

C|D|T

LAST YEAR CAMBRIDGE DISPLAY TECHNOLOGIES REVEALED PLANS FOR NEW PRODUCTION PREMISES EMPLOYING 40 PEOPLE

EU-funded projects HIGHLIGHT and POWERPLAY have prompted this level of investment in the company and gone on to reveal new markets

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The impetus for new display technologies in the 1960s came from watch manufacturers. The result was the LED (light-emitting diode) and the spin-off was the multi-function pocket (or wrist) calculator. Today, the demand for cheap, stable, energy-efficient and ergonomic colour displays comes primarily from mobile phone manufacturers. The 120-strong research-oriented Cambridge Display Technologies Limited (CDT Ltd) is well placed to reap the benefits of this demand.

CDT's co-founders include Richard Friend and Andrew Holmes, scientists leading research into opto-electronics and polymer synthesis at Cambridge University. In 1989, a group led by Friend discovered and patented a way of creating LEDs from polymers rather than traditional semi-conductors. CDT was set up in 1992 as a vehicle for refining and exploiting that discovery. Richard and Andrew attracted financial support from CRIL (Cambridge Research and Innovation Ltd) and set a precedent by obtaining investment from the University itself. During the next five years, the company was able to demonstrate the commercial potential of light-emitting polymers (LEPs) and developed techniques for manufacturing prototype displays.

In parallel, the university was involved in a series of EC-funded basic research projects that brought together a powerful network of collaborators. This included commercial and academic partners such as Philips BV, Hoescht AG, the University of Linköping and the polymer research team from the Max Planck Institute in Germany.

In 1997, CDT formally joined an EC consortium for the first time. The OSCA project, led by Cambridge University, set out to resolve some of the fundamental problems of commercialising LEPs.

This collaboration allowed the company to build on its existing intellectual property rights (IPR) by helping them to acquire deeper insights into the ways in which LEPs could be commercialised. It also confirmed the viability of building a business based on commercialisation of research. This would involve licensing of IPR to materials developers, display manufacturers and manufacturers of auxiliary components.

In July 1999, a majority interest in the company was sold to two US-based private equity funds for \$133m demonstrating the value of this IPR. An additional \$28m was raised from shareholders in 2001, primarily to finance construction of a new pilot production capability in Godmanchester, Cambridge. This will help CDT provide licencees with advanced manufacturing technologies such as inkjet printing and initially employ 40 people.

Karl Heeks is responsible for CDT's Strategic Technical Assets and has been involved in the company's collaborative research programme since OSCA began in 1997. He identifies the key benefits as the ability to speed-up the building of relationships with key players and the bringing together of complementary capabilities. Projects provide a platform that lets companies see what each other can do as well as giving access to specialist skills that will accelerate the commercialisation of the underlying IPR.



Image produced in HIGHLIGHT, the worlds' first full colour passive matrix display.

HIGHLIGHT, a two-year IST project that finished in 2001, continued the work begun in OSCA to bring the technology closer to market. It validated an innovative production technique that CDT had developed in partnership with Seiko Epson, using ink-jet printing technology instead of photolithography to fabricate polymer arrays. Trials within the project also identified the need to modify the characteristics of LEPs for use with monochrome passive-matrix displays, where short bursts of much higher light-levels are required. The illustration, above, shows the results of work done in HIGHLIGHT, the worlds' first full colour passive matrix display. Work on improving the efficiency of the devices continued with the POWERPLAY project in 2001, with CDT leading a consortium for the first time.

The early results of CDT's exploitation strategy will be seen during 2002, with display product launches planned from licensees including Philips, Seiko Epson, Osram and Delta Optoelectronics.

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