



William Scaife

Evolution of Organisations

Combining Theories from Economics and the Natural
Sciences

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Dedication.

This book is dedicated to my wife Jean who has cheerfully supported me throughout a more than thirty-year quest for knowledge and without whose unflinching support this work would not have been possible.

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This book would not have been completed without the support of many people. It is important to me that I acknowledge all those who have made this project possible and have made it so enjoyable.

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Much of the research detailed in this book was initially undertaken using searches of the Internet and the electronic databases held by Anglia Ruskin University and The Open University, Milton Keynes. I am very aware that electronic sources and the Internet in particular, can be very transient source of information: data found one day is often changed or unavailable on the next. Consequently, I followed up any references that I had located via these sources in order to obtain either the original documents or, at a minimum, a printed version. In undertaking this exercise I contacted many people, universities, colleges and companies and I was frankly amazed at the very positive response I received. Whilst I cannot mention all of these, I would like to particularly thank the staff of The Society for the Study of Symbolic Interactionism, Texas Christian University, The University of Essex and Colorado State University for their assistance. I also followed up a number of these references with the Essex County Library Service and I would also like to thank the staff in

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CHAPTER 1: *Research agenda.*

1.1 The research agenda.

The field of evolutionary economic theory has informed the study of economic dynamics and, particularly, the role of technological change in the process of economic growth. The intention of evolutionary economic theory was to understand the dynamic processes of, and the interaction between, the behaviour of firms and their market environments. These processes were considered to be evolutionary as firms possessed, to some extent, structures that allowed memory and learning and because their actions shaped the environment in which they operated. Within evolutionary models of economic change, irreversibility and path dependence have become considered to be critical factors.

The ideas within the arena of evolutionary economic theory have been developed from, or influenced by, theories of evolution from the natural sciences. The research agenda of this book explores the issues of change in organisations and explores the potential applicability of certain natural science models to organisations. The early chapters review the extant theories of organisations, particularly from the perspective of evolutionary change, and theories of evolution from the natural sciences. These two strands of the research converge in Chapter 10 with the development and presentation of the research question.

1.2 The research question.

This was developed as:

- **In what aspects can theories developed for the natural world be used to explain the organisational processes of manufacturing industry within the United Kingdom?**

Specifically:

1. **Can the attributes observed in animal groups be used to categorise companies from UK manufacturing industry?**
2. **Can theories of evolution from the natural world be used to explain the organisational processes of UK manufacturing industry?**

1.3 The importance of the research.

Companies exist in an environment that has become more complex and chaotic. In this environment, company growth can become difficult to maintain and survival itself becomes an issue. Greiner (1972, p.40) commented that 'smooth evolution is not inevitable; it cannot be assumed that organization growth is linear. Fortune's "500" list, for example, has had significant turnover during the last 50 years'. Some twenty-six years after Greiner (1972), Harari (1998, p.30) pointed out that 'a review of the Fortune 500 firms in 1980 will show that almost 50% of them are extinct as of 1998'.

Mellor and Devlin (2001) noted that in England, Wales and Scotland limited company liquidations and bankruptcies of sole traders, partnerships, etc averaged just over 43,500 for each of the years from 1990 to 2000. A peak of 62,767 failures was reached in 1992, since when the rate has stabilised at approximately 40,000 per year. Hunter and Isachencova (2002) in reporting the performance of 539 large scale quoted United Kingdom industrial companies over the period of 1988 and 1993 noted that 56, just over 10%, entered a legal insolvency regime during the period of the research. More recently, Mase (2007) detailed the 132 inclusions and deletions in the FTSE 100 share index that had occurred between June 1992 and March 2005.

The manufacturing industries in the United Kingdom (UK) have often been singled out for comment (Crafts & Woodward, 1991; Sloman & Sutcliffe, 1998, 2001; Economist Intelligence Unit, 2003). The importance of the manufacturing sector to the economy of the United Kingdom (UK) has been in decline since the end of the nineteenth century. Since the Second World War the rate of decline has accelerated. This trend has resulted in an increasingly large trade deficit with the rest of the world. As manufacturing has declined, the service sector, including financial services, retailing and the leisure industry, has expanded in importance. However, the foreign currency earnings generated by these other sectors have not compensated for the trade deficit and the UK has built up a large and increasing shortfall in its balance of payments.

Since the Second World War, governments of very different complexions have intervened in both the demand and supply sides to influence the UK economy in general and the manufacturing sector in particular. Unfortunately, these many interventions appear to have had little influence on the stagnation and decline of the UK manufacturing industries.

This research uses the apparent predicament of the UK manufacturing industries as a starting point for an investigation of the potential application of theories of evolution from the natural sciences in order to provide new insights into change in organisations.

1.4 The background to the research.

The point at which imports of manufactured goods into the UK exceeded the export of such goods is contested. Roy (1986) claimed that this occurred in the early 1980s, although others claimed that this position was actually reached during the 1960s or 1970s (Economist Intelligence Unit, 1983). However, in spite of a positive balance in services with the rest of the world, the UK's balance of trade has remained in deficit since the middle of the 1980s. The balance of payments deficit had reached forty-six billion pounds for the year of 2002.

Opinions vary over the impact of this trend on the overall UK economy. Some argue that this decline in manufacturing is the natural result of movement towards a mature economy (Crafts & Woodward, 1991). Others disagree and claim that a soaring and apparently uncontrolled balance of payments deficit spells disaster for the future (Sloman & Sutcliffe, 1998; Brenner, 2002). It would appear likely that the increase in the balance of payments deficit will continue as the importance of the UK manufacturing sector declines even further.

1.5 The scope of the research.

Organisations exist in an environment of evolution and change where, in a competitive environment, innovation becomes important for survival. This book reviews some of the important research that has been undertaken in this area and the theories that have been developed. However, a more radical approach might be appropriate and the book suggests that theories developed for the natural world might assist the understanding of evolution and change in organisations. Theories of evolution from the natural sciences are discussed, as are similar theories from business and economics. The evolutionary theories of Darwin and Lamarck, as combined by Piaget, are selected and used to explore change within organisations

The organisation and operational processes of some twenty groups of animals from the natural world are analysed and a decision tree is developed that is then used as a method to categorise companies. Using the results of this process it is demonstrated that groups of animals and companies can be considered to be isomorphic machines (Ashby, 1957) and that theories developed for the natural world can be used to provide new insights into the operation of companies. Both animal groups and companies can evolve through slow change developed internally, as suggested by Darwin, or rapid change triggered by major external events, as proposed by Lamarck. Those that are unable to respond to the major external events may be liable to failure and extinction.