1 Wealth from Knowledge
Revisited

As with this volume, Wealth from Knowledge was concerned with the nature of technological innovation. Although the book itself was published in 1972, the research upon which it is based was carried out primarily during the period 1966–70. It coincided with a period during the mid- to late 1960s when science policy exhibited one of its periodic surges of activity. There was at this time much concern in political circles with the growth of science and with the implications of this for the future funding of scientific research and it was during these years that many Western countries took their first, somewhat tentative, steps towards the planning of science. In Britain, as well as in the USA, France and West Germany, it was part of the conventional wisdom that economic growth was the concrete result of previous investment in scientific research. To many, the incidence of rapid economic growth after the Second World War was perceived to be the more or less direct result of the application to industry of scientific discoveries and inventions made during the war by scientists pressed into military service. More science it seemed, was an essential prerequisite to sustained economic performance. Indeed, there emerged within British science policy circles at that time, the idea that it might be possible to identify major scientific discoveries which had subsequently spawned new industries and to calculate, using a form of investment analysis, the net benefits to the industry of funding the research earlier rather than later. The intrinsic difficulties with, and the relative inconclusiveness of this sort of analysis, coupled with the cumulative effect of earlier work, for example that by Carter and Williams, which demonstrated the complex of factors affecting the commercial exploitation of science, and that by Williams which showed no positive correlation between R & D as a percentage of gross national product and the growth of output per man, demonstrated clearly enough that whatever the relationships of science to economic performance, they were not direct, and if they were not direct there was little choice but...
to examine in detail at the micro level the ways in which firms marshalled scientific resources in pursuit of new products and processes.

Closely related to this perception of science and economic growth is another which seems so deeply rooted in the British psyche that it could almost be called a national characteristic: that as a people the British are better at discovery and invention than at the application of their creative activities to practical and commercial gain.\(^5\) It is difficult to establish when this view emerged or what factors have sustained it, but even in the 1980s its validity is rarely questioned as is evidenced by the apparently endless stream of stories of British ideas being exploited by others. As far as we are aware, the extent of this particular phenomenon has never been systematically investigated but it does nonetheless indicate where the reason for Britain’s faltering economic performance might lie – that is, in the firm.

1.1 THE QUEEN’S AWARD STUDY

To shift from the context of scientific discovery to that of commercial application, then, is to shift the analysis of British economic performance from technical invention to technological innovation and *Wealth from Knowledge* was concerned to examine the process of technological innovation as it occurred in contemporary British firms. The sample for this study was provided by the firms which won the Queen’s Award to Industry during the years 1966 and 1967. The Queen’s Award Scheme was launched in part to give social recognition to firms which were demonstrably successful in attacking one of the main problems which faced the British economy, that of declining international competitiveness. As such, it provided, annually, evidence of a large number of firms that had attained some measure of commercial success in technological innovation or export achievement or, in some cases, both. Again, much of the rhetoric that surrounded the launching of the Queen’s Award Scheme referred to British skill at invention in contrast to a rather disappointing performance in innovation.

The study of the firms which won the Queen’s Award in 1966 and 1967, which was published in *Wealth from Knowledge*, was funded by the Council for Scientific Policy (now the Advisory Board for the Research Councils). Its principal aim was to examine the process of technological innovation at the level of the firm but, from the outset, there was an underlying interest in the relationship between innovation and upstream scientific activities. Therefore, the study was conceived