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Martin Betts & George Ofori

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Strategic planning for competitive advantage in construction

MARTIN BETTS and GEORGE OFORI

Construction Economics Research Unit, National University of Singapore, 10 Kent Ridge Crescent, Singapore 0511

This paper outlines the developments in strategic planning exemplified by the works of Porter (1979, 1985, 1990) and others. After describing the emerging concepts and techniques, it is observed that these have been applied by enterprises in other sectors of the economy in pursuit of competitive advantage. Such applications are taking place at the level of parts of an enterprise's operations and at the overall corporate level. This is contrasted with the situation in construction where strategic planning at any level is less widespread, although it is becoming more common. Several reasons are identified as hindrances to strategic planning in construction. The current and historical situation with regard to planning in construction is described. The ways in which strategic planning can be applied by construction enterprises are outlined. In conclusion, it is observed that Porter's new concepts of strategic planning have relevance to, and considerable scope for application in, construction enterprises. It is suggested that the changing nature of the task of the construction industry and the dynamism of its operating environment imply that the strategic planning techniques put forward by Porter are vital for the survival and progress of construction enterprises of all types.

Keywords: Strategic planning, competitive advantage, construction enterprises.

Introduction

Construction activity is subject to influences resulting from the pace of technological change in other sectors of the economy (Economic Comission for Europe, 1986), increasingly stringent regulations (Nam and Tatum, 1988), and changing client desires as a result of variations in tastes, aspirations and purchasing power (Chow, 1990). In relation to aspirations, the concern with quality and environmental-soundness are relevant issues (Burberry, 1991). Partly as a response to these external influences, competition within the construction industry is not only increasingly more intense and sophisticated as firms adopt practices and procedures which help them to survive, but also, the normal competition among enterprises in particular segments of the industry is being overlaid with other forms of 'competition'. Moreover, there is external competition: manufacturers of construction materials and components are integrating vertically by offering construction services, in some cases, as front-end loss leaders (*Construction Today*, 1989).

In this increasingly dynamic situation, it is clear that construction enterprises will have to be vigilant and forward-looking to survive, let alone to do well. Tactical considerations will need to be replaced by, or at least put in the context of, strategic ones. Addressing a conference of the International Federation of Consulting Engineers, Cordel Hull, Executive vice President of Bechtel observed:

We will have increasingly to apply sophisticated technology in doing our work and to understand what our client industries need . . . To develop engineering packages and give clients a total service, that is the key. . . . Be flexible, stay at the leading edge. For those who adapt to meet the changes the future is bright (*Construction Today*, 1989, p. 13).

Whereas similar observations have been made by many writers (Chow, 1990; Ofori, 1990; Tatum, 1990), not many construction enterprises appear to be addressing the issues. *The Economist* (1991c) cites some of the build-operate-and-transfer projects of Hopewell Holdings of Hong Kong (a $560 million power station in China's Guangzhou Province; a six-lane toll-road between Hong Kong and Guangzhou due to open in 1993; and plans for a 500 km highway, in the interior of China as well as a 60 km network of elevated and light roads in Bangkok, Thailand). It admires the ambition and financial ingenuity underlying them and suggests that not many companies are doing the same because it is risky and sweaty work which often requires several years of lobbying, and the right political connections and the willingness (and ability) to use them. More conventional construction firms tried to steer clear of involvement in politics but with estimates showing that the countries in East Asia would spend over $1 trillion on infrastructure works between 1991 and the year 2000, they may be forced to change their minds.

Definition of construction enterprise

The term 'construction enterprise' is being used in this paper deliberately. It refers to any business entity involved in an aspect of construction. Thus, it encompasses much more than a 'contractor' or 'building company'. The review that follows and the techniques outlined are relevant to many types of business organization in the construction sector including general contracting firms, specialist contractors, architectural or engineering design partnerships, cost consultancy practices and development companies. It is also likely that the trends outlined above, and the application of the techniques and principles described in this paper, may lead to fundamental changes in industry organization and in the types of enterprise to be found in the construction sector. Thus, it is more pertinent to consider all enterprises within the Architecture Engineering Construction (AEC) sector.

The shift to strategic planning

Response to change: development of theory and its applications

The need to adopt a strategic perspective to business operations has been recognized in other sectors of the economy for over two decades. The economic and business planning frameworks and priorities have shifted from the short-term and tactical to the long-term and strategic. Porter has shown how this shift is occurring at both the corporate (1980, 1985) and the national (1990) levels. This shift had been in response to factors including the particular challenges to business environments (Benjamin *et al.*, 1984) caused by the increase in global competition in various industries (Levitt, 1983). Benjamin *et al.* (1984) suggest that these changes should lead all stakeholders within economic activities to reappraise their long-term situation with regard to products and relationships between buyers and suppliers.

Porter (1979) describes how the changes in the business environment are leading companies to review their place in relation to 'traditional' economic theories of competition.

The theory of perfect competition assumes free access to an industry to new participants and the availability of perfect market information to all within a particular sector. The extent to which these principles apply influences the profit potential. Porter (1979) suggests that, contrary to the usual perception of only threats in such a situation, a time of rapidly changing business situations enables managers to examine the extent to which they can influence the level of competition within their industry to their advantage and therefore gain abnormal profits. According to Davenport and Short (1990), the quality movement, in the manufacturing and other sectors, has led organizations to start analysing their total business process instead of its individual tasks or units. They suggest that a major redesign of the whole business processes is occurring as part of a new industrial engineering climate. Ives and Learmonth (1984) highlight deregulation as a major cause of the change in emphasis in business. They also identify global competition and declining cost of new technologies as important stimuli.

Parsons (1983) states that in the resulting conditions of rapid change, companies and business managers can no longer rely on a strict return-on-investment (ROI) evaluation of business ventures of a tactical nature but must explore value-added concepts of a strategic nature. McFarlan (1984) also opines that the use of ROI as a criterion for business decision-making is inappropriate in view of the changes which have occured in modern business environments. He suggests that a ROI focus by senior management may turn attention toward narrow, well-defined targets as opposed to broader strategic opportunities that are harder to analyse. Schwartz (1991) also argues along these lines in his proposals for taking the long view of economic situations. His work in economic planning for Royal Dutch/Shell has been based on long-term strategic planning.

Some of the strategic initiatives taken in other sectors of the economy have been transcorporation. There is also increasing co-operation among firms across national borders, as is evident in the area of shared research and development (R&D) which has been made necessary by: the increasing cost of R&D; the need for a large volume of output to make certain types of R&D worthwhile; and the shortening life-cycle of products and technologies (*The Economist*, 1991a).

Thus, in summary, one can observe a significant and dominant structural shift in the emphasis of business planning from the tactical to the strategic. There is also a shift from internal concerns with such narrow performance criteria as ROI to external concerns with such concepts as value and competition in global markets. Enterprises in many sectors have realised that it is insufficient, and often dangerous to react to events, and are endeavouring to influence the future, at least as it relates to their operations. It is in this context that opportunities for strategic planning in construction should be examined. What concerns us here is whether these new ideas and the techniques and books relating to them, which have emerged as a result of changes in business planning are relvant to, and are being or should be applied in, construction.

Lack of consensus

The body of knowledge relating to strategic planning is still being further developed. Whereas agreement on the main aspects and trends is unanimous, there is continuing disagreement on some details as well as relevant responses. For example, both Porter (1990) and Ohmae (1990) suggest that affordable and advanced computing and communications, deregulation in the form of removal of tariff barriers and financial restrictions, and the spread

of fashions, tastes and standards across borders are pushing firms to compete in a global market rather than a national one. To both writers, the old model of the multinational company as a parent firm with a network of small subsidiaries in various countries is to be superseded by one where firms locate operations in places where costs are lowest and their component firms are becoming independent of the parent (*The Economist*, 1990b). However, they do not agree on the appropriate strategy. Whereas Ohmae (1990) advocates that the firms should reduce their links with their home origins, Porter (1990) considers these links vital.

The search for strategic competitive advantage: emerging concepts and techniques

Porter's specific approaches to identifying and exploiting competitive advantage may be discussed. They incorporate the techniques and tools which may be required by construction enterprises to survive in this new era and which have been applied in other sectors, and are being increasingly refined. In this section, the relevance of each concept or technique to construction is briefly outlined. More detailed consideration is undertaken in subsequent sections of the paper.

The five forces model

The *five forces model* originated from work by Porter (1979) in which he showed that corporate strategy concerns positioning an enterprise in relation to these forces, influencing their balance within an industry and exploiting industry change and its effects on the forces. These five inter-related forces are: (a) the threat of new entrants; (b) the power of suppliers; (c) the power of buyers; (d) the threat of substitute products; and (e) jockeying for position amongst industry members. The interrelationship of these forces may be depicted as in Fig. 1.

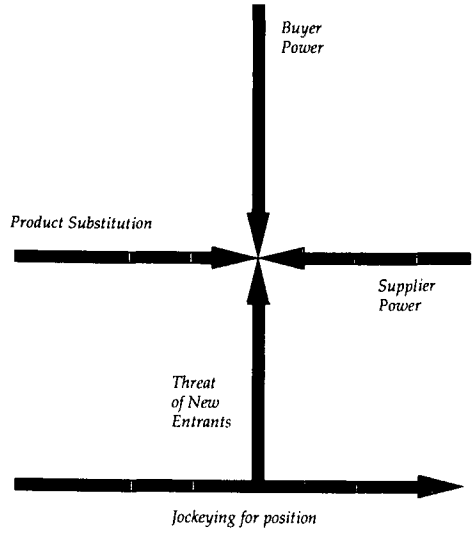

Fig. 1. The five forces model (Porter, 1979).

The model was first presented by Porter as a tool for industry analysis. It can be used to compare relative potential for superior business performance between different industries and industry segments. Porter identified new-product development in pharmaceuticals as a 'five-star' performer because of the favourable position of all five forces within that industry segment. This is of consequence in strategic planning in construction in helping a construction enterprise analyse product and location segments of the construction market for areas where superior business performance is more likely because of the more favourable position of the five forces.

Porter (1979) has subsequently advocated use of the model by an enterprise wishing to change and influence the current balance of the forces within an industry segment. He observes that the threat of new entrants within an industry can be influenced by factors including: (a) economies of scale; (b) product differentiation; (c) large capital requirements; and (d) cost disadvantages associated with learning curves and experience curves. The threat of new entrants is not particularly potent within the construction industry: construction is noted for the ease with which new firms can enter its different parts with minimal investment. Yet, it could be argued that the increasingly large investment by the major Japanese construction firms in computing and engineering technology is providing a barrier to new entrants in the larger project and high-technology end of the construction sector in the same way that pharmaceutical research and development infrastructure is a new entrant barrier.

The competitive advantage to be gained from powerful supply relationships is greatest when few enterprises dominate supply, where there is no competing product, and when the supplier holds a threat of forward integration over the buyer. In the construction industry, within each country, region or other relevant geographical area, there are often many different suppliers of many products and services. Clearly, the scope for competitive advantage in some of these situations could be exploited. Conversely, a buyer has greatest competitive advantage when it is a large volume buyer, it purchases undifferentiated products that are price sensitive but not quality sensitive to its processes, and when it holds a threat of backward integration over its supplier. There are many opportunities for large construction enterprises to exploit this opportunity with materials suppliers and specialist subcontractors. The emergence of design-and-build and turnkey constructors are examples of the extent to which competitive advantage may be exploited in this way.

The potential for substitute products gives scope for competitive advantage within an industry. This applies particularly when they are subject to trends improving their price-performance trade-off and when they are produced by industries earning high profits. It is significant to note that an example cited by Porter (1979) relates directly to construction. He refers to the house thermal insulation market as one where there was the possibility of abnormal profits in the fibreglass insulation market in 1978. This opportunity was quickly removed by the rapid emergence of substitute products including cellulose, rock wool and styrofoam.

Jockeying for position by existing industry members is a fifth force described by Porter (1979). He suggests that it gives greatest scope for competitive advantage when the following conditions apply: many competitors of equal size, slow industry growth, undifferentiated products or services, high fixed costs in enterprises, and high exit barriers from the industry. Parts of the construction industry, especially at the lower end of the technological scale, do have large numbers of similarly sized competitors with undifferentiated products and services. Yet, fixed costs tend to be somewhat low. This, together with low exit barriers,

causes a high entry and attrition rate amonst construction enterprises. Despite this, the jockeying for position of existing members is a strong competitive force within construction.

It is clear that each of these five forces is directly relevant to construction. Tatum (1988) goes as far as to suggest that construction has a high fit with each component of the five forces model. Yet, there is little evidence of construction enterprises systematically examining these five forces and their relevance to the strategic planning and management of their firms.

Value chains

It was noted above that business planning developments have led managers to stop looking at discrete activities within firms but rather to consider firms as a whole. Yet, Porter (1985) argues that to identify potential for competitive advantage it is necessary to look at individual parts of the whole firm, most preferably using *the value chain*. This is a structured way of analysing the constituents of a business in the categories shown in Fig. 2. Porter (1985) argues that differences between value chains are a key source of competitive advantage between competitors, and stresses the importance of technology to value chain analysis.

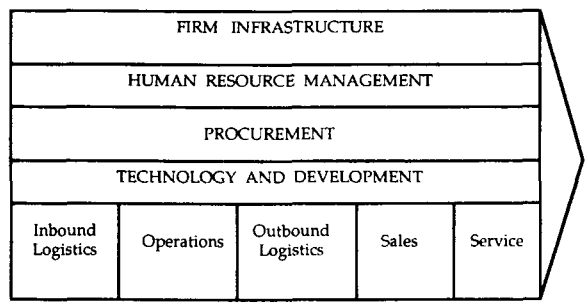

Fig. 2. The value chain (Porter, 1985).

The value chain divides an enterprise's activies into technologically and economically distinct value providers. Porter and Millar (1985) define value as what a company creates, measured by the amount buyers are willing to pay for a product or service: the difference between value and cost determines a company's profitability. They conclude that competitive advantage comes from the enterprise having a lower cost or higher value than its competitors. Porter and Millar (1985) also show that there are linkages between activities within an enterprise's value chain and that often the problem is one of optimizing the trade-offs among these linkages. Because an enterprise's value chain is within a larger industry value system linked by value channels, there is an important focal point for identifying competitive advantage. Value chains are widely used by enterprises in many sectors of the economies of industralized countries for identifying strategic initiatives. Flaaten *et al.* (1989) give detailed examples of this for the airline industry. There are no published examples of the specific application of the concept in construction enterprises although the principles are apparent in some of the examples examined later.

Value chain analysis has much scope for application to construction enterprises. In construction, much of our concern appears to be with tactical planning. This relates mainly to the 'operations' segment of the value chain. Construction enterprises do not appear to

have been as concerned with other aspects of their value providers and as such the value chain will help to focus attention on other areas that are vital to the survival of their businesses. Technology and development and human resource mangement are receiving some attention but procurement, sales, service and the logistics of communication with other enterprises offer more strategic scope for a multi-enterprise and project-based sector like construction.

The three generic competitive strategies

Porter (1985) defined competitive strategies as ways in which an enterprise could analyse both its strategic target in terms of an industry-wide approach or one aimed at a particular segment of the industry. The second approach would be preferred, and a distinction drawn between the uniqueness of the product or service offered, in the customer's perception, and its relative cost. This two-stage analysis leads to three alternative approaches that have become accepted as *the three generic competitive strategies* of product differentiation, overall cost leadership and product focus as Fig. 3 shows.

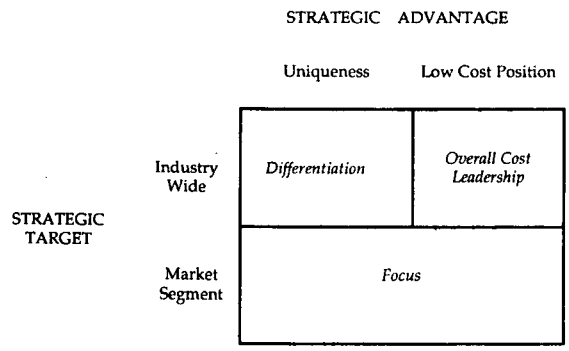

Fig. 3. The three generic competitive strategies (Porter, 1985).

Porter (1985) also highlights the inherent risks to enterprises following the three generic strategies and discusses how they apply to: fragmented, emerging, mature, declining and global industries. These three approaches have been widely followed by corporate planners in many industries and in many enterprises for successful strategic planning. As discussed above, and as Tatum (1988) argues, despite the open bidding systems which form the basis of many construction markets, cost leadership is not the only strategic approach used for construction, or for which there is scope for application, especially in recent times. Concerns with quality and value for money, which, as discussed above, are on the increase, make all three relevant. There is evidence of some of the generic strategies being followed by some construction enterprises (some examples of these are outlined in subsequent sections of this paper).

The three generic competitive strategies have clear applications for many types of construction enterprise. But, one could ask what product differentiation means to a contracting company which does no design, and provides one-off projects to clients' demands. The answer must be that the enterprise should take a critical look at its strategic position in relation to markets and competitors and consider whether one or other of the

generic strategies should be followed. Is it the best strategy to simply aim for cost leadership for one-off projects? Are circumstances appropriate for the company to start offering design or other services or looking for alternate relationships with clients other than one-off construction services? These are the ways in which this and the other strategic planning techniques can contribute, by making us change our view of construction strategy to meet the new business climate rather than dismissing new techniques because they fail to fit with traditional ways in which construction does business.

Benchmarking and core competences. This paper is primarily concerned with the application of Porter's work to the construction enterprise. Other strategic planning techniques are also used in other sectors of the economy. It is relevant for us to consider those in this paper. A method of strategic planning based on analysing the enterprise's competitors is *benchmarking*. It involves measuring every step of a company's production process against that of its best rival. Xerox is said to have used the technique to revitalize manufacturing and service operations which seemed dooomed by obsolescence (*The Economist*, 1991b). However, benchmarking has certain weaknesses: it is necessary to choose the right 'benchmark' rival in the first place; the concept fails to predict potential 'winners' which the rivals might introduce; and its usefulness is being eroded by the shortening product and technology life-cycles. Indeed, owing to these last two demerits, over-reliance on benchmarking can be dangerous. The relevance of the method for construction is also limited because of the non-repetitive nature of its product and processes. Application to construction will probably be restricted to areas where there is some repetition in process and product.

A more recent approach suggests that a company should concentrate on progressively improving its *core competences* (its key abilities and skills). Prahalad and Hamel (1990) describe how NEC, the Japanese electronics group, framed a strategy in the seventies, still being applied, which stresses the importance of honing its skills in semiconductor making, a process which is common to its communications, computers and components businesses. This has enabled it to switch more quickly than many of its competitors into new products such as laptop computers and mobile telephones (*The Economist*, 1991b). It is necessary to point out that this is not the same as the approach of 'doing best what one knows best', which many construction practitioners would subscribe to (Mulcahy, 1990). Rather, it implies identifying a particular aspect of 'what one does best' (preferably a basic competence), and striving to remain ahead of the competition in that particular area, while using the lead in that area to improve on overall operations and maintain or enhance competitive advantage by introducing relevant new goods and services. Being able to identify a core skill for an enterprise is an important part of a corporate strategy (Ramsay, 1989). There is scope for application of this technique in construction especially for those enterprises working in the high-technology parts of the AEC sector.

Synthesis. One can go further and argue that in today's business climate there is a need for companies to have a strategic vision of the unique contribution they wish to make (*The Economist*, 1991d). The Body Shop, Sony, Bennetton, Swatch, Wal-Mart and Merck are all cited as examples of companies that have successfully exploited visionary strategies. Collins and Porras (1991) argue that to become a visionary organization requires a strong underlying philosophy with challenging, shorter-term goals or missions. It is difficult to demonstrate many examples of visionary construction organizations although Japanese contractors' considerations of space construction display a greater vision than most. Takenaka's plans for Sky City 1000 (a 1000 m high building with a 14 layered plateaux of

houses, shops and offices with integral monorail) are described in their annual report (Takenaka Corporation, 1991) as one of their new horizons.

Combining the recent concepts of strategic planning, *The Economist* (1990a) suggests that the best approach to analysing a company's competitors and adopting suitable corporate plans and policies is: (a) to look at a rival's existing products, however diverse, to ascertain whether there is a particular skill underlying and underpinning them; (b) to assess whether these skills add value to customers; and (c) to choose and constantly improve upon a core competence which should, preferably, be difficult for competitors to duplicate, and will, thus, provide a sustainable competitive advantage. A key to this third component of the strategy is to keep track of trends and developments in the basic knowledge underlying it, for example, by visiting rivals' facilities, suppliers and university research departments. In construction, 'visionary' publications which emerge from time to time, such as those by Dioguardi (1983), Zuk (1988) and the International Council for Building Research and Documentation (1989) also may be referred to.

Comparison with construction. Some would argue that given the level of risks involved in their activities and the turbulent environment in which they operate, construction firms must have been undertaking strategic planning for ages in order simply to survive. In a study of large UK firms, Hillebrandt and Cannon (1990) found that although few of the persons interviewed were aware of strategic planning concepts, and most firms had no written strategy, when they 'were asked about strategy [they] were able to talk enthusiastically and cogently about it' (p. 20). Hillebrandt and Cannon (1990) observe that owing to the uniqueness of projects, management of a construction firm is essentially the

> 'management of change, coping with changes in the environment and making adjustments to its strategy, diversifying as necessary, modifying . . . operations, altering its methods of employment of manpower, updating its approach to managers, changing its organisational structure and making constant adjustments to its financial and pricing policies' (p. xix).

Dioguardi (1983) suggests that construction enterprises have adopted appropriate organization structures, practices and strategies to suit the nature of their tasks and their peculiar (traditionally turbulent) operating environment, and that the industry's approaches and practices bear useful lessons for other sectors of the economy facing uncertain environments. Abdel-Razek and McCaffer (1987) observe that, within the UK construction industry: 'The greater use of sub-contractors has caused not only changes in the estimating process but has also had an effect on the nature of site management. The changes . . . show the flexibility and resilience of an industry that is more often than not criticized for its resistance to change' (p. 242). On the other hand, it may be said that the inability of construction enterprises to develop appropriate responses to such issues as: vicissitudes in levels of activity, the shortage of personnel in many countries, and the relatively low productivity associated with construction work, indicate that the industry lags behind others in systematic strategic planning, in seeking niches, and in identifying and improving upon core skills.

Relevance to all enterprises

Some would suggest that concepts of strategic planning such as those outlined above are

relevant only to the fields of manufacturing and services where the rate of change of technology is particularly high, and where competitive advantage can be obtained from seeking to be nimble and findings ways of assessing and out-manoeuvring the enterprise's competitors. Others would offer the opinion that, even if strategic planning was relevant to construction, only the larger firms should pursue it, as many of them are already doing. However, whereas most of the examples cited in this paper are of strategic planning by large construction enterprises, the level of competition in construction (especially in the medium and small project categories) is no less intense than that in any sector of the economy.

Judging by the high attrition rate and the traditionally low profit margins, there is little doubt that the industry's operating environment is even more fluid than those of other sectors. In the industrialized countries even the smallest construction firm faces potential challenges from trends such as the increasing importance of do-it-yourself among owner-occupiers of houses. 'General' small contractors might also be under threat from the spread of labour-only subcontracting. Finally, as trade barriers come down, construction enterprises in each country will face real competition from firms from other countries, even for small construction projects, if only in the districts close to the national borders. In the developing countries, the large construction firms will need to undertake strategic planning if they are to survive the expected onslaught of foreign construction enterprises following the adoption of free-market economic policies by most governments. Small companies will also require longer-term perspectives if they are to survive downward 'plundering' by larger firms, vicissitudes in public sector development budgets, rising client aspirations and changing industry practices.

Previous work

We can see that Porter's new strategic planning techniques have relevance to construction enterprises. It is now important for us to see where these new techniques stand in relation to previous considerations by researchers of strategic planning in construction and current construction corporate planning practices.

Significant studies of corporate planning in construction were undertaken in the UK in the 1970s. The 'Ashridge Studies' (Lea *et al.*, 1974; Sadler *et al.*, 1974; Lansley *et al.*, 1979) considered corporate management issues in construction firms and this was extended to a discussion of flexbility in corporate responses to changes in demand by Lansley (1983, 1987). Hillebrandt and Cannon (1990) recognize the corporate planning initiatives of the 1970s but suggest that firms did not start to make use of the more widely followed strategic concepts until recently. As new strategic concepts have emerged, a fresh look at the subject of strategic planning within the construction sector is now warranted.

Lansley (1987) applied some of the earlier concepts of strategic planning to construction firms [by Hedley (1977); Miles and Snow (1978); Porter (1985)] and identified three distinct periods in the UK construction industry, each requiring different strategic approaches. In the stable environment of the 1960s, firms did not need long-term strategies but had to identify the markets to which their skills were most suited (a focus strategy), to invest heavily in the necessary equipment and systems, to formalize their experience into systems, procedures and practices, and to improve their internal efficiency by developing their technical and managerial skills. Firms were generally defenders. Only few large firms integrated vertically. The huge transformations in the environment in the 1970s required firms to adopt a prospector strategy, moving from focusing on particular segments to the market as a whole,

and to generally seek to be flexible. Entrepreneurial vision had to be supplemented by planning involving more members of the senior management. Firms had to identify less profitable parts of their businesses and divest them. Short-term alliances (joint ventures) were more appropriate as compared to vertical integration. Scanning the environment and managing the firm's interface with it assumed greater importance. In the 1980s there was a need for greater levels of efficiency and client service. An analyser type of organization was most suitable. The enterprises and the industry were being restructured and rationalized in readiness for the next prolonged upswing in economic activity.

Ramsay (1989) considers the implications of business objectives and strategy to large construction contractors. He observes two dominant current trends as concentration through acquisition and merger, and diversification. He studies these trends in relation to Porter's competitive strategy concepts and the growth-share concept of the Boston Consulting Group, and applies them in classifying corporate strategic developments that have occurred up to now. However, Ramsay limits his study to large UK firms and does not directly consider how each of Porter's strategic planning techniques could be used by a variety of construction enterprises, in different parts of the world, in the future. He suggests that the concepts are relevant to the corporate management of the large firm, especially since they are diversified entities managing a portfolio of business, rather than the management of their projects. It is argued in this paper that the scope for the application of strategic planning concepts in construction is much wider.

Hillebrandt and Cannon (1990) utilize the framework for a business strategy proposed by Ramsay (1989) to analyse the business management approaches of some large UK contractors. They found a wide variety of approaches. Some of the companies studied had clear written strategies which were regularly revised to deal with changing circumstances. Relevant elements were communicated to and discussed with those responsible for implementing them. However, in some other firms '. . . strategy was equated with planning and planning sometimes tended to be short-term and related to financial budgeting and forward planning' (p. 20). Although in one company the growth-share matrix had been used to consider the firm's market 'in an orderly fashion' (p. 23), such direct application of strategic planning techniques was rare.

Strategic planning in construction

Definition

Various writers adopt different definitions for 'strategy' in the context of construction. In a study of the corporate histories of 100 UK service enterprises – including contracting firms – Channon (1978) defined strategy in terms of the extent of diversification, international activity and acquisition policy. Considering the relationship between strategy and structure by discussing the evolution (i.e. the chosen paths to growth) of seven major UK construction firms, Newcombe (1990) adopted as the definition of strategy, the extent of market diversification (by type of constructed item) and geographical expansion (i.e. spread of activities). He considered four classifications of each: single market, dominant market, related market and unrelated market; and local, regional, national and international. He concluded that the firms had all started as small, local and single-market companies and had gradually grown, mainly through deliberate strategic decisions taken by the top

management, to become diversified and international, changing their organizational structures to pursue particular strategies (or being forced to change them because a mismatch with strategy had led to declining profits).

Andrews (1990) describes strategies rather fundamentally as: 'ways of doing things; finding methods and favourable conditions for achieving objectives: to impose upon the market the place, time and conditions of trade preferred by oneself' (p. 2). The general mission of business firms was to provide goods and services economically: '. . . to survive, recover from reverses and difficulties, improve performance and grow securely' (p. 2). The specific mission on contracting firms is: 'to satisfy client need for construction by winning a flow of work . . . and carrying it out effectively' (p. 2). However, since projects involved different types and combinations of factor inputs, technical sophistication, levels of risk, and profit margins, it was necessary for the firm, 'through a dynamic process of interaction between the firm and its environment, [to] refine its mission then determine objectives and strategies for getting work and gaining competitive advantage' (p. 3). Hillebrandt and Cannon (1990) also consider diversification by construction firms and by outsiders into construction as one of the most important strategic developments.

Adopting a similar definition as Andrews, Ramsay (1989) observes that '. . . the essence of business strategy is to try to arrange things so that you are in control of the situation; ideally, you should break the resistance of competition without a fight. . . . Strategy is usually proactive' (p. 10). He suggests that a business strategy has four components: (a) scope of the business – which may be determined by *who* is being satisfied, *what* is being satisfied, and *how* these needs are being satisfied; (b) the resource development or distinctive competence of the business; (c) competitive advantages of the firm – aspects of the firm's business where it enjoys an edge over its competitors; and (d) synergy – how parts of the firm's processes can best be combined. This framework was used by Ramsay (1989), and by Hillebrandt and Cannon (1990) to study the business strategies of large contractors in the UK.

The variety of perceptions. The literature on 'strategy' in construction range from those which extol the virtue of excelling in areas of existing processes to those which highlight the virtues of innovation or informed risk-taking. Outlining the operating strategies of a major Australian firm, Mulcahy (1990) observed that, to be successful, a construction company 'must have clear objectives recognizing the markets it wishes to address, services it will provide, risks it will carry, structure it will use, the environment it will operate within, controls it will put in place, and returns it wishes to achieve' (p. 12). It should have an appropriate structure, on-going communication, a team of skilled and motivated people and a culture for performance and satisfaction. He suggests that while these may seem obvious, concentrating on the fundamentals which are consistent across many businesses would lead to success. In sharp contrast, Perkowski (1988) suggested that the enterprises which win in the face of technological changes are those who: (a) are eager to understand change; (b) adopt a systems approach to management and budgeting in order to control change; (c) have the pursuit of competitive advantage as the main criterion for any new investments they make; (d) accept that mistakes happen and reward sensible risk taking; and (e) in seeking to increase their market share in the long term, endeavour to provide clients with innovative services.

Despite the 'wide' definition of 'strategy' offered above (encompassing all the firm's activities), many writers on strategy in construction have concentrated only on certain aspects: marketing and technology development may be cited as examples. Andrews (1990)

observed that contracting firms tend to ignore marketing in their development and application of corporate strategies. Citing the example of the major Japanese firms, some writers stress the importance of technology and R&D. Tatum (1988) describes how strategic planning by US construction enterprises had been on non-technological bases. He cites the following as examples of strategies that have been followed: ability to manage organized labour; extending the scope of services offered; ensuring local and project familiarity; and utilizing administrative strengths. Whereas these were important, technology-based strategies were the way forward to halt the declining performance of US firms in international construction. Tatum (1987) documents examples of how technology has been used for competitive advantage. He advocates five possible technology-based strategies for construction firms based on: borrowing and applying technology from other industries, using technology for efficiency gains, specializing in construction technology R&D, creating an organization structure that demands better technical solutions, and using technology for forward and backward technical integration (Tatum, 1988). Halpin (1990) refers to the growth of international competition in construction and distinguishes between physical-systems technologies and data-intensive technologies. He concludes that the strength of the US construction applications sector of the computer industry has come as a result of their conscious decision to make physical systems their strategic priority; and compares the strategic position of the US construction industry with international competition in both technology types.

Thus, in construction, there are several perceptions of what strategy is and of its implications for the enterprise. Instead of showing that there is confusion, or at least, a lack of focus, this rather indicates that a range of approaches are possible. However, it is important to acknowledge the obstacles to implementing these approaches in construction.

Hindrances to strategic planning in construction

The situation in construction with respect to strategic planning may be illustrated with an anecdote. When a British Professor in Construction Management showed one of Porter's models for strategic planning to a senior manager of a major Australasian construction firm, he was told: 'Get out of here, I have a construction company to run!' Perhaps as a result of the limited attention it gives to strategic planning, the construction industry compares poorly with other sectors of the economy in many respects (as mentioned above): technology development (Business Roundtable, 1983); productivity (Construction Industry Development Board, 1989; Ofori, 1990); and application of information technology (Betts *et al.*, 1991).

Hillebrandt and Cannon (1990) found that in large UK construction firms there was much confusion about strategy and strategic planning, as well as the terms associated with them, such as 'mission' and 'objectives'. Lansley (1987) suggests that whereas the industry as a whole has been slow in reacting to change, some firms have been very successful in responding to changing needs and opportunities. As clients were unsophisticated until recently, the impetus for change tended to come more from a fear of being left behind by competitors than from a belief in the benefits of innovation.

It is commonly held that construction offers little opportunity for the application of the concepts of strategic planning. Several reasons may be cited for this. First, the construction enterprise, especially the contracting firm, has little opportunity to differentiate its product as

many project parameters and variables are determined before the firm is engaged. Second, most construction enterprises are small: construction is a highly fragmented industry (Ofori, 1991). For example, in no European country (where most other sectors of the economy are relatively concentrated) does any one construction contracting company have a market share greater than 4% (*The Economist*, 1990a). Thus, economies of scale are not very relevant. Indeed, owing to the peculiar nature of construction projects and the high cost of storage and movement of materials, economies of scale are often not practical. As a result of the location-specificity of projects, the bulkiness of materials and components (Hillebrandt, 1984), 'slimness' and mobility may be better determinants of success than large size and wide geographical spread of organization and/or activity. Third, as each project is unique, and as few construction firms have a structured feedback system, situations may be sufficiently fluid to erode the importance of 'previous experience'. This is aggravated by the 'now' approach adopted by firms in their operations (Tatum, 1988). Finally, much construction work is relatively simple and the rate of change of technology is also rather slow (Ofori, 1990). Owing to the relatively low capital requirements, the variety of technology which may be used for the same operation and the lack of statutory controls (such as accreditation or licensing of firms or persons) in most countries, construction is one of the easiest sectors to enter especially at the small-firm, low-technology end. The cost of leaving the industry, again, especially at the small-firm end, is also very low, as mentioned above.

Another factor which makes strategic planning for construction vital, but which also tends to hinder it, is the management-intensive nature of construction activity. Penrose (1966) observed that the rate at which a firm can grow depends on the rate at which new management can be absorbed, which is determined by the quality of existing management. Hillebrandt (1990) identifies management (and not fixed capital) as the most important determinant of the capacity as well as capability of construction firms. She suggests that construction is particularly management-intensive because of the large number of decisions which require to be taken from day to day, on site as well as within the organization. Compared with manufacturing, the number of decisions per dollar of work in construction is high. This situation is exacerbated by many of the factors outlined above including: the determination of the firm's prices for projects in advance; the peculiarity of projects; the need for complex communication systems for projects; and the need for firms to constantly reassess risks.

The general experience in construction is therefore of strategic planning being a low-profile activity that faces significant restrictions at many levels. However, it is becoming clear that the forces for strategic change in other economic sectors are equally applicable to construction. As mentioned above, several writers suggest that construction offers considerable scope for strategic differentiation (Hasegawa, 1988). Indeed, as is made clear below, there are many examples of strategic planning in construction. However, it is clear that before the changes in business climate outlined above, there was already a significant gap between the extent of such planning in construction and other sectors. This has now widened.

Current corporate planning in construction

Before considering ways in which the new strategic planning techniques can be applied it is pertinent to take note of the present level and nature of strategic planning in construction.

Some of these examples of strategic decision-making were observable even within the 'traditional' structure of the industry. For example, through deliberate policy decisions, some contracting firms (which are 'conventional' in all other respects) have been able to sufficiently differentiate their services to make them 'near-automatic' candidates for the shortlist of many a selective-tender project. Taylor Woodrow, has, for several years, successfully followed a policy of obtaining projects without tendering. In many cases, some firms have diversified themselves into integrated AEC firms and others have ventured outside construction. 'Business development' has become an important part of the operations of the construction enterprise. Competition on the basis of far more than price is becoming increasingly important.

Integrated approaches. Arguably the best illustrations of strategic planning in construction come from Japan. The large Japanese contractors have successfully out-thought construction firms in many markets in various parts of the world because of the attention they give to business strategy (Hasegawa, 1988). Several writers have referred to the high degree of interest which Japanese construction firms take in long-term R&D (Bennett *et al.*, 1987; Sherman, 1988). The possession of advanced and special technologies has been an important tool for competition for these firms both at home and abroad.

Hasegawa (1988) discusses the business strategies of Shimizu and other leading Japanese contractors. He identifies the current competitive forces at play in construction as including: the level of domestic and international competition; and the threat of new entrants to the industry through diversification of non-construction companies. He outlines three approaches to strategy formulation for contractors: product diversification; business diversification; and market segmentation. He differentiates between strategies of diversification and generalization and between offensive and defensive strategies. He also identifies critical success factors for new business ventures pursued by major Japanese contractors, explores the concept of value-added business and highlights the need for technological advancement and specialization through R&D. He then combines these forces and factors to set out six strategies that Japanese enterprises have followed to enable them to be strategically placed for the changes in the global construction industry. These include: a transnational approach; new business development; application of the concept of an integrated engineering constructor; adoption of the idea of contractors exploiting opportunities for total project development; technology development; and exploiting financial strategies. He also identifies ways in which these six approaches can be combined in a strategy mix.

Product differentiation. Cannon and Hillebrandt (1990) describe four means of product differentiation in construction: by offering a range of project management methods; by extending from construction into design; by extending into financial packaging; and by extending forward into commissioning and facilities management. Most of the UK contractors they studied adopted the first two approaches, many sought to increase their involvement in financial packages, and several were prepared to undertake the fourth but had not yet acquired a reputation for doing so. The operations of the Japanese contractors show that firms have great scope to deepen their product differentiation under each of these categories, and that the viable options may be limited only by one's imagination. In 1988, the ability to pre-sell part of a major commercial development to an anchor tenant was a key factor which clinched the tender for a Japanese contractor in Singapore. Offering joint-

venture deals (with the client) for large private-sector projects has also been a winning formula recently.

Like the other *chaebols*, Hyundai of South Korea (*Asian Finance*, 1985), has a significant involvement in construction, which accounts for about 25% of its sales and around 30% of profits in a typical year. It was the world's seventh largest international contractor in 1985, undertaking almost US$2 billion worth of foreign contracts in that year, which represented almost 80% of its total construction work (*Engineering News Record*, 1986). The firm maintained its share of global construction work despite a sharp deline in overall volumes during the 1980s by adopting a group strategy of high investment in R&D, and the strategic targeting of the 'sophisticated upmarket'. The giant Bechtel group of the US (Slavich, 1986) was third largest international contractor in 1985 with US$3.6 billion worth of contracts representing 50% of its total volume of work (*Engineering News Record*, 1986). Its response to a worldwide decline in mega-projects in the mid-1980s, and power-related projects in particular, was to reorganize its business to emphasise advanced technology and R&D. At the same time, it scaled back the number of divisions engaged in power generation and oil industry projects. These two examples demonstrate a clear goal of product differentiation within a tightening global market and in response to identified planning issues of a domestic and international nature.

Diversification. Cannon and Hillebrandt (1990) provide one of the most extensive descriptions of diversification in their study of 20 UK construction firms. They see this as a major contributor to corporate growth that is evident in all enterprises they studied. They also established that increased operational and financial efficiency and greater security were the prime motivators. UK firms had moved into development, consultancy, plant hire, mechanical and electrical engineering, production or sale of building materials and components, and such unrelated areas as health care, printing and waste disposal.

Diversification had been the traditional route for growth adopted by European construction companies. Naturally, diversification has taken many forms, and has been carried to different extents in various firms. Some construction companies have integrated vertically, both upwards and downwards. Tarmac concentrated on the development and production of road construction materials and firms like John Laing and George Wimpey went into property development. Fosca and Construcciones y Contratas of Spain entered into waste management (ranging from street cleaning, through rubbish collection, to water purification). Buoygues of France has diversified both within construction, with, among other things, the formation of a joint venture with IBM to develop intelligent buildings, and outside construction into television, films and various forms of manufacturing.

One of the most revolutionary developments with regard to diversification in construction enterprises is an example of the fourth type of product differentiation suggested by Hillebrandt and Cannon (1990) specifically demonstrating a long-term commitment of the construction firm to its product and its client. This is the launching of Tarmac's *Total Build* service which it offers with Skidmore Owings and Merrill, the US architectural and engineering firm (*Chartered Quantity Surveyor*, 1991). Under the service, Tarmac guarantees the final cost and completion date of a project and gives a 25-year warranty on quality and performance which is transferable to any subsequent purchasers of the building. It can also offer facilities management, including building management, cleaning and catering. At the base of the service is the innovative application of computer-aided design and a cost-saving dedicated computer system linking all the sites to the headquarters. Tarmac's strategic use of

the 'constructed product' belies the often-stated argument which may be rendered conceptually thus: the activity of contractors constitute the final assembly point of a long process in which, and after which, there is little scope for further addition of value.

Basic competences. Another example may be cited of a strategic approach to business by a construction firm, this time a small company. Having defined its core competence as cutting-edge computer application to the design of mechanical and electrical engineering services, Esco Scientific of Singapore is one of the few construction companies (of any size) with a significant R&D budget. Its strategy is to continue to improve upon this basic competence, maintaining a gap between it and the competition and actively and continuously identifying niches to exploit. It has established itself as a force to be reckoned with in energy auditing and management; and the design and construction of the services in advanced-technology production facilities such as clean rooms. Despite its small size, its strategy has enabled it to win contracts in the highly competitive US market. The concept of basic 'core' competences has particular scope for construction enterprises other than contractors, such as consulting organizations and specialist firms.

Mergers and international cooperation

As in other sectors of the economy, a key aspect of the globalization of construction activity is the increasing tendency for construction firms to co-operate stategically across national borders. The formation of multinational consortia and joint ventures (to pool technical expertise, reduce the level of exposure to risk or to get round protectionist barriers) dates back several decades (Andrews, 1984). Such arrangements have become key elements of strategic, geographical diversification by construction enterprises. Rashid (1991) reviews the global strategies of some large construction companies. Such firms treat the whole world as a single market, and seek to develop competitive advantages which provide superiority for challenging anyone and fulfilling the most demanding work. They have geared their businesses towards solving the clients' problems and needs, thereby adding greater value to their services. In addition to product differentiation, diversification, acquisition and mergers, these enterprises establish collaborative relationships with manufacturers, financiers, research institutions, policy makers and other contractors.

The Economist (1990a) highlights strategic alliances among the large construction enterprises in Europe in preparation for the economic integration of the member countries of the European Community in 1992. The phenomenon is leading to a complex web of cross-country interlinkages and 'incestuous' relationships. For example, as at mid-July 1990, Dumez, a French building contractor, owned 34% of Belgium's CFE, 10% of Dawidag of West Germany (which owned 5% of Dumez itself) and 5% of Alfred McAlpine of the UK. Philip Holzmann of West Germany owns 50% of Josta (Spain), 14% of Nord France, 14% of Tilbury (UK) and all of Hillen and Roosen (Holland).

In addition to the prospects within the new-look European Community (an EC directive requires all public contracts worth over 5 million ecus to be awarded on open tendering to any construction company from within the Community), the construction firms need to strengthen themselves against competition from further afield, in particular, Japan (Gale and Fellows, 1990) and prepare for the opportunities of the new markets of Eastern Europe. As 90% of the market in each member country is currently undertaken by domestic contractors (and in many of the countries there is currently excess capacity) (*The Economist*, 1990a),

construction companies wishing to make a headway in foreign countries face a difficult task. On the other hand, successful penetration of any country's industry by foreign companies can have dramatic consequences for the domestic construction enterprises. Thus, there is a need for appropriate strategies both at home and abroad.

Summary

This review presents numerous examples of Porter's strategic planning techniques and those suggested by other writers being followed by leading construction enterprises throughout the world. It should provide convincing evidence of the ultimate importance of the concepts for the sector as a whole. It indicates that strategic initiatives can take many forms in the construction firm, and that there is scope for the application of strategic planning with respect to many aspects of the firm's activities.

The way forward

The techniques of strategic planning are not mutually exclusive options which should be tried one at a time. Moreover, their intention is to enhance the firm's adaptability to change rather than offer immunity from the implications of change. For the construction enterprise, formulating a strategy should not be approached from the same viewpoint as a lottery. Nor is it a matter of coming up with something new every now and then. The important issue is to develop a long-term view based on the company's core competences, which should be continuously improved over time to offer the necessary competitive advantages and seek new niches to exploit.

Strategic planning is relevant to all construction enterprises, large or small, regardless of the aspect of construction they are involved in. It should be recognized as an important aspect of the firm's overall activity which requires as much attention as its routine operations. It should be approached in a structured and systematic manner. The increasing body of work, not only on the techniques of strategic planning, but also relevant corporate approaches to their direct application, should be examined continually by construction enterprises in order to identify potentially beneficial elements.

The responsibility for strategic planning should be specifically assigned to a person or group within the organization. To this end, the variability of enterprise size must be recognized. For large international constructors, there is a clear and growing need for strategic planning departments upon whom the long-term survival of the enterprise may depend. Many larger enterprises may already have such departments. Where they do not yet exist, the task of strategic planning may be assigned to the 'business development' division within the firm. They should be staffed by multi-disciplinary teams incorporating construction professionals as well as specialists in corporate strategic planning. They must be placed and perceived as central to current and future company plans rather than as peripheral service departments. The departments should apply strategic planning concepts in detail to the specifics of their current position and the resources of the company, giving due regard to corporate objectives. Many innovative strategic initiatives will emerge in the construction industries of many countries in the immediate future if such departments become widespread. The consequences of this will be restructuring, the creation of new businesses and the emergence of new products and services.

There are many small and medium-sized construction enterprises for whom strategic planning departments may not be sustainable. This does not mean that strategic planning is irrelevant to such firms. Articulating their vision for the company and formulating a set of objectives and a plan for achieving them would be a useful exercise for the proprietors of such firms. For owners of firms in this group who are unable to do so by themselves, consultants may be engaged to offer such services. Small firms in developing countries would benefit from central assistance (by a contractor-development or management-development agency, or a committee set up or consultants engaged, by the contractors' association) to formulate corporate strategies using the emerging techniques.

It is important to note that enterprises outside of the traditional construction industry (such as materials manufacturers) may consider construction activity within their 'strategic sights' as they seek to vertically integrate or diversify their activities, or generally find new business. Moreover, as deregulation strips the construction professions of the 'protection' offered by legislation in some countries, the trend of firms and persons from outside the industry (such as accountants) offering construction-related services will be accelerated. The need for construction enterprises of all types to view strategic planning as a vital activity cannot be overemphasised.

The strategic planning initiatives of construction enterprises can be stimulated by, and benefit from the efforts of public agencies, professional bodies and trade associations (such efforts would also be helped by the application of the techniques and tools discussed above). A companion article to this paper considers strategic planning by professional institutions and trade associations.

Conclusion

This paper has reviewed the application of strategic planning by enterprises in the construction sector. We have seen that the business and construction context is increasingly dynamic. The new concepts of competitive advantage, and techniques by which it can be achieved advanced by Porter and others, are shown to have some application in construction.

There has been much previous work by researchers into strategic planning in construction. Moreover, Porter's concepts have many parallels with the way that others perceive the problems and issues. However, the need is currently more pressing. There is scope for improvement in practices in construction enterprises. The emerging concepts of strategic business planning have been successfully applied by leading construction enterprises to gain competitive advantage. Even more than before, construction is now a highly dynamic sector whose operating environment, industry structures and product requirements are changing at an increasing pace. These changes bring an increasing requirement for construction enterprises to exercise more sophisticated and systematic strategic corporate planning. Despite the particular hindrances to the application of the existing strategic planning techniques for construction enterprises, there is growing evidence that the leading edge of current practice throughout the world is beginning to act more strategically in its business planning.

All construction enterprises will ultimately have to consider strategic concepts to be able to operate effectively in the emerging industry context. In doing so the techniques presented in

this paper will need to be applied while giving cognisance to the hindrances presented by the nature of construction, and finding ways and means of overcoming or obviating them.

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