

# Drives&Controls' 25th Anniversary

## Technology transfer is vital



**Tony Ingham, Sales and Marketing Manager, Sensor Technology**

**W**e are familiar with men who had a brilliant idea and got it to market – James Dyson and his revolutionary vacuum cleaner; Steve Jobs who dropped out of college, tinkered with some electronics, and then set up Apple; and Percy Shaw, the man behind the cat's eye. And most of us realise that there is an awful lot of hard work between having the idea and reaping generous rewards.

Nevertheless, the principle is sound. The fact that whole companies and industries can be developed and sustained, is much more significant than the inventor's eventual personal wealth. These industries will employ many people and make an integral contribution to the economy.

Over the years, the engineers and scientists who make up much of my company's staff, have pushed the boundaries of knowledge and have created many practical technologies that we have developed into successful commercial products, mainly in the field of sensing and measurement.

Of course there have been some failures along the way too. In fact, if you were to count up, there have probably been more failures than successes. But the important thing is that the successes can be capitalised upon to more than cover the cost of the failures.

This is pretty much the standard model for innovation that economists talk about. But my feeling is that this misses out on one critically important point, namely "technology transfer" – introducing the invention to ever-more sectors and new users (perhaps tweaking it or repackaging it to meet specific needs).

Popular examples of this include space technology and Formula 1. For example, something developed for NASA transfers to military aircraft, then commercial ones, then other non-aerospace applications. But it also occurs in more mundane fields. For

instance, automation technologies such as VSDs, PLCs and HMIs are increasingly being built into consumer products.

My experience is probably typical of the more usual type of technology transfer. The simple truth is that we have invented relatively few new technologies, but we have applied each to many different areas, sometimes by our own endeavours, sometimes by licensing or selling the technology.

Sometimes it is a secondary or supporting technology that can be transferred, as illustrated by our TorqSense and LoadSense products. TorqSense uses surface acoustic wave sensors to measure torque in rotating shafts and we have applied this principle to more and more fields.

However, to make the technology viable, we had to develop a secondary technology – a non-contact way of collecting the data, so that we didn't have to use sliprings. So we combined radio transmissions with piezo technology and got our solution.

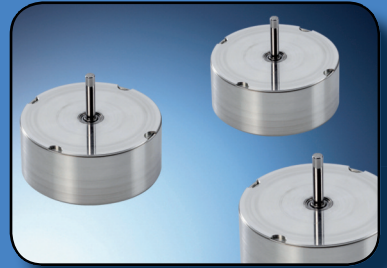
In another area, we were talking to helicopter pilot about a different project when he mentioned that because he had wired a cargo load gauge into his cockpit, he was going to have to get his craft's airworthiness certificate renewed at great expense. We asked if a radio link between the cargo hook and the gauge would mean he hadn't modified his aircraft, and assured him that we could develop such a solution!

That was the light-bulb moment. Naturally, there was a year or so of hard graft to get to a commercialisable product. But now, a few years down the line, we have a nice business selling intelligent cargo hooks to helicopter operators around the world.

The important point is that if the government wants to remodel the economy to make engineering and manufacturing stronger, they need to encourage technology transfer as much as innovation.

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