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Transformative TECHNOLOGY

MiniFAB is a state-of-the-art contract engineering firm, on a mission to deliver custom-made solutions using emerging technologies.

Images courtesy of MiniFAB

Erol Harvey has always worked at the interface between academic research and corporate-based technological innovation. After completing his PhD in Plasma and Laser Physics at Monash University in 1998, Erol travelled to the UK where he conducted postdoctoral research before joining a spin-off company in Oxford. He returned to academia as professor of microtechnology at Swinburne University, where he built a team oriented towards the industrial applications of technology.

Together with Michael Wilkinson, Erol co-founded MiniFAB in 2002 as a service company for converting world-class research into tangible, high-quality products. Since then, MiniFAB has drawn together an internationally renowned team of engineers and scientists. The company has completed over 900 projects for clients around the world. With an expanding manufacturing capacity that has even greater potential, and a burgeoning market for microtechnology in health and medicine, MiniFAB's outlook for the future is bright.

It became apparent to Erol early on that there was a problem in the way nano- and microtechnology was being translated into the commercial arena. "At the end of the 90s and into the 00s, everyone was asking why these cool new technologies weren't being effectively commercialised," Erol says. "This wasn't just an Australian problem; it was a popular topic of conversation at conferences around the world. Even today, it's still a relevant discussion."

Erol realised that there was an unmet business need: "There was an opportunity to create a business that assisted people in moving their ideas out of a research lab and into a commercial product." Yet when MiniFAB was established, the consultants were sceptical of the business model. "They said we didn't have a product or patents, that there wasn't a market for such a service, and that it would be a waste of time," Erol recalls.

But 12 years on, Erol hears more and more people praising the service-based business model that MiniFAB started out with. "It's certainly turned out to be a successful model, because our

client base is international: everywhere in the world has a need for this." According to Erol, even large, multinational customers use MiniFAB's help to commercialise technology out of their research labs into their products.

Though the international community struggles collectively to translate technology into commercial products, Erol thinks Australia could do more to lead the way. "There is still an issue with our inability to collaborate. If you look at OECD scorecards, Australia regularly scores very badly in collaboration indices. It still puzzles me why, as a nation, we tend not to trust other people and feel that we have to do all the work ourselves."

Having recognised that collaboration and innovation go hand in hand, MiniFAB is cultivating productive relationships with the worldwide research community. "Our niche is being able to do things that nobody else can. Part of our toolbox has to be new ideas and insights that can be applied to solve problems and create >

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products. Our research linkages are a really important source of new solutions and approaches.”

MiniFAB’s research relationships have produced groundbreaking innovations, while proving that industry has a significant part to play in research as well as development. “Previously, I think there was a tendency among government funders and universities to view it as a one-way street, such that all the dollars flow from government and industry into universities, and solutions flow from universities into industry.

“It’s true that solutions can come from the academic research community into companies, but it can also come from companies into the research community. The corollary of this is that funding for research can go into universities, but it should also go into companies. In Australia, most of the support systems that could help fund research seem to take the attitude that all research is best

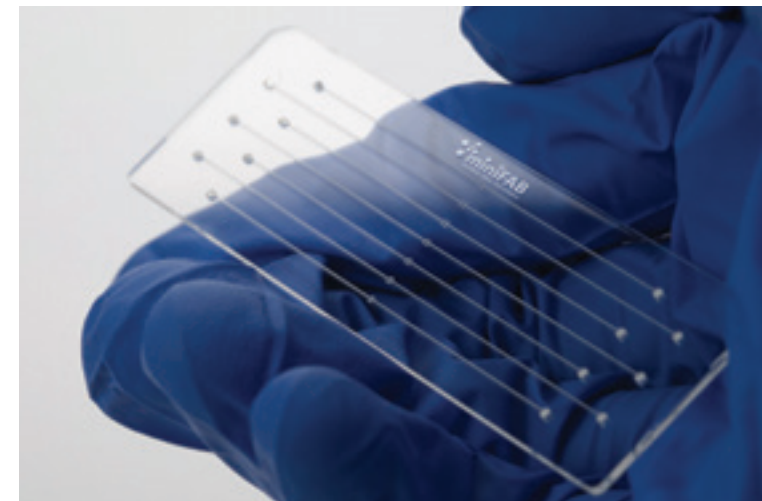
done by CSIRO and universities, and then there’s a criticism that there is not enough research in industry. I think that’s a disconnect that we’ve got to pay some attention to.

“It doesn’t have to be this way. Take, for example, the bionic eye project, a collaboration between Monash University, Alfred Health, MiniFAB, and Grey Innovation, with the support of the Commonwealth Government’s Australian Research Council and private donors. The Monash Vision Group (MVG) bionic eye is designed as a camera integrated into a pair of glasses with the capability to restore vision for those with damaged eyes or optic nerves. The idea is that the camera image will be processed by a sophisticated electronic unit and wirelessly transmitted to a chip implanted in the subject’s brain. The chip then electrically stimulates the visual cortex, creating flashes that the brain will learn to interpret as sight.”

The technical challenge taken on by MVG is to have a device ready for implantation into a human within four years. It was recognised that effective collaborative processes would be crucial for the success of such an enormous undertaking.

“The contribution of each of the parties is optimised to work on a particular technical challenge of the product: MiniFAB’s role focuses on the manufacture of the implant. In this multidisciplinary project, everyone involved is doing the part of the research that is most relevant to them, including the industry players. That’s turning out to be a much more profitable and fruitful way of conducting the research project. We’re hoping to have the first in-human implantation towards the end of 2015.”

Effective communication is vital for MiniFAB to manage collaborative research efforts, ensure productive teamwork, and provide the best



possible service for clients. “About 80 per cent of our work is with clients in North America or Europe, so we’re very used to communicating and working remotely. Our way of product development is to build very strong teams involving our people, our clients’ people, and often third parties that bring specialist skills.

“We work very hard to make sure that everyone is well connected and understands the priorities of the project, what the urgent tasks are, what the overall goals are, and so on. Our overseas clients regularly remark on how easy it is to deal with MiniFAB, even though we’re on the other side of the planet. That flows on to all sorts of other interactions with people who are in different sectors to us—for example, the research community and government agencies.”

According to Erol, at last count, MiniFAB’s 120 or so employees collectively spoke 30 different languages. “That diversity produces a really nice mix of people and attitudes, which helps us in making sure our communications internally and externally are very effective,” Erol says.

When building his team, Erol looks for two key attributes: enthusiasm and motivation. “We’re working in a technical field, so having that technical background is very important; but the most important thing is that our people are motivated and inquisitive. We’re constantly challenged with all sorts

of out-of-the-box problems, so we’re after people who have a certain way of thinking.”

Teamwork is a fundamental value at MiniFAB: “We’re all about building teams and team respect. It is dangerous for a development project to end up with a situation where individuals are pointing fingers at each other to shift blame or responsibility.

“We build teams that genuinely share their successes. The corollary of that is that we share the challenges, so it isn’t just one team member’s job to solve a particular problem; it’s everybody’s. Likewise, if we come up with a cool solution, that’s a win for the whole team, not just the individual.”

Erol is focused on ensuring high levels of rigour, up-to-date technology, and quality in all of MiniFAB’s work. “We’re a service company, so our job is to make our clients look like heroes. The more successful we are in that, the more successful our clients will be, and the more likely they are to continue working with us.”

The future of the company looks to be long, vast, and exciting. “We are planning to enhance our manufacturing substantially; more than half of our business is manufacturing now, and it’s the fastest-growing part of the business,” Erol says.

“When I look at the market space and the way health is delivered, I see that the way consumers



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purchase health and fitness is going to change substantially over the next decade. There are so many pressures on the system in terms of our ageing population and rising healthcare costs. The way that we deliver health and fitness is unsustainable, and that means there will be even more opportunities for development in this space.

“We’ve built devices that measure tear drops, systems that analyse forensic DNA within half an hour, diagnostics for AIDS in Africa, and components that were used to test the air frame of the Airbus A380 during its development stages.

“Every project we work on is amazing fun. There is a huge variety of application areas that our customers take us to, and we never know what’s going to come in next.” •

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