

The Evaluation Criteria Used by Venture Capitalists

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Abstract. Venture capital investments are very common sources of funding today. The rise of many well-known companies attributes to the bet from venture capitalists. There are successful investment examples and unsuccessful ones as well. This paper explores four venture capitalists' criteria on their investments based on the common theories of different literature review and analyzes them by exemplifications of real cases from Mobileye, Genentech, Cerent, Alibaba, Meitu, JD.com, and Ele.me. All of the cases chosen happened in the last 25 years from different countries in the world. After analyzing these cases, four general evaluation criteria used by venture capitalists are reached: technology, attractiveness of the market, customer adoption, and product or service. Technology and market attractiveness often determine the potential of a product. Customer adoption and product or service can prove whether the company has a clear judgement on its potential customer. Providing examples and data, the paper discovers that venture capitalists often use these four criteria to determine whether a company worth investing or not.

Keywords: Venture capital; investment criteria; exemplification

1. Introduction

Venture capital investments are vital to the growth of most companies. Entrepreneurs often have their own investment criteria to determine their decisions. Despite there have already been huge number of research about investment criteria of venture capitalists, the answer is still ambiguous. Kaplan, Sensoy, and Strömberg take the ability of management team as a jockey and take the business model as a horse [1]. Their conclusion is that for most successful venture capitalists, the "horse" is more important than the "jockey", so that this paper will focus more on the business model of a company. Kaplan and Strömberg use huge number of surveys to state that technology, attractiveness of the market, customer adoption, and product or service can draw investments [2]. There are evidence and research which support each of these factors. By building models, Terjesen, Patel, Fiet, and D'Souza prove that the technology advantage of a company is a key factor in venture capitalists' investment criteria [3]. Providing evidence, Gompers, Kovner, Lerner, and Scharfstein show that customer adoption adds value to a company for venture capital firms [4]. Block, Fisch, Vismara, and Andre's state that investors also pay attention to whether the product or service of a company brings revenue growth or not [5]. Therefore, the paper will use examples to explain how technology, attractiveness of the market, customer adoption, and product or service can be concluded as the venture capitalists' investment criteria.

2. Criterion 1: Technology

Today, technology becomes one of the most important elements to attract investors. First, take the autonomous driving technology as an example. One of the earliest businesses to predict the future of autonomous driving was Mobileye [6]. In 2009, ten years before Google began its own self-driving vehicle initiatives, the corporation began developing the technology. In 2014, Mobileye went public with a \$5.3 billion value. The company's largest US financial investor, Goldman Sachs, invested around \$100 million back in 2007, providing some of the company's early investors a return of ten times their investment. After then, Goldman acquired a stake of around 12.3% and almost completely sold it when the business went public. Goldman invested in Mobileye far later than many of its Israeli venture capital rivals, yet it still saw a 10 times return on its money. The technologies developed by Mobileye mainly include EyeQ System-on-Chip, Road Experience Management, and Responsibility-

Sensitive Safety [7]. In 2007, the first EyeQ1 was developed. By 2021, it has evolved to the fifth generation and the number of vehicles using the EyeQ5 system reached 100 million.

Since Mobileye is an Israeli company, Figure 1, which shows the values of international and domestic investments in high-tech companies in Israeli between Q1 2013 and Q2 2019, is selected [8]. Figure 1 indicates that although the investment value of Israeli high-tech companies dropped in Q3 and Q4 in 2016, the general trend is increasing. The investment value of foreign investments increased in a faster rate than that of domestic investments. It shows that companies which own their self-developed technology have the value to be invested.

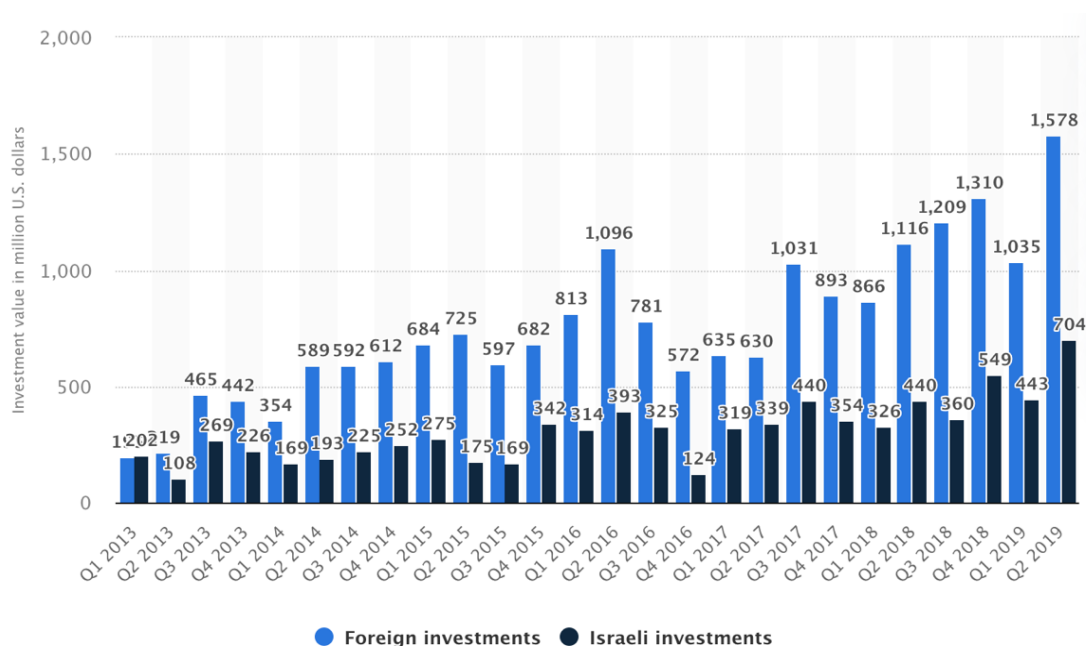


Fig 1. Value of foreign and domestic investments in high-tech startups in Israel from 1st quarter 2013 to 2nd quarter 2019 [6].

The second example is Genentech. The acquisition of the 1976-founded biotech business Genentech by Roche, a Swiss healthcare corporation, for \$46.8 billion in 2009 garnered international attention [6]. Kleiner Perkins Caufield & Byers earned what the founding partner Tom Perkins referred to as "one of the greatest payoffs in history" as the company's very first investment.

Herbert Boyer, a PhD, and Robert Swanson, a venture capitalist and former Kleiner Perkins investor, founded Genentech in 1976. They both thought that a mass-market medicine might be created using the new recombinant DNA technology. At the time, however, conventional opinions in science and industry suggested that this technology needed 10 to 15 years to develop. When Perkins managed the company's investment in Genentech in 1976, hardly any "biotech" sector existed at all. Perkins had to educate himself the fundamentals because he had little prior knowledge in the field. Then he had to carefully evaluate and tenaciously grow one of the most unique businesses to ever emerge from Silicon Valley. The financial impact of genetic engineering, Genentech's primary area of study, was viewed with suspicion in the middle of the 1970s by both the scientific and venture capital sectors, but such doubt is not present now. As shown in Figure 2, there have been continuous investments on US biotech companies from IPOs and risk capital [9]. Initial public offerings by American biotech businesses raised around ten billion dollars in financing in 2020, and there were also about 14.2 billion dollars in risk capital. The broader biotech industry generates annual revenues in the hundreds of billions of dollars.

Until now, the autonomous driving technology is still under development and the continuous investments of many venture capitalists in biotech is one thing that hasn't altered since Kleiner's investment in Genentech. These facts highlight the importance of taking a long-term view of technology and seizing the opportunity of every technological advantage. In a word, with the example

of Mobileye and Genentech, technology can be analyzed as an investment criterion for venture capitalists.

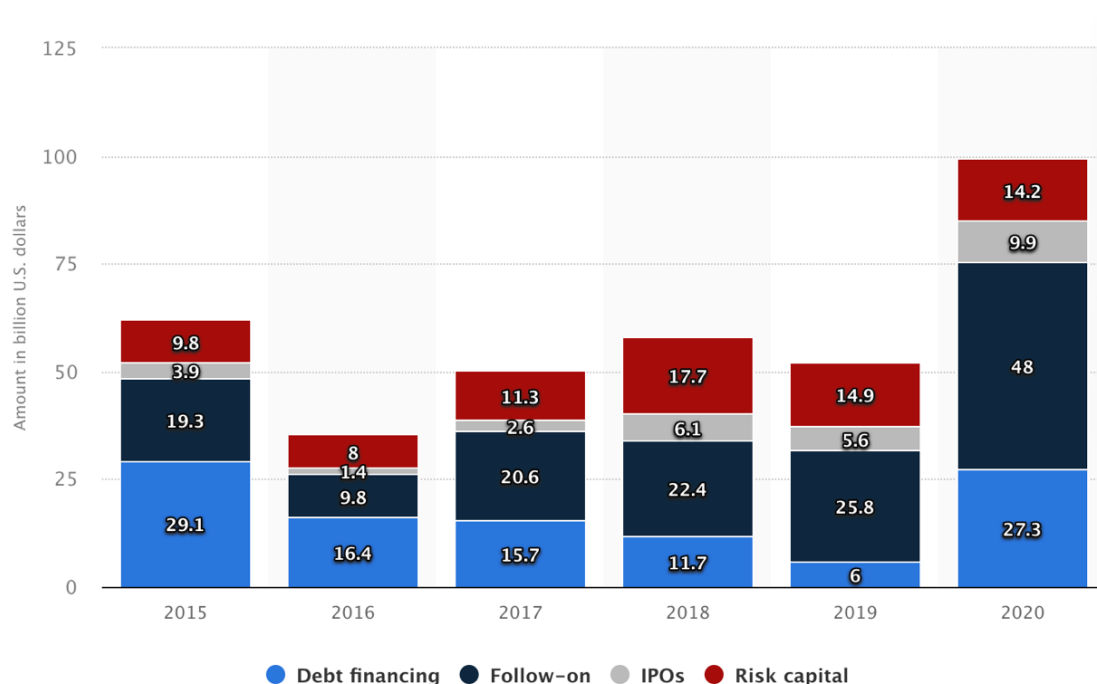


Fig 2. Financing of U.S. biotech companies from 2015 to 2020, by type [9].

3. Criterion 2: Attractiveness of the Market

The attractiveness of market is another criterion for venture capitalists to consider. First, take Cerent as an example. The \$6.9 billion purchase that Cisco made to buy Cerent in 1999 became the largest tech firm acquisition in history [6]. Kleiner Perkins and Vinod Khosla co-founded Cerent. Khosla knew the top engineers in Silicon Valley because of Kleiner Perkins' reputation, and he was acutely aware of what the market required. Khosla thought about the concept for Cerent and he found Raj Singh to work with in 1996. Singh arrived at the company with a concept of a unique Java-specific computer chip. Khosla rejected this concept because he did not think Java had a profitable market. In Khosla's opinion, a device which could handle a lot of audio and data would develop a new market due to the rapid growth in internet traffic. There was a chance to offer a more effective solution for the connection issue, which is less expensive and more adaptable and could meet rising demand. The regional telephone and data network and long-distance communication lines were connected, with the use of Cerent's technology. Data transmission for phone companies became quicker and simpler as a result. The 1998 investment by Kleiner Perkins signaled the start of an optical technology era, during which firm values rose and money invested in. After Singh and Khosla hired all the remaining employees, Cisco bought the business in two years for \$6.9 billion. Thanks to the acuteness of market for data transmission, Perkins and Khosla won their bet.

Figure 3 shows the number of Internet hosts from 1964 to 2018 [6]. It indicates that around 1988, the number of Internet hosts started to increase in a rapid rate. Khosla noticed the potential market attractiveness of a hardware box in 1996. Similar to what Cerent did, the Chinese company, Alibaba, also explored a new market. In what was and continues to be the largest IPO in history, Alibaba sold \$22 billion of shares in 2014 [6]. The Japanese telecom giant SoftBank invested \$20 million for 34% of Alibaba fourteen years prior, in 2000. Alibaba's public market debut increased the company's market worth from its initial IPO valuation of \$167.6 billion to \$231 billion, which also increased SoftBank's ownership interest to over \$60 billion.

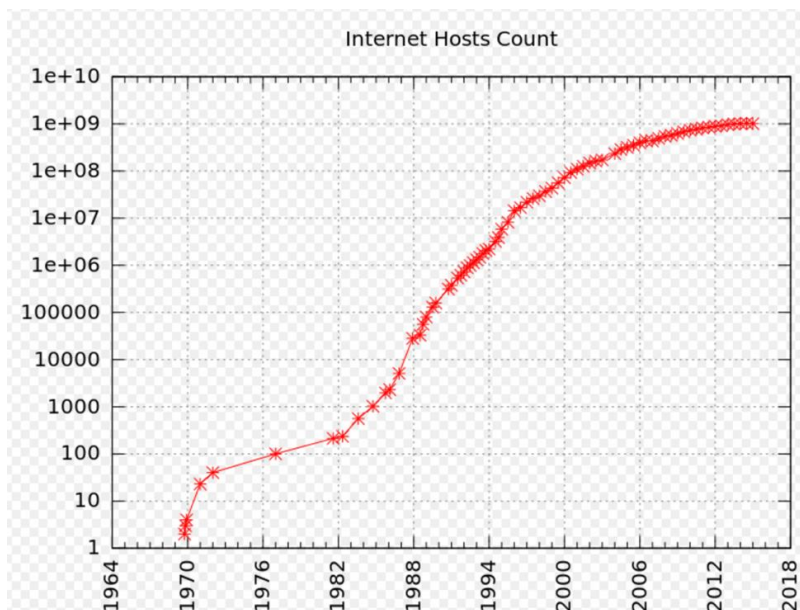


Fig 3. Internet Hosts Count from 1964 to 2018 [6].

When Softbank invested, Alibaba had no income and no established business plan. The creator of SoftBank, Masayoshi Son, decided to invest because he foresaw how the Internet would change China, just as it had done in Japan and the US. In 1999, he met with 20 potential Chinese Internet business owners before choosing to invest in only one. Jack Ma was his name. A few years before Alibaba's investment, when Ma and Son first got to know each other, Yahoo! Japan was experiencing a rapid growth. Ma became motivated and began developing his own company website for the Chinese market. The market attractiveness of Internet brings the investment opportunity to Alibaba. As shown in Figure 4, China had a more than two-fold increase in Internet users between 1999 and 2000, rising from roughly 8.9 million to 22.5 million [6]. Alibaba benefited from the first expansion of the Chinese e-commerce industry and its performance suggested a sizable market potential of Internet businesses.

From the entrepreneurs' view, the success of Cerent and Alibaba shows the importance of selecting the right market to develop, while from the investors' view, it is crucial to evaluate the market attractiveness of a company's product or service. Therefore, based on these examples, market attractiveness can be considered as an investment criterion for venture capitalists.

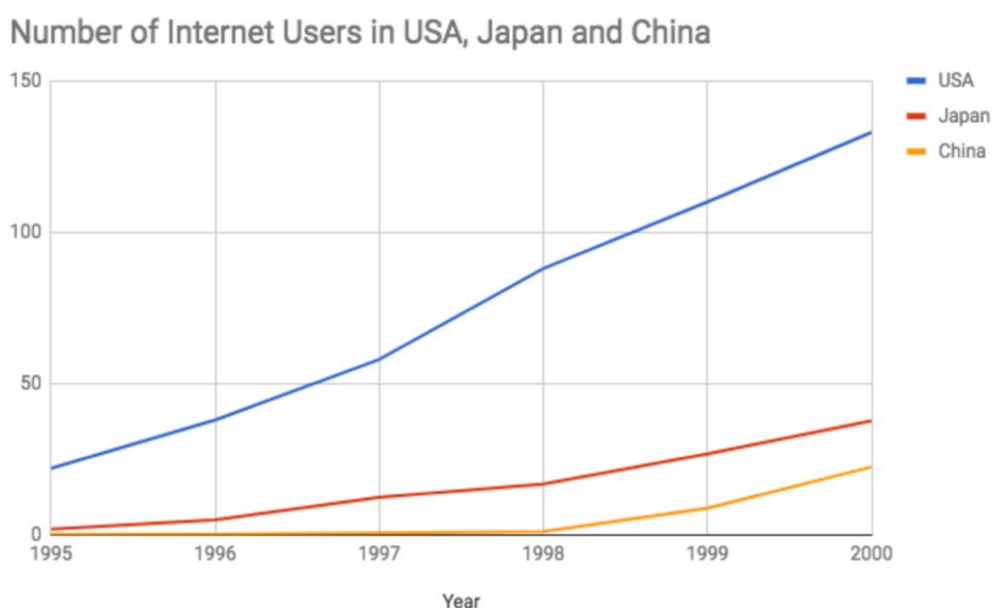


Fig 4. Number of Internet Users in USA, Japan and China [6].

4. Criterion 3: Customer Adoption

The third investment criterion is customer adoption. The example chosen is Meitu, a Chinese company which develops a software for picture editing. The biggest IPO in Hong Kong in more than a decade was Meitu's IPO in 2016 [6]. The business had a \$4.9 billion market value and raised \$630 million in its first public offering. This was a significant development for the Chinese IT sector, as well as for the app's early backer Sinovation Ventures, which received up to 40 times returns on its investment for this software.

One of the main reasons of the success on the Meitu investment was that this investment was not merely a copycat. Many foreign investors frequently overlook the regional characteristics of what it takes to create a product that sticks and succeeds. Sinovation Ventures noticed that Meitu was more than just a photo-editing tool: the company also had its unique customer adoption. There are two perspectives to explain it. First, the Meitu mobile app's release coincided with a sharp increase in smartphone usage in China. This provided the app with a natural growth engine. Second, at that period, an increasing fascination with beauty was evident. However, in comparison to its neighbors, China had a significantly low rate of plastic surgery procedures at the time Meitu was introduced.

Figure 5 shows the number of unique mobile subscribers and the per cent using smartphones [6]. The percentage of smartphone users in China increased from almost 0 in 2010 to about 65% in Q1 2015. After making thorough investigations about the customers and technological trends in China, Meitu found the perfect solution for Chinese customers in the period of high smartphone usage and low cosmetic coverage. The ability to identify the current trend and features of customers is important for a company because it determines whether customers will accept the product and it directly affects the profit. Therefore, venture capitalists should take a company's ability of customer adoption as an investing criterion.

Smartphone use in China

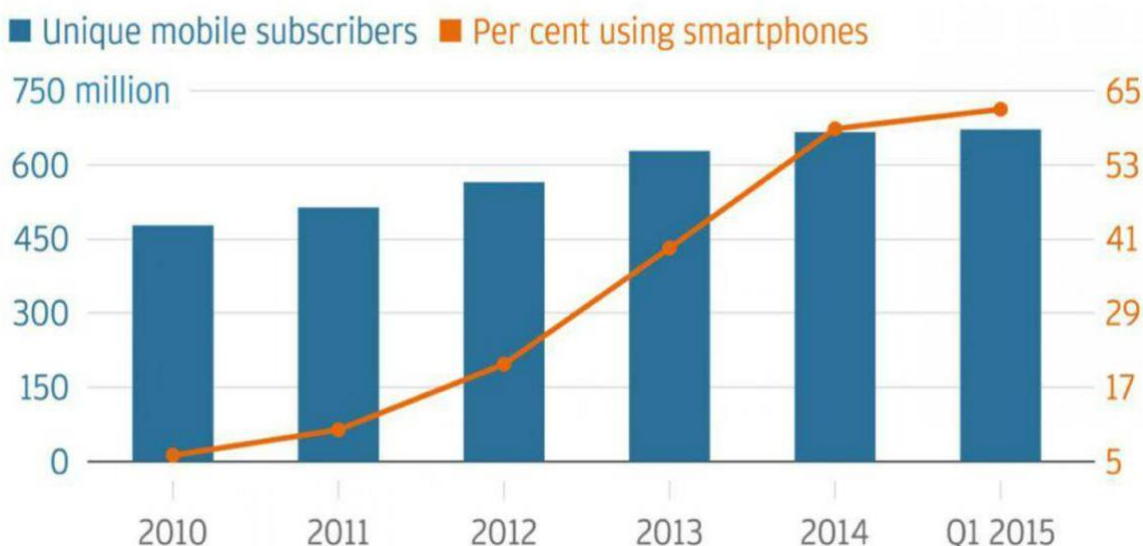


Fig 5. Smartphone use in China from 2010 to Q1 2015 [6].

As showed in Figure 6, according to China Tech Insights, all Meitu Inc.'s applications have 456M users as of October 2016 [6]. Numerous Asian nations, including China, India, Indonesia, Japan, Malaysia, and Thailand, had sizable Meitu user bases. It indicates that with the investment, Meitu developed in a very fast pace and more importantly, Asian customers indeed thought the apps were as practical as they wanted. All in all, the customer adoption made by Meitu helped the company attract investments, so that customer adoption can be considered as an investment criterion.

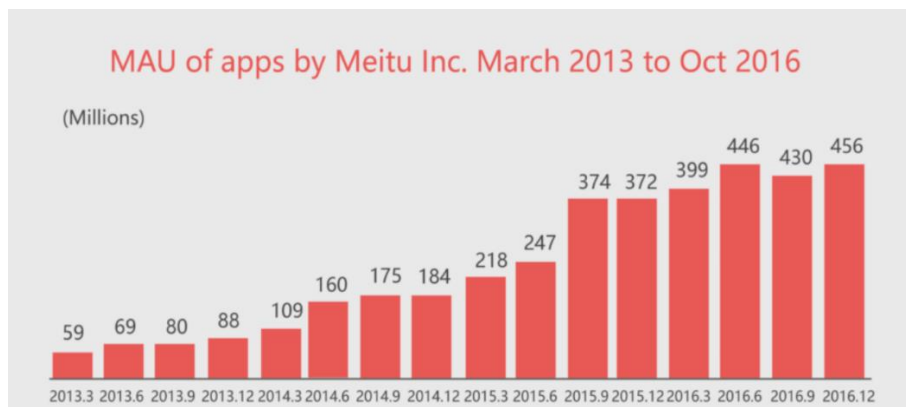


Fig 6. MAU of apps by Meitu Inc. March 2013 to Oct 2016 [6].

5. Criterion 4: Product or Service

The product or service determines the positioning and features of a company, so that investors also focus on this criterion. Take Chinese e-commerce company JD.com as an example. The turning point of JD.com was in 2006. By 2006, JD.com was running out of cash as it tried to establish itself in the competitive local e-commerce sector. Richard Liu, the founder of JD.com, nevertheless desired to increase the company's product offerings and develop new software. Richard Liu asked for a \$2 million investment to strengthen his business's finance in 2006 [6]. He resorted to the Chinese private equity company Capital Today to do this. Capital today opted to spend \$10M instead. It turned out to be a wise choice to commit five times as much as Liu demanded. In 2014, JD.com went public, and that share was valued at \$2.4 billion. Chinese e-commerce boomed in the years after Capital Today's original investment, and many other companies started to pay attention to JD.com.

Figure 7 shows the comparison of share of B2C online shopping market between 2014 and 2016. In 2014 when the company went public, JD.com took 18.6% of the market share. After two years, this number increased by 6.1%. The investor's confidence in the business and the market was rewarded. JD.com is currently expanding and gaining market dominance in China's B2C online retail sector. From the view of investors, they appreciate Richard Liu's concept of a "full-service internet store" with a logistics-focused perspective. It shows how service plays a huge roll in the development of a company, especially an e-commerce company, and in the evaluation for a company by investors.

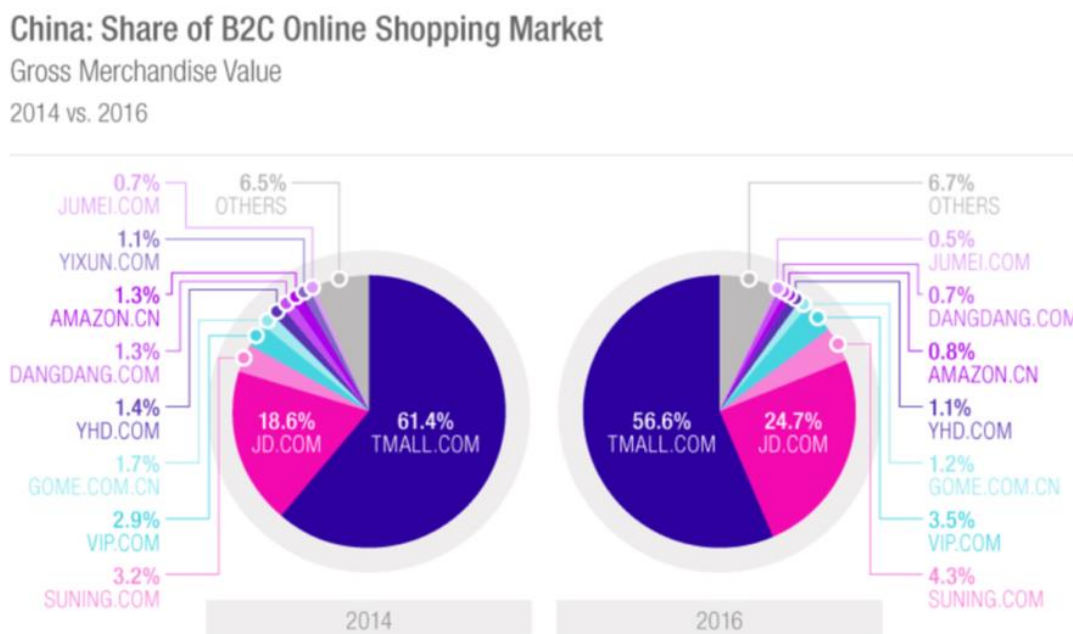


Fig 7. Share of B2C Online Shopping Market between 2014 and 2016 [6].

Another example is Ele.me, a Chinese local delivery firm. Ele.me was acquired by Alibaba in full ownership in April 2018 for an estimated \$9.5 billion [6]. Alibaba has struggled to establish the same type of delivery presence that its primary rivals Tencent and Meituan had in the services market prior to its investment in Ele.me. However, Ele.me received almost \$9.5M in orders daily from more than 40 million clients in more than 250 cities in China.

Alibaba's common strategy is consolidating control. Rather than adding all the new products and services at once as is the case with traditional acquisitions, Alibaba strengthens its product and service lines over time by gradually increasing its stake in a company, learning how it operates, and learning about the industry. Some special features of Ele.me's service are listed as follow. First, the use of a sophisticated tracking system enables the user to view the order's status, including preparation state, pick-up location, and meal delivery route, among other information [10]. Second, Ele.me established their own delivery team so they wouldn't have to rely only on other third-party delivery services. This enables the business to better manage the delivery system and charge delivery costs to both the restaurant and the customers. Third, Ele.me now has a greater understanding of their clients' eating patterns and trends, thanks to the technology of Ali Cloud. Ele.me uses AMap, which facilitates in the planning of delivery routes and the distribution of drivers in areas regarded to be nearest to restaurants with the most demand in any time [10]. The services that JD.com and Ele.me developed bring significant convenience to their customers, so that these companies can grow so rapidly after receiving the investments. Therefore, product or service should be analyzed as the investment criterion.

6. Conclusion

In conclusion, with the exemplifications of Mobileye, Genentech, Cerent, Alibaba, Meitu, and JD.com, the criteria that venture capitalists will consider before investing are technology, attractiveness of market, customer adoption, and product or service. The paper uses data and graph to show the growth of certain companies, the technological changes affecting different industries, and how successful certain companies are after investments. There are no fixed criteria that venture capitalists use all the time. Among all the criteria in the paper, technology is the backup for the others. Customer adoptions are often affected by the technological trend and a company's product or service is also supported by the development of technology.

There are still some limitations in this paper. First, the number of criteria selected is limited. Since the four criteria are selected based on credible academic papers, there may be other criteria existing, such as the quality of management team and business strategy. These factors may also be significantly considered by venture capitalists during investments. Second, since some of the examples happened ten years ago, it may not conform to the status quo. The global situation changes so rapidly, which requires venture capitalists to have precise judgement and to change their criteria accordingly. Third, Alibaba, Meitu, Ele.me, and JD.com are all from China, which makes the paper more limited. All in all, this is a topic that worth investigating in the future. The criteria can be improved by making them more specific and adding more examples from all over the world.

References

- [1] Kaplan, S. N., Sensoy, B. A., & Strömberg, P. Should Investors Bet on the Jockey or the Horse? Evidence from the Evolution of Firms from Early Business Plans to Public Companies. *The Journal of Finance*, 2009, 64(1): 75–115.
- [2] Kaplan, S. N. & Strömberg, P. Characteristics, Contracts, and Actions: Evidence from Venture Capitalist Analyses. *The Journal of Finance*, 2004, 59(5): 2177–2210.
- [3] Terjesen, S., Patel, P. C., Fiet, J. O., & D'Souza, R. Normative rationality in venture capital financing. *Technovation*, 2013, 33(8-9): 255–264.
- [4] Gompers, P. A., Kovner, A., Lerner, J., & Scharfstein, D. Performance Persistence in Entrepreneurship. *Journal of Finance Economics*, 2010, 96(1): 18–32.

- [5] Block, J., Fisch, C., Vismara, S. & Andres, R. Private Equity Investment Criteria: An Experimental Conjoint Analysis of Venture Capital, Business Angels, and Family Offices. *Journal of Corporate Finance*, 2019, 58: 329-352.
- [6] The 45 Best VC Investments of All Time & What to Learn from Them. CB Insights. <https://www.cbinsights.com/research/best-venture-capital-investments/>. Last accessed 2022/11/23.
- [7] The System-on-Chip for Automotive Applications. (n.d.) Mobileye. <https://www.mobileye.com/technology/eyeq-chip/>. Last accessed 2022/12/06.
- [8] Value of foreign and domestic investments in high-tech startups in Israel from 1st quarter 2013 to 2nd quarter 2019. Statista. <https://www.statista.com/statistics/970865/israel-foreign-and-domestic-investments-in-high-tech-startups/>. Last accessed 2022/12/12.
- [9] Financing of U.S. biotech companies from 2015 to 2020, by type. Statista. <https://www.statista.com/statistics/197925/united-states-biotech-financing-data/>. Last accessed 2022/12/12.
- [10] Digitizing the food delivery service in China. Harvard Technology and Operations Management. <https://d3.harvard.edu/platform-rctom/submission/ele-me-digitizing-the-food-delivery-service-in-china/>. Last accessed 2022/12/12.