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Ecosystem's Support to Spin-Off: A Geographical Study

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Abstract

Literature on spin-off leads back firms' success to their specific network of relations with partner of external environment. While the existence of external innovation dependencies in such systems of innovation has been well documented in the literature, this article focuses on factors affecting creation and development of an ecosystem supportive for spin-offs' success. At the aim to identify main examples of ecosystems that despite of their diversity are equally able to support spin-off creation and innovation diffusion we compare some case studies. Specifically we present as case study Route 182, Silicon Valley, Oulu and Sophia Antipolis because they represent worldwide benchmarks in studies on spin-off creation and innovation diffusions. This article offers a new perspective in ecosystem field of analysis.

Keywords

Geography, Innovation, Entrepreneurship

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1. Introduction

The majority of studies in the innovation literature have sought the importance of ecosystem in explaining focal innovators' activity. The ecosystem approaches have focused on understanding coordination among partners in exchange networks that are characterized by simultaneous cooperation and competition. Specifically literature on spin-off leads back firms' success to their specific network of relations with partner of external environment. While the existence of external innovation dependencies in such systems of innovation has been well documented in the literature, few studies have analyzed factors affecting creation and development of an ecosystem supportive for spin-offs' success. We tried to classify these factors according to two dichotomous variables that consider as drivers the presence of a single catalyst or multiple catalysts and the collaboration o competition between network firms. Then, we discuss Route 182, Silicon valley, Sophia Antipolis and Oulu case studies because they represent worldwide benchmarks in researches on spin-off creation and innovation diffusions.

2. Theoretical Framework

Business ecosystem is well defined concept used from scholars and managers to evidence the relevance of firms' network of relations with other actors of environment for achieving success. In the innovation field of literature, scholars evidence that a start-up needs of some relations with other actors to growth-up and compete (ALEXANDER, GIBSON, 1979; BERRY, CONKLING, RAY, 1976; BOYCE, 1974). Moreover, a start-up that takes action without understanding the impact on the ecosystem is ignoring the reality of the network environment in which it operates. An ecosystem can also provide an emerging orientation to create novelty in business operations (FEDERWISCH, ZOLLER,

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1986; FERRAO, 1987; FOURCADE, 1987). Successful innovations usually depend on cooperation among firms and potential adopters, but describing a complete case of a firm's evolution path on an ecosystem is not easy in research (BROWN, 1930; HODDER, 1974; HOWELLS, WOOD, 1993). The majority of studies in the innovation literature have sought the importance of ecosystem in explaining focal innovators' activity (ISARD, 1968; JONES, DARKENWALD, 1971; MCCARTY, LINDBERG, 1966).

The ecosystem approaches have focused on understanding coordination among partners in exchange networks that are characterized by simultaneous cooperation and competition.

Specifically literature on spin-off leads back firms' success to their specific network of relations with partner of external environment (O'SULLIVAN, 1981; PATERSON, 1972; SANTOS, 1979; SCHAMP, LINGE, ROGERSON, 1993; SCOTT, 1988). While the existence of external innovation dependencies in such systems of innovation has been well documented in the literature, few studies have analyzed how ecosystem can affect creation and development of spin-off (PEET, THRIFT, 1989; POLESE, 1994; ROEPKE, 1967; REES, HEWING, STAFFORD, 1981; REY, 1988. SALNIKOV, 1984). Specifically, the presence of a single or some catalysts can affect innovation diffusion through a network of firms embedded in collaborative or competitive relations. In literature competition is described as the direct rivalry that develops between firms due to the dependency that structural conditions within the industry give rise to (CLARK, 1983; CLARKE, 1989; CORBRIDGE, MANN, THRIFT, 1994). Cooperation among competitors is analyzed and argued to be advantageous in that firms resource and capabilities can be combined and used in competition with others (GUDGIN, 1978; GWYNNE, 1990; HALLSWPORTH, 1992; HEALEY, 1991; MALECKI, 1991; MARSHALL, WOOD, 1995). The main issue for these studies is how competitors can share some information reducing each other conflicts (ROYEN, van, BENGTSON, 1964; CAPEL, 1987; CLAVAL, 1984; STEWART, 1977; STORPER, 1991; WATTS, 1987; WEBBER, 1984). The competitive perspective assumes that firms' interdependence is based on a individual interest search (DOCKES, 1969; AMIN, GODDARD, 1986; ANDERSON, 1991). With reference to horizontal interdependence, the competitive perspective emphasizes the search of above than normal profit realized either when a firm gains an advantageous position in an industry or when it mobilizes and deploys resources and distinctive competences that enable it to offer superior products in relation to its competitors GACHELIN, 1977; GENTLE, 1993; GILLESPIE, 1983). Dynamic models of competition, building on the Schumpeterian tradition, have emerged in recent literature. In the presence of many local competitors, the pressure to create improvements and innovations in operations relative to competitors becomes greater (BAILLY, COFFEY, PAELINCK, POLESE, 1992; BAILLY, MAILLAT, 1988; BALE, 1984). Proximate competitors are able, within a short space of time, to observe each others' moves and countermoves, enabling them to rapidly imitate each others' products (CASTELLS, 1986; CASTELLS, 1994; CASTILLA, ALONSO, DIAZ, 1986). Psychological factors, such as prestige and pride, also stimulate companies to compete actively and to be innovative in their actions. In this way, rivalry sharpens the struggle between competitors and therefore increases the dynamics within an industry. An alternative perspective, partly spread out as a reaction to the competitive approach, emphasizes the development of collaborative advantage (BARO, SOY, 1989; BATSCH, 1993; BAUCHET, 1991). Network of strategic interdependence among firms pursuing convergent interests and deriving mutual benefits has developed in other more familiar research fields, ranging from strategic management to organizational economics and covering a wide array of strategic inter-firm arrangements (BENELBAS, 1983; BENKO, 1996; BENKO, 1990; BROWN, 1991).

We tried to classify ecosystems according to two dichotomous variables that consider as drivers the presence of a single or multiple catalysts and the collaboration o competition between network firms (BRUNN, LEINBACH, 1991; CALLIZO 1991; CAMAGNI, 1991; CASTELLS, 1985). Our framework identifies four possible options. In the upper left hand quadrant, catalysts of innovations are multiples and interact in a collaborative way to create a supportive ecosystem to new spin-off (HAMILTON, F1987; HAMILTON, LINGE, 1981; HARLOE, LEBAS, 1981; PACIONE, 1985; PAELINCK, SALLEZ, 1983; PEARCE, 1990). In the lower left hand quadrant, many catalysts act independently from each other creating an competition among them on the base of that innovation can advance (CHAPMAN, HUMPHRY, 1987; CHAPMAN, WALKER, 1987; CHISHOLM, 1990; SCOTT, STORPER, 1986; SHACHAR, ÖBERG, 1990; SMITH, 1981). In the upper right hand quadrant single catalyst is unable to create other catalysts able to reinforce its activity. Thus collaboration is just a way in which actors of environment support the catalyst activity of spin-off and new firms are thus dependent upon it (CUADRADO ROURA, RAYMOND, 1991; CUADRADO ROURA, RIO, 1993; DALMASSO, GUGLIELMO, ROCHEFORT, 1969). In the lower right hand quadrant, a single catalyst create spin-off that interact with other firms of a competitive environment.

Table 1. Ecosystem Framework.

Interaction	*More catalysts*	*Single catalyst*
Collaboration		
Competition		

3. Methodology

At the aim to identify main examples of ecosystems that despite of their diversity are equally able to support spin-off creation and innovation diffusion we compare some case studies. Specifically we analyze as case study Route 182, Silicon Valley, Oulu and Sophia Antipolis because they represent worldwide benchmarks in studies on spin-off creation and innovation diffusions.

4. Case Study

Boston has an ancient industrial tradition with specialized firms in textile, automotive, computers and information systems. The main innovative catalyst of the region is the Massachusetts Institute of Technology (MIT) founded in 1861. MIT has played the role of first order catalyst in stimulating academic entrepreneurship and technology transfer. Scientists and researchers were encouraged to exploit research results for commercial and counseling activities. MIT has always maintained close links with industry, particularly with large companies such as General Electric, Eastman Kodak and Dupont that have become other catalysts in the process of spin-off creation and innovation diffusion. Since the 1918 government launched some technology plans for providing resources for basic and applied research. These fund were concentrated to develop military technology during World War II and MIT became the main US Research Center. After the World War II, the Research Row dominated by some first order catalysts of MIT and Harvard and many second order catalysts generates an area of technological development. Many enterprises of minicomputers created as spin-off of public research institutions and private companies dominated the local economy and the world market of minicomputers becoming catalysts for other innovations (DEC, Prime Computer, Data General, Wang, Honeywell). The industrial system of Route 182 is based on a conservative entrepreneurship culture. Firms vertically integrated operate independently from each other and follow a close innovation model of technological development supported by the State.

The origin of Silicon Valley in California as innovative center can be traced back to Stanford University that act as first order catalyst in attracting innovative companies. Since its foundation in 1981, Stanford University has created a risk-oriented culture attracting students with strong desire to learn and to apply that knowledge in everyday life. Thus, differently from Route 182 the strong reduction of military contracts has been offset by high returns of semiconductor industry such as Intel and National Semiconductor. The availability of venture capital is caused not only by the performance of individual companies and local industry as a whole, but also to a large extent by the government's fiscal policy. At that time, venture capitalists invest in companies that acts as second order catalysts like SUN, Netscape, America Online, Amazon.com and Google, Oracle, Cisco, Yahoo, 3Com, Silicon Graphics and Genentech. This risk-oriented culture leads to the development of the technology community of Silicon Valley that supported the development of spin-off all around the world.

Oulu hosts small startups attracted by the only one big catalyst of Nokia and its subcontractors. Specifically, culture of collaboration has created a virtuous cycle between big business, small telecommunications start-ups and research center that promotes technology transfer processes, including through the creation of spin-offs.

In Sophia Antipolis, Thomson and l'Oreal has acted as unique catalyst in attracting American multinationals and public research institutions (PRI) able to create spin-off and diffuse innovation. In the area each actor operates in a competitive way because they fear the competition of other laboratories located in the same area. Sophia Antipolis is characterized by weak interactions between local actors and a largely networking vertical type for exchanging goods and services rather than to that of information. As a result, Sophia Antipolis allows enterprises to obtain localized cost advantages for links with a number of subcontractors but not getting the benefits of learning because of weak local interactions.

Table 2. A comparative analysis.

Ecosystem	*More catalysts*	*Single catalyst*
Collaboration	Silicon Valley	Oulu
Competition	Route 182	Sophia-Antinopolis

5. Conclusion and Discussion

The ecosystem approaches have focused on understanding coordination among partners in exchange networks that are characterized by simultaneous cooperation and competition. Specifically literature on spin-off leads back firms' success to their specific network of relations with partner of external environment. While the existence of external innovation dependencies in such systems of innovation has been well documented in the literature, few studies have analyzed factors affecting creation and development of an ecosystem supportive for spin-offs' success. In this paper we have classified these factors according to two dichotomous variables that consider as drivers the presence of a single catalyst or multiple catalysts and the collaboration o competition between network firms. Then, we discussed Route 182, Silicon valley, Sophia Antipolis and Oulu case studies because they represent worldwide benchmarks in

researches on spin-off creation and innovation diffusions.

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Biography

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