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# Initial resources' influence on new venture survival: a longitudinal study of new technology-based firms

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## Abstract

The emergence of new technology-based firms broadly and positively effects economic development. However, new organizations in general and new technology-based firms in particular, suffer from a 'liability of newness', and most emerging technology firms struggle to survive the first years of operations. The purpose of this study is to investigate to what extent the resources controlled by the entrepreneurs at the firm's inception affect the new organization's ability to survive the first years. Based on longitudinal data from 80 Norwegian and Swedish technology-based start-ups we seek to investigate whether resources embedded in the entrepreneurial team and the technology they intend to take to the market, affect the new organization's ability to survive. The results support the study's main hypothesis that initial resources do indeed affect a firm's ability to survive its adolescence. A heterogeneity in the functional experience of the founding team, and technology with a degree of radicalness, are especially prone to reduce the likelihood of firm failure. The results emphasize the importance of properly managing internal resources in the commercialization process, and intimate a path dependency a propos resource development in new technology-based firms. Implications for managers, policy-makers and further research are discussed.

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## 1. Introduction

The emergence of new, technology-based firms (NTBFs) initiates a broad range of positive effects in economic development (Schumpeter, 1934; Drucker, 1985; Teece, 1986; Griliches, 1990; Roberts, 1991; Autio, 1994, 1997). Research indicates however, that the probability of survival is rather limited for new organizations in general (Freeman et al., 1983), and for technology-based firms in particular (Nesheim, 1997). Stinchcombe (1965) labeled this phenomenon the 'liability of newness,' and argued that new organizations' general resource poverty, lack of legitimacy, and weak ties to external actors provide them with reduced capacity when competing with established players. This liability of newness is even greater for technology-based new firms, as they, in addition to the factors above, often

need to fill considerable resource needs in terms of technology development prior to market introduction.

Though environmental influence on organization survival is well documented (Hannan and Freeman, 1977; Aldrich, 1979; Freeman et al., 1983; Sandberg and Hofer, 1987; Cooper, 1993; Gartner et al., 1998), recent studies have shown that successful management of internal resources can significantly improve venture performance and the likelihood of survival (Bamford et al., 1999; Hambrick and Mason, 1984; Boeker, 1989; Smith et al., 1994; Hambrick et al., 1996; Shephard et al., 2000). This is especially true for new organizations in emerging, fast-moving industries (Virany and Tushman, 1986; Kamm et al., 1990; Birley and Stockley, 2000). Initial resource management decisions, in particular, appear to be of special significance, as these decisions stick with the organization in the long run (Boeker, 1988, 1989; Gersick, 1991; McDougall et al., 1994).

Despite the existence of a considerable number of studies investigating new venture survival, research has rarely been able to examine the impact of initial organizational and environmental conditions upon new venture performance at

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the firm level (Bamford et al., 1999). Most research on new ventures has been hampered by the lack of longitudinal data and the inability to measure initial start-up conditions and management decisions, at or very near the point of inception (Bamford et al., 1999). This study aims to contribute to ongoing research as it deals with the resources controlled by the entrepreneurial teams at the juncture of firm institutionalization, and investigates their influence in a longitudinal setting. In particular, we investigate whether some of the initial resources embedded in the technology and the entrepreneurial team contribute to an increased probability of survival for technology-based start-ups in the long run.

## 2. Theoretical framework

In recent years, several scholars have made a case for the appropriateness of the resource-based view (RBV) in understanding entrepreneurial processes (Rotefoss, 2001; Dollinger, 1999) and new firm strategic behavior (Brush et al., 2001; Lichtenstein and Brush, 2001). According to RBV scholars, the firm can be conceptualized as a bundle of resources and capabilities (Barney, 1991, 1995, 2001; Conner, 1991; Mahoney and Pandian, 1992; Amit and Schoemaker, 1993). The characteristics of the resource bundle—whether valuable, rare, inimitable, or non-substitutable—are determinants of the organization's ability to survive in the environment. According to this perspective, the entrepreneurial process is one in which the entrepreneurs acquire and develop resources, and where the new venture outcome is to a large extent determined by the nature of the resources the entrepreneurs are able to acquire (Dollinger, 1999). In this study, resource-based theory is used as a framework for examining the relationship between initial resources and the survival of technology-based new ventures.

As suggested by Boeker (1988, 1989) and Bamford et al. (1999), early decisions and founding conditions, in the formative stages of an organization, have lasting effects which: imprint the firm, limit its strategic choice, and continue to impact its long-term performance. There are two major reasons for this.

The first reason is that the new firm must pass the initial test of the competing environment. As the new organization is exposed to the market, the environment will select viable organizations that are able to survive. According to the RBV, this selection is based on four characteristics of the new firm's resource bundle as mentioned above (Barney, 1991; Mata et al., 1995). First, it has to represent value to the customer. This is a basic requirement even when contemplating potential profit. Second, it must be rare—a resource that competitors do not already possess. Third, it must be hard to imitate so that competitors in the market cannot easily nullify the advantage. Finally, the resources must not be easily substituted by other resources at the same cost. Failing these criteria, there is a high probability that

the new venture will not survive, due to market failure or because it lost the fierce competition of acquiring customers.

The second reason deals with the general path dependency of resource development processes. The early stages of a firm's existence see the development of the organization's deep structures. Deep structures are defined as 'the set of fundamental 'choices' a system has made of (1) the basic parts into which its units will be organized and (2) the basic activity pattern that will maintain its existence' (Gersick, 1991, p. 14). These deep structures can be identified in organizations as routines and cultures that guide managerial decisions, but can also be traced back to the initial strategic choices made by the founders (Boeker, 1988). In these initial stages, the entrepreneurs must decide on an initial strategy by means of the resources at hand and those they can realistically acquire (Dollinger, 1999). This initial strategy, which determines which resources and capabilities to employ and which to develop and acquire, will in turn, result in a new set of available resources when a new strategy is made at the next crossroads. Gersick (1991) illustrates this by means of a decision tree. Once one decision is made, the resulting strategic options are reduced. Hence, even though a specific set of means can result in different strategic decisions (Sarvasvathy, 2001) the resource development process is arguably path-dependent.

On account of these two reasons—environmental selection of new organizations and the general path dependency of resource development—we argue that initial resources are related to the organizational outcome of the entrepreneurial process. More specifically:

**Main proposition.** *Initial resources, controlled by the entrepreneurs at inception, are significant predictors of NTBF survival.*

Using Barney's (1991) categorization of firm resources, we argue that in the case of technology-based new ventures, organizations have few resources in terms of organizational features and physical assets. In the earliest stages, the technology-based venture consists almost exclusively of the human and social capital embedded in the entrepreneurial team and the features of technology they intend to bring to the market. We label these resources as *initial resources*. The following section discusses how we conceptualize the effect of these resources on new firm survival.

### 2.1. Valuable initial resources and their effect on new venture survival

One would assume the initial team size to be related to firm survival, as larger teams are generally associated with more resources (Hambrick and D'Aveni, 1992) and resourceful teams are known for their ability to mobilize new competencies (McGrath et al., 1996). Larger entrepreneurial teams, therefore, increase the venture's range of

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