

# Collaboration is the key to success in Australia's life-sciences industry

Innovation, investment and entrepreneurship, along with successful partnerships, are helping Australia's life-sciences businesses to thrive and prosper. By Carole Goldsmith.

Australia's life-sciences sector is booming, with investment in the industry at an all-time high. Business and employment growth are highly positive and Australia is recognised globally for its innovation, quality and expertise in life-sciences. This was revealed in the eighth annual Biotechnology Industry Survey, released this July.

AusBiotech, supported by Grant Thornton, conducts this valuable industry survey every year. The research responses this year show that the biotech sector is thriving, with 87% of businesses surveyed expecting to grow in 2018. A massive \$1.073bn was raised by Australian biotech companies last year to 31 December 2017, the second-largest amount this decade. Australia is regarded as one of the world's leading countries for life-sciences innovation, quality and expertise. Investment and interest in life-sciences is growing, with around 140 ASX-listed life-sciences businesses, holding a market capitalisation of more than \$50bn.

The life-sciences sector employs 232,200 people across 1,654 organisations, or 1.86% of the nation's labour force, with the industry employing 69,000 people in 850 companies. These figures compare favourably with the mining sector, which accounts for 1.74% (or 216,500 people). The employment outlook for 2018 has strengthened to the highest on record, with 73% of companies indicating an intention to hire, up from 64% in 2017.

"A convergence of industry maturity, deal flow, regulatory advances, increased capital and development programs makes this the most buoyant I've seen the sector in my near-decade-long tenure at AusBiotech," says Lorraine Chiroiu, CEO, AusBiotech. "The survey data agrees. The opportunity is ours to further build this industry towards its potential as a driver of our economy and quality of life."

Glenn Cross retired as AusBiotech's CEO this July after two years at the helm, as well as 10 years as Chief Operations Officer. He reflects on his time at the organisation, during which he has seen a massive growth in the sector.

"We have three times the number of members since 2005, with current membership at over 3,000 and AusBiotech's staff numbers have increased from five to 15," says Cross. "Our international outreach has grown substantially with successful AusBiotech investment seminars in Singapore, Japan, Hong Kong and Shanghai over the last two years."



*Lorraine Chiroiu, CEO of AusBiotech.*



*Glenn Cross, who retired as AusBiotech's CEO this July.*


Cross will be continuing on a part-time basis at AusBiotech, running Australian and global investment events, and the organisation's AusEvents, as well as contract-managing scientific events. Cross says that liaison with life-sciences business groups and venture capital investment firms during the Asian-based events has assisted several Australian life-sciences businesses to expand their reach into the Asian market.

"We are running further investment events in Melbourne in October and in Hong Kong and Shanghai next March," says Cross.

When asked how the med-tech industry is going, Cross responds enthusiastically: "The med-tech sector is booming. It is driven by the increasing number of incubators and accelerators like the Med Tech Actuator in Melbourne and Sydney. Australia also has three excellent health tech development and commercialisation groups – Grey Innovation, Hydrix and Planet Innovation – which are all based in Melbourne."

## **Med Tech Actuator – Supporting early-stage innovation**

As a collaborative national program, the Med Tech Actuator (MTA) gives promising early-stage medical technology companies an accelerated pathway to funding with up to \$2.7m equity investment. This capitalises on Australia's strengths in medical research, healthcare, clinical trials and advanced manufacturing.



*Romar can design and manufacture custom plastic and silicone moulded components in its world-class micro-moulding facilities and clean rooms in Sydney and Singapore.*

Led by CEO Dr Buzz Palmer and Deputy CEO Dr Vishaal Kishore, MTA started in November last year as a spin-out of the Small Technologies Cluster (STC), an incubator for small tech companies in Melbourne's East.

"STC is an organisation with a 13-year history," says Palmer. "Having worked with over 1,000 start-ups, being part of raising over \$400m capital, we learnt a lot about early-stage deep technology

businesses. So we put together a program with a venture capital partner plus product development companies and created a separate vehicle, which is the MTA."

MTA has partnered with leading Australian venture capital fund Artesian to fund the med tech entrepreneurs in the acceleration program.

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MTA Deputy CEO Dr Vishaal Kishore, and CEO Dr Buzz Palmer.



Navi Medical Technologies, Finalists at the 2017 MedTech's Got Talent. From left to right: Navi co-founders Anya Rosello, Fay Gibson, Elise Sutherland; advisor David Grayden (Stelect); and Navi co-founders Shing Sheung, Wei Sue, Alex Newton.

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"We now run MedTech's Got Talent (MTGT) a program birthed by STC," Palmer adds. "MTGT is embedded in a suite of innovation and entrepreneurship programs and includes a 15-month venture-backed, industry-led accelerator program.

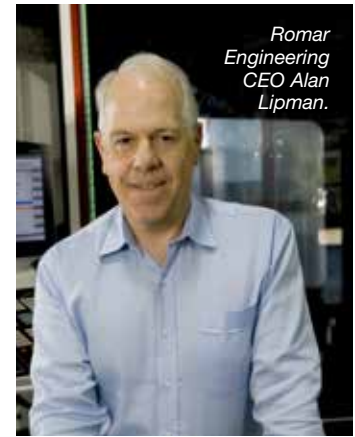
Kishore explains how a med tech business can work with MTA to start-up and eventually reach commercialisation: "This depends on where the start-up is in the pipeline; however often the most effective way for new entrepreneurs is via MTGT. Some 95% of MTGT founders are first-time entrepreneurs and half are women. All participants in MTGT compete for grant funding to develop their ideas, and the grants (which don't need to be paid back) come from our partners in government and industry."

Last year's MTGT competition's winner - Stelect and 15 other med tech ventures - were admitted to MTA's 15-month flagship acceleration program in January this year. Stelect's business was founded by a team including two female engineers. Their winning medical device is designed to assist cardiac surgeons reduce error in stent placement by up to 70%.

"When Australia innovates, the world of healthcare changes," says Kishore. "Great Australian med tech innovations have included ultrasound, spray-on skin and IVF. Our goal is to build the economies of the future, tomorrow's manufacturers and the next wave of industries, entrepreneurs and ventures, while simultaneously improving the health outcomes for the community."

### Romar Engineering – Collaborative manufacturing

Romar Engineering is one innovative Australian life-sciences manufacturer that is thriving via collaborative partnerships. For Romar Engineering's founder Neil Wilson and its CEO Alan Lipman, collaborative manufacturing is Industry 4.0, the future of the industry. It enables companies to take on projects they couldn't have delivered on their own and it's a smart strategy for competing on the global stage.



Romar Engineering CEO Alan Lipman.

"What Neil and I mean by collaborative manufacturing is that we are good at certain things and our partners are good at other things, so we combine our strengths to achieve a common goal for our customers," explains Lipman. A good example of this is Romar's partnership with MiniFab, the Melbourne-based microfluidic and medical

devices manufacturer. "MiniFab has a particular silicone part that we manufacture for them at our plant here in Sydney," says Lipman. "Then we send that part to Melbourne where MiniFab completes the manufacturing process and ships the final product to its USA customer. We are experts in silicone manufacturing, while MiniFab is an expert in other parts of the product's manufacturing process. That's collaborative manufacturing where everybody benefits."

Romar employs 50 people at its plant in western Sydney and eight in Singapore. Working with its Singapore partners, the company can design and manufacture custom plastic and silicone moulded components in its world-class micro moulding facilities and clean rooms in Sydney and Singapore.

"Another example of our micro-manufacturing is the nano-patch technology that we have developed for Vaxxas, for needle free-vaccinations," Lipman adds. "This is currently going through human trials. Several international companies have also approached us to develop nano-patches for other uses."

After referral by CSIRO, US-based Infusion Innovation's CEO Babak Nemati chose Romar as its manufacturing partner for its Q-Flo medical device. Nemati had already interviewed 20 other companies in the USA, Europe and Asia for the job. The Q-Flo is a closed, no-drip, valved connector, designed to minimise health workers' exposure to hazardous chemicals. Off the back of that project, Romar has gained several other USA manufacturing projects.

In partnership with CSIRO, Romar is the only Australian company to offer a DMG MORI Lasertec 65 3D five-axis synchronous laser deposition, welding and milling machine. As the jewel in the crown of Romar's state-of-the-art advanced manufacturing facilities, the Lasertec 65 combines the flexibility of high-capacity additive and subtractive manufacturing with precise, five-axis milling. CSIRO uses the Lasertec two or three days a month for its research into advanced manufacturing processes.



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Lipman has been Romar's CEO for almost two years, having come from a background of running medical manufacturing businesses for more than a decade. Among the improvements he has overseen at Romar, Lipman has restructured the organisation, developed new systems and procedures plus engaged Brilliant Digital to design a new, very detailed website.

"We used to get a couple of enquiries a month from the old website," says Lipman. "Now we get ten enquiries a week, so it is very effective as our main marketing tool."

On the company's international marketing, Lipman says: "Neil Wilson and I travel a lot domestically and overseas, so we do all of Romar's sales and marketing. As well as Singapore, we have partners in Thailand, China and Taiwan. This November, we are attending Medica, the international medical devices and hospital equipment exhibition in Dusseldorf, Germany.

"As a contract manufacturer we want to work with as many partners as possible to grow. The more machines we can get operating, the more we can grow as a global business. Romar has a strong group of young engineers, including our very skilled Production Manager, Rita Nicolas. They are the future of our business. We pride ourselves on building a strong, viable company for all of our customers and employees."

### Baxter Healthcare– Innovation in healthcare production

Baxter Healthcare is part of the global enterprise Baxter International, which employs more than 50,000 worldwide. According to General Manager Steven Flynn, the key to the company's success is its innovative manufacturing practices and the valued programs and services that it provides in partnership with hospitals and clinicians.



Baxter Healthcare's General Manager Steven Flynn

Speaking from the company's Australian head office and manufacturing plant in Sydney's west, Flynn explains that he has been running the Australian operations for the past three of the 12 years he's been at Baxter. Trained in mechanical engineering and innovation, Flynn's early career was in automotive at Holden and TNT.

"Baxter's manufacturing plant here in Toongabbie produces sterilised products such as IV fluids, irrigations fluids and renal dialysis solutions, averaging around 45 million units per year primarily for the Australia & New Zealand (A&NZ) market," says Flynn. "Our innovative compounding pharmacy operation is also a manufacturing process and we have eight of these centres located across A&NZ, employing 450 people. They are all aseptic facilities registered with the Therapeutic Goods Administration (TGA) in Australia and Medsafe in NZ.

Baxter receives prescriptions from hospitals and clinics for chemotherapy, antibiotics, analgesics and parenteral nutrition products plus other items such as operating theatre syringes. It takes sterile licenced drugs, solutions and devices, and its staff manually compound these into a format such as an IV bag, syringe or infusor for administering to patients.

"What's unique about these products, particularly in the chemotherapy space, is that 80% of these orders have the patient's name on the label," Flynn explains. "That is, it's tailored to the



Baxter Healthcare produces sterilised products such as IV fluids, irrigations fluids and renal dialysis solutions.

individual patients' medical requirements. We receive the order and deliver it to the patient, via a hospital or clinic often within less than 24 hours."

Baxter has a very strong engineering team that is always looking at innovative ways to improve the production processes and develop new systems.

"Our mix-room is a great example of the way we innovate on-site," says Flynn. "Our engineers and production team designed 12 mix tanks with a production capacity of 340,000 litres. These are fully integrated with value systems that mean there's no human contact as they are self-cleaning and self-rinsing tanks.

"Recently, we launched some new medical devices, and one of these provides innovation in renal care. HDX is a brand-new therapy that is enabled by Theranova, a new innovative dialyser for haemodialysis treatment. Baxter has also launched a new Smart IV pump used in hospitals. This pump features a scalable platform and user-centric design that includes an advanced drug library and dose error reduction software to promote patient safety. We have taken a lot of feedback from clinicians and nurses in developing these products."

Sustainability is a very important part of Baxter's operations. The manufacturing plant recycles and reuses its waste streams including PVC. The PVC that can't be reused is recycled by other suppliers to make products such as garden hoses. Expanding on the factory recycling practices, Baxter appointed a sustainability officer four years ago, who was key to rolling out a PVC hospital recycling program in co-operation with hospital staff and the Vinyl Council of Australia. Baxter provides the recycling collection bins and hospital staff training.

"We are very proud of this program, which spans 154 hospitals across A&NZ," says Flynn. "The hospital staff are very enthusiastic about recycling. Twenty tonnes of PVC IV fluid bags, oxygen tubing and oxygen masks are collected and recycled every month. We have also set up a home patient peritoneal dialysis recycling program which over 800 patients currently access. Many have thanked us for collecting both the empty renal dialysis bags plus the cardboard packaging.

"Collaboration is one of our cultural levers at Baxter and innovation is the key to our success. If we didn't innovate and bring new products and services to the market, partner with clinicians and the hospitals and constantly drive down our costs through innovation, we would not be as successful." **AMT**

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