



DEEP RESEARCH REPORT

BRILLIANCE TEAM -RESEARCH

A GLOBALLY LEADING INNOVATION-DRIVEN INVESTMENT INSTITUTION

Analysis of AI Talent Supply and Market Demand

Introduction

Artificial intelligence (AI) technology is permeating various industries, from healthcare and finance to manufacturing and education, and its impact cannot be underestimated. As AI technology rapidly develops and is applied, the market demand for AI talent continues to rise. However, the shortage of AI professionals globally is constraining industry growth. This article will thoroughly analyze the current state of AI talent supply and market demand, explore the causes of the supply-demand imbalance, and discuss future trends and recommendations.

Global AI Talent Supply Status

1. Scale of the AI Talent Market

According to LinkedIn's 2020 Talent Demand Report, demand for AI positions has grown by 74% worldwide. Data shows that from 2015 to 2020, the annual demand for global AI talent increased by 57%. This growth directly stems from employers in various industries desiring to utilize data science and machine learning technologies to enhance business efficiency.

US Market: Tech companies in the US, such as Google, Facebook, and Amazon, have seen a sharp rise in hiring for data science and AI-related positions after multiple rounds of funding. According to Glassdoor, the average salary for AI positions in the US in 2021 was \$122,000, reflecting the importance placed on AI talent.

European Market: According to a report by the European AI Alliance, in 2019, there was a demand for about 240,000 AI positions in Europe, but the supply was only 100,000, resulting in a significant talent gap. Professional talent, particularly in fields such as data science and machine learning engineering, is in especially high demand.

Asia-Pacific Market: The Asia-Pacific region is gradually emerging in the training of AI talent. China is leading other Asia-Pacific countries, with a growth rate of 38% in AI-related positions in 2020. It is projected that by 2025, the Asia-Pacific region will need over 9 million AI professionals.

2. Current Status of Education and Training Systems

In response to the shortage of AI talent, colleges and training institutions around the world have begun to address market demand:

Changes in Higher Education: Many universities have started offering courses related to AI and data science, such as Stanford University, MIT, and the University of California, Berkeley. According to Coursera, the number of registrations in online courses related to artificial intelligence reached 3.8 million in 2020, indicating widespread demand for learning AI technology.

Rise of Online Education Platforms: Online learning platforms such as Udacity and Coursera offer a wide variety of courses about AI and data science, helping workers who wish to transition to AI professionals to further improve their skills. These courses typically include content on machine learning, deep learning, and data analysis.

Internal Corporate Training: To address the talent shortage, many companies have begun investing in the continuous education of their employees to enhance existing employees' AI skills. Large enterprises like Microsoft and IBM promote skill upgrades through the establishment of internal training programs and partnerships.

Market Demand Analysis

1. Demand Characteristics by Industry

As AI technology continues to advance, the demand for AI talent is rapidly increasing across various industries, with distinct demand characteristics as follows:

Financial Industry: The application of AI in financial services is continually expanding, involving multiple segments like risk management, credit approval, and customer service. For example, ZestFinance uses AI to estimate consumer creditworthiness, assisting banks in credit decision-making. Deloitte's research indicates that within the next five years, AI could help the financial services sector save up to \$200 billion in costs.

Healthcare Industry: AI is increasingly being applied in medical data analysis, precision medicine, and medical imaging recognition. According to a report by Frost & Sullivan, it is anticipated that AI will create up to \$1.1 billion in economic value in the healthcare industry by 2023. The demand for AI professionals, such as data scientists and machine learning experts in healthcare, is very significant.

Manufacturing Industry: The combination of the Internet of Things (IoT) and AI is driving the proliferation of smart factories and automated production. According to PwC, it is projected that by 2023, more than 20% of jobs in the global manufacturing sector will require AI-related talent to improve productivity.

Retail and E-commerce: In the face of rapidly changing consumer behavior, retailers must utilize AI technology to enhance customer experience and optimize inventory management. According to McKinsey, 70% of retailers express a desire to increase hiring plans for AI talent in the next five years to address the fast-changing market.





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2. Fundamental Reasons for Talent Shortages

The fundamental reasons for the imbalance between AI talent supply and demand are mainly reflected in the following aspects:

Lagging Educational Systems: Educational systems have not adapted their curricula in a timely manner to meet the actual skills and knowledge required by the industry. Many university courses still lean towards theory, lacking practical experience, which results in graduates lacking actual application skills when entering the workforce.

Upgraded Skills Requirements: As AI technology continues to develop and innovate, the requirements for AI talent from enterprises have also increased. Traditional data analysis skills are no longer sufficient. Many job positions require candidates to possess machine learning, deep learning, and relevant programming skills.

Regional Talent Distribution Imbalance: Currently, AI talent is mainly concentrated in specific regions, such as Silicon Valley in the US and cities like Beijing and Shanghai in China. In many areas, especially in developing countries, the supply of AI talent remains deficient. According to a report by the World Economic Forum, by 2025, global demand for high-skilled talent is expected to grow by 34%, but there will still be a supply gap.

Case Studies

1. Success Experiences in Silicon Valley

Silicon Valley is known as the global center for technology innovation, attracting a large number of high-tech talents. Below are typical practices in Silicon Valley regarding the recruitment and cultivation of AI talent:

Excellent Educational Institutions: Universities like Stanford and UC Berkeley collaborate closely with local businesses to provide students with project internship opportunities. This connection between academia and industry provides students with valuable practical experience during their studies.

Open Innovation Culture: Silicon Valley emphasizes innovation and teamwork, with companies often encouraging employees to try new ideas at work. This culture attracts technology talents globally and collectively promotes the development of AI technology.

2. Positive Attempts by Other Countries

Joint Efforts in Europe: The European Union has established the "European AI Strategy," aiming to cultivate over 1 million AI experts across member states by 2030. Through projects in smart cities and healthcare, EU countries are attempting to guide talent cultivation.

China's Talent Development Plan: According to China's "New Generation Artificial Intelligence Development Plan," it aims to cultivate more than 5 million AI professionals by 2030. China has set up artificial intelligence research centers across various locations and encourages universities to offer AI-related programs.

Future Trends

1. Diversification of AI Talent Cultivation

Future cultivation of AI talent will become more diversified, with various institutions participating:

Vocational Education and Training Institutions: As market demands change, vocational education will increasingly involve training in AI skills. More institutions are expected to offer short-term training and certification courses related to AI.

Widespread Online Learning: The convenience of online education is contributing to a continually growing number of learners studying AI. Platforms like Kaggle and Coursera will continue to attract a large number of learners by providing learning resources.

Strengthening Internal Corporate Training: With enterprises placing more importance on talent cultivation, it is anticipated that an increasing number of companies will establish dedicated internal training programs to help employees keep pace with technological advancements.

2. Policy and Market Support

Governments worldwide will continue to support the cultivation of AI talent to address the ever-growing market demand:

Strengthening Collaboration with Enterprises: Governments will encourage higher education institutions to collaborate closely with enterprises to promote the conversion of research results and jointly cultivate professionally skilled talents that meet market demands.

Providing Financial Support and Policy Incentives: Governments will gradually introduce financial support projects and policy incentives to enhance companies' enthusiasm for recruiting and training AI talent.

3. Prospects for Supply-Demand Balance





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As the AI industry continues to mature, the supply-demand relationship is expected to gradually improve:

Skills Improvement: Through continuous professional training and education, the quality of AI talent in the market will gradually increase, improving the overall work efficiency and entrepreneurial capacity of the industry.

Impact of New Technologies on Traditional Positions: The combination of AI and automation will alter existing work patterns. On one hand, it will create new job positions; on the other hand, it may lead to the elimination of some roles. Therefore, current employees need to continuously adapt to new technological changes.

Conclusion

The rapid development of AI technology brings tremendous changes across industries while also creating an urgent demand for professional talent. Despite the current global shortage of AI talent, along with regional and skill distribution discrepancies, the talent supply situation is expected to improve through concerted efforts in education, policy, and the market. Governments, enterprises, and educational institutions need to work together to establish a more flexible and efficient talent cultivation mechanism to meet the ever-changing market demands and technological developments.

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