



The impact of resource configuration on Iranian technology venture performance[☆]



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ABSTRACT

The entrepreneur must deliver personal strengths to the firm and convert these individual strengths into organizational strengths regardless of the technology level to lead firm to a unique advantage. The entrepreneur knowledge provides a basis for continued growth in value of the resource bundle and leveraging one resource to achieve another. Iran as a country under economic sanctions confronts restricting international communication, increasing investment risks, reducing technological imports, and paralyzing bank systems which conclude to resource constraint while the Iranian technology ventures are developing simultaneously. However, little is yet known about how the technology ventures configure resources under the sanction. Drawing upon the resource-based view (RBV) and absorptive capacity of the firm, this study explains how the interplay between firm's resources affects performance. We tested our model using survey data from Iranian technology firms. Results from PLS-SEM analyses demonstrate a unique effect of the sanction and resource limitation to the resource configuration of firms, in that the impact of entrepreneurs' knowledge, social and political network on firm performance is strongest when financial resources are either low or high. In this research, we strive to understand the required vital resources for developing new ventures in Iran and also aim to decipher how one bundle of resource can be leveraged to acquire another.

Moreover, individual resources can overcome the liability of newness and impact technology firm performance through development of organizational resources and financial resources. Interestingly, we do not find any significant impact of financial resources on technology firm performance.

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1. Introduction

Technology is a pivotally important factor in optimal performance and growth of the enterprises, and leader firms invest heavily in acquisition of new technology. In these technological ventures firms must identify, decipher, hold, and improve resources to achieve superior performance (Cohen and Levinthal, 1990; Gauch and Blind, 2015; Srivastava et al., 2015). Technology ventures should identify and develop advantageous competencies through the ownership of valuable, rare, inimitable, and nonsubstitutable resources. The literature on the subject suggests that resources typically play a significant role in identifying competencies, and contribute to growth, profitability, and sustained competitive advantage of the firms (Baraldi et al., 2012). Furthermore, resources are more valuable than industry structure, and can explain performance differences better than external factors (Lechner and Gudmundsson, 2014). Of course, acquisition of technology from external sources is an important avenue for gaining technological

competency for the latecomer or follower firms. However, in the presence of economic and financial sanction regimes, this avenue is more or less closed. In fact, one of the important goals of the economic sanction regimes is blocking the channels of acquisition of technologies from abroad. The multilateral sanctions by the United Nations (UN) and the European Union (EU) as well as the unilateral US sanction regime against Iran are aiming to put the country 'out of business' by prohibiting technology transfer, outlawing foreign direct investments as well as blocking all international financial transactions including normal international banking transactions.

Even though sanctions confine the international resource mobility to the sanctioned country, they tend to create an incubator-like environment, which is suitable to study technological ventures' internal capability building and resource bundling.

We recognize the challenge of identifying and optimally configuring internal factors when structuring technology ventures under sanction. These factors are sources of competitive advantage for firms in the short and long term, and thus, lead to robust performance of the firm. The primary goal of this study, therefore, is to develop a model that assesses the resources that lead to successful technology ventures under the sanction regimes.

Even if entrepreneurs know which resources are necessary for success, they still need to deploy those resources in such a way that makes success achievable (Brinckmann and Hoegl, 2011; Mainela,

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2012). This implies that the source of competitive advantage is not only the resources, but also the configuration of the resources within the firm. Thus, strategies and resource-structuring decisions are even more valuable than resource possessing for technology ventures. Resource configuration and structuring can clarify what and how technology ventures manage their available resources. Accordingly, our second goal of this study is to investigate how technology ventures should deploy resources. We distinguish between individual and organizational resources in this study and consider the various dimensions of each category of resources.

The paper has commenced with the development of resource bundles and presents previous studies on interaction effect of resources within the organization in Section 2. To find a possible relationship between resource bundles, we drew on previous research in Section 3. To test the proposed theories in Section 4, we collected data from technology ventures established in 2008 or 2009. We used technology ventures with four-year-olds because they are 'firms' in the second level of maturity providing a fair comparison between them. After analysis using PLS-based SEM in Section 5, the result performed, and a series of implication and suggestion for the entrepreneurs and managers suggested.

2. Theoretical background

Past studies suggest that superior skills and resources lead to better performance of technology ventures. Internal skills resources are the focus of several theoretical frameworks including the market orientation, resource-based view (RBV), dynamic capabilities, entrepreneurial orientation and absorptive capacity. According to the market orientation perspective, imperfectly competitive product markets increase a firm's commercial profits and competitive advantage. The RBV, in contrast, states that firm performance depends on strategic resources and how they are deployed (Barney, 1986). RBV scholars often assert that, to have important strategic resources need to be valuable, rare, inimitable, and nonsubstitutable. Entrepreneurship research indicates that discovering opportunities (Shane and Venkataraman, 2000) and engaging in business development efforts (Nerkar and Shane, 2003) are carried out first by individuals and then by groups within the firm (Schumpeter, 1947). Firms with differing abilities with regard to timing and learning (Tsai and Li, 2007) can have performance differences even when they have similar capacity endowments. This notion builds on the argument that processes are an organizational-level construct that is critical for opportunity exploitation (March, 1991; Zott, 2003). As a result, we define an 'organizational resources' variable that comprises the ability of an organization to identify, integrate, absorb, and make use of its internal and external knowledge through formal and informal routines and processes such as knowledge scanning (Tu et al., 2006), flexible structure (Carter et al., 2006), and supporting creativity and innovativeness culture (Pandey and Sharma, 2009). To be successful, technology ventures need to have externally oriented learning capabilities that are market focused and relationally focused as well as internally oriented capabilities that focus on learning from internal sources constrained within the firm (Dada and Fogg, 2014). According to the RBV, sustainability of competitive advantage is achieved through the deployment of isolating mechanisms to protect the firm's advantage from imitation—'marketing capabilities' are those resources that can be immediately deployed in the marketplace to directly create or maintain competitive advantage (Atuahene-Gima, 1996).

Accordingly, the human side of entrepreneurship and human abilities plays a key role in technology venture success and business continuity. Since opportunity discovery is an individual-level activity (Kirzner, 1997), an individual-level operationalization of resources is required. The operationalization is based on the assumption that knowledge and knowledge creation reside within individuals in the firm, rather than in the firm itself (Kogut and Zander, 1996). Individual resources are not only essential at the time of startup, but also affect firm survival

and performance over time. Even though some firms are established by individual entrepreneurs, it is common to have firms started by teams wherein a single entrepreneur cannot be distinguished from the other team members (Hellerstedt et al., 2007). However, in small businesses, all individuals can be considered to be vital, and as technology ventures evolve and grow, the individual resources configuration will change, and the impact of individual members of the firm will decrease as new members are recruited.

Personal knowledge and connections are indispensable resources brought to the firm by entrepreneurs and their teams. Strömsten and Waluszewski (2012) state that historical processes, plans, and interconnections of relationships to those in wider networks can create opportunities and overcome restrictions. Entrepreneurs hire employees, who can bring their personal contacts to the firm, and develop mutually beneficial relationships with other firms. Entrepreneurs and employees use their skills, knowledge, experience and personal contacts to determine, absorb, and make use of internal and external knowledge for the benefit of the firm. In this study, we define an 'individual resources' variable as comprising the knowledge (Chrisman et al., 2012), outside personal contacts, and path dependency (Sirén et al., 2012) of entrepreneurs and employees.

The long-range social connections and networks, which a firm requires it, must exchange favors with other firms or individuals for venture purposes. This personal contact may be called 'Party' in Iran seems to have analogous social code with 'Wa' in Japan, 'inhwa' in Korea (Alston, 1989), 'Guanxi' in China (Tsang, 1998) and relationship is western's culture (Watson, 2007). 'Party' in Iranian business culture is a kind of trustworthy, credible relationship one should establish for the legitimization to absorb resource from outside of the firm. Due to the lack of institutional infrastructures like relationships with government administrative officials in order to deduct venture resource inadequacy, or the religious authorities in Iran, Party is seen as an effective way for new technology ventures to gain resources and influence to support new initiatives. A recent research addressed how this Party opened the path of legitimization in stem cell research by obtaining approval from "olama" in Iran and therefore initiate technology research and technology ventures in this field (Soofi and Ghazinoory, 2013).

In addition to the above-listed variables, financial resources are also vital for success of technology ventures. Some technology ventures with innovative ideas and products fail simply due to financing issues. The firm's ability to gain fast access to and utilize financial resources plays an important function in success of the venture. Empirical research suggests that not only financial resources have positive impact on performance of the firms, it has also shown that firms with fast access and utilization of financial resources perform better than the firms that do not have these characteristics (Djupdal and Westhead, 2013; Tan and Peng, 2003). Other researchers believe that firms with poor financial resources fail to succeed because of legitimacy problems due to their newness (Wiklund et al., 2010). In this study, we define a *financial resources* variable as comprising financing and cash flow preparing, cash flow planning (Sanz and Lessiza, 2013), controlling and reporting (Deslauriers, 2011), portfolio management (Lutz et al., 2013), and investor relations (Sanz and Lazzaroni, 2009).

Fig. 1 presents the conceptual model in this study.

3. Perception of availability of resources and economic sanctions-research hypotheses

Understanding the resource development pathway in terms of use of the initial inputs is central to efficient, effective, and opportune management of the resource accumulation, development of competitive advantage, and ultimately venture performance (Brush et al., 2001). The set of resource dimensions, from easy to complex and useful to instrumental, provides a foundation for mapping possible mixtures and applications of resources to achieving success.

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