

The Valuation Strategies of Artificial Intelligence Startups: The Investment Analysis of MEGVII

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ABSTRACT

The research shows the investment analysis of MEGVII from investors' perspectives by using the POCD framework and SWOT analysis. From the development of artificial intelligence and the market in China, Megvii has sufficient potential for growth in the artificial intelligence market. AI is undoubtedly one of the riskiest industries to invest in. However, with the evaluation conducted in this paper, MEGVII proves to be an optimistic and dependable company for future Artificial Intelligence development and should be financed after the analysis.

Keywords: AI Startup, Investment Analysis

1. INTRODUCTION

The year 2015 is regarded as the birth year of artificial intelligence. According to Deloitte, the global AI sector will be worth more than \$6 trillion by 2025, with a compound annual growth rate of 30% [1]. The AI market in China has a bright future. Based on publicly available statistics, the total value of China's AI application industry is expected to approach 40 billion US dollars by 2025, with a compound annual growth rate of over 40%. So AI startup company is a good object to research.

Megvii is a widely known Artificial Intelligence company with deep-learning as its core competence. MEGVII provides customers with full-stack solutions, including algorithms, software and AI-empowered IoT equipment, and it is a leader in multiple industries. MEGVII was featured on the MIT Technology Review's most recent list of the 50 Smartest Companies in 2017 and 2019, respectively [2].

The Megvii Company launched in 2012, and recently Megvii had filed for an IPO on the Shanghai Stock Exchange's STAR Market. Over 300000 developers currently use the company's technology in over 150 countries. Unfortunately, despite being one of China's largest facial recognition startups, this company is experiencing losses, which means that they are listing on the secondary market to seek fresh financing.

This paper aims to discuss the startup tech company MEGVII (pronunciation: mega-vision) and the investment value in this AI company. The history of MEGVII, its current entrepreneurial finance strategies, and its challenges will all be evaluated through the POCD and the SWOT analysis combined.

The objective of this paper is to convince possible Venture Capitals (VCs) to invest in MEGVII. The company has gathered a world-leading amount of knowledge regarding AI technology matters. Although this new dark bourse of the industry had encountered political conflicts in some countries, it is undeniable that AI technology would be heavily used in our future. With MEGVII's matured network, and the existing customers from over 150 countries, the corporate's future is desirable for a grand evaluation. Based on the POCD and SWOT analysis, we conclude that MEGVII is a great company worthy of investment.

2. METHODS

2.1 POCD Framework

The POCD framework evaluates the four crucial and determinant elements of a successful business [3]. These four elements are people, Opportunity, Context, and Deal. Each element plays an imperative role in the business's

overall value and is also important when these four aspects are evaluated separately. The POCD expresses that the "idea" from a business should not be the only thing venture capitalists or investors are concerned about. Examining the four POCD factors is also vital to the company to carry out the idea in actuality. Figure 1 is an image that provides some questions to consider when assessing a business through POCD.



Figure 1. The POCD Framework

2.2 SWOT Analysis

The SWOT analysis analyses the advantages and disadvantages of a business [4]. The analysis will help a business understand its current stand in the market and also helps a business to uncover any problems that they may be neglecting. The SWOT analysis goes through four components: Strengths, Weaknesses, Opportunities, and Threats. These factors are essential for a business's marketing plan. The Strength part symbolizes the advantage of the business; the Weakness part represents the disadvantage; the Opportunities part stands for the chances that the business has in the industry; the Threat part means the potential competitors of the business. Since the SWOT and the POCD share similarities, they are combined in this paper.

3. RESULTS AND DISCUSSION

3.1 POCD Framework

3.1.1 People

With a valuation of \$4 billion, Megvii achieves unicorn status. Some of the company's investors are the Bank of China Group Investment, Foxconn Technology and Alibaba Group. In addition, Lenovo, Xiaomi and Vivo are some of Megvii's customers [5]. These performances are credited to the founder of Megvii.

The co-founders of Megvii, including Yin Qi, Tang Wenbin and Yang Mu, are from the Yao Class of Tsinghua University. Yao Class was founded by Yao Qizhi, a Chinese computer scientist, computing theorist, world-leading computer scientist and Turing Award winner. In 2005, he trained computer science undergraduates who can become top talents, just like students from prestigious universities such as MIT and Stanford [6].

Megvii's co-founder and CEO, Yin Qi. In 2010, Yin Qi received a bachelor's degree from Tsinghua University's Yao Qizhi Experimental Class. He moved to the United States in 2011 to pursue a Ph.D. in computer science at Columbia University. Megvii has grown into a world-class AI firm focusing on the Internet of Things under the direction of Yin Qi and the core management team. The company uses the Internet of Things as the carrier of artificial intelligence technology. It produces a complete AIoT product system, using its top ai basic research and engineering practice capabilities. Provide industry-proven solutions for the three major scenarios of consumer Internet of Things, urban Internet of Things, and supply chain Internet of Things, accomplish artificial intelligence commercialization, and continue to assist the industry's digital transformation and upgrading. For the past three years, Inch has been named to Fortune's "40 Business Elites Under 40" list and Forbes' "30U30 Asian Young Leaders," placing first in the sector of business technology.

Tang Wenbin, Megvii's co-founder and CTO, is in charge of the company's technical value implementation and management. Tang Wenbin holds a master's degree in Computer Science from Tsinghua University. In addition, he graduated from the Yao Qizhi Experimental Class of Tsinghua University. He is the gold medal winner of the National Informatics Olympiad, the first "Yao Award" gold medal winner, and the fifth Top Coder Target winner in China. Megvii's technology team has designed, developed, delivered, and deployed intelligent IoT services and solutions in urban management, logistics, retail, real estate, education, mobile phone, internet, finance, and other core industry situations under Tang Wenbin's leadership. Tang Wenbin has consistently led the team to value breakthroughs as part of Megvii's ongoing efforts in the Internet of Things vertical sector.

Yang Mu, one of Megvii's co-founders. Responsible for the Kuang Shi Ren network mobile business's research and development. He received his bachelor's degree from Tsinghua University's Yao Qizhi Experimental Class in 2010. In the International Informatics Olympiad, he received the gold medal (IOI). Megvii was formed in 2011 by Yang Mu, Yin Qi, and Tang Wenbin. Megvii mobile has led many industry advancements and grown to be one of the most important product and solution suppliers in the consumer electronics sector under Yang's leadership. From the world's first 2D face-unlocked smartphone to the first Android 3D structured light face-unlocked smartphone, he led the team to achieve technological and product innovation one after another in the field of device security, from under-screen fingerprint technology with integrated software and hardware design to the world's first 2D face-unlocked smartphone. He led the team that developed the AI+CV mode super-image quality algorithm in computational photography, which enabled several brands to obtain high scores in DXO's THE

AUTHORITATIVE EVALUATION and helped commercialize under-screen camera technology. Yang Mu is dedicated to making personal products smarter and smarter by applying AI to have greater and more extreme use experiences.

In the past eight years, the team and values of Megvii have continuously attracted outstanding talents. More than three-quarters of the team staff are from Tsinghua University, and most of the trainees are students with excellent academic performance at Tsinghua University. Kai-fu Lee once said of Megvii, "They are the strongest team I have ever seen over the years. So many teams have one or two technical elites, but the whole Face++ team is elites. This team reminds me of apple and Google in their early days" [7].

The elite team also makes Megvii even more powerful. After nearly a decade of development, Megvii's valuation has reached \$30 billion.

3.1.2 Opportunities

Computer vision is the field of Artificial Intelligence that enables computers and systems to take meaningful information from digital images, videos and other visual inputs and take actions or make recommendations based on that information. Computer vision works in much the same way as human vision, except humans have a head start. Human vision has a lifelong environmental advantage to train how to distinguish between objects, whether they are moving, whether the image is problematic. Computer vision trains machines to perform these functions. [8]

The global computer vision market was valued at USD 11.32 billion in 2020 (Figure 2) and is expected to expand at a compound annual growth rate (CAGR) of 7.3% from 2021 to 2028 [9]. The Asia Pacific region (including China, Japan and India) computer vision market CAGR is 8.0% (Figure 3). AI with computer vision technology is becoming increasingly popular in different use-cases, such as computer vision solutions in consumer drones and autonomous and semi-autonomous vehicles. Also, the recent advancements in computer vision comprising image sensors, advanced cameras, and deep learning techniques have widened the scope for computer vision systems in various industries, including education, health care, robotics, consumer electronics, retail, manufacturing, and security & surveillance, among others. For instance, image captioning in social media platforms is one of the most popular computer vision applications.

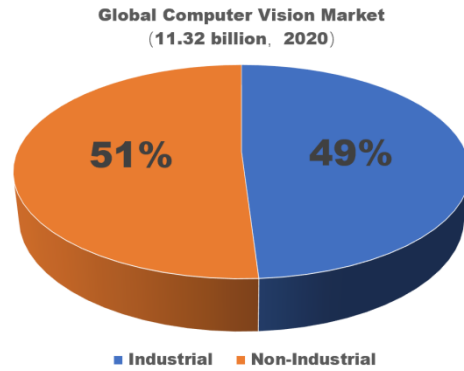


Figure 2. Global Computer Vision Market

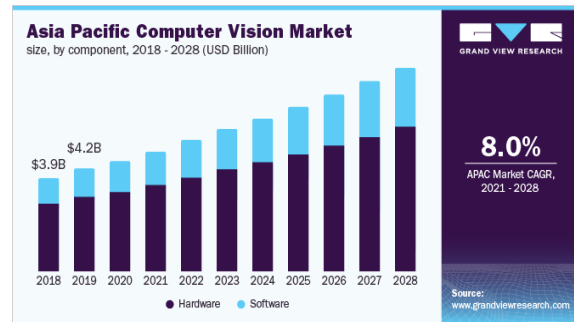


Figure 3. Asia Pacific Computer Vision Market

AI technology, including computer vision, is a growing market in China. In the consumer electronics industry, AI-enabled technology is estimated to be worth ¥300 billion (\$46 billion) in China, according to the Megvii IPO filing [10]. Other industries in China have an even greater demand for AI. Megvii sees a ¥1.9 trillion (\$290 billion) business opportunity in the supply chain market. The boom in demand for AI and computer vision in the supply chain market is linked to the growing industrial robot industry.

Business models of China's leading AI companies often focus on computer vision, serving the financial and security sector, such as Megvii, SenseTime, Yitu, and CloudWalk which are collectively called China's "AI four dragons" [11]. For example, Megvii's market share was comprised of 21% in the overall AI market share in China (Figure 4). These companies' advanced computer vision technologies have demonstrated strength and promise, especially during the COVID-19 global health crisis, in areas including facial recognition, medical imaging diagnosis among others.

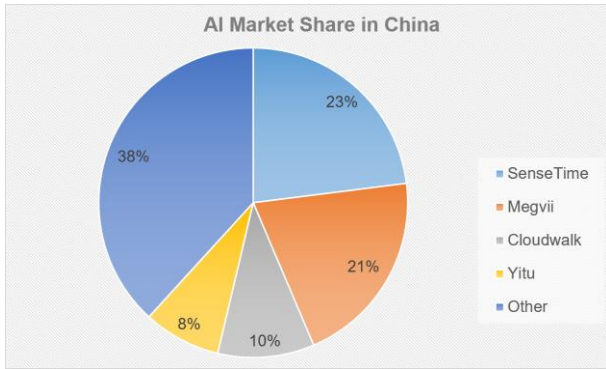


Figure 4. AI Market Share in China

From the development of artificial intelligence and the market in China, Megvii has sufficient potential for growth in the artificial intelligence market.

3.1.3 Context

On the context level, it is not very optimistic. There have been negative news reports about Face++. In addition, face recognition has become severely regulated in several parts of China, with some even removing face recognition technology. We feel it will have an impact on Face++'s future.

The Tianjin Social Credit Regulations were voted and passed by the 24th meeting of the Standing Committee of the 17th Tianjin People's Congress on December 1st, 2020, which explicitly prohibits market credit information providers from collecting natural person's biometric information. The rule will go into effect on January 1st, 2021. On October 26th, the Property Management Regulations of Hangzhou (Revised Draft) was submitted to the 30th Meeting of the Standing Committee of the 13th Hangzhou People's Congress for deliberation [12]. It is explicitly stated that using biological information such as fingerprint and face recognition to force owners into the residential area is banned. Nanjing began inspecting the sales offices of cities where the facial recognition technology was implemented on November 27th. In the last two days, certain Nanjing local development firms have gotten letters from relevant departments requesting them to uninstall the facial recognition technology. The COVID-19 break out affects AI market. Although we cannot predict what the future holds, we remain optimistic about Face++, and we think venture capitalists should consider investing in the company.

In 2019, MEGVII faced a serious ban from the United States. The Trump administration claimed that several Chinese AI companies (SenseTime, MEGVII, and Yitu) were a national security concern and violated foreign policy interests. As a result, the United States had forbidden these companies to purchase or import any American technology products. MEGVII was attacked especially because the United States government accused the company of being "implicated in human rights

violations against Uyghur and other members of Muslim minority groups in Xinjiang" [13]. Despite the situation's outcome, it is undeniable that there has been a political controversy in which MEGVII was involved. There is a possibility that another will emerge again in the future.

Another concern for the company would be that this AI technology could be manipulated and utilized for political matters. An article written by Analytic Steps claimed that "AI could be one of the most powerful tools for policy makers to pursue a data-driven policy approach, with machine learning, predictive analytic techniques, it will provide a precise image of what the country needs and how it's problems could be solved" [14]. This means that AI would affect how impactful decisions are made. These decisions can lead to questions relating to many other large issues (for example, morality, ethics, fear, human judgment).

3.2 SWOT Analysis

3.2.1 Strengths

MEGVII's main focus is to market authentication and computational photography functions to smartphone companies and mobile application developers. The existing clients of MEGVII are large of these companies. Besides, MEGVII also attracted over 100+ Chinese cities to implement their facial recognition technology into authentication and recognition machines.

MEGVII shows on their website that their ambition is far bigger than what they currently offer. MEGVII figures that their technology can be integrated into almost everything. Their "Smart" plans reveal that their technology could be used for: city management, traffic management, providing campus solutions for enterprisers and education, office building management, finance authentication, and could also be used for different logistic solutions. MEGVII also plans to expand its target market by implementing its technology into different everyday-life areas like "AR/VR, wearable devices, automotive electronics, smart homes, and large-size smart screens" [15]. It is safe to conclude that their technology could be used endlessly on all markets if they intend to achieve such stability and advancement.

Megvii's technology can be found powering smart city infrastructure across China and many smartphones and mobile apps. Alibaba, Ant Group and the Bank of China are among the group of investors who have pumped about \$1.4 billion into the 10-year-old company since its inception [16].

3.2.2 Weaknesses

The technical barriers of the AI market are not too high. If other companies can obtain computing power and

data, it would be easier for competitors to enter the market. In computer vision, there are many competitors, such as SenseTime, YITU, and Cloudwalk. Other competitive companies may replace the technology of facial recognition and deep learning. Currently, artificial intelligence is only playing a supporting role in various industries, but not the main role. The investors are not keen on Unicorns because the scale of the markets is not very big, and the profits of the markets are not very high. Moreover, the strengths of technology are not obvious, and the bargaining power is not sufficient.

Megvii's net losses have been widening for years, according to its prospectus, and the company's gross margin was 64.4% in the first half of 2019. In addition, the company has significant research and development expenses, including hiring high-end AI talent.

For "AI four dragons" that are still making bulky losses, listing on the secondary market appears to be the only way to seek fresh financing [17].

3.2.3 Threats

From finance, security to the mobile phone market, "AI four dragons," which included Megvii, SenseTime, Yitu, and Cloudwalk, had fierce competition, especially the most mature technology application of the security market. As mentioned previously, pressure from competing companies is not to be neglected. With the expected growth of the Computer Vision market, the AI industry will be seen as being increasingly more profitable in the long run. It creates a monetary incentive for other companies, or even existing tech giants, to enter the industry and take a share. MEGVII will have to exceed their current work extensively to keep themselves running in the game.

Another potential threat would be the battle between AI usage and political matters. Experts have vastly discussed the possibility of AI technology being used for unrighteous political actions. One example of AI stepping into the political field would be the 2018 Russian Presidential Election. A candidate named "Alice" ran a campaign for president. It turns out that "Alice" was an AI system and not a human. Morality, fear of AI technology, frustration towards human politicians, and the Laws of Robots are all reasons that can completely alter AI's path.

4. CONCLUSION

Based on the sample of MEGVII Company, this paper applies the POCD and SWOT framework to investigate the investment prospect of AI companies.

Firstly, the company's founders have already become and secured a bonding team that gave the company a \$30 billion value. Secondly, the company also managed to keep a stand in the expanding technology market in China,

and it is ready to encounter the incoming popularity of AI technology. Although rules and regulations for proper usage of AI technology are yet to be introduced, MEGVII is optimistic and ambitious to introduce its plans for the future. The company already possesses a vision for the flexibility of AI usage. The company currently focuses on authentication and computational functions, but that had become their strength and made a name for MEGVII on the world stage. The main setbacks of the company would be the risks that they have to face from both competition and politics. The company wants to succeed in the industry, but it can become a tool of political conflicts.

To sum up, AI is undoubtedly one of the riskiest industries to invest in. However, with the evaluation conducted in this paper, MEGVII proves to be an optimistic and dependable company for future Artificial Intelligence development. Therefore, to put things into perspective, MEGVII is a company that is a worthwhile investment.

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