

- establishing an industry roundtable in which participants can raise issues and voice concerns, share best-practice management techniques, and learn from their peers
- promoting effective clustering in partnership with the Victorian Government by (a) developing a clustering plan to maximise synergies between growing technology businesses and more readily provide guidance to early-stage companies, and (b) establishing Melbourne as a globally recognised cluster of world-class medical and scientific equipment manufacturers.

Enhancing Communication Between the Medical and Scientific Equipment Industry and its Markets

- The use of local products in Victorian healthcare will be maximised by building stronger links between hospital staff, Health Purchasing Victoria and the medical and scientific equipment industry. Specific initiatives will include:
 - establishing an evaluation process for healthcare prototypes and new medical equipment and devices still under development, providing expert feedback to the development process and encouraging ownership of the innovation by Victorian healthcare professionals and research scientists
 - promoting awareness and use of the Victorian Industry Participation Policy, which encourages consideration of locally manufactured products
 - providing industry with contact information and opportunities to meet buyers of medical equipment and devices.
- A regular research-industry forum will be established to encourage Victoria's scientific and healthcare professionals to propose ideas for new technologies and new equipment, to be developed in partnership with local manufacturers.
- Victorian Government business offices will work with the industry to promote its interests internationally, especially through the new San Francisco office, which is targeting the related sectors of biotechnology, information and communications technology and design.

Developing international markets is the single most important objective for the Victorian medical and scientific equipment industry. The industry will not be able to make the investments in product innovation and manufacturing technology necessary in such a rapidly developing environment without accessing the larger revenue streams of international markets.

Issues

Australian domestic markets alone are too small to support world-class medical and scientific equipment manufacturers, given the high levels of reinvestment in product innovation and manufacturing technology needed to remain internationally competitive. Manufacturers therefore need to simultaneously develop domestic and international markets. They will need to target markets where opportunities are greatest and their competitive advantage is strongest, since their travel and freight costs are much higher than those faced by their competitors in the northern hemisphere. Identifying and engaging the best available agents and distributors will be a critical success factor.

What We Have Done

- Increased funding to the Trade Fairs and Missions Program under *Building Tomorrow's Businesses Today*.
- Provided assistance for export market planning under the Enterprise Improvement Program to help companies set up the back-office procedures necessary prior to commencing export activities.
- Created www.export.vic.gov.au, with essential checklists, information and links to help potential exporters undertake desk research and market planning.
- Established the First Step Export Program, which encourages firms to export by subsidising the cost of undertaking market research and preparing export market plans.
- Established Victorian Government business offices around the world in important export destinations and investment sources.

Next Steps

- The Victorian Government and industry associations will develop an export strategy for the medical and scientific equipment industry, with the aims of:
 - building global recognition for Melbourne as a centre of excellence, hosting an integrated cluster of world-class manufacturers
 - providing guidelines for manufacturers to follow when developing their own export marketing plans, so that industry synergies are maximised
 - improving smaller manufacturers' access to export marketing skills and experience.
- The Victorian Government and industry associations will use the Trade Fairs and Missions Program to present the medical and scientific equipment industry on the international stage, with the primary objectives of building market recognition of Victorian manufacturers and allowing them to select the best possible agents or distributors. This will involve:
 - offering subsidies to Victorian manufacturers participating in selected international trade shows, particularly Analytica and Medica in Germany and PittCon in the USA
 - using medical and scientific equipment industry attendance at trade shows and conferences to gather market intelligence and identify new trends and emerging technologies.
- The Victorian Government and industry associations will use the Inbound Trade Missions Program to bring potential buyers and distributors to Victoria, with the aim of creating a strong connection with our region and our people, as well as creating direct business opportunities for the medical and scientific equipment industry.
- Through the industry associations, the Victorian Government will encourage medical and scientific equipment manufacturers, and particularly smaller firms, to use the export market planning services of the Enterprise Improvement Program and the many export initiatives announced in *Building Tomorrow's Businesses Today*, including First Step, Going Global, the Export Communication Network, Finance for Growth, Export Value Chain Networks and Consortia, and Global Purchasing.

Evolving Products, Manufacturing and Business

Victoria's excellent scientific and medical research institutions contribute an enormous amount of intellectual capital to the State. They provide multiple benefits to the medical and scientific equipment industry, being both the source of much of the sector's intellectual property and customers for its products. It is therefore important to build and maintain strong links between the research sector and medical and scientific equipment manufacturers.

Three Kinds of Innovation

The medical and scientific equipment industry is driven by innovation, and manufacturers face a triple innovation challenge.

Product Innovation

The fastest-growing markets for both scientific equipment and medical devices are in those areas exploiting recent advances in technology or automation, such as combinatorial chemistry, genomics, proteomics, biosensor arrays, confocal microscopy and novel surgical techniques. To remain in these high-growth markets, manufacturers need to rapidly adopt new platform technologies and deliver unique customer benefits through proprietary innovations based on these technologies.

Manufacturing Technology Innovation

Manufacturing technologies in the medical and scientific equipment industry, and the precision engineering sector that underpins it, are constantly evolving. Increasingly sophisticated processing techniques are being used — such as micro-manufacturing involving micro-machining and deposition — and new composite materials are being introduced. To manufacture market-leading products in high-technology markets, and to match global improvements in manufacturing efficiency, medical and scientific equipment manufacturers need to continually invest in manufacturing technologies, and in training to gain the skills to exploit them.

Business Process Innovation

Medical and scientific equipment manufacturers also need to be innovative in developing and adopting new business practices in information technology, finance and communications, to equal or exceed world-best practice. These all require regular investment in updated systems and software.

The Issues

Informal links between research and manufacturing have become less common, as research institutions seek to extract value from their intellectual property. This is disadvantaging established manufacturers in the medical and scientific equipment industry. The current trend is for innovations to be commercialised by research organisations themselves through spin-off companies which face higher risks and lack the commercial expertise and manufacturing infrastructure of established manufacturers.

The industry's capacity to predict and capture future disruptive technologies will determine its ability to play a larger role on the world stage and therefore its future strength. Managers need to understand new business practices that are being adopted in other industries and in other regions, and then rapidly introduce those processes necessary to preserve their global competitive position.

Smaller manufacturers find it especially difficult to assess their intellectual property, market needs, market accessibility and competition. The answers to important questions — have I got something? is my idea unique? does it have commercial value? — are not always easy to find.

What We Have Done

Victoria has made a substantial commitment to creating the infrastructure and environment for successful technology innovation. We have:

- delivered \$27 million over four years through the *Agenda for New Manufacturing* to fund comprehensive strategies to build an innovative, high-technology, export-focused advanced manufacturing sector
- established the Science, Technology and Innovation initiative (with current funding of \$310 million) to strengthen the State's research base, ensure the availability of appropriate skills, and provide links between researchers and manufacturing industry
- created the Technology Commercialisation Program to help Victorian businesses turn great local ideas into world-class high-technology products by improving skills and access to business incubators, venture capital and technology parks
- established the Victoria Prize to celebrate world-class achievement in science, technology or engineering innovation

- funded Victoria Fellowships, which help young innovators in science, technology or engineering undertake training or commercialisation studies abroad
- introduced the Regional Science, Innovation and Educational Precincts Program to create integrated resource precincts in regional areas
- attracted new cooperative research centres to Victoria to foster collaboration between researchers and industry and accelerate the development and commercialisation of new technologies
- sponsored Commercialise Forums, which provide an annual networking opportunity for local innovators, international experts and venture capitalists
- established the Victorian Innovation Centre, providing a focus and showcase for innovative Victorian companies.

In 2002, Varian Australia received assistance under the Victorian Government's Enterprise Improvement Program to introduce lean manufacturing. Outcomes included reduced inventories and product cycle times.

Next Steps

- The Victorian Government will assist in building bridges between publicly-funded research organisations — medical research institutes, cooperative research centres, the CSIRO, Bio 21, the Department of Natural Resources and Environment and others — and the medical and scientific equipment industry.
- Through the industry associations, the Victorian Government will promote the benefits of licensing innovative technologies to established manufacturers rather than spin-off or start-up companies.
- Through the industry associations, the Victorian Government will promote medical and scientific equipment industry participation in initiatives such as:
 - the Science, Technology and Innovation initiative
 - the Enterprise Improvement Program, which subsidises the engagement of consultants in a variety of areas
 - Business Innovation Workshops, which help smaller firms develop new products faster and tailor them more closely to customer needs

- supply chain management programs
- Technology Evaluation Projects, which encourage companies to evaluate new technologies
- the Innovation Insights Program, which gives businesses the opportunity to visit best-practice firms
- New Technology Demonstration Projects, which highlight successful application of new technologies.
- The Victorian Government, in conjunction with the industry associations, will coordinate and support development of a *Getting Started* guide, with checklists to guide start-up companies through the processes of validating and protecting their intellectual property, verifying market size and accessibility, rapidly developing and evaluating prototypes, and establishing a manufacturing business.
- The industry roundtable (see page 11) will be invited to consider ways of:
 - predicting future disruptive technologies and evaluating their potential to benefit (or harm) the Victorian medical and scientific equipment industry
 - encouraging manufacturers to cross-sell components, modules and services, with a view to broadening access to unique skills, making more productive use of capital equipment and increasing cooperation between firms
 - using the Technology Roadmaps and Skills Studies funded by *Building Tomorrow's Businesses Today* to help identify the future technology and skills needs of the industry.

GBC Scientific undertook a technology diffusion project under the Victorian Government's Innovation Grants Program. The project comprised an audit of GBC's manufacturing operations, the development of a strategy to determine how technology was to be applied, a communication program to raise awareness of the new technology within the company, and a demonstration of the technology. Outcomes included reduced product development lead times and higher product reliability.

Developing People, Skills and Training

The people of the medical and scientific equipment industry are its greatest asset, having levels of post-secondary education (vocational and academic) three times higher than the Australian manufacturing average. The industry creates employment for technically skilled people, and is in turn dependent on the ready availability of a skilled workforce.

Issues

Scientific equipment manufacturers are experiencing difficulty in obtaining acceptable levels of trade skills, particularly electrical, machining and assembly technicians. Medical equipment manufacturers are experiencing a shortage of skilled and experienced personnel to manage the whole process of accrediting products and manufacturing facilities to the standards of the Therapeutic Goods Administration and international regulatory bodies and maintaining ongoing validation and regulatory compliance. Both sectors need personnel with international marketing and negotiating experience, who are used to dealing with different cultures, legal systems, tax systems and business norms.

What We Have Done

- Provided funding and support for the Skills Assessment Program administered by Manufacturing Learning Victoria, which has assisted companies to identify skill gaps, assess their training needs and find how best to access government-funded training.
- Funded Industry-Based Scholarships in Manufacturing under the *Agenda for New Manufacturing* to attract talented students to areas of emerging skills shortage.
- Established the Victorian Learning and Employment Skills Commission to drive post-compulsory education and training, guide development of the TAFE curriculum, and regulate apprenticeship and traineeship programs.
- Established Local Learning and Employment Networks as planning bodies comprising education and training providers, industry and government agencies to ensure that educational institutions are providing graduates with the skills needed by employers in their local region.

- Initiated Skilling Small Business for the Future to provide training through local educational institutions in business planning, people management, finance and technology acquisition.
- Assisted in the formation of numerous industry roundtables to facilitate knowledge sharing.
- Introduced measures to promote the value of manufacturing, improve the industry's image, and make manufacturing careers more attractive and manufacturing skills more desirable.

Next Steps

- The Victorian Government, together with scientific equipment manufacturers and State and national industry training organisations, will investigate the trade skills and standards required by the sector and make recommendations about the training packages required. This activity will be coordinated with the *Victorian Precision Engineering Industry Strategic Plan* (June 2002), which addresses similar issues
- The Victorian Government, together with the industry associations, will investigate what type of training program would best meet the industry's need for skills in accrediting products to Therapeutic Goods Administration, United States Food and Drug Administration and European regulatory standards.

Leading Opinion, Advocacy and Support

The Victorian Government has a vital role to play in establishing a supportive business environment that encourages expansive, confident decision-making by the medical and scientific equipment industry.

The Issues

The Commonwealth's regulation of medical devices, and the administration of these regulations, imposes an enormous cost burden on industry that creates a barrier to the entry of new products to this market. Accessing international markets requires Victorian manufacturers to achieve strong market share in their domestic markets — both to demonstrate that the benefits of their products are satisfying market needs and to provide the revenue stream required by most developing companies to fund export market penetration.

What We Have Done

- Delivered vision, policies and practical support for Victorian businesses through *Building Tomorrow's Businesses Today* and the *Agenda for New Manufacturing*, which include significant funding for campaigns to promote manufacturing.
- Cut business taxes by more than \$1 billion over four years, frozen WorkCover premiums and reduced red tape through *Better Business Taxes* and *Building Tomorrow's Businesses Today*.
- Introduced the Victorian Industry Participation Policy to use the Victorian Government's purchasing power to support and promote the use of local content where it provides best value for money in all government projects, events and development initiatives. In its first eight months of operation, the VIPP has been applied to fourteen government contracts worth \$82.7 million. The VIPP will help open up identified projects worth \$14.9 billion for local suppliers. The Victorian Government has also abolished compulsory competitive tendering, making it easier for municipal councils to use local suppliers.
- Established Health Purchasing Victoria and recruited highly accomplished and experienced staff to lead it.

Next Steps

- The industry associations, with the support of the Victorian Government, will develop and implement an advocacy plan to address Commonwealth issues, such as the capital gains tax treatment of intellectual property rights, participation in International Development Bank programs, and the compliance costs of Commonwealth regulations and programs.
- The Victorian Government will change Australian attitudes to locally designed, developed and manufactured products by:
 - encouraging end users in public healthcare facilities to become more involved in product development, testing prototypes and related activities
 - developing an import replacement initiative for the healthcare sector to build awareness of and generally promote locally manufactured medical equipment and devices; the initiative will be managed by the Industrial Supplies Office (Victoria), with guidance from the Victorian Government and industry associations.
- The Victorian Government will support, and the industry associations will coordinate, the production of:
 - promotional material for distribution locally and internationally
 - websites for both industry associations.

Monitoring the vital signs will enable the Victorian Government and the industry to check medical and scientific equipment sector's pulse and continuously assess the effectiveness of this strategic plan and the efficiency of its implementation. The Government and the industry associations will review implementation of the plan annually and issue a progress report.

Critical Success Factors

- Establishing effective industry associations for both medical equipment and scientific equipment manufacturers, with membership truly representative of these sectors in Victoria.
- Maintaining R&D investment by the medical and scientific equipment industry at a level comparable to other manufacturing countries and commensurate with the level of research expenditure by Australian governments.

Performance Indicators

The table below outlines where we want to be, the initiatives that will help us get there, and the measures we will use to gauge our performance in each of the five areas addressed by this plan:

- connecting — government, industry and markets
- growing — global export markets
- evolving — products, manufacturing and business
- developing — people, skills and training
- leading — opinion, advocacy and support.

Connecting Government, Industry and Markets

Where We Want to Be

Separate industry associations representing medical and scientific manufacturers are providing strong leadership and coordination in pursuit of common aims.

Communications between the Victorian Government and the industry are simple, quick and effective through active industry associations.

The medical and scientific equipment cluster is acting collaboratively to build export market share in major markets.

Initiatives

The Victorian Government will provide support to seed the establishment of medical and scientific industry associations.

The industry and the Victorian Government will initiate an industry roundtable as a forum for business innovation.

The industry and the Victorian Government will jointly develop a clustering plan to maximise synergies between growing businesses.

The industry and the Victorian Government will establish Melbourne as a world-class medical and scientific equipment cluster.

Performance Indicators

The number of medical and scientific equipment companies joining industry associations as full members.

Attendance at industry roundtable meetings.

The number of manufacturers transferring to or starting up in the Melbourne industry cluster.

International recognition of the Melbourne medical and scientific equipment cluster as a centre of excellence, as measured by independent market research.

Growing Global Export Markets

Where We Want to Be

The medical and scientific equipment industry and the Victorian Government are pursuing an integrated export marketing plan.

Exports from the industry are growing strongly and achieving significant market share in the major markets.

Medical equipment firms are exporting a large (and increasing) proportion of their production.

Victorian Government programs are being fully used to present the medical and scientific equipment industry internationally.

Initiatives

The Victorian Government and the medical and scientific equipment industry will develop an export marketing plan.

The Victorian Government will provide incentives for manufacturers to participate in key exhibitions (Analytica, Medica, PittCon).

The Victorian Government will organise inbound trade missions to bring one delegation of potential buyers and distributors from a key market to Victoria each year.

The Victorian Government and industry will produce and distribute a brochure promoting the Melbourne medical and scientific equipment cluster.

Performance Indicators

The dollar value of medical and scientific equipment exports.

The percentage of manufacturers exporting.

The number of medical and scientific equipment manufacturers attending international trade shows as (a) visitors gathering marketing intelligence, (b) exhibitors, and (c) repeat exhibitors.

International recognition of the Melbourne medical and scientific equipment cluster as a centre of excellence, as measured by independent market research.

Evolving Products, Manufacturing and Businesses

Where We Want to Be

The industry is working collaboratively to build collective international market share and to adopt the world's best business practices.

Victorian research innovation is being successfully commercialised by Victorian manufacturers.

Victorian research innovation is increasingly being licensed to existing companies, enabling them to build comprehensive product portfolios.

Industry associations and the industry roundtable are sharing non-proprietary information for the collective good of the sector.

Initiatives

The Victorian Government will encourage medical and scientific equipment manufacturers to apply for Science, Technology and Innovation initiative grants.

The Victorian Government will encourage the industry to participate in Business Innovation Workshops and the industry roundtable.

The Victorian Government and the industry associations will build bridges between the industry and government-funded research institutes, to facilitate the transfer of intellectual property to manufacturers and increase sales of local products to the research sector.

Performance Indicators

The proportion of intellectual property transferred from government research institutes to Victorian medical and scientific equipment manufacturers.

The number of locally developed innovations taken to market each year by Victorian manufacturers.

The value of Victorian Government grants awarded to the medical and scientific equipment sector.

The number of companies attending training courses and industry roundtable meetings.

Developing People, Skills and Training

Where We Want to Be

The Victorian medical and scientific equipment industry is providing exciting career opportunities and positions that are in demand both within Australia and overseas.

Students are training for specific medical and scientific equipment industry positions and career paths.

Australian professionals working overseas are keen to return to the Victorian industry.

The industry's training needs are being met and potential skill shortages are being identified and addressed before they become a problem.

Initiatives

The Victorian Government and the industry associations will investigate training requirements to increase skills in regulatory compliance.

The Victorian Government and the industry associations will promote Industry-Based Scholarships in Manufacturing.

Medical and scientific equipment companies will liaise through their industry associations with industry training boards, Local Learning and Employment Networks and other agencies to ensure educational institutions are training people with the skills the industry needs.

Performance Indicators

Industry training needs have been investigated and outcomes communicated to appropriate training bodies.

The number of scholarships awarded in the medical and scientific equipment sector.

The number of unmet training needs and skill shortages, as measured by independent skills audits.

Leading Opinion, Advocacy and Support

Where We Want to Be

The Victorian Government is recognised as providing leadership and direction to the medical and scientific equipment industry.

The Victorian Government actively partners with the industry in lobbying federally and internationally on issues of concern.

The Victorian Government provides advisory support to the medical and scientific equipment industry, and actively works with the industry to achieve strategic goals.

Initiatives

The Victorian Government will support, and industry associations will coordinate (a) a brochure to promote the Melbourne industry cluster, and (b) websites for both the medical and scientific industry associations.

The Victorian Government will add its voice to the industry's when it is lobbying the Commonwealth.

The Victorian Government will encourage the healthcare sector to become involved in product development and testing prototypes.

The Industrial Supplies Office (Victoria) will institute an import replacement initiative for the healthcare sector and promote locally manufactured products.

Performance Indicators

Brochure completed and distributed internationally through trade shows, Victorian Government business offices and Austrade.

The number of occasions the Victorian Government has advocated on federal matters affecting the Victorian medical and scientific equipment industry.

Websites completed and providing interactive information and opportunities for industry input.

Contact

To find out more about the *Victorian Medical and Scientific Equipment Industry Strategic Plan*, please contact the Victorian Business Line on 13 22 15.

Additional copies of this plan can be downloaded from www.business.vic.gov.au.

