

nature

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How companies benefit from the CERN connection

EVERYONE knows that the non-stick saucepan was a technological spin-off from the Apollo space programme, and everyone knows that you have to think quite hard if pressed to name a second product with which the ungrateful world of consumers has been accidentally endowed by high technology. But space exploration is not without its benefits of a sort. The vast technology-based industries that have sprung up to serve space and for that matter, military needs, can be seen as (if nothing else) a means of keeping large numbers of people in employment. Inevitably, however, one asks whether the development, say, of better space propulsion units by industry, when there is only one customer, serves any broader purpose, and almost equally inevitably one answers that it does not. The rapid break-up of many space-and-defence-based industries when the big client loses interest or runs out of money is testimony to the problems of industry capitalising on the push of technical demand when that push is on too narrow a front.

Not every major new project based on science and technology comes from aerospace, however. It is fascinating to ask whether anything rubs off on an industrial company which performs contract work in the construction of nuclear reactors, radiotelescopes, deep-sea drilling equipment or whatever: and a fascinating answer is given in a recent and highly readable report published by CERN (*A Study of Economic Utility resulting from CERN contracts*, H. Schmied, Report no. CERN 75-5). The diligent Dr Schmied conducted 110 interviews with CERN staff and ultimately identified 127 companies throughout Europe where there was a possibility that dealings with CERN had created 'utility' for the company beyond the contract itself. The utility could spring either from increases in added value in subsequent sales of products elsewhere or from cost savings in subsequent operations. Increases in added value might arise from the sales of new products originally developed for CERN, increased sales of existing products owing to the CERN connection, improvement of a product to meet a tough specification and subsequent sales of the improved product, or by other means. Cost savings could arise from the indirect use of CERN expertise in research, development and production, from savings on capital investment when CERN contracts had already partially covered costs and from savings in marketing from the use of CERN as a reference.

Companies were asked to make their estimates (using guidelines provided) of the utility of having worked on contract. Obviously, and Dr Schmied acknowledges as

much, there is no foolproof way of identifying utility; some companies find it difficult to accept that anyone beyond their own four walls could possibly have contributed anything of significance, others might think a high value for utility would please CERN and perhaps land more contracts whilst yet others might think a high estimate could cause CERN to adopt a more hawkish attitude in its future letting of contracts. And the measurement of utility is itself bound to be a fairly hit-and-miss affair. Nonetheless there are some very striking conclusions.

If all 127 companies are taken together, their sales to CERN amounted to 394 million Swiss francs (MSF), but the utility generated came to 1,665 MSF: the CERN connection had borne fruit fourfold. There are obvious gradations. Manufacturers of standard electrical equipment such as cables have little to gain from working for CERN. At the other extreme manufacturers of computers and precision engineering reported an average of 17 and 32 respectively for the utility/sales ratio. And companies in the UK, Norway, Sweden and Denmark have done particularly well, undoubtedly because the CERN contract has opened up new geographical market horizons.

This study does not say that the world is economically a better place because of CERN, or that economic activity is created which would not have existed otherwise; it is entirely conceivable that a study of companies unfavoured by such contracts could identify losses to counteract the gains of the favoured companies. What it does say is that individual companies demonstrably profit in many ways from association with large-scale high technology. And this is particularly interesting in CERN's case, because none of the companies seems to have been exclusively dependent on CERN for its turnover, and a very large part of the utility achieved has necessarily to be outside the narrow realms of particle accelerators.

It would be wrong to take these figures as a good measure of the extent of technology transfer possible through major technological enterprises, as some of the utility has been gained by the simple process of stamping "as supplied to CERN" on the glossy brochures. But industrialists could well take note of the financial advantages of working with high technology. And governments involved in big projects should ponder whether the acquisition of large numbers of their own technical staff for specific jobs is the best way to take the broadest possible national advantage of the investment.