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Strategic planning—a comparison of high and low technology manufacturing small firms

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Abstract

This paper contends that firms can be classified according to the level of technology deployed in their products and processes into two main types: high and low technology firms. The paper further contends that the level of technology deployed will impact on the overall strategic planning process and its main drivers: leadership and organisational culture resulting in differing levels of corporate performance.

Based on a nation-wide sample of 194 Managing Directors and Chief Executives of small and medium sized manufacturing firms, this study found that high technology firms tend to emphasise transformational and human resources leadership styles. Both of these leadership styles correlate positively with strategic planning and with the majority of performance indicators used. On the other hand, low technology firms emphasise transactional leadership, which correlates with internal strategy characteristics and short-term performance indicators. Similar results were obtained when culture styles were correlated with strategy and performance indicators in both types of firms. Finally, the overall performance of both types of firms indicates that high technology firms performed better than low technology firms.

The findings suggest that low technology firms can achieve a similar confidence in facing the external environment as high technology firms by changing their strategic planning, leadership and organisational culture emphasis.
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Keywords: High technology; Strategic planning; Leadership; Culture; Performance

1. Introduction

Managing Directors face increasingly dynamic, complex and unpredictable environments where technology, the nature of competition, globalisation, industry boundaries and the rules of the game are changing dramatically (Hitt et al., 2001).

The degree and complexity of change in the current economic environment is driving firms to seek new ways of conducting business to create wealth (Stopford, 2001). But change need not be detrimental—it can also be opportunities that firms should seek to exploit (Shane and Venkatraman, 2000). Hitt et al. (2001) contend that the deployment of new technology is the key to grasp such opportunities. Already, small and medium sized firms (SMEs) are embracing new and high technology (Sampler, 1998).

Technology has altered 'the fundamentals of design, manufacture, distribution and organisation alike' (Peters, 1989, p. 19), and has resulted in a transformation of economic and social life. In a later work, Peters (1997) suggests that the organisation of the past has changed and with it has gone the accepted features of the traditional firm, such as stability, predictability and certainty. As an example of the rapid rate of change, Scott (2000) states that the average product life cycle has halved over the past 10 years.

New technology is continually advancing and is likely to affect all aspects of firm performance; for example, research and development, design services and the drivers of strategic planning. Its impact is seen not only on issues such as greater efficiency in production, but also on corporate structures, communication and creativity. This suggests that technological change is a critical factor in gaining/retaining/sustaining competitive advantage. Accordingly, the authors contend that the strategic planning processes of high technology firms will differ from those of low technology firms. In addition, the emphasis placed on the drivers of strategic planning: organisational culture and leadership, will also differ.

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2. Aims of the research

Strategy research is directed in the main, to examine why firms differ in overall performance (Barnett and Burgelman, 1996; Schendel, 1996). More specifically, this paper contends that firms can be divided according to the level of technology deployed in their processes and product development and that the level of technology impacts on the overall strategy and performance of the firm.

While there are many similarities in the problems that face high and low technology firms, they both operate in the same business environment, there is a lack of empirical research on the emphasis given to the drivers of strategy in both types of firms. To date, few studies have so far concentrated on an integrated analysis comprising the strategic planning processes and the factors that influence it, and its subsequent impact on organisational performance. Accordingly, the findings are of benefit to practitioners and academics as they explain and predict an empirical phenomena (the integrated impact of culture, leadership and strategy on organisational performance in both high and low technology firms) that is not fully explained or predicted by conceptual frameworks already in existence (Shane and Venkatraman, 2000).

The aims of this paper are, therefore, to identify if high technology firms place a different emphasis on strategic planning, culture and leadership compared with low technology firms. The following sections outline the rationale for the categorisation of firms into high and low technology manufacturing firms, an evaluation of strategic planning as a means of gaining competitive advantage, a brief discussion of the main influences on strategic planning: organisational culture and leadership, the methodology for the study, data analysis and conclusions.

3. Firm categorisation

The sample consisted of 1000 small and medium sized manufacturing firms throughout the UK. SMEs were chosen as they tend to be more vulnerable to environmental forces compared with larger firms in aspects such as access to financial capital, a strong reliance on a narrow product range, and a more limited market presence. The manufacturing sector was chosen as strategy adaptation is usually more pronounced compared with the services sector, arising from its higher levels of fixed commitment (Swartz and Iacobucci, 2000).

Practical considerations largely guided the choice of the two industrial sectors examined. The aim was to identify industries that were economically important and where it was possible to find many high and low technology SMEs. Following careful consideration, the electronics and engineering sectors (SIC 37 and SIC 38) were chosen. Both sectors match the criteria for the study and provide a significant contrast in terms of product maturity and technology deployment.

SIC 37 includes industries producing mature products which arguably are more likely to produce standard products, often low-cost, undifferentiated and low technology. The sub-sectors included in the study are:

3711—Motor vehicles and passengers car bodies
3713—Truck and bus bodies
3714—Motor vehicle parts
3715—Truck trailers
3751—Motor cycles, bicycles, and parts.

SIC 38 includes industries whose products are likely to be less mature, have a shorter life cycle and have a high value-added content. The majority of these firms could be categorised as high technology firms. It could be argued that these firms have higher investment, higher management capability and more highly skilled employees, which influence the formulation and deployment of their strategic planning.

The following sub-sectors were covered by the study:

3811—Engineering, laboratory, scientific and research instruments and associated equipment
3822—Automatic controls for regulating residential and commercial environments and appliances
3823—Industrial instruments for measurement, display and control of process variables; and related products
3824—Totalising fluid meters and counting devices
3825—Instruments for measuring and testing of electricity and electrical signals
3829—Measuring and controlling
3841—Surgical and medical instruments and apparatus
3873—Watches, clocks, clockwork operated devices and parts.

4. Strategic planning to gain competitive advantage

Strategy is defined by Farjoun (2002) as "the planned or actual co-ordination of the firms major goals and actions, in time and space, that continuously co-align the firm with its environment". This definition encapsulates three interrelated points: behaviour, co-ordination and adaptation. In practice, the essence of strategy is the improvement of competitiveness.

This is probably one of the most challenging tasks facing any firm, given the increasingly volatile business environment. In doing so, it is necessary to ensure that as far as possible, the organisation 'fits' the outside environment and meets customer needs both effectively and efficiently (Drihlon and Estime, 1993). Porter (1996) states that effective strategic planning gives a firm competitive advantage over its competitors as it "renders choices about what not to do, as important as choices about what

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