Information Technology Strategies for Small Businesses

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Abstract

The increasing emphasis on competitiveness in small business has lead to new emphasis on the competitive promise of information technology (IT). This paper discusses the unique characteristics of IT for small business and presents a strategic approach that will effectively integrate all the IT functions into the small business.

Introduction

Huff and Munro (1985) have identified information technology (IT) as "the broad range of technologies involved in information processing and handling, such as computer hardware, software, telecommunications and office information, and includes such technologies as new systems development methodologies." IT has transcended beyond its traditional administrative support role towards playing a more central part of business strategies (Keen, 1991). The essential concept of IT is now to apply the technology to gain sustainable competitive advantages and support the competitive strategy of the organization. The increasing emphasis on competitiveness in small business has lead to new emphasis on the competitive promise of IT. In recent years, the use of IT has been the key concern for many small business strategies. The major reason to develop IT in a small business is to cope with information overload and to gain competitive advantage (Farhoomand and Hrycyk, 1985).

What is unique about IT in small business? Three unique characteristics can be identified: (1) its value is subject to limited resources, (2) it is strategic in nature, and (3) it plays a crucial role in corporate strategy.

Small business executives have become more concerned about the importance of IT for three reasons. First, many competitors are using IT resource effectively. This is of particular importance as it relates to the development of a corporate strategy which depends on the IT in a small business environment. The second consideration is related to an assessment of the cost of IT as it is compared to the benefits received. The third reason is due to the deregulation in the communications marketplace, which has created new dynamics and strategic opportunities for small business firms to deploy computers and communications networks.

A key task of the small business executive is formulating corporate strategy. Corporate strategy specifies the view of business line in which the firm will compete and the allocation of the resource required to implement it. A small business corporate strategy for IT requires a comprehensive vision based upon an understanding of the unique capacities of IT and the opportunities to use the organizational resource to liberate those capacities. It means forging a new logic of IT development based on the vision. The purpose of this article is to put IT in perspective so as to give small business firms a strategic view of IT and an understanding of some of its implementation problems. An approach is suggested on the implications for small business executives in developing their IT strategies.

Challenges for Small Business Firms

There are significant organizational differences between small and large firms. Cohen and Lindberg (1972) identify a number of key effects, including the lack of management and financial resources, and the reduced access to key external information in the small firm. Research has identified the importance of organizational size as an influence on IT structure (Ein-Dor and Segev, 1982; Raymond, 1985). A study by Ein-Dor and Segev (1982) shows that size, as measured by total revenue, is positively related to the degree of centralization of IT function; however, they did not find a significant relationship between the number of employees and the degree of centralization of IT function.

A review of research shows that small businesses are constrained more by limited resources. Small business firms experience problems in devising successful IT due to lack of formalized systems (Ein-Dor and Segev, 1982). Small business firms often fail to justify the

expense and time involved in a formal process in the computer selection (Raymond, 1983). Implementation and use of IT may place the small business in greater jeopardy than a large firm undergoing a similar computerization process because of their poor resource state (Senn and Gibson, 1981). Small businesses consistently lag far behind big companies in implementing the information technologies (Howard, 1990).

However, in many situations, these difficulties can provide opportunities to small businesses, i.e., the resource shortage problem may offer the best defense of competitive advantage from innovative use of IT. The challenges provide some insights that are important to the corporate strategic issues in small businesses. To small business executives, it is imperative (1) to make strategic decisions carefully, but quickly; and (2) to be innovative and risk-seeking, but to execute a safe, incremental implementation in their IT. Small business executives are facing four strategic tasks, including: (1) To integrate information as a strategic resource within the business process, (2) To identify the information "levers of change" for the firm, (3) To migrate towards a facilitating organizational culture to make it all possible, and (4) To establish standards which reduce fragmentation in the thinking about information technologies and their management.

To overcome the shortage of intra-organizational resources and the rather narrower markets, small businesses require a deep understanding of these strategic tasks. A lack of such understanding can lead to inappropriate use of IT, inadequate resource allocation, and ineffective use of IT for strategic advantages.

Information Technology as a Strategic Resource

Traditionally, organizations classified their resources into five categories: human, financial, material, facilities or equipment, and management resources (Thieraf, 1984). In recent years, researchers have concluded that IT should be recognized as a strategic resource (Belohlav and Raho, 1987; Henderson and Treacy, 1986). As well as creating new products and services, and differentiating between those of their competitors, IT plays a crucial role in changing the scope and size of markets and being exploited to lock-in customers and to establish entry barriers to competitors. This role for information technologies is what makes them such a crucial strategic resource.

Lucas and Turner (1982) suggest that IT can be used to achieve corporate strategy in three different ways: (1) To obtain greater efficiencies in existing operations, (2) To improve the planning process, and (3) To open a new market. The choice of these three approaches depends on the integration level of IT and corporate strategy (Lucas, 1990). At the lowest level, IT can help

a small firm implement strategy by creating greater operational efficiency. At the second level, IT can help a small firm formulate the strategic planning and expand the range of strategic alternatives. At the third level, IT itself becomes a part of the corporate strategy.

Wiseman (1985) suggests another three strategies for IT: (1) Innovation - achieve advantage by introducing a product or process change that results in a fundamental transformation, (2) Growth - achieve advantage by volume or geographical expansion, backward or forward integration, product-line or entry diversification, and (3) Alliance - achieve advantage by forging marketing agreements, forming joint ventures, such as an ATM network, in which IT supports the corporate strategy of alliance members. These competitive strategies can occur in combination (for example, cost leadership and growth). All strategies can be deployed offensively (for example, reduce costs of suppliers, preempt innovation by rivals), or defensively (for example, reduce costs to buyers, reduce opportunities of rivals to expand).

IT should be viewed as more than an automating force; it can fundamentally reshape the way small business is done. Corporate strategy should also be considered as a decisive factor in the IT planning stage because it plays an important role in the implementation of corporate strategy (McFarlan, 1984). For example, IT can add value to services and products and actually throw competitors off balance. IT can be used to build up entry and exit barriers in a small business environment.

However, the technological opportunities available in the marketplace to all competitors may permit short-term strategic gains. To achieve long-term strategic benefits, those external opportunities have to be linked to the small business resources. In other words, advantage stems from using IT as a tool rather than an end in itself. The strategic use of IT is far more important than the IT itself. Simply applying IT is no guarantee of success; a corporate strategy developed by executives that leverages the technology must also be in place.

A strategy is the way in which an organization endeavors to differentiate itself from its competitors, using its relative corporate strengths to better meet customer needs (Ohmae, 1982). Therefore, small business executives should look for strategic ways to incorporate IT in a product or service. For example, a small business firm can use the IT to develop cost leadership for a product. A small financial firm that is able to use the electronic data interchange (EDI) to reduce its operating costs can be more profitable and aggressive than a high-cost producer.

Successful small business executives are able to integrate the IT resource and other business resource in

making strategic decisions. Executives will be aware of the opportunities provided by the IT and the constraints that already exist for the firm in developing new information technologies. Executives should also recognize that as they make decisions, the alternatives chosen will have an impact on IT and technology development in the firm.

There are two fundamental sources of the information advantages necessary to develop more insights into the value of corporate strategies: (1) the analysis of a firm's competitive environment, and (2) the analysis of organizational resources and capabilities already controlled by a firm (Porter, 1980; Lenz, 1980). However, Barney (1986) suggests that strategic choices should flow mainly from the analysis of its unique skills and capabilities, rather than from the analysis of its competitive environment. Small business executives must find and evaluate their business needs and have a realistic knowledge of the capabilities and limitations of IT.

Organizational Culture and Technological Change

One way of understanding the organizational environment is to study the organizational culture of the firm. Culture can be defined as a set of key values, beliefs, and understandings that are shared by members of an organization (Smircish, 1983). Cultures define basic organizational values and communicates to new members the correct way to think and act and how things ought to be done (Schein, 1985).

The IT function needs to become recognized as a knowledge function, integrating knowledge of business and technology directions (Dixon and John, 1989). The knowledge function is not merely an intelligent commodity but a political resource, whose distribution within the organization affects the organizational culture (Keen, 1981).

Technological change poses significant challenges to small business management. Cyert and Mowery (1987) have described technological change in terms of two major effects: (1) it transforms the processes by which input (including labor and material resources) are converted into goods and services, and (2) it enables the production of entirely new goods and services. In other words, process innovation is technological change that improves the efficiency with which inputs are transformed into outputs whereas product innovation results in the production of new goods. A major factor in adopting technological innovation is the adjustment of organizational culture to the new environment.

Many examples show that IT investment does not bear fruit unless it is accompanied by organizational changes. The effective implementation of new technologies is influenced by (1) the attributes of the innovation,

(2) the perceptions of top managers regarding their strategic role in optimizing performance and (3) the corporate strategies adopted in changing the elements of the culture of the organization to facilitate their adoption (Sankay, 1985). The study on executive leadership by Tomanelli and Tushman (1988) maintains that executives through their perceptions and decisions, can and do systematically influence the organizational culture. Small business executives should act as a culture audit to determine if the values and beliefs of the firm would interfere with the introduction of information technologies.

Many of the barriers to improving productivity through the utilization of information technologies involve the management of people's responses to technological change rather than the IT itself (Blackler and Brown, 1985). Organizational resource impacts are not simply implementation considerations, they are strategically important as the IT itself (Gerstein, 1987). Small business executives need both an awareness of the information technologies which are shaping the future of the firms and the courage to create the changes in organizational culture required to support IT functions.

Some subcultures in small firms may be more conducive to implementation because of their conservative nature. A study by Tavakolian (1989) shows that the IT of an organization with a conservative corporate strategy is more centralized than that of an organization with an aggressive corporate strategy. Executives should select specific technology resources and prepare action programs for their acquisition, implementation, and operation.

Conclusion: A Strategic Approach

A review of literature on IT implementation has shown the importance of executives' support in securing IT success (Johnston and Carrico, 1988; Lederer and Mandelow, 1987). The necessity for the small business executive to adopt the role of IT implementer is part of a pattern of multi-role behavior in small businesses (Gibb and Scott, 1985). However, the top management involvement is usually a form of political commitment which just indicates to others that the organization is to support the technological change.

What executives really need is not a fragmented approach but a strategic approach that will effectively integrate all the IT functions into the organization. The strategic approach has three unique features for small business executives: (1) IT strategy is resource-based, (2) Executives should have a vision on their IT strategies, and (3) IT strategy is political.

First, small executives are beginning to appreciate the value and importance of the IT resource. They are

accordingly starting to reassess their management team in light of this resource. Executives should be strong planners with strong managerial talents to the IT resources. A corporate strategy for IT involves long-term objectives for the development or acquisition of new input, process, and output innovation (Birnbaum, 1985). For a small business firm to effectively use IT as part of its corporate strategy, the firm must maintain continuous communication with other organizations or institutes involved in the process of innovation.

Second, the strategic approach advocates conformance with design forces, such as integration, information quality, information resources, organizational factors, and cost-effectiveness requirements. This approach provides insights into the capabilities and constraints of IT in the small business firm. Executives must discover their business opportunities triggered by advances in IT and can shape expectations by inserting an appropriate reality. Moreover, an appropriate information infrastructure is necessary to provide for resource flexibility and fast response to corporate requirements.

To exploit strategic opportunities from IT, executives must view the IT as an integral component of corporate strategy, and identify strategic approaches that ensure the firm's effective utilization of IT in support of its overall corporate strategy (Frenzel, 1992). The corporate strategy justifies itself only when it remains flexible enough to respond to change in the business environment and major shifts in IT. The technology strategy, acting on the best information available, must set consistent standards and guidelines that ensure workable planning to known requirements which accommodate changes in the business environment.

Third, at the heart of most IT problems are "people" problems. The performance of the IT is not only the result of the right strategic choices, but also a matter of the responsiveness and quality of commitment at all levels of the organization. As the infrastructure becomes more highly developed, organizational aspects of corporate strategy become more critical. Small business executives should focus on ownership and sharing of knowledge to implement strategic initiatives and contribute to them. Understanding is needed on how to deploy functional elements of the IT resources, as well as on how to manage the technological infrastructure within the firm.

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