中国新一代人工智能科技产业区域竞争力评价指数·2019

China's New Generation AI Technology Industry Regional Competitiveness Evaluation Index

中英文概要

《中国新一代人工智能科技产业区域竞争力评价指数(2019)》的编制旨在科学评估人工智能科技区域产业发展和竞争力现状,分析决定和影响产业发展"极化"和"扩散"的关键因素和动力机制,考察各地区产业发展政策体系的有效性和环境状况。

从创新生态系统的视角,本报告的人工智能科技产业区域竞争力评价指标体系包括 6 项一级指标和 10 项二级指标:(1)企业能力方面的企业规模和企业创新能力;(2)学术生态方面的 AI 大学和非大学科研机构创新能力;(3)资本环境方面的融资和投资;(4)国际开放度方面的核心人力资本开放度和技术开放度;(5)链接者的链接能力;(6)政府响应方面的政府响应能力。在二级指标之下,再从数量和质量两个维度设立相应的 23 项三级指标。

本报告采用层次分析法计算各级指标的权重。指标计算的数据是来自包括 745 家人工智能企业、1780 个投资者(投资机构和非投资机构)、94 所 AI 大学和 75 家非大学科研机构、2018 年在中国境内召开的 823 场会议、117 家产业联盟、28 个省市自治区出台的 301 个相关政策和 163 家人工智能产业园区规划建设情况在内的中国智能经济样本数据库。

从中国人工智能科技产业区域竞争力指数综合排名看,北京市、广东省、上海市、浙江省和江苏省在人工智能科技产业的发展上排在第一梯队,分值分别为 90.1、42.8、28.5、25.9 和 18.1。排在第二梯队的省市自治区包括四川省、湖北省、辽宁省、山东省、天津市、陕西省、安徽省、湖南省、吉林省和重庆市,分值分别为 9.6、8.9、8.3、8.3、8.1、7.9、7.8、6.8、6.7、6.6。

从评价指数的分项排名看,产业竞争力排名较高的省市自治区都是人工智能企业较为聚集的地区。城市经济转型和升级过程中创造出的智能化需求,是引致创新资源集聚和产业发展的关键因素。学术生态评分较高的省市自治区,例如,辽宁省(4)、陕西省(6)、吉林省(8)在人工智能科技产业发展上没有表现出相应的水平和能力。反而是学术生态排名分别位列第 14、15、16 名的湖北省、天津市和山东省,在人工智能科技产业的发展上走在了全国前列。以智能化需求为导向,构建和培育富有活力的创新生态系统,是区域人工智能科技产业发展的前提和基础。

对四大经济圈人工智能科技产业区域竞争力进行综合评价,京津冀总评分为 97.7 分,位列四大经济圈首位,长三角 64.6 分,位列第二,珠三角 36.7 分,

位列第三，川渝 4.1 分，位列第四。

在人工智能科技产业城市竞争力评价指数排名中，北京市、深圳市、上海市、杭州市在人工智能科技产业的发展上排在前四名，分值分别为 89.5、31.7、27.9、25.3，明显高于其他城市，是城市人工智能科技产业发展的第一梯队。

从人工智能科技产业发展的实际进程看，人工智能与实体经济呈现出加速融合发展的趋势。融合产业部门的发展是未来影响人工智能区域产业竞争力的重要变量。如何形成政府战略引领、市场需求牵引和政产学研用协同的创新推动机制，是决定人工智能科技产业区域发展和竞争格局的关键。

Abstract

"China's New Generation AI Technology Industry Regional Competitiveness Evaluation Index (2019)" is compiled to scientifically evaluate the status quo of the industry development and competitiveness of AI Technology regions, analyze the key elements and dynamic mechanism of "polarization" and "proliferation" that decide and influence the development of AI Technology Industry, and systematically exam the effectiveness of policy systems and the development environment that facilitate the industrial developments of various regions.

From the perspective of innovative ecosystem, the AI Technology Industry Regional Competitiveness Evaluation Indicator System of this Report includes 6 Tier one indicators and 10 Tier two indicators: (1) Enterprise Capabilities: enterprise size and innovative capability; (2) Academic Ecology: innovative capabilities of AI Universities and non-university scientific research institutions; (3) Capital Environment: financing and investment; (4) International Openness: core human capital openness and technology openness; (5) Linking Capability of linkers; (6) Government Responsiveness Capability. Under Tier two indicators, 23 Tier three indicators are generated from the angles of quantity and quality.

Analytic hierarchy process is adopted in this Report to compute the weight of indicators at all tiers. Data used for computing indicators are collected from 745 AI enterprises, 1780 Investors (institutional investors and non-institutional investors), 94 AI Universities, 75 non-university scientific research institutions, 823 conferences held in China in 2018, 117 industrial alliances, policies issued by 28 provinces, cities and autonomous regions and AI industrial parks planning and construction conditions.

In view of China AI Technology Industry Regional Competitiveness Index Comprehensive Rankings, Beijing, Guangdong Province, Shanghai, Zhejiang Province and Jiangsu Province are in the first echelon and their scores are respectively 90.1, 42.8, 28.5, 25.9, and 18.1. Provinces, cities and autonomous regions in the second echelon include Sichuan Province, Hubei province, Liaoning Province, Shandong Province, Tianjin city, Shaanxi Province, Anhui Province, Hunan Province, Jilin Province and Chongqing City, with the scores of 9.6, 8.9, 8.3, 8.3, 8.1, 7.9, 7.8, 6.8, 6.7 and 6.6 respectively.

Seen from the sub-item rankings in the evaluation index, provinces, cities and autonomous regions ranking among the top by industrial competitiveness are the regions where AI enterprises are gathered. The intelligent demand arising from urban

economy transformation and upgrading are the key elements that lead innovative resource gathering and industrial development. Provinces, cities and autonomous regions with high scores in terms of Academic Ecology, such as Liaoning Province (4), Shaanxi Province (6), and Jilin Province (8), haven't shown corresponding level and capability in the development of AI Technology Industry. Hubei Province, Tianjin City and Shandong Province, ranking 14, 15, and 16 in terms of Academic Ecology, are leading the development of AI Technology Industry in China. With intelligent demand as the orientation, cultivating and building innovative ecosystems with great vitality are the prerequisite and foundation of the development of AI Technology Industry.

Based on the comprehensive evaluation of the Regional Competitiveness of AI Technology Industry in the Four Big Economic Circles, it is shown that Beijing-Tianjin-Hebei Region scored 97.7, ranking first in the Four Big Economic Circles; Yangtze River Delta scored 64.6 and rank the second; Pearl River Delta scored 36.7 and ranked third; and Sichuan and Chongqing scored 4.1 and ranked fourth.

AI Technology Industry city competitiveness Index Rankings showed that Beijing, Shenzhen, Shanghai, and Hangzhou are the top four in the development of AI Technology Industry, with the scores of 89.5, 31.7, 27.9, and 25.3 respectively. These scores are much higher than other cities. These four cities are in the first echelon in terms of the development of AI Technology Industry.

Based on the actual progress of the development of AI Technology Industry, AI technology and real economy are increasingly integrating. Therefore, the development of integrative industrial sectors is an important variable that is influencing the industrial competitiveness of AI areas. How to form the promotion mechanism of cooperative innovation in which government strategies take the lead, market provides the demand, government-industry-university-market is coordinated, and the building of infrastructure is accelerated, is essential to decide and influence regional competitive situations. During the development of AI Technology Industry, the role of government is not only to strengthen new infrastructural investment and improve policy systems, but also to solve problems relating to data ecology through the opening-up of application scenario.

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