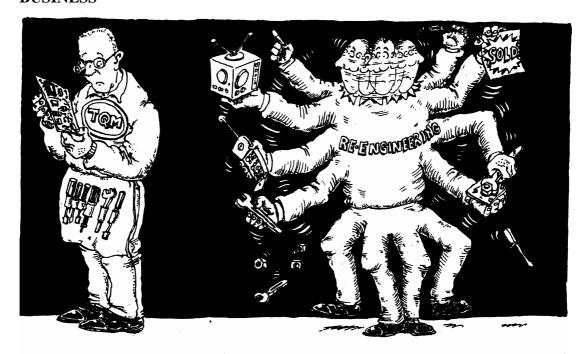# The straining of quality

NEW YORK

American companies are discovering what happens when total quality meets total chaos

HAS life lost a little of its quality for American firms? W. Edwards Deming, the American who set off the total-quality revolution, is dead. Joseph Juran, the co-founder of the quality movement, gave his farewell lecture tour last year. The American Quality Foundation has been disbanded. And, tellingly, applications for the Baldrige award, America's prestigious prize for quality, have slumped (see chart on next page). In 1994 only 71 firms vied for a Baldrige, a fall of a third in three years.

Optimists believe that waning interest in the Baldrige award is evidence of American firms' new-found self-confidence in the quality of their quality—after all, why bother to take part if you know you're the tops? Indeed, a recent study by Boston University, Tokyo's Waseda University and INSEAD, a European business school, concluded that American companies had caught up with and overtaken their Japanese competitors in terms of quality.

Perhaps. But the Baldrige's decline is more a reflection of corporate America's increasing tussle with total-quality management (TQM). Even the 1980s' most ardent adherents of quality are finding that TQM does not readily blend with wave after wave of restructuring, downsizing and reengineering. And the challenge of developing products and bringing them to market ever more swiftly—especially in industries where prices are tumbling, such as computers—adds to the strain on TQM. So far, America is bearing the brunt of this quality chaos. But Japan and Western Europe, increasingly obsessed with fads such as re-engineering, could soon be in its throes.

In their hearts, American managers want to believe that TQM amounts to a viable way of cutting costs. They would dearly love to emulate Richard Buetow, director of quality at Motorola. He reckons that, thanks to fanatical devotion to quality, the chips-to-cellphones maker has saved a staggering $6.5 billion in manufacturing costs since 1987 (the year before it won a Baldrige). But, outside Motorola, most managers still believe that cutting jobs cuts costs faster. According to Challenger, Gray & Christmas, a Chicago consultancy, 2.6m American workers have been sacked since early 1990.

The snag is that downsizing undermines a cornerstone of TQM: employee motivation. To achieve perfect quality, said Deming, companies must "drive out fear, so that everyone may work effectively." Yet downsizing fosters fear, as Xerox, the world's biggest photocopier maker (and a Baldrige winner in 1989), has discovered. Hector Motroni, head of quality at Xerox, says the firm has been through "11 years of wrenching change" since it adopted TQM in 1983. And although Mr Motroni credits total quality with reinvigorating the firm, he concedes that job cuts and the loss of management layers—Xerox is in the process of cutting its workforce by another 12%, to 85,000—has damaged motivation and made it harder to sell the TQM message.

To overcome this, the firm encourages individual workers (instead of, say, departments) to focus on the needs of customers. All employees are given responsibility for quality. This, hopes Mr Motroni, will give workers a goal; it should also help bypass broken lines of communication. Dick LeVitt, director of corporate quality at Hewlett-Packard, agrees that such "empowerment" is essential in firms facing chaotic change: "You have to connect employees with the consequences of their work." One recent study suggests that the effect of making that connection can be dramatic. It found that TQM programmes which delegate responsibility for quality to individual shop-floor workers tend to be twice as likely to succeed as those which rely on "top down" management (though the fad for teams brings problems too, see page 69).

With slimmer resources, companies are also discovering that they must focus their total-quality efforts on what customers actually want. "In the 1980s we pushed quality too much for its own sake," says Mr LeVitt. So did Florida Power Light (FP an electrical utility which by the late 1980s boasted an 85-strong quality department and 1,900 quality teams—none of which seemed to bring about a significant improvement in its services. FP eventually scrapped most of its quality bureaucracy, and its service improved. Hewlett-Packard now treats TQM like any other investment: if a particular total-quality initiative doesn't show a quick return in terms of higher sales, lower costs or happier customers, it is redesigned or scrapped.

IBM, which has seen its workforce fall by half since 1986 (and this week underwent its latest management shake-up), is taking a similar tack. Big Blue no longer has formal, stand-alone TQM programmes; responsibility for quality has been pushed down to the factory floor; and it is trying to infuse every part of its corporate activities with the notion of quality. IBM's most ambitious goal, however, is to reconcile its massive re-engineering programme with its quality goals. And this, thinks Jim Patell of California's Stanford Business School, is where firms often trip up.

The dilemma facing managers is that whereas total-quality management emphasises continuous, step-by-step improvement, re-engineering relies on a radical, once-and-for-all scrapping of existing business processes. The tension between the two, says Mr Patell, can end up sabotaging a company's total-quality programme. Wilson Lowe head of quality and re-engineering at IBM, says his company is now

carefully monitoring its re-engineering programme to ensure, at the very least, that each bit of it improves, rather than worsens, quality. But this does not address the differing velocities of the two strategies. "We've a long way to go," says Mr Lowery.

Quality timed

Even if their total-quality schemes survive downsizing and re-engineering, many firms then find themselves facing another challenge: speed. Until recently, Xerox used to put dedicated teams together to implement total-quality practices for new products, a process that could take up to six months. Now, Xerox rotates teams of engineers and managers from existing products to new products, in an attempt to learn from its past total-quality errors and break out of "functional silos". This is tougher than it sounds, says Mr Motroni, because some TQM knowledge is invariably lost when teams are transferred.

Declining quality
Number of applications for Baldrige awards

Source: US Commerce Department

Hewlett-Packard is taking a different approach to solving shaky quality in rapidly introduced products. Most glitches, says Mr LeVitt, arise during the transition from one product to its successor. In the past, Hewlett-Packard undertook what it calls "hard roll" product changeovers, in which production of the Mark I version of a product was replaced by the Mark 2 in one fell swoop. The result: a big initial dip in quality which had to be fixed before the new version could be put in the shops.

Hewlett-Packard is now experimenting with "soft" product changeovers. Once the specification of, say, a Mark 2 version is complete, the new features are incorporated, one by one, into selected production runs of the Mark 1. The Mark 2 is officially launched—and the new features made visible to customers—only when this gradual roll-over has been finished successfully. As a result, says Mr LeVitt, the time taken to hit total-quality targets in new products is being slashed. And the new technique may also help the firm avoid the sort of gaffe—involving defective paper-rollers in 1.5m printers—it made public on January 9th.

As their product life-cycles collapse and price competition hots up, many firms are finding that the only way to maintain quality is to make their products simpler to manufacture. IBM's range of mass-market PCs are now built using fewer than 20 interchangeable modules; three years ago they were built from custom components. At Hewlett-Packard, "design for re-use"—designing components for use not only in several products but also over several generations of those products—helps to improve quality while cutting costs. A drawback of this, concedes IBM's Mr Lowery, is that it can reduce customer choice—and satisfaction. But if TQM is to keep up with today's chaotic markets, firms must cut complexity.

Few companies are likely to give up the quality struggle, if only because—despite all the obstacles—TQM does seem to cut costs in the long run. And big cost savings, says Motorola's Mr Buetow, are the main reason why his firm will remain obsessive about TQM even beyond the point of perfection. Callers may not care if their Motorola carphone will work fur a claimed 40-50 years before failing. But Motorola can at least rest easy that it should never have to dial up a costly recall.

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