

The message is coming through loud and clear: work-related hearing loss is distressing on a personal level and costing the country billions of dollars. One man has an answer. Listen up. WORDS DEBORAH TARRANT

In the hearing & now

PHOTOGRAPHY HUGH HAMILTON

Now hear this: Justin Miller's Sensear earmuffs are an OH&S boon

FIVE YEARS AGO, Justin Miller was scouting around for the Next Big Thing. He found it in a refrigerator-sized container in a university research lab: a nascent technology that suppressed background noise and allowed the human voice to be heard clearly. His discovery dovetailed with the realisation that hearing loss is at almost epidemic proportions.

The then Perth-based businessman (who had co-founded Australian software and services company Empired) saw his findings could revolutionise conditions for workers such as miners, who risked hearing loss, but still had to work in noisy environments. The idea was refined, fitting software with low-powered batteries into earmuffs and plugs. Miller, 40, liaised with industry to ensure his Sensear technology met workers'

needs, wooed investors and built a team to take the product to market. Now based in San Francisco, Sensear is a global operation that, despite still being classified as a small business, is capitalising on its "first mover" advantage.

Sensear has hundreds of clients in manufacturing, transport, aviation and the military across the world. Qantas ground crews were among the first to use Sensear technology. Miller says its range of products, using the same core technology, is made in Australia for quality-assurance purposes. "We want to be sure our 100,000th product is the same as the first."

In four years he has achieved what aspiring entrepreneurs dream about. According to the World Health Organisation, noise-induced hearing loss (NIHL) is the world's greatest occupational illness, and its incidence is on the rise. >

BRIGHT IDEAS

As Sensear's commercialisation process began in 2006, Access Economics released a study showing the cost of hearing loss to the Australian economy was \$11.75b – NIHL accounts for 37 per cent of that. At the same time, legislation was passed in the European Union to make hearing protection compulsory for any worker exposed to 85 decibels or above. Sensear keeps noise down to 82dB. That's notably louder than everyday conversation (60dB). Traffic on a busy street hits around 85dB, a lawnmower around 95dB. Interestingly, every three-decibel increase doubles the intensity of noise. For example, 88dB is twice as loud as 85dB. Says Miller, "This is something most people don't appreciate. Many have the belief that 'a few decibels' increase won't hurt me."

The magnitude of the problem made launching the business in the middle of the global financial crisis understandable, but not everything went to plan. When the product was introduced to the market in 2008, the emphasis was on safety, given the prevalence of hearing loss. But while executives were keen on it for occupational health and safety reasons, the take-up among workers was not as good as expected. "Individuals are not that concerned about losing their hearing because it doesn't happen overnight," says Miller. Sensear's eventual success was more about the need to communicate. "It allows people who work in noisy environments to hear things that the rest of us who work in low-noise environments regard as normal. They can talk to each other, hear their machines operating or a truck approaching. Previously, hearing protection blocked everything – like a pair of socks in your ears. They had to take it off to hear, so they tended not to wear it." He describes the "wow!" factor when a worker first claps on a pair of these earmuffs. "It's the look in their eyes – they're amazed they can actually hear properly."

In the early days, when the technology had been reduced to the size of a backpack, Miller first saw that look from the back of an ore truck while testing Sensear in the Pilbara in WA with mining companies Alcoa and Rio Tinto. These days, he sees it at trade shows, on production lines, at airports and in refineries. The wow factor continues to be more potent for sales than studies showing 80 per cent of miners will end their careers with some degree of hearing loss.

However, growth potential remains huge. "It's quite staggering how many different industries have noise problems," says Miller. "We come up with different types of customers for our technology on a weekly basis."

Social applications are the obvious next step. Most people recognise they've lost some of their hearing when they go to a restaurant or a cocktail party and can't hear the conversation. People with hearing aids constantly complain about background noise, so ultimately Sensear products may offer an alternative.

"The noisiest place we've ever done a trial was a nightclub – up to 140dB, louder than standing under a 747. Young people in clubs have no idea what they're doing to their hearing. The more crowded they get, the more they turn up the music. People who go to those places have to accept they're taking a risk, but it's another thing if you have to work in those environments."

Another potentially enormous market is the music industry. The production crew of the recent Australian AC/DC tour was plugged into Sensear.

While quietly thanking Apple and the ubiquitous iPod for making it cool to have "things hanging out of your ears", Miller is keen to keep the company focused on its industrial customer base for now. A move on consumers looks expensive, he says, not least because people need educating about exactly what hearing loss is and what they can do about it. "The only real cure is prevention," says Miller.

It's only a matter of time before others emulate Sensear. "Our patent will make it difficult to copy us, but I don't know what people are doing out there in their garages," says Miller. "And that's the beauty of a new invention and new technology. You can only guess the number of people you're up against, and some of them will probably be multimillion-dollar corporations." 