

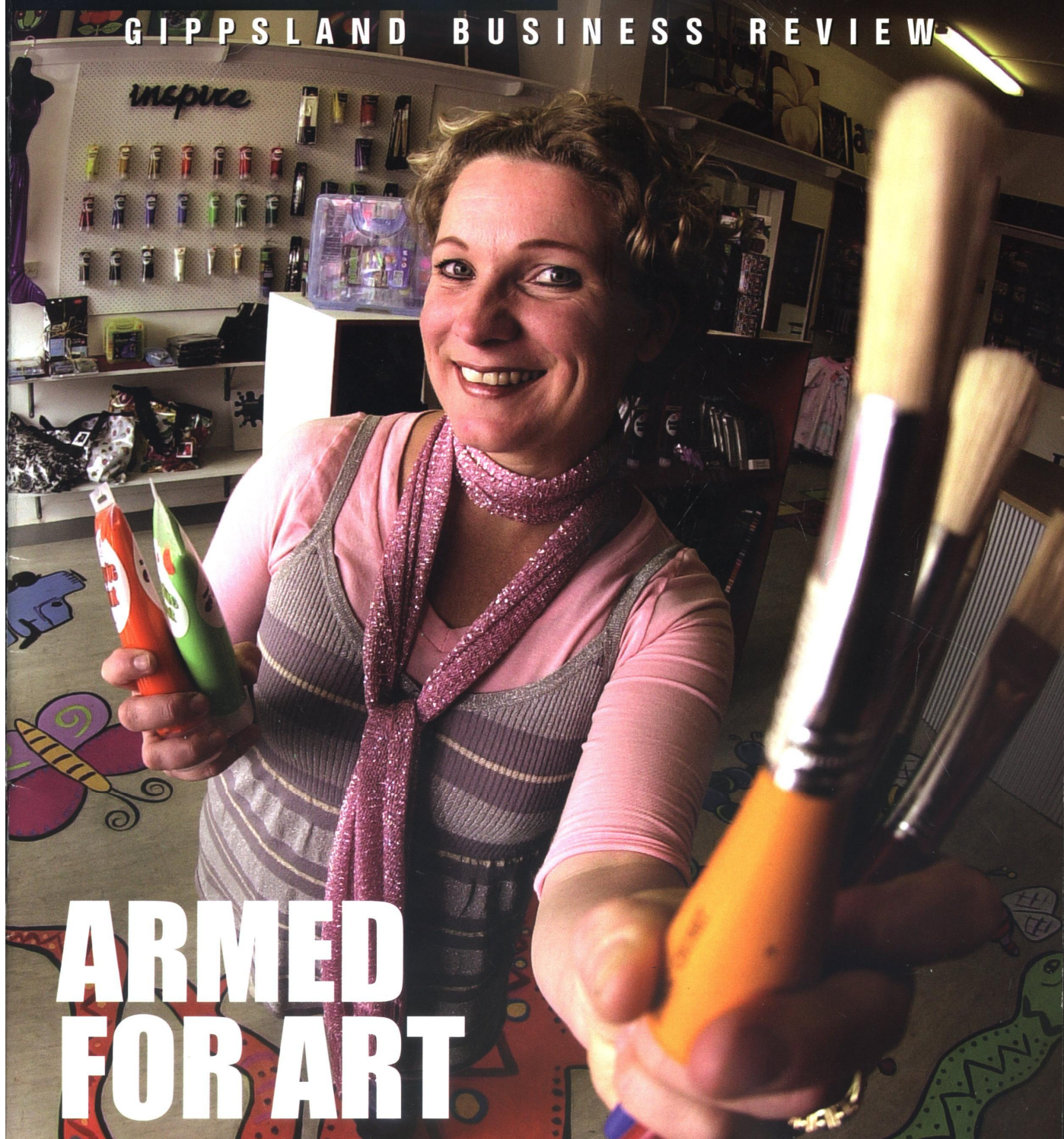
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Mark Bridgman and Ian Jackson

BUSINESS MAKES A DIFFERENCE

MARK BRIDGMAN AND IAN JACKSON ARE MAKING A DIFFERENCE NOT ONLY IN AUSTRALIA BUT AROUND THE WORLD.

They are making it possible for people in rural and remote Australia as well as in rural areas of countries like China and Vietnam to have access to 3-phase power to pursue their livelihoods.

Their Phase-Changer has been used to run equipment like welders, milking machines, air conditioners and even a fruit sorting machine; all impossible when their owners only had access to single phase power.

According to Mark and Ian, rural Australia and rural world are the perfect target for Phase Change Converters.

Power converter technology has been around for years but Mark and Ian's solution is efficient, reliable and low cost. From a small workshop in Longwarry and a factory in China, their revolutionary invention is being produced.

Phase Change Converters has been in operation since 2006 but the seeds of the idea started to grow more than 10 years ago.

After working in Western Australia and Melbourne, Mark made a lifestyle choice to return to Gippsland with his wife and two young children. "I mucked around for a few years and then went dairy farming," he said. "It was during the drought time and things were really tough."

Along the way, he had the need to upgrade refrigeration equipment on the dairy farm but didn't have enough power. That started him thinking.

He found a Sydney accountant who ran a business making converters but didn't have the technical ability to make it work efficiently. "I joined him and started marketing them, putting a website together," Mark recalled. "I thought if the thing was done right, there has got to be a market for it."

They used imported technology which was assembled in Australia. "The concept of 3-phase converters has been around forever, it was how it was done. I felt that technically, the product could be improved and could be marketed much better."

So Mark decided to take a "big leap". The problem was "how" which is where Ian came into the picture.

Mark and friend Josh, who still works for the company today, were

making converter units in the garage of Mark's property near Longwarry. They built about 60 units and sold them.

"We ran ads from day one; we never stopped," Mark said. "We had to create market awareness because people were sceptical. Getting those first orders was so hard. Mark was always confident the product would catch on. 'In that first six months, we certainly proved there was a potential market for the product but at that stage, nobody had even tackled it properly,' he added. 'Products on the market had a poor reputation for reliability - people just didn't want them.'"

Meanwhile Ian had worked with Telstra as a telecommunications technician for years - his interest had always been in electronics and communications. He is also a keen amateur radio enthusiast and president of a club based in Cranbourne.

When he left Telstra, Ian and his wife Diane ran their own home-based business, designing circuit boards for different uses such as motor controls for golf buggies and small industrial applications. But they ran out of room at their Frankston home so decided to build a larger place at Drouin West.

Mark was one of many people who walked through Ian's door but it was a visit that would change both their lives.

According to Ian, Mark had identified a number of issues with his phase converter system. "He told me 'it works, but it's not all that flash'. And people who were producing the control system overseas were not interested in doing anything about it. Their attitude was this is the product; what you see is what you get."

Ian, who was doing a lot of work with micro processors, writing software and designing circuit boards, agreed. So they worked together for the next year, on and off, making various prototypes.

Ian explained that when you produced 3-phase power, it was hard to keep it stable. "Voltages might be really high and when you put a motor on, suddenly it will go low," he said. "Stability - that's what it is all about."

The two men were also well aware that many people had great ideas

but didn't know how to commercialise them and they died.

"It's one thing to have an idea, it's another to sell it," Mark said. Ian added: "And few people have the funding to do the job properly."

But after trial and error, they came up with something that no-one else in the world is doing. "What we've done is unique," Mark said proudly.

Australia's power supply infrastructure was put in more than 60 years ago when people simply wanted lights and other basic electrical appliances. Put simply, most homes are connected to single phase power or 240 volts because that is sufficient. However large machinery needs three times that amount or 3-phase supply.

Most urban centres have access to 3-phase supply but not rural and remote areas because of the cost.

"It's matter of expedience," Ian explained. "Single phase power comes out of the power point at 240 volts; 3-phase is like three 240 volt connections that work together. Suddenly you can run motors more readily and larger equipment more readily and reliably. Most homes don't need it (3-phase) and it is a waste of resources to put it in."

However according to Mark, as time has gone on, demand for a better supply has increased. Farms grew bigger as did everything else.

"You need machinery to chill milk so 3-phase became more of an issue. You can't get it without the infrastructure being upgraded and it means capital expenditure to do that. For a lot of our customers, the reality is they want to run a workshop, not massive machines, and they can't justify spending \$20,000 or \$50,000 to do that."

According to Ian, running 3-phase doesn't cost more. "In fact it's a little bit more efficient," he added. However the big plus is that machinery works better and is more reliable.

The first prototype was ready within six months. Ian was building the controllers for the converters in his workshop and Mark and Josh were assembling them in Mark's garage.

After 18 months, they were gaining a momentum but frustrated by resource bottlenecks. And there was still more development work to be done.

"It's one thing to develop something in a workshop environment which is a reasonably controlled environment but when you put it in the real world, it has to work," Mark said. "It takes slow steps until you eventually get to the point where everything is right."

Ian added: "It's like dealing with the issues until there aren't any more issues."

So while Ian was working on issues, Mark was on aeroplanes flying around the country, selling products.

More than 1000 units have now been sold. The product is stable and reliable with few problems arising. If there are, Mark and Ian look for local reasons which most of the time can be dealt with over the phone.

And Mark's dream of a world-wide market is coming to fruition. They have signed a licensing agreement with a Chinese company. It is much easier and more cost effective to make the product there for export to other countries.

Phase Change Converters now employs eight people at the Longwarry base, which is split into two areas - marketing and technical. "To allow your business to grow, you need the right people and allow a team to build around you," Mark said. And both partners believe they have the right team.

According to Mark, there are a lot of power infrastructure problems throughout Africa so Phase Change Converters wants to sell its product there. "We have distributors working with us who see the potential to open up the market there. We can't do that from Australia."

Marketing in Australia is focussed mainly on rural field days and trade shows. Both Mark and Ian get a great deal of satisfaction when they return to a field day and someone who has been using one of their machines comes up to tell them how it has changed their life.

One farmer was forced to rent a workshop in town to gain access to 3-phase power for his machinery. Now he doesn't need to do that. It has also opened up the way for home-based businesses in rural areas that need 3-phase power.

Mark met an 84-year-old who had a machine in his shed that had not operated for 30 years because he never had sufficient power. He



made dancing shoes. Mark installed a converter and powered up his machine. "His 84 year-old face had the biggest smile," Mark recalled.

Other examples of phase-changer applications include a pivot irrigation system which required several 3-phase motors to work together for the immense boom to rotate and water crops; a unit to run two large air conditioners for a farmhouse many miles from the nearest 3-phase utility power; a unit to run a 3-phase saw bench and sawdust extraction system for a cabinet maker; one central converter to operate all kinds of metalwork machinery; and a large fruit sorting machine which was operating within several days thanks to a power converter unit.

The challenge for Phase Change Converters is getting the message about its product out to the marketplace.

"You have got to be prepared to put money into marketing consistently," Mark said. "You must promote, promote, promote. Look for opportunities and create market awareness. If we didn't, we would have a great product sitting there doing nothing."

Last year, the product was chosen for the ABC Inventors program after Ian sent in a submission. While it didn't win, it received praise and helped develop more awareness.

It doesn't take long to produce a Phase-Changer but the company

generally recommends allowing a week. Local electricians are used to carry out the installation.

"We want local electricians to install these and understand the benefits," Mark said. "When they put one in, very often they come back and install another. We're the designer and manufacturer, not the installer."

Units are reasonably priced. The smaller ones, which plug into a normal power point, start at around \$2000 with prices ranging up to \$15,000 for a 50hp-37kw unit.

"I had lots of farmers telling me at Henty (field days) that they were desperate for 3-phase power," Ian said. "They had been to the power company and were quoted between \$30,000 and \$98,000 to get access. They just can't afford that. They can buy one of our boxes, put it in the workshop and they're away."

"We will not sell a converter to someone who can't run it."

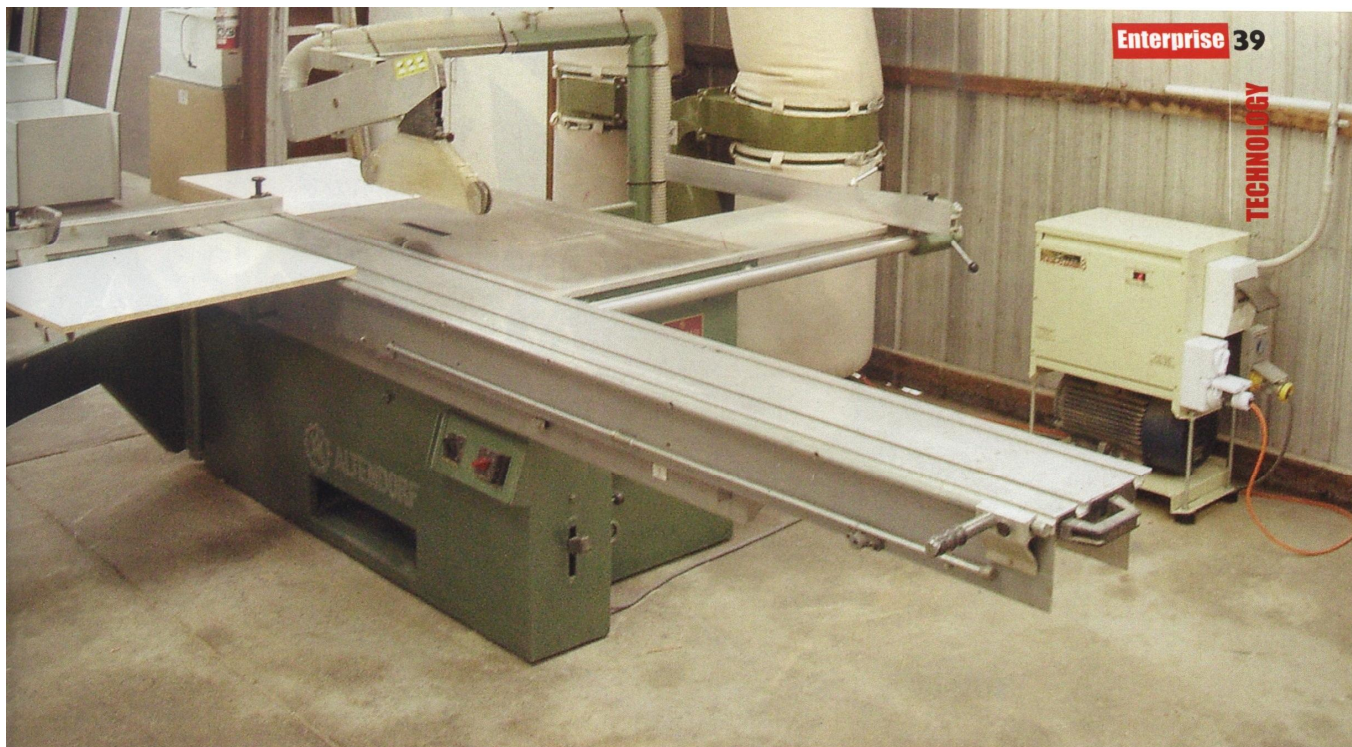
A number of machinery dealers are now stocking the product and using it to sell their machines.

"If you're a company selling 3-phase welders then suddenly someone says, 'I'd like to buy it but I haven't got 3-phase', the transaction stops there. But if that company can say 'well that's not a problem with this 3-phase converter', then it's different. These businesses can be our best ambassadors."

Mark's visits to other countries have also opened up other opportunities for the company, particularly in the manufacture of specialised circuit boards.

On a visit to a coffee plantation in a remote area of Vietnam, he witnessed the result of "shocking infrastructure". People only had access to a small load and supply regularly failed with huge voltage swings.

"In this situation, things can happen," Ian said. "Light bulbs blow or the refrigeration system stops working. It's got to do with where you are. If you're at the end of the line, everyone else uses it (the power) before you."



"You can get some wild swings in Australia but the problem is much worse overseas. What the circuit board does is make the supply more regular. There are ways of doing that now but we are trying to do it the cheaper and more efficient way."

Ian picked up on the problem and made an automatic voltage stabiliser (AVS). A month ago this particularly product didn't even exist.

The prototype has already been tested in Vietnam and Mark will soon take it to a trade show in Hanoi.

"The potential is incredible," Mark said. "These terrible third world voltage conditions are a reality in these parts of the world."

"We are now building AVS which will be aimed specifically at the Asian market because we don't need them here. It is a stand alone unit - a high speed voltage stabiliser which won't have a converter attached. "Voltage stabilisers are everywhere

but they are all mechanically done with motors and transformers. They are very slow to react. This new one is extremely fast to react and doesn't wear out."

In India, Mark visited a number of companies who make stabilisers but they all want Ian's product.

"Again, we look at something with a broad vision and apply it technically to find a solution to the problem," Mark explained.

"We are prepared to go out and work with the market. We build products to suit the market, we're not interested in building one-offs. We go out with our eyes open and look for the opportunities. We want to be a niche player. If we've got the ability to produce it from ground level to suit the application, we will." And Ian relishes the challenge. It's difficult work but he enjoys it.

And while he spends much of time working for Phase Change Converters, he still runs a business

at home with his wife and two other employees.

Mark's 18-year-old son Michael, who is interested in marketing, will soon join the team. He has already cut his teeth at a number of field days and sold converters.

The interesting aspect to the business though is that Mark and Ian are always looking for new opportunities.

A problem Mark encountered on his property has now turned into an opportunity. Ian tells the story: "Mark had a couple of horses and was frustrated by the need for having to clean up after them. He was sick of scooping up with a shovel and wheelbarrow. So he devised a system to reduce the workload. He built it himself. He saw the opportunity and now we're taking orders for others."

The invention aptly, named the Super Scooper, works a treat. A small trailer-like machine, you attach it to a quad bike or ride-on

mower. Once it finishes scooping, it converts to a trailer, you tow it away and empty it.

"It was never built with the intention of commercialising it but from frustration of six hours of picking up horse manure," said Mark who is president of the Drouin West Pony Club. "People would come up to me and say 'you should sell one of those' so we thought why not."

Who knows what is next for these two innovative partners. "That's what it's all about," Ian said. "Once you've got an infrastructure, a marketing team, a business plan to work from and a bunch of ideas, it's an opportunity to try other things. Some things don't work, maybe some things do. But one of my motivations for going into business was the opportunity to try different things."

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