
Arthur D. Little/Cambridge Consultants and the round tea bag

Sometime in the 1950s, Lyons Tetley became the first firm to introduce the tea bag into the UK. This was quite an achievement in a country that traditionally prided itself on making a far nicer cup of tea than the Americans ever could with their new-fangled tea bags. However, it soon became apparent that one could make just as tasty a cup with a tea bag as with loose leaves, and the product caught on.

By the early 1980s, however, Lyons Tetley was losing its market lead as other tea producers jumped on the bandwagon. Then someone had a brilliant idea. Tea bags had always been square or rectangular: why not make a round one that would fit snugly within a teacup?

New ideas create new problems. The round tea bag would be more difficult to make and would mean more wastage of material. New machinery would have to be developed, and a big effort put into marketing. And would people buy it, or would it join the long list of innovations that got nowhere?

At this point the firm brought in Cambridge Consultants Ltd (CCL) (known in North America as Arthur D. Little) to advise on the development, manufacture and marketing of the round tea bag. Working with Lyons Tetley in strict confidentiality, CCL helped the company to develop new machinery and steered it toward a successful launch of the new product. The round tea bag did indeed catch on, and Lyons Tetley's share of the UK market rose from 18% to 24% — a bonus worth about £30 million a year.

Development partnerships

This success story was the outcome of a 'development partnership' between manufacturer and consultant. Speaking at CCL's Press Day on 29 June 1994, Associate Director Paul Ruskin gave several examples of how such a partnership could help the manufacturer to gain an innovative edge in product creation. "Every R&D manager knows he's wasting half his budget", he said. "The trouble is, he doesn't know which half!" Clues to the problem of which lines of research were the most promising could often be picked up at the R&D/marketing interface; thus it was essential to 'plait' together the three strands of R&D, manufacture and marketing to ensure the success of an innovation.

CCL is based at Cambridge Science Park, UK, and in continental Europe, and employs nearly 200 engineers, scientists and designers. The consultancy sees itself as a pathfinder in innovation, believing that the process should provide both short-term solutions to design or technical problems and long-term and transferable insights into the technology and management of change. Specific areas of expertise include: the development of new products, packaging and manufacturing processes; software and hardware systems development; and consultancy services and tools.

Innovations in the making

The Press Day included a conducted tour of Cambridge and a visit to the renowned Cavendish

Laboratory. Back at CCL, visitors were able to see a number of displays and demonstrations, including:

- *User interface design.* CCL has developed a computer simulation system which enables the product designer to model the 'user interface' — i.e., how it will appear to the user — at an early stage. This approach allows near-photographic rendering of product concepts to be constructed within two weeks or so.
- *Ship berthing radar system.* Large ships, such as tankers, are capable of causing substantial damage to jetties while docking, even at very low closing speeds. The CCL berthing aid provides the pilot, master and dockside staff with continuously updated and displayed figures for the distance and closing speed of both bow and stern, thus allowing the ship to be accurately positioned so as to come alongside the jetty in the gentlest possible way.
- *Non-contact measurement gauge.* CCL has developed a gauge, based on a linear CCD array, for control of CAD/CAM manufacturing processes. It makes 200 measurements per second, measuring complex surface geometries to a resolution of better than 1 μm .
- *Concrete scanning system.* CCL has collaborated with Hilti Corp. of Liechtenstein on the design and development of 'Ferrosan', a new system for detecting reinforcing bars in concrete. This is claimed to be the first system of its kind to show a direct image of the position, depth and diameter of the bar.
- *Motorway communication systems.* In a £2 million contract with the UK Department of Transport, CCL is developing new test systems and equipment to assess signalling, information and communication systems for motorways.
- *Urinary tract infection sensor.* This is the first application of an opto-electronic particle sizing technology developed by CCL. The sensor is being tested as a low-cost pre-screening system for urinary tract infection. Results from hospital

trials indicate good discrimination between infected and uninfected urine.

- *Cheaper ASICs.* New design techniques are claimed to be making dramatic savings in the cost, size and development time of electronic products, typically reducing the cost by two-thirds. CCL's approach is based on a highly successful method of designing circuit boards, using smaller and more efficient custom chips or application-specific integrated circuits (ASICs).
- *Printing technology.* Xaar Ltd is a technology development company which originated as a spin-off from CCL in 1990. Xaar has recently signed a collaborative agreement with Zeneca Colours to produce better-performing black and coloured inks for office and other applications. Zeneca is based in Manchester and was formerly part of ICI.
- *Compact mass spectrometer.* Kore Technology, another spin-off from CCL, has been awarded a Department of Trade and Industry Small Firms Merit (SMART) Award for its work in developing a compact, low-cost, analytical, time-of-flight mass spectrometer. Applications could include a hand-held analyser for detecting gas or vapour leaks, and an instrument for monitoring pollution in wastewater outflows.

Brainstorming

Visitors were also able to participate in a brainstorming session — a technique where experts and non-experts meet to discuss a subject and are encouraged to throw in any suggestion that comes to mind, no matter how absurd. The theory is that there could well be one or two nuggets of gold among the dross.

The topic chosen for the Press visit was ideas for microwaveable food products, including possible trade names. 'Micro-chips'? Too late: this is already on the market. Well, how about 'Jurassic Pack' for an assortment of dinosaur-shaped goodies?

Ian Guy