



Technological resources, organizational resources and Sustained Competitive Advantage

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Abstract

This paper explores the relationship between technological resources, organizational resources and Sustained Competitive Advantage (SCA). It is proposed that over time, an inverse relationship exists between the SCA gained from technology and the SCA gained from organizational resources. Once a dominant design (Utterback 1996, p24) has been accepted in an industry, SCA is achieved through the development of organizational resources. Incremental developments of technology must continue (Henderson and Clark 1990). But the SCA gained from technology drops over time, while the SCA gained from organizational resources increases.

For a firm resource to provide SCA, the resource must be valuable, rare, hard to copy, or non-substitutable (Barney 1991). SCA based on technology is often difficult to achieve. Innovation is characterized as being costly, highly competitive, hard to manage, and uncertain, with the rewards difficult to appropriate (Kay 1993). Yet numerous studies have found that innovation is an important component of firm survival (Alderman 1996; Han, Kim et al. 2001).

Many studies have considered the effect of innovation on a range of analogous variables, such as organizational mortality and failure (Alderman 1996; Reid and Garnsey 1997; Barnett and



Freeman 2001; Vermeulen and Barkema 2001), profit (Roberts 1999), revenue growth (Thornhill 1999), employment growth (Hall and Tozer 2000) and sales (Bagchi-Sen 2001; Brendle 2001).

More recently, researchers are studying the relationship between technological innovation, organizational resources and competitive advantage. As these studies evolve, we are beginning to recognise the importance of organizational resources as a crucial factor in supporting technological innovation.

Kay (1993, p100) suggested that SCA that appeared to be based on innovation could actually be SCA based on architecture. For example companies in high technology industries depend critically on the continued succession of new product innovation for survival (Dwyer and Mellor 1989; Martin 1994, p67). This ability to continually innovate may be an organizational and intellectual capability of the organization. In support of this concept, an empirical study found that firm survival depends on architectural innovation more than technological innovation (Christensen, Suarez et al. 1998). Similarly, Henderson (1990) found that a lack of architectural innovation was a critical factor in a firm's loss of market share.

Research on the relationship between technological innovation, organizational resources and competitive advantage clarifies the importance of organizational resources to the long-term Sustained Competitive Advantage of the firm. Technical resources would be recognised as providing short-term advantage. We might expect managers and venture capitalists to increase the focus on incremental improvements to organizational resources, in building the long-term value of the firm.



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