

INNOVATION IN SMALL AND MEDIUM SIZED FIRMS IN  
THE ELECTRONICS INDUSTRY

Mary Bernadette McGrane

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The University of Aston in Birmingham

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Mary Bernadette McGrane  
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This research project addresses the subject of the contribution of small and medium sized electronics firms to innovative activity. The definition adopted for firms falling within the remit of study was that they should employ no more than 200 people and be wholly UK-owned.

An analysis was attempted of the research undertaken on the smaller firm sector as a whole and a comparison was drawn between present government policy towards the sector and that forwarded by small firms commentators. Attention then focussed on the electronics industry. Interviews were conducted at 51 smaller electronics firms with a view to determining how those involved in the industry saw the role of such firms on both a general level and, more specifically, their contribution to innovative activity.

It was found that although product innovation was apparent, by far the largest share of innovative activity was devoted to the process innovation field. Many of these process innovations are kept secret from competitors to enable the smaller firm to survive in a competitive environment. One of the most interesting facts to emerge was that innovation was used, in some instances, to enable the firm to remain small.

The research concludes with a brief summary of the implications of the findings on both a general and a more specific level.

INNOVATION, ELECTRONICS, SMALLER, FIRMS.



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## Foreword

The aim of this research document is to present the reader with an overview of the role of the smaller firm within the electronics industry and particularly the role of such firms in the innovation process.

The criteria used when defining suitable firms for study was that they should employ no more than 200 people and that they be wholly UK-owned. It was felt that adopting any other definition would lead to major problems in analysing data. As this definition coincides with the accepted definition of a small firm, it is this area which has been addressed and 'small' and 'smaller' rather than 'small and medium' is the term employed when discussing the sample.



## CHAPTER 1

### Introduction

The first chapter in this presentation provides a summary on the decline of smaller firms, both in numbers and status. From being the most prevalent form of industrial unit, the community declined in terms of both numbers and output. This decline was paralleled by the increasing importance attached to the large corporation which began to receive prominence with the onset of industrialisation. The chapter seeks to provide the reader with a brief history of the smaller firm community to the 1960s.



## The Decline of Small Firms

The smallest and most ancient form of industrial structure is the individual, one-man business; the craftsman plying his trade. The largest and newest is the giant industrial combine operating several factories; even several industries on a multi-national basis and with a payroll of thousands of workers.

The industrial organisation in this country has changed dramatically during the past centuries; from an economy characterised by the presence of a large number of small firms and individual enterprises there has emerged an industrial structure firmly based on the presence of the giant corporation, this process being accompanied by a corresponding decline in the importance attached to the small firm sector.

This growth of the modern corporation of diversified interests and large scale is historically related to



the process of industrialisation, but the link between the two is neither simple nor direct for large companies pre-date industrialisation and small companies remain common even in mature industrial societies. Before the onset of the industrial revolution in England there were large joint-stock overseas trading companies and in 'pre-industrial' manufacturing industries there were also large enterprises ( 1 ). Thus, although large-scale firms were not then unknown before the onset of industrialisation, it was primarily the radically new machine technologies and the application of steam power from the late 18th century onwards that transformed the nature of capitalist enterprise and created an economy in which concerns employing hundreds, and sometimes thousands, of workers became the representative form of business unit.

This transformation in industrial structure was first evident and most advanced in the cotton textile industry which within several generations changed from a pre-industrial, home based craft industry into a highly mechanised, capital-intensive factory industry. This development, for many reasons, first visible in this sector, preceded a tendency to increasing scale over a wide range of industries,



although there were many, for example the Birmingham metal trades, who typically retained a structure of small workshops. It was not until the later era of large machine tools, engineering standardisation and the assembly line that such industries were to gain access to internal economies of scale comparable to, and indeed exceeding, those in the cotton industry ( 2 ).

The mechanisation of industries heralded a vast increase in the amounts of certain products now available to the market. However, rapidly expanding markets were able to neutralise these effects so that competition between many firms was also preserved. By 1871 then, when over 50% of the working population was employed in factories, it could be argued not only that the degree of competition was no less than it had been previously but even that it had become more intense ( 3 ). Thus in the 1870's and 1880's, after a century of rapid growth both for individual firms and for the economy as a whole competition was strong. Most industries had a multiplicity of what, by modern standards, would be considered small firms, and most consumers faced expanded choice between the goods of a larger number of sellers from a whole area. Product differentiation enabled a few manufacturers



of specialised products to obtain a favoured market position and other producers enjoyed a local market protected by local tastes or long distances from other potential competitors. Thus despite their explosive growth in the 19th century, it is unlikely that the largest 100 firms in 1880 accounted for even as much as 10% of the market ( 4 ).

Yet these very conditions of competition and rapidly expanding markets contained within them the impetus to the division of labour which in the long run was to result in the greater concentration of output in the hands of large firms. Towards the end of the 19th century it became generally recognised that these tendencies to industrial concentration were becoming increasingly marked. The large firms which had already resulted at this stage continued to increase in size, and in those industries where there was a move towards increasing economies of scale in production and marketing there was now a tendency to over-expansion of capacity and subsequent price-cutting. The latter resulted in firms becoming less viable and to stave off bankruptcy, several options were available:- in some industries leading firms extended their plant to the new optimum size and then engaged in a stringent price-cutting. Those firms which had not at this



stage introduced new machinery and techniques were thus totally unable to compete and were hence forced out of business. A second method was to agree with other leading manufacturers, within the same field, to a fixed price and output control. This, however, proved a rather unstable arrangement for, although there was a general interest in the controls, individual members had a powerful incentive to maximise their revenue by expanding production secretly and selling below the agreed price. One possible solution to neutralise the effects of such actions and to form a permanent answer to these problems was a more stable and watertight merger of interests. Unlike a cartel, such a move had the advantage that otherwise divergent interests of the contracting parties were closely and formally cemented together into a common cause, and the individual firms' incentive to renege on the agreement was eliminated.

So, as can be seen, on a number of fronts - technical, commercial and also financial - there were, in this period, both strong pressures and new opportunities making for larger scale enterprises. The result was that the merger waves of these years were far more intense than any which had been experienced earlier in the century.



This movement towards industrial concentration was historically unprecedented and it created manufacturing enterprises with capitals distinctly larger than the early 19th century cotton lords could have aspired to. The movement in Britain was not, however, on as large a scale as the contemporaneous movement which was occurring for similar reasons in the United States and in some European countries. During the period 1870-1914, Britain began to lose her dominant position as the premier trading nation to these countries.( 5 )

The outbreak of war in 1914 came as a shock to many people in Britain. There was little anxiety however and it was generally thought that the war would be over within a few months. The Government came to realise gradually that if the war was to be won, several steps had to be taken: a huge sum of money had to be found to pay for it; industry had to be properly geared to the needs of the war and the civil population had to be moved into the war effort.( 6 )

The idea of a 'total war', involving the entire population emerged for the first time ( 7 ). None of this could be done by private enterprise and voluntary effort alone and by 1916 it was obvious that the Government would have to involve itself in coordinating the war effort. The shortage of munitions, a pattern of



recruitment which took little notice of the needs of the economy as it accepted those who were prepared to fight, but who would have better served their country by staying in essential employment, and short supply leading to price increases coupled with the ability by some to make enormous sums by profiteering; all of these led to public opinion accepting the hold which government was to place on the economy.

One of the areas of such government involvement concerned the business organisation of certain key industries, in an attempt to improve efficiency. Indirectly this resulted in more merger activity, as firms made acquisitions to expand their capacity and mergers were further accelerated towards the end of the war as firms strengthened their position by diversification and acquisition. The internal practices of firms were also profoundly changed; interchangeable standardised parts were increasingly used in the engineering trades; capital and skilled labour took the place of craftsmen; and there was a brief boom which was subsequently followed by a severe economic depression during which time unemployment rose to 10%, never to fall below that figure again before World War Two. ( 8 )



The effect of the depression in increasing political consciousness and stimulating the growth of the Labour Party, and its impact on the collapse of the classical paradigms of economic theory in the keynesian revolution was accompanied by a change at the level of popular business philosophy as more businessmen began to question the desirability of the configuration of firms and markets which they had inherited from the pre-war era. The rationalisation movement- which gained the attention of bankers, politicians and trade unionists as well as of prominent industrialists between the wars was an important aspect of the build up of dissatisfaction with the market mechanism and the move towards greater reliance on large firms for economic organisation. In essence, the process of rationalisation was "mainly a question of the scale of which private enterprise should be urged or compelled to re-organise by amalgamation" ( 9 ).

The implication of rationality in the term 'rationalisation' emphasised that industry could conform to ideas and values whose proponents were growing in confidence and strength, and in particular of the growing awareness of, and faith in, things scientific at the level of popular philosophy. Businessmen and statesmen accepted the common theme



that advances in science and technology were giving men a growing control over the natural environment and pleaded for a greater recognition that the methods of scientific inquiry could solve social and economic difficulties also.

The doctrine of progress through the rational application of scientific principles thus aroused expectations of amelioration in face of evidence of unemployment and instability, strengthening the motive to apply new methods to industry. "Scientific management thus attempted, within the rationalisation movement to match the growing success of science in other fields" ( 10), the two were seen as complementary, not competing, aims. It was pounced upon both by capitalists and socialists alike, the former as they saw it as a means of increasing their share of the market, thus leading to monopolistic conditions and maximization of profit, whilst the latter believed that competition was anachronistic and that a new order would be both honourable and humane and further, one in which the consumers needs and wants would be of paramount import.

Obviously, there were quite strong reactions to the movement. Some thought that competition between many small firms would best serve the interests of



the public and that large scale mergers would lead inevitably to a monopolistic market where the customer would be captive and therefore have to pay any price asked for inferior and limited goods.

However, the view was gaining ground that only large corporations could compete effectively with the large American and German firms.

"The small firms find it difficult.... to pay for research laboratories (reported a Committee of the Privy Council).... we believe that some form of combination.... may be found to be essential if the smaller undertakings of this country are to compete effectively with the great trusts and combines of Germany and America." ( 11)

The experience of foreign countries where industrialists had reaped, or were supposed to have reaped, the benefits of scale economies, was frequently held out by rationalisers as exemplary; and direct competition from German and American combines, which had previously been a source of concern before the war, reinforced the message in the minds of many wartime and post-war merging companies.

"What has been drilled into us in Great Britain as a result of the general canvassing of our industrial position and prospects in light of the war, is that there is far too little 'Big Business' amongst us. While Germany and the U.S.A. have been developing



huge industrial consolidations, with ample resources, specialised production and collective agencies for sales and distribution, with full equipment for scientific research, we in Great Britain have been trying to get along with a multitude of small, rather old-fashioned, manufacturing units, each maintaining its own selling and marketing organisations, not at all alive to science, stubbornly individualistic both in their products and in their attitude towards other firms in the same industry, conscious that the smallness of their installations made for inefficiency and waste yet debarred from scrapping and rebuilding them on modern lines by the almost prohibitive costs. It is now being generally recognised that if we are to hold our own in future we must revolutionise our scale of doing things', in trade after trade." ( 12)

There was, throughout the period, a flood of literature praising German rationalisation and American mass production, often contrasting Britain's industrial structure and performance unfavourably.

The move towards the acceptance of this doctrine was furthered by the more direct intrusion of foreign influence on the British business scene. A remarkable and significant factor in many of the mergers of this period was the direct and indirect influence of persons or companies with American or German backgrounds.



The tenor of business opinion had, then changed greatly since pre-World War I, both because of the enthusiastic espousal of the doctrines of rationalisation and because of more direct pressure from foreign companies which had embraced them earlier.

( 13)

If the rationalisers were to succeed in persuading their fellow businessmen to accept their methods on a large scale, they also required the confidence of the public and of the government of the day.

Because the concept of rationalisation also contained within it the monopolistic ideal, which businessmen were only too ready to admit was an aim of the movement, it was of vital import that the correct impression should be given to both consumer and government. The movement was publicised as an ideal situation which would lead to far greater efficiency with all the subsequent benefits of such efficiency accruing to society as a whole and not to one specific segment of that society.

Acceptance or not, in Britain, it was generally the case, at least until after World War Two that monopolistic schemes could proceed with little interference. Any serious control of monopolies



and mergers between the wars could not depend on the common law; it required the statutory creation of new powers. The nearest approach to such government initiatives came with the various committees on trust which deliberated between 1918-1921. The first was the Committee on Trusts appointed early in 1918, by the Ministry of Reconstruction, to review the problem of trusts after the war. ( 14) It noted the expansion of the power of combines both before and during the war, but recommended control by publicity only, a limited prescription which was also endorsed by the Committee on Commercial and Industrial Policy. However both these Committees also stressed the importance and benefits of the activities of combinations and were impressed by the need for large scale organisation to meet German and American competition. They also praised the co-operation amongst manufacturers, for the purposes of standardisation and production planning, which had been encouraged by the Ministry of Munitions in the war.

This ambivalent approach to mergers and monopolistic arrangements, recognizing the existence of social benefits as well as social costs, was to characterise Government attitudes towards the rationalisation movement.



In such an atmosphere of non-intervention on the part of Government, in the rationalisation movement, the process continued unabated. The Labour Party and Trade Unionists, once so committed to the ideal were appalled by the reality of the monopolistic tendencies of the movement, and thus demanded greater government intervention in the market economy. Their opponents in Government found such an idea unpalatable and there existed a general acceptance of the virtues of private enterprise without any inquiry into whether the competitive conditions necessary for the successful operation of such a system were present. Even a moderate suggestion that the government should sponsor a council to publicise monopolistic pricing was characterised as the "slippery slope of socialism". ( 15)

No other pressure group with an interest in the control of monopoly or mergers really developed in the inter-war period sufficiently to have an impact on policy. There were no well-organised consumers' movement, and both the cooperative movement and the Labour Party failed to gain acceptance for their proposals for the investigation of monopolies. The press, though sometimes admitting the logic of a system of public control of monopoly, emphasised also the value of rationalisation and the need for



restructuring industry. Mergers were generally welcomed as a positive sign of industrial vigour, and only in the late 1930's were doubts stirred, as opinion began to turn against schemes of rationalisation which showed no regard for public interest.

There was then, for practical purposes, virtually complete acquiescence from government and press in the unfettered movement towards high industrial concentration. The rationalising or monopolising businessman was free to pursue his ends, even if the benefits were attained at the cost of the consuming public, and no rationalisers felt it necessary to offer safeguards to the public interest. Further, increasing industrial difficulties and particularly the high and increasing level of unemployment, created a disposition in both business and government to intervene more positively to promote industrial change both by legislation and by providing finance for mergers and rationalisation.

The continuing rise in rationalisation was necessarily accompanied by a divorce in ownership, for no longer was it feasible for families to wholly own business. For those wishing to join the rationalisation process, money was obtainable from the state to acquire new businesses. The motives which led wealthy owners to



exchange a position of owning and controlling moderately sized enterprises for one of merely owning a diversified portfolio of shares in quoted companies are many and varied. They were led to do so because the private advantages to themselves of new large companies which could be created through the medium of the stock exchange was high. The gains in efficiency, to which the rationalisation movement was drawing attention, were potentially large, and insofar as these could be captured as a return of capital, they were attractive to capitalists. The returns from economies of scale and monopoly powers would accrue to wealthy owners only if they were prepared to consolidate their assets into larger units through the medium of efficient quoted companies and this in itself frequently required diversification of ownership and control.

Even among industrialists who supported the principle of rationalisation and were convinced that through it firms could gain access to important scale economies, there were many who were prey to doubts about the personal capacities of the men available to run large scale enterprises.

That a merger did not automatically push back the barriers of managerial diseconomies of scale was a



problem often skipped by those advocating rationalisation, but central to the concern of contemporary businessmen and observers.

"The advocates of concentration and combination.... are accustomed to dwell on the advantages which are derivable from the promotion of standardisation of output and specialisation of works, the establishment of uniform costing systems, the interchange of information and the combined research, the collective buying of raw materials and the joint marketing which are thereby facilitated. That such advantages are so derivable is beyond question; but, despite some striking instances, the fact that they have been derived generally is still far from established."

( 16 )

Management was a crucial factor in the realisation of the economies of the type relating to the relative efficiency of firm and market in integrating economic activity. The transition from market relations to intra-firm organisation did not occur costlessly and automatically with an increase in scale; it required considerable investment of time, capital and skill in the creation of an efficient administrative structure. Only firms with this organisational investment capacity could embark on an extensive and sustained programme of expansion with reasonable prospects of success.

The industries that by the 1930's were the most highly concentrated were, in general, also those that had



grown most rapidly in the previous two decades; many of the concentrated industries of 1935 had achieved that position in 1920 and had been relatively unconcentrated in 1907. ( 17)

Many of the features that distinguish the modern corporate economy from the Victorian economy of small family firms were, then, firmly established in Britain by the 1930's. Over large sectors of manufacturing industry the position of large integrated firms had been strengthened by vigorous internal growth and by the unprecedented merger waves of the dozen years following World War I. These firms were also diversifying their product ranges through the acquisition of businesses in related fields, and some of them had laid the basis for continued growth by investment in new technologies and well equipped research laboratories.

However during the post-1930's period there was a reversal in the trend. During the period 1939-1950, large firms no longer sustained their growth but rather regressed towards the mean size. During this period, large firms continued to grow in absolute terms but the flow of the corporate economy had ceased.

Outside the sector of large firms there were substantial movements towards greater concentration of



output in fewer firms. Firms employing less than 200, which had accounted for approximately 38% of total employment and 35% of net output in manufacturing industry in 1935, accounted for only 24% and 20% respectively by 1958, and much of this decline in the small firm sector must have occurred in the 1930-1940's. ( 13) Since the share of the largest firms in manufacturing output was stable, or declining in this period, it follows that firms in the middle ranking size range must have been growing in importance, and it may be inferred that it was this sector that saw much of the real growth in output over this period. Whilst the large corporate sector showed little movement towards high concentration in those years, then, there was, it seems, important changes making for increased consolidation and larger scale among the smaller and medium sized ranges of firms.

From the late 1940's, the interest of government policy makers in the subject of industrial organisation quickened and the significance of past changes on the structure of firms - and that the possibility that the trends established earlier would become even more marked - increasingly attracted the attention of economists and businessmen.

From this time on, the growth of large firms and the rise in merger activity is paralleled by an equally



rapid rise in the volume of literature devoted to the subject. After the pause in the 1930's and 1940's, concentration again increased at a rapid pace in the 1950's and 1960's. Parallel to this movement towards larger enterprises, small firms continued their almost uninterrupted decline. From 1958-1963, the share in net output of manufacturing firms with less than 200 employees declined from 20% to 16%. ( 19)

Thus can be seen the decline in the small firm sector. From being the most prevalent and important business unit, the small firm has declined in impact and importance and by the late 1960's was thought to be an anachronistic survivor from a bygone age.



## CHAPTER 2

### Introduction

Following on from Chapter 1, the history of the smaller firm is continued. A major change in thinking on the merits of the smaller firm community could be discerned by the later 1960s when government was becoming slightly disillusioned with the giant corporations. A major input into the renewal of interest in the smaller firm community was the publication of the results of the Committee of Inquiry which looked at the role of small firms in the national economy. This chapter outlines the background against which the Committee was established, its terms of reference, its findings and, finally, its recommendations.



## The Bolton Committee of Inquiry

The attitude of Government towards mergers in the post World War Two period can best be summarised by a comment made by Mr. Anthony Crosland who, in 1969, held the position of President of the Board of Trade. This gentleman, whilst noting the increasing number of mergers, their high average size and the growth of concentration thought, nevertheless, that the trend had been, on balance, beneficial. ( 20)

It came as something of a surprise then when on the 23rd July 1969, the same year as the above thought was expressed, the aforementioned Mr. Crosland; in the same capacity as President of the Board of Trade should appoint Mr. John Bolton, Chairman and Managing Director of Growth Capital Ltd, to chair a committee with the following terms of reference:-

"To consider the role of small firms in the national economy, the facilities available to them; and to make recommendations. For the purpose of the study a small firm might be



defined as one with not more than 200 employees, but this should not be regarded as a rigid definition. In the course of the study it will be necessary to examine in particular the profitability of small firms and the availability of finance. Regard should also be paid to the special functions of small firms, for example as innovators and specialist suppliers." ( 21)

The reasons why such a committee was instigated are many and varied. As has been shown, from the onset of industrialisation, the small firm sector had been largely ignored by successive governments. It was widely regarded as "anachronistic anomaly in the world of the giant corporation" ( 22), of no importance and largely inefficient and unproductive. However, at this time, opinions were beginning to alter slightly. There could be seen the beginnings of a school of thought opposed to the dominating influence of the giant firm. The Bolton Committee of Inquiry (BCI) itself comments that it is a reasonable presumption that such a study was instigated by the pressures of the economic climate. 1969 was a particularly bad year for business and for small firms in particular, and this gave rise to considerable pressure for an investigation of the immediate position of the small firm. ( 23) The major purpose of the BCI was however, of a long term nature; the collation and analysis of



material on the state of the small firm sector, the first ever performed for use by the government as a theoretical source for future policy towards this sector.

Not all small firms were included in the scope of the BCI. Those omitted were agriculture, horticulture and fishing industries and the professions. The committee felt that since the special problems of these industries had already been studied in detail, the Inquiry would be unable to add much to the knowledge already gained.

In summary, the three functions of the BCI were:-

1. To assess the importance of small firms in the economy;
2. To evaluate their problems;
3. To recommend ways of helping them to improve efficiency and growth.

It was felt that although small firms formed a still-important sector of the economy in terms of numbers, output and the use of resources, knowledge of them was not sufficient to provide a basis from which to say either how important they were or whether, by and large, how they could make more efficient use of their resources.



The second major task was to estimate the value of the contribution of the small firm to the national economy and to recommend any action necessary to increase the efficiency and productivity of this sector or to stimulate the rate of growth of the more dynamic enterprises within it. There were six important factors which the BCI considered:-

( 24 )

A. The Importance of Small Firms in the economy:

- i) A statistical description of the small firm 'population' in terms of their numbers and size (output, employment, capital etc) with an analysis of recent trends in this 'population';
- ii) The economic advantages and disadvantages of small firms, and especially their role as innovators and specialist suppliers;
- iii) Their profitability and efficiency in their use of resources, including manpower, finance etc.

B. The Services Available to Small Firms from

Government, Government-sponsored agencies and other sources and in particular:

- i) Technical, commercial and statistical information;
- ii) Expert advice from consultants, bankers, accountants etc;
- iii) Educational training facilities;
- iv) The need for co-ordination of the services available and the extent to which they are used by small firms.



- C. Special implications for the management and development of small firms of:
- i) Sources of development finance and working capital;
  - ii) Taxation, including estate duty;
  - iii) Investment grants;
  - iv) The operation of the Industrial Training Act 1964;
  - v) The requirements of the Factories Act;
  - vi) The disclosure provisions of the Companies Act.
- D. The experience of small firms and attitude towards them in other countries.
- E. Practicle proposals which can be put to government for improving the efficiency of small firms.
- F. Any other matters of relevance.

Four methods were used to complete this task:-

- A. A general invitation was issued to all interested parties to submit written evidence on a wide range of questions which the BCI considered relevant to the health of small firms. In response to 2000 invitations, 400 replies were received (20%).
- E. A postal questionnaire was addressed to 16000 small businesses. 3400 replies were received (20%).
- C. An internal Research Unit was organised. Each project consisted of a number consultants working on specific projects - eighteen reports were submitted.



- D. In formal sessions lasting twenty-one days, oral evidence was heard.

The obvious first step was to provide a definition of what actually constitutes a small firm. Although the 200 - employees limit was applicable and suitable for some sectors of the economy, it was obvious from the outset that such a definition could not possibly hope to provide a division for all sectors.

Taking the following three criteria into account:-

- A. In economic terms a small firm is one which has a relatively small share of its market;
- B. A small firm is managed by owners or part-owners in a personalised way and not through the medium of a formalised management structure;
- C. A small firm is independent in the sense that it does not form part of a large organisation and that the owner-managers should be free from outside control in taking their principal decisions;

the BCI came up with the following definitions:-



Table 1

Industry	Statistical Definition of small firm adopted by BCI	Small firms as a percentage in the industry 1963	Proportion of total employment in small firms 1963	Average Employment per firm (1963)
Manufacturing	Less than 200 employees	94%	20%	45
Retailing	Turnover £50000 pa or less	96%	49%	3
Wholesale Trades	Turnover £200000 pa or less	77%	25%	7
Construction	25 or less employees	39%	33%	6
Mining/Quarrying	25 or less employees	77%	20%	11
Miscellaneous Services	Turnover of £50000 pa or less	90%	32%	4
Road Transport	5 or fewer vehicles	35%	36%	4
Catering	All, excluding multiples and brewery managed public houses	96%	75%	3

Bolton Committee of Inquiry p.3



All firms which came under this definition, irrespective of sector were thought to share certain common characteristics. These characteristics arise from:-

1. Their legal status , ownership, management and organisation; the majority of small firms who responded to the Inquiry were not incorporated but rather partnerships or sole traders. The proportions varied between sectors, those within the manufacturing sector having a greater proportion of incorporated limited companies, whilst those in retailing tending towards one-man concerns.
2. Their financial structure; most firms who supplied information on the financial aspects of their business indicated that bank credit formed a greater part of external finance for small firms and the use of bank credit appeared to increase with size of firm.
3. Their role as employers; those small firms that were employers tended to be non-unionised. Only 3% of small firms were completely unionised and in each sector these tended to be the larger of the small firms. Almost two-thirds of respondents had no trade union members on their pay roll.
4. The motivation and social origins of their owners; there are several reasons why a person is motivated to start his own business. Most gave reasons of



freedom and felt they were able to offer a special service to their customers and that owner-managers were more diligent to their businesses.

5. Their role in the community. Small firms were thought to have a very important role in the community, a function which could not be performed by the larger corporation.

### The Functions of Small Firms

One of the most important findings of the Inquiry was its interpretation of the importance of small firms in the economy. There were four types of firms identified, namely:- ( 25)

1. Specialist suppliers; those firms in business to provide the consumer with a specialised product which the larger corporation is unable or unwilling to produce;
2. Satellites; the term given to those firms which spring up to serve the needs of a larger firm. It is often in the better interests of the larger business to keep this small firm community as satellites as opposed to subsidiaries;
3. Marketeers; those firms competing with larger corporations for the same market.
4. Technology—Based firms; those formed by an



inventor/entrepreneur to exploit a particular technological invention.

Examples of the first type could be found in repair and maintenance in the building industry, jobbing engineering firms and specialised retail outlets such as bookshops. The majority of specialist do not have many large firms numbered amongst its customers. Quite the reverse is the case in the area of satellites. These firms are heavily dependent on its customers who may provide advice and even finance. The third category of firms, marketeers can be found in all branches of industry and services whilst the fourth tends to be confined, not too surprisingly, to specific sectors.

Each type of firm was thought to carry out one or more of the following functions:- ( 26)

A. Small firms provide a productive outlet for the energies of individuals or inventor/entrepreneurs who are not inclined to work for a larger organisation. In many cases an enterprising individual may feel that his energies are being stifled by working within a large corporation and that his talents are neither recognised nor appreciated. In the case of an individual not wishing to exploit an invention, there is a general feeling of dissatisfaction and the



secret knowledge that they would be far happier either working for themselves or in the environs of a small firm where worker satisfaction is at a higher premium, whilst in the case of the inventor/entrepreneur there may be numerous reasons for his desire to set up his own business, these reasons normally being associated with the feeling that the larger corporation is disregarding his creative ability and stifling his talents. ( 27)

B. In industries where optimum size is small, they are vital. In many instances, large size does not necessarily cause any reduction in the relative operating costs. An efficient economic system is one in which not only is production organised in units of most efficient size, but one where low production costs are passed on to the customer. Moreover, an efficient economic system is one that is flexible enough to meet changing needs, to exploit existing technology and to develop new technology. These criteria are often best met by small firms.

C. Small firms add to the variety of products and services. The BCI believed that our society would be a far poorer place with regard to consumer choice if the whole of the small firm sector were to disappear. No longer would we be faced with such a



vast array of goods. Instead we would be forced to limit our choice to those products manufactured by the large companies. It has been suggested by economists such as J.K. Galbraith ( 28) that these large companies have little concern with the wants of the customer. It must follow that, as the number of firms diminish and concentration increases, genuine choice diminishes. This remains true even if the diminishing number of corporations offer an increasing number of products. As G. Bannock subsequently argued ( 29), there are three distinct ways in which consumer choice is reduced as industries become more concentrated. The first one is obvious; the fewer the firms the fewer firms' products there are to choose from. The second point is less obvious; firms under oligopolistic conditions tend to avoid product competition and eschew innovation so that while, paradoxically, sales promotion makes products appear to differ more and more, they are actually becoming more and more alike. The third way in which consumer choice is reduced in concentrated industries is the consequence of the increasing absolute size of corporations. Not only are there strong economic reasons why a corporation should reduce the number of its products to a minimum - so as to achieve economies of scale in production or purchasing of components or raw materials - but



the management problems of large organisations are such that there is always a need to simplify everything as much as possible so as to economise on management time. Production decisions are invariably high-policy decisions and must be reduced to a minimum. The presence of small firms negates these aspects of the larger business to the benefit of the consumer.

D. Small firms act as specialist suppliers to large companies. It is often the case that a small firm will act as a supplier to only one outlet and thus could be termed a satellite of the larger business. It is often in the best interest of the latter firm to keep the situation thus. If there are several of these small firms each supplying the same product, it is possible for the larger organisation to keep control of the satellites by making them compete against each other. If, on the other hand, there is but one satellite, the larger company can always threaten to withdraw its favours and place its orders in the hands of another business. In this way, the small firm is manipulated by the larger to behave as the latter thinks fit.

E. Small firms provide competition, both actual and potential, and provide some check on monopoly profits



and on the inefficiency which monopoly breeds; it has been argued by many such as G. Bannock ( 30) and P. Clarke ( 31), that the existence of the small firm sector is vital if we are to keep a check on the larger corporations. It is thought that these 'juggernauts' have become totally divorced from the small business ideals of competitiveness and quality. J.K. Galbraith(33) has poured scorn on the idea that "the heartland of the economy", as he calls it, is in any sense competitive. He maintains that the managers of the mature corporation, or technocrats, bear no resemblance in behaviour or motivation to the traditional entrepreneur. No longer are they concerned with the interests of the shareholders and the consumer. Instead, their most important worry is for their own welfare and to this end, they do not concern themselves with the 'cut and thrust' of a free market. According to Bannock(14 ), it is recognised by many economists that in concentrated oligoploistic industries, price competition will be muted by the general knowledge that in the force of a few powerful competitors, price warfare would be ruinous for all concerned. Price agreements are illegal but in any case are not necessary. In mature concentrated industries prices rarely fall and if one manufacturer increases his price, the others usually follow. "There is no reason for assuming



that competition among the mature corporations is any more genuine than the wrestling matches enjoyed by television viewers, although it is frequently as vigorous and dramatic" (15). The presence of small firms who do not share these views is vital if competition is to remain and monopoly practices held at bay.

F. Small firms are a source of innovation; innovation is interrelated but conceptually distinct from the question of competition. It is important because it is the source of technical progress which may permit not only the production of existing goods and services at lower cost through improvements in design, materials, etc., but which also stimulates economic growth and allows the widening of consumer choice through making available entirely new goods and services. The BCI, basing its finding on a survey of British innovations in the post-war period, came to the conclusion that small firms play an important role in this process.

G. Small firms are the traditional breeding ground for new industries. It is only through an initially small firm that new potentially-large industries



will be able to enter the market. It is an obvious fact that any firm which is entering the market which is already well-defined or is in the fore-front of new industries will do so via a small unit.

H. Small firms provide a means of entry into business for new entrepreneurial talent and are the seed-bed from which new large industries will grow. Almost inevitably, new entrepreneurs will enter the market via a small firm. In the formation of a new technology-based firm, because of the inherent nature of the market and the very high rate of failure, it is not without difficulties for the individual inventor/entrepreneur to raise the seed capital and must hence enter the market via a small unit.

The preceding eight characteristics were all thought by the BCI to be of fundamental importance to the health of the economy. It was thought that the first six of these characteristics were in themselves rewarding whilst the remaining two were not so. In the opinion of the BCI it was therefore vital, for the well-being of the British economy, that the small firms sector should



be encouraged to continue. However, the BCI did not consider the problems facing the sector to be of sufficient seriousness to warrant a change in government policies to favour this sector but felt rather that government should concentrate its energies on identifying those policies thought to actively discriminate against the small firm sector and to neutralize them.

#### Problems Facing Small Firms

The Inquiry came to the conclusion that the small firm sector had been declining, both in terms of relative number and output, at least since the 1920's. As far as the Inquiry could perceive, the economy was becoming an increasingly hostile environment for a small firm. Only two factors working in favour of the sector could be identified, namely:-

1. The transition from the under-employed economy of the inter-war period to the more fully employed economy of the period post World War II.
2. The substantial increase in the general standard of living that had occurred during the previous 50 years.

( 35 )

With an expansion of the economy, the function of



the small firm has increased - these firms are no longer being 'squeezed out' by large companies desperate for trade but are able to exist alongside the more affluent large firm. With respect to an increase in wealth, this allows for the existence of small firms catering for a specialised or luxurious market. However against these two positive factors there were identified many having a detrimental effect on the sector:-

The most obvious primary difficulty for a new small firm is in raising sufficient finance to launch the venture. In the vast majority of cases the initial, or seed, capital is raised within the immediate circle of the entrepreneur. It would appear to be the case that the bulk of entrepreneurs have an inherent dislike of obtaining external finance.

Research contributed to the BCI concerning attitudes and motivations of entrepreneurs indicated that the only form of external finance which could safely be approached was the local bank manager. ( 36) All other forms were thought, by the businessmen concerned, to, in some way, interfere with the individual's freedom to conduct business as he thought best.



The Inquiry concluded that we must assume that self-financing will remain a dominant financial characteristic of the small firm sector, for it is the essence of the small business that the owner should risk his own capital on the strength of his energy, experience and talent and that he should be free from outside control in the making of his decisions. From the Research Report commissioned, the following conclusions were made:- ( 37)

That small firms suffer a number of genuine disadvantages, by comparison with large firms, in seeking finance from external sources; first, they suffer differentially from the official ceilings on bank lending; second, some institutional facilities available to larger firms are not available to small ones; third, for those facilities which are available, small borrowers must generally pay rather more than large ones; this is true of over-drafts, term loans, hire purchase and even of equity raised by public flotation; fourth, many small firms are prevented by lack of information and prejudice against borrowing from making full use of the range of facilities open to them. However, the BCI continued to state that these disadvantages were inherent in the lending of smaller amounts to less viable institutions, a position which should not be altered.



Having successfully, by whatever means, raised the necessary capital, a small firm would then be subject to the adverse effects of the British tax system. The process, as seen by the BCI, is so designed that it is very difficult to accumulate private savings, although cash flow within a company is relatively encouraged. It is therefore difficult for the entrepreneur to encourage private investment in his company if there is a high risk of failure. A very high percentage of those small businessmen interviewed by the BCI referred to taxation and all who did, emphasised the harm which the then tax burden inflicted on small firms. High taxation ranked as the most important single factor in the inhibition of enterprise and the decline of the sector. The Inquiry attempted to answer two specific questions:- ( 38)

1. Accepting that a regime of high taxation of profit and capital places a burden on all firms in the private sector, is such a regime significantly more unfavourable to the survival and development of small firms than of large;
2. Are there any particular features of the U.K. tax system which discriminate against small firms.

With regard to the first question, it was thought that high taxation of profits and capital may affect all firms in the private sector in two ways:-

A. It erodes incentive.



B. It reduces the availability of finance for the foundation, maintenance and expansion of business.

The Inquiry asserted that the then current regime of taxation operated differentially against the small firm in two respects:- a) high taxation on capital undermined incentives in small firms, which were frequently family businesses, more seriously than large; b) high taxation of profit and rapid inflation combined to make finance of expansion more difficult unless recourse to external finance on a scale which the small businessman is unwilling to accept and often unable to achieve.

It is often argued quite forcibly that small firms are unable to compete with regard to Research and Development (R&D). However, as has been mentioned earlier, the BCI found every reason to believe that the small firm sector is able to contribute a great deal to the innovative process :

"In spite of the conventional belief in the advantages of size, all evidence points to the disproportionate innovative contribution of independent inventors, small firms and non-profit making organisations. Some extremely thorough research carried out in France shows, surprisingly, that even in terms of



research and development expenditure, small and medium sized enterprises who carry out research have better records than large companies. Indeed in the U.S. it has long been thought that small firms are far more willing to innovate than their larger counterparts who are thought to have invested too much in a particular process to be considered ready to adapt." ( 39)

Once a small firm has established itself, new sets of problems become apparent. Small businesses are unable to compete with large companies with respect to staff remuneration, although the BCI discovered that small firm proprietors did not perceive a wage differential - indicating their unawareness of wage-rates paid by their larger counterparts. ( 40) The difference in earnings between large and small businesses is approximately 20%. To offset this lower wage, it is thought that the small firm environ has a better 'atmosphere' than is possible in most large organisations. Although physical working conditions may not be of the same standard in a small firm, working relations are thought to be an improvement.

Arguably, the most important single factor in the successful operation of a business is the quality of management. One of the most common characteristics present in a small business is the simplicity of its management structure. It is often the case that no



formal appearance of management is in evidence, the owner mixing with the workers and undertaking the paperwork after business hours and on an ad hoc basis. It is an obvious fact that the very small firm will be financially unable to call upon internal specialised skills of the type common in the large corporation, and will thus have to rely upon external expertise for advice on matters beyond his range of abilities. The BCI noting this fact ( 41) came to the conclusion that external advisory and management services of all kinds are thus faced with a potentially large market. The BCI acknowledged that there was a large body of opinion with the view that lack of management skills constitute one of the greatest weaknesses for a small firm. From their research, eight areas for improvement were identified:-

A. Finance - Small firm management lack the knowledge of appropriate sources of development finance and further, are unskilled at presenting a financial case to potential investors or lenders.

B. Costing and Control Information - Lack of foresight in this area can lead to firms learning of potentially disastrous financial straits from either company accounts or from their local bank-manager, without there being time to avert such a crisis.

C. Organisation - Lack of organisation by the owner-



manager may necessitate far more of his time being devoted to management than would be necessary if duties were organised or delegated.

D. Marketing - Most small manufacturers are product orientated, many expressing the belief that a good product 'can sell itself'. In consequence, opportunities for expansion and specialisation or diversification may be missed and firms find themselves trapped in a declining market. In the service trades similarly, the small firm is often slow to exploit new techniques and seize new market opportunities.

E. Information Use and Retrieval - Unwillingness to follow and incorporate developments in this area may lead to the owner having little knowledge of the workings and state of his own business.

F. Personnel management - Personnel selection and provision of management succession causes great problems, and most managers will confess to worries about the quality of the labour they are able to recruit.

G. Technological Change - Small firms sometimes find it impossible to keep abreast with the developing technology in their field.

H. Production Scheduling and Purchase Control - Lack of skills in this area frequently makes it impossible for the firm to keep to agreed delivery dates, avoid unnecessary 'waiting time' and optimise stock levels.



After careful analysis and consideration of the then existing services available to small firms and after consultation with small-business owners, the BCI drew up a list of the most popular sources of advice. In decreasing order of importance these were found to be: ( 42)

Accountants, Solicitors, Bank managers, Chambers of Commerce, Trade Associations, Business Consultants, the CBI.

It is apparent, from the above list, that the small businessman has a marked propensity to seek advice from professionals already known to him, who have some knowledge of his business. There was present a marked aversion to both university and government sources of advice.

As viewed by the BCI, the Government should provide an advisory service only if the following criteria could be met:-

1. That the service is needed;
2. That private enterprise could not or would not provide it.

To justify the provision of a free or subsidised service, two further conditions had to be met:-

3. That the economic benefit to the nation deriving from the service would be greater than their cost;
4. That users of the service could not or should not be expected to pay their full cost.



The Inquiry reached the conclusion that there were very few services that could meet all four of the above criteria, one being the service to exporters provided by the Department of Trade and Industry. However, the Inquiry found it hard to justify the subsidising of management and advisory services but was of the opinion that a referral and signposting service, under the financial mantle of government, would be justified. The service, the Small Firms Advisory Bureaux, would act on a regional basis but would be under the control of government via a department at the Department of Trade and Industry, the Small Firms Division.

Another negative factor which the BCI felt to have an inhibiting effect on the small firm sector was the improved transport and communications system. Markets which were once local have expanded to become national and further, international. It is now far easier for companies to transport their products over a wider area and thus are not confined by local tastes. It could be argued that tastes have become nationally uniform, to the detriment of the health of the small firm. The importance of advertising in this respect cannot be over-emphasised. It is now quite possible for the populace to be persuaded



to purchase the products larger companies wish them to.

Until the Second World War, the small-business sector was still the most important sector in the economy. However, since that time the sector as a whole has not only continued to decline in terms of numbers but has exhibited a corresponding decline in the status afforded the small businessman. This has had a retarding effect on the desire of the entrepreneurs to form their own company as an outlet for creative energies. Instead, they are encouraged to pursue a low-risk activity and stifle their individuality within the larger corporation who, in some opinions, ask for nothing but minimum service.

Finally, as stated previously, economic, social and technical changes have led to state intervention in the private sector. Although this action was, in some ways, inevitable, it has had serious detrimental effects on the health of the sector. According to the BCI, these side effects have affected the small firm in six areas. (43)

1. The growth in the public sector industry has restricted the field of activity of small firms;
2. The purchasing activities of the State as a dominant buyer of a wider range of goods and services inevitably discriminates against the



small firm sector;

3. Government intervention to achieve changes in the industrial structure in the presumed interests of overall efficiency; the rationalisation movement had the backing of government whilst the small firms were thought of as increasingly unimportant;
4. Environmental problems and their solutions place a bigger administrative or financial burden on small firms than on large;
5. Labour costs of employment have increased, it is therefore more expensive for the employer to hire labour;
6. The very high levels of taxation have reduced the ability of firms to finance their expansion.

Having thus identified all the problems specifically confronting the small firms sector, the BCI based its recommendations on the fundamental premis that the decline in the number of small firms would level off and leave a "smaller but still viable small firm sector" (44). This assumption had its foundations in the American and German experience which seemed to indicate an end to the decline and a revival in the health of the sector. The BCI was adamant that the small firm sector, considered so vital for the health of the economy as a whole, would survive without positive government



intervention: "We believe that the small firm sector is at present, and will remain for the foreseeable future, vigorous enough to fulfil the 'seedbed' function, given a 'fair crack at the whip' and is not therefore in need of special support" (45).

For the small firm sector to flourish without subsidy requires that the following conditions be met:-

1. A good general economic climate. It is impossible to isolate so wide a sector from general economic conditions and a real improvement in the growth of the national economy would probably contribute more than anything else to the health of the sector, and particularly of its livelier elements;
2. The elimination, so far as possible, of the disincentive effects of the fiscal system;
3. The encouragement of more efficient and fair competition throughout the economy
4. Effective equity of treatment in every aspect of legislation and Government policy- although there is no policy of active government discrimination against this sector, there are certain



policies which are thought to be unfairly biased against the sector. One such example which the BCI highlighted was the vast amount of form filling that is required by government. It was thought that this time-consuming activity would affect the efficiency of management. It was often left to the entrepreneur himself to complete such forms thus occupying his valuable time to the detriment of the health of the firm.

### Recommendations

The major recommendation was the formation of the Small Firms Division at the Department of Industry responsible for the development, inter-departmental co-ordination and implementation of policy towards small firms and the administration of such official services as are provided for them. The Small Firms Division was to carry out the following functions:- (46)

1. It should be consulted on, and when appropriate, help to formulate any new legislation or change in policy, particularly in the fields of taxation and competition policy, likely to affect the interests of small firms. Its first duty should be to see that these interests are no longer overlooked;
2. It should be the channel through which the views of small businessmen, their reactions



to policy and their problems, should be communicated to the rest of Government, so that policy is no longer formulated in ignorance of these factors;

3. It should have executive control over all advisory and technical services primarily used by or intended for, small firms. In particular, it should be the headquarters of the network of Small Firms Advisory Bureaus;
4. It should endeavour, in co-operation with sponsoring departments, to form a view of the present and future role of small firms in all industries in which they are important and should collect the statistical and other information needed to enable it to do so.

- A Minister of the Department of Trade and Industry should be expressly designated as the Minister responsible for small firms and to oversee the work of the Division.

- So far as possible, the separate identity of the Small Firms Division should be stressed.

Other recommendations covered:- (47)

- The formation of the Small Firms Advisory Bureaux.
- That the question of adapting accounting techniques to take account of inflation will be pursued urgently.
- That when the rate of new style corporation tax is finally determined, account will be taken of the fact that the 50 per cent suggested in



the Green Paper would involve no additional burden on the small company.

- Shortfall assessment on the trading incomes of close companies should be abolished, and no parallel provisions should be included in the forthcoming revision of corporation tax.
- Close companies should be allowed to elect, by unanimous decision of the shareholders, to be taxed as partnerships.
- As a general rule, the tax reliefs which are available for pension schemes set up for employees, including non-controlling directors should be extended to similar funds for proprietors or unincorporated businesses and controlling directors of close companies.
- Such pension funds should have complete freedom as to choice of investment, including the freedom to plough back into the business.
- Section 20 of the Finance Act 1969, disallowing interest on loans for the purchase of interest in closed companies as a deduction from income tax purposes, should be repealed.
- Unrealised capital gains, on all assets other than quoted securities, should be taxed on only part of the gain, the tax paid on such to be credited towards the tax payable on any subsequent realised gain on the sale of the asset concerned.



- As a transitional measure, retirement relief from capital gains tax should be raised from £10,000 to £20,000.
- The extra-statutory concession for loans made by close companies to pay estate duty should be continued and made as widely known as possible.
- The estate duty relief of 45 per cent now allowed to agricultural property and industrial buildings, plant and machinery should be available to net trading assets, including any amount in the assets valuation of the concern which arises in respect of goodwill, and to controlling interests in unquoted companies to the extent that their value represents trading assets, including goodwill, of the company.
- A similar concession to that given for agricultural land should be given for ownership of industrial land and buildings whether or not the landlord uses them for trade.
- A proportion of the cost, including the cost of associated litigation, of valuing assets other than quoted securities should be deducted from the estate for the purposes of duty.
- The effect on small firms of statistical surveys



should be carefully considered and every effort made to extend the present practices of sampling and of exemption of smaller firms wherever possible.

- The Survey Control Unit of the CSO should be given power to amend or veto all statistical surveys not meeting with its approval on grounds of expense, necessity, coverage or design.
- This power should extend to all departments of Government and to those quasi-Government bodies which commonly issue statistical enquiries.
- The use of statutory powers for the collection of statistics should be strictly controlled and in all cases explicitly justified.
- It should be clearly stated on every statistical inquiry whether or not its completion is necessary.
- The development of the Central Register of Businesses is strongly commended, and it is hoped that resources adequate to ensure rapid progress will be devoted to it.
- In this context, the CSO should reconsider the question of the preparation of an enterprise census which would provide comprehensive coverage of all firms as soon as possible as part of its plans for the development of business statistics.



- The true cost of any statistical exercise and not merely the often comparatively small proportion of cost falling on Government estimates, should be fully taken into account before starting an enquiry, and methods chosen which involve the least total cost rather than the least Government expenditure.
- Any proposal for a new or revised statistical exercise should include an estimate in man-hours of the time required by respondents to complete the form.
- All departments should review all existing and proposed forms with an eye to their cost to industry.
- The Director for Statistics of every department or agency should be charged with more specific responsibility for all administrative forms issued by his department, and should be represented in all departmental deliberations about any policy on procedure with form-filling implications.
- Administrative forms should be designed wherever possible, to serve statistical purposes, especially where this will permit the suppression or simplification of a statistical form.
- All statutory barriers to the passage of statistics between different departments should be stringently examined and demolished wherever possible.
- The Government should quickly establish within



a central department, a powerful and expert secretariat whose function would be to plan, in collaboration with the CSO, an integrated system of administrative and statistical returns based on a data bank to form the basis for a single and comprehensive system of business records.

- Statisticians should be more closely associated with policy makers, so that existing administrative processes can be improved, and in order that new policies can be based more firmly on quantitative assessment of the issues involved.
- In making future references to the Monopolies Commission, greater emphasis should be placed on the effect of the monopoly or merger in question on the maintenance of a balanced industrial structure.
- The whole subject of competition policy as it affects small firms requires further study which should be pursued by the Small Firms Division.
- Agreements involving small firms should extend to the long term, and to the likely effects of the agreement under consideration in preserving in being the small firms which our industrial structure requires, if it is to function efficiently.
- The Department of Trade and Industry should give consideration to the possibility of referring to the Monopolies Commission the



question of the market power exercised by large firms through their buying power and the possible damage to the competitive structure of industry, through discrimination against small firms which results from it.

- The CBI, or other authoritative source, should consider publishing further guidance, in consultation with the Registrar, on the treatment under the Acts of agreement, particularly trade associations recommendations and information agreements, with specific reference to the grounds for exemption from reference to the Court under Section 9(2) of the 1968 Act.
- The exemption of private limited companies with annual turn-overs below £500,000 from the requirements to disclose the individual emoluments of directors.
- That private companies should be exempted from the requirement to disclose turn-over when this is below £500,000 per annum.
- Small firms should be relieved of the need to apply for an Industrial Development Certificate when their plans involve the creation of less than 10,000 square feet of industrial floor space.
- If the above is not applied to all small firms it should at least extend to established small firms.
- Local authorities should be prepared to use their



powers under the Town and Country Planning (Development Plans) Direction 1965, to allow the establishment of small businesses in residential areas when this will not detract from those areas' amenities.

- The present legal obligation of local authorities to provide suitable alternative accommodation to displaced firms should be strengthened.
- The Landlord and Tenant Act 1954 should be changed so as to require local authorities to pay compensation for compulsory purchase which includes the value of the likelihood of a tenancy being renewed.
- Legislation should provide for compensation on compulsory purchase to be assessed at the level of trade when notice to quit is served on a business.
- Legislation should provide for all businesses to be compensated for loss of trade resulting from nearby development.



## CHAPTER 3

### Introduction

The BCI report, discussed in the last chapter, is now placed in the context of already-existing research on the smaller firm community. The recommendations of the BCI, detailed in Chapter 2, are discussed together with a review of major recommendations which were rejected. The chapter then goes on to discuss the "post-BCI" research conducted in the twelve years since the BCI made its recommendations.



### Further Smaller Firm Research

Although the BCI report is seen as an important watershed with respect to research undertaken on the small firm sector, it was by no means the first piece to concern itself with this area. What distinguishes the report is its emphasis on the small firm as its central theme of analysis, rather than the rise of the larger firm and the latter's effects on the former.

J.K. Galbraith, writing in the sixties ( 48) concentrated on the dominating influence of the mature corporation (49) and its effects on the industrial system. He believed that a new industrial order was emerging in which the mature firm would be of paramount import and one in which the small firm would have no influence and would be unable to alter such a structure. (50) In this new system the market would no longer be dictated by the customers needs and desires; rather, the reverse would be true.



The giant corporation, producing a decreasingly diverse range of products would manipulate customers by way of skilful advertising. The consumer feeling they face an increased choice are satisfied; the producers knowing this to be false would be content.

Galbraith's experience was largely limited to the American market. G. Bannock, writing some years later and admittedly influenced by Galbraith, applied such an analysis to the U.K. system. ( 51) Once again, the emphasis is on the evils of the large company and not directly on the merits of the small business. This country can be said to be the most highly concentrated, in terms of industrial structure, in the world and Bannock explores the rise of the Juggernaut ( 52), the term he applies to large firms, and the repercussions on the consumers and small firm sector.

Juggernauts no longer exhibit characteristics supposedly common to all firms of whatever size or industry. In Darwinian analysis of the economic system firms are thought to rise, grow and eventually die. In the author's analysis this is held to be true of all but the larger firms. These do not die a 'natural' death but are able to sustain themselves through several crises by way of diversification, in part due to the



vast capital resources at their disposal. Thus, at some stage in their development, corporations undergo changes which are a matter of kind rather than degree. These changes can be attributed to two factors which have been discussed previously:- ( 53)

1. The division of ownership and the divorce of ownership from control;
2. A scale of operations so large that no individual can fully comprehend the mature corporation.

The rise of the juggernauts, accompanied, inevitably, by a parallel decline in the small firm sector is seen by Bannock, in agreement with Galbraith, as of detrimental value to consumer sovereignty. As has been argued in the previous chapter, consumer choice is restricted with a decrease in the number of firms irrespective of whether these firms offer an increased choice of products. The advance of the juggernaut into every sphere of economic life is thus seen to be inseparable with several anti-social consequences, one of which relates directly to small firms. The latter, thought to be vital to a healthy consumer-orientated economy are gradually 'squeezed out' by their larger counterparts who do not share their business philosophy of maximizing profit but are rather more concerned with their continued survival - to the detriment of all else.( 54)



Bannock, in common with many researchers sees the solution to the healthy economy - one which has a strong small firm population - as resting in some part with a reversal of factors thought to work against small firms; "...it would be necessary to reduce the barriers to entry into business, including financial barriers and to stimulate and even protect young and expanding businesses." ( 55) Workers should be encouraged to have a financial stake in their company, merger activity should be made more difficult and there should be an encouragement to "pursue excellence through specialisation rather than through growth; both because it would be profitable to do so and also because it is natural to do so in business with which its participants can identify themselves." ( 56)

Other measures put forward include a demand for greater information for the consumer to ensure they have full knowledge of the market and a desire that juggernauts should only be allowed to exist if it can be proved that it is indeed the most efficient and fairest form of business unit.



The BCI - Implementation of Recommendations. ( 57)

The BCI itself and its subsequent report heralded a vast increase in the amount of literature devoted not to the large corporations but to their smaller counterparts and saw numerous and varied measures forwarded to counteract what was seen by many as an inexorable extinction of the sector. The Committee made fifty eight recommendations of which all but two required government action. Some of the recommendations were overtaken by events but the vast majority were implemented in whole or in part with relatively little delay . Only six of the recommendations were rejected outright.

The Small Firms Division was set up immediately as recommended (9.27)<sup>1</sup>. The main executive function of the Small Firms Division is the supervision of the network of Small Firms Information Centres. The Committee had recommended the setting up of Advisory Bureaux (10.47) but the functions are the same as those envisaged by the BCI. The main discrepancy between the Recommendations and the implementation in this area is the absence of retired businessmen staffing such bureaux.

Note: Figures in parantheses following a recommendation refer to the relevant paragraph in the BCI report.



With respect to the recommendations concerning the impact of taxation, three of these were rejected and some put forward were subsequently overtaken by new legislation. The BCIs recommendations on inflation accounting (13.48) were partly met by subsequent measures to give relief on stock appreciation. The recommendations that shortfall assessment on the trading incomes on close companies (which enforces certain levels of distribution to shareholders of companies controlled by five or fewer persons or its directors) should be abolished was rejected (13.56). However, changes announced in 1971 and 1972 increased the relief for small companies and removed 80% of trading companies previously potentially liable for shortfall assessment.

The recommendation that close companies should be allowed the option to be taxed as partnerships was also rejected (13.55). The object of this recommendation was to encourage outside shareholders to invest in close companies through enabling them to offset losses made in those companies against other personal income. The reason given for rejection was that the proposal was 'objectionable in principle' and in any case, would have been inequitable in its effects and rewards(58).



The BCI recognised that pension reliefs were more favourable to employees of business than to the self employed and recommended that these reliefs should be brought into line (13.61). This was partially met by increases in the tax relief available to pension provisions made by self-employed people in the 1972 Finance Act.

The Committee also recommended that proprietors of unincorporated businesses should be allowed to invest their own pension provisions in their own businesses- this was also to be extended to controlling directors of close companies. Their argument in favour of this was that it was 'illogical' that these persons "should be obliged to lend the premiums on their personal pension funds to insurance companies then have to borrow from an institution at much higher rates of interest in order to finance the business" (13.62). This recommendation was rejected on the grounds that it would facilitate tax evasion.

There were several other recommendations which were over-taken by the general review of taxation on death which led to the introduction of Capital Transfer Tax. In one respect, however, the government went beyond the recommendations of the



BCI (13.49). The 1972 Finance Act, introducing the new system of Corporation tax, made provision for a reduced rate for companies with annual profits not exceeding £15,000 with tapering relief for companies with profits up to £25,000.

The recommendation that small firms should be exempted from the compulsory Training Board Levy was accepted. (14.22).

Although the BCI recognised that in some respects there was insufficient statistical information on small firms, it made a number of recommendations to reduce the burden of making administrative and statistical returns to government, with one exception, all these were accepted and were implemented, although subsequent legislation has probably more than offset the relief given. The exception was the Committee's proposal for a central data bank to provide an integrated system of business records (15.32). This was rejected because of fears about the problem of confidentiality. One important and little-known recommendation under this heading, which was accepted, was that of an enterprise census. The reasoning behind this proposal was that census information on enterprises in Britain is inadequate because separate



censuses are held only for certain sectors of the economy. This means that there are some sectors that are not covered by census at all and also because a business organisation having interests in several census industries appear in the results for each of these industries, concentration in the economy shown by aggregating census results is understated. The 1973 Finance Act made provision for VAT data to be collected in such a way that it could be used in the preparation of an enterprise census. Births and deaths of enterprises is a subject of great importance for the fuller understanding of the dynamics of the small firm sector and it is interesting to note that the Department of Industry is now quite active in the collation and analysis of such statistics (59).

The BCI made two recommendations about the possible exclusion of small firms from certain provisions of the restrictive practices legislation (16.21) but these were rejected after careful consideration on the grounds that "No evidence has been produced to show that small firms are prevented by the restrictive practices legislation from making agreements which would benefit them without harming the consumer or the public interest" (60).



There were two important recommendation under this heading. The first was, in agreement with Bannock that, in making future references to the Monopolies Commission, greater emphasis should be placed on the effect of the monopoly or merger in question on the maintenance of a balanced industrial structure (16.7). This was accepted and extensions were made to the scope of legislation on monopolies and mergers and a new office of Fair Trading was created. The second recommendation was that consideration should be given to referring the question of the market power exercised by large firms in their buying policies to the Monopolies Commission (16.24) The government decided not to make a reference to the Monopolies Commission although one of the complaints which the Committee received on this subject was referred to the Director of Fair Trading (61).

The BCI made recommendations on the disclosure provisions of the Companies Act which were subsequently relaxed in some respects for smaller companies. Changes were also made to the regulations about Industrial Development Certificates, but recommendations on compensation on compulsory purchase (18.39 & 18.40) were



rejected although the 1963 Land Compensation Act did contain some clauses designed to be of benefit to the small firm.

## POST-BOLTON RESEARCH

### A. Reactions to the BCI Report

The response to the findings of the BCI was varied. There were those who felt that the Committee, restricted as it was by its terms of reference, was unable to suggest necessary changes, in addition to being unable to address itself to certain key areas; those who agreed with the BCI with respect to its findings and those who felt that the Committee had chosen the wrong areas upon which to call for help. However, whatever the views expressed, the report marked a vast increase in the amount of literature devoted to this area of study - literature which still flows forth unabated.

Naturally, a few of the subsequent reports dealt entirely with either a condemnation or commendation of the findings and recommendations of the Inquiry



and thus, whilst not increasing knowledge of the sector, fuelled interest in further research. As stated, opinion was quite sharply divided as to whether the BCI had made the correct decision in choosing not to recommend agents for sweeping change. Those such as Yamey ( 62) felt that the former was the case, although criticism was expressed over the Committee's lack of specificity when discussing the distinctive sources of the discrepancy between public and private benefits in the small firm sector upon which its analysis is made to turn, and further, the criticism that it does not spell out fully the links in the chain connecting the fate of the relatively few potential fliers in the small firm sector with fate of the entire population. However, the article was, on the whole, relatively complimentary. An example of a writer less enthusiastic to espouse the merits of the BCI can be found in Jonathon Boswell. Boswell's research, the fieldwork for which was carried out prior to the publication of the BCI reports, but whose book was published at a later date, is less complimentary on the Committee's recommendations.

Whilst the BCI was concerned with the small firm sector as a whole, Boswell's research took the form of a micro-analysis of the sector. His research took the format of a number of interviews with owner/



managers of a number of small firms in two industries - the hosiery and knitwear and engineering and electrical goods, together with a detailed analysis of the historical records of these firms, was highly critical of the BCI report on a number of counts. His major condemnations rests on the Committees 'too-glowing' description of the small firm sector - generalisations are propounded that have no adequate factual basis.( 63) The second major fault of the BCI in his view lies in its failure to adequately examine the internal dynamics of the small firm to ascertain the apparently striking differences in economic and social behaviour within the sector.

However, the auther does admit that the Inquiry could do little but generalise, bound as it was by its terms of reference. Boswell provides one of the first in-depth studies of small firms in specific industries and as such is an interesting piece of work. Like the BCI, he feels that the small firm sector and particularly the manufacturing arm of such a sector is of vital import with respect to economic growth. The most interesting feature of Boswell's work, and one which has since been adopted by other researchers is his division of businesses by age or stage of development. (64) The firms studied were classified as either Young, Transitional or Old and each category, regardless of the industry in



which it was involved, was found to share certain common characteristics.

Firms, designated young, i.e. those under twenty years old, were found to be by far the most dynamic - a not too surprising conclusion when one considers that the majority of deaths of small businesses fall to firms under the age of five. Those wishing to survive such a period must exhibit a strong internal dynamism.

Having passed to the transitional stage, new problems are now apparent. Some of the impetus and dynamism has now faded. The original entrepreneur is normally past his forties and has, not too surprisingly, lost some of his energies. It is at this stage that problems become most apparent. Firms interviewed tended to show poorer growth than their younger counterparts and were more prone to managerial problems. Often the problem of succession rears its head and although the BCI felt that the majority of small business owners wish to build up their business to pass it on to their heirs, this study found that succession brought many problems. In a significant number of cases the founder felt unable to relinquish control of his business and was loath to pass on his



responsibilities to a person he considered inadequate for the task. Unfortunately, in a number of cases, the entrepreneur is blind to the fact that his presence has a detrimental effect on the business - it would appear that firms in this situation are particularly susceptible to mergers and take-overs by other companies.

The final type of business in Boswell's analysis is designated Old; characterised by the presence of ageing heads, strong aversion to change and, in all cases, a drastic need for such changes to ensure the continued survival of the company. The family businesses have become so en-meshed in the ideal of remaining thus that little thought is given to external recruitment of managerial staff.

Taking these factors into consideration, Boswell concludes that 'blanket' measures to encourage the growth of the small firm sector would be foolhardy - he believed that encouraging firms with only a very limited lifespan was financial madness.

The BCI felt that the 'differential disadvantages' suffered by small firms should be removed, that 'inadvertent or unjustified impediments to their competitive efficiency' and 'inequitable and un-



necessary disabilities, mostly imposed by government, which amount to discrimination against them' should also be remedied. (65) In Boswell's view, two separate issues are involved:-

- a) administrative and communications problems,
- b) possible tax or other financial considerations to small firms.

On the first issue, many of the BCI's recommendations are, according to Boswell, 'unacceptable'. However, on the second point, the main issue to be debated is whether the sector warrants positive help. The Committee felt that if such help were extended, it would need to be massive. "If market forces are continuing to extend pressure towards a decline in the small firm sector, it is certain that nothing less than a massive scale in favour of small firms would be effective in countering them." ( 66) Tax concessions were thought to be the obvious vehicle for such discrimination, but, as stated, the BCI came down against such measures. However, the Committee did feel that a continual reassessment of this conclusion should be conducted. Boswell, on the other hand feels that "universal tax concessions to the small firm sector would offend against economic sense in almost every way." ( 67) Such a move, he thought, would imply that the state was trying to redress the



commercial disparities between small and large firms, a situation quite natural in a market economy.

Instead, what the situation demands, in Boswell's view, is something quite different; selective and discriminating policies (not only in taxation) as between some small firms and others. Policies are needed to tackle the problem of weakness and decline whilst complementary policies are required to encourage growth in more dynamic areas. Boswell's conclusion that many old firms require radical changes for survival suggests to the author that disincentives for continued existence would be appropriate.

The most radical of Boswell's recommendations is a call for a Small Firms Transition Trust to address the problem of 'old' small firms. Ageing entrepreneurs would be encouraged to seek the advice of such a Trust if their firms were in difficulty. The Trust would then be totally responsible for alleviating such problems, by whatever methods they thought best. In return, owners would be given concessions in, for example, taxation. The Trust would ensure that such firms would be reorganised in such a way as to best equip them for continued survival. If such a reorganisation were to prove impossible, the business would be wound up. ( 68)



As for young firms, direct or indirect subsidy was proposed; "perhaps state help towards existing financial institutions in this field so that they could allocate money." (69) This subsidy was seen to be applicable only for young (i.e. under five years old) manufacturing firms and would fill a gap in the financial requirements of such firms.

Other recommendations dealt with, in agreement with the BCI's findings, providing a more suitable environment in which entrepreneurial talent would flourish; a call for more research into the area of entrepreneurship; training and advisory services to be improved; and the encouragement of new entrepreneurial talent into viable old firms.

Thus, there are some areas in which Boswell and the BCI recommendations agree. However, the major differences are very important areas of dissent and the criticisms expressed by Boswell have been echoed in many following reports.

#### B. Areas of Research on the Small-Firm Sector.

The mass of work post-BCI can be roughly divided into two main areas of research. Although this



classification is, of necessity, very broad, it does give some indication as to the type of research which has been and is being undertaken.

The first area covers general work done in the field; i.e. those reports concerning themselves with the whole of the sector and following on, in some respects from the BCI. Such an example is that by P. Clarke (70), who, in the nature of his work met a great number of entrepreneurs running their own businesses and who thus draws on his personal experience to paint a rather optimistic picture of entrepreneurs succeeding against all odds. A rather more academic and detailed analysis, deliberately following in the footsteps of the BCI, was undertaken by the Business Graduates Association (BGA). This reviewed the intervening seven years of 'post-Bolton' work and provided an analysis of the then - present state of the sector and the major problems it faced.

In contrast to the BCI, whose mood was one of general optimism, the BGA report fails to find any indicators that the sector was on the road to recovery. Not only was the small firm community not being afforded 'a fair crack at the whip' ( 71), it was thought to be severely lashed ( 72). One of the views expressed by the BCI, that it felt that there would be an



upsurge in the sector ( 73), was severely criticised - small firms were portrayed as having declined still further - to make the situation more serious this was seen not as a result of absorption of smaller businesses by large but rather the result of increased failure rates of small businesses themselves, together with low levels of new enterprise formation.

The criticism expressed on the findings of the BCI tend to be concerned with:- ( 74)

- a) The restrictive scope of the Inquiry which was thus not able to address itself to certain key areas - most notably taxation (both corporate and individual), investment grants and allowances; the increasing trend towards industrial concentration; the role of large corporations within the economy and the rapid growth of the service industries;
- b) The ways in which the recommendations were accepted and carried out or rejected totally.

The BGA report attempts to compensate for these shortcomings in its own report and offers a wide - ranging analysis of the factors thought to be of detrimental value to the health of the sector.

The report comes to the conclusion that "heavy taxation



and the ever-increasing administrative and legislative burden are merely symptoms of a more pressing environmental problem - namely a tendency on the part of the individual to:-

- 1) An increasing reliance on state support;
- 2) an aversion to risk-taking;
- 3) a reduction in the social acceptability of running ones own small firm."

The main recommendation of the report is thus a withdrawal of government activities in the private sector and a reduction of both state activity and employment to thus encourage entrepreneurial talent to find a means of expression.

However this by itself was not enough and had to be accompanied by a general overhaul of the taxation system to make it simpler and a reduction in the rate of direct taxation. There were also recommendations calling for greater involvement on the part of the Small Firms Division; both an expansion in financial resources and staff to increase monitoring levels of the sector and a provision for secondment of officials of the Small Firms Division to suitable small firms in order to gain experience. Once again, the idea of a Loan Guarantee Scheme was put forward and, following on from previous work, the call for the



break up of large, inefficient organizations. However, although at this time, government was becoming more aware of the small firm sector, very few of the recommendations were implemented.

The second type of research has concerned itself with more specific areas of small firm research. Due to the great activity in this field, it would be impossible for me to attempt to cover all such literature; however I shall take a brief look at the main areas of research and mention a few contributors to each field.

#### 1. Small Firms In Specific Industries.

An obvious example already covered is Boswell. Another notable contributor is Bannock ( 75) who, in 1976 presented a piece done on behalf of the Anglo-German Federation which looked at the bread-making and brewing industries in the U.K. and Federal Republic of Germany. The small firm sector in the former country was shown to be appreciably smaller than its German counterpart and whilst there were found to be factors which act against the sector in both countries, the German economic system was thought to be the friendlier environ. Once again, tax



concessions are thought to hold the key to the revitalisation of what was depicted as a still-declining sector of the business community - our taxation system was considered to be 'especially unfavourable' ( 76) and was, furthermore, accused of reinforcing the tendency towards industrial concentration. Other changes advocated were:- a change in competitive policy, achieved, once again, by tax reforms; better education and training to encourage potential entrepreneurial talent and further information and research on the sector. One of the most interesting comments is that "the general decline in the quantitative importance of small firms in the sector included in the BCI appears to have continued." ( 77) This has been challenged by other researchers and will be discussed later.

## 2. Small Firms and Employment.

One of the main planks for those wishing to see positive discrimination for the sector lies in their claims that small firms, if so encouraged, could go a long way towards solving the unemployment problem. Most small firms tend to be concentrated, not too unnaturally, in labour intensive sectors so are thought more likely to be suitable candidates for



such a solution. Work done in the United States by D.L. Birch, who studied 82% of all manufacturing and private sector service establishments in the U.S.A. is often quoted as finding that  $\frac{2}{3}$ rds of new jobs were created in firms employing less than twenty people ( 78) - not so; what the research indicated was that  $\frac{2}{3}$ rds of net new jobs were created this way, a different finding altogether. (79) Work done by Bannock in this country in 1974 had a far more depressing overtone....

"It is obvious that had employment in small firms been growing at a rate approaching that of large firms or the public sector then employment and output would both be higher. Had even 5,000 of the 20,000 or so small firms which have disappeared since the war remained in business, or been replaced by new small firms, at an average of 25 employees each, they would have retained jobs for 125,000 people. Moreover, what is so disturbing about the decline of employment in small firms is not that large numbers have disappeared in declining industries but rather that these firms are not being replaced by vigorous growth of equal numbers of small firms in new industries...." ( 80)

This work covered the period up to 1972. Work done by B. Macey studied employment changes of manufacturing firms in the period 1972-1975.(81) During these years years employment in manufacturing as a whole fell by 4.8 per cent. A general relationship



was identified between stability and size - in smaller plants both gross increases and gross decreases are relatively larger in proportion to total employment.

Table 2

Components of employment change by size of establishment

1972 Employment Size	Closure	In Situ Contraction	In Situ Expansion	Net Change
11-20	14,949	13,594	30,626	+2083
21-50	46,693	44,151	62,871	-27973
51-200	111,816	128,762	145,878	-94700
201-500	66,443	135,323	112927	-88839
501+ Entries <sup>1</sup>	44,349	345,569	187,946	-201872
Openings				+12510
				+89988
Total	284,250	667,399	540,248	-308903

Components of employment change by size of establishment

(Figures expressed as a percentage of 1972 employment size band)

1972 Employment Size	Closure	Contraction	Expansion	Net Change
1-20	9.1	8.3	18.7	+1.3
21-50	10.7	10.1	14.3	-6.4
51-200	8.9	10.3	11.7	-7.6
201-500	5.1	10.4	8.7	-6.8
500+	1.3	10.4	5.6	-6.1

To compare the effects of size and employment fluctuations, it was necessary to express the changes as

1. Entries are establishments that existed before 1972 but employed less than 10. By 1975 they had expanded and employed more than 10.



percentages, as in the above table. Although it would appear that the smallest size band had a positive change in employment, Macey feels that this may be a distorted result. With respect to the remaining bands, the changes fall between 6 and 8 per cent. Macey concludes by pointing out that the lower size bands tend to show a greater volatility than do their larger counterparts but that there is little apparent evidence of a relationship between size and net employment change.

How different is Macey's findings from that of Gerstenfeld ( 82) who states that:- "...small firms are still creating jobs while big ones are not..." although he does follow with the proviso that different time periods chosen result in widely varying results. Gerstenfeld chooses to compare the period 1973-1976:-

Table 3

Net Employment Change in Manufacturing in the United Kingdom 1973-1976 by size of Firm.

Number of Employees in Individual Firms	Total Employed ('000)		
	1973	1976	Net Change
1-99	1,108.6	1,189.4	+80.8
100-199	396.9	386.9	-10
200+	<u>5,762.9</u>	<u>5,394.9</u>	<u>-368</u>
Total	7,268.4	6,971.2	-297.2



Thus there appears to be quite considerable contrast between various analyses of the situation. Bannock, in 1974, believed the sector to be still declining. Gerstenfeld, some years later is confident of the upturn which has occurred since the 1970's and Macey has shown that small firms in the manufacturing sector are declining no faster than their larger counterparts. As stated earlier, different analyses and totally contrasting results can be obtained by careful choice of years for study but the general indication is that the decline in the small firm sector has been arrested. ( 83)

To return to the question of small firms and employment, there are two paths which could be taken to alleviate the problem:-

1. By expansion of existing firms to increase their workforce;
2. By the formation of new firms.

The first method has been briefly touched upon, the second will now be discussed. Birch stated that over eight years, approximately 50 per cent of gross new jobs in the U.S. were attributable to openings of new firms and of these, half were generated by independent 'free-standing' entrepreneurs, i.e. about 25 per cent of gross new jobs are created by such entrepreneurs. Birch has been criticised by Gudgin for exaggerating the



role of the smallest firms in job creation by failing to disaggregate his results between manufacturing and non-manufacturing. ( 84)

Macey ( 85) showed that establishments not existing in 1972 accounted for 79,000 jobs in manufacturing in 1975. Of these, 57,000 jobs were in new branch plants of firms with manufacturing activities in 1972, and 22,000 jobs were in firms new to manufacturing.

The number of jobs involved in new firms over such a short period of time is not substantial, accounting for less than  $\frac{1}{2}$  of 1 per cent of employment and only  $3\frac{1}{2}$  per cent of all new jobs.

Work in this area comes to the following conclusion:-

Table 4

Jobs Generated In Openings of New Establishments.( 86)

Area	Date	Total Jobs Created in Openings	Total Jobs Created by Openings of wholly New Manufacturing Establishments	%
Central Clydeside	1958-68	33,452	6039	18.05
Clydeside	1963-72	34,456	5128	14.88
W.Midlands	1968-72	13,632	7295	53.51
E.Midlands	1968-75	55,586	23214	41.76
Cleveland	1965-76	15,322	3056	19.95



Comparing the figures presented by Birch and those above for various areas in the United Kingdom highlights the disparity between U.S. and U.K. statistics. Not more than 15% of gross new manufacturing jobs per decade are created by wholly new establishments. Birch has been criticised by British researchers who have shown that in manufacturing, considered by many to be the most vital sector of the economy, the impact of wholly new firms has been far less dramatic. However, the formation of new firms is an important process and should be encouraged but certain considerations must be borne in mind. The most important is the marked regional variations of new firm formation. The south-east would appear to be the most fruitful area for both expanding and new firms and many researchers have stressed the importance of providing regional policies.

Another factor to consider is the balance between established and new firms in the same industry. There seems little sense in encouraging start-ups if the process is to force established firms to close.

It has been shown that small firms are a vital part of our industrial structure but to pin unrealistic hopes on the sector is unfair. Small firms do not provide an answer to the unemployment problem - a survey by



the Forum of Independent Businesses of 3,000 of their 8,000 members indicates that far from expanding, many small businesses, like their larger counterparts, were responding to the recession by laying off workers. The survey showed that 22% of small businesses would be forced to sell all or part of their businesses within the next twelve months if economic conditions did not improve. (The survey was undertaken in 1981). Further evidence is provided by Scase and Goffee ( 87) who found a marked reluctance on the part of many proprietors to employ extra workers because of the further administrative and financial burden.

### 3. Entrepreneurs.

A great deal of work has been undertaken on the motivation of entrepreneurial talent and the climate most conducive for an individual, working in a firm having more than 500 employees, starting his own firm, is about a fifteenth that of an individual working in a firm employing less than ten. This contradicts earlier work by Beesley who found exactly the opposite to be true; that larger firms are a better entrepreneurial springboard. ( 42)

Researchers at Nottingham university have shown that



high regional levels of unemployment lead to greater new firm formation, exploding the previously held idea that new firm formation was more apparent in times of affluence. It is apparent that the majority of entrepreneurs form businesses within the industry in which they were previously employed, or utilising skills for which they were employed, many of the linkages - with potential customers, suppliers, financial institutions, professional advisers etc - which the literature of economic geography tends to suggest a new firm has to develop after establishment in fact predate the formation of the new firm. ( 90)

Entrepreneurs are characterised as protagonists challenging the establishment and forging ahead towards the glowing light called success using only native wit, ability and hardwork. ( 91) They are thought to be highly individualistic, impossible to get on with and frustrated when working for someone else. ( 92) However, be that as it may, it is important to determine the factors contributing entrepreneurial talent on a more objective level. Such a study has been carried out by Storey ( 93) who studied 301 new firms in the Cleveland area. His work forms a substantial contribution to this area. Once again, it was shown that wholly new firms have only a slight impact on employment, even after ten years and that policies should thus be



aimed at a long-term plan rather than any short-term package. One of the most interesting compilations is a table of regional entrepreneurial activity and gives the following result (on next page). It would thus appear that the most prosperous areas of the U.K. also have the most sympathetic environment for an entrepreneur. As it has been demonstrated that the majority of entrepreneurs remain in the same locale, it would appear that policies designed to encourage the movement of such people to less prosperous areas will have little hope of success. This research offers little hope for many of the industrial wastelands in the U.K. who had hoped that new firm formation would, in part, solve some of their problems.

#### 4. Some Problems Particular to the Small Firm Community

##### a) Small Firms and Property

It has been shown by Gudgin et al ( 94) and others that a major factor in the establishment and growth of a small business is the presence of suitable premises. Much work has indicated that small firms operate, for the most part, in inner cities in order to be close to customers and suppliers. They are thus forced into older less suitable properties



**Table 5**      An Index of Regional Entrepreneurship in Britain - Rankings      (Storey p.196)

Region	% in Small Manufact- uring Plants	% going to degree courses	% without qualificat- ions	% in Admin. and Manag- erial class	Savings	Average Dwelling Price	Disposale Income	PLACING			
	% in Large Manufact- uring Plants	% in manual class	Owner- Occupied Dwellings	Barriers to entry	Average Score						
Northern Yorkshire	2	1	2	7	4-	2	8	1	5	3.45	11
Humberside	7	8-	6	4	4-	1	5	4	9	4.64	8
East Midlands	6	10	3-	6	8	3	10	2	6	6.09	5
East Anglia	8-	8-	1	8	7	9	4	6	11	6.91	3
South-East	11	7	8	10	11	11	7	4	11	9.18	1
South-West	10	6	5	9	6	10	9	8	4	7.64	2
West Midlands	3-	3	3-	3	9	4	6	3	7	5.27	6
North-West	5	4	7	5	10	6	11	7	3	6.64	4
Wales	3-	2	10	1	2	7	3	n/a	4	3.70	10
Scotland	8-	5	9	n/a	3	5	2	n/a	9	5.11	7
Northern Ireland	1	11	n/a	2	1	8	1	n/a	10	4.44	9



because of the high rates and rents in such areas.(95)  
Due to urban redevelopment, many of these older properties are being demolished so it is vital that new premises at low cost should be provided.

b) Small Firms and Finance

There are two types of finance required. Seed capital for the establishment of a new firm and finance, be it in the form of equity or a loan, for the continued survival and/or expansion of an established small firm. The most important source of seed capital for the majority of small firms is personal savings and/or money borrowed from friends or the local bank manager. The tax system in this country is thought to encourage investors to place their savings in 'safe' projects and investments whilst proving to work against those wishing to save money for their own venture. ( 96)

The Wilson Committee to Review the Functioning of Financial Institutions (97) came to the conclusion that no gap was apparent in the provision of finance for small firms and that the reluctance to lend to small businesses and the higher rates of interest charged for such loans were in keeping with the higher degree of risk attached to such lending.



However, many researchers and small business associations have been campaigning for a loan guarantee scheme since the late 1960's. ( 98) Such a scheme has now been introduced and will be discussed fully at a later stage.

c) Small Firms and Information

One of the major problems for any small business is the lack of qualified personnel to deal with the various problems that may arise. The DCI recognised this need and the Small Firms Advisory Bureaux were formed as a result. There are twelve bureaux whose main function is as a referral system. Local Chambers of Commerce can also be approached for advice and there have been some initiatives on the part of local authorities to provide a counselling service for the local small firm community.

d) Small Firms and Personnel

Taken as a whole, small firms are unable to provide the same level of remuneration as their larger counterparts and it has been suggested that recruitment of personnel of the right calibre could present a problem. However, to counterbalance this argument, some have stated that purely financial returns are not the only



consideration for many workers and that the 'happier' atmosphere present in a small firm compensates for the lower wages. Work done by Stanworth and Curran (99) has indicated that no such atmosphere exists and that small firms find difficulty in recruiting workers, whilst small businessmen themselves claim that they care more for their workers. Whether this care is for the good of the workers or for the benefit of the firm is an area of contention amongst researchers.

e) Small Firms and Inner Cities

Many authorities of large cities are financing schemes to encourage the development of small firms in inner city areas. Work done in studying the inner-city area in various regions has indicated that prosperous areas will have a higher rate of new-firm formation than their less prosperous counterparts but that this relationship will be modified by the effects of regional policy on industrial movement.(100) Whether the small firm can be used as the sole instrument in urban regeneration is highly unlikely.

f) Technical Change and the Small Firm

This subject will be covered in a later chapter.



## Summary

The publication of the BCI report marked a growing interest in the small firm sector and a great deal of work has been undertaken in the twelve years since, some of which has been mentioned in this chapter. Although the BCI can be criticised on a number of counts- primarily, it must be admitted due to its limited terms of reference- it can be considered an unqualified success in that it provided a substantial amount of information on the sector and provided a stimulus for further research. A measure of its success can be taken by the fact that it forms the basis for the vast amount of work that followed and is the cornerstone from which many arguments both for and against the merits of the sector are launched.

Although opinions have varied as to the individual merits of the community, all research is united in agreement that the sector forms an integral part of our industrial structure and provides services and performs functions which larger firms are unable or unwilling to do.

These functions, first defined by the BCI have



been presented in many guises--with variations; both additions and subtractions-- by many researchers wishing to stress the unique role of the community. However, many of these functions have been studied in detail and much criticism has been expressed with regard to the merits of the sector (101). One such example has been a piece of work by Stanworth and Curran (102) who conducted 233 interviews with male manual workers and supervisors in eight small and two large companies in the printing and electronics industry between 1974-1976. Research indicated that the workers orientations were not neatly related to size of firm, nor were they of much importance in explaining the differences between the labour force of a small or large company. The work also concluded that the small firms studied had a higher turnover of staff than large businesses and that the flow of information was neither as direct or as true.

Their major conclusion was thus that the stereotype and the reality of the small firm had become entwined and that it was impossible to separate the myth from the reality. However, although some researchers have their reservations, it is acknowledged that the sector is vital, if only



in that it provides a means of entry into business for an entrepreneur. Where disagreements occur is over the question of assistance towards the sector.

Those wishing for government intervention do cite many reasons why such intervention is necessary; those put forward by Neck are typical (103):- Benefits which support the case for assisting the small enterprise include:

1. The development of a pool of skilled and semi-skilled workers as a basis for future industrial expansion;
2. Improvement of forward and backward linkages between economically, socially and geographically diverse sectors of the economy;
3. Non-requirement of some of the sophisticated managerial and technological techniques normally required by larger enterprises;
4. Opportunities for developing and adapting appropriate technological and managerial approaches;
5. Increases in saving and investment by local personnel and more effective use of scarce capital;
6. Increased mobility for the improved development of scarce capital;



7. The promotion of special sub-contracting arrangements;
8. Small enterprises may be more able than large to tackle the unemployment problems;
9. Improvements in personal skills and propensity for effective contribution to the community;
10. Flexible transition from industrial structures.

However, even a person so committed to the encouragement of the sector did recognise some of the drawbacks; for example:-

- A. Exploitation of workers;
- B. Absence of welfare and social benefits.

Despite these handicaps, there are many researchers who are whole-heartedly in favour of positive discrimination for the small firm community.

Those against such proposals put forward the argument that incentives to the sector will largely be appropriated by those already able to survive (104) and that blanket measures can do little to alleviate the problems of firms in varying sectors and in differing stages of development. (105) What is seen to be needed is a series of regional



policies tailored to suit the needs of the local community.

Whether one favours the former or the latter view, it has to be recognised that the sector has been seized upon by politicians of all beliefs and has had attention showered upon it, particularly by the present Conservative government. These incentives are to be found in their entirety in the Appendix A, although some of the major policies affecting the sector will be discussed in the next chapter.

Note. A small chapter on the statistics available on the small firm community is to be found in Appendix B.



## CHAPTER 4

### Introduction

Having discussed the research activities within the small firm area, this chapter deals with the present policies specifically aimed at the small firm sector. It begins by outlining the areas in which change are proposed by certain researchers in the field, then presents a review of some existing policies, together with a commentary on these measures. A comprehensive list of government measures designed to aid the sector may be found in Appendix A at the end of this thesis.



## Government Policy Towards Small Firms

### Areas For Change

#### 1. Problem Area; Supply of Entrepreneurs

Diagnosis : Social and economic bias in favour of employment;

Action : a) Government intervention in both  
Needed public and private sectors to be decreased;

b) Social security system to be revised to encourage unemployed to start their own business;

c) Tax system to be altered to encourage private savings and the investment of these savings in smaller businesses;

d) More informational facilities to be available;

e) Greater co-operation between universities and industry;

f) Initiatives on the part of local government to encourage new small firm formation.



2. Problem Area; Lack of Capital

Diagnosis : Distortion in Capital Market

Action : a) Change in the tax system;

Needed b) Formation of Small Firms Investment Companies; the CBI has stressed that the financing of smaller businesses could best be improved by a better business climate in which the rewards were sufficient to make investment in high-risk or new-risk ventures an attractive proposition. Small Firms Investment Companies would match willing investors to firms in need of finance. Investors would benefit from the spread of risk and individuals would receive tax relief on their investments; c) Form of Loan Guarantee Scheme; d) Monopoly policy to be investigated- large firms to be encouraged to remain so only if they are truly serving their function.

3. Problem Area: Lack of Premises

Diagnosis : Imperfections in Market

Action : a) Urban redevelopment; provision of small units at low costs; b) Changes in planning regulations.



4. Problem Area; Bureaucracy

Diagnosis : Growth of Government

Action : a) Changes in organisation of  
Needed central and local government;  
b) Co-ordination between government  
departments to decrease the  
amount of form-filling;  
c) Simplification of the tax  
system.

5. Problem Area: Labour

Diagnosis : Imperfections in the Labour  
Market

Action : a) Changes in the employment  
Needed law to make the onus of proof for  
unfair dismissal cases neutral  
as between employer and employee;  
b) Changes in Social Security  
System.

6. Problem Area: Purchasing

Diagnosis : Imperfections in Market

Action : a) Fairness in the allocation of  
Needed public contracts;  
b) Adoption of positive purchasing  
policies.

7. Problem Area; Marketing

Diagnosis : Imperfection in Market

Action : a) Changes in monopoly policy;  
Needed b) Changes in the tax system.



## Government Policy

The small firms sector has received a great deal of attention in recent years as politicians have realised its political significance. Whether such importance is justified is a matter of contention but the facts show that politicians from all parties, and particularly the present government, have stressed the importance of the health of the sector and its vital role in economic recovery.

However, the government is at pains to point out that the policy towards the small firms sector is not one of positive discrimination, but rather that it hopes to redress the imbalance of specific disadvantages related to size: "To do otherwise and create an environment which favoured smallness per se would be to create barriers to growth and encourage firms to stay small irrespective of their potential. This policy is based on the conclusions of a Committee of Inquiry into Small Firms" (105).

Government policy towards the small firm community can be categorised into two broad headings; the provision of a supportive fiscal environment for



owners, managers and investors where risk and effort are adequately rewarded, and the removal of unnecessary burdens and constraints.

Some of the more important changes will now be discussed:-

### Stimulating Finance and Investment

The Loan Guarantee Scheme; The scheme seeks to improve the flow of commercial funds to new and existing businesses with a viable proposition which cannot secure backing either through lack of security or a track record. Medium term loans of up to £75,000 are available, with the government guaranteeing 80%. The Association of Independent Businesses had been campaigning since 1969 for such a scheme to be introduced and although neither the BCI nor the Wilson Committee felt that such a scheme was necessary and against the advice of the major clearing banks, the Chancellor of the Exchequer announced the plans for such a scheme on the 10th March 1981. The scheme was to run, initially, for three years and to have a budget of £50million for each year. By the end of 1981, the Loan Guarantee Scheme (LGS) was proving so popular that



the initial £50 million was thought insufficient and the £50million for 1981/1982 was made available. Although the clearing banks had initially expressed reservations as to the necessity of such a scheme, small businessmen had no such reservations and by December 1981, £9.8million had been lent to 243 small business. However, doubts were being expressed as to the correct use of the LGS.

Mr. Bill Poeton, national spokesman for the Union of Independent Companies was quoted as warning the DoI that: "Unless they bring into their counsels a United States Advisor to examine some of the rules and banks' actual procedures, the whole scheme is open to abuse which will give credit to no one" (106). Mr. Poeton said that the number of failures under the scheme was reported to be 30 at a cost to the Government of £700,000 and "it is believed to be accelerating. And no wonder, This is because the original DoI discussions were confined to the major clearing banks which had never accepted the need for the scheme".

Despite these reservations, £150million was lent in the first year with a 9% failure rate. This was three times the rate budgeted for in the government charges for the scheme and was thought to be due, in some part to the banks' wide interpretation



of eligibility for loans. Mr. John McGregor, the minister concerned with small firms was quoted as saying: " I've certainly come across anecdotal evidence that not all lending is additional"(107), this being a requirement of the scheme. Examples were cited of companies which had consistently been allowed by their banks to run overdrafts above formally agreed levels; when the banks began to feel uneasy about its security, it converted the excess borrowing into a scheme loan.

By January 1983, the LGS was proving very popular as the following figures demonstrate:- (108)

Number of Guarantees	7381
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Total Broken Down by Type:

Number to New Businesses	3743
Number to Existing Businesses	3638

Number to Manufacturing Businesses	3330
Number to Construction Businesses	133
Number to Retail Businesses	1110
Number to the Service Sector	2303

The cost of the above loans had been estimated at £248million, the amount allocated had doubled from £150million to £300million.



Although the scheme has still been running for less than two years, the first fifty failures have already occurred. In November 1982, Robson Rhodes were commissioned to prepare a report on these failures and to undertake a telephone survey of borrowers (109). Due to the limited time available, the major part of their work was not begun until early November 1982 and the report had to be completed by 26th November 1982, no detailed analysis was possible. However, the report does come to the conclusion that, taken as a whole, the scheme had been properly implemented (conclusion 2 3.2) but that bank managers are now 'drawing back' from the frontiers of lending and are becoming slightly more conservative in their approach (conclusion 2.31). An analysis of the loans shows that for the first five months of the scheme, new businesses took a majority of the loans whilst the next five months saw a reversal of this position, after which time there was parity between the two. Of the 43 failures studied, over 60% of these were existing businesses (but over half of these had been in operation for less than 12 months) with severe problems as can be seen by the fact that 62% failed within six months of receiving the loan(110). What was apparent was



that untrue representations had been made to some banks who would otherwise have not authorised loans; in one case, the new business was not even developed- the entrepreneur had managed to spend the money within a few days of receipt(111). Some bank managers admitted that had the weighting of the loan been 60/40 instead of 30/20, they would have been far more conservative - perhaps an indication that loans were being made that had little chance of saving a business. Venture capital institutions have a failure rate of at least 25% and the report feels that the present rate, at least for the earlier loans, of 20% may rise to this level. The report is critical of the scheme on a number of points:-

1. That bank managers were prepared to lend to businesses where no adequate financial statements had been prepared (112).
2. That small business owners had often decided from the outset that the LGS was the most suitable form of finance (113).
3. That subsequent monitoring of the company was not undertaken (114).
4. That banks were prepared to lend to very marginal cases; of the 48 failures studied, 31 firms were considered to have presented very dubious cases for financial aid (115). Included



in this number are 10 or 12 proposals in which information was deficient in some respect. Of the remaining 17, only 5 were considered a 'reasonable' candidate for the LCS, 11 were thought best to have an LCS plus equity whilst the remaining firm was considered suitable for equity only.

5. That some evidence was available that showed a 'significant' number of loans (12 out of 185) which improved the banks' own position or that of personal guarantors.

The main recommendations of the report are:-

- a) That the percentage should be altered from 80:20 to 70:30 (116). This would serve to focus more sharply the attention of the bank manager to the importance of a firms' presentation prior to obtaining a loan and to encourage continued monitoring of the business.
- b) Attention and restraint should be directed to improving the different skills needed of the managers of small businesses, their bankers and their professional advisors.

In conclusion, despite many reservations, the LCS was seen to be fulfilling an important function.

In the last Budget, the funds allocated to the scheme were raised to £600million to enable the



scheme to run to May 1984.

The LGS has received a less enthusiastic welcome from researchers and observers who feel that the misuse of the scheme, highlighted by the above report, has been of far greater importance (117). However, all are agreed that the scheme should be allowed to run for the allocated three years before final judgement is made.

Other financial incentives include: the Business Start-Up Scheme which has now been extended to include qualifying established unquoted trading companies; the Venture Capital Scheme; relief for certain pre-trading expenditure; changes in Value Added Tax; changes in the tax system to encourage new business formation and the continuance of existing firms.

All the above measures are designed to aid the formation and subsequent growth of smaller businesses who, it is thought, have suffered unfairly due to the British tax system. Indeed, the Chancellor of the Exchequer, in his 1983 Budget address, made a claim that the British tax system is now more attractive than the German equivalent.



One of the major problems for any small firm is the provision of adequate premises. The government has several measures to counteract these problems:

#### Stimulating the Provision of Premises

Planning application is no longer needed to change from light industrial to warehouse use or vice versa. Together with the General Development Order, this allows firms to change their premises from general industrial to warehouse without passing through the intermediate stage of light industrial use.

To encourage the development of small premises. The Small Workshop Scheme was introduced in the 1980 Budget. 100% initial allowance on capital expenditure incurred on the construction of industrial premises of up to 2,500 square feet was introduced until March 1983; later extended by the 1982 Budget to 1985 and extended by the 1983 Budget to include existing premises. All old buildings, converted into such units are eligible for the concession if, on average, they meet size requirements. Sir Geoffrey Howe has claimed the scheme to be particularly successful; these tax incentives were thought to have tripled the number of small premises; by early 1982, the numbers were thought to have risen from 2,700 to 9,400. However,



the allowances are only applicable to manufacturing units - a criteria much criticised by the Union of Independent Businesses.(113) Nevertheless, a study undertaken by the DoI has shown that the demand for such units remained strong during the recession and that government measures had significantly increased the quantity of small units.(119).

Researchers such as Falk (120) have continually stressed the importance of such premises believing that entrepreneurs will be discouraged from forming their own business without adequate premises. On the other hand D. Storey (121) has maintained that market forces will, in time, redress any imbalance in the provision of such premises so that government action is largely cosmetic.

Where the main disagreements occur, however, is over the question of Regional Development Grants, aimed specifically at particular areas of the country thought to be disadvantaged. These grants apply only to manufacturing firms and cover grants towards the cost of new buildings, plants and equipment purchased for use in Development and Special Development Areas. Selective financial assistance may also be available to manufacturers and certain service trades to fund particular projects or developments. Whether such



schemes act as an incentive within the designated area but as a disincentive outside the region is questioned. The scheme may only be judged to be successful if the net employment generated rises. Firms closing down premises in order to move into the development area do nothing for employment levels on a national scale but instead transfer the problem from region to region.

#### Employment Measures.

The unfair dismissal period has been increased from one to two years, if the business employs fewer than twenty people.

If he or she has worked for two years, the Industrial Tribunal still has to take account of the size of the firm and the administrative resources when deciding whether the dismissal was unfair.

#### Avisory Services.

The Small Firms Service is the main body offering advice to businessmen. Established in the wake of the BCI report, there are twelve divisional offices throughout the country to provide management advice. The advice is given by counsellors, based at fifty regional offices. These counsellors are all exper-



perienced businessmen and will advise on any problem that may be raised. The service is free within a limit of ten man-days per year after which time, if further contact is necessary, a fee is payable. Should more specific advice be necessary the client is usually referred to an appropriate professional service. The conselling service was first introduced in 1976 and has proved successful; in 1980 over 9000 counselling cases were handled whilst in 1982, 250,000 general enquiries were received. The service also publishes a number of booklets to help the small businessman with any general points he may wish to cover.

The Small Firms Service has been heavily criticised as having a too-low profile and of being little benefit; it does seem to be the case that many small businessmen have no knowledge of the existence of the bureaux and the limited number of departments throughout the country does seem to indicate that many potential customers are too far removed to be interested. The Council For Small Industries in Rural Areas (COSIRA) has the same function as the Small Firms Service but concentrates, as is obvious, on rural areas.

To raise the conciousness of potential customers, the Small Firms Service launched a massive publicity



campaign in March '83 to bring it to the public's attention. £2.5M is being spent on a series of advertisements, in all media, together with various booklets outlining the functions of the department and drawing attention to all the incentives offered to the small business community by the present government.

#### Small Firms Policy: A Commentary

A comparison of those areas for change highlighted by researchers and small firms lobby groups and present government policies towards the sector illustrates how far the government has gone towards meeting the claims of such groups. The supply of entrepreneurs has been encouraged; the problem of lack of capital has in some part, been addressed; the supply of small premises has been stimulated; formfilling has been cut; employment law has been altered to accommodate the demands of the small businessmen; promises have been made with regard to public purchasing and a new department within the Small Firms Division is currently being considered to act as a marketing advisory service. Although many, such as the C.B.I., would argue that still further measures are necessary there are others



who feel that the 100+ measures are, in large part, either cosmetic or ineffective. However, there can be no short-term assessment of many of these measures; all must be viewed over a long period and no judgement is possible as to how the small firm community might have fared without such aids. Nevertheless, it is possible to assess some of the benefits (or otherwise) of specific schemes.

The question as to why the sector is receiving so much attention is a difficult area. The BCI report came down in favour of leaving the small business community to weather the storm and find its own niche in an integrated industrial system. Areas highlighted as being of a particular problem to the community were thought to be so directly as a consequence of the nature of the sector. Incentives, would in the opinion of the BCI, be effective only if introduced on a massive scale and would thus perhaps act as a disincentive to other parts of the business community. What decided the BCI was its view that the average small businessman could hardly be termed disadvantaged; discrimination would certainly make him even less so. However, the decline of older heavy industries with large workforces has forced attention to other sectors of the economy; small businesses can be viewed as an alternative area for employment, embodying the best qualities of a market economy.



Present government policies may be divided into two groups; those aimed primarily at new firm formation and those designed to encourage existing businesses.

The measures are largely aimed at the former area; i.e. they are primarily concerned with increasing the number of new small firms. This focus was heavily influenced by the research results of Birch who discovered that death rates of small firms tend to be consistent over regions whereas births do not. Work done by Storey in the north-east of England has lent weight to this theory. It thus appeared to policy makers that new firm formation would prove the most fruitful area for government assistance.

The Government is at pains to emphasise that the measures introduced are not incentives to the community but rather act to reduce the disincentives inherently associated with smallness.

The decline of the small firm sector, noted by the ECI report and purportedly unrelenting, at least according to some commentators writing in the late 1970's, has been arrested. That this is due to any government measures must be doubted, the reversal having originated in the early 1970's. The net gain versus net loss to the sector has varied yearly on a sectoral and regional basis but the trend has proved



upwards, with the more prosperous areas exhibiting the quickest and most strong recovery.

The whole area of incentives for new firm formation must be considered as a factor affecting the health of existing firms. Whether an increase in small firm births adds to the vitality of the sector must be questioned. To believe in a market economy, one must believe that the barriers to entry are such that given the correct conditions, entrepreneurs will respond to market forces. To interfere with the barriers to entry and introduce a bias may prove detrimental. This may occur through several channels. For example, it has been shown by Cross (122) amongst others that entrepreneurs are likely to establish a business in the same sphere of activity in which they have experience. Researchers at Nottingham university have established a direct link between unemployment rates and new firm formation. Redundant workers, encouraged by various financial incentives provided by central government are establishing their own businesses. Not only do they normally operate within the same field of business, they also tend to remain in the same area. Thus a large influx of new small businesses are wishing to compete with those already established. It has been shown, by the same researchers, that such new firms have little



hope of success and are proving harmful to the health of existing businesses.

Another factor which must be taken into consideration when assessing the impact of present policies is the regional variations of the small firm community.

The encouragement of firms within specified areas does not necessarily increase the number of such firms when viewed on a national basis - such incentives might be proved to provide incentives for relocation rather than formation. An assessment of the impact of development zones has yet to be undertaken but criticism has been expressed by firms outside the zones who have no wish to move but may be forced to should their competitors take advantage of the scheme and thus reduce their costs.

The government now seems willing to acknowledge that the continual stress laid on the importance of new firm formation might have been slightly misplaced (123) and have recently introduced extended measures to encompass existing small businesses.

To summarise, the small firm community is an important facet of our industrial structure but must be viewed as a component of a system embracing businesses of all sizes. To designate firms employing less than 200 workers, or any other criteria for smallness, as



having properties most important to our economic recovery is to misunderstand the functions of the sector. Smallness, per se, does not automatically signal superior qualities, as some might suggest, but does indicate particular problems not encountered by larger businesses. To redress the disincentives facing the community is correct, to provide incentives is not.



## CHAPTER 5

### Introduction

The following chapter concerns itself with the role of small firms in the innovation process and their contribution to innovative activity. Using the empirical work undertaken for the BCI and its subsequent up-date, the chapter seeks to determine the activity of small firms. Arguments both for and against the merits of the sector are presented, together with the statistical data supporting such arguments. The chapter concludes with a summary of the advantages/disadvantages small size may bring to the innovative firm. A fuller analysis of the strategies for small firms with regard to innovative activity will be attempted at a later stage.



## Small Firms and Innovation

One of the eight functions of small firms, as outlined by the BCI report, is as a source of innovation. Innovation is closely linked to but conceptually distinct from the question of invention. To invent is to devise or contrive to originate, to innovate is to introduce such devices or inventions. Thus one is the act of origination whilst the other is the implementation of such an act.

Innovation may be of one of two types; product or process. The former, as the name implies, is the introduction of a new product whilst the latter is the introduction of a new process to manufacture an existing product. Further, product innovation may become process innovation in a changed environment; an example of this being Computer Aided Design.



The ability to innovate has been cited as man's strongest characteristic, differentiating him from his fellow animals in the natural world. This ability to innovate becomes a basic necessity in the industries of the advanced nations. The following view, expressed by the OECD, adequately demonstrates the importance now attached to innovation:-

"In the period of change through which OECD member countries are now passing and in which they are faced with the problems of rising energy and commodity prices, competition from rapidly expanding and industrialising countries, growing unemployment and chronic inflation, technological innovation is a major objective. It is also a social necessity which must meet the demands for environmental conservation, safe working conditions, consumer protection and, more broadly, better quality of life". (124)

The OECD feels the subject so important that two documents were produced in 1982, one devoted to the general area of innovation and following the work of the 1978 report (125) whilst the other was devoted to the area of the contribution of small and medium sized enterprises to the innovation process (126).

Opinion is divided with respect to the contribution of small and medium sized business, together with individual inventors, to the innovation process.



Those such as Bannock (127) continually stress that large companies eschew innovation and are primarily concerned with the production of standardised items. This view has been supported by the findings of the following research:-

Table 6

Research of the Frequency of Major Inventions By Small Firms and Independent Inventors.<sup>1</sup>

Author	Type of Inventions	%age of Inventions by Small firms or Independent inventors.
Jewkes, Sawers & Stillerman (1958)	61 important innovations in the 20th Century	over 50
Hamberg (1963)	Major inventions in the decade 1946-1955	over 67
Peck (1962)	149 inventions in aluminium welding, fabricating techniques and aluminium finishing	86
Hamberg (1968)	7 major innovations in the U.S. steel industry	100
Enos (1962)	7 major inventions in refining and cracking petroleum.	100

1. F. Prakke; The Management of the R&D interface  
Doctoral Thesis 1974 MIT.



However, although none dispute that private inventors and small firms have played an important role in the innovation process, doubt is expressed that they still continue to do so. Escalating costs; the OECD estimate that the average innovation costs \$500,000, and complexity make it increasingly difficult for a person or persons of strictly limited means to make a significant contribution to technological change. Such a view is held by J.K. Galbraith:-

"A benign providence....has made the modern industry of a few large firms an almost perfect instrument for inducing technical change..... There is no more pleasant fiction than it is the product of matchless ingenuity of the small man forced by competition to employ his wits and better his neighbour. Unhappily, it is a fiction. Technical change has long become the preserve of the scientist and engineer. Most of the cheap inventions have, to put it bluntly, been made". (128)

Edwin Mansfield, on the other hand, chooses to tread the middle road:-

"Despite the view of Galbraith, Schumpeter and others, there is little evidence that giants are needed in most industries to ensure rapid technological change and rapid utilisations of new techniques. (There is no statistically significant relationship between the extent of



concentration in an industry and its measured rate of productivity change) Of course, this does not mean that industries composed only of small firms would necessarily be optimal for the promotion and diffusion of new techniques. On the contrary, there seem to be considerable advantages in a diversity of firm sizes, no single size being optimal in this respect. Moreover, the average optimal size is unlikely to be directly related to the costliness and scope of the inventions that arise". (129)

Whatever the case, the BCI was concerned that an objective analysis of the contribution of small firms to the innovation process should be undertaken. The culmination of this work, which assessed 1,102 innovations occurring between 1945-1970 was the conclusion that small firms accounted for 10 per cent of all industrial innovations made since the War.

Table 7

Number and Percentage of Innovations by Size of Firm, 1945-1970. (130)

Years	Small Firms (1-199)		Medium Firms (200-999)		Large Firms (1,000+)		All	
	No.	%total	No.	%total	No.	%total	No.	%
1945-1953	17	9	25	12	160	79	202	100
1954-1961	38	10	45	11	313	80	394	100
1962-1970	54	11	53	10	899	79	506	100
Total								
1945-1970	109	10	121	11	872	79	1102	100



Industries surveyed could be categorised into one of two groups; those where small businesses made little contribution to the innovative process and those industries in which small firms made a significant impact. The former group comprised the aerospace, motor vehicles, dyes, pharmaceuticals, cement, glass, steel, aluminium, synthetic resins and shipbuilding industries, where small firms accounted for only 1 per cent of innovations, whilst the latter comprised scientific instruments, electronics, carpets, textiles, textile machinery, machine tools and general machinery, paper and board, leather and footwear, timber and furniture and construction, where they accounted for 17 per cent of innovations.

Thus could be seen the variance between capital intensive and low-cost industries. The former showing negligible small firm activity whilst the latter was an active area. This work by Freeman has been extended to cover the decade 1970-1980 (131). The research, which covered nearly 2,300 significant innovations in British industry from 1945-1980 came to the same conclusion as Freeman; during the 1970s, small firms continued to introduce just over 10 per cent of the significant innovations in British industry. Once



again, these innovations were found to be concentrated in a few sectors, six of which out of thirty accounted for 75 per cent of the total: instruments, textile machinery, electronic capital goods, leather and footwear, machine tools and coalmining machinery (132). The table overleaf brings the research conducted for the BCI up to date. It would appear from these findings that the small firm continues to make an important contribution to the innovation process. although this contribution is confined to those industries where costs are lower.

An interesting finding of the up-date to Freemans' work, was that the size of the innovating unit has shown a marked swing away from very large units. The most favoured size of innovating unit was shown to be in the range 1,000-9999 employees (38-40 per cent) followed by less than 200 employees (21-23 per cent). Although this finding does not have any direct relevance to small firms, it does illustrate that large enterprises have recognised the advantage of small size of innovating unit.

Whatever the view held as to the contribution of the small firm to the innovation process, it has been recognised that those small firms who wish



Table 8      Percentage of Innovations by Size of Firm 1945-1980      (133)

No. of employees	1945-49	1950-54	1955-59	1960-64	1965-69	1970-74	1975-80	TOTAL
1-199	16.0	12.0	11.0	11.0	13.0	15.0 (11.0)	17.0 (12.0)	14.0 (12.0)
200-499	9.0	6.0	8.0	6.0	7.0	9.0 (7.0)	7.0 (6.0)	7.0 (7.0)
500-999	3.0	2.0	7.0	5.0	5.0	4.0 (4.0)	3.0 (3.0)	4.0 (4.0)
1,000-9,999	36.0	36.0	25.0	27.0	23.0	17.0 (19.0)	14.0 (13.0)	23.0 (23.0)
10,000+	36.0	44	50	51	52	55.1 (59)	59 (66)	52 (54)
Total No. of Innovations	94	191	274	405	467	401	461	2293
Total	100	100	100	100	100	100	100	100

Note: Numbers in brackets for the period 1970-1974 and 1975-1980 are the weighted percentage contributions, assuming the same sectoral mix as in the period 1945-69.



to participate in innovative activity may well be considered to possess certain advantages over their larger brethren. These advantages will now be discussed.

#### The Advantages of Small Size (133)

1. The big firm makes the bulk of its profits out of economies of scale on established products; it is therefore inclined to improve these established products rather than make any radical innovation, thus strengthening its position, particularly in relation to its competitors, which usually operate on the same principle.
2. Contacts with the environment are informal in the small unit, which is therefore quicker to perceive an opening, a slot in the market or changing "needs" and will at once discuss these with the potential customer.
3. The large firm is characterised by a division of the tasks involved in innovation which are distributed over various departments - R&D, production and sales; in the small firm, it is the absence of organisational barriers which facilitates communication and decisions are taken rapidly, while the strategy is easily understandable to all.



4. In a small firm the managing team and employees feel much more personally concerned by the firm's prospects; in the large organisation, the firm's interests differ from those of the individual. The climate may lead to greater emphasis being paid on creativity or else on identification with the organisation, but not both at the same time.

Whilst the small innovative firm is thought to possess the above advantages, it is also quite apparent that it will suffer inherent disadvantages. The following have been highlighted:

#### The Disadvantages of Small Size (134)

1. Innovation calls for highly qualified engineers and technicians, especially in the R&D phase. Because of their limited resources, small firms often find it difficult - and are reluctant - to recruit highly qualified technical personnel. Their reluctance is generally greater in periods of recession - such as the one we are experiencing now - and this increases uncertainty concerning the future, especially in Europe where recruiting personnel is a very long-term appointment owing to custom and the social legislation.



2. Problems arise with regard to information and communication with the outside world. The cost of obtaining information is high. As a result of this small firms can become introspective, seeking ideas mainly from within and lacking awareness of new technical trends and opportunities. Even in those instances where the provision of information is available at little or no cost, as for example, the use of patents statistics provided by libraries, the small businessman is in many instances unaware of the facilities available. Another major problem with respect to the provision of information is the time required to filter the relevant details; in many cases, the small firm will not have available the necessary personnel.

3. Small firms find it much harder to obtain funds because, even though it may not necessarily be very expensive, innovation can exceed their self-financing capacity. Moreover, they can only launch into one project at a time and this increases the risk and the reluctance of possible lenders. These difficulties explain why it takes two years - from the original idea to marketing the product - for most small firms to innovate and why, rather than making a breakthrough, this generally means an improvement innovation for which



the market is relatively prepared.

4. The small firm's main handicap is its size; its bargaining power is by nature very small. It suffers the consequences of this in all its endeavours to promote its ideas or products, but more especially in certain areas where a good many of the obstacles to innovation are concentrated; examples are the incredulity of the experts when it is a question of trying to obtain government aid, "although the facts persistently show that regardless of the credentials of the technical research team, innovation springs up away from the recognised paths", or getting past the bureaucratic structures which usually characterise the sources of finance or control the various permits required for introducing and developing new activities (e.g. product regulations).

Whatever the relative "weightings" attached to the above advantages and disadvantages, it has to be acknowledged that the role of the small firm in the innovation process cannot be ignored in those industries where costs related to innovative activity are within the reach of the small business. The question of innovative activity by small firms within the electronics industry will be



addressed at a later stage.

In conclusion, studies have shown that although only approximately 5 per cent of small firms undertake any formal R&D, their contribution to the innovation process is far in excess of this. It has been demonstrated that small firms play an invaluable role in the diffusion and adoption of new technologies, activities which cannot be measured in statistical terms. It thus appears to be the case that far from being the sole prerogative of the large company, innovation may be within the reach of the smaller firms, even if this innovative activity is confined to process or incremental innovations rather than innovations of a more radical nature.



## CHAPTER 6

### Introduction

The preceding chapters have introduced the reader to the general area of small firm research and has provided an overview of government policy towards the smaller firm community. Attention will now be focussed on the more specific topic of smaller firms within the electronics industry. As an introduction to this area the following chapter seeks to define the electronics industry and to present a potted history of the industry together with an outline of the structure of the electronics sector, both by product and application.



## An Introduction to Electronics

### Definition

The most concise and widely used technical definition of the electronics industry is that produced by the Electronics Industries Association in the U.S.A.:

"The electronics industries are engaged in that branch of science and technology which deals with the study and application of techniques to direct and control the conduction of electricity in a gas, vacuum, liquid or solid-state material. Electron tubes (valves) and semiconductors are combined with resistors, capacitors, transformers and similar components in equipments which detect, measure, record, compute and communicate information." (N.E.D.O.)

From this definition it is obvious that only products using electricity qualify for consideration as electronics. What is less clear is how to distinguish between those products which are electronic and those which are only electrical. Since they are both dependent on the flow of electrons, electrical and electronic equipment are obviously related. There are however two major



differences between the two types of current normally handled. In electrical circuits the flow of electrons is normally millions of times greater than in electronic circuits. Of greater significance than current flow, however, is the presence in electronic circuits of valves or semiconductors, so called active electronic components, capable of altering or modifying the rate of flow of electrons in part of the circuit. The primary criterion in deciding whether a product (viz system, assembly or sub-assembly) is electronic, therefore, is the importance of active electronic components in its functioning.<sup>1</sup>

### History (135)

The foundations of the electronics industry are to be found in the latter half of the nineteenth century. Several physicists investigated the principles of transmitting and receiving radio waves, Oliver Lodge bringing his research to a head with the discovery of a means of giving effect to these principles. However it was Marconi, a young Italian who refined and developed the device. In 1896, he came to England convinced

<sup>1</sup> Taken from N.E.D.C. Electronics EDC Annual Reports.



that it would be here that his work would be best appreciated. In his early experiments Marconi was obliged to use primitive devices for the detection of signals and it was not until 1904 that the first valve appeared. The inventor was Ambrose Fleming who, in addition to holding a post as professor at London University was also an adviser to Marconi. The innovation was a great success and followed in 1907 by the invention of the triode, by an American scientist. It was the latter device that made radio telegraphy commercially attractive and it at last attracted the backing of Governments. During the following seven years, radio was established as a means of communication and the manufacture of the apparatus had begun.

The development of the valve owed much to the technology of electric lamps and the relationship between radio and lamp manufacturers became very close.

The First World War gave a marked impetus to the development of radio communications with a subsequent rise in the number of firms entering the industry.

Until the end of World War I most of the demand for radio apparatus came from Government departments or from shipping companies. However an entirely new



phase began with the inception of broadcasting with many new manufacturers entering the field to cater for increased demand. In 1929 the British Broadcasting Corporation began to send out short T.V. broadcasts. Improvements in the photo-electric cell and cathode ray tube had made such broadcasts technically feasible but the progress of the T.V. industry was halted by the outbreak of World War II.

During the inter-war years the manufacture of radio parts increased. However from 1930 onwards the home construction of sets diminished and many component manufacturers and radio set makers worked together. Techniques for component manufacture improved and by 1939 some one million radio sets were in use in the U.K.

The outbreak of war had a profound effect on the industry. During the war years, output was concentrated in the military sphere and doubled from £276 million in 1939 to £523 million in 1945. Employment rose from 60,000 to 83,000. Directly due to war requirements the standard of components improved dramatically, for not only did they become standardised but had to be produced to work efficiently in a diverse range of environs. Thus the war years improved the technical ability of manufacturers and the technical quality of their products.



With the coming of peace, State expenditure naturally declined but there was no hint of recession due to the large pent-up demand for both radio and television parts. Although the rise in popularity of the television was accompanied by a decline in the fortunes of the radio industry, the manufacturers were able to accommodate such changes.

Until 1950, every increase in demand for radio and television meant a corresponding increase in demand for valves. This correlation was disturbed by the invention of the transistor in 1948, an enterprise in which the Americans were pioneers. Whilst the first device failed to raise any enthusiasm, the position was radically altered with the development of the junction-type transistor. By the early 1950's, glass electronic capacitors and sub-miniature relays were beginning to be used more widely.

About this time, subminiature components for use in transistor circuits were being developed. Also in the 1950's, the concept of silicon integrated circuits was published and a model of a silicon 'solid circuit' was shown at an International Components Symposium in England in September 1957. However it was once again the Americans who were at the forefront of development and an actual working working model of a silicon



integrated circuit was made in the United States by scientists at Texas Instruments in 1959. This period saw the exploitation of the junction transistor and its use with subminiature components on a printed wiring board, with the connectors made by dip soldering.

During the 1960's the financial encouragement given by the American Army, Navy and Airforce to micro-electronic manufacturers in the United States provided the necessary impetus to production technique. The invention of the planar process made the process more viable and as experience was built up, more and more applications were found: thus could be seen a swing from solely passive components to the emphasis now being on active components.

#### Small Firms in the Electronics Industry

In the early days of electronics, Marconi was concerned that he should enjoy monopolistic power of the market. After 1920, competition was qualified by the existence of patents. Although licences became available after 1922 it is apparent that their existence channeled the direction of research towards the manufacture of high-performance valves and of equipment incorporating fewer valves.



Because the technology of valve production was closely aligned to that of electric-lamp manufacture, it was to be companies concerned with the latter industry who were amongst the first to be drawn into the electronics field.

During the early years, the industry was primarily concerned with the manufacture of radios and could be neatly divided into valve manufacturers on the one hand and set makers on the other. The former consisted of mainly large electrical companies whilst the latter embraced a wide diversity of firm size.

In the late 1920's and early 1930's there was a marked decline in the number of producers: the increasing pace of change and the heavy research costs brought amalgamation and consolidation; the small firms were forced out by heavy costs and keen competition. This tendency was associated with the progress of combination in the electrical engineering industry as a whole. Up to that time industry had been composed of many highly competitive firms of varying size, in contrast the structure of the United States and Germany where from the beginning of the century the industry had been dominated by the existence of giant firms. From the late 1920's however, output became concentrated in a few hands. This position was reinforced during the



Second World War with Government encouragement of rationalisation and amalgamation, culminating in 1968 with the amalgamation of G.E.C. and E.E.C.

The enlargement in the range of electronic products during and after the Second World War brought several firms hitherto in other branches of industry into this trade, the majority of these being large firms.

Small firms, who have been most evident in the components sector of the industry weathered a serious set-back with the decline of the radio industry. However they are still apparent in the low-technology, low-volume end of the market.

As far as the new semi-conductor technology is concerned, the situation in the U.K. has been in obvious contrast to that of the United States. In the latter, small firms were prominent in the research, development and diffusion of the new technology. In this country, Government policy towards the industry<sup>1</sup> dictated that large companies should be the ones to adopt production and utilisation of semi-conductor techniques. Thus, far from spawning a large number of new technology-based firms as in the U.S., this technology has not had the major effect on the small-firm community in this sector.

(136)

1. See Appendix E.



Structure of the Industry by Application

Table 9

COMPONENTS MARKETS

APPLICATIONS

INFORMATION TECHNOLOGY

CAPITAL EQUIPMENT

Consumer Products

Office Equipment

Data Processing

Tele-Communications

Commercial Defence

Industrial

- Audio

- Office Equipment

- Data Processing

- Telephone & Telegraphy

- Security

- Robotics

- Television

- Copying, Printing & Duplicating

- Large D/P Systems

- Radio Communications

- Radar & Nav aids

- Automotive

- Videotext & Viewdata

- Micrographics & Storage

- Bulk Storage

- Video Distribution

- Medical

- Radar

- Process Control

- Word Processing & Work Stations

- Peripherals

- Broadcasting

- Traffic Control & Signalling

- INS and Guidance

- Test and Measurement

- Local Area Networks

- Data Communications

- Laboratory Instrumentation

- Command Control & Communications

Source: NEDC Electronics EDC Policy For the U.K. Electronics Industry 1982.



Structure of the Industry (by Component Breakdown).

Table 10

COMPONENTS

PASSIVE		ACTIVE	
		<u>Discrete</u>	<u>Integrated Circuits</u>
- Resistors			
- Capacitors			
- Relays	- Diodes		- Standard Logic
- Switches	- Transistors		- Linear ICs
- Passive Filters & Networks	- Thyristors		- Memories
- Connectors	- Protection Devices		- Microprocessor
- Printed Circuits & Interconnection Systems			- Semi-custom & Dedicated LSI
- Wire and Cable	<u>Opto- Electronic Devices</u>		<u>Valves</u>
- Passive Microwave Compnents	- Light emitting diodes		- Electron tubes
- Materials	- Photo-electric		- Readout devices
	- Isolators and other hybrids		- Microwave devices
	- Lasers		<u>Hybrid</u>
			- Transducers
			- Crystals
			- Hybrid and modular components

Source: NEDC Electronic EDC  
Policy for the Electronics Industry  
1982.



Structure of Production of Electronic Products in the U.K. - All figures & billion 1980.

Source: James Malcolm (NEDC EDC, Secretary 1982)

Table 11

TYPE OF COMPANIES SUPPLYING

MARKET	Major Companies	Foreign Multi-Nationals	Major Non-Electronic Companies	Medium Sized	Small	U.K. Supply	Imports	Total U.K. Market
Public Sector	2.5/1.8	0.3/0.2	0.2/0.2	0.2/0.1	-	3.2/2.3	0.95/0.3	4.05/2.6
Private Sector	0.5/0.8	0.4/0.7	-/0.1	0.2/0.3	0.1/0.2	1.2/2.1	2.3/3.35	4.0/5.45
Supply to U.K. Market	3.0/2.6	0.7/0.9	0.2/0.3	0.4/0.4	0.1/0.2	4.4/4.4	3.65/3.65	8.05/8.05
Exports	2.4/2.0	0.4/0.6	0.2/0.3	0.3/0.4	-	3.3/3.3		
Total Production	5.4/4.6	1.1/0.5	0.4/0.6	0.7/0.3	0.1/0.2	7.7/7.7		

There are two figures in each box - each separately adding up to the output and market for the industry as shown by NEDC EDC figures (1980). The first set (before/) are constrained by the estimates that:- 1. The public sector accounts for more than  $\frac{1}{2}$  the UK mkt. 2. The major companies account for 70% of UK production.

Both these assumptions are relaxed in (/after).



### Introduction to empirical work

The following chapters seek to address themselves to determining the role of small and medium sized firms within the electronics industry and particularly their contribution towards the innovation process. Before such questions may be addressed however, it is important to place the firms constituting the sample in their proper setting: their age, size and field of activity may be of significant importance to such innovative activity, as might their status.

51 smaller electronics firms were visited and interviews were conducted with one or more representative at each firm, in all cases, the owner or manager of the firm being interviewed. It was envisaged that no formal interview structure would be adhered to; the range of firms in the sample dictated



that many of the questions incorporated into the initial questionnaire drawn up before commencing any interviews would be inappropriate. The areas of discussion covered during the course of each interview are to be found in Appendix C.

The first problem for an empirical study of this nature is to define the type of firm to fall within the remit of study. Many definitions of what constitutes a small or medium sized firm are forwarded. In some cases, as with the BCI, definition depended upon the number of employees, in others on the market share of the firm whilst still others insist that a more useful definition should depend on the internal structure of the firm in question (135). It was decided, after careful consideration that a suitable criterion to adopt should be, as with the BCI, an upper employee limit of 200. To adopt the BCI definition of a small and medium sized firm as having less than 1,000 employees was, it was felt, to increase the difficulty of analysing the data. As for other definitions, the problems involved in identifying market share prior to interview, bearing in mind that some markets within the electronics industry are themselves very small, was thought to be impossible to overcome. Similarly, identifying the internal structure of the



firm prior to interview was also considered too difficult. A second criterion thought important in defining the small and medium sized firm was that the firms should be wholly UK owned.

The second hurdle to leap was the mechanics of amassing a list of participating firms. In this case, names of possible participating firms were drawn from various sources; the local "Yellow Pages", "Industrial and Commercial Yellow Pages" on a national basis, Trade Directories, Sectoral directories as, for example, the Electronics Components Industry Federation Directory. Firms were contacted on a continuous basis with approximately 600 letters of introduction being mailed. The response rate to this mail shot was approximately 20%, a level to be expected given the experience of others. Suitable firms were found to number 51 and interviews were conducted at these firms.

The main aim of the informal interview was to determine the interviewees opinion as to the importance and function of smaller electronics firms and his attitude towards innovative activity by such firms on a general and a more specific level. The finding of these interviews are presented in the following section.

The table overleaf lists the general characteristics of



participating firms.

Table 12

General Characteristics of Participating Firms

a) Classification by Age

Category	Number of Firms
Less than 5 years old	7
5-20 years old	34
20+ years old	10

b) Classification by Numbers Employed

Category	Number of Firms
1-15 employees	15
20-49 employees	24
50+ employees	11

c) Classification by function

Category	Number of Firms
Satellite	8
Competitor	18
Specialist	25

d) Classification by Structure

Category	Number of Firms
Family businesses	5
Owner managed/controlled	38
Divorce of ownership from control	8



## CHAPTER 7

### Introduction

This first chapter to concern itself with empirical data is devoted to the question of entrepreneurship and the impetus necessary for the establishment of a new business. The reason for an entrepreneur establishing a new firm may be of some importance when analysing the subsequent strategy adopted by the firm. The subject of the qualities thought necessary for entrepreneurship was also broached; with more and more people being encouraged to found their own business, it was interesting to discuss the necessary characteristics for success with existing businessmen.



## Entrepreneurship

The text-book ideal of an entrepreneur rejecting employment in favour of founding his own business or becoming disillusioned with remaining in someone's employ, is often mentioned throughout the literature on entrepreneurship (137), the idealised entrepreneur often being portrayed as an independent individual unwilling or unable to consider employment within a company.

Bannock (138), amongst others, continually stresses the individual spirit of entrepreneurs and their abhorrence of salaried employment, together with their rejection of the working ethos of a large company. The image of a solitary entrepreneur often working long hours is one that is continually conjured up to the reader of such literature. Whether such a picture is true for small electronics firms was a question that was addressed. Interviewees were asked to cite the most important reason for their becoming involved with a small business.



The question was put to both owners and managers.  
The following results were obtained:

Table 13

Reasons For Involvement with Small Business

Reason	Number of Times Cited
Could not work for anyone	15
Wanted control of life	15
Disillusionment with employer	10
Redundancy	3
Family Business	3
Employers went bankrupt	2
Thought electronics would be a growth area	1

Thus the most important factor was the need for independence, expressed as either a desire for more control over their future or as a disillusionment with remaining in employment. Comments such as " There is no incentive to work hard for someone else" <sup>1</sup> or "Large companies

<sup>1</sup> Owner of a firm servicing and repairing printed circuit boards, employing 16 people.



don't care how well you do - only that you be there from nine until five"<sup>2</sup>... were typical of the majority.

Two of the interviewees were unable to state why they were involved with a small business. Both interviewees were managers rather than owners and it seemed most probable that chance rather than choice was the overriding factor in their placement.

Only one respondent mentioned the financial aspect of founding one's own business; although feeling that a desire for independence was the stronger motivating force, he was of the opinion that the action taken would prove to be the best course for improved financial remuneration. However, the majority did not mention such a consideration until asked whether they felt their chances of increased financial rewards were enhanced with their involvement with a small firm. It was the case that twenty-one respondents believed there to be no financial incentive for running a private business. In these instances, the entrepreneur was content to accept a standard of living certainly no higher than he might reasonably expect if employed and in some instances to maintain a lower standard in order to ensure the continued survival of his business.

2 Owner of a firm manufacturing connectors, employing 42 people.



Firms could be grouped under one of two headings; those where the stimulus for establishment came from within the entrepreneur and those instances where external stimuli were more apparent. Although in some instances the entrepreneur himself was unsure as to whether his founding a business resulted from a desire for independence or from an action by his employer stimulating such a desire, there appeared to be thirty-four cases of the former. A typical example of which can be illustrated by Firm A. The second example demonstrates the importance of external stimuli for the formation of a business.



## FIRM "A"

The business was founded in 1976 by two business colleagues working for a large organisation manufacturing syncro-digital equipment. Whilst they both felt themselves to have good jobs, both were dissatisfied with working for a large company and felt that establishing their own business would lead to greater job satisfaction. One of the entrepreneurs was a trained electronics engineer whilst the other was an internal salesman. Feeling that they possessed the necessary qualities and skills the two let it be known that they were considering starting their own enterprise. Although they did not approach any customers of their employers directly, they did ensure a small customer base for their new business. The firm was founded on a capital of £800, provided equally by the two partners from their personal savings - a bank loan was not considered. The founders rented a small workshop and set up in production of printed circuit boards, electrical panels and DC breaking units. Although confident of the viability of the firm, prior to its launch, the business was soon in difficulties. Neither entrepreneur knew anything about the administrative aspect of running a business and both soon learnt that this area of the enterprise was of vital importance if the firm was



to survive. The two were advised by a Customs and Excise Inspector to abandon their previously sophisticated and totally disorganised book-keeping system and to instead concentrate on keeping a day book and a cash book, advice which they followed. After six months trading the business was still losing money and one of the founders was unwilling to continue. Having family commitments, he felt that subsidising the firm without any guarantee of return was unwise, and that his family had suffered enough hardship. In addition, although a salesman, he felt uneasy with the task of 'cold' selling and realised that he needed the security which employment in a large company offered. The remaining founder was still eager to continue with the enterprise and so repaid the original sum invested by his colleague. At no stage did the remaining founder entertain the notion that the business might fail - he had implicit confidence in himself and his product. The interviewee expressed a feeling of relief at his partner's decision to leave, stating "he wasn't pulling his weight and was unprepared to commit himself totally to the business". The interviewee also expressed the opinion that when both founders were involved, neither was willing to contribute his utmost for fear of working harder than his partner. The firm continued on a very small scale



but did become profitable. After five years trading the business was at last beginning to show improvement in its financial success and has continued to do so. The interviewees' reasons for remaining committed to the business were fairly typical; "at least this job has some importance; the trouble with British industry is that nobody wants to get their hands dirty" and that the independence gained by running a business, however small, fully compensated for the long hours worked, normally a six-day week with Sunday devoted to book-keeping.

Unlike the majority of interviewees, this entrepreneur was adamant that the concern would remain a one-man business; his experience with his partner had convinced him that total commitment from an employee would be an impossibility.



## FIRM "B"

The business was founded in 1969 by three colleagues, all trained electronics engineers, working for a small electronics firm in Northampton. This business was taken over by one of the largest of the U.K. electronics companies which then wished to relocate production to Swindon. None of the three founders was willing to switch location so all accepted redundancy without having any clear idea as to what their next course of action should be. However, after discussion, it was agreed that the three should pool their redundancy payments and establish their own enterprise manufacturing a product which all three were able to design and produce. As all three were technically qualified, this aspect of the business presented no problem; what did prove more problematic was the task of marketing and selling the product. Prior to production commencing, they approached potential customers, primarily the defence and telecommunications industries, claiming that their product would be far cheaper than those already on the market. Thanks to very low over-heads and a total commitment on the part of all three founders; a dedication which necessitated a working week of 120 hours, they were able to fulfil their promise and the business was successfully launched.



The first year presented many problems as none of the founders had any degree of managerial experience. However, no external aid was sought and the day-to-day management was attempted on a trial and error basis; indeed, the interviewee viewed the prospect of external management advice with great distaste - any interference was considered unwise. Due to the nature of the product manufactured, the markets are strictly limited, a fact which does not seem to concern the interviewee. The business now has 75% of the U.K. market for its product, there being only one other British manufacturer.

The firm now employs fifty people on site with an additional thirty-five outworkers used when necessary. No salesmen are employed, the firm relying on the quality of their product to ensure sales - orders are taken by telephone, the buyer taking the initiative. A modest expansion is planned via exporting and Agents had been appointed in several European countries.

The business has grown at a steady rate since its formation although market saturation had been reached and the firm had found obtaining extra orders rather difficult. The three original founders



were all still intimately involved with the running of the business, although none was still involved in the production process. The interviewee believed that joint ownership of the business called for a greater degree of tolerance than could sometimes be produced and admitted that the three founders had sometimes argued intensely over the running of the business, although all disagreements had been settled amicably.



The preceding case-studies serve to illustrate that a business may be founded for a variety of reasons, not all the entrepreneurs interviewed were burning with the ambition to own their own business, whilst many of those disenchanted with working for a large company may, instead of founding their own firm, join a smaller business where they feel their efforts might be more properly appreciated. All interviewees were agreed that entrepreneurs, to be successful required certain inherent qualities although there was a great variation in the qualities thought necessary for success, those older entrepreneurs emphasising the individualistic qualities, the younger, the technical and managerial qualities. The most important ingredients for success were considered to be:

Table 14

Qualities Necessary for Entrepreneurship

Qualities	Number of Times Cited
Determination	45
Single-mindedness	40
Ability to work hard	31
Ability to recognise an opportunity	25
Need for freedom	19
Expertise in chosen field	19
Management skills	10
Foolhardiness	10
Robust health	4



It can be seen from the preceding table that the interviewees believed the most important ingredient for success to be a determination to succeed and a tenacity to persevere with the business to the possible detriment of personal considerations, very similar to the text-book ideal. Surprisingly, considering the technical nature of the businesses, the importance of expertise was considered far less relevant - technical skills themselves not being sufficient to ensure the success of a business. The experience of many entrepreneurs who founded their businesses without themselves possessing any managerial skills only to discover how important such skills are, does not appear to have convinced them of the necessity of such skills at the inception of the firm. A dichotomy could be perceived; the more established firms tending to produce interviewees who stressed the individualistic qualities rather than technical and managerial skills due, perhaps to the fact that such interviewees over-emphasised the more idealistic qualities, seeing themselves, as many observers do, as battling successfully against all odds, their personal characteristics pulling them through, whilst the younger interviewees clearly remember the many difficulties which lack of managerial expertise brought.



## CHAPTER 8

### Introduction

This section seeks to outline the various functions of small firms within the electronics industry.

The categories described and illustrated are those first introduced in the Bolton Report. (139)

These categories were chosen as the most appropriate for the purpose, which is to examine the functions of small electronics firms with regard to the markets served by such firms.

A brief resume of each function is then followed by an illustration of such a firm encountered within the interview sample.

The chapter closes with a brief discussion of the importance of such small firms within the industry.



## The Role of Small Electronics Firms

### 8.1 Satellites

Satellites, as explained earlier,<sup>1</sup> are those firms where the majority of output goes to a single source. The firm is thus dependent on one major customer, who, in many ways, may view the firm as a small component within its own organisation with the added advantage of easy manipulation. If, for example, the customer should wish to reduce the supply of products or services provided by the satellite, it may do so at little notice and without the possible hazard to itself of employee reaction. Conversely, should the larger enterprise wish to expand its satellite it may do so with equal ease. In addition, the satellite must always remember that its major customer has a considerable voice in the action taken by the satellite and should the latter wish to follow a course of action not approved by the larger company, it may find itself threatened with a withdrawal of orders - an action which may prove to herald the demise of the satellite

<sup>1</sup> See Chapter 2.



should an alternative customer not be available. Should the smaller firm wish to terminate its business arrangements, it may well find it impossible to substitute a similar arrangement, for it might be the case that the market for their particular product or service is well-defined and well-catered for. The larger company, in addition to acting as the major market may also have a closer arrangement with the smaller business in that it may provide the necessary financial facilities for the firm, together with suitable managerial, technical or production advice. Thus the relationship, as far as the satellite is concerned, is inextricable and satellites may do little else but look towards their customer for their impetus.

Satellites are to be found in virtually every industry and it may be assumed that in a large percentage of manufacturing satellites it is a component rather than a finished product which is supplied. The number of satellite firms within the electronics industry is impossible to ascertain. However, it would appear that the industry is ripe for such companies, dominated as it is in many fields by large concerns, who would be prime candidates for the role of a larger customer dominating a small supplier.



Of the 51 firms interviewed, only 6 were identified as being satellites. This low figure may be indicative of one of two things: the figure is a reasonable indication of the number of such firms; or that the satellite firm is under-represented in the sample. The structure of the electronics industry would lead one to assume that the latter explanation is the more probable. Several factors may have contributed to the paucity of such firms in the sample: by their very nature there appears little need on the part of such firms for any expenditure on advertising; possessing a secure market the satellite firm has little need to advertise its existence. In addition, satellites contacted may have felt that they fell outside the remit of my survey and would thus have proved unwilling to be interviewed. It also seems probable that such firms may be owned or managed by people who have very different attitudes towards the functions of small firms for such firms can hardly be described as the most suitable environment for the expression of independence, depending heavily as it does on an external influence.

Of the 6 businesses classified as satellites, the output devoted to one customer ranged from 60 - 90% with this customer playing a vital role in the strategies adopted by the individual firms. In a further 2 cases



the firm had previously performed a satellite function. In both cases, external stimuli rather than a conceived strategy had been responsible for the change in function, a substantial effort on the part of the owner of each firm being rewarded by the continued health of the business.

The latter two cases were far more critical of the close arrangement existing between a satellite firm and its major customer than the remaining 6 satellites who were content to leave matters unchanged. In 4 of these 6 cases, the firms were confident that their businesses would be well-looked after by their major customer. Any suggestion that there existed too great a dependence for the continuance of the business on a customer who had little or no incentive to look towards the best interests of its supplier was rejected on the grounds that the relationship between the two firms led the smaller business to have complete confidence in the continued support of its customer. The remaining two interviewees expressed some doubts as to whether they wished the arrangement to continue indefinitely but both felt confident that when they chose to broaden their customer base they would have little difficulty in doing so.



The true satellite, i.e., those firms wishing to remain, to a large degree, an extension of their major customer, are of limited interest inasmuch as they appear to be so dependent on external stimuli as to exhibit behaviour not necessarily associated with a small independent business. What would appear worthy of further investigation are those businesses who have been forced to radically alter the function of their existence, in response to actions taken, without their consultation or prior agreement, by their major customer.

Two such examples will now be discussed.



## FIRM "C"

The business was founded in 1965 by the owner of a design engineering contract services company, the latter business being based in the West Midlands. The new enterprise, formed to fill a specific niche of manufacturing small reed relays systems was based in Runcorn, Wirral, to be near its main market, the petro-chemical industry. The firm was not very successful initially and was supported by funds from the Midlands enterprise Board. Feeling that the product was, in part, responsible for this poor start, the firm moved to making larger equipment within the same field, this action proving rather more successful. Committed as it was, to produce a specialised product, its markets were strictly limited. At one stage in its development, one large company accounted for over 90% of turnover. The firm was then in a true satellite mode, being almost entirely dependent on one major customer. This situation would have continued indefinitely, had not an action by the larger company forced the smaller firm to change its strategy. Unlike some satellites, the small firm was aware of the importance of forward planning and of the need to identify, at an early stage, any changes in the behaviour of its main customer. In the late



1960's, an American electronics company launched a new type of programmable controllers onto the U.K. market. Firm "C" had some experience working with this new type of equipment and, when looking for an alternative to its satellite mode, it approached this U.S. company with a view to becoming a stockist and systems builder of this equipment. In 1978, the terms were agreed and Firm "C" became the main outlet for the equipment in the North-west region. From this point, the business was able to broaden its customer base. Although remaining within a closely related field, the new customers were attracted by the additional services provided. In 1980, their original customer, who although not as vital, was still of some importance, drastically reduced its demand for the original product. Had the smaller company not anticipated and made suitable provision for this move, this action would have signalled the demise of the enterprise. However, due to careful planning the firm was able to survive this set-back and continue to expand its customer base. Although the original customer still accounted for 50% of turnover in 1980/81, this percentage is declining and will continue to do so. The business is now the main builder and stockist for programmable logic control systems, the distribution function accounting for approximately 8% of turnover.



As a typical satellite, the firm did not see the need for salesmen. However, in 1979, shortly after reaching agreement with the U.S. company, they recruited their first salesman and now have three people performing this function. The salesman concerned with the direct selling of the equipment as opposed to the design of systems was trained by the American company. Their customers, now on a nationwide rather than a local basis, cover such diverse industries as the petro-chemical and the confectionery industry. The firms' turnover, relatively steady, due to their stable market until 1978, has now doubled whilst they have a modest recruitment policy of two apprentices taken each year.

The firm now employs 34 people and has plans for an expansion of up to, but not more than, one hundred people. Due to the nature of the business, no exporting is attempted. Business is normally gained by tender, there being five or six competitors of roughly equal size. The firm usually wins such tenders on its pricing strategies but the quality of the systems was also thought to be an important factor.

It could be argued that this business has moved from a satellite mode directly into a function of the



same type but it must be realised that there exist major differences between the two modes. In the first instance, the business was supplying a single type of product to a large concern. Its markets were clearly defined and severely limited with no hope of expansion. Realising the dangers of such a situation, the management sought to alter the firms' position, and have done so with considerable success. Although in its distribution it may be viewed as a satellite, the salesman having been trained by the supplier, the majority of business is concerned with the design and installation of electronic, electrical and mechanical systems. As such, the firm provides a service together with a product. It is in this sense, that the business has shed its role of submissive satellite and has ventured into a business world where orders must be fought for and where customers' needs are of paramount importance. The majority of equipment sold is designed specifically to suit the particular requirements of individual customers. Thus the business must be in close consultation with customers at every stage of development, unlike a satellite who, it appears, while having a close relationship with its major customer, contributes little to such a relationship.



## FIRM "D"

In this second illustration, the satellite was founded in 1978 by a trained engineer who was, at the time, working for a large electronics company. The entrepreneur had been considering founding his own business but was undecided as to the exact nature such an enterprise should take. Whilst still in employment, he learnt of a Belgian firm manufacturing large frame computers and modules; feeling this to be a potential growth area, he contacted the business to learn more of their product and their plans for selling the equipment in this country. Being suitably impressed by the products and, in turn, impressing the manufacturer, the entrepreneur was appointed Northern distributor for the U.K.. Resigning from his post, he established offices in Ashby-de-la- Zouche. Although possessing no previous sales experience, he was confident that his technical skills would compensate for his lack of experience. The main U.K. distributor for the product, based in Cirencester and servicing the South of England was, in many respects in a far superior position to the newly established firm. Only the former was given the security of a franchised operation, the new business being supplied not directly from Belgium but via the Cirencester office, there being



no return of any merchandise. The entrepreneur was thus required to invest a substantial amount of capital with no hope of any return should the stock remain unsold.

Although concerned primarily with the sale of computer hardware, the new founder was quick to realise the potential for a compatible software system of his own design to accompany the product. In the first year of trading, the firm made a small profit on a turnover of £70,000 of which between 75-85% was accounted for by hardware. During the second year the turnover increased to £170,000 of which 50% was hardware. The software designed by the entrepreneur to complement his existing product range was only introduced after negotiations with the Belgian supplier. At this time, with the founding of the business only in the recent past, the entrepreneur willingly agreed to the stipulations demanded by his supplier; any software designed in-house was to supplement rather than compete with the software supplied by the larger company. By 1981, the firm had designed seven boards to complement the range on offer. The entrepreneur had come to feel increasingly insecure in his relationship with his supplier and with the foreign manufacturer. Remaining a



sub-distributor was not an action he thought in the best interests of the continued health of his firm. By 1982, the business had four areas of interest:

boards designed by the firm to complement the Belgian product;

systems;

hardware;

in-house development of a single board computer.

In May 1982, the Belgian company went into voluntary liquidation. The interviewee was given no indication that such an action was imminent.

Although he was in close contact with the company travelling to the Continent several times a year, and receiving visits to his own business, he was at no stage given any indication that such an action was probable. Furthermore, the Cirencester office, his main supplier offered no advice as to how he should proceed once the liquidation was announced. However, the interviewee had become suspicious with regard to the profitability of his supplier and therefore was only a little surprised that such an action had been forced upon them. The speed with which events occurred did, unfortunately, surprise him, as he had made little provision for such a potential catastrophe.



With the collapse of his supplier, the interviewee faced a potential drop of business which would have sufficed to ensure that he cease trading. Luckily, those customers already possessing one of the Belgian computers continued to require the necessary software for such a system, thus ensuring that the design of extra boards was still required. The single-board computer, the development of which had begun twelve months previously was ready to be launched onto the market shortly after the crash of the supplier. This, together with the parts of the business which had expanded after the formation of the firm, has proved sufficient to ensure the continued survival of the enterprise.

The interviewee viewed the future success of his business to depend on the software function rather than on the hardware market opened up by the introduction of his own computer. The latter, designed primarily for industrial purposes was slowly becoming accepted although it was admitted that a great number of errors were committed with respect to the marketing of the said product; orders were accepted which could not be met in a reasonable time span and a number of customers were becoming dissatisfied with the service offered.



However, plans for expansion have been modified and the firm is progressing steadily, with a 1982/82 turnover in the first six months of £240,000.



## 8.2 Specialist Firms

Specialist firms<sup>1</sup> are those which produce a specialist product or service which a larger company is unable, or unwilling, to do. As such, they provide a vital service to their customers. There are various reasons why a larger business should be unwilling or unable to provide a product or service. One such reason is that the size of the markets may dictate that the larger business may have little to gain from filling such a gap in the market. It is often thought the case that it is in this area that small firms seem best suited for survival. Performing this function, they do not then compete with a giant corporation with its powerful financial base and ability to undercut competition by relying on other areas of its business activity to subsidise, temporarily, a particular product so that its smaller competitors are forced to match its price and risk bankruptcy or admit defeat and withdraw from the market. (140)

Specialist suppliers, whatever their product,

<sup>1</sup> See Chapter 2.



are thus protected from the, sometimes unfair, competition of larger enterprises.

It may be the case that, whilst producing a specialised product, it has many similarly sized rivals or that, alternatively, due to the precise nature of the product or markets, there are very few, if any, competitors to contend with. In common with the satellite firm discussed previously, a specialist may have a limited product range. However, it differs fundamentally in that it is not tied to one larger customer and the firm is thus able to pursue a more independent strategy while at the same time, due to the firm being dependent on a specialised service or product, it does seem subject to certain constraints in its choice of action; the customers, however many, having an important effect on the firm.

Twenty five such firms were identified in the sample, their function ranging from repairing or servicing electronic equipment to the production of large material-testing machines. In 5 of these 25 firms the interviewees claimed that they had few, if any competitors within their specific region of activity, whilst the remainder cited examples of competitors of roughly similar size. The apparent lack of competitors in 5 instances



may be indicative of the interviewees' lack of awareness of the existence of similar firms rather than an actual dearth of such firms. The localised nature of many specialist producers may result in an insularity manifested in the belief that the firm is unique. Alternatively, the interviewee may wish to stress the importance of his own firm by laying emphasis on the unique nature of his own business; in one instance, the interviewee claimed an apparent lack of competition whilst later citing the existence of similar firms and his superiority over such competitors as a measure of his success.

All the specialist firms identified in the sample were operating in business areas where the opportunities for expansion were severely limited and as such, those firms wishing to pursue an expansionist strategy were forced to diversify their interests. However, the majority of such firms interviewed were reasonably content to accept the limitations imposed by the nature of their enterprise.



## FIRM "E"

The business was founded in 1972 by three colleagues, all originally employed by an electrical company based in Birmingham. This firm was bought by a larger electrical concern and a decision was subsequently taken by the new management to portion this new acquisition into several smaller manufacturing units with a consequent reduction in the personnel employed. Within twelve months of the take-over, the three potential entrepreneurs found themselves facing redundancy. Realising that there existed little opportunity for similar employment within the area, the three chose to pool their resources to found a business.

Their combined redundancy payments, together with some additional savings, provided an initial seed capital of £5,000. In 1972, the business was established, the manufacturing base originally divided between the founders' homes.

All three entrepreneurs were trained engineers, in addition, the founder responsible for the sales of the new product was a member of the Institute of Works Management and had previously been employed in a managerial capacity.



The new business manufactured phase failure relays for use by control gear manufacturers. This product was chosen as all three entrepreneurs were familiar with the manufacturing processes involved, having produced a similar product whilst in employment. Although choosing to compete directly with their former employer might have been considered a risky venture, the three founders had assessed the situation thoroughly beforehand. The entrepreneur involved with the selling of the product had approached known customers of their rival to enquire as to the possibility of obtaining a small order. This action proved reasonably successful, the new enterprise starting with a healthy order book.

Within a few months of the formation of the business, orders were such that premises were necessary. A small rented workshop was located and their first employee was hired to deal with the assembly work involved.

At the discussion stage, prior to the formation of the business, the three colleagues had agreed that the new business would serve several functions inasmuch as it would provide for the three founders and for several employees whilst manufacturing a product of high quality. All three



had initially shared the view that the business should remain small. However, whilst the firm was still in its infancy, one of the partners became very frustrated with the attitude of the remaining two. The market for the particular product by the business was strictly limited and although the new firm had acquired a healthy share of the market, it was obvious that should the business wish to expand, diversification would be in order. Two of the partners had no wish to contemplate such a move, content to let the business remain small. The third member, rather than continue to work within a close team with whom he no longer agreed, chose to sell his share of the business to his colleagues and to use the money thus raised to found a new business with greater growth potential.

The original firm now employs 13 people (including the wives of the two founders who deal with the paperwork) and have moved premises to a larger site. The business has between three hundred and four hundred customers at any one time and continues to manufacture exactly the same product. Competition is minimal but apparent, competitors consisting of roughly similarly-sized manufacturing units.



### 8.3 Competitive Firm

The term Competitive Firm refers to those firms which compete directly with other businesses, both large and small. It has long been assumed that the smaller firm is not so well suited to such a function as to the satellite and specialist mode, and it is true that small firms proliferate in those areas of business activity ignored by their larger fellows. Large businesses have, at their disposal, infinitely superior resources and are able to resort to courses of action which the smaller firm is unable to counteract, as, for example, subsidising a product to sell at below cost price. It is obvious that a small firm will be unable to compete in an area where large-scale production costs are possible for it is in this field of activity that the giant company reigns supreme. However, for many products, a large company devotes only a small fraction of its resources and it is in these areas that small



firms are able to compete by virtue of the advantages small size may bring. Such a small firm may stress the close relationship existing between itself and its customers; this relationship may have been established over many years so that the customer and producer are bound together in a more complex relationship where loyalty and service may prove more important than pricing policies; it is often the case that small firms of this type will cite such factors as contributing to their success.

Due to the nature of the industry, under study, there are a substantial percentage of small competitive firms; despite the presence of capital-intensive sectors within the industry, there are also many areas where the lower-technological content of the product or the size or type of the market makes it quite possible for firms of all sizes to exist.

Eighteen firms were identified as competing directly with both large and small firms. Competitive firms tend to predominate in the larger size bands, and were able to compete with giant electronics companies, both British and foreign. As mentioned earlier, a significant number of interviewees stressed the importance of service rather than price when discussing the factors contributing to their success. Eight of the eighteen firms rated



this factor of most importance, an indication of the strategy adopted by small competitive firms who may not be able to compete in financial terms against their larger rivals. Quality of product was also held to be of greater importance than pricing policies; seven firms were of the opinion that it was impossible for the smaller firms to match the prices of their larger counterparts.

An illustration of a smaller competitive firm now follows:-



## FIRM "F"

The business was founded in 1967 by two colleagues, one a chemist, the other a screen-printer, to manufacture printed circuit boards (PCBs). Both men had extensive experience within this field and felt that their own business would best satisfy their needs for independence. The initial seed capital necessary to finance the venture was supplied by the two entrepreneurs and the operation was organised as a "garage business". At this time, the manufacture of PCBs could be performed on low-cost equipment using the founders' expertise.

Due to the very low over-heads and the consequent competitive pricing policy adopted, the firm was quickly inundated with orders. The existing production facility was unable to cope with such a demand and a decision was taken to relocate the manufacturing operations in rented premises. This stage in the history of the firm proved to be one of the most hazardous. The expansion in production and, consequently, in employees necessitated a more clearly defined management structure; the entrepreneurs were no longer required in the production process but rather had to channel their skills towards managing



the business. Relocating also brought with it greater over-heads necessitating a cut in profits. Prices were also increased to a more realistic level, customers now being sought on the strength of the expertise and service offered rather than solely stressing the price differential.

The business was able to overcome the initial difficulties encountered and the firm continued to show a healthy progression; this expansion was financed by both retained profits and an overdraft from their local bank. Indeed, the interviewee could not believe that a small firm would be able to survive and flourish without the understanding of his local bank manager.

By 1980, the turnover was £250,000 and the firm employed eighty-three people, sixty-two of whom were concerned in the production process.

Advances in the technologies employed have called for a substantial investment programme in capital equipment without which the business would have become uncompetitive. Profit margins have continually been cut to increase the customer base and so provide additional funds for re-investment.



At the time of the interview, the business specialised in producing conventional type PCBs and plated-through-boards and was currently developing facilities for the manufacture of multi-layer circuits.

The firm has no product line, all output being designed specifically for customer requirements. It has now established itself as a company in the forefront of specialised printed circuitry and particularly in the development of plating-through hole technology. In 1979, a further major expansion of the firms' facilities doubled the size of the premises to nearly 40,000 ft<sup>2</sup> and increased manufacturing capacity by 60%.

The business has approximately 200 regular customers, a large percentage of its output going to the defence and telecommunications industries.

The interviewee believed that the small size of the business contributed, in large part, to its continued success. Both founders, although now primarily engaged in management tasks, have a very close relationship with their employees and are to be seen on the shop floor daily.



When asked their advantages over their larger competitors, the reasons given were:- quality of product; delivery time; competitive price.

The interviewee believed the former two criteria to be of more importance than the pricing policy of the firm. It is interesting to note the changing emphasis on competitive price; the founders having realised the impossibility of competing solely on price have chosen to stress the quality of the product, together with the superior service offered by a smaller business- for example, their prompt delivery and short order time.



## Conclusions

Small firms within the electronics industry have been shown to cover the three functions as first outlined in the Bolton Report. Specialist suppliers and satellite firms, by the very nature of their existence, may be expected to remain small. It is therefore very interesting that such a large proportion of the sample should consist of firms who may be defined as "competitive" inasmuch as they compete with businesses with vastly superior resources at their disposal. Such competitive firms, in order to survive, must provide the customer with a reason for remaining loyal to their supplier. It is interesting to note the number of such small firms who cite the services offered by the firm as of more importance than the price of the product. By their very existence and continued health, such firms are contributing a valuable service to the industry. The presence of small firms provides welcome competition to their larger counterparts by ensuring that the various needs of the customer are satisfied.



All the firms illustrated demonstrate the importance of small firms within the electronics industry. Regardless of function, small firms have been shown to play a vital role. Without the presence of satellite firms, larger companies would be forced to manufacture products in-house which might best be produced within the small firm environ. Specialist producers contribute significantly to the diversity of products and services available. The removal of such firms might herald a reduction in the products manufactured, or, alternatively, an increase in the cost of such products or services.

One of the most important distinctions between firms of the three types is the strategies open to such firms. Commentators have continually stressed the individual character of small firms (141); the firm, to a large extent, adopting the characteristics of the entrepreneur. Entrepreneurs unable or unwilling to follow a high-risk strategy will very seldom operate in an area of business activity where risk is prevalent. Accordingly, the function an entrepreneur chooses for his business will reflect his own personal characteristics. Thus the role of small firms may be linked to the character of the



founder or director. The implications of this reflection on the strategies of individual firms will be discussed later.



## CHAPTER 9

### Introduction

The smaller firm community has long been thought to suffer disadvantages when compared to their larger counterparts. Governments measures designed to relieve these disadvantages have been much publicised although many have been critical of this attempt to aid the sector. The next chapter attempts to outline the problems facing smaller electronics firms and to illustrate these problems using individual firms as examples.



### The Problems Facing Small Firms

The BCI, in its report, highlighted the disadvantages experienced by the smaller firm in relation to its larger counterparts but came to the conclusion that such disadvantages were inherent with small size and that to offer positive discrimination to the sector was unadvisable(142). Much literature has since been published that has highlighted some of the difficulties facing the smaller firm and these have been briefly addressed in a previous chapter. Many of these problems have since been remedied, in part, by the present government in its attempts to encourage the small firm community. Whether such measures are successful may be gauged by the respondents views on the problems still facing the sector.

All interviewees were asked to list the disadvantages experienced by small firms



generally, and then to elaborate on the specific problems facing the small electronics firm. The following results were obtained:-

Table 15

Problems Facing the Small Firm

Problem	Number of Times Cited
Lack of suitable finance	40
Taxation too high	38
Too much formfilling	31
Managerial problems	27
Difficulty recruiting suitable personnel	26
Lack of suitable premises	26
Attitude of government	19
Problems relating to relationships with large companies.	8

As can be seen, the major problem would appear to be a lack of suitable finance available to the small firm, with problems relating directly to the abilities of the entrepreneurs



of secondary importance. These problems will now be discussed.

### Finance

There are two types of finance necessary for a firm of any size; seed finance and development capital. The former comprises the money necessary to establish a new business whilst the latter is concerned with financing the development of the business. The BCI report came to the conclusion that although small firms might be disadvantaged with regard to the question of obtaining development or working capital, the disadvantages suffered were entirely in keeping with their size;

"....most of these disabilities reflect the higher costs of lending in small amounts or the higher ratio of lending to small borrowers; they do not result from imperfection in the supply of finance. Indeed, the ability and readiness of the financial institutions to exploit every new legitimate demand for funds is one of the great strengths of our financial system." (143 )

The Wilson Committee, reporting on the financial institutions voiced agreement with the BCI; the difficulties experienced by the sector and the higher interest rates demanded were in



borrowing as less preferable to closing their firm. To the 12 respondents who held this view, external finance of any kind was to be avoided at all costs; as might be expected, all twelve firms were in areas with limited growth potential, all were family-businesses, although not all were small in comparison to the remainder of the sample.

The following case studies illustrate the range of attitudes towards external financing of firms;



### Firm G

The business was founded in 1976 by a project engineer engaged in design work by a large electronics company. Although content in employment he felt obliged to leave when the company introduced a compulsory pension scheme which he refused to join. His employers, unwilling to relinquish his services then suggested that he be employed on a contractual basis, an arrangement which satisfied both parties. Whilst employed on this basis, the interviewee chose to examine the possibilities of establishing his own independent business. Being in the fortunate position of receiving an income whilst being able to determine how receptive the market was to his ideas, the interviewee started his own business on a part-time basis, manufacturing controllers for green-house . The capital investment for such a venture was minimal and at no stage in the establishment of his own business was there a need to raise external finance. His product, proving reasonably successful, the entrepreneur was able to limit the amount of time spent at his employers to three-and- a-half days a week. After a short time the interviewee felt that unless he chose to devote himself full-time to his own business



the enterprise would never gain sufficient momentum for its continuance as a viable concern. He therefore devoted himself, on a full-time basis, to his enterprise. Operations continued to be run from his home, the product range expanding to cover safety alarms and general alarm systems rather than the specific product with which he had tested the market. The firm was registered with the interviewee and his wife as partners, the entrepreneurs' father, who was retired, coming to work as the sole employee. The products were marketed by advertising in the "Yellow Pages" and through personal contacts. Over the next five years the business was built up to a Turnover of £28,000 per annum of which 66% was accounted for by two firms. After two years of business, the operations were transferred to rented accommodation. A friend of the interviewee had rented a garage with an upstairs workshop and as he had no need of this workshop he offered the premises to the interviewee for the nominal rent of £5 per week. The business now occupies both floors of the building for the weekly rent of £10. Whilst the rent is so low, the interviewee is unlikely to invest in property - he had inquired as to prices of freehold premises but had discovered, not too



surprisingly, that purchasing was not a reasonable alternative.

The firm now manufactures twenty standard-type products, each tailored to individual customer needs, whilst approximately eighty "specials" have been produced. Many of these designs have been introduced in the twelve months prior to the interview and the interviewee, ever cautious, expressed the view that his expansion had perhaps been too hasty and that consolidation rather than continued expansion might next be wise. The equipment is relatively expensive - twenty orders per month is considered more than sufficient to keep both workers busy- so a broad product range indicates a substantial design input. Although this design work is the more fulfilling task, the entrepreneur believed that more funds would be generated by concentrating solely on assembly work, this option had been considered but the decision had been shelved as he was loath to abandon the more rewarding function. With the introduction of a much-extended product range, the possibility of producing work using a production-line technique was also discussed; the unused ground-floor area would have proved an ideal site for the location of the necessary equipment. The



interviewee approached his bank-manager to discuss this possibility and although the latter felt the move to be financially sound, the interviewee eventually rejected the proposal after considering the implications involved for both capital investment and employment. With respect to future employees, the interviewee was hoping to employ a receptionist-cum-book-keeper as he found managing the paper work a cumbersome task, the only help he received in this area of business management was from his sister who worked for a solicitor.

The most striking aspect of the entrepreneur was his attitude to external financing. There were many interviewees who considered the prospect of external equity an area to be avoided at all costs. External share-holders were thought of as a sign of defeat and an indication that the founder had failed in no longer possessing full control of his own business. However, with regard to borrowing which did not involve the transference of equity, as, for example, bank over-drafts, the majority agreed that such financing was almost an inevitability in today's business world. This interviewee contrasted sharply with these widely held views. The prospect of borrowing, of whatever form, was an action he considered to be totally



unacceptable. The idea of any source of external finance was an admission of defeat. At no stage in his business career had he considered such an action. His plans for expansion had been shelved not for financial reasons but rather because he felt that the control of the business might be beyond his capabilities. If the business was in need of external finance, he considered it no longer viable and would have no hesitation in closing it down. This attitude towards finance contrasted quite sharply to his attitude towards other business practices. Far from becoming insular, he was eager to seek advice from external sources and was one of the few interviewees who had not only heard of the Small Firms Advisory Service but had actually collected some of their publications.



Firm H

The business was established in 1974 as a subsidiary of a large American company to make supervisory control equipment. The present owner had gained some experience of this area of production whilst working as an engineer for the National Coal Board. An engineer by training, he then moved to the English Electric Company as the Chief Engineer in the telemetry division. Whilst holding this position, he gained experience of both the managerial and financial aspects of organising a division within a company. When the company was taken over by G.E.C., the interviewee was given the choice of moving over to the commercial aspect of the business or of remaining as an engineer. The former course was chosen and the interviewee became the Head of Contracts. Whilst thus employed, he first became involved with the use of supervisory control equipment when dealing with a U.S.-based producer of such machinery. He approached the company with the suggestion that they should establish a U.K.-based manufacturing subsidiary for the equipment with the interviewee as the Managing Director of any such company. After negotiations, the business was established in 1974 in Wales, the



interviewee, as planned, assuming the top managerial position. Both the interviewee and the Sales Director were given a 10% share of the equity of the new business. Nine months after the subsidiary was established, the parent company went bankrupt. Under the terms of the initial agreement signed in relation to the U.K. subsidiary, existing shareholders were entitled to first refusal of any shares made available, these shares to be sold at an advantageous price. The U.S. auditors brought in to untangle the finances of the bankrupt company were far from happy about this agreement and a legal battle then ensued between the auditors and the two British shareholders. The case was eventually decided in the latter's favour and in 1977, three years after the battle commenced, the two directors were offered the opportunity to purchase the remaining 80% of the equity.

At the onset of the collapse of the parent company, the British directors realised that should the opportunity arise to purchase shares, neither would be able to avail themselves of the advantageous offer due to inadequate funds available. They were thus forced to consider the option of



persuading an external backer to invest a substantial sum in the company. I.C.F.C. was approached and proved willing to supply the necessary purchasing funds. The entrepreneurs also approached their local bank who were also willing to invest in the business. After careful consideration, the latter source of funds was thought preferable and the shares were purchased. The bank was willing to invest in the firm due to its proven track record; the company had continued normal trading and was proving a financial success. By 1979 however, a very different picture was emerging. A 40% drop in the share of the U.K. market caused a re-evaluation of company policy. Heavy investment in much needed R&D necessitated a further input of capital. Immediate action was vital and a decision was made to contact I.C.F.C. once more. By 1980, after a thorough investigation of the business, I.C.F.C. bought a 20% stake in the business. One of the major reasons why this form of financing was initially rejected was the aversion on the part of the directors to part with equity and to have any interference with the running of the business. However, I.C.F.C. are a non-executive partner and do not take any part in the day-to-day management decisions. A business up-turn was induced with the injection of new funds and the successful introduction of new products



enabled the business to purchase new and larger premises on an industrial estate. By this stage, the debt/equity ratio was becoming unbalanced and action was needed to remedy the situation. A friend had previously expressed an interest in investing in the business and, after consultation and agreement with I.C.F.C., the original investors both sold 10% of their equity to the new investor. By October 1980, I.C.F.C. held 20% of the shares, the two original directors each owned 30% whilst the private investor had the remainder. The latter member was invited to join the company as Chairman.

As previously mentioned, the firm manufactures remote supervisory control and data acquisition equipment used by the utilities markets. The markets for such equipment are expanding rapidly and the business has increased its output at an annual rate of between 12 and 15%. Exporting accounts for between 20% and 50% of sales and selling abroad is conducted via Agents in ten countries. Two salesmen are employed to cover the U.K. market, one dealing with the Emergency Services the other with the General Utilities Markets. An internal sales engineer prepares tenders, all jobs being secured after tendering an estimate.



Competition is from large companies, both British and foreign. Orders are gained by their producing a reliable product at a sensible price.

The firm now has eighty-six employees of which nine have close links with universities; four are full-time students studying for degrees in electronics, four are studying for a Masters degree, three in electronics, the other in business studies, and the remaining two are completing Ph.D.'s in science subjects. The full-time students have close links with the firm, the under-graduates working on site during the vacations. As can be seen, the research element in the firm is of vital importance. Micro-processor-based equipment is becoming more widely used and there is growing emphasis on the software incorporated into the system; indeed the interviewee believed the software would soon become the most important selling feature of the systems.

As for the future, the firm is eager for continued external investment for certain projects; any reservations about parting with equity have been over-ridden by a desire to see the firm become one of the established producers in its field- an action which necessitates the injection of substantial capital.



## Firm I

The firm was founded in 1968 by three work associates, all employed by an electronics company. The three, electronics engineers by training, decided to form a small business to manufacture printed circuit boards (PCBs) on a part-time basis. Operations were initially located at their homes but within a short time the manufacturing was re-located in a small rented work-shop. The three, feeling that the returns were not commensurate with the effort involved and all unwilling to commit themselves on a full-time basis, decided to try and sell the business as a viable concern to recoup their investment. The firm which by this time employed three people, was sold, in 1972, to an engineering company which wished to branch out into the electronics field. The new owner was a holding company with ten small engineering and no experience in the manufacturing of electronic components.

By 1979, the group was in some financial difficulty. Profits had been eroded and the following financial year saw a drop in profits of £1,000,000, the group only just breaking even. The next year was even more disastrous with an overall loss of £1,500,000. At this point, the holding company



chose to relieve itself of the electronics division whose fortunes had closely mirrored those of the parent company. In 1975 the electronics firm had a turn-over of £48,000 per annum, this figure was doubled in the following year and reached a peak of £220,000 in 1978. However, the firms fortunes were then reversed when they lost their major customer who accounted for 50% of their business. The following year saw the firm make a loss of £21,000. The holding company saw no reason to continue to subsidise this area of the business and although the following year showed slightly better results, the following options were then considered:

- 1 To keep the business;
- 2 To close the firm;
- 3 To sell to the employees, should they wish to buy;
- 4 To sell to the highest bidder.

The first option was rejected immediately as uneconomic as was the second, the parent choosing instead to see whether any interested parties would tender a bid for the firm. The sales director of the electronics division decided at this stage to investigate the possibility of purchasing the business. After studying the financial accounts, he felt that the firm could be viable. Without interference from the Holding company and the



necessity of contributing towards the group as a whole, the director felt that the business could be rescued. Although confident that he would be able to secure alternative employment if necessary, he felt a loyalty not only to the firm but to the other employees. Not having sufficient capital to buy the business, he prepared and presented a package of financial statements of the accounts of the business to each of the High Street banks; without exception, each declined to invest in the firm. The interviewee then approached I.C.F.C. who proved willing to provide capital in exchange for a share of the equity. The entrepreneur was unwilling to part with any equity and so rejected this offer. He once again approached his local bank-manager and although the bank was still unwilling to invest in the business, the manager suggested that the interviewee should apply to the Loan Guarantee Scheme for funding. In April 1982 the loan was approved and the interviewee became joint-owner. The other investor was one of the original three founders who the interviewee had approached when first considering the possibility of purchasing the firm. His partner was to be responsible for the technical aspects of the business with the interviewee concerning himself with the managerial aspects of running the business.



The financial package prepared, with the government guaranteeing 80% of the loan at a rate of interest 5% above the banklending base rate, with the bank providing the remainder for which collateral was required, was a more costly package than that offered by I.C.F.C. but had the overwhelming advantage, as far as the owners were concerned, that no equity was exchanged.

The firm now employs twelve people, a reduction of four since the purchase and has built its turn-over to a pre-crisis level of £220,000 in 1981. The business manufactures conventional single and double sided PCBs used in such diverse products as T.V. games and ignition units for gas cookers. The customer base, primarily of local firms, consists of approximately sixty firms.

The market for the type of PCBs produced is declining as more and more customers demand the more sophisticated multi-layer or double-side, plated-through-hole boards. As the market contracts, the suppliers are being forced to switch production to the technically superior product. Such a step involves a high degree of capital investment and the interviewee did not feel that the firm was ready to contemplate such



an action. As he stressed, the more of his competitors who chose to change production models, the fewer the competitors for the type of boards produced. However, the interviewee did realise that the next three years would see major upheavals for the business with a substantial investment programme a vital component of the firms survival strategy. How this money was to be raised was a question he preferred not to think of.



### Firm J

The business was founded in 1974 by two colleagues. Both were employed by a small electronics company which manufactured control machinery for use by the food industry. The business was established in response to the entrepreneurs feeling that limited opportunities would inhibit their progress within employment. Both partners, although technically qualified, as electronic engineers, were employed in a management capacity. Thus both recognized the importance of fully investigating the viability of establishing their own firm within the same field. A market survey was undertaken which gave every indication that such products would prove acceptable. The next stage was to consider ways of financing the launch of the business. CoSIRA were contacted but advised the entrepreneurs to consider bank lending as a first option, the rates of interest being more favourable. Sources of general information were also approached but proved, in the interviewee's opinion, rather unhelpful. An initial fund of £4,000 was raised by way of personal savings and a bank over-draft, secured with collateral, and production was started in a small rented workshop. Although feeling quite confident that the business would become a



success, neither entrepreneur was willing to completely sever the ties with his employer. Thus both were employed as freelance consultants on a part-time basis, devoting the remainder of their time to their own firm. After three months, the entrepreneurs felt that their own enterprise had gained sufficient momentum to warrant full-time care so both became fully involved with the business. The firm was an immediate success but difficulties were soon apparent. The attitudes of the two owners towards the business and its future prospects caused a great deal of ill-feeling. The interviewee viewed the concern as a serious commitment and one which necessitated a degree of caution to avoid over-expansion and consequent collapse. His partner, on the other hand, believed that the firm, if proving successful, should expand as rapidly as possible to meet demand and, when reasonably profitable, should be sold to recoup their investment and to provide funds for the formation of a second business. The two founders could not reconcile their differences so the more ambitious of the two left the business to establish a new enterprise. The remaining partner bought the second share of the firm and so became the sole proprietor..



The firm manufactures control machinery for the food industry and markets its products only in the U.K.. A standard product range accounts for 50% of turn-over, the remainder being devoted to specially designed equipment for specific needs. The business employs a total of fourteen people, with six of these devoting their time to design work. The founder, although primarily interested with the design in-put is forced to devote himself to the managerial aspects of the business. The nature and type of markets dictate that most competitors are themselves small businesses and in some areas, e.g. weighing machines and systems for batch blending, the firm has over 80% of the U.K. market. The market for these products is continually expanding and machinery is becoming more and more technically sophisticated.

The agents selling the equipment work on a commission basis and very little advertising is undertaken, the interviewee believing that such an exercise would prove unproductive. Customers are attracted via exhibitions and many approach the firm directly. The interviewee did feel that a sales-man would contribute significantly to the



success of the business but was unwilling to employ an extra member of staff.

The major problem facing this business is its access to adequate finance. As stated, the business has established itself as one of the leading producers in its field. However, a major stumbling block in its development appears to be the lack of sufficient capital for development. Thus far, expansion has been by way of retained profits but such a system is no longer enough. For the business to move into the manufacture of a more sophisticated product range, an injection of capital is required, which is beyond the means of the firm. The interviewee felt that the research carried out within the business indicated that the development of a new microprocessor-based product was essential. Although the design of such a product had been completed, the capital investment necessary to finance such a product is not available. The firm had a turn-over, in 1981, of £250,000 and the retained profits are insufficient to cover the projected £45,000 necessary for the project to start. Feeling that such a project was vital, the interviewee approached the N.R.D.C. for finance but became very disillusioned with the action when events moved so slowly and so withdrew his application. He then decided to apply



for a loan under the Loan Guarantee Scheme and contacted his bank manager for advice. However this gentleman professed to have no information of such a scheme and did not know the correct procedure for application. In spite of such a lack of advice, a loan was applied for but by the date of the interview, some six months after the application was made, no word had been received and the interviewee had abandoned any hopes of securing such a loan. Merchant banks had also been approached and a prospective investor, wishing to invest in a high-technology firm had been found. Unfortunately, the potential investor expected a substantial share of the equity in return for this investment. This option proved unacceptable to the owner who then approached I.C.F.C. once more and was conducting negotiations at the time of the interview although he seemed to hold out little hope of their being successful. He was however, reasonably confident that an eventual backer would be found.

The dilemma facing the entrepreneur is obvious. Should a source of capital be found, the strategy then adopted by the firm would be far more opportunist than the owner would like. The business has expanded annually on a very small



scale, due, in large measure, to the reluctance of the owner to achieve a high growth rate. It has reached the stage in its development where it has become one of the major producers in its field and where opportunities for expansion are now strictly limited without the injection of a large dose of capital to ensure the business a place within the ranks of those enterprised manufacturing the next generation of equipment. The business must modernise its production if it is to survive in the long term. The interviewee continually stressed the importance of slow growth but realised that such an approach would be impossible. Although recognizing the options he faced, the interviewee was unwilling to commit himself to any course of action. One of his major complaints was that managerial aid should be made available and that the necessary decisions were being delayed but could not be avoided. The inability on the part of the entrepreneur to secure adequate financing could, in part, be attributed to his lack of conviction that such finance is in the best interest of the business.



### Firm K

The business was founded in 1972 by three design engineers who worked for a company manufacturing office equipment. This business went bankrupt in 1972 and the three were forced to seek alternative employment. A salesman from the bankrupt company joined forces with the three engineer and started to look for backing to provide seed capital for the establishment of a business working in the same field. The salesman approached an investment company with a view to finding a client interested in investing in such a business. However, a solicitor working for this investment company, involved in analysing the investment potential of such a proposal was himself interested and contacted a colleague specialising in management consultancy. A complete report of the financial outlook for the prospective business was undertaken, the technical details being supplied by the sales manager and the original technicians. The solicitor and the management consultant, satisfied that the business had a good prospect of success, then decided to invest, together with the salesman who volunteered to provide some capital. The three design engineers had no



wish to own a share of the business, preferring to remain as employees.

The firm was then established, with three equal partners providing the funds. The salesman was the only partner to devote himself full-time to the new business, the remaining investors continuing with their original employment. From the launch all was not smooth, the sales-director seemed incapable of selling the product and was also unable to provide his share of the seed capital. The solicitor was becoming increasingly involved with the day-to-day running of the business and, in 1974, the sales-director was forced to leave with the interviewee, the solicitor, becoming managing director. The initial seed capital had, by this time, been exhausted, and a further injection of capital was required. This finance was provided by the interviewee who thus became the senior partner and a third director was appointed, to deal with the general administration of the business.

The firm designs and manufactures control equipment for word processing input, centralised dictation and telephone transmission and standard dictation machines used in any large enterprise,



governmental, nationalised industries, financial institutions, commercial users or local authorities. There are five types of such machines which can be sub-divided into two main groups; communicative and ono-communicative. The former type are the more expensive and the less popular although the interviewee believed this type of equipment to contribute more to better working conditions. With the introduction of micro-processors to the systems, communicative equipment is becoming more important. The use of the word-processor, at the time of the interview, had not yet become incorporated into the systems but was considered to constitute a major change to the development of future systems.

Competition is from large firms, both British and foreign although the former are the more serious. In addition to the design and manufacture of their own equipment which covers three of the five types of equipment, the firm is also the distributor for the remaining two systems, manufactured by an American company. It had previously acted as a distributor for the same type of equipment, manufactured by a large German-owned multi-national company but had abandoned this role in response to the poor



marketing support offered by their supplier. Despite this move, contact with the German firm had been maintained and the business was considering Germany as the first target for an overseas sales-drive, using the former supplier as a distributor.

The development of new products was an important feature of the firms' survival. In the financial year prior to the interview, turnover had increased by 70%. Such growth, hitherto unknown, was the result of the development of a telephone transmission dictating system specifically designed for banking institutions. Systems for this purpose, designed abroad, had proved unsuitable in application and the firm, recognising the potential market for such a system, brought their own product onto the market. The success of this product, which accounted for 50% of their turn-over was not expected to continue to have the same effect on the firm. However, other products were in the R&D stage and the interviewee was aware of the importance of continuing R&D for the survival of the business.



The U.K. market for the basic dictating machine is stagnating. As equipment becomes more sophisticated, so the design of integrated systems becomes more immediate. The firm is still very small, employing sixteen people and the financing of such R&D is a considerable drain on the resources of the business. To alleviate the financial commitment on the part of the firm, a DoI grant was applied for. The PFDS scheme, described elsewhere, was considered most suitable. Such grants are given for the development of a specific product or process. The DoI charges a levy on the sales of the resulting product and is also prepared to overcome initial user resistance. The business has received finance for the development of three separate products. The R&D phase for products financed by the scheme must not exceed twelve months so the interviewee was very aware of the importance of planning the project fully prior to receiving a grant. The firm found the application procedure to be rather long-winded but, unlike other applicants, persevered and were suitably rewarded.

The firm is a thriving concern with a 20% growth rate per annum and a positive attitude towards the



role of small firms within the industry and particular their contribution to the innovation process. Due to the nature of the business, its future is determined by this attitude. Run by non-technical professionals, together with a team of designers committed fully to the business, the firm possessess not only the technical expertise but also an awareness of the importance of management experience for its continued well-being.



## Conclusion

The preceding case studies illustrate the varying attitude towards external finance on the part of the interviewees. In the first illustration, the attitude of the entrepreneur towards borrowing determined that the firm was severely limited with regard to its expansion capacity. Although the business was a viable concern, financial constraints dictated that growth was minimal. The entrepreneur recognised that his business had great growth potential but was extremely unwilling to commit himself to a course of action that would necessitate him making use of overdraft facilities at his local bank even though he had taken the initial step of inquiring as to whether such funding would be available. Such an attitude, far from being a unique occurrence, could be discerned in twelve of the fifty-one respondents. In all these cases, the interviewees thought the need for external finance an admission of defeat, the purpose of owning one's own business to rid oneself of the need to rely on help or assistance of any kind. This independence, often cited in the literature on entrepreneurship; the need for complete independence, was not expected to extend to all aspects of business activity.



The remaining 39 respondents all felt that the use of external finance, be it by overdraft or external equity, was a vital facility for the survival of any business. Several of these interviewees preferred to use these facilities as seldom as possible, preferring to finance any expansion by way of internally generated funds and relying on overdrafts only in an emergency whilst others used the overdraft facility in the normal course of events and viewed such a procedure as normal business arrangements.

The cases illustrated serve to act as examples of the range of attitudes towards funding. A very small percentage of the firms interviewed had external investors, there being a general consensus amongst the majority that borrowing was acceptable, whilst parting with equity was not. A noticeable exception to this rule was firm H whose only course of action was to seek external funding for a concern with a high capital investment, far beyond the reach of the owners. This interviewee's attitude towards parting with equity was realistic, given the circumstances. He would have



preferred to keep control of the firm but realised the impossibility of such an action. All sources of external equity had been appraised for their suitability; one of the major criteria being lack of interference on the part of the investor. Such an arrangement had been agreed, with ICFC taking no part in the day-to-day running of the business whilst being kept informed of any major decisions taken.

Very few of the respondents had any experience of the Loan Guarantee Scheme; although many were willing to express an opinion of the running of the scheme. Eight of the firms interviewed had considered an application for such a loan, although only one of these had actually received such a loan. The experiences of the unsuccessful candidates was such that all withdrew their applications prior to a decision being taken; all found their bank managers most unhelpful-some had not even heard of such a scheme and had no knowledge of the working of either the scheme or the way in which applications were made.

The successful applicant, Firm I, used the scheme as a last resort when looking for further



funding for a business that had been losing money and whose parent company had decided to rid itself of a loss-making enterprise. That banks were unwilling to lend to such an enterprise came as no surprise to the owner, who was, however, convinced that the business could once again be made profitable.

The prospect of parting with equity was not relished and although ICFC was approached and proved willing to fund the business, the entrepreneur chose to look further for funding that did not necessitate an exchange of equity. Once again, the banks were approached and it was suggested that the Loan Guarantee Scheme should be applied for. Such a loan was approved at a rate of interest several points above that offered by banks. The experience of this interviewee was such that he had a very low opinion of both the scheme and the way in which decisions were taken by the local High Street banks; he thought bankers far too cautious in their approach and believed them to be using the scheme to fund firms that should have been able to obtain a loan at a lower rate of interest than that eventually offered. The interviewee was also very critical of the time



delay involved, a sentiment echoed by the unsuccessful applicants to the scheme.

Firm J is a prime example of a business, seemingly successful and with great growth potential, which seems unable to secure the necessary funding for its expansion. The owner had dealt with both private investor, N.R.D.C., ICFC and local banks but appeared unable to secure suitable finance. N.R.D.C., the institution first approached, proved sluggish in its response and the interviewee, anxious for immediate action, withdrew his application. The Loan Guarantee Scheme was then thought the most suitable avenue to explore and his local bank manager was approached; despite having no knowledge of the existence of such a scheme, and being therefore unable to assist in the application, an application was made through these channels with the bank nominating the firm for such funding. Once again, the time delay proved too much for the impatient owner, and once again fresh channels were explored. The third attempt was made to a merchant bank who did present the owner with an investor wishing to own a share of an electronics firm. Once again, the option was



rejected when the owner discovered the amount of equity necessary to secure the loan. At the time of the interview, I.C.F.C. had been approached and negotiations were proceeding; the owner being reasonably confident that an eventual backer would be found whose demands were acceptable.

The case neatly illustrates the reluctance of the majority of interviewees to part with equity when seeking external investment, although this firm does appear to have experienced more difficulty than most. One of the major problems was the lack of conviction on the part of the entrepreneur; a technically-trained man by profession, he had little time to spend in searching for funding, preferring to devote his time to the business. He was of the opinion that finance should be easily available and that his lack of success was no fault of his own but rather of the financial institutions, a feeling echoed by all of the unsuccessful applicants for funding.

Firm K illustrates a firm who had applied for a grant for new product development. In this case, the interviewee was far more aware of the



possible sources of funding for such a project.

The business was dependent on the development of new products for its survival. Being involved in an area where innovations are commonplace, the firm was forced to adopt a positive attitude towards such innovative activity; to copy others meant losing orders when new products were introduced. Although they had successfully introduced a new product in the twelve months preceding the interview, the interviewee was conscious of the need for continued R&D. Such R&D is an expensive commodity and the firm had looked at the possibility of obtaining external funding without having to relinquish any equity to such an investor. After careful consideration the PPDS scheme was applied for and a grant had been awarded for the development of several products, with the DoI charging a levy on the sales of the resulting products. This firm had obviously assessed the availability of finance and the suitability of the various forms of funding available. A choice had been made as the funds preferred and the interviewee was satisfied with the attached requirements.

Only one of the firms interviewed was the recipient of a MAPCON grant, the experiences of the entrepreneur being very favourable.



Four firms had considered applying for such a grant, only one following through the application which was approved with little fuss. The remaining three had all withdrawn their applications due to the time involved although none had actually had any experience of applying for such a scheme before. That the applications were withdrawn almost immediately was due to the applicants perceived impressions of government in general. None thought the time and effort involved would be compensated, even though none had any experiences of dealing with government officials. Such an attitude seemed to be quite common amongst the sample with many respondents having a very low opinion of officials of all kinds. Once again, this attitude is directly linked to the need for independence from all sources of both industry and government.

It can be seen from the cases illustrated, that the ability of obtain finance is closely linked to the desire of the entrepreneur to do so. That some owners seemed unable to secure external funding seems, in large measure, to be attributable to their unwillingness to choose a course of action that might prove



risky. However, the majority of those successful in obtaining external finance held the opinion that bank managers, on the whole, tended to err on the side of caution when dealing with small businessmen, particularly those engaged in industries which the lay-person viewed as "high-technology". That small businesses are required to secure loans with personal collateral was also mentioned as a factor working against the small firm.

In conclusion, the major problem facing the sample, securing finance, would appear to depend on the characteristics of the entrepreneur and their ability to both present their case and to convince those concerned that investing in their business is a sound move. It does not appear to be the case that small firms are subjected to undue prejudice, although some felt this to be the case. With respect to the various government measures introduced to aid the sector, these would appear to have made little difference to the businessmen interviewed, with the majority knowing little or nothing about such schemes and those applying doing so with little help and very little measure of success.



## Taxation

Thirty-eight respondents felt that the present taxation system placed an onerous burden on the small firm community; this attitude does not appear to have changed since the BCI report was published. The Committee recommended some changes in the then present system which would appear to have had little impact, at least as far as the perceptions of the interviewees are concerned. However, it was very difficult to pinpoint a particular aspect of the taxation system that caused most distress, the respondents talking only on a general level about the rates of taxation, rather than on the specific problems facing themselves.

## Formfilling

The subject of formfilling is one which the majority of respondents had very strong views about. Only one of the fifty-one interviewees felt that such formfilling was justified, the remainder believing that the time necessary to devote to such an activity was completely wasted. The 31 respondents who commented on formfilling as a major problem were the smaller



firms whose owners were responsible for the administrative details of running a business or those who were still intimately involved in the day-to-day running of the firm. Both the BCI report and a subsequent update by the Business Graduates Association(145), stressed the impact of formfilling on the running of a business. Indeed, the latter report seemed to have learnt little from its predecessor, sending out a questionnaire, the response rate for which was so poor that it was abandoned. The BCI report, the first major study in this field, had some of its questionnaires returned with a covering note explaining that as the firm was already spending the equivalent of 2 months working time for one man on Government and semi-Government records, forms and statistics, it had little time to fill in non-essential forms.(146)

The present government, has gone some way to relieving this burden, with many respondents remarking on the decrease in the number of statutory forms, whilst still complaining on the remainder. The hardest hit are, of course, those respondents who shoulder the administrative responsibilities whilst still



concerning themselves with the production facility. Many interviewees spent week-ends dealing with the paperwork, thus leaving the week free for the more important job, as far as they were concerned, of production.

### Managerial Problems

Twenty-seven respondents felt that lack of managerial expertise constituted a major stumbling block in the initial development of the business. Comparatively few respondents possessed any managerial expertise prior to the formation of the business; 36 of the interviewees admitting to little or no managerial expertise whilst others, although having been engaged in a managerial capacity maintained that the experience had not prepared them for the task of running their own firm. Surprisingly few interviewees chose to remedy the situation, believing that experience was the best teacher, whilst those who turned for advice obtained it from the unlikeliest sources, one interviewee being advised on financial matters by his sister who worked for an accountant in a secretarial capacity.



## Personnel Problems

The difficulty in recruiting suitable personnel was a problem mentioned by 26 of the respondents. Early literature on the small firm community forwarded the notion that the working environment in a small firm was preferable to that found in a larger enterprise;

"In many respects the small firm provides a better environment for the employee than is possible in most large firms, most people prefer to work in a small group where communication presents fewer problems." (147)

This view has since been questioned, with researchers stressing the paternalistic nature of many small businesses, often operating to the detriment of employees.

The lack of unionisation amongst small firms is also highlighted as a cause of problems, with employees having little ability to apply pressure on management. Stanworth and Curran are the main exponents of such a view, believing that small firms are sometimes very poor environments in which to work. (148)

Most interviewees stressed the differences in working for a smaller firm, the most important being that each employee is a vital



component in the firms activities. Employees were thought to be more hard-working, committed and motivated than their counterparts in large organisations. Whether this is true is debatable; most employers had very definite views on the type of personnel necessary, those found unsuitable would be forced to seek alternative employment, thus leaving a core of workers happy with the working conditions, vindicating the employers attitude. This attitude could be seen to vary with the size of the firm; in the smaller businesses, defined as those where the interviewee was intimately concerned with the day-to-day running of the business and had not abandoned his role in the production process, the interviewee was far more liable to stress the importance of the whole of his workforce rather than single out individuals, whilst in the larger firm, the interviewee tended to concentrate on the role of the professionals employed, appearing to have minimised the role of the production personnel. Only one respondent acknowledged the possibility of the larger firms offering improved working conditions, the remainder stressing the improved communications apparent in a



small firm, together with a more understanding attitude on the part of management.

### Lack of Suitable Premises

Many of the respondents remembered only too well the difficulties involved in finding suitable premises at a realistic price. A large proportion of the interviewees had originally started their firms from home and had then moved into rented premises when the future of the enterprise was more secure. Having to pay overheads immediately increased their costs, in some cases these had not been taken into account when the initial pricing was undertaken. All the interviewees had found premises within easy commuting distance of their original base; none had been prepared to travel any great distances in search of cheaper accommodation. The lack of suitable premises has been shown to be a major deterrent for the establishment of a new business(149) and much has been attempted to relieve this situation, with Local Authorities going some way to provide such accommodation at reasonable rates. What most thought necessary was the provision



of basic accommodation, rather than anything more substantial, at reasonable rents, with the proviso that the owner relocated once established in order to give a second entrepreneur an opportunity to establish a firm within a favourable environment.

### Attitude of Government

The small firm community appears to have been neglected for most of this century, with a craze for larger corporations dominating our industrial structure. Governments have tended to neglect the small firm sector or, worse still, positively discriminate in favour of their larger counterparts. However, in the early 1970's, a change in thinking could be discerned with politicians realising the potential of such small firms. The BCI Report, although marking a watershed in the thinking towards the sector, appeared to have little noticeable impact. Changes occurred with the economic decline, begun in the early 1970's. At this time, attitudes towards the sector showed a marked change, with the "small is beautiful" movement gaining momentum. It was recognised that the industrial problems of this country



could not be solved solely by encouraging the amalgamation of firms into still larger units.

The present government has introduced over 100 measures designed specifically to aid the small firm community and covering all aspects of business activity. That such measures are necessary has been stressed by commentators in the field; that small firms consider them to be effective is somewhat doubtful, if the opinions elicited from the sample are indicative of the sector as a whole. The majority of respondents wanted less rather than more interference on the part of government and felt that the measures introduced fell far short of those necessary. Government officials were considered to have lost touch with the realities of running a business and to have little or no understanding of the problems experienced by the sector.

#### Relationships with Large Firms

Many of the problems highlighted by the sample related to their relationships with



larger firms, both as suppliers and customers. Eight respondents felt sufficiently incensed to cite the behaviour of such firms as a major problem in the firms development. Large firms were considered to be unpunctual in their deliveries and less than hasty in their payment for services or goods rendered. Several of the interviewees felt that this behaviour had serious consequences for the viability of their firms. Delayed payment necessitated the smaller firm lending money to the larger, perhaps for a period of several months, before having to devote considerable time and effort to persuading the customer to settle the account. That such behaviour on the part of the small firm would be unacceptable, appeared to increase the frustrations felt.



## CHAPTER 10

### Introduction

The last chapter highlighted the problems facing the sample firms. In contrast, this seeks to illustrate that not all the characteristics associated with small size are disadvantageous. Participating firms are used to illustrate ways in which small size may become a positive advantage.



### The Advantages of Size

Although small firms are thought to suffer many hazards not encountered by their larger counterparts, some of which have been discussed previously, it is agreed that such small firms do hold some advantages which a larger organisation cannot share.

Those authors who deplore the existence of large enterprises, who yearn for a return to a situation where most firms are of relatively modest size, cite various reasons as to why small is preferable to large (150).

Interviewees were asked to list the most important advantages concomitant with their size. The following results were obtained:



Table 16

The Advantages of Size

Advantage	Number of Times Cited.
Improved Service	51
Flexibility	47
Improved Working Environment	32
Competitive Price	15
As A Source of Innovation	15

It can be seen that the interviewees stressed the services offered by the smaller firm rather than concentrating on the purely commercial aspects of business activity. These advantages will now be discussed;

Improved Service

All of the interviewees mentioned the service provided as contributing to their success. It appeared to be the general consensus that this provision is the primary aim of small firms, with larger companies more concerned with the generation of profits



than with customer satisfaction. This view has been expressed by a number of small firm commentators, in particular Bannock(151), whose opinion on the service provided by large companies is that it is primarily designed for the convenience of the producer rather than the consumer.

Many of the interviewees had a very low opinion of the services provided by large firms with which they dealt, some even going so far as to maintain that this relationship caused the smaller firm some problems when the larger supplier/customer proved sluggish in delivery or payment.

### Flexibility

Flexibility and service are two features which are closely interwoven, the division between the two sometimes becoming obscured.

Rothwell(152), amongst others, believes that small firms are at an advantage with regard to flexibility. They are thought to be more able to adapt their services and/or products at very short notice in response to customer demand. This flexibility was mentioned by



the majority of interviewees without any prompting. The remaining 4 respondents answered in the affirmative when asked whether small firms are more flexible than large. Whether all 47 firms could themselves be described as flexible is debatable. Satellite firms are obviously at the beck and call of their major customer so that this characteristic is less apparent in such firms. Those displaying greatest flexibility were the firms engaged in a competitive market, together with those manufacturing a specialist product. In the first instance, the ability of small firms to react quickly in response to present or perceived customer requirements played a vital role in their survival; only by providing the customers with an improved service can such small firms hope to retain their customer base in the face of competitive pricing from rivals. In the latter case, some firms having only a few competitors are unlikely to possess the same flexible approach as those small firms with many competitors and those with more secure markets. The latter will be less flexible than the former. The flexibility exhibited may come under several guises. It



may involve close consultation between producer and customer so that the customer may suggest alternative products or modifications to existing products to his original supplier rather than looking for such changes provided by alternative firms. This close relationship between the customer and producer will be discussed later. Alternatively, it may involve the small firm continually re-assessing the needs of his customers and making suggestions for change when altered needs are perceived. In this instance, it is the producer who takes the initiative. Another element of flexibility may be the willingness on the part of the small firm to accommodate the needs of the customer. He may, for example, be asked to reduce the waiting time between order and delivery for a particular order; small firms seem only to willing to satisfy such demands if they are able.

Examples of each aspect of the flexible nature of small firms could be discerned in the sample with interviewees citing instances where this property enabled them to retain or gain customers in the face of strong competition. Major customers were continually



kept informed on the activities of the firm and any changes in products were discussed prior to alteration. In one instance, the interviewee was able to run a successful business by virtue of his ability to provide a much faster service than his competitors; in this instance, the manufacture of connectors for the telecommunications industry.

#### Improved Working Environment

As already mentioned, it has been suggested that the environment of a small firms is more conducive to worker satisfaction than that of a larger organisation. The BCI reported that firms responding to their inquiry were affected by strikes to only a very small extent; under 8% had been affected at all in the two years prior to 1969, and of these only 1.5% experienced strikes in their own firms, the remaining 6% being affected by strikes in other businesses. (153 )

"... the employee in a small firm can more easily see the relation between what he is doing and the objectives and performance of the firm as a whole. Where management



is more direct and flexible, working rules can be varied to suit the individual. Each employee is also likely to have a more varied role with a chance to participate in several kinds of work and better opportunities to learn and widen his experience."

Recently, this picture has been questioned, with research indicating that such a cosy environment may be far from the truth (154). In the latter research, the attitudes of workers at both small and large firms was compared. Results indicated that small firm industrial relations appeared no better than at large firms whilst working conditions showed a marked drop in standards between large and small. Whatever, may be the case, 32 interviewees were of the opinion that the small firm environment was indeed more amenable to utilising the full potential of the worker. The smaller firms, in particular, laid considerable stress on the improved working environment of the small firm with each interviewee highlighting the importance of every worker and total commitment on the part of each worker necessary for the success of the business. Comments such as the following were common:



"small firms attract people who have more to offer and who care about their work. Some of our employees have been with us for 20 years."

(Owner of a firm employing 40 people,  
manufacturing precision components for the  
telecommunications industry)

"We've never had a days trouble in the firms life; our employees care as much about the firm as I do."

(Owner of a firm employing 16 people,  
manufacturing capacitors.)

"People are less afraid to speak their mind here; every opinion counts."

(Owner of a firm employing 60 people,  
manufacturing connectors.)

"Workers like a small family firm where they know the boss and the boss knows them."

(Owner of a firm employing 35 people,  
acting as a distributor.)

"People need to be prepared to take risks with their own careers; when they do well, the firm does well- and that means a lot."

(Owner of a firm employing 18 people,  
manufacturing capacitors.)

"We don't want people with a large-firm mentality; the job doesn't always stop at 5o'clock. It takes a special sort of person to work here."

(Owner of a firm employing 25 people)



Not all interviewees felt strongly on this subject, with some having no opinion on the matter whilst others maintained that it made little difference to their employees:-

"A job is just a job, why should they care about something that doesn't belong to them?".

(Owner of a firm employing 65 people,  
manufacturing printed circuit boards).

This seemingly benevolent attitude on the part of a large proportion of the sample was, in some instances, radically altered when the subject of trade unions membership was raised. The majority of respondents who had highlighted the improved working environment found in the smaller firm were strongly anti-trade unions, some being prepared to close the business rather than let employees join such organisations:-

"I'd sooner shut up shop than let a union get a stranglehold- my employees are quite happy with the way things are run; why should a union interfere?".

(Owner of a firm employing 16 people,  
manufacturing control equipment)

This attitude tended to be confined to the smaller firms of the sample, such firms feeling that unions would restrict the job descriptions operating within the firm,



forcing the employers to engage more staff instead of constantly moving employees from job to job.

### Competitive Price

Fifteen of the respondents felt that their small size enabled them to offer products at a competitive price when compared to their larger counterparts. Small firms whose only rivals were themselves small businesses could not then be included in this section, although many had mentioned the cost advantages offered by themselves; this advantages was not a result of the size of the firm, rather a result of management decisions and strategy.

Of these fifteen firms, 11 could be defined as "competitors"(8.3)<sup>1</sup>, 4 as "specialists" (8.2) and none as "satellites"(8.1).

Of the 18 competitive firms identified in the sample as a whole, 11 were of the opinion that the main component of their success was their pricing policy. As has been discussed previously, large firms enjoy economies of scale which their smaller counterparts are unable to

1 Numbers in parantheses refer to relevant sub-section in chapter 8.



to achieve. However, should the nature of the product dictate a small scale operation, the larger producer still possess several advantages. It therefore appears important that the smaller firm would market a very competitively priced product in order that the business be successful. It was surprisingly therefore that 7 of the 18 competitive firms believed other factors to be of more importance; many stating that quality and service were the factors which brought custom. However, further analysis of the products marketed revealed that those firms with competitively priced products tended to be operating in areas where large scale economies by their competitors were possible; it was therefore vital that such small firms kept overheads to a minimum in order to survive. Indeed, in some cases, it was the presence of such small firms which brought the price of a product tumbling to a much lower selling price; such an example now follows:-



### Firm L

The firm was founded by a trained electrical engineer, twenty years ago. At the time, the entrepreneur was employed in a management capacity by a large electrical company. His job was concerned with the supply of educational training aids and, feeling that this would be a profitable area in which to operate, he handed in his notice, and set about the task of designing such a product himself. Information was sought from his local library, together with the knowledge he had acquired with experience of dealing with customers in this area. Within three months, a product had been designed and contract work was engaged to manufacture the product. Operations were initially conducted from the interviewees' home, the entrepreneur concerning himself with both the design and assembly function.

The product was successfully launched, subsequent designs also proving popular. Within three years, the entrepreneur employed 15 people, all engaged in assembly work, the interviewee believing that



manufacturing was an area best left to those most experienced. Due to the government cuts in education, the firm was finding it difficult to continue its expansion and new areas of activity were necessary. This time, the entrepreneur turned his attention to the field of electrical standards. Believing the market to be poorly served by existing firms, the interviewee designed a product range to fill this gap. Once again, the products were launched successfully, with the entrepreneur once again concentrating on the design and assembly functions. A trip to the USA convinced him that new markets should be explored, particularly that of chart recorders. At the time, the cheapest machine on the market cost in the region of £600. The entrepreneur was convinced that he would be able to produce a much cheaper machine and so win a large percentage of the market. After studying the machines available, the interviewee experimented with various motors used to drive the machines. The average price for such motors was £50, the interviewee discovered that a machine would work equally well driven by a motor from a



small tape cassette recorder, the latter costing a mere £5. In 1970, a product was launched onto the market, priced at £99, its nearest rival costing five-fold. It was an immediate success with the business gaining most of the market; it is now the largest producer of this equipment in Europe.

The interviewee has subsequently moved into the area of materials testing equipment and now has 50% of this market. The owner still concerns himself with the designing role although he now has a team of specialists to help in this respect.



### As A Source of Innovation

Fifteen of the respondents felt that the small size of businesses increased their ability to innovate; the remaining 36 being divided between those who thought small firms played little or no part in the innovation process to those who felt that although such firms had a great potential, their size became a hindrance. The subject of innovation will be dealt with in the next section.



## CHAPTER 11

### Introduction

Chapter 5 sought to demonstrate that small firms play a not-insignificant role in the innovation process. This final chapter, which concerns itself with the major field of interest within this research project, seeks to determine the role of smaller electronics firms within the innovation process. This process, of such importance to the vitality of an industry, is examined with regard to both the attitude of interviewees to the role of smaller firms in the innovation process and the activity taking place. When considering the innovation function, the work of Abernathy and Utterback should be remembered (155). They distinguished between technologies in "fluid" stages and those more "established" areas. Technologies of the first type are thought to be characterised by rapid technical change. In "fluid" stages, product lines are changing and technological change is apparent. As products become accepted and widely



used, so the input of capital becomes a necessity,. These standardised products are now produced in quantity over a longer period of time and thus the technology becomes norm. Process innovations will now end to predominate; the technology has matured. It could be argued that the majority of smaller electronics firms are based within the more established technologies of the industry, where process innovations predominate. Although these innovations are of primary importance to the survival and health of the individual firm, they are not, in most instances, of major relevance to the industry as a whole.

This chapter now addresses the contribution of smaller electronics firms to innovative activity.



## Innovation and Smaller Electronics Firms

As has previously been discussed, small firms are thought to play a vital role in the innovation process.<sup>1</sup> The work done by Freeman, on behalf of the BCI, concluded that:-

"....Although many aspects of the innovative process cannot be quantified, it appears that small firms continue to make an important contribution....Small firms also make a major indirect contribution to the process of industrial innovation and the activities of small and large firms in the innovation process appears to be complementary". (156)

Subsequent work by the same author affirms this position (157), with further research on the role of small firms in the innovation process up to the present day, further re-iterating this finding. (158)

In all of the aforementioned studies, small electronics firms were found to be more

<sup>1</sup> See Chapter 5.



innovative than would be expected for industry as a whole; it would appear that the industry is more conducive an arena for innovative activity on the part of small firms, both in the product and process innovation field. It is a truism that small firms are unable to contribute significantly towards the innovation process when the cost of doing so is beyond their means. However, the electronics industry, embracing products and processes incorporating both 'high' and 'low' technology and with a fast-evolving technology in some areas, is a prime field for small firm activity. The activity of such firms, as indicated by the sample, will now be discussed.

The majority of interviewees believed small firms to contribute, in some measure, to the innovation process. Of the 51 respondents, only 3 were of the opinion that small firms have no part to play in such a process. All three were "satellite" firms whose existence was wholly dependent on a large corporation. These respondents felt that the role of small electronics firms lay in co-operating with larger companies and in



providing a product or service for such businesses. Innovation was, in their opinion, only within the reach of businesses possessing extensive resources. However, this opinion was in the minority, the remainder of the sample believing that small electronics firms contribute, in some measure, to the innovation process. A major difficulty when discussing this topic was the tendency of some interviewees to use 'innovation' and 'invention' synonymously. Upon clarification, comments such as "Only small firms innovate" became "Only small firms invent", the respondent in this instance believing that large companies were perhaps more suited to the exploitation of an invention. The extreme view, that small firms have the sole prerogative to invention, was held by 5 of the 51 respondents, who made comments such as:-

"Entrepreneurship is stifled by large companies, it is only in the small firms that it is encouraged"

(Owner of a firm employing 10 people)

"Small firms must innovate to survive, large firms have so much inertia, it's impossible for them to change."

(Owner of a firm operating as a one-man business)



The interviewees who held this view were all involved with firms with few employees, founded because the entrepreneur felt unable to work for anyone other than himself. Three of the five had spent some time employed by a very large electronics company, the other two having worked for smaller firms prior to the establishment of their own enterprises. These five also tended to have very strong views on the role of small firms generally, believing them to be the only path to economic recovery and refusing to entertain the notion that large enterprises possessed any fair advantages. The remaining interviewees, 43 of the original 51, were of the opinion that small electronics firms contributed in an important, but not necessarily major fashion, to innovative activity. Comments such as the following are indicative of the general consensus:-

"Small firms are better at producing new products that customers need; that's innovation at its best".

(Owner of a firm employing 28 people, manufacturing connectors).



"Large companies have financial advantages;  
small firms pick up the crumbs".  
(Owner of a firm employing 3 people,  
servicing computer equipment).

"Small firms don't have the resources  
but are able to respond quickly to  
customer demand".  
(Owner of a firm employing 40 people,  
manufacturing computer peripherals).

As can be seen, the opinion of the majority  
was that small firms play a part in the  
innovation process but only in specific  
areas where innovation costs are low  
or where small firms predominate as, for  
example, in the production of specialised  
products.

Innovations may be the result of one  
of two factors; a customer or other  
external stimulus may be responsible for  
the innovation or, alternatively, the  
impetus may come from within the firm  
itself. A final option is for the business  
to have a deliberate policy of non-  
innovation, the entrepreneur deliberately  
concerning himself in an area of business  
activity with little potential for innovation.



Of the 51 respondents, 20 were identified as innovative, the remaining 31 firms following a non-innovative strategy. Obviously, those businesses providing a service, for example, distributors, will have no scope for innovation within the accepted sense although the service they provide could be loosely described as innovative in that they provide a service that their larger counterparts are unwilling to undertake. Equally, those businesses who service equipment and who manufacture to customer specification will also have little scope for innovative activity, bound as they are by the demands of their customers. They could however, be described as innovative if the service or goods they provide is or was unique; however they cannot be considered innovative in the classical sense in that they do not introduce new products or processes.

Of those 31 respondents following a non-innovative strategy, there were a number who had previously been innovative but who had then settled for the production of a standard product; 6 firms were identified as falling within this group. Such firms were, in the main, founded by an entrepreneur who felt that his talents were being stifled whilst working for a large organisation. These entrepreneurs founded their businesses after a particular project



on which they had been involved was shelved by their employer. Feeling that this decision was unjust, the thwarted inventor then left employment to found his own firm, based on this new product. In these cases, then, the firm was initially innovative but has since its inception followed a non-innovative strategy in that the firm has continued to manufacture the initial product. The reasons for following such a strategy may be summarised thus; in many instances, the entrepreneur feels himself forced by external stimuli to found his own firm. The reasons for this action can normally be defined as a feeling of injustice on the employee and a subsequent desire to prove this caution unfounded. However, the entrepreneur, normally technically-qualified with little or no management training is not best suited to head a fast-growing business. Believing himself justified with the success of the product he is, in these cases, perfectly content to continue to manufacture the same product on an indefinite basis; the reasons for founding his own business have been fulfilled and his professional pride in his abilities remains intact. There is then, no incentive to continue to innovate. Moreover, he is realistic enough to recognise that his lack of managerial expertise is itself an inhibiting factor for an aggressive innovation strategy, but is unwilling to commit himself to gaining expertise in this field.



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The remaining 25 non-innovative firms gave the following reasons for their strategy:-

Table 17

Reasons For Non-Innovation

Reason	Number of Times Cited
Cost	6
Uncertainty	4
Time Involved	8
Lack of Awareness	3
Type of product/market supplied	12
Mistrust of New Technology	1
Non-expansionist strategy	4

As can be seen from the above table, the reasons given by the interviewees for not innovating are many and varied. These factors will now be discussed in more detail.

Cost

The high cost of innovation was mentioned by 6 respondents as being a major inhibiting factor to



any activity in this field. The high costs of innovation are often cited by those such as Galbraith (159) to justify their position that small firms contribute little to innovative activity. However, in many areas of the electronics industry, the cost of innovation is relatively small, for example, in the field of process innovation, many of the innovative firms identified had spent very little money in developing their new machinery. Four of the six firms who claimed the high cost of innovation was off-putting had not seriously considered following an aggressive strategy and were then justifying this position during the course of the interview; these four also cited several other factors as contributing to their decision to pursue their chosen course of action. The interviewees in this instance did not feel that they were pursuing the wrong direction but rather that they should justify their belief to an observer. Interestingly, all six interviewees expressed the opinion that small firms play a vital role in the innovation process; although they felt that they themselves could not contribute in any way to the field. The two respondents who had considered innovation but had rejected the notion were very small businesses producing a rather specialised product who wished to branch out into related fields of activity;



the businesses did not however possess the resources to fund the development of new products, so the action had been shelved.

### Uncertainty

The allocation of scarce resources to fund a project that might not prove viable was thought by 4 of the respondents to have an inhibiting effect on the willingness to innovate. All agreed that if further funds were available they would be willing to explore the possibilities of enlarging their product range by development. As all these firms were operating with a reasonable amount of success, none felt there to be an overwhelming need to innovate; this attitude was quite common within the sample of non-innovating firms; innovation being viewed as a necessity only if the survival of the firm was dependent on keeping abreast with competitors who introduced new products.

### Time Involved

This was cited by 8 members of the sample; all were agreed that the day-to-day running of the business took precedence over long-term planning of new products. These businesses tended, in the main, to be at the smaller size range, with the owner intimately concerned with the daily running of the firm



which left him little time to devote to matters that could be neglected. Although this might be considered a narrow view which might, in the long term, lead to serious problems, all respondents felt that their talents were best engaged in ensuring the continued success of the firms.

### Lack of Awareness

None of the interviewees cited this reason as being the reason for not innovating. However, it could be seen that 3 of the sample had no idea of the state of development of their particular product; they could not say how many, if any, competitors were operating within the same field or whether they possessed a small or large share of the market; indeed, in one case the interviewee thought it best not to know what the competition was doing, it only made his life difficult. This short-sightedness on the part of the respondents was one symptom of the state in which the firm was in; all were small business which had been in business for a reasonable length of time, had produced the same product for a number of years, and which had no intention of altering to suit the demands of the market. In one instance, the interviewee was nearing retirement and had no wish for the firm to continue beyond this stage.



### Type of Product/Market supplied

Nine firms could be identified as being in a position where innovation was impossible, although, as previously posited, some of these could be loosely termed as innovative.

### Mistrust of New Technology

One interviewee, the owner of a small firm manufacturing two-way radios, stated that new technology was not to be trusted. Incorporating the latest advances into his products was, he felt, a complete waste of time as such new technology was totally unreliable and more expensive. Owning a successful business, he saw no reason to change from the tried and tested products which his customers purchased; no amount of discussion on the importance of micro-technology in various applications could sway him from this view.

### Non-Expansionist Strategy

Six interviewees felt that the size and state of their business was such that no further advancement was necessary; the introduction of new products might necessitate the firm moving into new phases of growth which the respondents did not wish to occur. Innovation, in this sense, was viewed as an action to be avoided- the owner continuing to manufacture his



existing product range. Once again, this might be considered a rather short-sighted action but all interviewees who held this view were quite content to follow such a path; working on the principle that they could do as they please with their own firm.

The reasons put forwarded as to why specific firms should follow a non-innovative path are many and varied, with many interviewees not having seriously considered the option prior to my question. Those that had rejected, consciously, the idea, did so for several reasons; the first can be defined as short-sightedness on the part of the interviewee. A surprising number of successful firms were run by people who believed that the status quo would be maintained indefinitely and that their product would continue to find a niche in the marketplace; they could well be correct in their assertion, but the fact that they refuse to consider that changes might take place seems indicative of a lack of awareness. That some firms are content to rely solely on one successful product with no thought of expanding their range also seems to indicate a lack of thought for the future of the business. In one case, Firm B, which has already been discussed, a seemingly successful business was dependent on one product which the interviewee believed would remain constant over a long



time-span. This might have been the case, but this attitude dictated that the firm should remain the same size; having over 75% of the UK market already, the business had little scope for further expansion. A second reason acting against the small firm is its lack of resources; the owner, although aware of the need to keep abreast with the changing technology, finds himself unable to do so due to lack of resources. In these cases, external sources of finance may be sought although, in the case of Firm J, the financial institutions proved rather unwilling to invest in such a proposition. Lack of resources might also manifest itself in a shortage of personnel able to operate on product development. Although no-one cited this reason specifically, it could be seen that a number of the sample were stretching their resources in this area to a point where lack of expertise would soon become a problem- there being insufficient funds to cover the cost of recruitment. The final reason why a firm should choose not to innovate could be defined as the desire on the part of the owner to remain the leader of a small firm over which he has total control on an immediate level. Several of the interviewees had no wish to become involved with a business with greater growth potential; indeed, in one case, which shall be discussed later, this has led to a novel way to use process innovations to the



owner's advantage.

Attention shall now be focussed on those firms in the sample which could be described as innovative.

Twenty firms were identified as innovative; concerning themselves with either process or product innovation. Of these twenty, the impetus for innovation could be seen to stem from one of two sources; the innovative activity was either a direct result of customer stimulation or arose from within the firm itself. Examples of the former, where stimulation came from the customer could be discerned in twelve of the twenty firms, three examples of which, Firms C, F and K, have already been illustrated. In the case of Firm C (p 174) the direction for innovative activity brought an immediate response from the firm, the type of innovation concerning itself with the design of new systems rather than with specific products. Firm F (p 192), having no product range was dependent on customer specification to determine the type of printed circuit board manufactured. Once again, an immediate response to changing customer demand can be discerned, the firm having close links with its customer base to ensure that the needs of each could be catered for. The final example, Firm K (p 226), serves



to illustrate an innovative firm which, whilst responding to customer demand in the immediate term, also operates a longer-term innovative strategy in that it seeks to continually up-date and modernise its products to incorporate emerging new technology. Innovative activity arising from within the firm could be discerned in the remaining 8 innovative firms, some of which shall be illustrated in this chapter.

Innovations may be categorised into product or process innovations (160) and may be further subdivided into incremental and radical innovations, the former being concerned with the up-dating of existing products or processes whilst the latter, as the term implies covers those innovations which are wholly novel in character. Five of the twenty firms could be described as concerning themselves with radical rather than incremental innovations, be they in the production of new process equipment or new products, whilst the majority could be seen as contributing to innovative activity by pursuing an innovation strategy aimed at incremental innovations.

The following case studies serve as illustrations of firms engaged in process or product innovation.



## Firm M

The founder, now in his fifties, obtained a degree in physics and then went to work for a large electrical/electronics company. A number of his colleagues, dissatisfied with working conditions, left the company to establish their own firms and in 1961, ten years after joining the business, the interviewee followed their example.

The business, making applications for dielectric materials, was initially run from his home. Orders were obtained by contacting some customers of his employer and persuading them to place small orders; what the interviewee now terms "sympathy orders". However, his customers soon discovered that the entrepreneur produced a good product at a reasonable price and within a short time, the business was flourishing, and separate premises had to be found. After three years trading, the new firm employed 120 people and had a turn-over of £123,000 per annum. However, in 1964, the main market for the product, the television industry, suffered a severe set-back and the firm was badly affected. Survival of the business depended on shedding a large percentage of the staff and cutting production



capacity. Twenty staff were retained and the business was able to ride out the recession. By 1969, the firm was once again thriving and the founder chose to sell the business to realise his assets. The firm was bought by a larger electronics company wishing to diversify its product range. The interviewee, anxious not to lose contact with his business, was then employed as managing director of the new acquisition with specific interest in the R&D facility. The business operations were moved from Northampton to south Wales, the site of the parent firm. Within a short time of the purchase being completed, all was not well. The interviewee vociferously disagreed with the policies of the parent company and was further concerned to discover that, far from being a profitable concern, the new owners were heavily in debt and relying on the new acquisition to provide funds to save the remainder of the business. At this stage, the interviewee chose to sue the new owners for fraud and gross mis-representation. The case took four years to complete, and after a High Court battle, the interviewee won his case and was compensated.

His business was restored to him and the owner chose to re-locate the company in its original



locale.

With the benefit of his recent experience, the interviewee determined that never again would he own a large business. His new enterprise was to manufacture a product for which there was a limited market with little opportunity for expansion. After considering various alternative products, the new business was launched and started production of capacitors, once again the market being the television industry.

The firm now employs 15 people, thirteen of whom work on a part-time basis. Competition is solely from abroad and the products have a distinct price advantage.

It could be imagined, that such a firm, whose owner has a very definite idea on remaining small and within the same market, would be a prime example of a non-innovative firm. That just the opposite is true is somewhat surprising. Obviously, the firm does not pursue a strategy for product innovation but it has been able to survive due, in large part to the successful adoption of process innovation. Machinery designed by the founder has played a large part in contributing to



the continued success of the firm, by contributing towards the cost advantages offered to the customer. This advantage has enabled the business to build a good reputation for quality products at low cost. The process innovations introduced have not been publicised by the owner, who has no wish for his competitors to follow his lead. The interviewee did not view such process innovations as a tool in the process of expansion. Rather, the innovations were used to maintain the success of the firm, the entrepreneur using the profits so generated to finance innovators wishing to exploit their own inventions.



#### Firm N

The business was established thirteen years ago by a trained chemist who was, at the time, employed by a large electronics company. His job was to assess the potential of other electronics companies, mormally small firms, with a view to the larger enterprise gaining control of the business. The impetus to found his own business came when his employers wished him to re-locate in Essex. The entrepreneur was unwilling to leave his home-town of Cirencester and so decided to look into the possibility of founding his own business. Possessing extensive knowledge of the electronics industry, he felt that the area of capacitor manufacture would prove most fruitful. Accordingly, he approached a local businessman who had the reputation of helping small firms become established. The potential entrepreneur was offered free accommodation and the use of back-up services; in exchange, 50% of the equity was relinquished to the investor.

The interviewee, himself an accountant by professtion, had previously been employed by a large industrial concern but had recently left



to establish a consultancy practice. The interviewee knew the founder of the new business and so joined the new enterprise on a two-day-a-week basis to advise on financial matters. The interviewee was asked whether he would wish to invest funds in the new concern in exchange for a share of the business. Together with a fourth investor, the interviewee contributed £5,000 to launch the venture. The fourth investor was a technically qualified engineer with experience in selling; the new venture was then, founded by people with differing skills who complemented each other. The original founder had contributed £7,500, making the total seed capital available £17,500.

During 1973, the original backer, who had no interest in the day-to-day running of the business, asked the team to vacate the premises where the firm was based. By this time, the firm employed 100 people but was, three years after its formation, still a loss-making enterprise. During this time, the directors had contributed a total of £50,000 to the business without seeing any returns on this investment. However, all felt that the firm had the potential for success



and that to close the business would be an even less unpalatable action than continuing to pump funds into the concern in the hope that it would reverse the trend.

Whilst looking for new premises to house the business, the directors realised that there was no possibility of them purchasing a site; the interest rates offered for the necessary loan were in the region of 25%. However, once again the initial investor came to the rescue. He was planning to organise his factory sites and to sell the surplus space. He suggested one of two sites he had available would be ideal for the firm and was willing to sell for the freehold price of £40,000. The financial position of the business was such that any notion of purchasing the site by way of internal funds was totally out of the question. Therefore, the relatives and friends of the three working directors were approached and, together with the three, the group raised the necessary capital. The building, still owned by this consortium is leased to the firm, for a rent of £8,000 per annum so recouping the initial outlay.



The re-location heralded the start of an up-turn in the business which had continued at a steady rate; this up-turn was the result of a particular strategy adopted by the firm. Prior to this move, their output was aimed at the consumer market, with very little success; at this stage, they chose to concentrate on the professional sector, the manufacturers of such products being several small firms in the U.K., together with competition from large foreign concerns.

The firm now produces a range of metallised film capacitors which possess the relevant government standards for such products. Such standards are vital if the firm is to prove successful in such a market where quality is of primary importance. The business is able to survive in such an environment due to several factors; their very size offers advantages in that they are quick to determine and respond to changing needs and have very good relations with their customers; The business is also a prime example of a small innovative firm. Products are developed in response to present and perceived customer needs. No R&D department is identifiable although several technically qualified personnel are



employed in product development. The type of products manufactured are such that incremental innovation is of more importance than product innovations. One of the methods by which the business had been able to succeed is by successful process innovation. Machines designed by the firm for use in their manufacturing process have enabled the firm to survive. Without such machinery the business would not have been able to compete on financial criterion. Indeed, the interviewee was very proud of this sphere of the firms activity. The machinery designed was for their use only and, not too unnaturally, the interviewee was concerned that details of such machinery should not be disclosed to his competitors.

Although the business is now successful, the nature of the market dictates that the firm is now at its optimum size, leaving little room for expansion. The firm has a positive attitude towards such expansion, the directors wishing to diversify the firms activities into related fields. The only way in which the firm has been able to continue its growth is by way of acquisition. Smaller businesses within similar



or related fields have been assessed for the purpose of purchasing such companies. At the time of the interview, the firm was finalising arrangements with a very small electronics business, operating within the same field, with a view to purchasing the enterprise. The purchase of a company within a different manufacturing field was also being considered.



Firm O

The business was founded in 1962. The interviewee had pre-war training as an accountant and during the war became an expert on Fighter Interception Radar. After the war, he joined a large electronics company where he continued to design radar equipment. As he felt that there was no future in this type of work, he left this field and eventually, in 1953, joined a large textile firm, based in Huddersfield. Although the business was primarily concerned with the textile industry, it had interests in electronics, specifically the furnace pressure industry and had links with British Steel(Sheffield) for which it manufactured in-line computers. The interviewee was employed a chief engineer in the electronics section of the company. However, he was not very happy with the approach of his employers and so set up a garage-based business in his spare time. He was able to enter this line of manufacturing as the entry costs were very low; he had an initial capital base of £34 which was changed into a turn-over of £1,000 at the end of twelve months trading, of which 50% was profit. During this period, the



interviewee concentrated on the design and selling of the product and an unpaid partner carried out the assembly of the computers. Because of the success of this new venture, the interviewee left full-time employment to devote himself to his venture. At this stage, he decided that the firm required some outside investment. He applied for the post of Managing Director of a new electronics business that was to be set up in Northampton by a leather company. He persuaded the investors to invest instead in his own business and have him continue as Managing Director. In exchange for this capital, 80% of the equity was relinquished. The interviewee and his original partner then moved to Northampton and rented an old leather factory at very reasonable rates from the new investors.

After two years trading, it was necessary for the product range to be increased. The firm, although successful, had run into cash-flow problems due to the nature of the product. The average design/manufacture/installation time for each piece of equipment was 18 months, so a cheap, high-volume product was needed to balance this



problem. The question of which product to manufacture decided itself. The firm bought magnetic amplifiers for use in the construction of the computers and as the firm which supplied this product was closing, the interviewee bought the stock and designs of the firm and moved the business from its London base to Northampton.

From this point, the firm became increasingly successful, this success being paralleled by an increase in the demand for leather goods; because of this, in 1965, two of the three investors decided that they would prefer to concentrate solely on this aspect of their business activities. The remaining investor bought their shares and moved over to join the founder as a full-time partner in the business which now employed 20 people.

As the leather industry continued on its upturn, the factory was required to accommodate the expansion of the leather business as the firm was forced to search out an alternative site. It proved impossible to remain in the Northampton area, the local planning office was reluctant to house an electronics business in the locale,



equating electronics with nucleonics. A suitable site was purchased at Desborough, nineteen miles away, and the business moved in 1970. The workforce was provided with company transportation.

Soon after, the company took over a machine tool company which increased the workforce from 95 to 115. The firm continued to gain a good reputation for the high standards of its products, which led, in 1972, to it being awarded a Euratom approval, the only UK company to hold such an approval.

The product range has continued to expand within the process control field and the original products have been continuously updated to keep abreast with the latest developments in the relevant technologies while it has also been a policy to stock a product range which encompasses the spectrum of products available in this field. The firm has also diversified into other areas and had formed three subsidiary companies to encompass these diversifications; it is these diversifications which distinguish the company as one of the most innovative of the sample.



The firm manufactures industrial and military electronic instrumentation equipment for use in the high integrity industries such as power generation, petrochemicals, mining, shipping and pharmaceuticals. The products are sold on a world-wide basis although the interviewee stressed the difficulty of exporting to the United States due to their tariff barriers and to Europe because of the impossibility of getting approvals for their products; it would appear that the Continental countries have a policy of discouraging foreign competition by making it impossible for them to obtain the approvals necessary for acceptance of their product and by having a strong bias for nationally-produced goods.

Competition is mainly from large corporations; orders are gained by the firms' reputation for high-quality products at a realistic price.

R&D is a very important aspect of the firms survival, as products become more sophisticated. The firm used to have a large engineering department which performed the R&D function for all products. However, this section was hived off from the firm and thus formed a subsidiary of the main business. This was done because the



interviewee wished to explore other areas of R&D and thought it best if such ventures were not closely associated with the firms' main activities.

One of the areas for R&D is the shift from analogue to micro-processor-based equipment. The analogue equipment was becoming less competitive as the cost margin between the two types narrowed. Although there was still a market for the less sophisticated equipment, the interviewee believed that this would disappear over the next two years. A MAPCON grant had been applied for but the application had been withdrawn due to the time delay involved and the amount of effort required; the interviewee believed that the scheme had been mishandled by officials and abused by applicants.

One of the areas of research not connected with the main product range was the development of an electric vehicle. The interviewee, when looking for development capital for this project, visited the United States to look for investors. The amount needed was £3million; he was offered £30million by a large car manufacturing company who was also willing to place a preliminary order



of 250,000 cars to try out the market. The interviewee was totally unprepared for such a demand and was unwilling to commit himself to start production on such a scale. However, he has made arrangements to manufacture the vehicle in India to serve that market and is negotiating with a UK-based car manufacturer with a view to commencing production.

Other projects were also in the development stage, including a racing car, and the firm was considering branching out into other areas of research.

The interviewee, although usually occupied in a managerial capacity, was unwilling to relinquish his role in the design process and managed to combine both roles by relying on his management team to ensure the smooth running of the manufacturing arm of his enterprises.



The preceding case studies can be seen as three examples of innovative firms who have very different uses of the innovation function for the development of the firm.

Firm M, whilst incorporating process innovations into its manufacturing capability uses such innovations to remain competitive whilst remaining small. The experiences of this particular entrepreneur have ensured that his firm will remain small. The interviewee took obvious pleasure in the fact that his competitors were eager to determine his means of production and had, on a number of occasions, approached him with a view to discussing his methods of production, such information being rewarded.

The second of the three firms illustrated, Firm N, manufactures the same type of product as the preceding business, its market being primarily the professional sector rather than the television industry. In this case, the firm has once again used process innovations as a means of remaining competitive amongst larger producers, but has a more aggressive attitude towards growth, the interviewee believing that the future of the business



lay in following an expansionist strategy, such expansion being gained by means of acquisition rather than internal growth.

The final firm, Firm O, is an example of a truly innovative small firm, pursuing an opportunist strategy, as defined by Freeman (161). Not only was this business innovating within its original sphere of activity but the entrepreneur had chosen to expand his horizon into totally unrelated fields, the electric car being just one such example. The interviewee was very conscious of the need to innovate in order to remain competitive and to continually plough back profits into the business in order for it to remain viable. His other research interests were the result of outside activities and the interests of his R&D personnel who were given a chance to provide a major input into the future projects of the firm.



## Conclusions

The view that small electronics firms contribute, in some measure, to innovative activity, has been borne out by the results obtained from this sample. That the majority of firms interviewed should not contribute to this field is also to be expected, given that the firms tended to be most evident in the smaller size range<sup>1</sup> and covered a variety of activities not normally associated with innovative activity. Of those firms that followed a non-innovative path, nearly 40% were not in a position which allowed for such activity, whilst 20% of the sample had deliberately chosen to establish their firm on a product which they themselves had developed but which would not have come to fruition if they had not chosen to manufacture the product themselves. The remaining non-innovative firms offered a variety of reasons as to why innovative activity was beyond their remit and in several cases, it did appear that the design and introduction of new products or processes was indeed an option that could be readily discarded. The remaining firms were divided between those who wished to innovate but could not and those who had no desire to follow a more radical path. Of those who would choose:

<sup>1</sup> See introduction to empirical research Table 12.



to innovate, given the resources necessary, it did appear that sources of financial assistance which might have been available, for example, the Product and Process Development Scheme<sup>1</sup>, had not been approached, although in one case, the entrepreneur had been to every available institution and had been refused by each or had withdrawn his application due to the long delays in processing the application. It might thus be construed that the entrepreneurs who had not approached sources of external finance had not seriously considered this option in a detailed way. It would thus appear that certain firms choose not to innovate subconsciously without being able to justify this position to an outsider. It was the case, that the majority of these firms would remain small, due to the owners preference.

Of the 20 firms which could be classified as innovative, only five could be termed as contributing in a major way, by the development of new products, the remainder were content to concern themselves with using their talents to produce a standard product at a competitive rate by way of process innovations. These process improvements, although of great importance to the individual firms would never become adopted in the industry as a whole, as the

<sup>1</sup> See Appendix E.



owners were obviously unwilling to let the competition know the secrets of their success. As 75% of the innovative firms in this sample came under this category, it might be argued that the contribution by such small firms to the innovation process has been vastly under-estimated in that only those innovations which are well-known can be used in calculating the contribution by such firms.

It was very interesting to discover the way in which certain interviewees viewed the role of innovation in the running of the business. Whilst it is generally thought that innovation may be a means whereby a firm expands its business activities, it has not been the case that innovation may be thought of as a means whereby a firm may remain competitive whilst still remaining small. That the latter should often be cited as one of the major benefits of process innovation is a fact of some importance.

To conclude, it can be seen that the small firms in the sample varied widely in their in-put to the innovation process. Whilst the vast majority believed small firms to play a vital role in the process, far fewer were actively contributing. However, those that were able and willing can be



seen to make a positive contribution to the vitality  
of the small firm community.



### Conclusions

The preceding chapters have illustrated and analysed the role of the small and medium sized firm in the electronics industry. It has been demonstrated that such firms make a vital contribution to the health and vitality of the electronics industry.

It now remains to draw together the experiences and opinions of the interviewees and to present a short summary of the policy conclusions to be drawn from the information gathered.

One means by which commentators on the small firm community have analysed their samples of small businesses is to present a neat typology of firms or owners. Not only does this method aid analysis, it also aids the formulation of policy towards the sector. However, in this empirical survey it has proved impossible to classify



firms into any but the most general categories which lose their relevance when discussing different aspects of the role of small electronics firms. Boswell's use of the age of firms (162) does not, in this instance provide much insight into the workings of the electronics industry although it could be argued that older firms were more likely to predominate in the more established technologies which should then have some influence in the innovative activities of the firm. However this was not found to be the case, other factors proving more important in this instance. Similarly, the work of Scase and Goffee who used a classification system relating to structure within the firm was also of interest but little relevance when attempting to classify the firms included within the sample. It was hoped that a classification system using the product areas within the industry might prove more fruitful. However, this was not the case; as demonstrated in the last chapter, two innovative firms manufacturing capacitors adhered to widely differing business strategies. What became more and more apparent as work progressed was the diversity of the characteristics of the interviewees. These personal characteristics appeared to be of paramount importance when considering the strategy adopted by individual firms.



Even in those firms where the founder was no longer active, the strategies adopted appeared to be largely dictated by the characteristics of those running the business. It is very difficult to provide concrete data for such statements although during the course of each interview an attempt was made to assess the interviewee on a personal level. The interviewee was asked to elaborate on the future prospects, on both a personal and business level. In the vast majority of cases, the interviewee's personal ambitions correlated strongly with the business plans; those interviewees who were, by nature, risk-averse tending to outline far more modest plans than those willing to accept a higher degree of risk on both a personal and a business level.

Having found such difficulties in identifying a typology of firms, it therefore becomes more problematic to translate the findings of this research into policy recommendations, for changes in policy might affect only a very small percentage of those interviewed. However, such an attempt is essential on both the level of the small firm generally and the small innovative firm in particular.

With respect to the small firm community as illustrated by the sample, a strong feeling of



antagonism towards central government was apparent. Thirty-four interviewees expressed an opinion indicating their belief in the ineffectiveness of central government policy on the small firm community. The majority of interviewees had not heard of the Small Firms Advisory Service and of the few that had, only a small number believed the Service to provide a worthwhile source of advice and information. Of the 100+ measures now operating specifically for the benefit of the small firm community, very few interviewees knew of the assistance available, as demonstrated by the lack of awareness of the Loan Guarantee Scheme. It did appear that central government policies towards the small firm sector were largely ineffective on a large scale, be it because the measures themselves were unnecessary or due to lack of awareness on the part of the businessmen interviewed. It is obvious that all the major policies promoting the establishment of new small firms would have no immediate impact of the sample although several interviewees did comment that the creation of new businesses is not necessarily the most effective means of aiding existing firms.

With respect to the policies to promote innovation, there did appear to be a higher level of awareness



of the assistance offered although once again, it became apparent that some innovative firms would innovate regardless of assistance offered for these interviewees believed innovation necessary for the survival of the firm, be it with a view to possible expansion or to maintain the status quo. Of those who sought assistance, not all did so with success - these unsuccessful firms were obviously more critical of the assistance schemes operating than those who had secured external aid. One of the points that became apparent during discussion was the need for external technical advice/aid. As mentioned earlier<sup>1</sup> employing technical personnel is a costly and long-term venture which many small businessmen are unwilling or unable to contemplate. The provision of external technical aid - through both academic institutions and industrial units - would thus appear to be an effective method of assisting the small innovative firm. That such a tap on technical advice, on a small scale, is already available from central government resources appears to go unnoticed by the interview sample.

A second major input to the innovation process, and the major recommendation of this research is the provision of a catalogue of technical inventions,

1 See Chapter 5 on disadvantages for Innovative firms.



devices or processes, researched by large companies which are then shelved due to an unwillingness to proceed beyond the design stage. One of the recognised external stimuli for the establishment of a new business is the disenchantment experienced when technical personnel employed by large companies realise that their research activities will not be utilised. That these potential entrepreneurs should be actively encouraged by their employers might prove an effective means of encouraging entrepreneurship within the technical field. Similarly, when there appears no internal candidate wishing to exploit an idea, the company should list such inventions, this list to be made available to small firms and individuals wishing to expand their fields of activity or to enter new areas of production. Obviously, it is not suggested that large firms should provide such list without any hope of recouping some of the revenue already expended, although it would be preferable if firms were willing to take this course of action. Instead, participating firms could agree with the purchaser of the idea a fee, based either on a straight one-off payment or a percentage of the sales accruing to the small firm.



This idea of a register of potential products or processes was well received by the interviewees with whom it was discussed. Although in many cases the small businessman is wary of dealing with larger companies, the latter possessing all the characteristics which the interviewee wishes to condemn, the concept of collaborating with larger businesses was not wholly dismissed as unworkable. It was thought that the best agency through which negotiations should be conducted was the local academic institution although it is obvious that professional advice would be necessary to negotiate the cost of utilising the register. Each designated institution would be in receipt of a national register which would be updated regularly. Small businessmen and individuals wishing to make use of the register would be provided with brief details of the inventions rather than specific information. Negotiations would then be conducted between the interested parties.

To conclude, the research undertaken has highlighted the importance of both small and medium-sized firms within the electronics industry. They have been shown to be active in all the fields of activity within the sector and indeed, the industry would be a poorer one without the presence of such firms for not only do they add to the products and



processes within the electronics field but they also provide competition, both actual and potential, without which the activities of large firms would not necessarily serve the best interests of the community.

With respect to the innovative activities of firms within the sample, it can be argued that the level of innovative activity of such firms is under-estimated in statistics relating to this area. In many instances, innovative firms will not be willing to publicise their innovations if only because they have no protection against the poaching of such innovations. Those firms who provide an innovative service cannot be described as innovative if one accepts the standard definition rather than a broader statement encompassing both product, process and service innovations.

Perhaps the contribution of small and medium-sized firms to the innovation process can best be summarised by the following:-

"Small firms are better at producing new products that customers need: that's innovation at its best".

(Owner of a firm employing 28 people, manufacturing connectors).



## APPENDIX A

### List of Government Schemes available to Growing Firms

#### FINANCE

##### 1        LOAN GUARANTEE SCHEME

A pilot loan scheme was introduced on 1 June 1981. It is designed to improve the flow of commercial funds to the entrepreneur with a viable business proposition which would not otherwise get financial backing. Individual term loans of up to £75,000 are available through participating financial institutions for periods of between 2 and 7 years. The Government guarantee will apply to 80% of each loan. The scheme is open to small business in most sectors of the economy.

##### 2        THE PURCHASE OF OWN SHARES LEGISLATION

The Companies Act 1981 has given power for limited companies to buy back their own shares.

##### 3        BTG's SMALL COMPANIES INVESTMENT FUND (SCIF)

SCIF was formed in September 1980 to increase the



availability of BTG investment finance to innovative small companies. Most BTG industrial funding has been in support of a specific innovatory project within a company but SCIF sets out to provide balance sheet funding for the overall operation of small companies whose business as a whole is innovative.

#### 4 BTG's OAKWOOD FINANCE LTD

Oakwood offers loans of up to £50,000 to all sectors of industry but with special emphasis on high technology companies.

#### EUROPEAN LOANS

#### 5 EUROPEAN INVESTMENT BANK: ASSISTED AREAS

The Department of Industry (with Scottish and Welsh Offices and, later Northern Ireland Department of Economic Development) has since the beginning of 1978 operated an agency from the European Investment Bank backed with exchange risk cover, designed to enable small and medium sized firms in the Assisted Areas and Northern Ireland to borrow sums of

Exchange risk agreements were signed in 1981 with Industrial and Commercial Finance Corporation (ICFC) and Midland Bank to assist them to make EIB foreign currency loans available to smaller firms in



the Assisted Areas.

## 6 EUROPEAN INVESTMENT BANK: NON-ASSISTED AREAS

Since January 1982 European loans for small and medium-sized firms have been available outside the Assisted Areas through ICFC with the necessary exchange risk cover provided by the Government.

## 7 EUROPEAN COAL AND STEEL COMMUNITY (ECSC)

Loans are also available from the European Coal and Steel Community (ECSC) for smaller manufacturing in coal and steel closure areas. Agreements providing exchange risk cover for these ECSC loans have been signed with ICFC, Barclays Bank, Midland Bank, Clydesdale Bank, National Westminster Bank, the Co-operative Bank, and both the Welsh and Scottish Development Agencies.

## TAX INCENTIVES FOR THE BUSINESSMAN

### 8 CORPORATION TAX

A lower rate of 38% applies to profits of up to £100,000.

### 9 THE VAT REGISTRATION LIMIT

VAT registration limit is £18,000.



## 10 PRE-REGISTRATION VAT RELIEF

Relief from VAT on services supplied before registration is now available to all traders.

## 11 PRE-TRADING INCOME/CORPORATION TAX RELIEF

Expenditure of a revenue nature incurred within three years prior to the commencement of trading is now allowed in computing the profits chargeable to tax when trade begins, provided that the expenditure would have been so allowable had it been incurred during a period of trading.

## 12 3 YEAR-CARRY-BACK OF ALLOWANCES

Unused first year capital allowances on plant and machinery may be set against trading profits made in the previous three years.

## 13 PRE-TRADING CARRYBACK OF INCOME TAX LOSSES

Tax losses are not uncommon in early years of a business. Losses made in the first four years of trading may often be set against the proprietor's income for the previous three years - producing a repayment of tax paid before the business began.



#### 14 SMALL WORKSHOPS ALLOWANCE

100% initial allowances on capital expenditure incurred on the construction of industrial premises of up to 1,250 sq ft until 26 March 1985.

#### 15 IBA: EXTENSION TO PART OF THE SERVICE SECTOR

The definition of an industrial building for the purposes of these allowances has been widened to include buildings used for repair and servicing goods and those used for warehousing and storage by traders and wholesalers, where the goods involved are to be used for an industrial process. The IBA also now applies to industrial buildings occupied under licence.

### TAX INCENTIVES FOR THE INVESTOR

#### 16 BUSINESS EXPANSION SCHEME

The Business Expansion Scheme is an entirely new tax incentive to attract individual investors to back unquoted trading companies. Where certain conditions are satisfied, an investor is able to obtain relief against income tax on up to £40,000 subscribed for shares issued in any one tax year.



## 17 VENTURE CAPITAL SCHEME

Losses on disposal of shares owned by individuals and investment companies in unquoted trading companies can now be set against income rather than capital gains.

## 18 INTEREST RELIEF FOR INVESTMENT IN COMPANIES

Those who own more than 5% of a "close" companies, and managers of such companies, are entitled to tax relief if they pay interest on money borrowed to buy shares in their company.

## 19 INTEREST RELIEF FOR INVESTMENT IN PARTNERSHIPS

A similar relief is available for those who invest money in industrial co-operatives and partnerships.

## 20 CAPITAL GAINS RETIREMENT RELIEF

Where an individual aged 60 years or more disposes (by sale or gift) of either a) the whole or part of a business; or b) the shares in a family trading company of which he is entitled to 'retirement relief'. (It is available separately to husbands and wives). The maximum relief is £100,000 and is allowed against chargeable gains which would otherwise fall due from disposal of the assets. Maximum relief is



available for an individual aged 65 or more and who has owned (or owned shares in) the business for ten years; the relief is progressively reduced if these conditions are not met.

## 21 CAPITAL GAINS INDEXATION

Annual revision of CGT thresholds in light of changes in the retail price index and principle of indexing (except for first 12 months) introduced for gains accruing after March 1982.

## 22 CAPITAL TRANSFER TAX: TEN YEAR RULE

Previous gifts are now ignored if made more than 10 years before a later gift or bequest. This means that lifetime gifts can often be made without increasing later tax liabilities, and this facilitates the transfer of business between generations.

### 22a CAPITAL TRANSFER TAX: BUSINESS RELIEF

For the purpose of charging Capital Transfer Tax, the value of a majority stake in an unquoted company is reduced by 50%. The value of a minority stake is reduced by 30%.



## 23 PURCHASE OF OWN SHARES TAX RELAXATION

To assist a number of small and family companies, the tax charge has been eased in certain cases where an unquoted trading company buys back shares for the benefit of the trade.

## 24 1982 SHARE OPTIONS LEGISLATION

Income tax payable by a director or employee on a gain arising from the exercise of an option to acquire shares may be paid by instalments over five years.

## SUPPORT FOR INNOVATION

### 25 NEW PRODUCTS AND PROCESSES

A grant or shared cost contract available to firms towards the cost of developing new product or processes. It is also planned that from the summer of 1983, there will be grants towards the cost of market assessment studies, and towards the cost of production tooling, capital equipment and certain other pre-production costs.

### 26 JOINT APPRAISAL

The Joint Appraisal Scheme (JAS) was initially



introduced for microelectronics applications, it is now open to anyone applying for R&D support. Under JAS, the Department of Industry's technical/commercial appraisal is made available to the financial institution nominated. Nineteen institutions are actively participating in the scheme - but applications are not limited to these.

#### 27      COMPUTER-AIDED DESIGN/ COMPUTER-AIDED MANUFACTURING

A programme to promote and accelerate the acceptance and application of computer aids to design, draughting, planning, estimating and manufacture primarily in the mechanical and electrical engineering sectors of industry.

#### 28      COMPUTER-AIDED DESIGN/MANUFACTURE AND TEST

A programme to encourage the use of computer aids in the design manufacture and testing of electronic systems.

#### 29      FLEXIBLE MANUFACTURING SYSTEMS SCHEME

Selective financial assistance to encourage the use of systems which combine microelectronics and



mechanical engineering to bring economics of scale to batch work by assisting with the costs of consultancy, development and capital equipment.

### 30 FIBRE OPTICS AND OPTO-ELECTRONICS SCHEME

Grants are available to encourage the development, launching and application of new products and processes relating to optical fibres, opto-electronics, optical sensors and instruments required for these activities.

### 31 INDUSTRIAL ROBOTS SUPPORT

Grants are available to encourage the increased use and manufacture of industrial robots.

### 32 MICROELECTRONICS APPLICATION PROJECT

This scheme is designed to encourage UK manufacturing industry to make use of microelectronics technology. In addition to financial support for selected projects, the Department of Industry will also look to ways to assist with the cost of improving industrial awareness.

### 33 MICROPROCESSOR INDUSTRY SUPPORT PROGRAMME

A grant or a shared cost contract is available to



promote investment in the microelectronics component industry.

#### 34 SOFTWARE PRODUCTS SCHEME

A grant or shared cost contract for service firms to encourage the development of software products or packages.

##### 34a TELECOMS PRODUCTS SCHEME

Financial assistance is available to support the development and manufacture of new types of telecommunication equipment which are to be sold for attachment to British Telecom's network.

#### 35 PURCHASE OF PRE-PRODUCTION MODELS

The Department of Industry can purchase pre-production models (normally up to 4) of new or significantly improved equipment which the manufacturer is having difficulty launching. The equipment is placed with potential users to evaluate before they decide whether to purchase, but should the equipment prove unsatisfactory the manufacturer must buy it back at the end of the trial period (normally a year) at an agreed price.



## 36 RESEARCH AND DEVELOPMENT REQUIREMENT BOARDS

There are currently five Boards covering Mechanical and Electrical Engineering; Electronics and Avionics; Materials and Chemicals; Textiles and Other Manufacturers; and Metrology and Standards. The Boards provide assistance to suitable projects in industry or reserach organisations in the form of a grant or a shared cost contract.

## REGIONAL ASSISTANCE

### 37 REGIONAL DEVELOPMENT GRANT

Regional Development Grants are available in general to those who make capital investments for industrial development in the manufacturing sector in Special Development Areas and Development Areas.

### 38 SELECTIVE FINANCIAL ASSISTANCE

Financial assistance is availavle for investment projects creating or safeguarding employment in the assisted areas. It is essentially designed for firms in the manufacturing, mining and construction industries.



## 39 OFFICE AND SERVICE INDUSTRIES SCHEME

Grants are available to assist service industries to establish or expand in the Assisted Areas.

## 40 CONTACTS PREFERENCE SCHEMES

The Government gives preferential treatment to businesses in Special Development and Development Areas when tendering for contracts placed by Government Departments, nationalised industries and other public bodies.

## 41 EUROPEAN REGIONAL DEVELOPMENT FUND

Assistance is available to develop new activities in steel and shipbuilding closure zones through the provision of consultancy, information and services to small firms.

## 42 ENTERPRISE ZONES

Eleven Enterprise Zones have been set up. Within these Zones both new and existing firms will benefit from certain tax concessions, including exemptions from rates and Development Land Tax and 100% tax allowances for capital spending on industrial and commercial buildings. Planning procedures will be



greatly simplified and remaining permission speeded up. A further 12 zones are to be set up.

#### 43      ENGLISH INDUSTRIAL ESTATES CORPORATION (EIEC)

The Department of Industry provided £5m to the EIEC to enter into joint agreements with the private sector to construct small factories in the English Assisted Areas. So far agreements have been reached to the value of £30m to build over 1500 new small factory units.

#### ADVISORY SERVICES

#### 44      SMALL FIRMS SERVICE

The Department of Industry administers a Small Firms Service, which provides free information and advice on the wide range of problems encountered by those starting-up or running a small business.

#### 45      COUNCIL FOR SMALL INDUSTRIES IN RURAL AREAS (COSIRA)

COSIRA provides consultancy, training courses and finance for small firms and retailers throughout rural areas.



46        SCOTTISH DEVELOPMENT AGENCY (SDA) AND HIGH-  
            LANDS AND ISLANDS DEVELOPMENT BOARD (HIDB)

A wide range of advisory services are available from the SDA, including a general counselling service, training facilities and advice on marketing and exporting. General advice and finance are available to firms that approach the HIDB for financial help. In addition, 3 people have been appointed by the Board on a pilot scheme (50% EEC funded) to give specific advice to people setting up in business.

47        WELSH DEVELOPMENT AGENCY AND THE DEVELOPMENT  
            BOARD FOR RURAL WALES

The Welsh Development Agency (Small Business Unit) has 6 offices where Management Advisors can give general or specialist management advice. The Agency has Technical Advisors available to give in-depth advice on particular issues and financial help is also available. The Development Board for Rural Wales hold evening classes in 6 locations twice a year on "Getting into Business". The Board also organises in conjunction with the MSC a full-time 9 week Small Business Development Course. General business counselling and advice appointments can be arranged with the Board.



#### 48 LOCAL ENTERPRISE DEVELOPMENT UNIT

Gives business advice, in Northern Ireland, on subjects such as marketing, technology, accountancy and design. Finance is also available. The Unit's activities are mainly limited to firms employing up to 50 persons.

#### 49 ENTERPRISE AGENCIES

The Department of the Environment and the Department of Industry are encouraging firms located in a particular area to pool their resources to help stimulate economic development by forming Local Enterprise Agencies. These are small bodies, usually staffed by secondees from the firms concerned, who provide help in a variety of ways, including the provision of advisory services, help with premises and matching potential investors with firms in need of capital. Much of this help is directed at stimulating small businesses. Tax relief has been made available to firms who contribute to approved agencies.

#### 50 TOURIST BOARDS

The Welsh, English and Scottish Tourist Boards provide grants and advisory services.



## TECHNICAL ADVICE

### 51 SMALL FIRMS TECHNICAL ENQUIRY SERVICE

Designed to help small firms with their technical problems and operated by the Production Engineering Research Association (PERA), this free service enables firms to have technical enquiries answered within an overall limit of 5 man-days of work.

### 52 MANUFACTURING ADVISORY SERVICE (MAS)

Subsidised consultancy to factory units employing between 60 and 1000 people is available together with answers to technical questions involving manufacturing efficiency or competitiveness. MAS is operated by the Production Engineering Research Association (PERA).

### 53 DESIGN ADVISORY SERVICE

A free design advisory project involving up to 15 man-days work by a specialist consultant is available to production units with between 60 and 1000 employees. For a subsequent project the Design Advisory Service will meet half the cost. This scheme is operated by the Design Council.



## 54 TECHNOLOGY ADVISORY POINT

A central contact point from which you can be directed to an appropriate source of expertise in a particular field (ie a departmental research establishment, research association or academic institution).

## 55 MICROELECTRONICS APPLICATION PROJECT CONSULTANCY

Feasibility studies and consultancy support to encourage the application of microelectronics in all sectors of manufacturing industry.

## 56 GOVERNMENT LABORATORIES

Department of Industry Laboratories have facilities which are unique in the country and they provide a wide range of technical services. They have national responsibilities in the field of measurement and standards; they provide calibration, analytical and other test services; and they undertake research into new techniques and materials of industrial importance. These R&D and technical services are an important feature of the Department's support for industry and are increasingly being used by companies on a repayment basis.



## EMPLOYMENT

### 57 UNFAIR DISMISSAL: THE TWO YEAR RULE

The 1980 Employment Act gives a 2 year qualifying service period in respect of new employees for unfair dismissal complaints for firms with 20 or less workers.

### 58 UNFAIR DISMISSAL: THE SIZE RULE

This requires industrial tribunals to take account of the size and administrative resources of a firm in deciding on the fairness or unfairness of a dismissal.

### 59 MATERNITY PROVISIONS

The 1980 Employment Act relieves firms with 5 or fewer employees from the obligation to reinstate an employee after maternity leave where it is not reasonably practicle to do so.

Relieve any employer of the obligation to reinstate after maternity leave if the employee declines an offer of suitable alternative work.



## 60 ENTERPRISE ALLOWANCE

A pilot experiment has been set up in five areas through the Small Firms Service and the Manpower Services Commission to give an Enterprise Allowance in the form of a grant for a period of one year to unemployed people who want to set up in business. The allowance will be available nationally from 1 August 1983.

## EXPORTS

### 61 THE BRITISH OVERSEAS TRADE BOARD (BOTB) HEAD OFFICE SERVICES

A wide range of export services and assistance from the BOTB to help at the various stages of the export process. The Board is a group of businessmen actively involved with exporting who guide and direct the Government's services and assistance to exporters.

### 62 STATISTICS AND MARKET INTELLIGENCE LIBRARY AND THE PRODUCT DATA STORE

A range of published information on export markets is available from the Statistics and Market Intelligence Library and the Product Data Store both located in 1 Victoria Street, London, SW1.



## 63 MARKET ADVISORY SERVICE

The Market Advisory Service provides a modestly priced (currently £115) survey by the overseas Post of the potential of a product in a market and the key factors that will affect marketing. This will help the firm decide whether a visit would be worthwhile and, if the firm decides to proceed and the MAS report supports it, the BOTB will contribute to the travel costs of an initial visit to the country.

## 64 TECHNICAL HELP FOR EXPORTERS (THE)

This is part of the British Standards Institution which for modest fees can help exporters to meet foreign standards and requirements and to anticipate the technical barriers to trade. The BOTB is sponsoring a free trial offer of up to £100 worth of technical advice from THE for manufacturing firms with under 200 employees until the end of 1983.

## 65 OVERSEAS STATUS REPORT SERVICE

A status report can be obtained through the Department of Trade to provide a check on the general standing (not financial reliability, which is done through a bank) of a possible agent or partner.



If professional detailed market research is needed, the BOTB's Export Market Research Scheme can provide a contribution towards the cost, and even towards the cost of consultancy to set up or reorganise a firm's export marketing department if necessary.

67 MISSIONS AND TRADE FAIRS

The BOTB offers attractive terms, through sponsoring organisations (mainly chambers of commerce and trade associations), for outward missions to visit overseas markets. Participation in an overseas trade fair on attractive terms is a feature of the the BOTB's joint venture scheme and can be either a way of testing a new market, or a direct-selling aid. There are special low rates for first-and second-time exhibitors.

68 EXPORT INTELLIGENCE SERVICE

The BOTB's Export Intelligence Service provides a computer-selected flow of opportunities for the product range and markets selected as soon as received from overseas Posts and posted to subscribers daily as they arise for 35p a notice.



The risk of investment in the overseas costs of such facilities as offices, showrooms, warehouses, staff training etc where needed in the overseas market can be a serious deterrent to smaller firms, whereas they might be absorbed by a larger one. In recognition of this, the BOTB offers help with both finance and risk of this kind through the Market Entry Guarantee Scheme. The 50% financial contribution to these costs is paid back to the BOTB from a levy on sales in the market. No sales, no repayment - that is the guarantee part.

#### 70      BOTB: PUBLICITY UNIT

Firms may need help with publicity and promotion for exports at home and overseas. The BOTB Publicity Unit can give advice on the best methods and seek advice from overseas Posts. Help is given to exhibitors at trade fairs and to members of missions, and editorial coverage for novel products or success stories is secured wherever possible.

Recognising that smaller firms do not always have the same resources and hence the knowledge about government and other assistance, a special effort is made to publicise them. For example, a recent series



of BOTB conferences was aimed at bringing home to the new or small exporter the opportunities in Western Europe.

## 71 SIMPLIFICATION OF INTERNATIONAL TRADE PROCEDURES BOARD

There are many companies offering services to exporters to help with transport and clearance through customs and other procedures. The BOTB takes particular interest in facilitating this aspect of trade through the Simplification of International Trade Procedures Board.

## 72 EXPORTS CREDITS GUARANTEE DEPARTMENT (ECGD)

ECGD provides insurance against default on payment by overseas buyers. Some of the major banks provide cover on a simpler basis under the umbrella of overall support from ECGD.

## PLANNING RELAXATIONS

## 73 LIGHT INDUSTRIAL/WAREHOUSE CONVERSIONS

A planning application is no longer needed to change from light industrial to warehouse use or vice versa for premises of 235 square metres and below. Together with the existing provisions of the General Development



Order this allows small firms to change their premises from general industrial to warehouse use without passing through the intermediate stage of light industrial use. However the reverse does not apply.

#### 74 EXTENSIONS

No planning application is needed for extensions to industrial buildings of 20% subject to a maximum increase in floor area of 750 square metres. A planning application will be required, however, for any extension within 5 metres of the site boundary.

#### TRAINING

#### 75 SKILL INTO BUSINESS COURSES

Each course will cater for up to 20 people. The aim is to adapt and enhance existing skill (through a Skillcentre or college of further education) and to provide basic training through a college of further education in what it takes to plan, run and keep on top of a one-man business. The business training will centre on a training manual which will subsequently form the basis of an operating handbook. The course will provide free after-care through the Department



of Industry's Small Firms Service.

76 NEW ENTERPRISE PROGRAMME (NEP)

77 SMALL BUSINESS COURSES (SBC)

The NEP is aimed at people who wish to launch businesses with major growth potential whilst the SBC's are designed for people who plan to set up a more modest business venture. The courses are similar in format, with a residential period during which the trainees receive a grounding in the elements followed by a project period during which their learning is put into practice and their energies are directed towards getting their businesses off the ground.

78 THE MANAGEMENT EXTENSION PROGRAMME

The programme operates under TOPS and the MCS pays for the training of the redundant executives and pays them a weekly training allowance for the duration of their secondment. The participating firms are responsible only for meeting these secondees' out-of-pocket expenses.

79 IN-PLANT TRAINING SCHEME

A grant is available to help with in-plant training



costs associated with manufacturing projects which create jobs in Special Development Areas, Development Areas or, in exceptional circumstances, the Intermediate Areas.

#### MISCELLANEOUS

#### 80 COMPANY LAW: REDUCED DISCLOSURE REQUIREMENTS

Under the Companies (Accounts) Regulations 1979 the particulars of turnover are from 1 January 1980 no longer required to be included where annual turnover is less than £1 million. The Companies Act 1981 further reduces the amount of detailed financial information that small companies must file with the Registrar of Companies. It also simplifies the arrangements for approval of company names.

#### 81 PUBLIC PURCHASING: £5,000 RULE

To facilitate small firms access to Government contracts certain simplifications to the tendering and approval procedures are to be introduced.

Suppliers to most Government Departments will be exempt from normal approval procedures for contracts under £5,000.



82 PUBLIC PURCHASING: NON-APPROVAL RULE

The Governmnet will allow non-approved firms to tender for non-urgent contracts and be subject to approval afterwards.

83 ENERGY SURVEY SCHEME

Grants ate provided to assist all sectors of the economy to employ consultants to carry-out energy-saving surveys.

84 COAL FIRED BOILER SCHEME

A capital grant is available to firms in the manufacturing industry and to agricultural and service concerns for the conversion or replacement of existing oil or gas firing equipment with coal firing. This scheme is due to close on 31 March 1983, but may be extended.

85 MINERAL EXPLORATION GRANTS

A grant is offered to offset costs incurred in exploring for, and evaluating for commercial purposes, mineral deposits in Great Britain.

86 RATES- RIGHT TO PAY BY INSTALMENTS



The Local Government Planning and Land Act introduced changes in the rating Laws which will benefit small businesses. One of these is the extension of the right to pay rates by instalments to those payable on business premises.

#### 1983 BUDGET

The following announcements were made in March 1983:

#### 87      SMALL ENGINEERING FIRMS INVESTMENT SCHEME

This scheme first ran between March and May 1982. It was re-introduced from March 1983. Grants are available to help firms invest in certain types of advanced capital equipment. Almost all small and medium-sized engineering firms will qualify.

#### 88      MARKETING ADVISORY SERVICE

The Department of Industry is currently considering a proposal from the Institute of Marketing to help establish a service to give advice on marketing to small firms.



## APPENDIX E

### STATISTICS ON THE SMALL FIRM SECTOR

One of the most problematic areas for researchers studying the small firm sector is the question of statistics. Although a great deal of work has been carried out on the sector as a whole, small business statisticians have been likened to "archeologists trying to piece together scraps of evidence." (1) What is most surprising about this statement is that it was made in 1982 - eleven years after the BCI report had highlighted the urgent need for immediate research into this area. However, work done at the Department of Industry has gone some way to redressing this imbalance. Mr. Pom Ganguly has analysed the returns of the 1.3 million firms in the U.K. registered for VAT. From this information he has been able to calculate the number of 'births' and 'deaths' of firms. Although these statistics should be treated with caution, they do at least provide some much-needed information on the changing face of the small firm sector. Other statistics

(1) Financial Times, 22/7/82, Graham Bannock.



collated concern job generation in manufacturing and an international comparison of small firms.

Table I8

Contribution of Smaller Enterprises<sup>1</sup> in Manufacturing  
To Employment and Output in the U.K.

	Employment	Output <sup>2</sup>
1971	20.9	17.9
1972	21.5	18.4
1973	20.7	17.1
1974	21.5	n/a
1975	21.9	18.0
1976	22.6	18.2
1977	22.5	18.7
1978	22.8	19.3
1979	23.1	19.5

(1) Enterprises employing less than 200 people.

(2) Output is defined as total sales and work done.

Note: An 'enterprise' is defined as a business consisting of either a single establishment or two or more establishments under common ownership and control. An 'establishment' is the smallest business unit which can provide the information normally requested for an economic census, for example, employment, expenses, turnover, capital information. Typically the establishment embraces all the activities carried out at a single address.

Source: CBI; Smaller Firms in The  
Economy 1983.



Figure I

Contribution of Smaller Enterprises in Manufacturing  
to Employment and Output in the U.K.

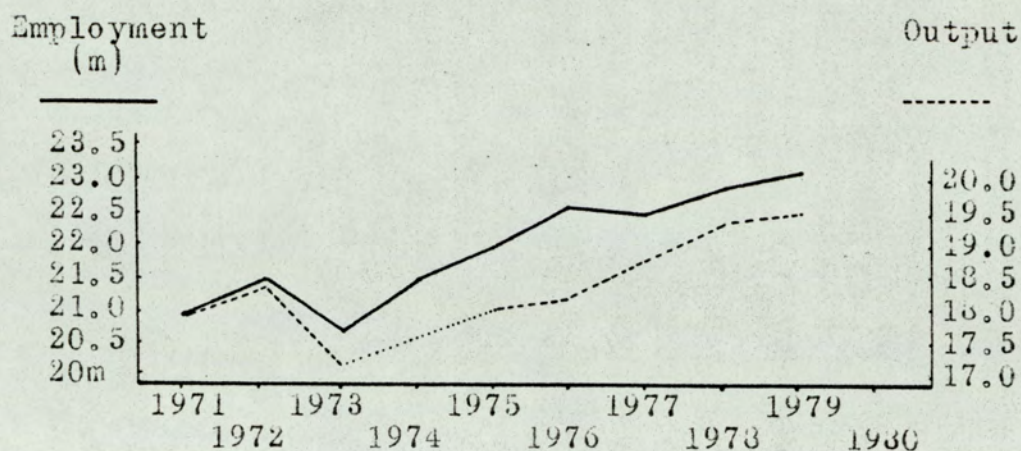


Table 19

Number of Private Sector Enterprises in  
U.K. Manufacturing (Thousands)

	Smaller	Larger	Total	Small as a %age of total
1958	66	4	70	
1963	60	4	64	
1968	53.2	3.5	61.7	
1971	71.5	3.3	74.9	95.3
1972	69.0	3.3	72.3	95.4
1973	74.1	3.4	77.5	95.7
1974	81.1	3.3	84.4	96.0
1975	83.4	3.2	86.6	96.2
1976	86.3	3.1	89.4	96.5
1977	86.7	3.1	89.8	96.6
1978	87.2	2.9	90.1	96.8
1979	86.8	2.9	89.7	96.8

Source: BCI p.60 and CBI p.13.



Table 20 Provisional Estimates for 1980/81: births and deaths of firms by Sector in the U.K.  
(Source: D.O.I. statistics, British Business 29/1/82 & 23/7/82)

YEAR	Item	Agriculture	Prodn.	Const- ruction	Trans- port	Whole- sale	Retail	Services (Finance, Property, Professional)	Cater- ing	Motor Trades	Other	TOTAL
1980												
	Total	Births 4900	10400	13000	4800	10100	22900	7400	113000	6100	17200	113000
	Deaths	5400	10000	15000	5700	8200	31600	5900	130000	6300	14500	115700
	Excess	-500	400	3000	-900	1900	-8700	1500	-1700	-200	2700	-2700
	Stock of busin- esses registered for VAT	179300	125500	193100	56100	97100	267800	81600	117700	70300	132600	1321100
	Births as % of stock	2.7	3.3	9.3	8.5	10.4	8.6	9.1	9.6	8.7	12.9	8.6
	Deaths as % of stock	3.0	3.0	7.8	10.2	8.5	11.8	7.3	11.1	9.0	10.9	8.8
1981												
	Total	Births 5500	12300	18200	5200	11600	27000	7300	12000	7200	18600	124800
	Deaths	4500	10100	12800	5300	8200	30300	5700	13100	6100	13400	110000
	Excess	1000	2100	5400	-100	3400	-3900	1600	-1100	1100	5200	14800
	Stock of busin- esses registered for VAT	180300	127600	198500	56000	100500	263900	83200	116600	71300	137900	1335900
	Births as % of stock	3.1	9.6	9.2	9.3	11.5	10.2	8.7	10.3	10.1	13.5	9.3
	Deaths as % of stock	2.5	7.9	6.4	9.5	8.1	11.7	6.8	11.2	8.6	9.7	8.2
	Change 1980-81	+1500	+1700	+2400	+800	+1500	+3300	+100	+800	+1300	+1500	+15500



**Table 21** Estimates For 1980 and 1981: births and deaths of firms by region in the U.K.

(Source: P. Ganguly in British Business, 24/9/82, p.109.)

Year	Item	South East	East Anglia	South West	West Midlands	East Midlands	Yorkshire and Hum- berside	North West	North Wales	Scotland	Northern Ireland	Misc.	Total
1980 (Provis- ional)	Births	41300	4000	10500	10100	7500	8800	11300	4200	5100	2700	200	113000
	Deaths	42000	3600	10500	3700	6700	8600	11500	5500	5100	2900	3300	115700
	Surplus	-700	300	100	1400	800	200	-200	-1300	10	-200	-3200	-2700
1980 (Revis- ed)	Births	41500	3400	10600	9900	7500	8700	11100	4500	5200	2900	400	113300
	Deaths	40100	3300	10500	9500	7300	9100	12200	4800	5400	2200	3400	115300
	Surplus	1400	100	100	500	200	-400	-1100	-400	-200	700	-3000	-2000
1981 (Provis- ional)	Births	44200	4000	11900	11500	8100	10000	12800	5300	6100	2500	300	124800
	Deaths	37200	3300	10700	9200	7300	9200	11900	4600	5100	1900	2900	110000
	Surplus	7000	700	1200	2300	900	900	900	700	1100	700	-2600	14800
1980/81	Births	85700	7400	22500	21400	15600	18700	23900	9800	11300	5500	700	238200
	Deaths	77300	6600	21200	18700	14500	18200	24100	9400	10400	4100	6300	225300
	Surplus	8400	800	1300	2700	1100	500	-200	400	900	1400	-5600	12900



As can be seen from Table 19, and perhaps more from Figure I, the level of employment in the small firm sector has been increasing in the years since the publication of the BCI report, apart from a slight hiccough in 1973, Output has also kept pace with this rise. Table 19 shows that the percentage of small firms against larger companies has also increased, but only very slightly.

There are two ways in which the number of businesses defined as 'small' may be increased:-

- 1) By an excess of births over deaths in the sector.
- 2) By the contraction of medium- sized firms who thus fall into the definition of small.

Just how much importance should be attached to either of the above reasons is a matter for discussion.

However as far as manufacturing is concerned, the level of employment in this sector has decreased which would give rise to suspicion that it is the latter method which is of most importance.

Statistics produced at the DoI present a breakdown of births and deaths of firms by sector (ref Table 20 ). These show that over the two years 1980/81, all sectors of the economy had a surplus over deaths, with the construction industry heading the list. However,



this may be slightly misleading in that 1980 had a negative result, counteracted by the surplus the following year.

Year	Percentage of Stock				
	Births	Deaths	Excess	Births	Deaths
1980	113300	115300	-2000	8.6	8.7
1981	124800	110000	14800	9.3	8.2

Perhaps a more interesting analysis is one done on a regional basis (ref Table IV). This shows that the areas having the most activity (i.e. births/deaths as a percentage of stock) are the south-east and north-west. During 1981, all regions participated in the increase in the surplus of births over deaths, more or less in line with their share of the stock of businesses, the exception being, for example, the north-west on the one hand and Northern Ireland on the other.

In 1981, the overall net surplus of births over deaths was 1.1% of the stock of businesses in the U.K., the figure being the difference between the rate of new business formation of 9.3% and the rate of business failures of 8.2%.

The above figures are of great importance when considering the health of the small firm sector on a regional basis.



It would appear that areas having the highest level of new firm formation are those already more prosperous. For example, the south-east versus Northern Ireland. This would lend support to the claim that small firms policies should be operated in a regional way, if at all, so that those areas most in need will receive most attention.

### Small Firms: The International Scene

It has often been claimed that the small firms sector in this country is far smaller than elsewhere. There are considerable difficulties when trying to make international comparisons due to the various definitions used, so the following table must be viewed with caution.

Table 22

(Source: British Business, 19/11/82)

#### The Contribution of Smaller Establishments to Manufacturing Employment: Some International Comparisons.

		Per Cent
Japan	(1978)	68
Italy	(1971)	65
Switzerland	(1975)	64
Norway	(1979)	62
Netherlands	(1962)	58
France	(1963)	51
Belgium	(1962)	51
Canada	(1978)	48
Sweden	(1979)	41
U.S.A.	(1979)	39
U.K.	(1979)	30
West Germany	(1980)	30



It can be seen that the U.K. has one of the lowest figures, together with West Germany, thus confirming claims that the U.K. small firms sector is one of the smallest. When considering the numbers employed in small manufacturing firms, once again the U.K. has the smallest number. (For details refer British Business 19/11/82, p.488). However, the presence of a strong small firm sector does not appear, as some claim, to lead automatically to a healthy economy - Italy can be cited as a country whose large small firm population has not led to a vibrant economy.

The paucity of small firms is not spread throughout the whole of the U.K. manufacturing sector. In some industries such as timber and furniture, metals, clothing and textiles the small firms sector is at least comparable in size to that of several countries, while in others - such as food, drink and tobacco - it is undoubtedly smaller. Just how important a strong small firm sector is can never be fully evaluated, that it is important is in no doubt.



## APPENDIX C

### Interview Format and General Areas Discussed

#### A. Information taken at each interview

Name of Interviewee and position held

Name of business

Nature of business

Status of business

Area of activity of firm by:

a) product area;

b) markets served

c) areas served

i. geographically

ii. sectorally

Nature of market

i. Number of firms  
operating in the  
same field

ii. Size of Competitors

iii. Share of market  
held by firm

Size of Firm

i. Employees

ii. Turnover

Advantages/disadvantages suffered/enjoyed by  
firm

Future plans for the business

i. Expansion/contraction  
in terms of employees/  
product lines

ii. Diversification

Impetus for starting/becoming involved in a new firm

Characteristics necessary for entrepreneurship



Future plans for interviewees

Interviewees opinion as to the role of small electronics firms

Attitude towards sources of external finance

Opinion as to the role of smaller electronics firms in the innovation process

Attitude towards government policy and whether there has been any discernible change in the attitude of the present government

Relationship of the firm with external sources of technical expertise as, for example, the local university

B. More specific areas for discussion which may arise

a) Patents.

Where was the invention made

Why did the inventor choose to patent his product

Did the patent act as collateral

Was there any source of external financial assistance

b) Taxation

Did the present tax system make it more difficult to persuade investors that the company was a worthwhile venture

To what extent is the present tax system having an inhibiting effect on the growth of the firm

What effect does the tax system have on expansion

What effect does the tax system have on cash flow



c) Sources of Finance

Where did the initial funding come from

Is there any external equity

Does this affect the running of the business

Does the firm have a good relationship with its  
local bank

Does the firm have overdraft facilities

Does the firm use Hire Purchase

Does the firm lease equipment

Does the firm have any loans from external sources

Has the firm ever sought financial advice and if  
so, from whom

Are there any financial obstacles to growth

Are bank managers reluctant to lend to smaller firms

d) Sources of Venture capital

Which organisation has invested

Does the firm have a good relationship with its  
backers

How much contact do the backers have with the  
business

How efficient are venture capital organisations  
at assistance to small business

e) Management

What are the main problems

How important is external expertise

Do you believe in delegating responsibilities

f) Marketing

How was the initial marketing approached

Was a market identified before the business  
started operating

What makes their product different

Are they competing in existing markets



## APPENDIX D

### U.K. Industrial Policy For the Electronics Industry

Prior to 1964	Control of Post Office/Telecommunications Research Councils Government Research Establishments N.R.D.C.
1964	Ministry of Technology: general encouragement of higher technology and sponsorship of computers, telecommunications electronics and machine tools.
1965	National Plan: sectoral policies for electronics. Science and Technology Act.
1966	National Plan abandoned. Electronics EDC set up. Industrial Reorganisation Corporation.
1968	Dept. of Trade and Industry replaced Ministry of Technology. I.R.C. abandoned.







## APPENDIX E

### Electronics Industry and Government Intervention

(Taken from: U.K. Industrial Policies and Main Applications for the Electronics Industry, EDC/ELEC(81)20, N.E.D.O. 17/3/81. )

#### The Legislative Background

##### Science and Technology Act 1965

Under the Science and Technology Act the Government has wide powers to support R&D in the sciences and social sciences and to finance applications work.

This Act established the Research Councils which, individually or collectively, took responsibility for the work of several previously disparate bodies.

##### Industry Act 1972

Under Section 7 of this Act, selective financial assistance was made available to industry in assisted areas for the following purposes:



- (a) to promote the development or modernisation of an industry;
- (b) to promote the efficiency of an industry;
- (c) to create, expand or sustain productive capacity in an industry;
- (d) to promote the reconstruction or conversion of an industry;
- (e) to encourage the growth of, or, the proper distribution of undertaking in, an industry;
- (f) to encourage arrangements for ensuring that any contraction of an industry proceeds in an orderly way.

Section 8 of this Act empowered the Secretary of State to provide assistance for any part of an industry in any area for the same purposes as set out in Section 7 where:

- (a) the financial assistance is likely to benefit the economy of the U.K. or any part or area of the U.K.
- (b) it is in the national interest that the financial assistance should be provided on the scale, and in the form and manner proposed.

It is under Section 8 that most of the sector-specific support schemes operating today were established.

The Secretary of State is advised in respect of his functions under Section 7 and 8 by the Industrial



Development Advisory Board which was itself established under Section 9 of this Act.

#### Industry Act 1975

The Industry Act 1975 established the National Enterprise Board as set out by its then modus operandi.

Under this Act, the Secretary of State was also given prohibitory powers to stop under certain circumstances what was termed "transfer of control of important manufacturing undertakings to non-residents."

#### Industry Act 1980

This Act considerably altered the purpose and functions of the National Enterprise Board with the aim of reducing the level of State ownership in manufacturing industry.



Industrial Support Programmes - Financial/Advisory/  
Services/Other - for the Electronics Industry.

There are two ways by which Government may intervene:-  
One, by the sponsorship of a particular industry and  
two, by sponsorship of specific products.

As far as the electronics industry is concerned, the Department of Industry (DoI) is the main administrative body for such industrial support. Section 8 of the Industry Act, 1972 allows the Government to assist individual projects where benefits are likely to accrue as a result and it is in the national interest that such assistance should be provided.

The DoI is concentrating support in two particular areas:

- A. Where projects of a significant nature may be established abroad, either by U.K.-owned or foreign-owned companies. In this respect, the U.K. is competing with the incentives of other countries.
- B. Where projects should lead to a significant improvement in performance, productivity or the development of new products.



## 1. Microelectronics Industry Support Scheme (MISP)

This scheme was announced in July 1978 as a 5-year program with a total budget of £55 million and its aims are:

- 1) To expand the production of standard types of silicon integrated circuits;
- 2) To develop a U.K. capability for the design and manufacture of integrated circuits for specific users;
- 3) To support U.K. companies supplying equipment or services to the microelectronics industry and to support the manufacture of other semiconductor devices important to microelectronics.

The current position is that the project, initially intended to be completed by 1983 has been extended for a further two years, to March 1985 although the funds available will remain at £55 million. To the end of 1980, MISP has been involved in 27 projects and allocated £47 million. The number of applications for support under each of the categories has been generally satisfactory (according to DoI reports) although the opportunities for support within the third one are limited by the small number of U.K.-based companies active in the sector.

The range of MISP-supported activities is very wide and



many projects extend beyond the R&D stages right through to production. One impact of MISF has been to broaden and accelerate the range of process technologies available from U.K. suppliers.

## 2. Microprocessor Application Project (MAP)

A survey by DoI in 1977 suggested that only about 5% of companies were using microelectronics while 50% appeared completely unaware of its potential.

MAP was instigated in December 1978 to tackle this problem and others which seemed to restrain the take-up of new technology and thus expose the U.K. to increased competitiveness from overseas.

The objectives of MAP were:

- a) to significantly raise national awareness of microelectronics at all levels of U.K. industry;
- b) to substantially increase the availability to industry of people retrained in microelectronic skills;
- c) to help firms establish whether microelectronics was particularly relevant to them;
- d) to stimulate a healthier rate of application of technology and to provide assistance to companies, particularly in first-time applications.



The activities under MAP divide into three categories:

- A - Awareness and training - to improve general awareness of the potential of microelectronics in all sectors of manufacturing industry and to help retrain people already in industry in microelectronic skills. This area has embraced the organisation of one-day "awareness workshops", films, brochures, speakers and exhibitions. In respect of training, MAP complements the responsibilities of the Department of Education and Science and the Manpower Services Commission for the re-training of mature people already in industry. MAP support has been concentrated on expanding the number of places on short courses on microelectronic applications.
- B - Consultancy Support - to help firms to establish the relevance of microelectronics to their products and processes.
- C - Project Support - to help firms to apply microelectronics in their products and processes. Grants are up to 25% of development costs, but are only given where the project would not otherwise go ahead, or where it would be severely limited.

First results indicated that the scheme was not an initial success. Although some progress was made, it was felt that awareness and application of microtechnology



was not increasing at the rate thought desirable. An article published in the 'Electronics Weekly' (15/10/1980) highlighted the problem: According to a survey conducted by MORI on behalf of the DoI, 50% of managers, in the 750 'significant' companies interviewed, were not aware of the importance of microelectronics and had no plans to implement it in any of their products. This poll indicates roughly the same number of 'unaware' managers as a similar DoI survey conducted prior to the MAP scheme.

Of the £55m set aside just over £25m had been committed resulting in some 132,000 seminar attendances, 1,627 companies going for consultancy aid and 903 companies applying for project support.

By July 1981 however, the following figures were released:

	£M
MAP A (Awareness and Training)	9.5
MAP B (Consultancies)	4.5
MAP C (Project Support)	<u>19.0</u>
Total	32.0

At this stage, 3004 applications had been received for MAP B finance, 2,500 of which were accepted. 55% of approved applicants indicated that they would be willing to adopt new technology. (At the time of the



aforementioned MORI survey, only 10% of those benefitting under MAP B had and intention of incorporating the new technology).

By February 1982, £46m had been earmarked for the scheme and applications for MAPC had risen from 20/25 per month to over 40 per month. (NEDO Electronics EDC: minutes from meeting of 19/1/82).

By October 1982, the original allocation of £55m had been disposed of and a further £30m was then added to the scheme. This money was given by Government from the £130m innovation package granted to the Industry Department in the March 1982 budget.

Mr Kenneth Baker, Industry Minister is reported as saying that still only one third of manufacturers were using or planning to use the microchip in products or processes. To ensure continued momentum of the scheme a further £30m had been allocated.

At this time, MAP paid for 160,000 to attend events designed to make them more aware of the microchip. About 30,000 training places were created with MAP aid. More than 2000 consultancies were completed with MAP help. More than 800 companies were offered help in development projects.



About half the companies offered grants employed fewer than 110 people. Of the £50m spent the breakdown was:-

	£M	£M
MAP A (Awareness & Training)		12
MAP B (Consultancy)		7
MAP C (Project Support)		<u>31</u>
Total		50

The Product and Process Development Scheme. (PPDS)

PPDS was introduced in 1977 with a specific objective - to encourage British companies to devote more resources to R&D and to get new or significantly improved products and processes onto the market more quickly. At a time when German and Japanese Companies were increasing spend on product development , spend in this area by U.K. companies was dropping, particularly in the mechanical engineering sector. Too many firms were making products of out of date design and using obsolete production methods.

PPDS consolidated and extended support which had previously been available under the Science and Technology Act 1965, by putting greater emphasis on support for the development of a product to full production standard.

The scheme does not seek to encourage companies to undertake developments contrary to their commercial



judgement - the firm must be willing to take most of the risk for only 25% grants are awarded. Nor does it simply subsidise what a firm would do in any event. It aims to induce a greater willingness to take innovatory risks and to help develop competitive products for the market more quickly than firms would do with their own resources, particularly in areas of high technology.

PPDS is open to companies in all sectors of manufacturing industry and support is available for projects involving the design, development and launching of new or significantly improved products or processes, or a development programme which involves several projects. As stated before, assistance is normally a grant of up to 25% (under 'shared cost contract') in which case the Department seeks to recover its contribution through a levy on sales. As a special boost, for applications received before 31st May 1983, the maximum level of grant has been raised to  $33\frac{1}{3}\%$  for work completed by May 1986. The Department is also prepared to buy pre-production models of new or significantly improved equipment for trial by users. If the equipment performs to users' satisfaction, he is expected to buy it at the end of the trial at a depreciated cost. Otherwise, the manufacturer is expected to buy it back at a price agreed at the outset - usually about 70% of what the Department paid.



From a slow beginning applications increased and by the end of March 1981 a total of 1183 had been received. Of these 590 had been approved, involving a Government contribution of £67 million towards project costs of £213 million; 472 applications had been withdrawn or rejected and the remaining 121 were under consideration. A year later, by March 1982, support of £141 million had been offered to 918 projects, the total cost of these projects amounting to £461 million. Of this, £55 million had actually been spent.

Although good projects from all sectors are welcome spend tends to be concentrated in four main areas - computers and electronics; advanced instrument and control; mechanical engineering and vehicles. Initially priority was given to mechanical and electrical engineering but increasingly assistance is being concentrated on promoting important new technologies.

#### Investment Incentive Scheme for the U.K. Instrumentation and Automation Industry (IAIS)

Assistance is available under Section 8 of the Industry Act 1972, and is available to companies in the instrumentation and automation industries. The aim of the scheme is to encourage investment in capital equipment,



plant, machinery and buildings. Firms in the U.K. engaged in the manufacture of the following products are eligible to apply:

- i) Industrial and electronic analytical instruments.
- ii) Measurement or scientific instruments for research or industrial use.
- iii) electro-medical equipment.
- iv) automatic gauging and testing instruments used in manufacturing industry.
- v) automation systems.

#### Software Product Scheme (SPS)

SPS was established by the DoI in 1973 to encourage the development of software products/packages. Support takes the form of 50% cost-sharing contracts for the development and initial marketing of new or extended software products (a maximum two years support). The Department imposes a levy on the products' sales until its investment is recovered.

As microprocessor usage has grown, many software companies have begun producing microprocessor-based hardware systems. SPS support will now cover a small amount of hardware development, provided that this is essential to the software development.



## Department of Industry Requirements Boards.

The Departments R&D Requirements Boards determine, subject to the agreement of the Secretary of State, the objectives, composition and balance of most non-aerospace R&D funded by DoI. This is done through wide consultation in both the public and private sectors, including the Neddy EDC's and SWP's.

The Requirements Boards were established following the Rothschild review in 1972 which recommended this approach to the management of DOI funded R&D, and the establishment of a client/contractor relationship between the Requirements Boards and the research establishments used. The object of this mechanism is to ensure that the research funded by the DoI is essentially commercially orientated. Their R&D contractors include 5 of the Departments' 6 research establishments, Industrial Research Associations and individual firms.

### Computers, Systems and Electronics Requirements Board (CSERB)

CSERB is the focal advisory point for DoI on the requirements for applied R&D in the following areas:



computers,  
computerised systems and applications,  
telemetry,  
data collection and communications,  
man - computer interaction,  
electronic components,  
electronic instruments (for scientific, medical  
and industrial uses).

The Board can either directly commission R&D, or can support projects undertaken by individual firms.

Proposals for assistance are examined and considered against three major criteria:-

- i) the benefits and the effects of the project on the performance of a significant industry in the U.K.;
- ii) the relevance of the project to the Governments industrial strategy;
- iii) whether or not the means and conditions exist to apply and exploit results of the project.

The Board has sought to establish its priorities for R&D support in the subsectors of a) computing; b) control engineering; and c) electronic technology, having particular regard to:

applications  
principle types of systems  
equipment necessary for these systems  
software  
components and techniques

and taking into account the U.K.'s possible competitive



position and the size and requirements of the market to be satisfied.

Mechanical Engineering and Machine Tools Requirements Board (MEMTRB)

Priority is given by MEMTRB to the development of production techniques which British industry will need in the next decade if it is to remain a serious competitor in world markets.

MEMTRB is currently divided into six sub-groups, three of which are relevant to the electronics industry:

- automated production
- robotics
- CAD/CAM

Electronics accounted for approximately  $33\frac{1}{3}\%$  of the estimated £14m spent by MEMTRB in 1980/81.

Ship and Marine Technology Requirements Board (SMTRB)

SMTRB holds executive responsibility for the allocation of R&D funds to projects in the marine field. It supports projects that lead to the development of marketable products or services that improve the competitiveness of British ship and marine-based industries in world markets.



SMTRB has three sub-committees, one of which is relevant to the electronics industry. The Marine Technology Sub-Committee deals with, for example, marine instrumentation and has recently supported the development, by Marconi Space and Defence Systems, of a high-definition sector-scan sonar.

### Joint Space Group

The Department's expenditure on space research and technology is designed to increase the competence of U.K. industry both by supporting research in Government establishments and by assisting firms with specific technological projects.

### DoI Laboratories

The Department's own laboratories have facilities which are unique in the country and provide a wide range of technical services both to private and public industry directly and as contractors to the Requirements Boards, B.T.G. and other Government/public bodies. Apart from the actual R&D work done at these establishments, DoI laboratories play a major role in the dissemination of information to industry, reflecting the Departments concern that the results of R&D should lead to profitable application.



### National Physical Laboratory. (NPL)

NPL holds 'specialist seminars' at which groups of industrialists from a particular sector of industry will visit the laboratories and discuss needs and trends specific to their industry.

NPL also uses licensing agreements as another means of 'transferring technology', either by directly disseminating research results to industry or by licensing firms for the exploitation of newly developed instruments.

### The Warren Springs Laboratory. (WSL)

WSL puts a particular stress on co-operative services which are available to industry as well as to central and local government establishments.

### National Engineering Laboratory. (NEL)

"Technology transfer" activities at NEL cover a broad spectrum from development contracts through to exhibition participation. NEL staff have established dialogues with many sectors of industry through joint projects and industrial visits, through participation in national committees and in collaboration with the research



associations. Dialogue between NEL and a firm may result in a licensing agreement which will provide a stable basis for mutual development.

#### Computer Aided Design Centre. (CADC)

CADC have established a wide range of contacts throughout industry and the public sector.

#### Other DoI Support Initiatives.

The DoI supports the setting up of new information services for industry by giving launching aid until the initiative can become self-financing. DoI gives particular attention to the identification of unfulfilled needs and to encouraging the use of new technologies. Through its Technology Reports Centre the Department assesses government - funded R&D work and corresponding overseas programmes. The centre also provides the base for the Technology Advisory Point which directs enquirers to the source of expertise they require.

A major source of information about new technologies overseas is provided by the network of Science and Technology Counsellors at U.K. embassies in Bonn, Paris,



Moscow, Tokyo and Washington. The Counsellors monitor, evaluate and report on the technological scene in their host countries. This information is disseminated via DoI's Overseas Technical Information Unit, which acts as a two-way channel passing specific requests from U.K. industry to the Counsellors and ensuring an appropriate communication of the reports they send back.

The Manufacturing Advisory Service (MAS) was set up at the end of 1977 and can assist firms in obtaining consultancy advice on the optimum use of manufacturing technology. The service is particularly aimed at firms with between 800 and 1000 employees.

#### Other Agencies

##### The British Technology Group. (BTG)

The BTG was formed by the merger of the National Enterprise Board (NEB) and the National Research Development Corporation (NRDC). NRDC was set up in 1949 to provide support for the development and exploitation of new products and processes. The NEB, established in 1975 under the Industry Act of that year had the following remit:-



- 1) Establishing, maintaining or developing, or promoting or assisting the establishment, maintenance or development of any industrial undertaking;
- 2) Promoting or assisting the development of an industry or any undertaking in an industry;
- 3) Taking over publicly owned securities and other publicly owned property, and holding and managing securities and property which are taken over.

The two organisations had a combined portfolio of 400 investments in industrial companies which have now fallen under the management of the BTG. BTG can provide finance for technical innovation in any field of technology. The finance is available to firms of all sizes and backing can also be provided for individual entrepreneurs.

Depending on the circumstances, finance can be provided either in the form of share capital or project finance. Equity, preference and loan capital are offered on venture capital terms.

#### The Design Council

The Design Council is concerned with promoting design of British products. It covers the full range of design,



from engineering and management to appearance and ease of use.

Science and Engineering Research Council. (SERC)

The SERC and other Research Councils primary responsibility is to act in furtherance of research activities in the relevant fields.

Advisory Council for Applied Research and Development  
(ACARD)

ACARD was established in 1976, and works within the framework of the Cabinet Office. Its terms of reference are:-

- 1) applied R&D in the U.K. and its deployment in both the public and private sectors in accordance with national needs;
- 2) the articulation of this R&D with scientific research supported through the Department of Education and Science;
- 3) the future development and application of technology;
- 4) the role of the U.K. in international collaboration in the field of applied R&D.

Members of ACARD are prominent figures in industry, education and the Trade Union movement.



## Glossary

Below is a complete list of abbreviations referred to in the text.

ACARD	Advisory Council for Applied Research and Development.
BCI	Bolton Committee of Inquiry
BGA	Business Graduates Association
BOTB	British Overseas Trade Board
BTG	British Technology Group
CADC	Computer Aided Design Centre
CoSIRA	Council for Small Industries In Rural Areas
CSERB	Computers, Systems and Electronics Requirements Board
CBI	Confederation of British Industry
ECGD	Export Credit Guarantee Department
EIEC	English Industrial Estates Corporation
HIDB	Highlands and Islands Development Board
LGS	Loan Guarantee Scheme
MAP	Microprocessor Application Programme



MAS	Manufacturing Advisory Service
MEMTRB	Mechanical Engineering and Machine Tools Requirement Board
MISP	Microelectronics in Industry Support Programme
NEL	National Engineering Laboratory
NPL	National Physical Laboratory
OECD	Organisation for Economic Co-operation and Development
PPDS	Product and Process Development Scheme
SBC	Small Business Courses
SDA	Scottish Development Agency
SERC	Science and Engineering Research Council
SPS	Software Product Scheme
THE	Technical Help for Exporters
WSL	Warren Spring Laboratory



## REFERENCES

### Chapter 1

1. L. Hannah, 'The Rise and Decline of the Corporate Economy', p.8, Methuen & Co. Ltd., London, 1976.
2. T.H. Burnham and G.O. Hoskins, 'Elements of Industrial Organisation', p.58-62, Pitman Publishing, London, 1971.
3. L. Hannah, op. cit., p.11.
4. L. Hannah, op. cit., p.13.
5. Allen Skuse, 'Government Intervention and Industrial Policy', Heinemann Educational Books, London, 1978.
6. J. Parker and D.J. Reid, 'The British Revolution 1750-1970: A Social and Economic History', London, 1972.
7. J.W. Grove, 'Government and Industry in Britain', p.36-37, Longmans, London, 1962.
8. L. Hannah, op. cit., p30.
9. D. McGregor, 'Enterprises, Purpose and Profit', Oxford, 1934.
10. H. Braverman, 'Labour and Monopoly Capital', p.250 Monthly Review Press, London, 1974.



11. Committee For the Privy Council For Scientific and Industrial Research, Report for the Year 1915-1916, (quoted in L. Hannah, op. cit., p.40).
12. S. Brooks, 'A British captain of Industry', Sperlings Journal, Nov., 1921, (quoted in L. Hannah, op. cit., p.40-41).
13. J.W. Grove, op. cit., p.44.
14. D.H. McGregor, 'The Evolution of British Industry', Williams and Norgate, London.
15. L. Hannah, op. cit., p.51.
16. L. Hannah, op. cit., p.80.
17. W. Hoffmann, 'British Industry 1700-1950', ps.97-103, Basil Blackwell, Oxford, 1955.
18. L. Hannah, op. cit., p.105.
19. Bolton Committee of Inquiry, ps.55-58, H.M.S.O., London, Cmnd 4811, 1971.

## Chapter 2

20. J.D. Gribbon, 'Post-War Revival of Competition as Industrial Policy', 1978.



21. J.E. Bolton, (Chairman), 'Small Firms; Report of the Committee of Inquiry on Small Firms', Preface, H.M.S.O., London, 1971.
22. B.S. Yamey, 'The Bolton Committee Report on Small Firms', The Three Banks Review, 1972.
23. J.E. Bolton, op. cit., p.XV.
24. C.E.I., 'Problems of Small Firms - evidence to the BCI', H.M.S.O., London, 1970.
25. J.E. Bolton, op. cit., Chapter 3.
26. Ibid., Chapter 8.
27. Golby and Johns, BCI Research Report No. 7, Attitude and Motivation, ps.6-9, and Arthur D. Little Inc., 'New Technology Based Firms in the United Kingdom and Federal Republic of Germany', Wilton House, 1977, p109.
28. J.K. Galbraith, 'The New Industrial State', 2nd ed. p.217, Pelican, 1979.
29. G. Bannock, 'The Juggernauts', p.67, Weidenfield and Nicolson, London, 1971.
30. G. Bannock, op. cit., Chapter 5.
31. P. Clarke, 'Small Businesses: How they Survive and Succeed, David & Charles, 1972.
32. J.K. Galbraith, op. cit., p.196.
33. G. Bannock, op. cit., p.54.



34. Ibid., p.55.
35. J.E. Bolton, op. cit., p.75.
36. Golby and Johns, op. cit., p.21.
37. Economist Advisory Group, BCI Research Report No.4, Financial Facilities For Small Firms.
38. J.E. Bolton, op. cit., p.194.
39. G. Bannock, op.cit., p.176.
40. J.E. Bolton, op cit., p.19-21.
41. Ibid., p.112.
42. Ibid., p.116.
43. Ibid., Chapter 7.
44. Ibid., p.342.
45. Ibid., p.344.
46. Ibid., Chapter 19, p.345.
47. Ibid., Chapter 19.

### Chapter 3

48. J.K. Galbraith, 'The New Industrial State', Hamish Hamilton, 1967.
49. Galbraith continually refers to the 'mature' corporation, it being analogous in his mind to a large corporation, exhibiting the qualities he describes.



50. No hope is given for any change in this system.  
The book produced a flood of criticism from those economists who believed in the existence of the free market economy.
51. G. Bannock, 'The Juggernauts', Weidenfield and Nicolson, London, 1971.
52. Juggernaut is defined as meaning; an incarnation of Vishnu, beneath whose car devotees were supposed by Europeans to immolate themselves, hence the 'car of Juggernaut' stands for any relentless destroying force or object of devotion or sacrifice.
53. See Chapter 1.
54. G. Bannock, *op. cit.*, Chapter 4.
55. *Ibid.* p.324.
56. Bannock carried this argument through in his later book "Small Firms: Return From the Wilderness".
57. G. Bannock, 'The Smaller Business in Britain and Germany', A Wilton House Special Study, 1976.
58. Reply to a query put to the Department of Industry by the Economist Advisory Group.
59. In particular Mr. Ganguly and Mr. Macey have provided invaluable statistical information which will be discussed later.
60. Mr. Anthony Grant in a statement in Parliament, 23rd January 1973.



61. Dennis Lees and Brian Chiplin, Acquisition and Merger, The Financial Times Ltd., (quoted in Bannock, 1976).
62. B.S. Yamey, op. cit., 1972.
63. J. Boswell, 'The Rise and Decline of Small Firms', Chapter 2, ps.179-188, London, 1973.
64. Ibid., Boswell believes that firms are best classified this way, refer Chapters 2 and 3.
65. Ibid., p.180.
66. Ibid., p.181.
67. Ibid., p.182.
68. Ibid., p.188.
69. Ibid., p.193.
70. P. Clarke, 'Small Businesses: How They Survive and Succeed', David and Charles, 1972.  
The book is based on the authors experience gained whilst writing for the small business section in Sunday Times.
71. The Business Graduates Association; Small Firms 'A Fair Crack at the Whip', 1978. According to the BCI report, no interference in the sector was necessary as long as small firms were allowed 'a fair crack at the whip'.
72. The BGA held the opinion that no opportunities for the sector had arisen; in fact the situation was thought to have worsened.



73. This view, criticised by the BGA has been supported by later evidence.
74. BGA, op. cit., ps.1-3.
75. G. Bannock, 1976, op.cit.
76. Ibid., p.66.
77. Ibid., p.26.
78. Economist, 276, p.104, 29/9/79.
79. For a detailed analysis of Birch's work see Storey 'Job Generation and Small Firms Policy in Britain', Policy Series II, Centre for Environmental Studies, London, 1980.
80. G. Bannock, 'Small Firms and Employment', Independent Business Association, 1974.
81. R. Macey, 'Job Generation in Manufacturing', British Business, ps.386-388, 2/7/82.
82. A. Gerstenfeld, 'Technological Innovation: Government/Industry Cooperation', Chapter 6.
83. This will be presented later.
84. G. Gudgin, I. Brunskill, S.Fothergill, 'New Manufacturing Firms in Regional Employment Growth', Centre for Environmental Studies, Nov., 1979.
85. R. Macey, op. cit.
86. Gudgin et al, op. cit.



87. R. Scase, R. Goffee, 'The Real World of the Small Business Owner', Croom Helm, London, 1980. Many instances are quoted where self-employed or small-businessmen have expressed a marked reluctance to recruit labour. For example: "I get interested in the job and I forget about the business side of things. I'm not ambitious to make a million pounds. I can tick along and quite happy. If you take on more people so you start getting all the worries and the mental problems rather than the physical problems. You're running here, there and everywhere- you're guarenteeing a nervous breakdown." p.57.
88. P.S. Johnson and D.G. Cathcart, 'The Founders of New Manufacturing Firms: A note on the size of their 'incubator' plants', The Journal of Industrial Economics, December, 1979.
89. Michael Beesley, 'The Birth and Death of Industrial Establishments: Experience in the West Midlands Conurbation', Journal of Industrial Economics, Vols.3-4, 1954.
90. D. Storey, op. cit., 1980.
91. O.F. Collins, 'Enterprising Man', MSU Business School, 1964.
92. R. Scase, R. Goffee, op.cit., 1980.
93. D. Storey, 'Entrepreneurship and the New Firm', Croom-Helm, London, 1982.



94. Gudgin et al, op. cit., 1980.
95. John Worthington, 'Use of redundant buildings', 36, Architects Journal, Vol.170, ps.611-617, Feb., 1979.
96. Bannock has continually stressed the detrimental impact of the U.K. taxation system as has various small business pressure groups.
97. Association of Independent Businesses, Annual Review, 1st April 1981 to 31st March 1982, Chairmans' statement, p.2, It is stated that the A.I.B. had been campaigning since 1969 for such a scheme to be introduced.
98. H. Wilson, (Chairman) Committee to Review the Functioning of Financial Institutions. Studies of Small Firms' Financing Research Report, No.3, H.M.S.O., 1979.
99. J. Stanworth, J. Curran, 'Some Reasons Why small is not always beautiful', ps.627-629, New Society, 14/12/78.
100. Firn and Swales, Regional Studies, Vol. 12, no.1, 1978.
101. For example, both Gudgin and Storey have expressed doubts as to the merits of the small firm.
102. J. Stanworth, J. Curran, op. cit.



103. P. Neck, 'Small Enterprise Development: Policies and Programmes', ILO, 1978.

104. See for example: Storey, op. cit., 1982; and Boswell, op. cit.

#### Chapter 4

105. Publication from the Small Firms Division at DoI, SFI 7/82, July, 1982.

106. "Guardian", 28/5/82.

107. Ibid.

108. Figures provided by Martin Stanley, SFD.

109. DoI, 'An analysis of some early claims under the Small Business Loan Guarantee Scheme, Robson Rhodes, London, 1983.

110. Ibid., p.36.

111. Ibid., p.37.

112. Ibid., ps.54-55.

113. Ibid., p.45.

114. Ibid., p.45.

115. Ibid., p.66.

116. Ibid., p.80.

117. Financial Times, p.15, 1/2/81.



118. Financial Times, p.8, 18/8/82.
119. British Business, 28/5/82.
120. N.Falk, 'Small Firms and the Inner City : in Policy Issues in Small Business Research', ed. A. Gibb and T. Webb, Saxon House, 1980.
121. D. Storey, 'Entrepreneurship and the New Firm', Croom-Helm, London, 1982.
122. M. Cross, 'New Firm Formation and Regional Development', Gower, London, 1982.
123. John McGregor, Minister For Small Firms, quoted in the Financial Times, March, 1983.

## Chapter 5

124. OECD, 'Small and Medium Firms and Technological Change', Background Report No.1, p.2, PSTI/SPR/81.23, Paris, 1981.
125. OECD, 'Innovation Trends and Perspectives', Paris, 1982.
126. OECD, 'Innovation and Small and Medium Firms', Paris, 1982.
127. See particularly 'The Juggernauts'.
128. Quoted in R. Rothwell and W. Zegveld, 'Innovation and the Small and Medium Sized Firm', p.43, Francis Pinter, 1982.



129. E.M. Mansfield, 'Research and Innovation in the Modern Corporation', p.13, McLaren, 1972.
130. BCI Research Report No.6, 'Small Firms and Innovation 1945-1970', H.M.S.O., 1971.
131. J. Townsend, F. Henwood, G. Thomas, K.Pavitt, S. Wyatt, 'Science and Technology Indicators for the U.K. : Innovations in Britain since 1945', S.P.R.U., 1983.
132. Ibid., p.27.
133. Taken from OECD (1982) Background Report No.1, and R. Rothwell and W. Zegveld, 'Small and Medium Sized Firms : Their Role and Problems in Innovation: Government Policy in Europe, the U.S.A., Canada, Japan and Israel', Six Countries Programme, The Hague, 1977.
134. S.P.R.U., 1983, op. cit., p.44.

## Chapter 6

135. British Industry Today, Central Office of Information, Ref. Pamphlet 145, 1976.
136. E. Braun & S. McDonald, 'Revolution in Miniature', Cambridge University Press, 1978.



## Chapter 7

137. O.F. Collins, 'The Enterprising Man',  
MSU Business School.
138. G. Bannock, op. cit.

## Chapter 8

139. J.E. Bolton, op. cit.
140. G. Bannock, 'The Juggernauts', op.cit.
141. O.F. Collins, op. cit.

## Chapter 9

142. J.E. Bolton, op. cit., p.344.
143. Ibid., p.192.
144. Committee to Review the functioning of financial  
institutions, Research Report No3, H.M.S.O.
145. BGA, 1978, op.cit.
146. J.E. Bolton, op. cit., p.257.
147. Ibid., p.21.
148. Stanworth and Curran, op. cit.
149. Gudgin et al, op.cit.



## Chapter 10

- 150. G. Bannock, 1976, op. cit.
- 151. Ibid.
- 152. R. Rothwell and W. Zegveld, 1982, op.cit.
- 153. J.E. Bolton, op cit., p.19.
- 154. Stanworth and Curran, op. cit.

## Chapter 11

- 155. W.J. Abernathy and J.M. Utterback, 'Innovations and the evolution of technology in the firm', Harvard Business School, HBS- 1812, 1976.
- 156. BCI Research Report No.6, op. cit.
- 157. The Economics of Industrial Innovation, Penguin, 1974.
- 158. S.P.R.U., 1983, op. cit.
- 159. J.K. Galbraith, op. cit.
- 160. C. Freeman, 'The Economics of Industrial Innovation', Penguin, London, 1974.
- 161. Ibid.



## Conclusions

162. J.Boswell, 1973, op.cit.