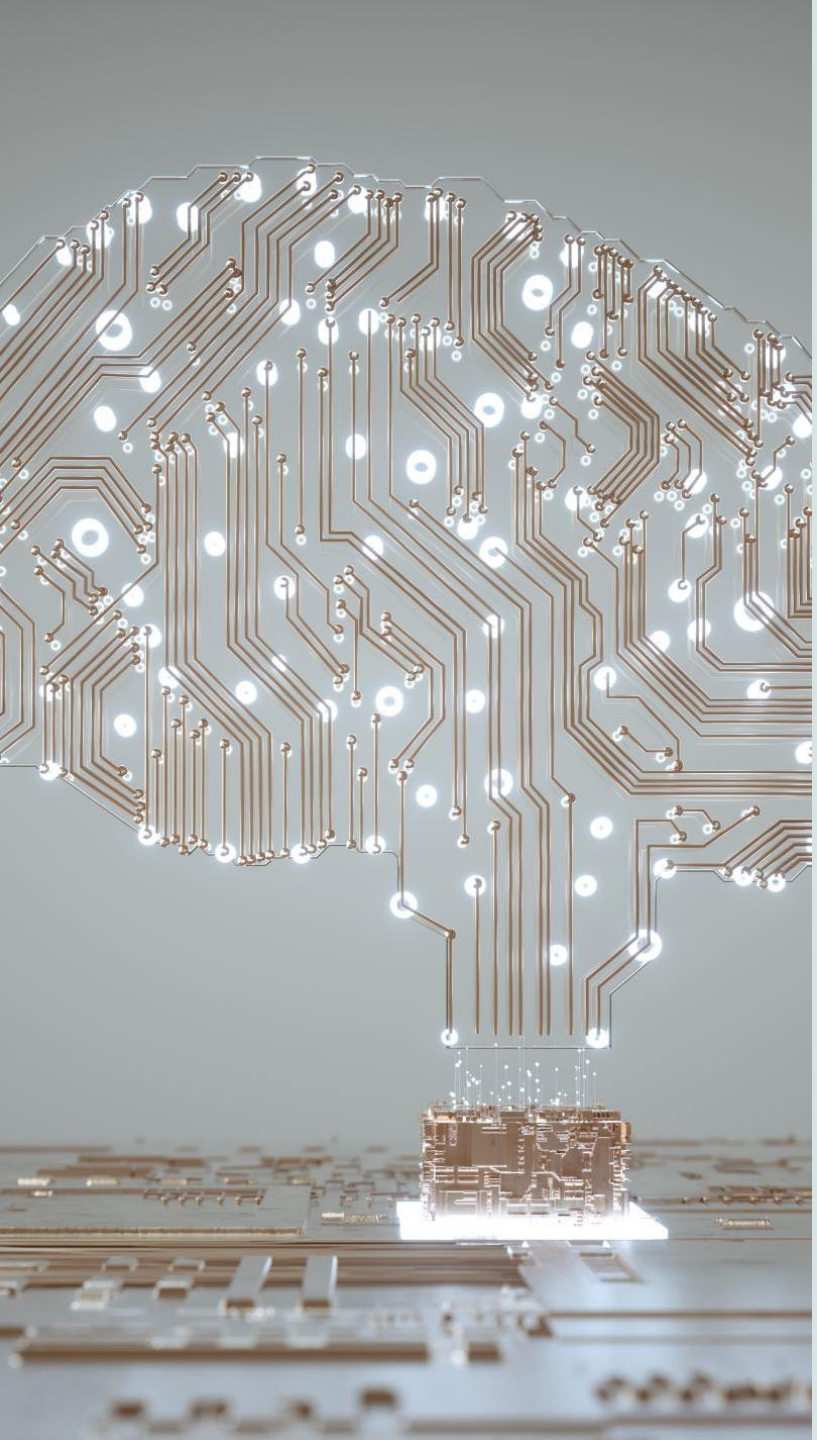


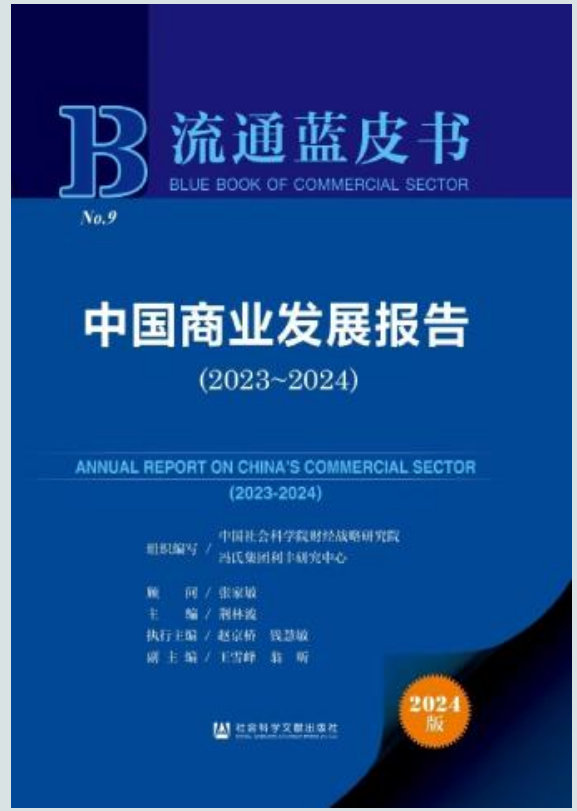
Commercial Applications & Development Trends of Innovative Technologies in China

Blue Book of China's Commercial Sector:

Annual Report on China's Commercial Sector (2023 -2024)

Introduction

- The sudden outbreak of COVID-19 has brought unprecedented challenges to the world. As the pandemic recedes and China's economy steadily reopens, a new generation of artificial intelligence (AI) technology is sparking a new wave of technological revolution, providing fresh momentum for Chinese businesses.
- Major internet giants in China have recently developed their own AI models, which are widely used in daily operations to reduce costs and increase efficiency.
- Increasingly mature AI technologies are also driving upgrades in the e-commerce industry, moving from "digitalization" to "smart digitalization."
- This report focuses on several key business applications of major technologies, including AI (primarily large language models (LLM) and generative AI (GenAI)), blockchain, and the metaverse. It highlights the current state of technology in business, relevant policy support, and future development trends.



The content in this report is based on the Chinese article published in the Blue Book of China's Commercial Sector (2023-2024).

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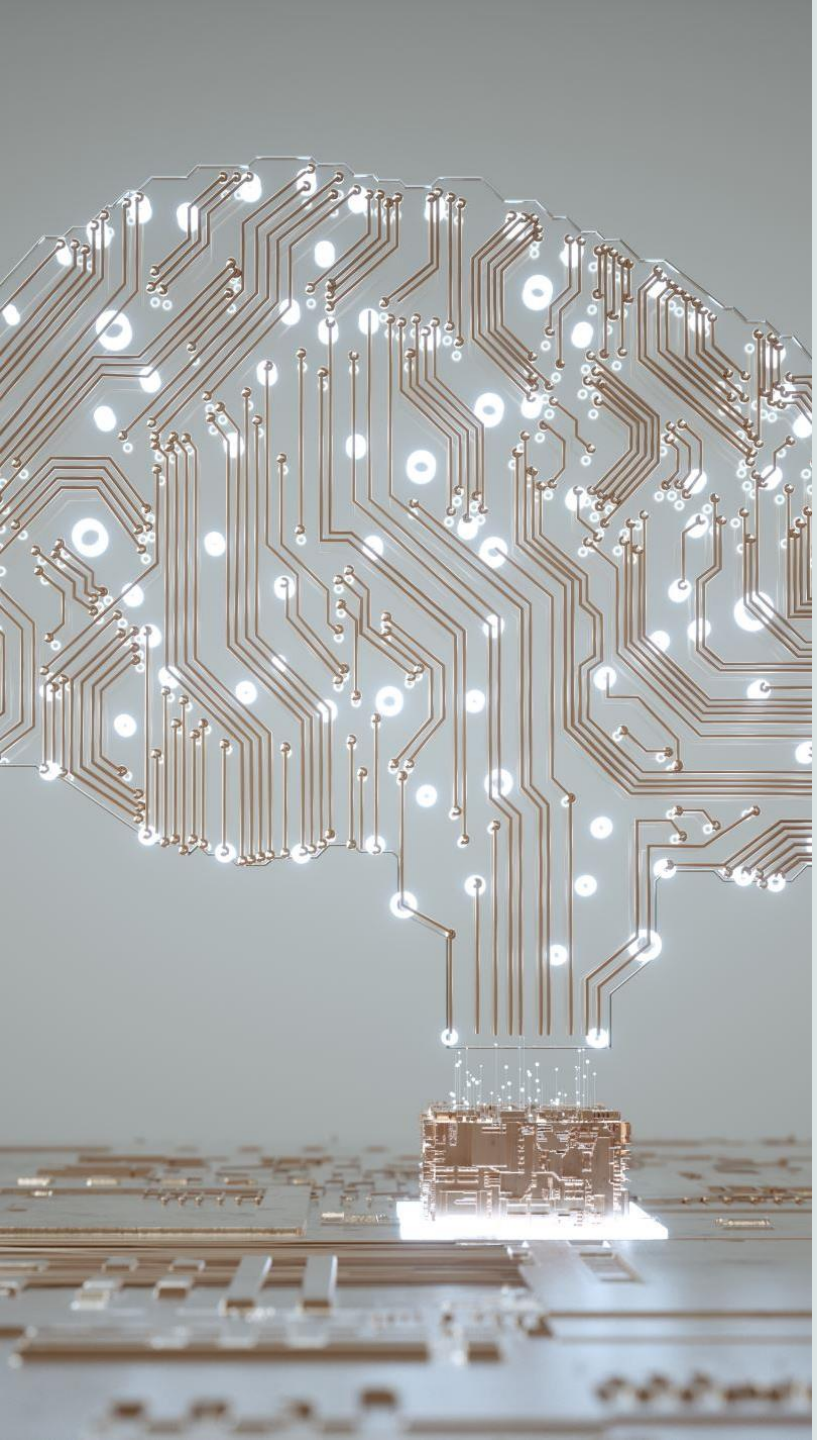
Government Policies and Regulations for Supporting Technological Innovation

Development Trends of Technological Innovation
- Further integration of new technologies drives innovation
- Opensource AI technology drives for more innovation
- Regulating AI presents a highly complex challenge
- The industrial metaverse will further integrate the real and virtual worlds
- Talents' skillset requirements are evolving

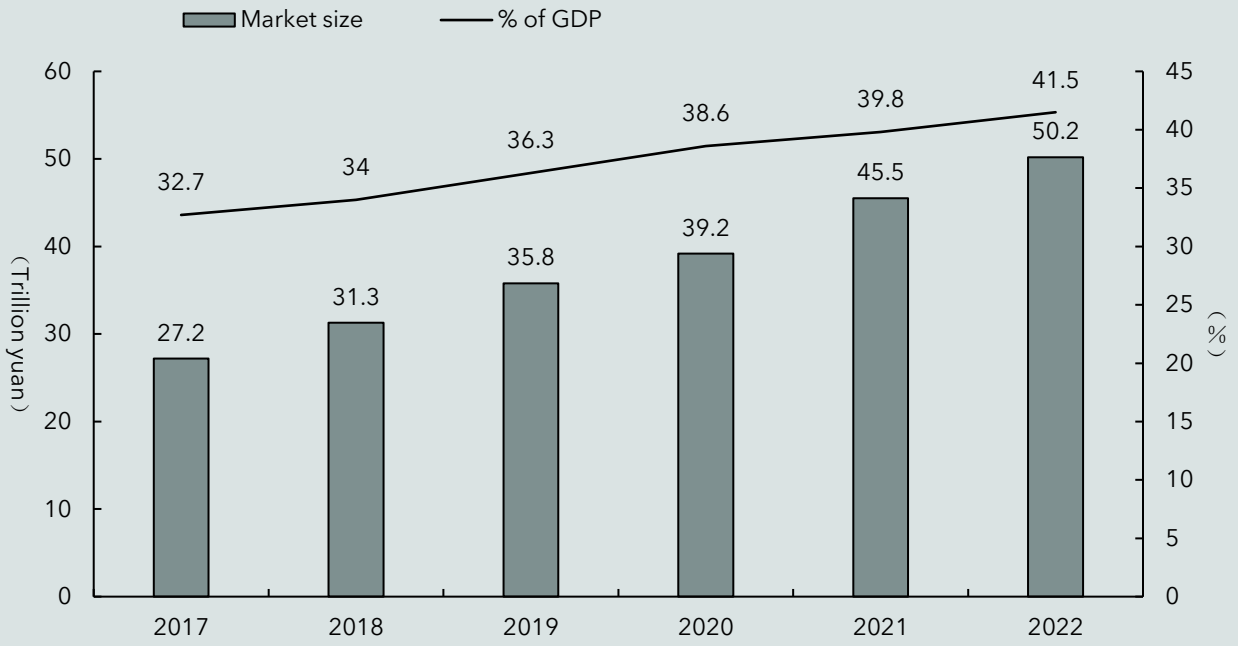


Overview of the Current Use of Technologies in the Commercial Sector

Rapid growth in China's digital economy

- In 2022, China's digital economy surpassed 50 trillion yuan, accounting for 41.5% of its GDP and maintaining its position as the second largest market in the world.
- The Chinese government is intensifying efforts to promote technological innovation and the digital economy, continuously introducing favourable policies and regulatory standards to facilitate the development and commercialization of new technologies.

Market size of China’s digital economy



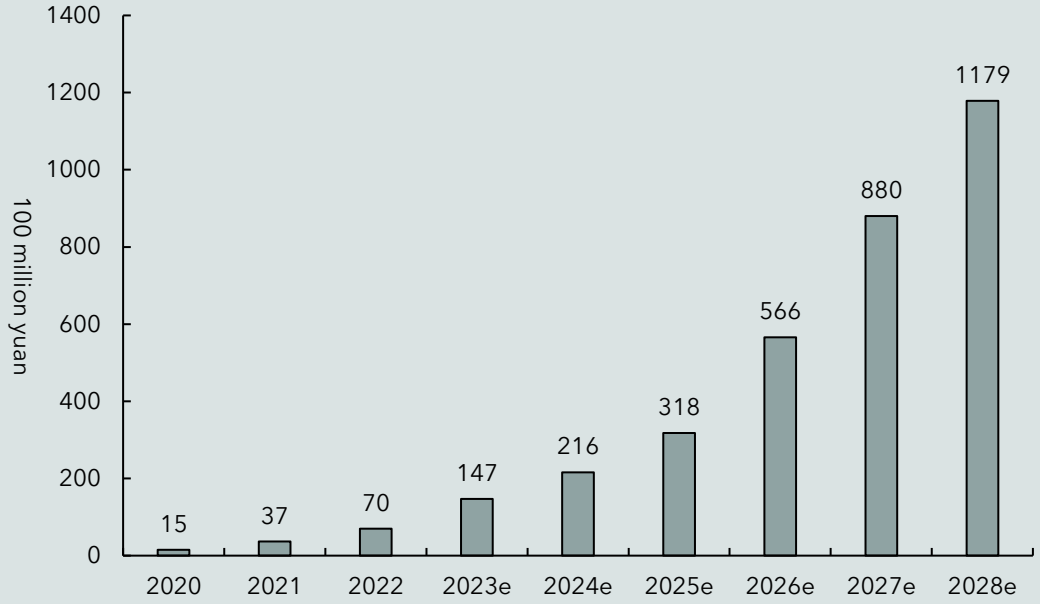
Source: China Academy of Information and Communications Technology, compiled by Fung Business Intelligence

Commercial application – AI

16% of AI companies worldwide are based in China

- By the end of 2022, there were 27,255 AI companies worldwide, with 4,227 of them based in China – accounting for approximately 16% of the global total.
- China's large language model (LLM) industry is expected to reach 14.7 billion yuan in 2023 and grow to 117.9 billion yuan by 2028, with an average growth rate exceeding the global average.

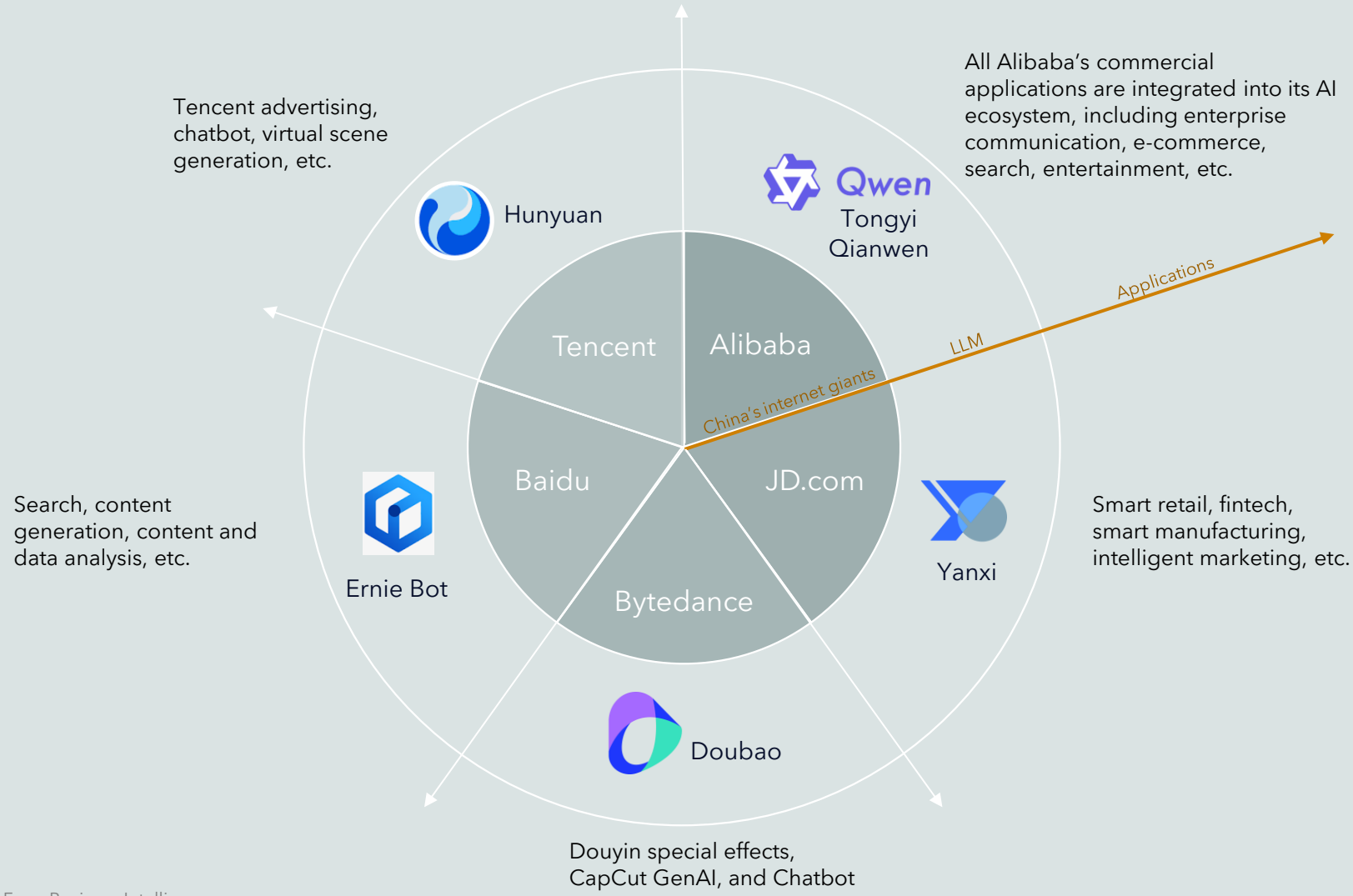
Market size of China's LLM industry



Source: Home of Large Language Model, compiled by Fung Business Intelligence

Commercial application – AI

AI applications of major internet giants in China



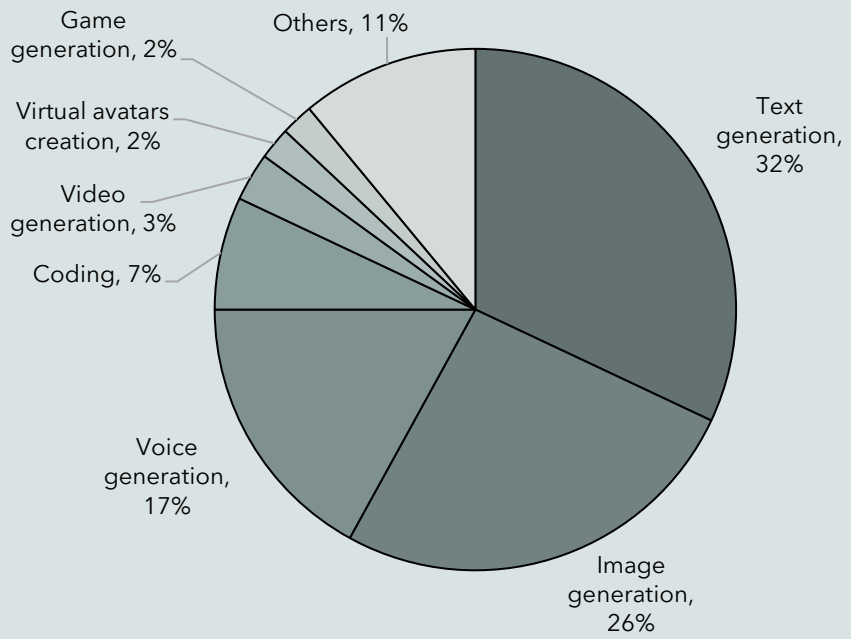
Source: Discovery Report, Sohu, compiled by Fung Business Intelligence

Commercial application – GenAI

32% of GenAI tools in China are used for text generation

- By 2025, the scale of generative AI (GenAI) commercial applications in China is expected to reach 207 billion yuan, with an average annual growth rate of 84% from 2020 to 2025.
- According to a survey by Forbes China, the most common AI tool in China is text generation, accounting for 32% of the total; followed by image generation at 26%.

Major GenAI tools in China

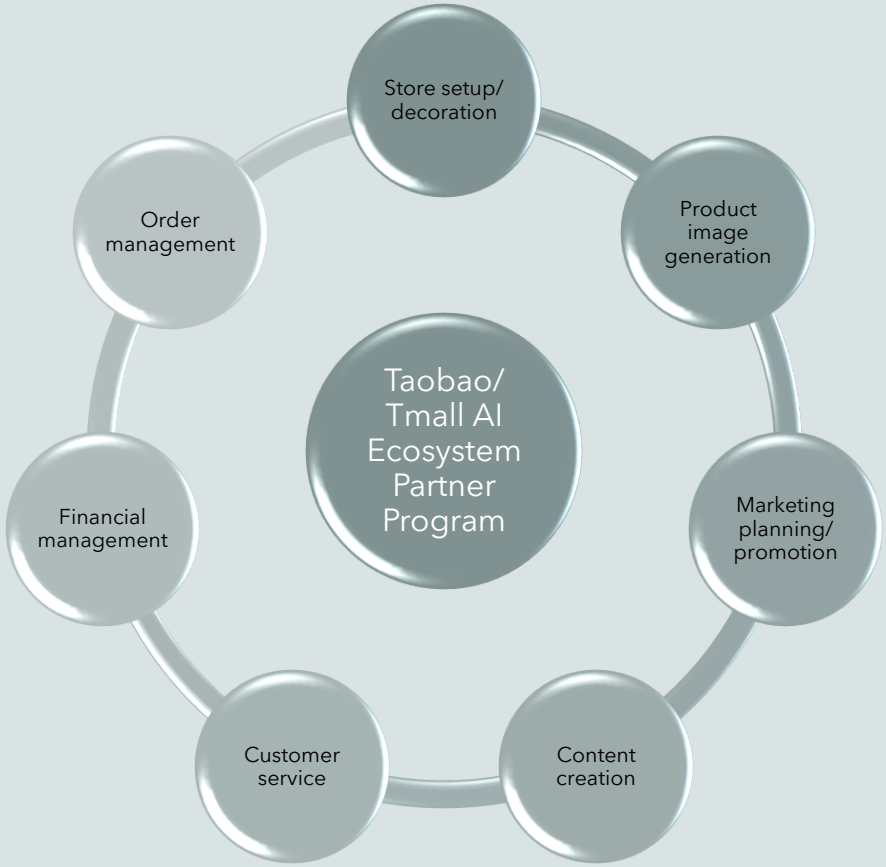


Source: Forbes China, compiled by Fung Business Intelligence

Commercial application – Smart e–commerce

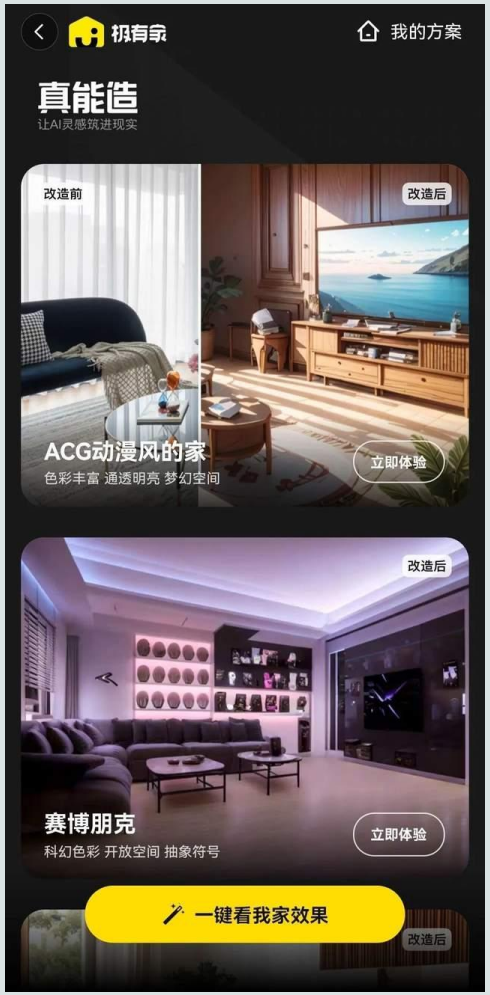
Use cases: AI–generated content

Case 1: Taobao/ Tmall AI Ecosystem Partner program provides smart content services for the e-tailers in generating content, data, and customer services. Merchants can optimize product images through Taobao/ Tmall's services, reducing preparation time from 10 minutes to just a few seconds.



Case 2: Taobao's home decoration O2O platform, Jiyoujia, launched an AI furniture design tool. Consumers can upload images of their rooms and specify their furniture requirements. The AI tool can generate personalized design layouts within seconds. Users can also search for the recommended furniture on Taobao right away.

Taobao also launched another AI product "Jia Zuo" for home and decoration merchants on Taobao/ Tmall. The AI tool can transform ordinary product images into marketing content such as posters and short videos.



Picture source:
https://zhuanlan.zhihu.com/p/650413968

Source: Compiled by Fung Business Intelligence

Commercial application – Smart e–commerce

Use cases: AI–generated content

Case 3: Baidu launched an e-commerce marketplace named ‘Baidu Youxuan’ in May 2023.

Baidu uses AI to help shape how people shop on the platform, from searching to recommending products, making it easier to meet their needs.

The AI Shopping Assistant offers helpful features like quick product selection and price comparison.

Picture source: https://www.cbndata.com/information/275857

Commercial application – Blockchain

More digital collectibles are using blockchain technology to record their issuance and prevent tampering or duplication

- The International Data Corporation (IDC) reported that China's blockchain market has reached $468 million in scale, making it the second-largest market in the world.
- In September 2022, Tmall Luxury held the ‘Tmall Luxurymeta Week’ and launched a META Pass digital certificate.
  - Several high-end brands, including Burberry, Max Mara, and Marni, participated in this event.
  - META Pass holders receive a certified, personalized digital artwork on the blockchain and can redeem benefits, such as priority access to new products, tickets for offline events, etc.
  - These exclusive, limited-edition digital collectibles also highlight how the luxury industry is moving online and aims to attract digitally native young consumers.

Picture source: https://www.digitaling.com/articles/844017.html

Commercial application – Extended reality

China’s XR* market maintains rapid growth

- According to government forecasts, the market scale of China’s VR industry (including related hardware, software, and applications) is expected to exceed 350 billion yuan by 2026. IDC also predicts China’s AR/VR market will maintain rapid growth at a CAGR of 42.2% from 2021 to 2026, outpacing other regions like the US and Western Europe and making it the world’s largest market.
- In the realm of VR, a notable trend is the stable growth of digital avatars, which involves various AI technologies, real-time rendering, 3D modeling, and motion capture techniques. According to iMedia Consulting, total investment in China’s digital avatar sector reached approximately 5.4 billion yuan in 2020 and rose to about 32.6 billion yuan in 2021.
- Hangzhou Yixian Advanced Technology Co., Ltd. (‘Yixian’) has created a spatial intelligence AR cloud platform to enhance brand differentiation and promote ‘new consumption’. In October 2022, Yixian collaborated with Babycare, a maternal and infant brand, to launch a fantasy AR game. Users can scan Babycare's logo using Alipay's AR mode to start capturing various mythical creatures and earn Double 11 vouchers. Although these games are relatively simple, the novelty of AR elements enhances immersion and increases user engagement.

Picture source: https://ar.163.com/news/detail?id=251&type=-1

* Extended reality (XR) encompasses virtual reality (VR), augmented reality (AR), and mixed reality (MR).

Metaverse not only offers social, gaming, cultural, and shopping experiences, but also holds immense potential for industrial applications

- The metaverse merges physical space with virtual space, creating an immersive virtual world parallel to the real world through mobile devices, AR/VR headsets, IoT devices, and next-generation computing technologies.
- The metaverse provides solutions across diverse sectors, including industry, commerce, and agriculture, enhancing operations and improving efficiency.

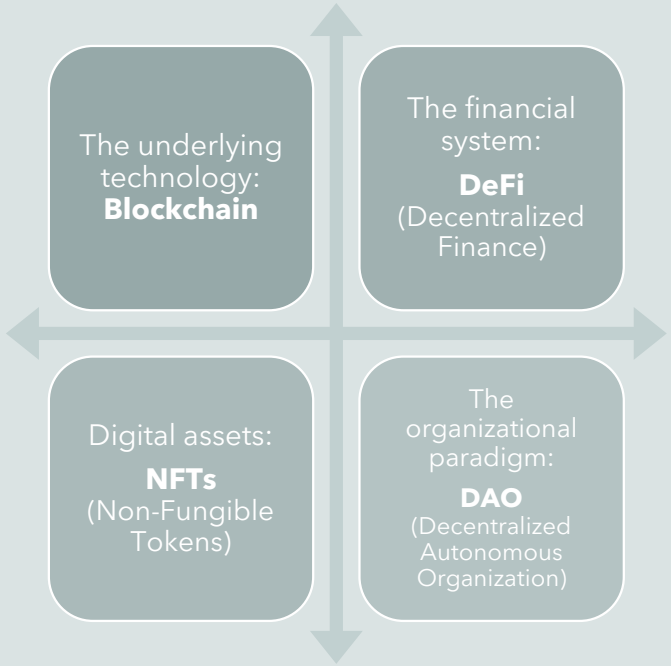
Picture source: https://36kr.com/p/2062071500083076

Applications	Related Companies	Overview	Business Use Cases
Digital Space	Alibaba Game Division (Metaverse)	Metaverse Realm: A real-time interactive cultural tourism metaverse that creates new experiences using gaming technology.	Collaborated with Tmall to launch the 'Glorious Cultural Relics Exhibition of the Tang Dynasty' on the 3D immersive channel 'Zhenpin Hall' on the Tmall app.
Game Virtual Space	Zhong Shouyou (IP Game Operator)	'Far Beyond Time': Combining proprietary IP with Chinese traditional culture to create the national style 'Far Beyond Time Metaverse.'	The Far Beyond Time Metaverse offers users a digital space for 'entertainment + socializing + consumption'; merchants can conduct brand marketing activities such as creating stores and hosting exhibitions.
Cultural Theme Event	Fengyuzhu, Shanghai Oriental Pearl, Guangming Group's Guanshengyuan	Created the 'White Rabbit' New Year show using AR, naked-eye 3D, and holographic imaging technologies.	The event modernized the classic domestic brand through an immersive marketing campaign, featuring an AR 'White Rabbit' distributing candies.
Digital Exhibitions	Fangtang Planet, Weimei	Weimei hosted a seven-year anniversary and metaverse marketing summit in the metaverse where attendees could instantly chat in the virtual space.	Brands can embed various promotional formats to showcase product capabilities.

Source: Compiled by Fung Business Intelligence

Web 3.0 – the foundational infrastructure for building the metaverse

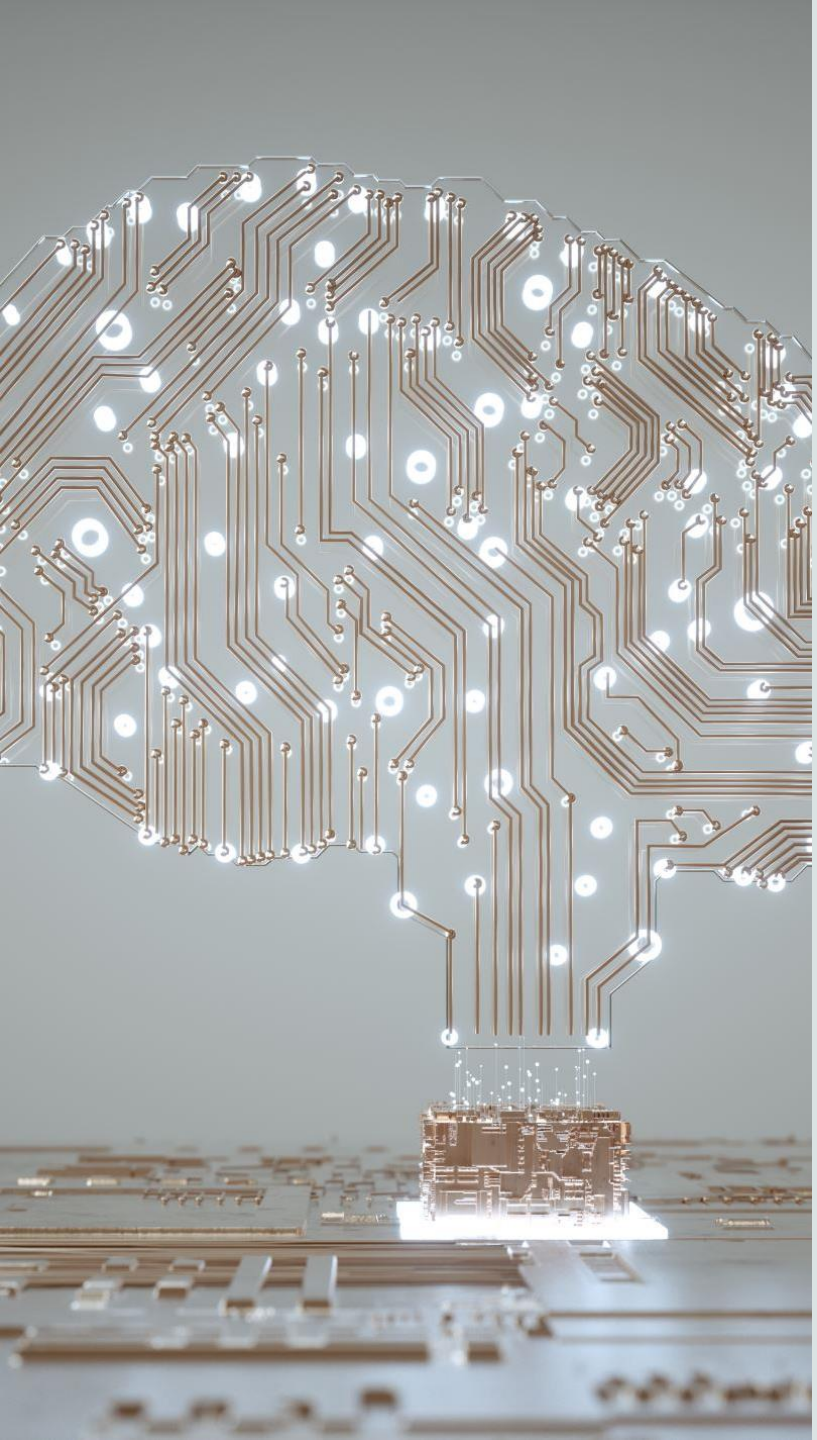
- Web 3.0 is defined as 'an internet infrastructure owned and trusted by users and builders, forming a new economic system of co-creation and sharing,' according to Yao Qian, director of the Technology Supervision Bureau of the China Securities Regulatory Commission
- Although there are currently no significant commercial applications for Web 3.0, the technologies can provide the foundational infrastructure for building the metaverse:



Source: Compiled by Fung Business Intelligence

Picture source: https://shorturl.at/cz2HO

- Yuanli Planet is a Web 3.0 company based in China, positioned as a digital economy platform. It focuses on integrating AI, blockchain, and DAOs.
- It supports the development of commercial digital spaces for cultural tourism sites, museums, and galleries.
- Yuanli Planet participated in the first key metaverse projects introduced in Shanghai. In November 2022, it launched the first digital city space with a digital account system on the Yuanli Planet app.



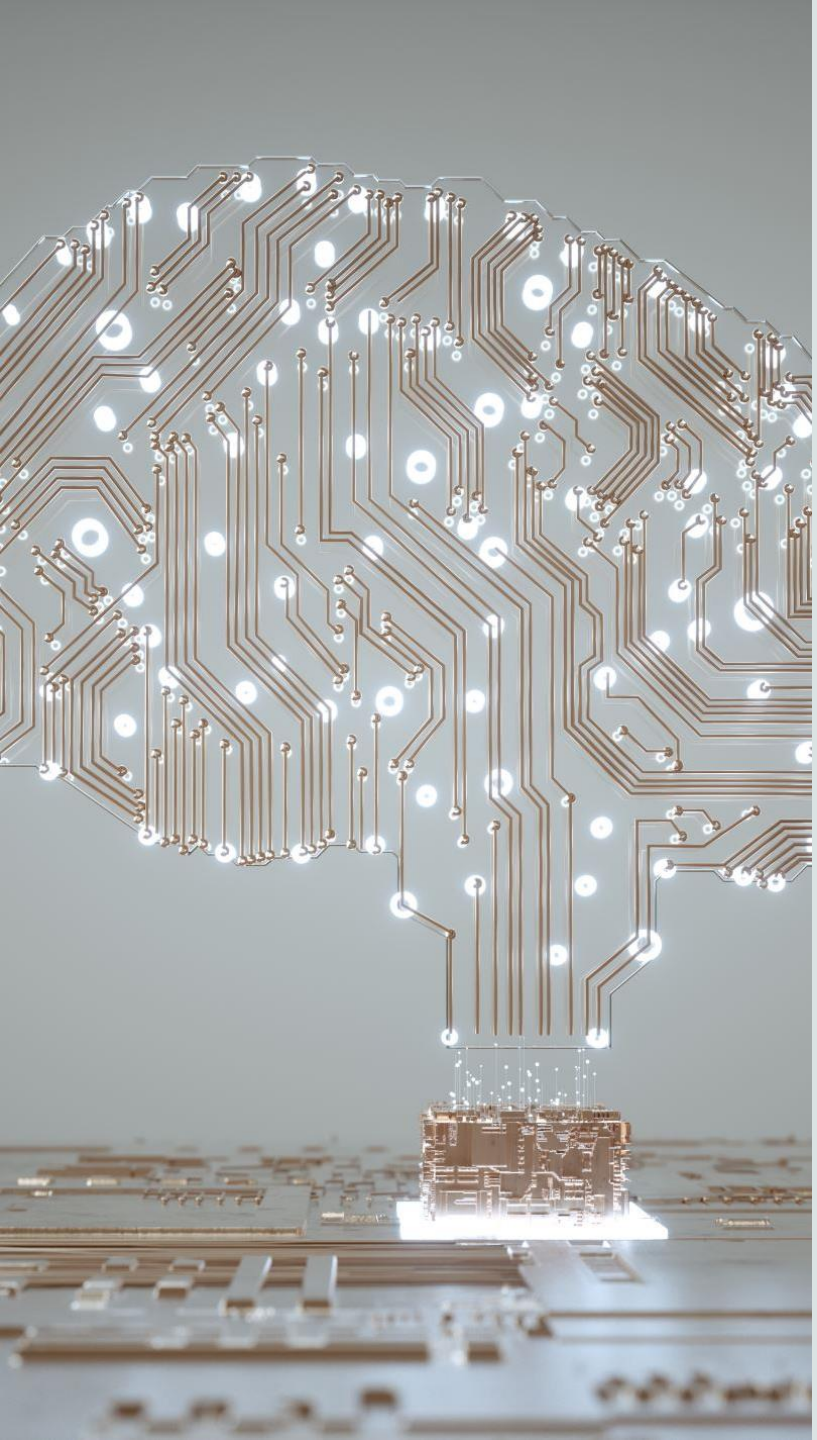
Government Policies and Regulations for Supporting Technological Innovation

Government Policies and Regulations

- The '14th Five-Year Plan' outlines in its fifth section, 'Accelerate Digital Development and Build a Digital China,' and highlights the need to 'accelerate the industrialization of digital technologies and cultivate emerging digital industries such as AI, big data, blockchain, and cloud computing; enhance the levels of communication equipment, core electronic components, and key software industries.'
- The government provides strong guidance to ensure the healthy growth of the industry and maintain market order. It has been implementing a series of guiding policies to encourage companies to actively engage in advanced technologies, create a comprehensive industrial ecosystem, and strengthen oversight to safeguard market and social order.

Release Date	Issuing Authority	Policy Document
January 2022	State Council	14th Five-Year Plan for Digital Economy Development
July 2022	Ministry of Science and Technology, Ministry of Education, Ministry of Industry and Information Technology, Ministry of Transport, Ministry of Agriculture and Rural Affairs, National Health Commission	Guiding Opinions on Accelerating Scenario Innovation to Promote High-level Applications of AI for High-Quality Economic Development
August 2022	Ministry of Science and Technology	Notice on Supporting the Construction of AI Demonstration Application Scenarios in New Generation
October 2022	Ministry of Industry and Information Technology, Ministry of Education, Ministry of Culture and Tourism, National Radio and Television Administration, General Administration of Sport	Action Plan for the Integration and Development of Virtual Reality and Industry Applications (2022-2026)
November 2022	Ministry of Industry and Information Technology	Three-Year Action Plan for Innovative Development of the Industrial Metaverse (2022-2025)
July 2023	National Internet Information Office	Interim Measures for the Management of GenAI Services
August 2023	Ministry of Industry and Information Technology, Ministry of Education, Ministry of Culture and Tourism, State-owned Assets Supervision and Administration Commission, National Radio and Television Administration	Three-Year Action Plan for Innovative Development of the Metaverse sector (2023-2025)
September 2023	Ministry of Industry and Information Technology	Draft Plan for the Establishment of a Standardization Working Group for the Metaverse (Solicitation of Opinions)

Source: Compiled by Fung Business Intelligence



Development Trends of Technological Innovation

5 key development trends

Further integration of new technologies drives innovation

- AI will continue to drive the development of smart supply chains. More industries will rely on advanced AI for decision-making processes.
- Predictive algorithms are expected to become the core technology of SaaS (Software as a Service). AI will advance business intelligence and data analytics, providing insights for B2B clients.
- By integrating AI and the Industrial Internet of Things (IIoT), smart factories can be equipped with sensors and cloud computing technology for real-time monitoring, resource management, and remote system management.

Open-source AI technology advances more innovation

- Open-source AI democratizes AI development, fostering collaboration among different developers. It also increases the transparency of technological advancements, including underlying algorithms and data, creating a fairer AI environment. Enhancing the accessibility of LLMs will significantly accelerate the further development of advanced AI technologies.
- Alibaba's DAMO Academy launched the open-source AI model community 'ModelScope' in November 2022, aiming to lower the barriers of AI application and enable LLMs to generate more social benefits. In April 2023, Alibaba's Tongyi Qianwen started inviting users for testing. Companies like Dewu, Taobao, and Zhejiang University have collaborated with Alibaba Cloud to train or develop their own LLMs using Tongyi Qianwen.

5 key development trends (cont.)

The industrial metaverse will further integrate the real and virtual worlds

- Metaverse technologies will bring new momentum to industrial development, further integrating the real and virtual worlds. This will help reduce costs, improve efficiency, and enhance the intelligence level of industrial production.
- Users will be able to participate in product design and customize their products in real time within the industrial metaverse. For instance, users can design their own clothes by utilizing new technologies like 3D scanning for quick body modeling and digital measurements, send the designs to manufacturers, and personally monitor the production process to ensure the final products meet their expectations.

Talent requirements are evolving

- According to the Institute of Finance and Strategy Research of the Chinese Academy of Social Sciences, by 2025, the value added in China's service industry is expected to account for 59.1% of GDP, while service industry employees will make up 55.0% of total employment.
- Certain service jobs, such as virtual customer service, can be automated with AI, significantly reducing costs for businesses.
- As AI technology enhances efficiency and automation, talent requirements will evolve accordingly. Individuals must adapt and acquire new skills in this changing environment. More resources are expected to be allocated for employee training.

5 key development trends (cont.)

Regulating AI presents a highly complex challenge

- With the release of ChatGPT, the AI industry experienced explosive growth in 2022. The rapid pace of technological advancement poses significant challenges for regulatory policies. For instance:
  - The opaque nature of AI models complicates regulation. Predicting potential misuse of AI is inherently difficult.
  - AI used in VR games that may threaten information security or even human safety should be treated differently from other AI tools.
  - GenAI includes deepfake technology, capable of creating synthetic images (such as 'face-swapping') to impersonate celebrities or political figures, potentially misleading or deceiving internet users.

- Since AI is a cross-industry technology, a 'one-size-fits-all' approach to regulation is unrealistic. Following the release of the 'Interim Measures for the Management of Generative AI Services' in August 2023, awareness of AI safety issues in the industry has grown.

- In September 2023, the Cloud Security Alliance (CSA) for the Greater China region announced the formation of an 'AI Security Working Group,' with founding members including Ant Group, Huawei, Baidu, and ByteDance, as well as institutions like Xidian University and the National FinTech Evaluation Center. This organization aims to address AI-related safety issues.

Contact

Helen Chin

Vice President
Email: helenchin@fung1937.com

Brigitte Ng

Senior Officer – Research

Winnie Lo

Senior Research Manager

Fung Business Intelligence

- 11/F LiFung Tower 868 Cheung Sha Wan Road
  Kowloon, Hong Kong
- T: (852) 2300 2470
- F: (852) 2635 1598
- E: fbicgroup@fung1937.com
- W: http://www.fbicgroup.com

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