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EXECUTIVE SUMMARY

SOCIAL NETWORKS AND ENTREPRENEURSHIP IN SILICON VALLEY

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Social capital, the accumulation of resources through relationships, has become a well-established concept in the business world. A critical factor in both individual and organizational achievement, social capital is seen as being responsible for the “luck” or the “being at the right place at the right time” component of success. The potency of relational resources is nowhere more evident than in the context of entrepreneurship.

This report summarizes the findings of a series of studies conducted on networks and entrepreneurship in Silicon Valley. Silicon Valley is an ideal setting in which to uncover the formation and the influence of networks due to the high concentration of entrepreneurship in the area. Silicon Valley, as a region, has consistently produced the greatest number of new companies and absorbed the highest amount of venture capital investments in the U.S, accounting for between 24 and 34 percent of the total investments in the U.S. since 1993\(^1\). As the widely acclaimed book by Saxenian, *Regional Advantage*\(^2\), has explored, the vibrant economy in Silicon Valley has been attributed, at least in part, to the high level of network-building, or “networking,” and collaboration among technology workers and entrepreneurs alike.

But how exactly do networks form? And how do they change as a venture matures and grows? And most importantly, from the perspective of the entrepreneurs, how do networks affect their ability to raise funds? These are questions addressed in the studies presented in this report.

Furthermore, the unique demographic composition of the Silicon Valley region enables focused attention on entrepreneurs who are also immigrants and ethnic minorities. Twenty four percent of the Silicon Valley population is Asian/Pacific Islander\(^3\), compared

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\(^1\) Source: PricewaterhouseCoopers/Venture Economics/National Venture Capital Association (NCVA) Money Tree Survey.


\(^3\) Source: Joint Venture: Silicon Valley.
with 4 percent in the U.S. population\textsuperscript{4} and 35 percent is foreign-born\textsuperscript{5}, compared with approximately 10 percent nationally\textsuperscript{6}. Of the foreign-born, two-thirds is from Asia, the majority of whom are from India and China\textsuperscript{7}. Such a demography allows for the examination of the entrepreneurial experiences among immigrants, including comparisons between immigrants and native-born white Americans in the uses and effects of networks.

To facilitate reading, this report is divided into three sections. The first summarizes the characteristics that the entrepreneurs’ networks tend to display at two early stages of venture creation and is based on interviews with start-up entrepreneurs as well as web-based surveys. The second section shows the impact that the entrepreneurs’ networks tend to have on funding the ability of start-up companies to attract funding. Using a new sample of public Silicon Valley corporations, the third section examines the role of networks in the survival of environmental turbulence such as the stock market crash of 2000.

WHAT DO ENTREPRENEURIAL NETWORKS LOOK LIKE?

Although social networks are believed to be important, the type of relationships that an entrepreneur keeps may change as his/her venture evolves. Similarly, the benefits of particular relationships may vary as the organization grows. Through in-depth interviews with 45 entrepreneurs, I was able to identify two early stages that the entrepreneurs that demand distinct resources.

The first stage (Stage 1) entails the point in venture creation just prior to the launch of the company. The major challenges at this stage were a high degree of uncertainty, lack of experience and proven performance record, and need for secrecy and speed. The second stage (Stage 2) involves the stage just after the launch of the company when the entrepreneurs’ main challenges are the enlargement of their clientele, product development and improvement and new sources of funding. Although new ventures may grow indefinitely, for the purposes of analyses conducted for this research, the second stage was treated as a finite one, ending with the first round of financing after the funding received at the launch of the company\textsuperscript{8}.

Based on these variable resource requirements, I predicted that the networks at each of these stages would display distinct characteristics, across several dimensions (described

\textsuperscript{4} Source: President’s Advisory Commission on Asian Americans and Pacific Islanders, January 2001.
\textsuperscript{5} Source: Joint Venture: Silicon Valley.
\textsuperscript{6} Source: Center for Immigration Studies.
\textsuperscript{7} Source: Public Policy Institute of California.
\textsuperscript{8} This is appropriate because the focus of this study is the social networks of the entrepreneur as the individual during the early stages of new venture creation: The activities, including the social relations, of the entrepreneurs themselves decrease in their importance in the operations of the company as the investors become more involved with the running of the organization.
below). To verify the differences, I conducted a web-based survey of Silicon Valley entrepreneurs. The survey asked the respondents to list up to twenty contacts that were useful to them at different points in building their businesses, and requested additional background information (such as ethnicity, industry background, and location) about these individuals and their relations with each other. The entrepreneur's demographic background information was also collected in order to discern differences across ethnicities, and funding information at each entrepreneurial stage was requested to examine the influence of networks on funding. The findings presented below are based on the responses of 151 entrepreneurs, of whom 91 were Chinese or Indian, and 60 were native-born white American. All immigrant entrepreneurs included in the analyses were first-generation immigrants.

The remainder of this section describes the dimensions used to analyze the networks, and presents graphs depicting the differences along those dimensions across entrepreneurial stages as well as across demographic groups.

- **Network size**: This dimension entails the number of people in a network. Notice that the networks of native-born whites are significantly larger than those of immigrants at both stages.

![The Size of Entrepreneurial Networks](image)

- **Closeness**: This dimension describes the extent to which the entrepreneurs are close to the people they included in their networks. In this study, the closeness dimension can be expressed as a percentage in which a high value indicates a network composed mainly of very close friends while a low value indicates a network composed mainly of distant relationships. As the graph below shows, the networks of immigrants tend to be dominated by close relations at Stage 1, significantly more than do the networks of native-born whites, but becomes more

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9 To preserve space, the findings for the closeness dimension are graphed with the findings for the co-ethnicity dimension.
outwardly oriented by Stage 2, more so than the white entrepreneurial networks at this stage.

- **Co-ethnicity**: The ethnic networks of Silicon Valley and the resources potentially gained through them have been well-documented in the public media. To verify the reliance of immigrant entrepreneurs on relations who share their ethnicity, I included a co-ethnicity dimension, expressed as the percentage of persons in the network who share the same ethnicity as the entrepreneur. As one might expect based on popular belief, the networks of immigrants are largely composed of co-ethnics at Stage 1, but the proportion declines dramatically at Stage 2. The networks of native-born whites tend to be composed primarily by other whites at both stages, a surprising finding given the demographic diversity in high technology industries and in the Silicon Valley region.

![Closeness and Co-ethnicity in Entrepreneurial Networks](image)

- **Network connectedness**: This dimension reflects the relationships between the people in an entrepreneurial network. Network connectedness can be expressed as a percentage ranging from 0 (no member of the network has a relationship with any other member) to 100% (every member of the network has the closest possible relationship with every other member).

Note that this dimension is distinct from closeness because it reflects the relationships among the people in a network while closeness reflects how close the entrepreneur is with each person. For example, the people an entrepreneur is close to may not necessarily be close to each other. Note also, however, that the pattern across the demographic groups resembles the pattern for closeness: Immigrant entrepreneurs tend to have densely connected networks at Stage 1 but the connectedness declines significantly at Stage 2, below the level for native-whites.
- **Network diversity**: This dimension examines the extent to which the members of an entrepreneurial network are similar to or different from each other and ranges from 0 (every member of the network share the same attribute) to 100% (every member is distinct from every other member in the particular attribute). The attributes of interest are industry, location, and ethnicity. As the graph shows, ethnic and location diversity among the members of the entrepreneurial networks are greater for immigrants than for native-born whites, and for immigrants, diversity in ethnicity and location increases significantly across the stages.
WHAT DO ENTREPRENEURIAL NETWORKS DO?

It is clear from both the interviews and the survey findings that Silicon Valley entrepreneurs are heavily involved in “networking.” But what do networks do for them? In addition, the section above showed that networks vary across demographic groups. Do their influences vary as well?

This section reports findings on the impact of network diversity, connectedness, and co-ethnicity (for immigrant entrepreneurs) on the entrepreneurs’ ability to attract funding. The characteristics of networks are expected to influence the amount of funding obtained because the type of relations that an entrepreneur maintains affects the type of information and resources that the entrepreneur may receive. For example, the diversity in the industry backgrounds of network members is likely to influence the range of information that the entrepreneur receives regarding the potential venues and competitors for the entrepreneur’s service or product. Connectedness matters as well. A densely connected network in which the members maintain their own relationships with each other may result in redundancy because they are obtaining information and resources from the same sources. On the flip side, however, a densely connected network may be beneficial as well: Because all members are connected to each other and are aware of each other’s actions, negative actions are likely to be reduced and trust is likely to be fostered. Co-ethnic networks may be beneficial due to attraction based on commonality, but may have negative impact due to the lack of diversity.

The analyses reveal that the network dimension that by far has the greatest influence on obtaining funding is the level of connectedness in the network. However, its impact varies for each of the two demographic groups. For immigrants, the more connected the members of an entrepreneurial network at Stage 1, the greater the amount of funding he/she is likely to get at this stage. On the other hand, at Stage 2, the effect is opposite – the more connected the network, the less the amount of funding likely to be obtained.

For native-born white American entrepreneurs, connectedness has the same negative influence as for immigrant entrepreneurs at Stage 2. However, unlike for immigrants, it has no effect at Stage 1.

The relationship between connectedness and funding obtained by immigrant entrepreneurs and their native-born white American counterparts are presented in the two graphs below.
What impact do the famed ethnic networks have on funding for immigrant entrepreneurs? The analyses reveal that co-ethnicity has a positive influence on funding, but only at the very outset of entrepreneurship (Stage 1). Beyond this stage, ethnic networks appear to have no influence. The influence of co-ethnic relationships on amount of funding obtained at both stages is depicted in the graph below.
NETWORKS AND THE PUBLIC CORPORATION

Networks do not cease to matter beyond the start-up stages of entrepreneurship. Even after reaching what some see as the pinnacle of entrepreneurship – the initial public offering (IPO) of their companies – challenges remain. One such challenge is a turbulent, or unfriendly, stock market. Using data compiled for 362 public, Silicon Valley-based, high-technology companies, this section explores how networks influenced the public Silicon Valley company’s ability to avoid being delisted in the aftermath of the legendary stock market crash in the year 2000.

Contrary to the start-up stages explored in the earlier section, when businesses are directly influenced by the entrepreneur and his/her personal networks, firms that undergo IPO are influenced by a more complex organizational structure involving others beyond the entrepreneurs themselves. The entrepreneurs may no longer even be an integral part of the public company. For this reason, my analyses in this study focus on interorganizational networks rather than interpersonal networks.

The interorganizational relationships examined consist of networks created through directors who serve on the boards of two or more companies. An example of an overlapping director is James L. Barksdale, the celebrated former CEO of Netscape. By serving simultaneously on the boards of 3Com, Sun Microsystems, Palm Inc., and Liberate Technologies in the year 2000 – he, in essence, created interorganizational relationships between these four Silicon Valley corporations (outside of Silicon Valley and/or high technology, these companies also gained affiliations with companies such as AOL Online, HomeGrocer.com, FedEx Corporation, and Robert Mondavi Corporation through Barksdale).
As for start-up ventures explored in the previous section, the influence of connectedness and diversity in networks were explored for public corporations\(^{10}\). For public Silicon Valley firms experiencing a stock market crash, networks can have several concrete resource benefits. First, as investors become more disillusioned with Silicon Valley firms and financial resources become scarce, the firm’s relations can relay information about scarce financial opportunities. Second, the firm’s networks may be a source of information regarding the market and the opportunities available in the market, especially at a time of unusually high uncertainty. The impact of networks goes beyond just the number of interorganizational relationships that an organization has: As explained in preceding sections, the level of connectedness can influence the quality of information and resource transfers, as can the diversity of networks.

The relative importance of network connectedness over network diversity resembles the finding for start-up enterprises. However, the level of connectedness does not simply have a negative or positive influence on the survival of the stock market crash, but shows an inverse-U shaped relationship. The graph below depicts the impact of connectedness on the likelihood of being delisted by December 2000 in the aftermath of the stock market crash of March. This means that companies with either very high levels of connectedness or very low levels of connectedness are the most likely to have survived the crash of 2000. For example, companies with moderately connected networks were 3.5 times more likely to be delisted than if their networks had not been connected at all. Those with moderate levels of connectedness were the most likely to be delisted following the crash.

\(^{10}\) Because the networks of interest are interorganizational, individual and interpersonal dimensions of networks (e.g., co-ethnicity and closeness) are not appropriate in analyzing public corporations.
One explanation for this finding is that at very high levels of connectedness, companies that are densely networked through board directors may have developed a mutual interdependence that promotes the sharing of resources and information. On the other hand, companies that maintain relations with others who are not mutually connected may benefit because of the broader range of information and resources that such networks facilitate. Moderate levels of connectedness may have negative consequences in surviving turbulence such as the stock market crash by presenting companies with conflicting information and expectations.

SUMMARY

In sum, networks tend to change as the organization matures, and the ways in which they change can make a significant difference in the constant replenishment of funds to a new venture. The studies of start-up ventures suggest that the most effective network for raising funds at the initial stage is a dense network among a group of mutually-acquainted individuals, while the most effective network for early growth is a more outwardly focused network of individuals who do not have relations with each other. For the immigrant entrepreneur, co-ethnic networks can be advantageous, but only at the outset of venture creation. After the launch of the company, they cease to influence the amount of funding entrepreneurs are likely to receive.

For public corporations, network connectedness is critical as well, for the survival of environmental turbulence such as the stock market crash of 2000. The findings suggest that companies with either very low or very high levels of connectedness have the highest likelihood of surviving environmental trauma, while those with moderate levels of connectedness are the most likely to fail in such an environment.