



The Welsh Assembly is saying ‘we want to be an electronics nation’.

Wales was one of the UK’s first beneficiaries from the wave of inward investments during the 1970s. But the glory days didn’t last very long, investors moved away and the principality’s electronics industry has a much different shape today.

Chris Young, chief executive of the Welsh Electronics Forum (WEF), said: “From the early 1990s to around 2003, there were big changes in the industry. We saw the death throes of high volume manufacturing and a vacuum created at the top.”

But all was not as bleak as it appeared. “This highlighted the fact that Wales has a lot of stable niche electronics companies and, since then, the industry has gone on to prosper,” she continued.

In fact, the Welsh electronics industry – defined as ‘any company that designs and/or manufactures products with high electronic or software content’ – features some 550 organisations. Supporting and developing those companies is a joint act involving WEF and the Welsh Assembly. “The Forum’s job is to represent them effectively,” Young observed, “while the Assembly’s role is to provide them with the right environment.”

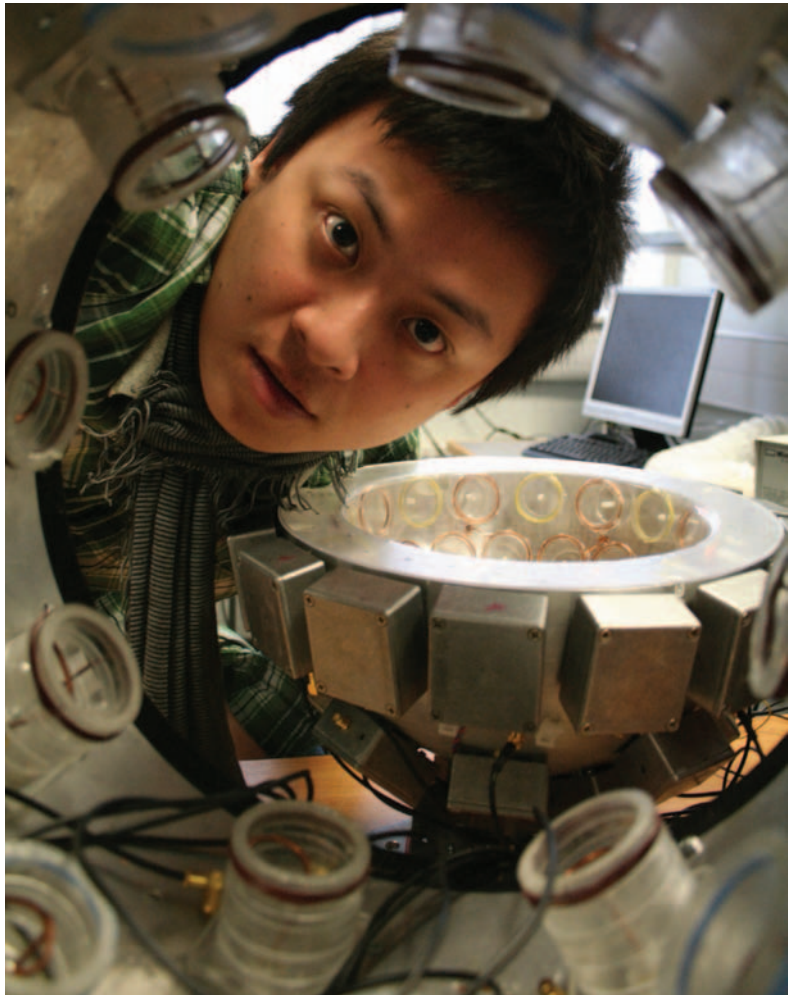
But Young believes the Welsh talent pool must be used smartly. “We must have young people coming through and, to ensure this, we are bringing people in from other industries through retraining.” One of the benefits of the Welsh Assembly, she added, is that education is linked more closely to economic development than before.

Around half of Welsh electronics can be found in Cardiff and Newport, but significant activity can also be seen in Bridgend, Swansea and Wrexham. There is an optoelectronics cluster around St Asaph and a software cluster in Bangor.

Mark Norris, ICT sector lead with the Welsh Assembly Government’s Department for the Economy and Transport, outlined the recent history of public involvement in Welsh electronics. “The Welsh Development Agency (WDA) was formed in 1976 and merged with the Welsh Assembly in 1986. For a long

# The right environment

Stable niche electronics sector prospering in Wales. By **Graham Pitcher**.



*Glamorgan University research student Brian Wee with a prototype of the MIT scanner.*

time, public support was a ‘pump priming’ process. We want companies to be self sustaining, but for that to happen, they have to be embedded in the economy. That often means continuing support is needed.”

Young noted the WEF, which is driven by a council of members, appreciates the Assembly can’t be all things to all people. “It is therefore focusing. It’s all about understanding people’s drivers and working to the best advantage. But over

the last 10 years, we have developed a reasonable rapport between the public and private sectors.”

The big Japanese companies are still in Wales, albeit in different shapes. “Sony and Panasonic are still here,” said Young, “but they are different to what they were 10 years ago. Panasonic, for example, now has an R&D centre with 150 world class people looking at digital tv. Sony, meanwhile, has taken a different route and its Welsh operation is a global leader in professional video cameras.”

The Welsh Assembly’s Minister for the Economy and Transport, Ieuan Wyn Jones, has recently announced an Economic Renewal Programme, aimed at strengthening its economy. Young says this is good news for the technology industry in Wales. “It addresses many of the issues the WEF has been calling for,” she said. “We are particularly pleased to see a sectoral approach and recognition of our industry as a priority sector means the WEF can now focus on new challenges that will impact the industry in the future.”

Important elements of the Programme include: broadening and deepening the skills base; and encouraging innovation.

The WEF is now concentrating on four main areas: winning more business; helping each other; sustaining the heart of the industry; and signposting to financial support and commercially exploitable IP. Opportunities are being sought for Welsh companies to sell to Government departments and for them to help each other through an informal ‘exchange and mart’ service. WEF believes the industry must be sustained by working on an aggressive skills development programme and is encouraging members to take advantage of financial support.

Relationships with academia are also important. “Relationships between Welsh electronics and the University of Glamorgan have always been practically focused and industry appreciates that,” Young remarked.

One of the University’s offerings is the Centre for Electronic Product Engineering



[CEPE], a not for profit advice centre that undertakes feasibility studies and product development. Clive Thomas, CEPE’s director, said: “We work with small companies, trying to understand what industry wants at the application level. They may need help with vehicle electronics or with low power wireless. We can help them with reproduction prototypes or proofs of concept.”

CEPE provides companies with what it calls ‘new to them’ technologies. This helps them move up the technology ladder and to gain market positions. “A few years ago, we were doing a lot of 8bit microcontroller designs. Today, it’s mostly 32bit designs,” Thomas observed. “But we aren’t doing much with fpgas as yet.”

Amongst the companies CEPE has engaged with is Lodgesons, a Cardiff based organisation which develops electronic products for use by disabled drivers. “CEPE was a natural choice to help us develop a new product range,” said managing director Andrew Law. “The success we have enjoyed as a direct result of its work speaks volumes, but we also enjoyed its unbiased approach, ongoing interaction and understanding of our budget and timeframe.”

Glamorgan University’s Faculty of Advanced Technology is also undertaking research into magnetic induction tomography (MIT). The work, being directed by Dr Ralf Patz, may make the detection and monitoring of cerebral haemorrhages easier.

*Welsh medical devices company Melys AFS has developed, in association with CEPE, a non invasive, low cost way of screening for atrial fibrillation. This condition, which goes largely undetected, is believed to account for 33% of strokes amongst the elderly.*

**“Wales is a microcosm of the UK picture,”  
Chris Young**



MIT uses the eddy current effect to image the electromagnetic properties of an object. A primary magnetic field is induced into an object using a set of coils. The eddy currents in the object create a secondary field which can be measured in combination with the primary field. Measuring the phase angle between the induced primary and the measured combined field allows determining the object’s conductivity.

Dr Stuart Watson and Dr Patz are using MIT to pioneer the development of a device to image blood within the brain. This will allow cerebral strokes to be detected and classified and doctors to monitor potential side effects of drug treatments.

According to Dr Patz: “MIT doesn’t produce ionising radiation, which means there is no limit on the number of times a patient can be scanned. Our device is inexpensive and takes up much less space than CT and MRI systems. We are also developing it to be portable and hope it could prove to be life saving, particularly in rural areas. These devices could eventually be stored in ambulances.”

Glamorgan University is developing the instrumentation system for the MIT scanner. The system involves the development of 10MHz transceivers interfaced to a phase measurement device. The challenge is to resolve 10millidegrees on low level signals and the team is employing heterodyne methods to ease the measurement problem. Data obtained from a distributed transceiver system will enable a two dimensional map of electrical impedance within its boundary to be computed and displayed. Good progress has been made and a prototype imaging system is under construction.

“Wales is a microcosm of the UK picture,” Young concluded. “Our devolved administration means more things can be done more quickly and we can tip the scales to our advantage. The Assembly is saying we want to be an electronics nation.”