

CONNECT ORGANISATION AND TRUST IN SAN DIEGO'S HEALTH AND LIFE SCIENCES BUSINESS ECOSYSTEM

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Abstract:

Industry competition has extended from a company level towards business ecosystems, where companies develop mutually beneficial relationships with various organisations. However, business ecosystem research is relatively new and the previous studies have mostly focused on software and IT industries. There are a number of organisations worldwide, which are dedicated to catalyse regional ecosystems. CONNECT is this type of organisation in Southern California. The purpose of this study is to explore the roles of trust and CONNECT intermediary organisation in establishing a successful health and life sciences business ecosystem in San Diego. This study presents literature findings on business ecosystem concept, innovation in spatial context, and trust. The empirical part of the study is based on semi-structured interviews. The results include an analysis of the ecosystem characteristics, the roles of trust and how an intermediary organisation can contribute to the ecosystem success. The study demonstrates that trust is an important enabler for the ecosystem's success. In addition, intermediary organisation can positively affect the ecosystem.

Keywords: business ecosystem, CONNECT, trust, health and life sciences, innovation, intermediary organisation

1. INTRODUCTION

During recent years many countries have identified health and life sciences as a source of economic growth. The life sciences is “*concerned with the study of living organisms, including biology, botany, zoology, microbiology, physiology, biochemistry, and related subjects*” (Oxford Dictionaries, 2014), whereas the health sciences can be considered as a branch of the life sciences and includes medicine and medical sciences areas and several related sub-disciplines. In this paper, health and life sciences sector is considered to include all public and private actors that are in the business of contributing to human health. This includes various product and service companies, universities, research institutions, intermediaries, and governmental actors.

The global competition in life sciences is intense, but the USA is still the global leader in this sector, for example, in terms of number of patents applied. Greater Boston area, San Francisco Bay area, and San Diego are the most prominent regions in the life sciences in the USA. Past research has mostly focused on Greater Boston and San Francisco Bay areas. However, many studies have also been conducted on San Diego. These studies include, for example, the works by Walcott (2002), Casper (2007), and Kim (2013).

The previous studies have provided valuable insights into San Diego innovation economy including the roles of university and pioneer companies, the importance of social networks, and collaborative learning in the region. The present study aims to increase understanding of San Diego by utilising business ecosystem concept as a theoretical base. While business ecosystems are typically considered to be global, the concept can also provide valuable insights in spatial (geographical) contexts, where proximity enhances, for example, knowledge sharing and exchange (Carayannis & Campbell, 2009).

Trust is an important element of successful business ecosystems (Chesbrough, Sohyeong & Agogino, 2014). Our study explores characteristics of San Diego’s health and life sciences business ecosystem and focuses especially on the roles of trust and the CONNECT organisation that was established to catalyse local innovation.

2. LITERATURE REVIEW

Business ecosystems tie different actors together through knowledge flows and shared value creation processes (Iansiti & Levien, 2004). Their life-cycle includes typically four stages: birth, expansion, leadership, and self-renewal or death (Moore, 1993).

Ecosystem’s rules result from the coevolution and interactions between the participants. The keystone company and the level of control assumed by it, is a significant factor that affects the ecosystem internally. External factors affecting the ecosystem, in turn, include changes in social, economic, technological, and competitive environment (Makinen & Dedehayir, 2012). Other actors adjust to the rules set by the lead actors (keystones or platform leaders) that may change in the future. However, the community (e.g. niche players and intermediaries) values the ecosystem leaders that enable the members to move toward a shared future and benefits (Iansiti & Levien, 2004; Moore, 1993; Moore, 1996).

In business ecosystems, companies develop mutually beneficial relationships with customers, suppliers, and competitors. The co-evolution occurs around a new innovation: organisations cooperate and compete to support new products, to satisfy customer needs, and finally to create succeeding innovations (Iansiti & Levien, 2004). Innovation and coevolution are the main factors for change dynamism in business ecosystems (Majava, Isoherranen & Kess, 2013).

Innovations take place at various levels and contexts (Leviäkangas, Aapaoja, Hautala & Kinnunen, 2015). According to Casper (2013), innovativeness and success of certain geographical regions can be viewed from three different perspectives: having universities as anchors of regional clusters, social networks as enabling factor, and institutional frameworks. Hwang and Horowitz (2012), in turn, emphasise talent diversity, trust across social barriers, motivations above short-term rationality, and social norms that promote rapid collaboration and experimentation. In their view, talent, ideas, and capital are the nutrients that move through the ecosystem.

Triple helix means collaboration between academia, industry, and government. Many regions are trying to achieve an innovation environment that includes university spin-offs, initiatives for knowledge-based economic development, and boundary-spanning and partnerships between companies, government laboratories, and academic research groups (Etzkowitz & Leydesdorff, 2000).

San Diego started to focus on research and development in the 1960s. The growth was supported by federal government investments and several research institutes, and the region was able to attract international companies and private investors in the 1980s. The role of three pioneer start-up firms, Linkabit (wireless), ISSCO (computer graphics), Hybritech (biotechnology), was also very important in creating growth in San Diego (Jones, 2005; Kim, 2013; Walshok & Shragge, 2014). Around the same time the military sector started to decline, and the local leaders recognised the need for new innovations. An intermediary organisation called CONNECT was established in the mid-1980s to catalyse innovation. Today, San Diego is one of leading regions in the world in life sciences and wireless technology sectors (Walshok & Shragge, 2014).

Various factors have contributed to San Diego's success. Porter (2001) emphasised the role of educational and research institutions, capabilities to attract federal and state research funding, the role of local government in developing a good business environment, local talent pool, collaboration, and the capability to attract external talent. Walcott (2002), in turn, saw that the key success factors include a world-class research university, risk financing, an entrepreneurial culture, advocacy leadership, and appropriate real estate, together with an intensive information exchange network. Social networks, interactions, and the importance of Hybritech and the startups established by its former employees have also been emphasised (Jones, 2005; Casper, 2007). In more recent studies, Walshok and Shragge (2014) argue that the characteristics of local culture include risk-orientation, entrepreneurial talent, various "gateways" to develop ideas and opportunities, integrative civic platforms, and tendency to reinvest in the ecosystem. Kim (2013) sees that creating and circulating local knowledge and practices, i.e. collaborative learning has been the main reason for San Diego's success.

Trust has been widely discussed in the academic literature and is considered to be a fundamental element in social interactions (Gambetta, 2000). Working together typically involves interdependence, and people have to rely on others to achieve their objectives. The trust model proposed by Mayer et al. (1995) suggests that the factors of perceived trustworthiness include a trustee's ability, benevolence, and integrity. Ability means "*group of skills, competencies, and characteristics that enable a party to have influence within some specific domain.*" Benevolence, in turn, is "*the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive.*" Integrity involves "*the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable.*" In addition to the factors of perceived trustworthiness, trust is also affected by trustor's propensity i.e. a person's "*general willingness to trust others*". (Mayer et al., 1995).

3. RESEARCH PROCESS

This research is based on the case study method. The data collection involved interviewing informants with in-depth knowledge on San Diego's health and life sciences ecosystem. The informants were identified with the support of local advisors. These informants included academic leaders, business executives, advisors, entrepreneurs, and investors. In addition to the academia and business, the organisations represented by the interviewees included trade organisations, incubator and accelerator type of organisations, and research institutes. Many of the interviewees also had multiple roles and were involved in more than one organisation.

Semi-structured interviews were utilised. Interviews lasted approximately one hour on average, and they were recorded and transcribed for analysis. The interviews started with generic questions about the informants' background and views of business ecosystems. After that, the questions specifically addressed San Diego's health and life sciences business ecosystem, CONNECT organisation, and trust. The data analysis was conducted by using qualitative approach; the interviews were read multiple times to find links and juxtapositions and to categorise identified patterns.

4. HEALTH AND LIFE SCIENCES BUSINESS ECOSYSTEM

4.1. Characteristics

The scientific base in San Diego's health and life sciences ecosystem can be considered very strong with both diversity and density. Traditionally strong research areas include cancer, neurosciences, and diagnostics. Genomics and next generation sequencing are increasingly important. The ecosystem in San Diego includes hundreds of companies and other organisations. These include universities and research institutes, angel investors, venture capitalists, large pharmaceutical companies, other health and life sciences companies, healthcare providers, accelerators, incubators, trade organisations, governments, and business service providers.

Health and life sciences business ecosystem in San Diego can be characterised to be more bottom-up than top-down structured, very diverse, and self-organised. No single leader for the ecosystem was identified in the analysis. Common platform for the ecosystem was not identified either, although some informants saw the university and research institutes to be the platform for new innovations. In addition, different intermediaries including CONNECT organisation were considered to provide access to networking and funding.

The ecosystem's rules were identified to include laws, regulation, business rules, and social rules. Many interviewees saw geographical proximity between key actors as a key difference compared to San Francisco Bay and Greater Boston areas. Interviews also proved the business and academic culture in San Diego to be very entrepreneurial.

4.2. Trust in the ecosystem

Trust plays a very important role in San Diego's health and life sciences business ecosystem. Trust was characterised as a precondition for a capitalistic society and any business ecosystem to exist. It was also seen as the basic foundation of business relationships. Without trust, investors do not invest. Trust was considered "*the most expensive part of any transaction*", which often needs to be reinforced with legal agreements to protect intellectual property. Trust was seen to be about creditability, i.e. fulfilling the promises and protecting confidential information.

Trust types were considered to include pre-transactional trust, which is created by getting to know each other and may or not be activated in a future transaction. Working together towards a common goal was considered to create opportunistic trust. Virtual trust, in turn, was seen to be created through recommendations and introductions by a trusted person. More extensive aspects of trusts were also brought up. People must be able to trust the whole system, i.e. laws must be clear and implemented consistently, otherwise investments are not made. From ecosystem perspective, trust means that each actor must understand what they do best, do it well, and rely that others do their part. However, it was also noted that this may be difficult, since organisations often work in silos and compete for the same capital.

Most informants saw that trust between people is created through getting to know each other. It was also pointed out that intermediaries, such as CONNECT and trade organisation called Biocom, are important, because they provide events and venues for people to meet, build knowledge about each other, and sustain existing relationships. It was also pointed out that people tend to trust people they like. From institutional point of view, scientific integrity and reputation was considered to help building trust. On the other hand, a university representative saw that it was not easy to make small companies trust a big university, and being as clear and transparent as possible about university processes was therefore important.

Overall, many informants saw that trust and reputation are very important in San Diego; people that cannot be trusted become known very quickly in a relatively small community. Due to constant changes in the ecosystem people cannot rely on working in the same company for tens of years; a good reputation gives a person the next job opportunity. "*Parking lot principle*" was also brought up, as in many cases it is possible to change a company without changing a parking lot provided that the person has a good reputation.

Many informants emphasised that San Diego has a culture of collaboration, openness in sharing ideas, and helping others. It was seen that a community of similar interests exist, and many people are dedicated to contribute to San Diego's success. One informant pointed out, "*trust is the promise we're trying to accomplish*". This involves that people will support each other, companies will continue to perform well, venture capitalists will continue to invest, pharmaceutical companies will continue to license and so forth. Some examples of helping others included providing office space or services for free for people that were starting their own business according to "*pay it forward*" principle.

Because many people have come to San Diego from elsewhere, the trust was not seen to be based on common backgrounds. Pioneer companies including Hybritech and Linkabit were mentioned as "*roots of family trees*" in the ecosystem. Helping others was not considered to provide direct immediate benefits, but many interviewees saw that the ecosystem's success helps everyone in the long term. Even competitors might be helped if the information provided is non-confidential. However, it was also pointed out that collaboration may not differ from other locations, although it is promoted more in San Diego.

4.3 CONNECT organisation

CONNECT organisation is claimed to be one of the reasons for San Diego's success in creating new innovations. CONNECT is a non-profit organisation that was established at University of California San Diego (UCSD) in 1985. The first leader Bill Otterson was characterised as a very vigorous person, to whom "*you could not say no*". The first fifteen years of the organisation were very successful, but they were followed by a decline after Otterson's death in 1999. In 2006, a new leader Duane Roth turned CONNECT into more influential again, it was spun off from UCSD to become independent organisation and started lobbying activities in Washington DC. UCSD still runs a separate entity called Global CONNECT that is responsible for international activities. Roth died in 2013 and Greg McKee was nominated to lead CONNECT.

The interview analysis proves that CONNECT is a very important element of San Diego's health and life sciences business ecosystem. The organisation can be seen as an accelerator and catalyst of innovations, an organisation that connects scientists, entrepreneurs, and investors. Furthermore, it has evolved to become a lobbyist and promoter of San Diego businesses both locally and nationally. CONNECT runs also several education programs. One informant described CONNECT as "*the go-to organisation in town*". The organisation has greatly influenced the business culture in San Diego. In events arranged by CONNECT a lot of time is reserved for networking, which enables people to create new connections and maintain existing relationships strong.

Most informants saw that Springboard mentoring program for startups is the "*heart and soul*" of CONNECT. Springboard provides a learning process that involves many phases: application and pre-screening, intake panel, marketing panel, finance panel, dry-run panel, and final panel. 397 companies were assisted by Springboard program or were winners of the Capital Competition in years 2005-2014. Since 1993, companies assisted by CONNECT have raised approximately 1.4 billion dollars in capital (CONNECT, 2014).

In addition to Springboard, many other valuable programs are offered by CONNECT. These programs include Entrepreneurs-in-residence, Most Innovative Product, and MIT Enterprise Forum. Some informants also saw different education programs important. The value that the voluntary mentors provide for a new startup was considered very important and to be worth of "*tens of thousands of dollars of consulting time*". Many activities are extremely dependent on the availability of mentors, and some interviewees saw that finding time for mentoring is often a challenge for them.

While many CONNECT activities were found to be important, some informants pointed out that the value of other programs, such as Connect with CONNECT, is questionable. These "*more social events*" make the organisation look less serious business-wise. The organisation was also characterised as "*a victim of its own success*". Over the years, CONNECT has pointed out many gaps in the ecosystem, and other organisations, such as trade organisation Biocom, have started to fill in the gaps. Some informants considered that that it is sometimes difficult to see the core mission of CONNECT and some of its roles overlap with Biocom.

Many informants saw that the future of CONNECT will involve constant evolution and refinement. While the organisation was identified as a critical element of the ecosystem, some interviewees pointed out that it should go back to its roots, focus on the original core mission, and potentially become part of UCSD again. However, transfer back to UCSD will most likely not happen, since public universities are not allowed to lobby on behalf of companies. Some informants also saw more effort should be put on lobbying at state and federal level and increasing funding opportunities for companies. Finally, one informant pointed out that the requirements to get into CONNECT Springboard may be too tight, which makes the program risk-averse and decreases radical innovation.

5. CONCLUSIONS

This paper explored the roles of trust and CONNECT organisation in establishing a successful health and life sciences business ecosystem in San Diego. In addition, the ecosystem characteristics were analysed.

Past research (e.g. Kim, 2013) has highlighted the importance of collaboration, collaborative learning, and social networks in San Diego's ecosystem. Previous studies have also stressed the roles of university, research institutes, and pioneer companies (e.g. Jones, 2005). The results of this study complement the past research by indicating that trust and intermediary organisations, especially CONNECT, are very important in the spatial business ecosystem. Thus, trust and intermediary organisations deserve more attention and consideration by innovation researchers and policymakers.

The limitations of this paper include typical limitations of a single case study, which makes the generalisation of the findings difficult. Recommended future research includes conducting similar studies in other spatial contexts to compare and validate the findings.

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