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Description	一般講演要旨

Comparing diversities of startup ecosystems - Success factors for forming startup ecosystems –

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1. Introduction

In an increasingly globalized and competitive world, startup ecosystems play a crucial role in shaping regional economic landscapes. This study builds upon AnnaLee Saxenian's "Regional Advantage: Culture and Competition in Silicon Valley and Route 128," expanding on her analysis by exploring through PEST (Political, Economic, Sociocultural, Technological) analysis to compare the startup ecosystems in the United States, China, Singapore, Berlin, and Tel Aviv. This paper will also discuss the similarities between the startup ecosystems of Silicon Valley and Route 128, and Shenzhen and Beijing. In addition to delving into the characteristics of each country's ecosystem, this research addresses the limited scope of our initial analysis and proposes sustainable quantitative and qualitative research strategies for the future. Through this comprehensive study, we aim to provide strategic insights for policymakers, entrepreneurs, and investors to foster vibrant and sustainable entrepreneurial environments globally.

2. Background and Purpose

2.1. Startup Ecosystem

A "startup ecosystem" is a collaborative network composed of startups, individuals, investors, institutions, and companies, all interconnected through various resources that collectively support the emergence and growth of innovative businesses (Kelly Wolfgang, 2024). This ecosystem not only includes the startups but extends to a community that collaborates to foster an environment conducive to the development and success of new ventures.

2.2. Related Work

"Regional Advantage: Culture and Competition in Silicon Valley and Route 128" by AnnaLee Saxenian is a seminal work that explains why Silicon Valley succeeded in technological innovation in the United States, while the Route 128 area in Boston gradually lost its competitive advantage. The book gives an explanation concerning regional cultures, corporate structures, and different ways of innovation from one another. It addresses how an open, interconnected industrial structure gave Silicon Valley a huge advantage over Route 128, where firms with closed and vertically integrated structures could not keep pace. Specifically, the book also illustrates that the region of Route 128 in Massachusetts was significantly hampered in terms of talent mobility due to the enforcement of non-compete agreements, which hindered employees from joining or founding competitive ventures soon after leaving their current employers. These policies protect core business interests and trade secrets but impede knowledge sharing and innovation within the industry. In contrast, Silicon Valley experiences job hopping rather frequently because it is culturally acceptable, partly as a consequence of California's legal stance with the seldom enforcement of non-compete agreements. Additionally, companies in Silicon Valley often engage in informal collaborations,

exchanging technical and market intelligence. This culture allows employees to move freely between companies, thus facilitating the rapid spread of technology and knowledge.

2.3. Purpose

The purpose of this paper is to analyze the key factors that make up successful startup ecosystems and to explore why certain ecosystems achieve high rankings globally. In particular, the research will identify how the characteristics that have driven Silicon Valley's success are manifested in the Shenzhen ecosystem; conversely, it also investigates the factors contributing to the decline of Route 128, which are similarly present in Beijing. By doing so, the paper aims to describe the elements and environmental influences that drive or hinder the flourishing of entrepreneurial environments, thereby providing a comparative perspective to guide future policy and entrepreneurial strategies.

3. Method

Our research method utilizes the PEST analysis framework to compare the startup ecosystems in the United States, China, Singapore, Berlin, and Tel Aviv. PEST analysis is a crucial strategic management tool used in this analysis to evaluate the four major aspects that influence a business's external environment: Political, Economic, Sociocultural, and Technological. We examine how government policies, political stability, and specific regulations in each region affect their startup ecosystems. Additionally, economic factors include macroeconomic conditions such as growth rates, exchange rates, inflation, and interest rates, which might have impact on the overall business environment. Besides, sociocultural factors focus on demographic characteristics, cultural trends and technological factors encompass the pace and degree of technological innovation, which can bring about revolutionary changes. By conducting a PEST analysis, companies can comprehensively assess their external and internal environment. This report focuses specifically on the political and sociocultural dimensions of these startup ecosystems, leaving technological and economic aspects for future research.

4. Result

According to global ecosystem rankings, Shenzhen, ranked 28th, still trails behind Beijing, ranked 8th. However, similar to how Silicon Valley once lagged behind Route 128 before eventually overtaking it, this article explores whether today's Shenzhen and Beijing could mirror the situation between Silicon Valley and Route 128, and the reasons why one ecosystem may surpass the other.

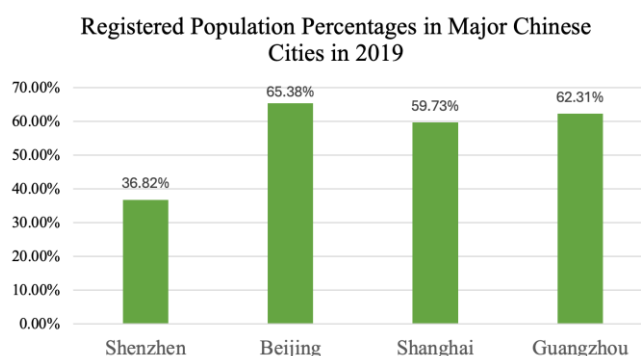
Firstly, the most significant factor is the extent of national government intervention. Route 128, located near Washington D.C., the capital of the United States, received substantial government intervention due to its geographical proximity. In its early days, the government provided numerous military contracts that led to Route 128's initial prosperity, including projects involving radar and other military electronics systems. However, the area was later impacted by reductions in government contracts after the war ended. In contrast, Silicon Valley, being distant from the central political centers, initially lacked substantial central support, which made development challenging. However, this led to the creation of its own distinctive ecosystem, focusing on civilian technology and consumer electronics closely tied to the commercial market, which ultimately transformed the global tech industry. From this, we can conclude that companies in the Route 128 area were largely dependent on their relationships with government contracts, while Silicon Valley hosted more companies engaged in customer-related commercial and

technology development.

Similarly, Beijing, as the political, cultural, and educational center of China, hosts most of the state-owned enterprise headquarters and key research institutions, especially in critical sectors like technology and finance, which are strictly controlled by the central government. This means that starting a business in Beijing involves navigating stringent regulatory procedures and securing premium resources from research institutions is challenging. Central government interventions include the enforcement of specific guidelines to ensure business practices align with national strategies. Due to the high barriers, the entrepreneurial atmosphere is relatively subdued. Conversely, Shenzhen, as a Special Economic Zone governed directly by its local government and distanced from the political center, enjoys more relaxed procedures and regulatory conditions compared to Beijing. From this analysis, it is shown that due to regional geographical factors, both Silicon Valley and Shenzhen maintain a more open culture atmosphere, reflected in tolerance to failure, and work preferences.

In the early stages of development in the Route 128 area, population mobility was relatively low, especially compared to Silicon Valley. Route 128 benefits from nearby prestigious higher education institutions, such as MIT and Harvard University, which supply a wealth of talent to local businesses. Consequently, many companies prefer to hire these local graduates rather than relying on immigrants. The industrial base in this area is more traditional, encompassing manufacturing and defense industries that generally require stable technical skills and long-term career development paths, thus not experiencing the frequent influx and outflow of talent typical of emerging tech sectors. Silicon Valley is renowned for its open and innovative corporate culture, world-class technology companies, and a robust entrepreneurial ecosystem, drawing top talent from around the globe. This environment attracts not only domestic talent but also a significant number of international professionals, making the area a diverse hub of international talent.

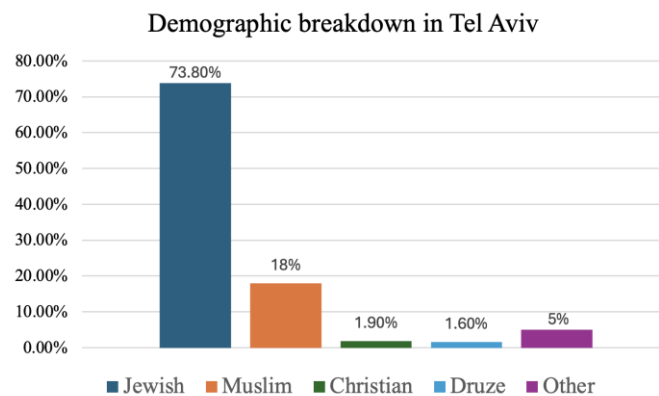
Similarly, Shenzhen is recognized as a 'migrant city,' open to residents from other regions. According to Southern Finance Omni media, in 2019, Shenzhen's registered population was less than 5 million, only 36.82% of the permanent population (21st Century Business Herald, 2020). In contrast, Beijing, Shanghai, and Guangzhou had higher percentages of registered populations during the same period. Shenzhen had a permanent population of about 13.4388 million, with 8.491 million being non-registered residents, representing more than 63% of the total population (Shenzhen Municipal Bureau of Statistics, 2020). Therefore, Shenzhen has attracted a significant workforce and talent from other regions in China, such as Dongguan and Hunan, displaying similarities to the high turnover rate observed in Silicon Valley. Conversely, Beijing, as China's political capital, exhibits the highest rate of local residence, indicating restrained population mobility.



Source: Shenzhen Municipal Bureau of Statistics (2020)

5. Discussion

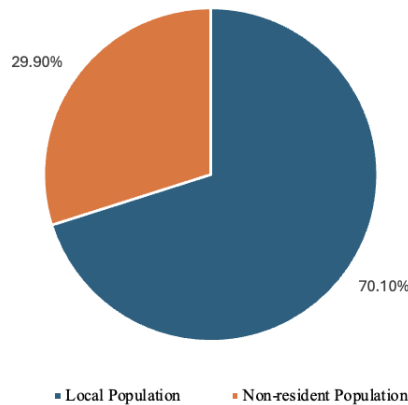
Through comprehensive PEST analysis of the startup ecosystems in Berlin (Germany), Tel Aviv (Israel), Shenzhen (China), and Singapore, three critical success factors emerge. At the first stage of our analysis, we mainly focus on political and sociocultural perspectives. The most notable finding lies in the diversity in race, ethnicity, gender, religion, and professions. In Israel, Tel Aviv's startup ecosystem stands out as one of the most vibrant and rapidly expanding globally. It is ranked 5th worldwide, with the ecosystem valued at \$235 billion and securing \$8.3 billion in early-stage funding. Through the compulsory military service, citizens with various occupations and social classes have the opportunities to meet, exchange experience and idea, and build networks with each other (Elran & Sheffer, 2016). Later, after military service, these people have the access to collaborate positively. This system enables Tel Aviv people to connect from different backgrounds, leading to diversity in terms of religion and profession. Additionally, the city's diverse population includes Jews of various backgrounds and Muslims, creating a multicultural and inclusive society (U.S. Department of State, 2023).



Source: U.S. Department of State (2023), Israel 2022 international religious freedom report

Singapore is distinguished as a leading startup ecosystem in Southeast Asia, known for its dynamic pro-business climate and strategic position for accessing regional markets, also ranked 5th globally. Singapore is recognized as a nation of immigrants. As of June 2023, the local population, including citizens and permanent residents, is 3.61 million. Meanwhile, the non-resident population stands at about 1.77 million out of a total population of 5.92 million. This statistic indicates that non-residents make up approximately 29.9% of Singapore's total population, reflecting a significant proportion of the labor market and societal makeup (Population Division, Singapore, 2023). Such cultural and policy-driven diversity in race and ethnicity makes Singapore a cosmopolitan area where diverse talents converge to drive innovation and economic growth, solidifying its reputation as a global leader in technology and entrepreneurship. Shenzhen's demographic, with a significant portion of the population being non-local residents, also contributes to regional diversity.

Population Breakdown in Singapore as of June 2023



Source: Population Division, Strategy Group, Prime Minister's Office, Singapore (2023).

Secondly, the thinking styles and social atmospheres in Germany and Israel are quite critical compared to Asian countries. These cultures enable them to correct or criticize others' wrongdoing or opinions directly. The German education system emphasizes rigorous analysis and critical thinking (Beck, 2019). Their educational approach encourages students to question, analyze, and critically evaluate the information they handle. Similarly, Israel's education system also focuses on critical thinking. Schools in Israel encourage students to engage in debates, argumentation, and exploration of diverse viewpoints, creating a social atmosphere where questioning and critical analysis are commonplace. In contrast, education approaches in Asia tend to emphasize more on conveying fixed knowledge, rather than encouraging students to question and explore. Additionally, in many Asian cultures, such as those in Japan and China, respecting authority and maintaining harmony are seen as important social values. This might lead individuals to be reluctant to express their critical views in public or towards superiors in order to avoid conflict and disharmony.

Thirdly, governments' support also plays a crucial role in the startup ecosystem. Singapore government has supported the startup in association with higher education institutions, subsidy, and tax. For example, the government has strengthened social interaction through educational partnerships and business competitions. By providing subsidy schemes such as the Early-Stage Venture Capital Fund (ESVF) and the Technology Incubation Scheme (TIS), it helps to reduce the financial burden on startups and accelerate their growth. At the same time, tax policies such as the low corporate tax rate (17%) and the Global Trade Programme (GTP) have been implemented to reduce the tax burden and attract more international companies to set up regional headquarters in Singapore. In Shenzhen, high administrative efficiency in business registration has been achieved through complete digitalization (Xinhua News Agency, 2020). This has enabled companies to significantly reduce the time and cost associated with waiting for business license approvals, making the process easier and faster compared to the past. Consequently, this attracts more businesses and investments, thereby promoting economic growth.

6. Conclusion

In conclusion, this paper has explored the multifaceted components that contribute to the success or decline of startup ecosystems across different global contexts. Through a comparative analysis informed by the PEST

framework, we have identified critical factors that influence these ecosystems, including open culture, high talent mobility, diversity, political measures. As the global landscape continues to evolve, it becomes increasingly important for policymakers, entrepreneurs, and investors to not only recognize these dynamics but also actively engage in fostering ecosystems that support sustainable innovation and growth. The findings from this study encourage a continued exploration into how political, economic, cultural, and technological factors interact to shape the vibrant and ever-changing world of startups.

Acknowledgement

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