



China Insights Consultancy

# Industry Report on China's Public Bus Information Services Industry

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# CIC introduction, methodologies and assumptions

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China Insights Consultancy was commissioned to conduct research, provide an analysis of, and produce a report on China's public bus information Industry. The commissioned report has been prepared by China Insights Consultancy independent of the influence of the company and other interested parties.

China Insights Consultancy is an investment consulting company initially established in Hong Kong. Its services include industry consulting services, commercial due diligence, strategic consulting, and so forth. Its consultant team has tracked the latest market trends in consumer goods, healthcare, marketing and advertising, culture and entertainment, energy and industry, agriculture, chemicals, finance and professional services, TMT, and transportation. It possesses the most relevant and insightful market intelligence regarding these industries.

China Insights Consultancy undertook both primary and secondary research using various resources. Primary research involved consumer surveys, as well as interviewing key industry experts and leading industry participant. Secondary research involved analyzing data from multiple publicly available data sources, including the National Bureau of Statistics of China, Chinese government releases, annual reports published by relevant industry participants and industry associations, China Insights Consultancy's own internal database, etc.

The market projections in the commissioned report are based on the following key assumptions: (i) that the overall global social, economic, and political environment is expected to maintain a stable trend over the next decade; (ii) that related key industry drivers are likely to continue driving growth in China's public bus information service industry during the forecast period; and, (iii) that there is no extreme force majeure or set of industry regulations in which the market situation may be affected either dramatically or fundamentally. All forecasts concerning market sizes are based on the general economic conditions as of the Latest Practicable Date.

All statistics are reliable and based on information available as of the date of this report. Other sources of information include those from the government, industry associations, and market participants. These various entities may have provided some of the information on which the analysis or its data is based.

All the information about the company has been sourced from the company's own audited report or management interviews. China Insights Consultancy is not responsible for verifying the information obtained from the company.



# Terms and abbreviations

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**CAGR:** Compound Annual Growth Rate 复合年均增长率

**ToB:** To Business 指面向企业提供相关的产品服务

**5G:** 5th Generation Mobile Communication Technology 第五代移动通信技术

**COVID-19:** Coronavirus Disease 2019 新冠病毒肺炎

**ESG:** Environmental, Social and Governance 环境、社会和公司治理

**GDP:** Gross Domestic Product 国内生产总值

**PRC:** People's Republic of China 中华人民共和国

**RMB:** Renminbi 人民币

**IoT:** Internet of Things 物联网

**AI:** Artificial Intelligence 人工智能

**KOL:** Key Opinion Leader 关键意见领袖，指在某个领域或者某个社交平台上，拥有一定影响力的人士

**KOC:** Key Opinion Consumer 关键意见消费者

**AD:** Advertisement 广告

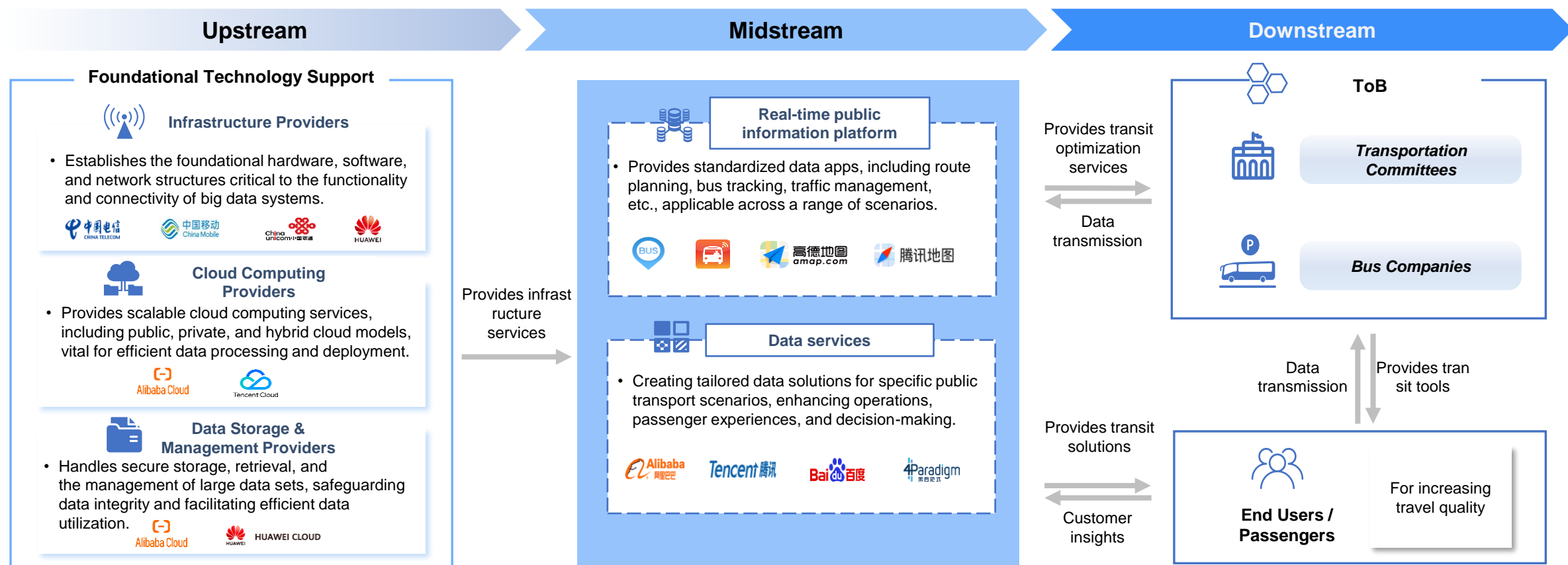
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# The value chain for public transit includes foundational technology support and time series big data service providers, fueling operational efficiency and enriching passenger experiences.

## Overview of the Value Chain for China's Public Bus Information Service Industry

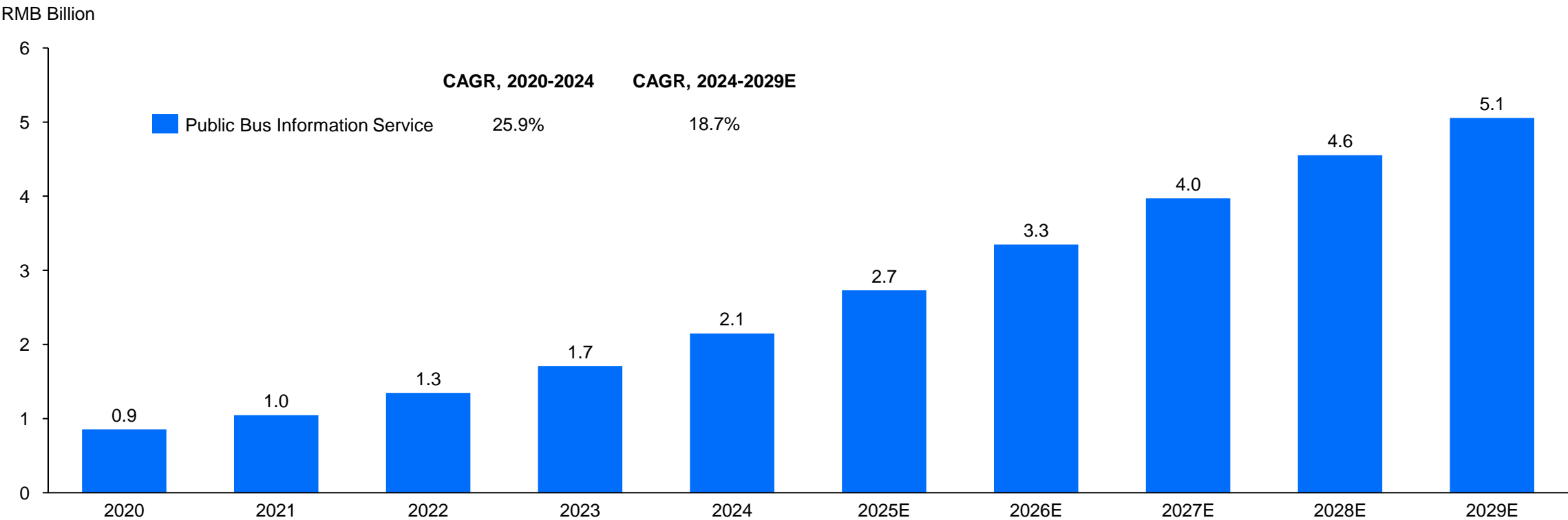


### Key Analysis

- Public bus information services encompass data-driven solutions tailored for urban public transportation. By harnessing advanced analytical capabilities and the processing of time series data and other data, these services tap into extensive datasets gathered from diverse sources including bus GPS sensors, transportation dispatch network and mobile applications. Through meticulous analysis, data extraction, and predictive modeling, these services contribute to the refinement of urban traffic planning and enhancements to urban transportation services, as well as increasing travel quality and preventing the challenges associated with excess traffic congestion.

China’s bus sector has been witnessing improvements in its digitalization and data-driven operations, heralding lucrative opportunities for providers of intelligent information services.

Market Size of China’s Public Bus Information Service Industry, 2020-2029E



Key Analysis

- The bus sector has been experiencing remarkable growth in recent years, attributed to expanding urbanization, digital advancements, efficient urban management, continued infrastructure development, data accessibility, and supportive policies. This surge highlights the pivotal role that data-driven solutions are having in shaping the sector's steady progress. The consistent growth in the adoption of digital and intelligent solutions in the public bus sector points to a promising future for providers of public bus information services. Given that public bus providers are increasingly pursuing the use of data-centric approaches, the overall demand for Public Bus Information Services is likely to continue rising for many years to come.

Bus operations' extensive reach, complex routing, and high concurrency present significant challenges, creating notable pain points for passengers, bus companies, and traffic regulators.

Operational Dynamics of the Bus Transit System



01

Wide Route Penetration:

- The intricate network of bus routes extensively covers urban and suburban locales, thereby intensifying managerial complexities.

02

Intricate Road Conditions:

- Mandatory stops at specified locations lead to interactions with other vehicles, searches for parking, and passenger engagement.
- Increased intricacies arise due to road congestion and a diverse mix of commuters, including e-bike and motorcycle riders.

03

Sophisticated Route Planning:

- Regional road networks, population density, and geographical factors influence bus route formulation, necessitating adept route strategizing, especially during peak traffic hours, to boost operational efficiency.

04

High Simultaneity:




- Compared to alternate transit modes, buses have a heightened departure frequency and carry a larger concurrent passenger load, thereby escalating challenges in vehicle tracking and dispatch management.

05

Substantial Fleet Size:

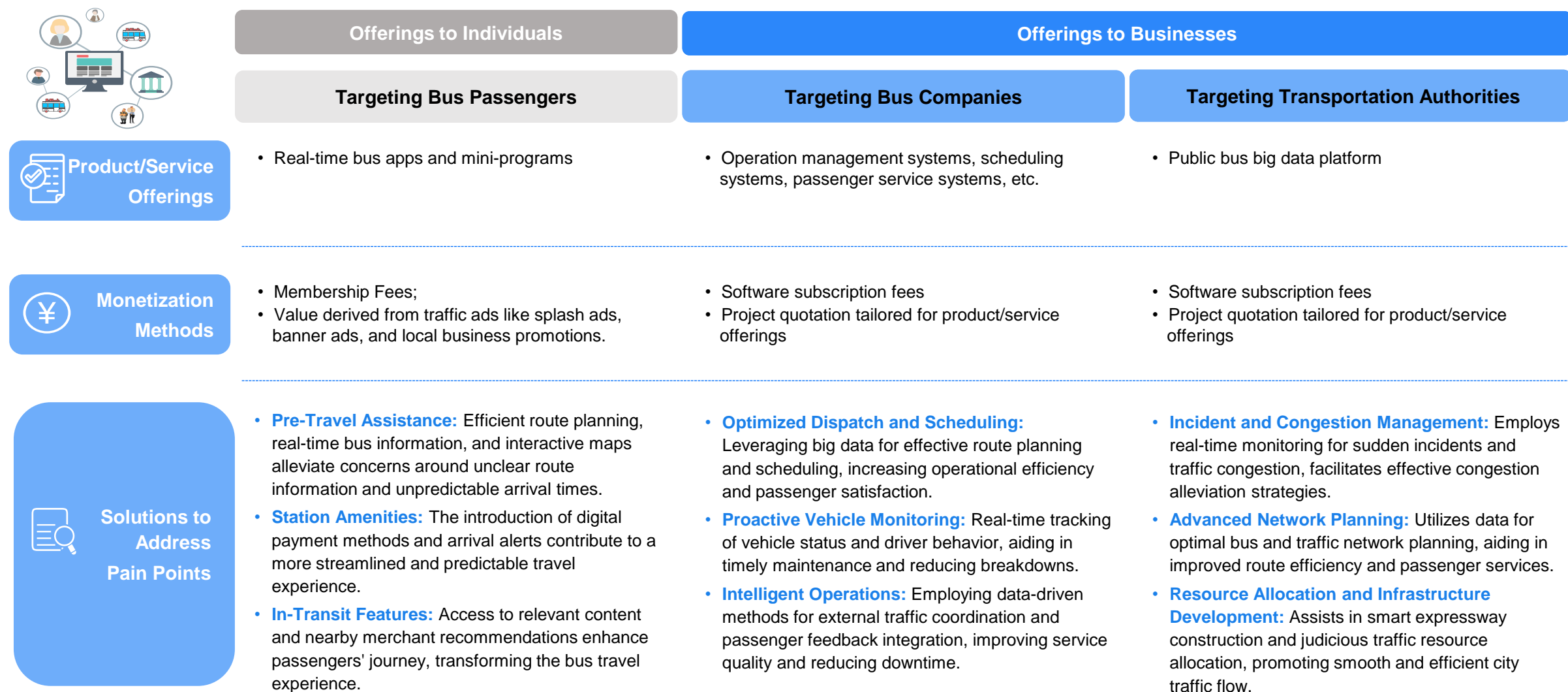
- Per the Ministry of Transport's 2021 year-end report, the nationwide bus count stood at 710,000, with 57,400 urban rail transit vehicles. The management of such a large-scale fleet presents significant logistical hurdles.

Pain Points of Key Stakeholders in the Bus Transit System

	Stakeholder Definition	Key Pain Points
 Public Bus Commuters	<ul style="list-style-type: none"><li>Users of real-time bus services, with distinct requirements and characteristics across various age groups and cities, such as elderly passengers needing additional boarding and alighting time.</li></ul>	<ul style="list-style-type: none"><li><b>Unpredictable Arrival Time:</b> Factors such as traffic conditions, congestion, and others could cause deviations in bus arrival time, making it challenging for passengers to accurately anticipate their time of arrival.</li><li><b>Unclear Route and Stop Information:</b> Ambiguous and complex bus route and stop information can make it difficult for passengers to accurately select their route.</li></ul>
 Bus Companies	<ul style="list-style-type: none"><li>Implementers of real-time bus services, providing bus vehicles, managing drivers, and responsible for the operation, dispatching, scheduling, and maintenance of their fleet.</li></ul>	<ul style="list-style-type: none"><li><b>Route Planning and Operational Dispatch:</b> Bus companies need to design rational route plans and effective operational dispatch to meet passenger demand and optimize operational efficiency. Difficulties in route adjustment and dispatching can lead to low operational efficiency and decreased passenger satisfaction.</li><li><b>Vehicle Maintenance and Fault Management:</b> High breakdown rates, exorbitant maintenance costs, and prolonged vehicle downtime can pose significant challenges to bus companies.</li></ul>
		<ul style="list-style-type: none"><li><b>Traffic Congestion and Traffic Flow Management:</b> The department needs to manage ever-increasing vehicle numbers and progressively complex traffic flows in cities.</li><li><b>Bus Operational Management:</b> The department needs to oversee and manage bus operations, including route planning, dispatch management, and the quality supervision of passenger services.</li></ul>
 Transportation Authorities	<ul style="list-style-type: none"><li>Regulators of real-time bus services, tasked with coordinating the overall traffic system, adjusting the overall traffic network based on different weather conditions, peak periods, and traffic density.</li></ul>	

# Public bus information services effectively address critical pain points, enhancing efficiency and empowering passengers, bus companies, and traffic regulators.

## Value Creation of Public Bus Information Services, by End-user Segmentation

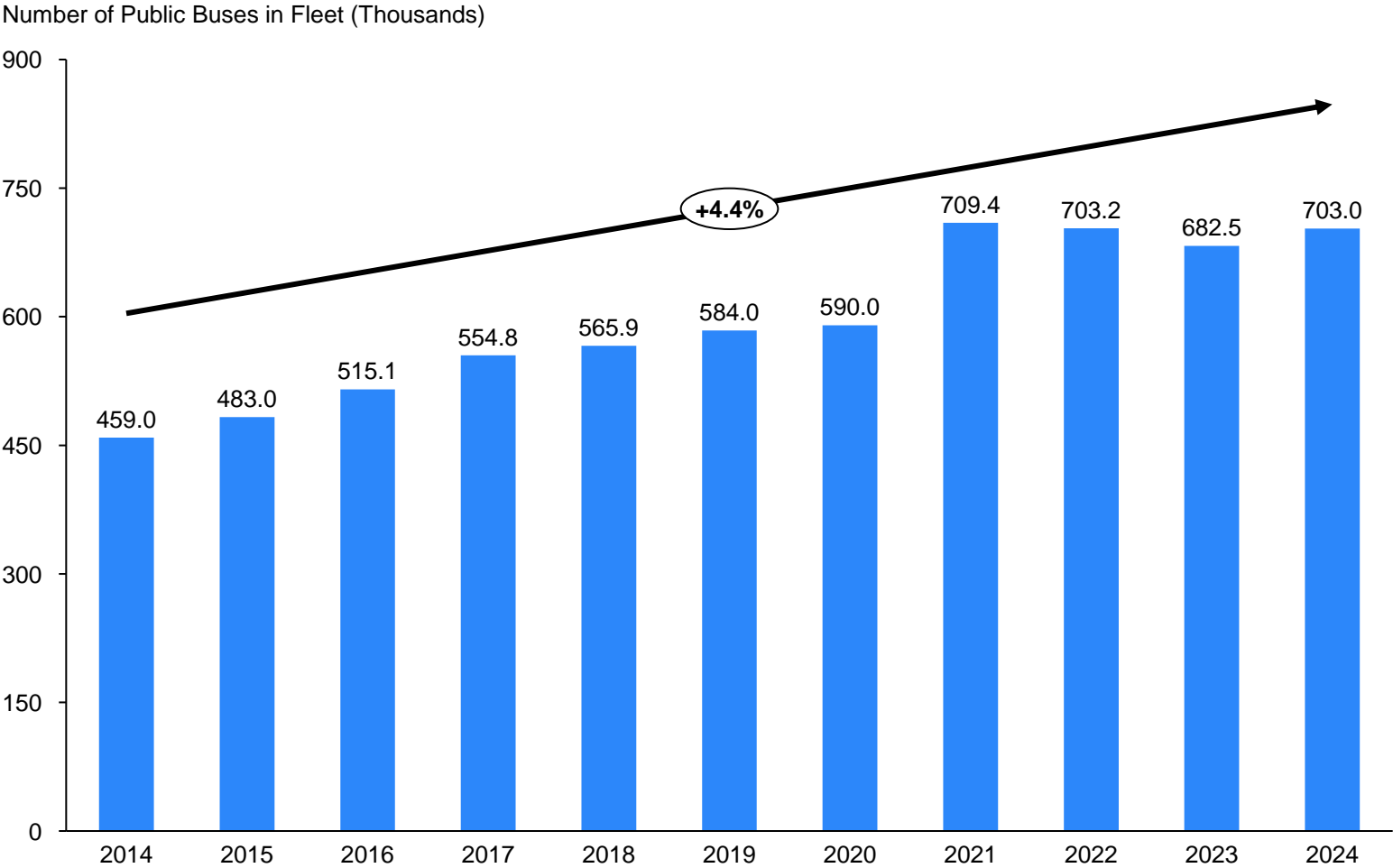




Driver: Expanding Network

The surge in the number of bus vehicles directly increases the volume of data points collected, thus boosting data services demands needed for efficient data management and strategic utilization.

Number of Public Buses in China, 2014-2024

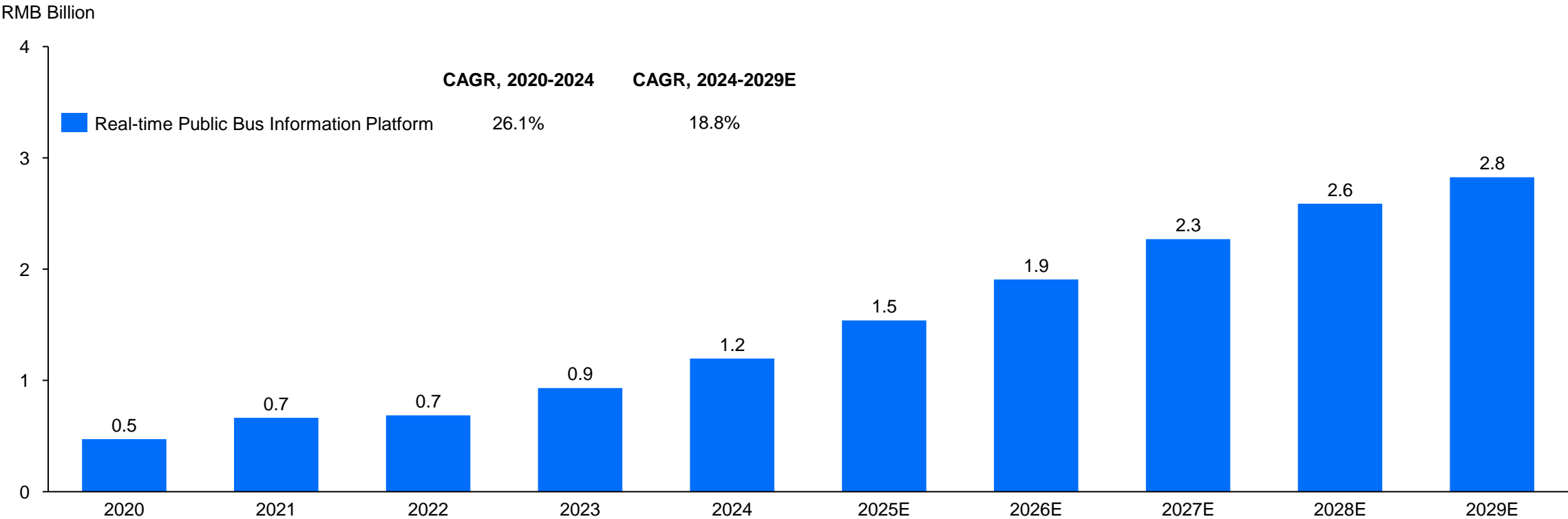


Key Analysis

- The steadily increasing large base of public buses directly impacts the volume of data generated. Each bus, equipped with numerous sensors and monitoring devices, contributes to the pool of real-time data. With more vehicles, the data points collected will increase exponentially. (Datapoints = Number of Vehicles × Number of Metrics). In recent years, the number of public buses in the fleet has reached approximately 700,000 buses operating nationwide, with an average daily operating time of around 15 hours.
- In China, buses are generally equipped with vehicle-tracking devices and sensors to gather real-time location data, which is initially sent to the bus companies operating the bus fleets and then is relayed to the local transportation authorities overseeing bus companies' operations. These operating buses generate nearly 40 terabytes of time series data every day, with intricate information such as vehicle real-time location, passenger boarding time, stop duration and even unplanned detours. As the number of public buses and corresponding data volume continue to increase, the reliance on data intelligence services will undoubtedly deepen. This reliance will not only be driven by the need to manage this data efficiently but also to harness it for smarter decision-making and strategic planning in public transportation operations.

The convergence of mobile internet advancements, AI and big data innovations, and enhanced real-time service reliability drives sustained growth in Real-time public bus information platform market.

Market Size of China’s Real-time Public Bus Information Platform Industry, 2020-2029E

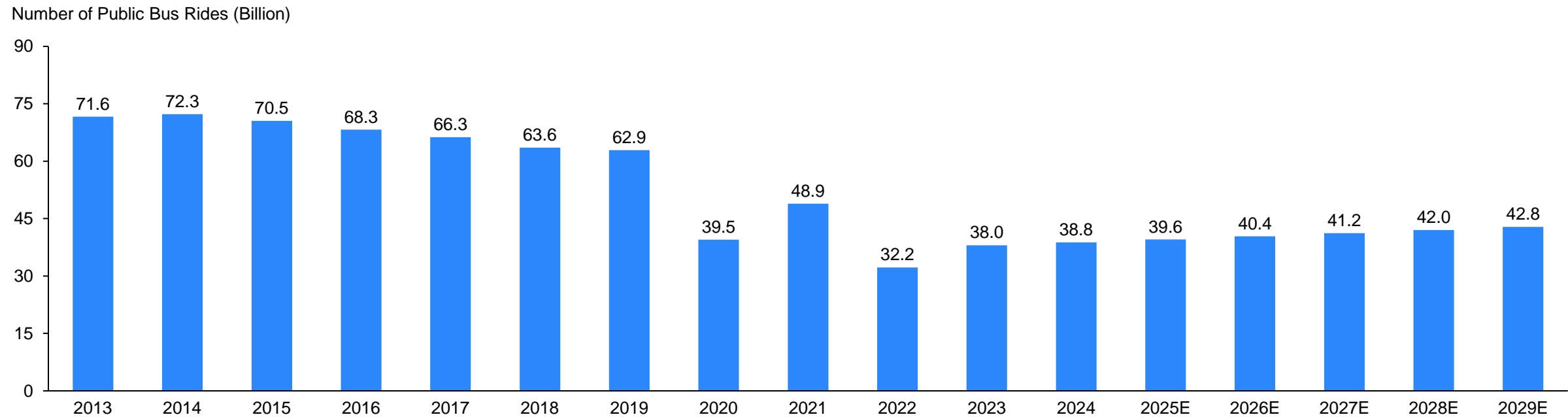


Key Analysis

- The pervasive adoption of mobile internet technologies has propelled the proliferation of real-time public bus information platforms, catalyzing sustained expansion within this market sector. Furthermore, continuous enhancements in operational reliability and data precision have driven consistent growth in the platform's active user base. With further developments in AI, big data, and IoT technologies, user expectations for service quality and efficiency will continue to rise, driving technological innovation and service upgrades in real-time public bus information platforms.

# The vast number of bus commuters undoubtedly provides significant momentum for the development of Public Bus Information Services.

Number of Public Bus Rides in China, 2013-2029E

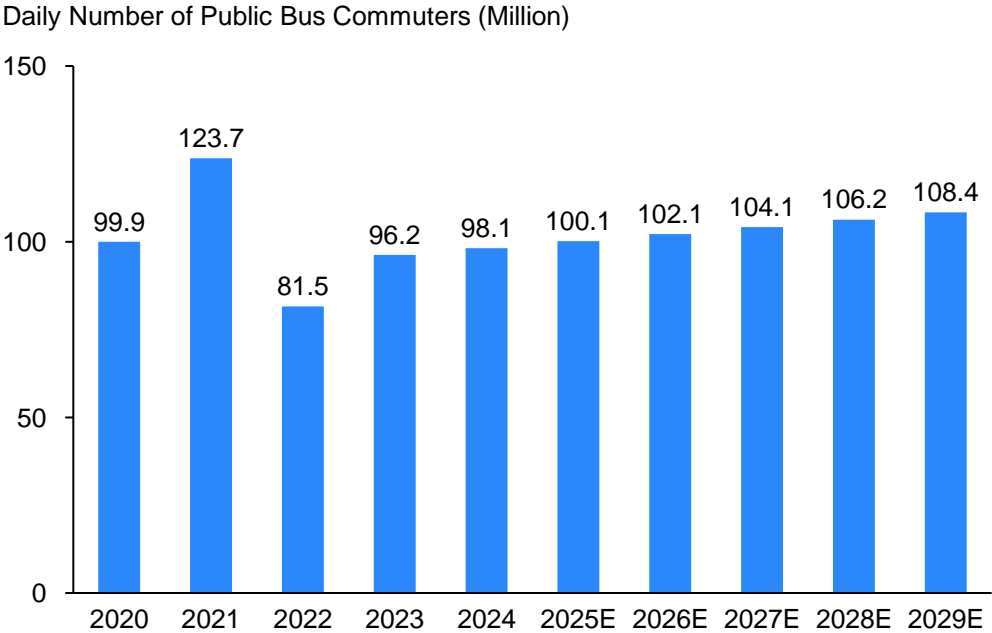


### Key Analysis

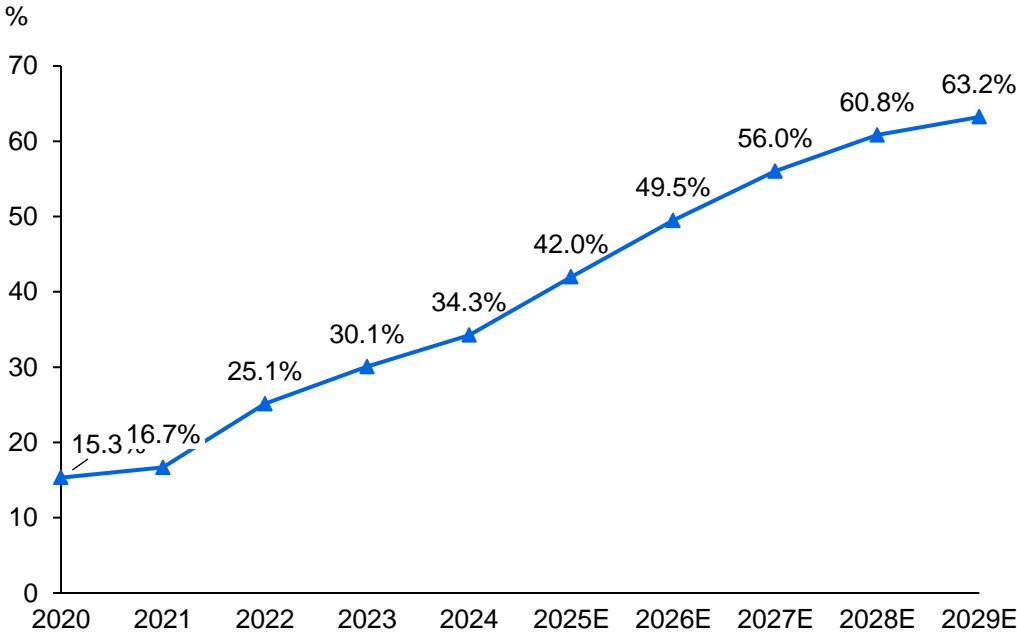
- In China, bus commuters took approximately 39.0 billion bus rides in China. Not only does this huge passenger volume provide a vast data foundation for the evolution of real-time data in public transportation, but more importantly, it drives the in-depth exploration and utilization of data by public transportation systems. For instance, by analyzing passengers' peak travel times and popular routes, bus companies can more precisely adjust vehicle schedules, ensuring sufficient capacity to meet passenger demand during peak hours, while reducing operating costs and achieving optimal resource allocation during non-peak hours.

In the post-pandemic era, real-time bus info platforms are growing popular for enhanced travel efficiency, driven by tech advances and urbanization.

Daily Number of Public Buse Commuters in China, 2020-2029E



Penetration Rate of Real-time Bus Information Platform<sup>1</sup>, 2020-2029E



Key Analysis

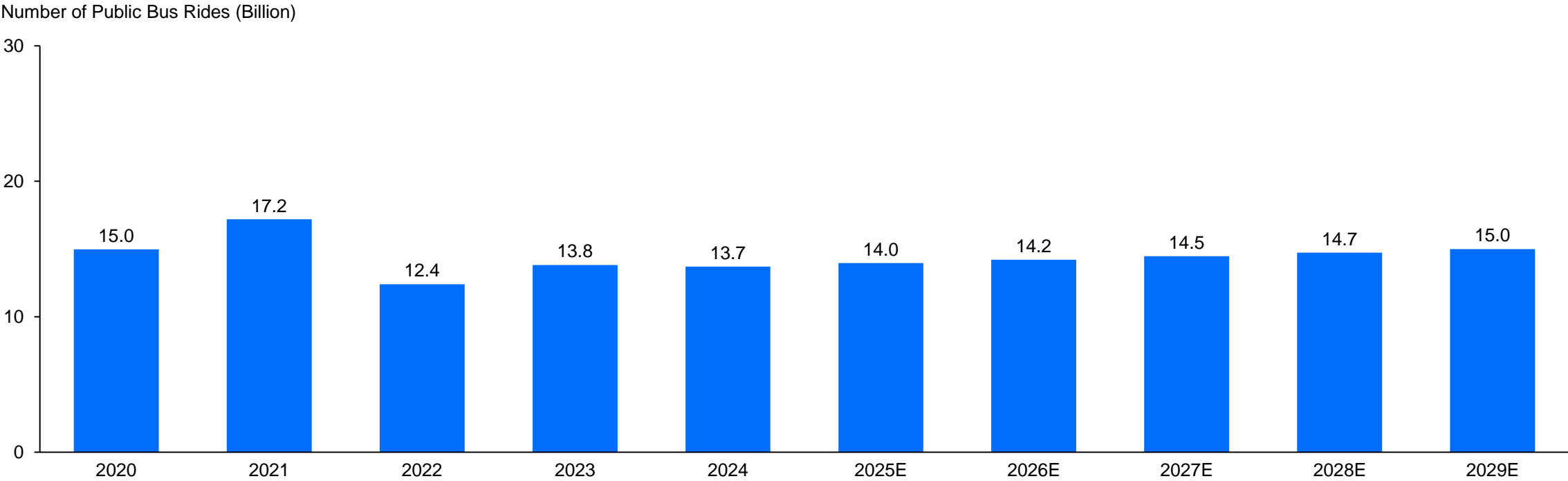
- In the post-pandemic era, as daily life and production activities normalize, the number of public transportation users steadily approaches pre-pandemic levels. Against the backdrop of accelerated urbanization, enhancing the public transportation system is pivotal for relieving traffic congestion and enhancing travel efficiency. Real-time bus information platforms, vital in elevating travel convenience and efficiency, are seeing increasing user penetration rates, highlighting their significance in the public transportation sector.
- With advancements in IoT, big data, and AI, these platforms have enhanced their capabilities in data collection, processing, and analysis, offering more accurate and timely information. As urbanization gathers pace and travel needs diversify, passengers are increasingly valuing the efficiency and convenience of public transportation, fueling the demand for real-time bus information platforms.

Note: The penetration rate of real-time bus information platform refers to the proportion of public bus commuters who use real-time bus information platform among all bus commuters in China.



With high population density, tier-1 and emerging tier-1 cities sustain robust public transport demand, diversified travel needs and well-established infrastructure drive huge and stabilized ridership.

Number of Public Bus Rides in Tier-1 and Emerging Tier-1 Cities in China, 2020-2029E

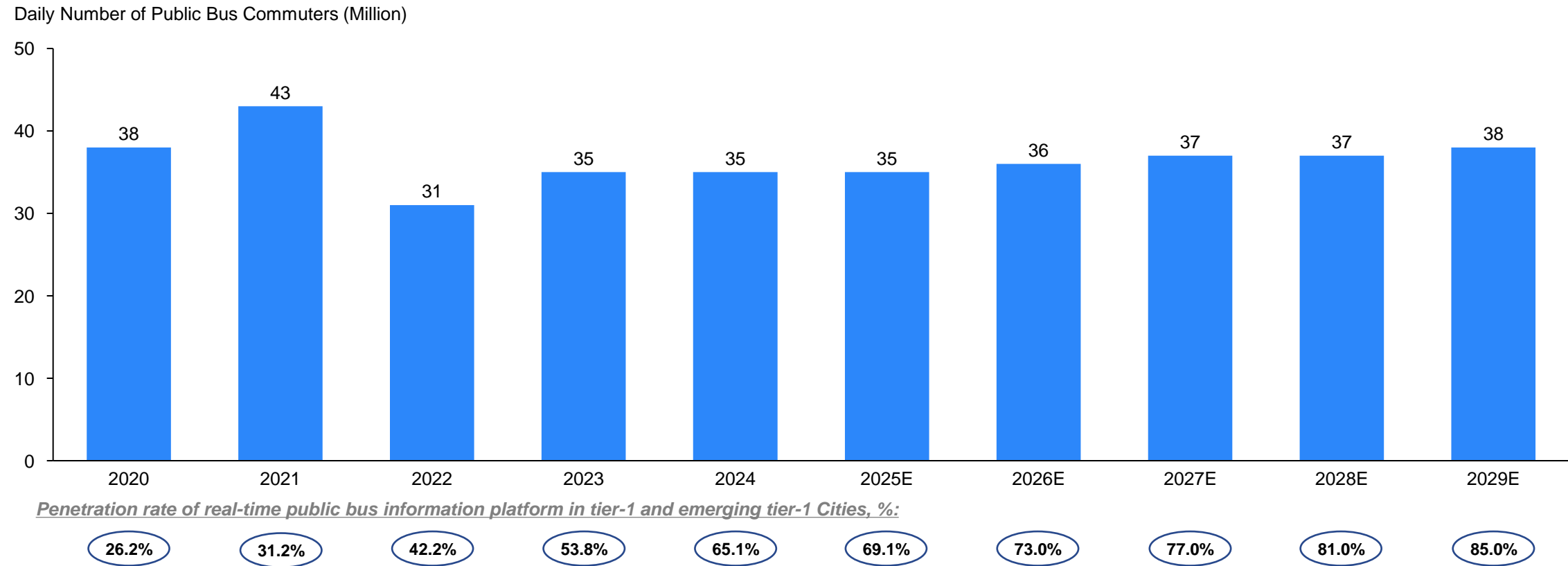


Key Analysis

- Tier-1 and emerging tier-1 cities have high population densities and strong demand for public bus rides. Meanwhile, in economically developed areas, the infrastructure is well-established and residents' travel needs are diversified to include commuting, shopping, leisure activities, etc., resulting in more frequent bus trips and wider coverage. Overall, it presents a large public transport passenger flow and a stabilization of the number of public bus rides.

Tier-1 and emerging tier-1 cities have a high penetration of digital technology, and real-time public bus information platforms have become essential tools for daily urban commuting.

Daily Number of Public Bus Commuters in Tier-1 and Emerging Tier-1 Cities in China, 2020-2029E

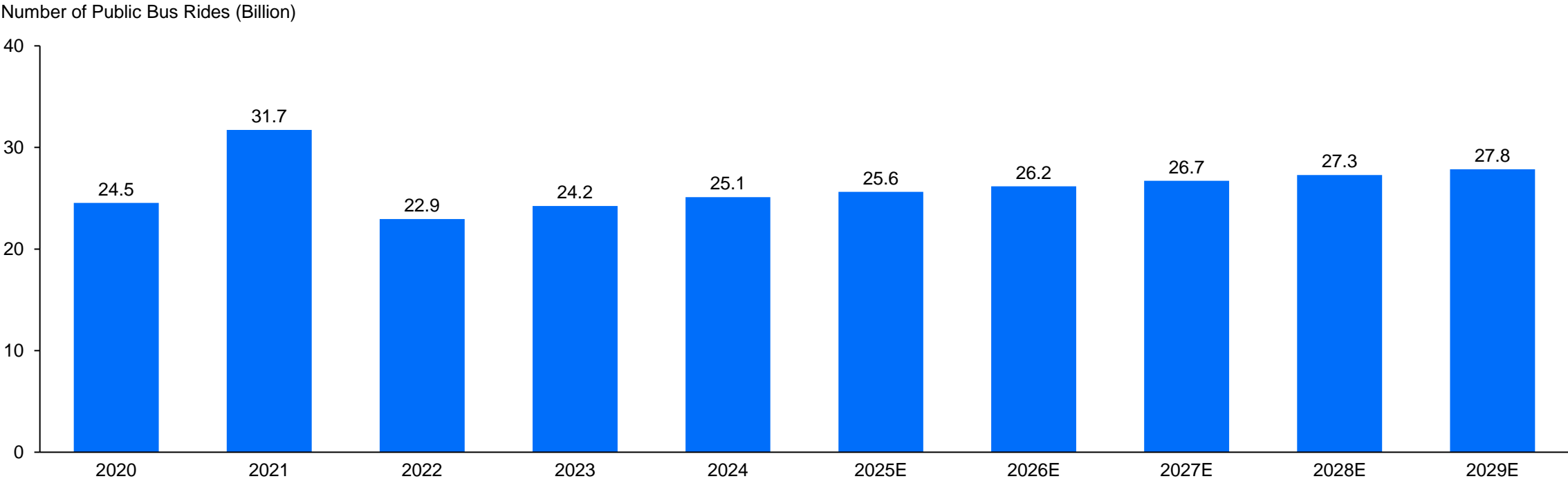


Key Analysis

- Residents in tier-1 and emerging tier-1 cities tend to be relatively younger, with a high acceptance of digital technologies and a strong demand for efficient and convenient commuting options. This has made real-time public bus information platforms an essential tool for daily commuting in these cities. The penetration rate of real-time public bus information platforms in tier-1 and emerging tier-1 cities is approximately 65% in 2024 and is expected to further increase to around 80% in 2029.

The expanding size of tier-2 and lower-tier cities, coupled with the increased demand for commuting by residents, has led to a huge potential for the development of real-time public bus information platforms.

Number of Public Bus Rides in Tier-2 and Lower-tier Cities in China, 2020-2029E

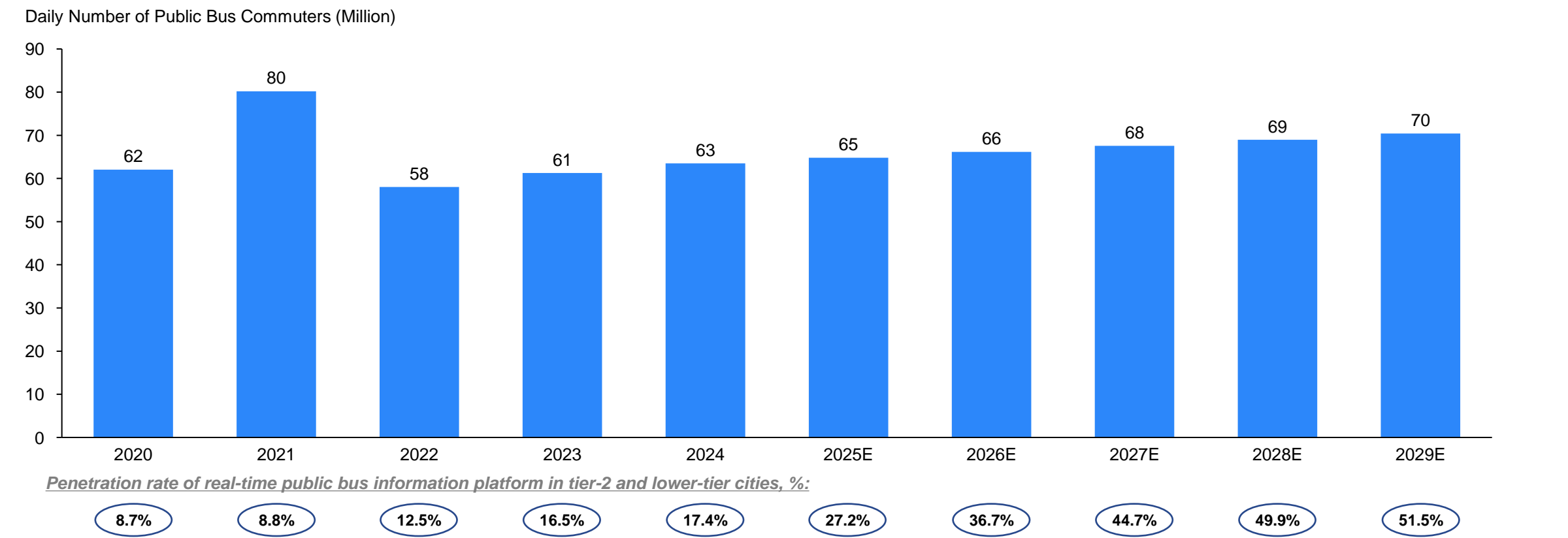


Key Analysis

- With the continuous advancement of urbanization, the scale of tier-2 and lower-tier cities in China is also expanding, along with the increase in resident populations. Meanwhile, given the low metro coverage rates in these cities, public bus rides serve as the essential commuting mode for urban residents. With the increase in residents' commuting and travel demands and the growing prevalence of mobile internet, there is significant potential for real-time public bus information platforms in tier-2 and lower-tier cities.

Tier-2 and lower-tier cities have a low level of economic development and insufficient information infrastructure, real-time public bus information platforms have a broad space for development.

Daily Number of Public Bus Commuters in Tier-2 and Lower-tier Cities in China, 2020-2029E



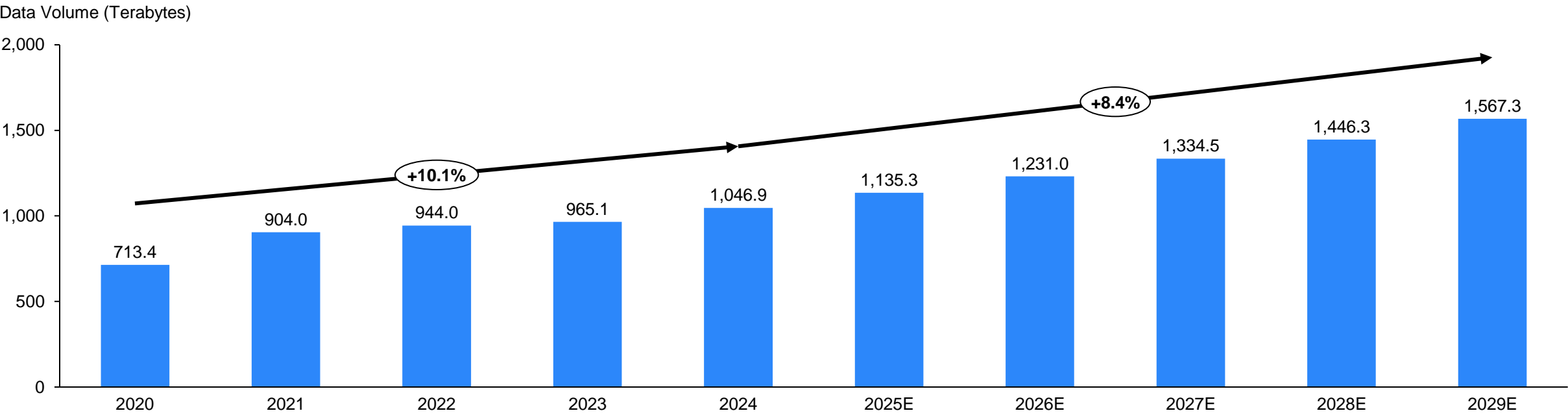
Key Analysis

- Tier-2 and lower-tier cities face constraints such as relatively lower economic development, insufficient information infrastructure, and limited awareness of new technological applications. The penetration rate of real-time public bus information platforms in these cities was less than 20% in 2024. As the national strategy for smart city development deepens and residents' acceptance of digital services increases, the growth potential for real-time public bus information platforms in tier-2 and lower-tier cities is expected to gradually become evident. According to CIC, the penetration rate of real-time public bus information platforms in tier-2 and lower-tier cities is expected to reach approximately 50% in 2029.



Smart buses have revolutionized urban transportation by leveraging sensor technology to capture and transmit crucial time-series data, enhancing operational efficiency and optimizing user experiences.

Time Series Data Volume from Public Buses' Sensors , 2020-2029E



Key Analysis

- As the concepts of intelligent transportation and smart cities gain greater traction, notable advancements have been achieved in urban transportation in terms of data collection and application technologies. At the forefront of this evolution, smart buses, through extensive integration of sensor technology, have successfully implemented the real-time capture and transmission of vast amounts of time-series data. This data encompasses crucial information such as vehicle locations, driving status, and passenger flow, serving as a robust foundation for enhancing bus operational efficiency, optimizing passenger experience, and driving intelligent management.

# Smart city developments in China have propelled the growth of the public bus information services industry by expanding public bus data volumes and necessitating sophisticated analytics.

Smart cities play a crucial role in propelling the public bus information service industry. With smart city initiatives, there is an increased emphasis on interconnectivity and data-driven management, which subsequently creates a surge in the volume of data generated.



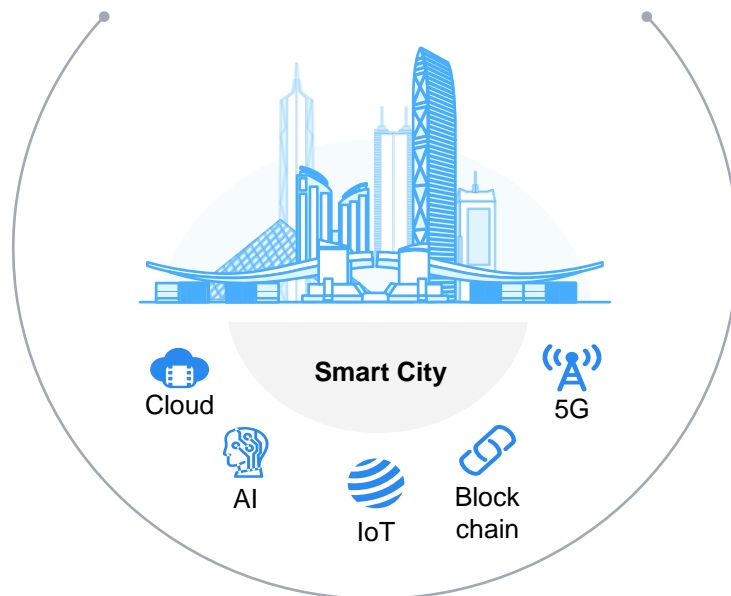
## Digital Transformation

The acceleration of public service digitalization under smart city schemes demands proficient data management strategies, thereby escalating the need for data intelligence services.



## Optimization of Urban Management

Smart cities require digital management across all aspects. This digitization requirement necessitates intelligent data services in public transportation for effective management and operations, facilitating traffic alleviation.



## Infrastructure Advancement

IoT devices essential in smart city construction facilitate data collection for data intelligence services, making their integration in public transportation systems more efficient.



## Policy Support

Government policies endorsing smart city development encourage citywide data integration, thus fostering an environment conducive to the application of big data services in public transportation.



## Data Sharing and Openness

In the era of smart cities, increased data sharing by government and corporations enriches resources for data intelligence services, enhancing their capability to serve public transportation systems.

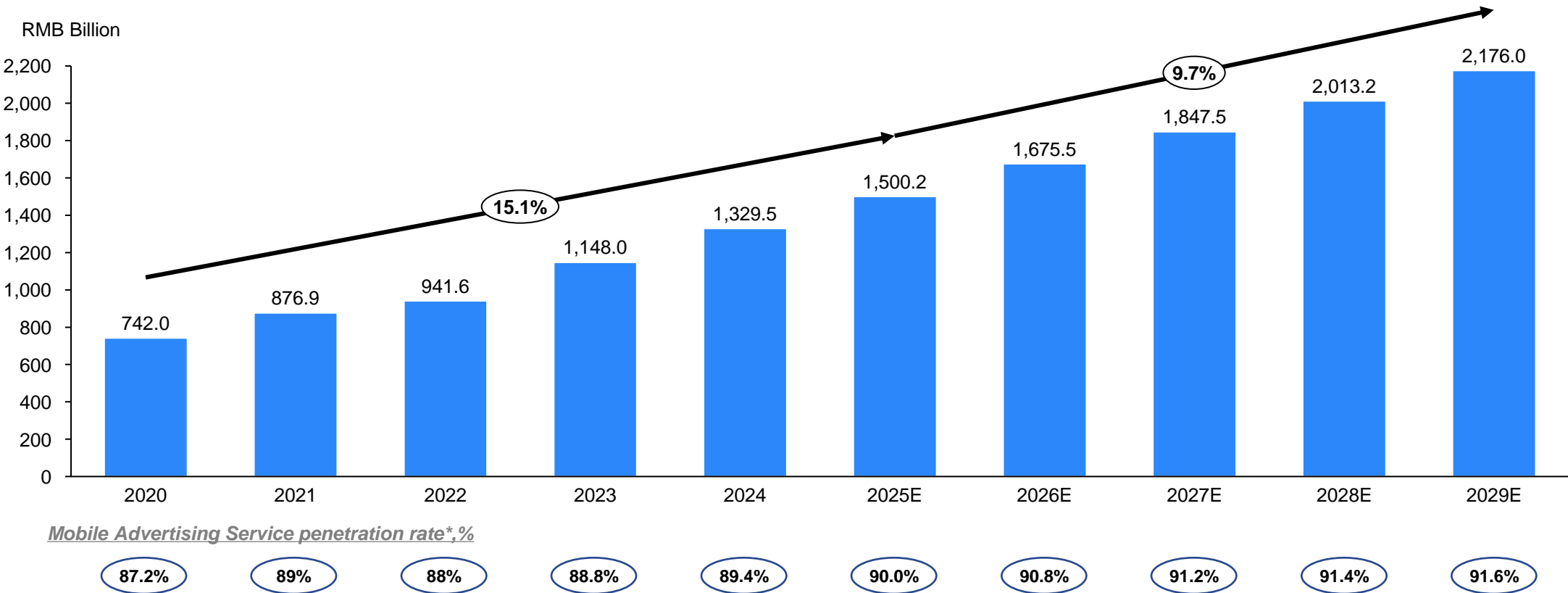
## Key Analysis

- Smart cities are a progressive urban development model that amalgamates emerging technologies like big data, IoT, AI, and blockchain. Catering to the demands of escalating urban populations and technological innovations, smart city initiatives are currently witnessing significant investments and rapid growth.

- 1 The maturation of smart cities brings about a surge in digital infrastructure, making data more accessible and easier to collect. Wide-ranging connectivity and data sharing facilities in smart cities make it easier for public bus information service providers to deliver advanced services.
- 2 Smart city development entails the deployment of a vast array of IoT devices, generating large volumes of time series data. This burgeoning data volume, in turn, fuels the demand for sophisticated data intelligence services.
- 3 The advancement of smart cities drives the government's push for digitizing public services and urban management systems. As these initiatives depend heavily on data services for execution and monitoring, they subsequently stimulate the demand for such services in public bus sector.

The expanding scale of mobile Internet users, advances in mobile Internet technology & mobile media and industry innovations have boosted China's mobile advertising services market.

Market Size of China’s Mobile Advertising Service and Penetration Rate, 2020-2029E



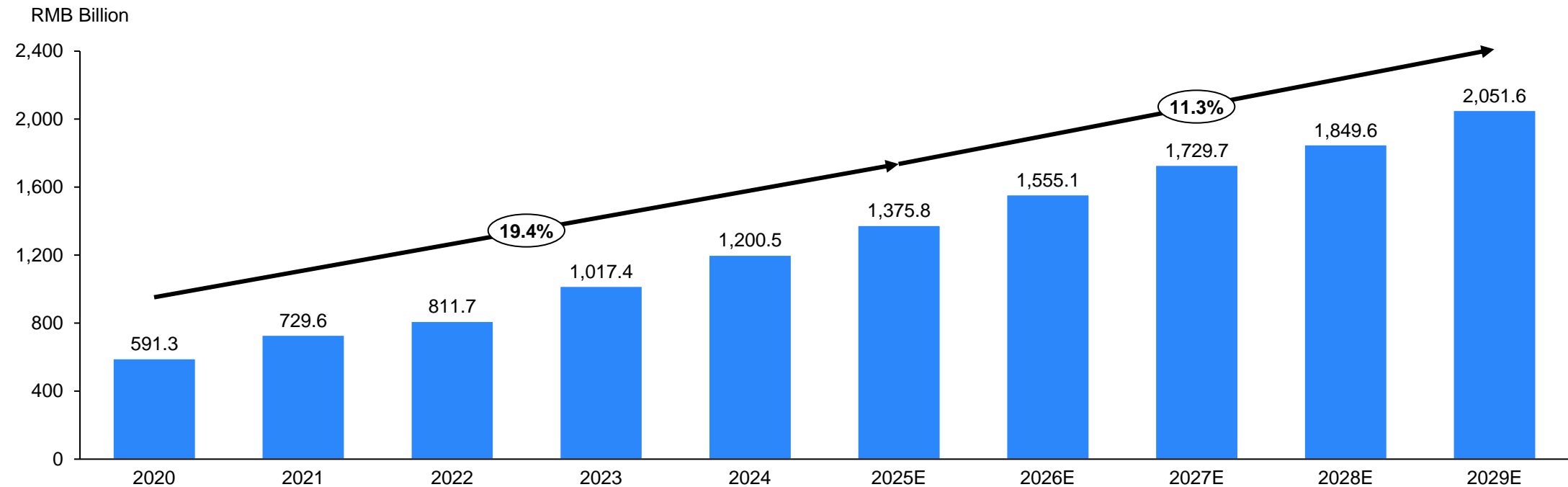
Key Analysis

- The expansion of mobile internet users creates extensive exposure and interaction opportunities for advertisers. Advancements in 5G, AI, and big data technologies enhance advertising efficiency, optimize user experience, and drive industry demand growth. User migration to mobile media platforms enables traffic aggregation and sophisticated user analytics, improving ad conversion rates. Continuous innovation in advertising formats and resource integration by service providers fuels sustained market expansion.
- Mobile advertising service as a percentage of online advertising rose from 87.2% in 2020 to 89.4% in 2024 and is expected to reach 91.6% in 2029.

Note: The penetration rate of mobile advertising service refers to the proportion of mobile advertising service in total online advertising services.

The size of mobile programmatic advertising service market in terms of revenue is expected to reach RMB2,051.6 billion in 2029, representing a CAGR of 11.3% between 2024 and 2029.

China’s Mobile Programmatic Advertising Market Size, in Terms of Revenue, 2020-2029E







Key Analysis

- The programmatic advertising platforms assess the value of the impression by comparing these factors against advertisers’ targeting parameters and applying real-time algorithms that predict engagement potential and contextual alignment. In the meantime, these platforms incorporate user behavior data, content characteristics and advertiser-defined objectives to support large-scale, targeted advertisement delivery. In each auction, advertisers submit bids that reflect the maximum price they are willing to pay for specific user actions or impressions.
- The platform evaluates each bid based not only on price but also on criteria such as relevance, predicted engagement, compliance with advertising policies and the overall impact on user experience, among others. The winning bid, typically the highest that satisfies these conditions, is automatically assigned to the available advertising slot. The automated and criteria-based mechanism of programmatic platforms improves inventory efficiency for publishers and also enables advertisers to reach target audiences more effectively. It supports stronger campaign performance, improved return on investment and higher user engagement across mobile platforms.



Unlike traditional advertising methods, programmatic advertising allows media publishers to maximize yield through real-time pricing and demand aggregation.

Traditional Advertising vs. Programmatic Advertising

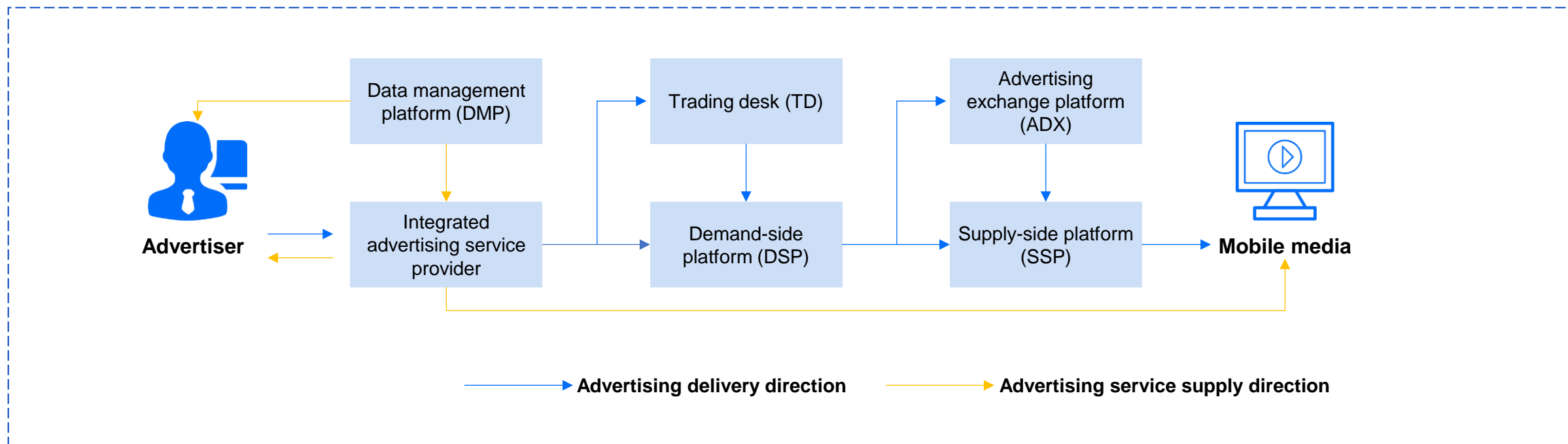
	Traditional Ads	Programmatic Ads
<div>Main differences</div> <div></div>	<ul style="list-style-type: none"><li>Manual negotiations &amp; trading</li></ul>	<ul style="list-style-type: none"><li>Automated real-time bidding</li></ul>
<div>Analytics</div> <div></div>	<ul style="list-style-type: none"><li>Scattered data tracked and collected by marketer into an analytical report</li></ul>	<ul style="list-style-type: none"><li>Transparent real-time reporting to make informed changes during the campaign</li></ul>
<div>Optimization</div> <div></div>	<ul style="list-style-type: none"><li>Analysis and optimization after the campaign is over</li></ul>	<ul style="list-style-type: none"><li>Optimization in real-time</li></ul>
<div>Efficiency</div> <div></div>	<ul style="list-style-type: none"><li>Slow and leaves room for human error</li></ul>	<ul style="list-style-type: none"><li>Automated with reduced costs and increased ROI</li></ul>

Key Analysis

- Programmatic advertising is an automated system that manages the buying, selling and placement of digital advertisements. Unlike traditional advertising methods that involve manual negotiations and purchases, programmatic advertising features real-time bidding and algorithm-driven decision-making to enable advertisers to access inventory at scale and in real time and at the same time allow media publishers to maximize yield through real-time pricing and demand aggregation.
- To meet growing expectations from advertisers for greater targeting accuracy and operational efficiency, and from publishers for scalable monetization, programmatic advertising has gained prominence as the primary method of buying and selling mobile advertising inventory, accounting for over 90% of mobile advertising spend in 2024.

## Programmatic platforms replace traditional manual media buying with algorithm-driven, real-time bidding.

### China's Programmatic Advertising Industry Value Chain



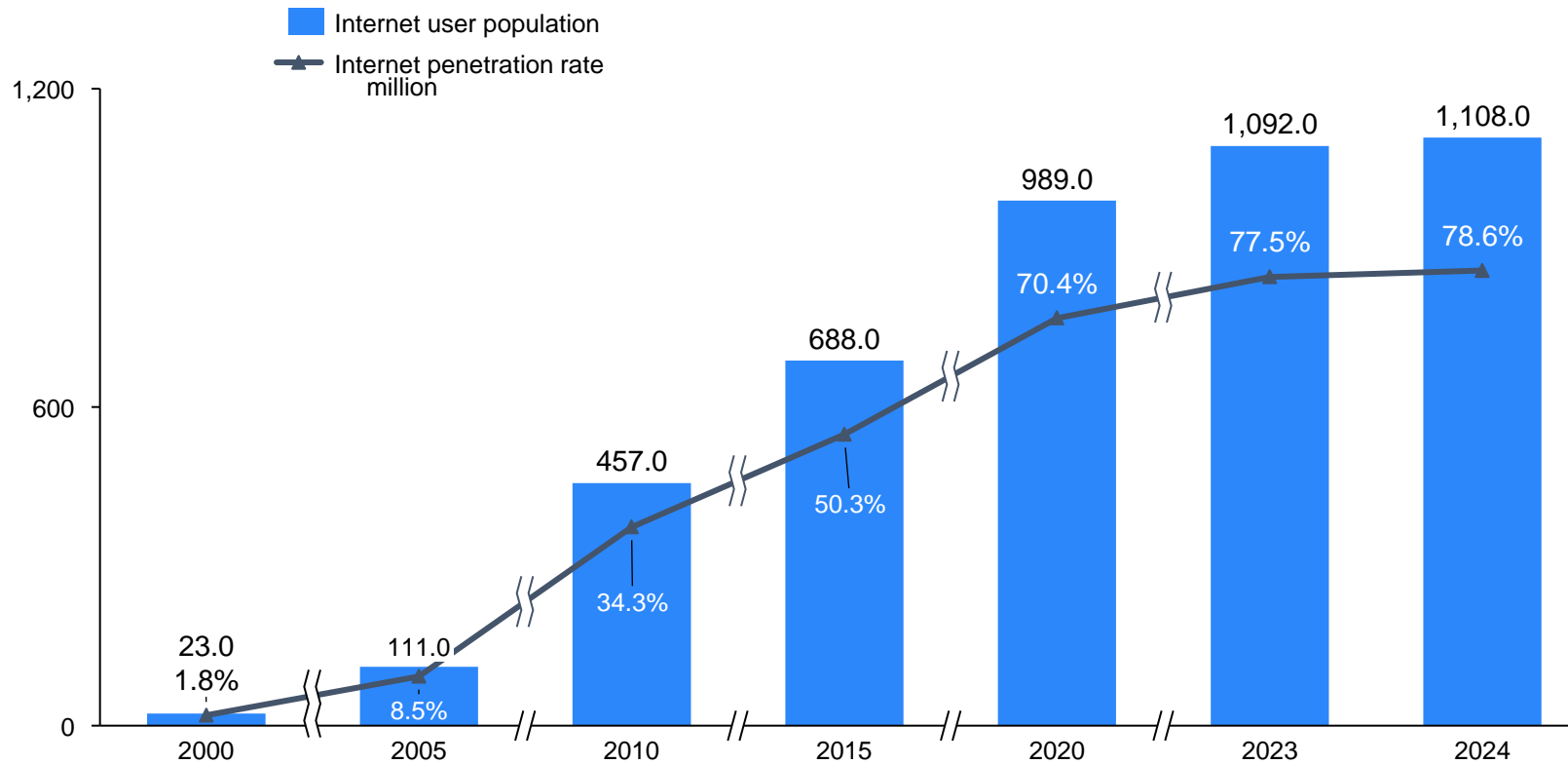
#### Key Analysis

- The programmatic advertising ecosystem comprises three core components: Sell-Side Platform (SSP), Demand-Side Platform (DSP), and advertising exchange platform (ad exchange). Each of these components plays a distinct role in automating the buying and selling of digital advertising inventory in the mobile advertising marketplace. DSPs serve advertisers and agencies by providing access to multiple sources of inventory to manage campaigns, apply targeting parameters and optimize bidding strategies in real time. SSPs serve media publishers by managing their advertising inventory, optimizing yield and connecting them with demand from multiple DSPs. Ad exchanges function as marketplaces where DSPs and SSPs transact through real-time auctions to facilitate efficient inventory discovery and price discovery at scale.

The growing base of internet users and significant rise in mobile device adoption provide a vast potential audience for online marketing strategies, effectively driving the robust development of online marketing.

Expanding Internet and Mobile Usage Drives Online Marketing Industry

*China's Internet user population and penetration rate, 2000-2024*



Proliferation of internet  
and mobile devices





















Expansion of audience  
of online marketing

In the era of mobile Internet, advertising has undergone a significant change. Despite the resulting lower barriers to entry for marketing, the demand for quality content has continually risen.

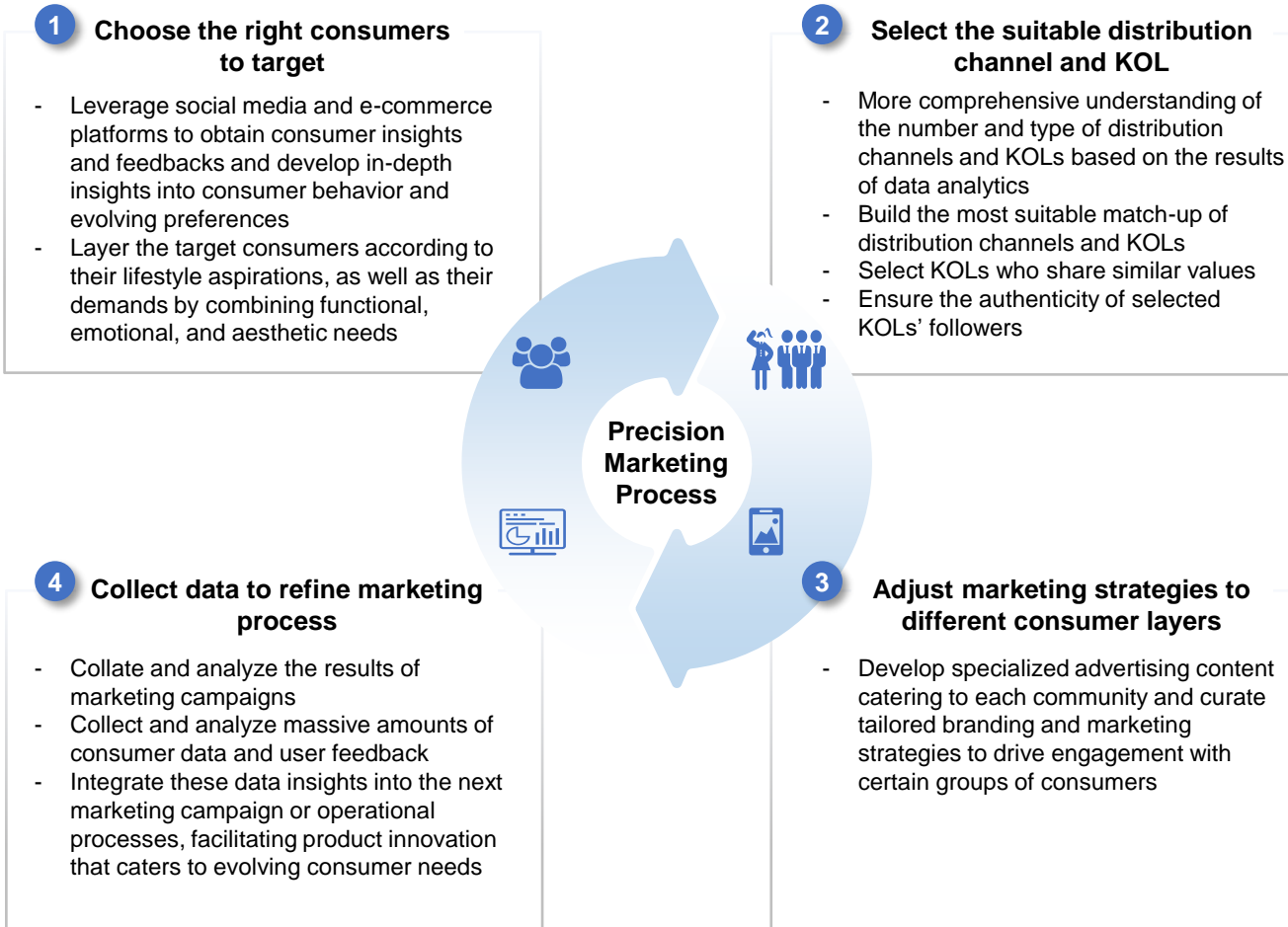
## Evolution of China's Advertising Formats, 2024

Low High

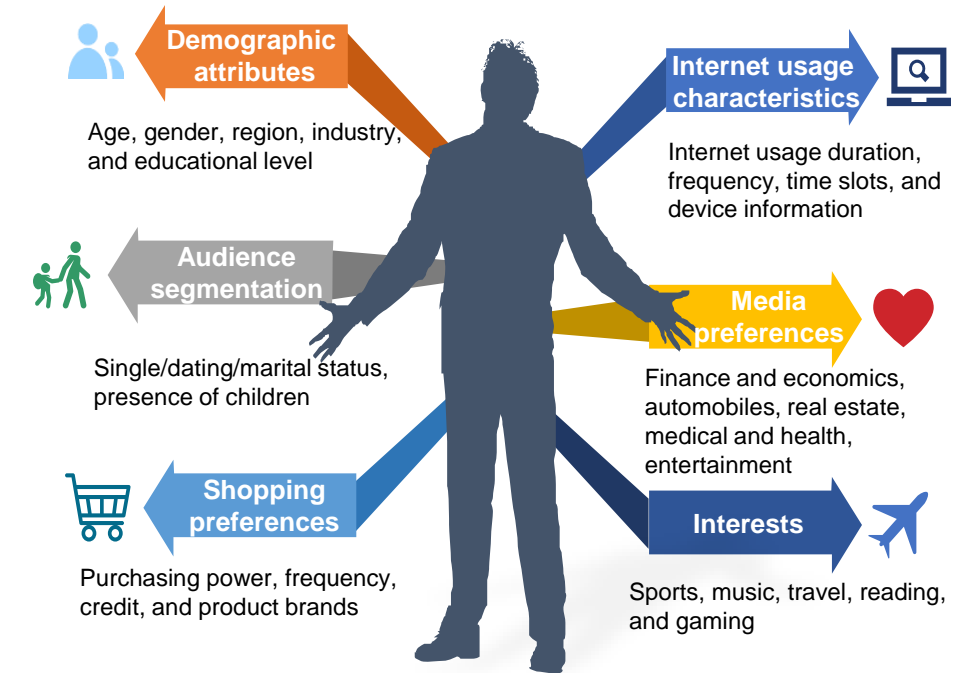
Development Periods for Media	Traditional Media (Before 2000)			Internet Media (2000~2010)			Mobile Internet Media (After 2010)		
Advertising Types									
Marketing Focus	<ul style="list-style-type: none"> <li>Promoting brand influence and shaping brand images</li> </ul>			<ul style="list-style-type: none"> <li>Either enhancing sales performance or brand image</li> </ul>			<ul style="list-style-type: none"> <li>Focusing on both brand influence and sales performance</li> </ul>		
Advertiser Scale	<ul style="list-style-type: none"> <li>Mainly <b>large-scale</b> enterprises</li> </ul>			<ul style="list-style-type: none"> <li><b>Medium-to-large-scale</b> domestic or multi-national enterprises</li> </ul>			<ul style="list-style-type: none"> <li>Enterprises of <b>all scales</b></li> </ul>		
Advertising Costs	<p> <b>High</b>, advertisers normally pay <b>in one lump sum</b>:</p> <ul style="list-style-type: none"> <li>✓ TV ads: ~RMB 800,000/30 seconds</li> <li>✓ Magazine ads: ~RMB 300,000/page</li> <li>✓ Outdoor ads: ~ RMB 100,000/4 weeks</li> </ul>			<p> <b>Relatively high</b>, advertisers <b>pay based on the performance of advertising</b>:</p> <ul style="list-style-type: none"> <li>✓ Red App: <b>Feed ads</b> – <b>Pay CPM/CPC</b>; at least RMB 100,000/advertisement;</li> <li>✓ Baidu: <b>Search ads</b> – <b>Pay CPM/CPC</b>; at least RMB 30,000/advertisement</li> <li>✓ Tencent video: <b>Display ads</b> – at least several millions of RMB per campaign</li> </ul>			<p> <b>Relatively low</b>, advertisers <b>pay by output of content and performance of advertising</b>:</p> <ul style="list-style-type: none"> <li>✓ To media platform: bidding price</li> <li>✓ To KOL: sometimes it is free for small KOL; generally at least several hundreds of RMB in fees per one unit of output</li> <li>✓ Live-streaming: depends on KOL's number of followers, at least several thousands of RMB in fees per campaign</li> </ul>		
Content Requirements	<p> One advertisement applies to all channels for multiple years</p> <ul style="list-style-type: none"> <li>Designed in the form of pictures and/or text</li> </ul>			<p> One advertisement applies to all channels for multiple years</p> <ul style="list-style-type: none"> <li>Designed mainly in the form of pictures and/or text</li> </ul>			<p> Different content and concepts for each different channel or KOL</p> <ul style="list-style-type: none"> <li>Designed mainly in the form of pictures or videos</li> </ul>		
Marketing Challenges	<p> <b>Few competitors</b> due to the high cost of advertising</p> <ul style="list-style-type: none"> <li><b>No requirements</b> on the contents of advertising</li> <li><b>Large</b> audience base</li> </ul>			<p> <b>Several competitors</b> due to the moderate cost of advertising</p> <ul style="list-style-type: none"> <li>Requires <b>innovative display forms</b> and <b>slogans</b> for ads</li> <li><b>Relatively large</b> audience base</li> </ul>			<p> <b>Plenty of competitors</b> due to the low costs of advertising</p> <ul style="list-style-type: none"> <li>Requires the <b>continuous and innovative output of ads</b></li> <li><b>Small audience base</b> due to fragmented traffic</li> </ul>		

# Precision marketing targets consumers, picks channels, tailors strategies, and uses data for further refinement, with the support of big data and other intelligent technologies.

## Precision Marketing Process, 2024



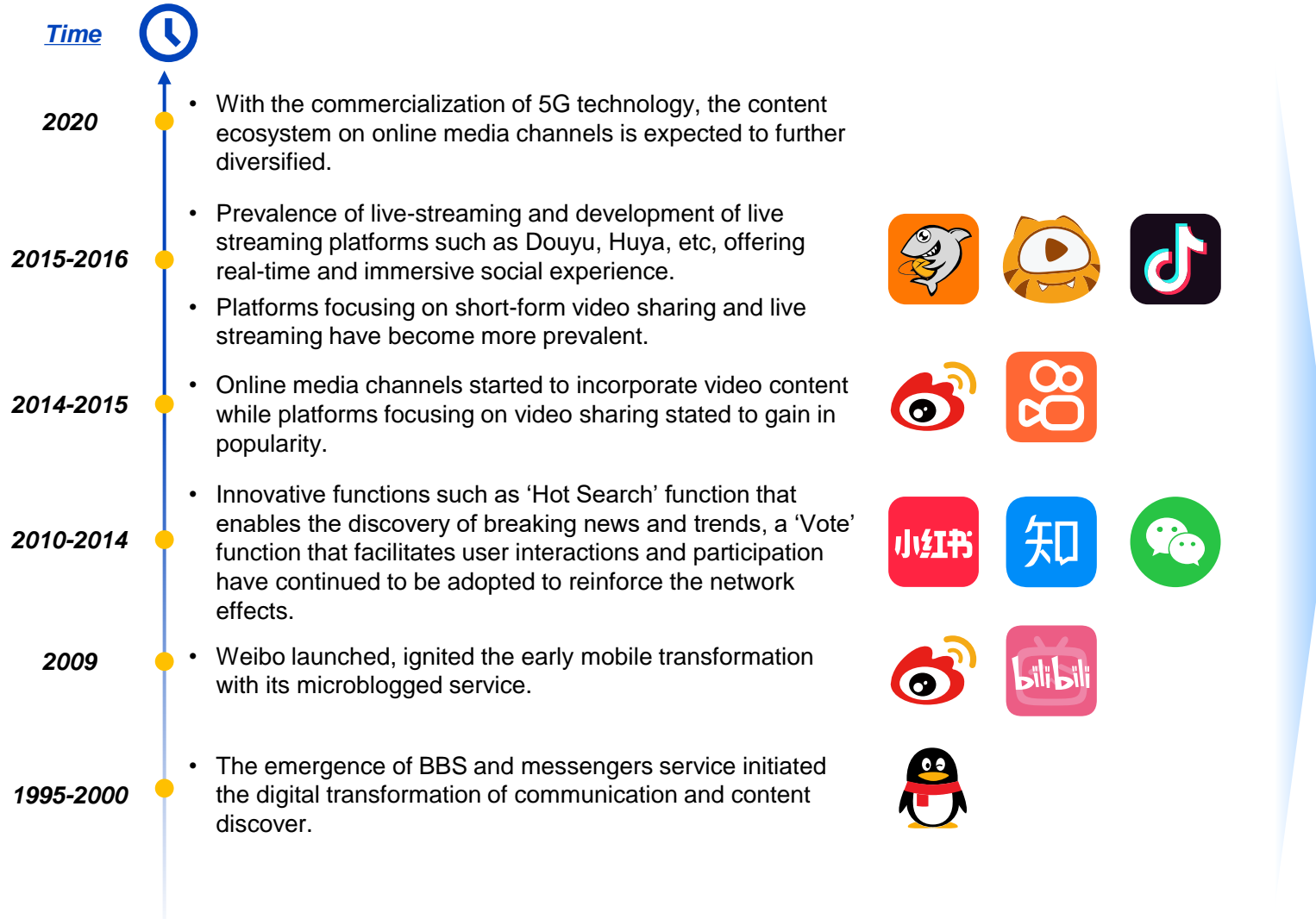
## Precision Marketing and User Profiles



- Advertisers' demand for digital marketing is rising. Marketing technology platforms create user profiles by utilizing user information and behavioural data, and they categorize these profiles with various tags. When executing ad campaigns, these tags enable precise targeting of the desired audience. When placing ads, they can identify the desired target audience through these tags. Big data analysis provides a solid foundation for precision marketing.

# China's online media channels have undergone significant developments, with innovative formats and functions emerging to improve the diversification of the content ecosystem and create a large traffic pool.

## Development of Online Media Channels in China



### ✓ Continuous application of new tech

In the future, enabled by adoption of new technology, new formats and interactions on online media channels are expected to emerge to facilitate people find their interest contents and expand their connections.

### ✓ Diversified content formats

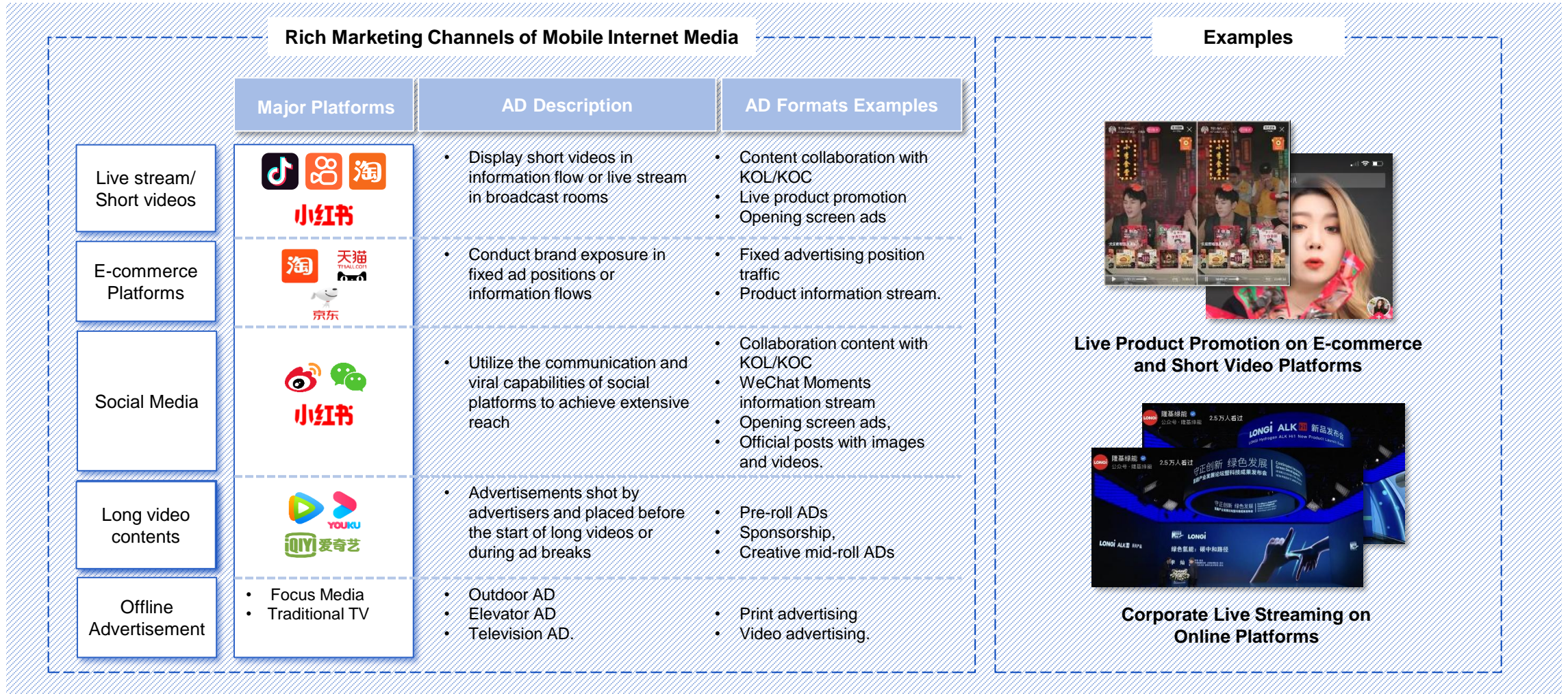
Online media channels with diversified content formats coverage are better position to meet their user's needs under different situations. Therefore, online media channels are continuously expanding their formats of content to include text, articles, pictures, audios, and videos.

### ✓ More engaging social experience

Innovative functions have continued to be invented and adopted by online media channels so as to better satisfy user demands and to improve the user experience, such as 'Hot search', 'Vote' and live-streaming.



# Live streaming and short video platforms enhance mobile marketing by leveraging user engagement data and customer profiles to optimize marketing precision and effectiveness.



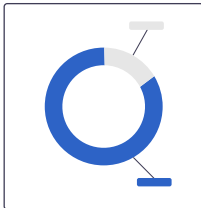


**Data-driven online marketing optimizes sales efficiency and ROI through customer insights, personalized services, and dynamic strategies targeting high-potential segments.**

### Online Marketing



- Online marketing is a strategic approach that leverages **in-depth data analysis and customer insights** to allocate resources to the most promising customer segments, thereby achieving higher sales efficiency. This method ensures that marketing efforts are **targeted and effective**, maximizing the potential for successful outcomes by focusing on the most likely prospects.



### Characteristics of Online Marketing



#### Data-driven

- By collecting and analyzing customer data, companies gain insights into customer behavior and needs, allowing them to craft more targeted marketing strategies. Leveraging big data technology, businesses can track and analyze customers from multiple angles—browsing, searching, purchasing, and feedback—to deeply understand their needs and preferences.



#### Customized

- By offering customized products, one-on-one communication, value-added membership services, and intelligent personalized recommendation systems, online marketing meet specific user needs and interests. This approach strengthens the emotional bond between users and the brand, enhances customer satisfaction and loyalty, and fosters sustainable growth.



#### Dynamic

- Online marketing necessitates constant adjustment and optimization. Companies must timely adapt their marketing strategies and plans to changes in the market environment and customer needs, ensuring synchronization and adaptability with the market. Additionally, continuous tracking and analysis of marketing outcomes enable timely adjustments and optimizations to enhance marketing.



#### Results-oriented

- Online marketing places significant emphasis on measuring and evaluating outcomes. Through clear metrics and data analysis, companies can quantify marketing effectiveness, optimize resource allocation, and enhance return on investment.

# Many driving factors and future trends are creating significant opportunities for China's public bus information services providers.

## Market Drivers and Future Trends for China's Public Bus Information Services Market

1

### Rise in Data Volume and Increasing Demand

- Sensors and monitoring devices deployed on each bus collect plentiful time series data every day. Along with the steady rise in the number of public buses in China, the volume of time series data in the public bus sector will increase correspondingly. According to CIC, the volume of time series data generated from sensors of buses in operation in China has increased from around 700 terabytes in 2020 to over 1,000 terabytes in 2024 and is expected to reach around 1,500 terabytes in 2029. The growing number of time series data generated from buses has brought challenges in data processing and management for transportation entities. Such entities are looking for professional time series data services for real-time intelligent decision-making and predictive maintenance.

2

### Increase in Penetration Rate of Real-time Public Bus Information Platforms

- Currently, the overall penetration rate of real-time public bus information platforms in China remains relatively low. According to CIC, the penetration rate of these platforms in China is only 34.3% in 2024. With the increasing penetration of mobile internet, continued government investment in smart city development, and growing acceptance of digital technologies among urban residents, the penetration rate of real-time public bus information platforms is expected to reach 63.2% in 2029. This trend is particularly notable in tier-2 and lower-tier cities, where there is vast potential for the adoption of real-time public bus information platforms among commuters.

3

### Technology Advancements

- Leveraging their strong data analytics capabilities and advanced AI algorithms, public bus information service providers can deliver real-time insights and seamless travel experiences to bus commuters and empower informed choices and optimized transport management for transportation entities. Advancements in big data analytics and AI technologies as well as adoption of other cutting-edge technologies in the public bus sector will further enable service providers to enhance precision of user profiling, which in turn improves the targeting of mobile advertising, boosting platform's monetization potential.

4

### Smart City Development

- In recent years, there has been an increased emphasis on interconnectivity and data-driven management along with the smart transportation and smart city development. Smart city development entails the deployment of a vast array of IoT devices that generate large volumes of real-time data, driving the demand for sophisticated data services in the public bus sector. Moreover, the government plans to improve the digital infrastructure in smart cities, including promoting the connectivity among public service platforms, devices and terminals, and building data sharing facilities. These initiatives will make data more accessible and easier to collect, creating potential for public bus information service providers to deliver advanced services cost-effectively.

5

### Increasing Demand for Mobile Advertising

- Advancements in internet technology and deeper penetration of mobile devices significantly expanded the scale of mobile traffic, driving increasing demands for mobile advertising services. Meanwhile, China's public bus information service providers in have cultivated a large user base and substantial traffic resources with real-time bus services, positioning themselves as ideal platforms for advertisers to reach their target audience effectively.

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- II. Competitive Landscape of China's Public Bus Information Service Industry**
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The company holds a leading position in China's public bus information services market, applying advanced time series data intelligence to deliver real-time, accurate bus arrival information.

Competitive Landscape of Top 5 China’s Public Bus Information Services in Terms of Revenue in 2024

Rank	Company Name	Founding Year	Business Description	Revenue from public bus information services in 2024
1	Amap 高德地图	2002	<ul style="list-style-type: none"><li>A subsidiary of a leading multinational technology company based in China and listed on the Stock Exchange and NYSE, providing digital map, navigation and local lifestyle services in China</li></ul>	437.8 Million RMB
2	Baidu Maps 百度地图	2005	<ul style="list-style-type: none"><li>A subsidiary of a leading AI company based in China and listed on the Stock Exchange and NASDAQ, providing digital map, navigation and travel-related services</li></ul>	267.2 Million RMB
3	The Company	2010	<ul style="list-style-type: none"><li>A mobile app operator that applies advanced time series data intelligence to deliver real-time, accurate bus arrival information</li></ul>	206.1 Million RMB
4	Alibaba Cloud 阿里云	2009	<ul style="list-style-type: none"><li>A subsidiary of a leading multinational technology company based in China and listed on the Stock Exchange and NYSE, providing comprehensive cloud services</li></ul>	178.8 Million RMB
5	Tencent Maps 腾讯地图	2012	<ul style="list-style-type: none"><li>A subsidiary of a Hong Kong Stock Exchange-listed company, providing digital mapping, navigation, and location-based services</li></ul>	105.8 Million RMB
CR5			55.7%	

Among all real-time public bus information platforms in China, Chelaile covers the largest number of cities and retains a leading position in the industry as a pioneering early entrant into the sector.

Competitive Landscape of Top 5 China’s Real-time Public Bus Information Platform in Terms of Revenue of Real-time Bus Information Services in 2024

Rank		Company Name	Real-time Bus Launch Year	Revenue from real-time bus information platform RMB in millions, 2024	Average MAUs of real-time bus information services Million, 2024
1		Amap 高德地图	2014	363.3	~67.0
2		Baidu Maps 百度地图	2015	211.8	~40.0
3		Chelaile 车来了	2013	202.0	29.1
4		Tencent Maps 腾讯地图	2014	95.8	~12.0
5		Mygolbs 掌上公交	2010	52.0	~2.0

## As the demand for public bus information services continues to grow and competition intensifies, providers must continuously optimize service quality, possessing a number of critical strengths.(1/2)

### Key Success Factors in China's Public Bus Information Services Industry

#### 1 Strong time series data processing and analysis capabilities

- Efficient processing and precise analysis of time series data are core competencies for public bus information service providers. Providers must establish extensive data collection channels to ensure the fast and comprehensive data gathering, implement high-performance data access systems for rapid data input and storage, and adopt effective data preprocessing mechanisms and data labeling tools to generate high-quality datasets for predictive analysis and model training. By applying data analysis algorithms and artificial intelligence models, public bus information service providers can identify patterns within time series datasets, make accurate predictions and provide valuable and reliable information to bus commuters. These capabilities not only ensure data accuracy, but also enhance the service effectiveness by uncovering deeper patterns and trends within the data.

#### 2 Value creation for customers

- Delivering tangible value to customers is crucial for long-term success. Foremost, public bus information service providers must understand the unique characteristics of public transportation systems, commuter needs, and industry challenges across different cities and regions. With these insights, public bus information service providers are able to accurately identify commuters' pain points and develop tailored solutions to enhance their travel experience. By establishing long-term relationships with commuters by continuously refining services, bus information service providers foster greater loyalty and trust among their user base. This customer-centric approach not only satisfies but exceeds commuters expectations, positioning providers as essential partners in improving urban mobility.

## As the demand for public bus information services continues to grow and competition intensifies, providers must continuously optimize service quality, possessing a number of critical strengths.(2/2)

### Key Success Factors in China's Public Bus Information Services Industry

#### 3 National operations and cross-regional integration capabilities

- Given China's vast geographic and demographic diversity, public bus systems vary greatly across regions in terms of infrastructure, transportation models and management standards. To address these challenges, public bus information service providers must possess robust cross-regional data integration capabilities, including unifying data formats, ensuring data accuracy, and achieving nationwide operational coordination. Providers need to implement unified platforms and systems to break down regional barriers, enable seamless data sharing, and deliver consistent and efficient services for bus commuters across the country.

#### 4 Technological advancement and continuous innovation

- Technical prowess and innovation capabilities are fundamental in the dynamic public bus information service sector. To stay competitive, public bus information service providers must embrace cutting-edge technologies and continuously innovate products and services, ensuring adaptability to evolving user demands and technological trends. The relentless pursuit of technological innovation and product upgrades is key for public bus information service providers to maintain a leading position in the fiercely competitive market and achieve sustainable business growth.

#### 5 Building an excellent talent pool

- In the public bus information service market, talent, as the driving force behind technological advancement and data resource exploration, are essential resources for all public bus information service providers. A team with robust technical capabilities and diverse backgrounds can better adapt to industry demands and excel in research, data analytics and model design. Such a team can also continuously provide competitive customer support and services, fostering the continuous business growth.



## Competitive Advantages of Chelaile in relation to the real-time bus information platform:

### Competitive Advantages Related to Real-time Bus Information Platform



The version of Chelaile released in February 2025 processes this data to achieve a high accuracy rate of approximately 99.5% in displaying bus routes and approximately 97.8% in showing real-time bus locations, surpassing the industry average of approximately 90%.



The version of Chelaile launched in February 2025 has achieved approximately 90% accuracy in predicting bus arrival times, significantly outperforming the industry average.

## Verifications

- According to CIC, Chelaile is the largest real-time bus information platform in China by city coverage, spanning 274 cities as of December 31, 2024.
- In 2024, Chelaile ranked third among real-time bus information platforms in China in terms of average MAUs, with an average of approximately 29.1 million MAUs in 2024, according to CIC.
- According to CIC, China's mobile advertising service market is highly concentrated, with a few leading media publishers dominating the market.
- The version launched in February 2025 has achieved an accuracy of approximately 99.5% in displaying bus routes and about 97.8% in showing real-time bus locations, both above the industry average of approximately 90.0%, according to CIC.
- According to CIC, mobile app distribution channels usually have a strong bargaining power.
- According to CIC, there have been instances where companies incorporating open-source software into their products faced claims challenging the rights associated with such software from time to time.
- According to CIC, the frequency and magnitude of cyberattacks and other malicious internet-based activities are on the rise, and cloud-based companies have been attractive targets in the past, with a likelihood of continued targeting in the future.
- According to CIC, as of December 31, 2024, there are approximately 700,000 public buses in operation across China, with an average daily operating time of around 15 hours.
- . According to CIC, bus commuters in China took around 39 billion bus rides in 2024. The number of bus rides took by bus commuters in China is expected to reach around 40 billion in 2029.

## Verifications

- According to CIC, the size of China's public bus information services market grew from RMB0.9 billion in 2020 to RMB2.1 billion in 2024, representing a CAGR of 25.9%.
- According to CIC, the size of China's real-time public bus information platform market grew from RMB0.5 billion in 2020 to RMB1.2 billion in 2024, at a CAGR of 26.1%, and is expected to reach RMB2.8 billion in 2029, at a CAGR of 18.8%.
- According to CIC, the population in tier-2 and lower-tier accounts for approximately 80% the total proportion in 2024.
- As China's national smart city development strategy advances and residents' acceptance of digital services improves, the penetration rate of real-time public bus information platforms in tier-2 and lower-tier cities is expected to reach approximately 50% in 2029, according to CIC.
- According to CIC, the volume of time series data generated from sensors of buses in operation in China has increased from around 700 terabytes in 2020 to over 1,000 terabytes in 2024 and is expected to reach around 1,500 terabytes in 2029.
- According to CIC, the penetration rate of these platforms in China is only 34.3% in 2024.
- According to CIC, the aggregate market share of the top five public bus information service providers is approximately 55% in 2024.
- According to CIC, bus riders took approximately 39 billion bus rides in China in 2024.
- According to CIC, the size of China's online advertising market grew from RMB851.1 billion in 2020 to RMB1,487.6 billion in 2024, representing a CAGR of 15.0% between 2020 and 2024.
- According to CIC, as of December, 2024, China's average monthly number of distinct mobile devices amounted to over 1.4 billion, with an average daily usage time of 272.4 minutes per device.

## Verifications

- According to CIC, the size of mobile advertising service market in terms of revenue has increased from RMB742.0 billion in 2020 to RMB1,329.5 billion in 2024, representing a CAGR of 15.7% between 2020 and 2024, and is expected to reach RMB2,176.0 billion in 2029, representing a CAGR of 10.4% between 2024 and 2029.
- According to CIC, Chelaile is the largest real-time bus information platform in China by city coverage, spanning 274 cities as of December 31, 2024.
- In 2024, Chelaile ranked third among real-time bus information platforms in China in terms of average MAUs, with an average of approximately 29.1 million MAUs in 2024, according to CIC.
- According to CIC, Chelaile is the largest real-time bus information platform in China by city coverage, spanning 274 cities as of December 31, 2024.
- For instance, the version of Chelaile launched in February 2025 has reached a high accuracy rate of approximately 99.5% in displaying bus routes and approximately 97.8% in showing real-time bus locations, surpassing the industry average of approximately 90%, according to CIC.
- Moreover, we adapt and fine-tune foundation models with our industry insights for various use scenarios, further improving the prediction accuracy of our models for industry-specific tasks. Specifically, in the public bus sector, we have developed a proprietary spatial temporal model for the demanding task of vehicle data extraction. Such model can precisely identify vehicle routes and bus stop locations in real-time, thereby enhancing the reliability of bus arrival time estimates and improving the accuracy of travel route predictions. Supported by such model, the version of Chelaile launched in December 2024 has achieved an accuracy rate of approximately 90.0% in predicting bus arrival times, outperforming the industry average, according to CIC.
- According to CIC, buses in China are generally equipped with vehicle-tracking devices and sensors to gather real-time location data, which is initially sent to the bus companies operating the bus fleets and then is relayed to the local transportation authorities overseeing bus companies' operations.

## Verifications

- For example, the version of Chelaile released in February 2025 processes this data to achieve a high accuracy rate of approximately 99.5% in displaying bus routes and approximately 97.8% in showing real-time bus locations, surpassing the industry average of approximately 90%, according to CIC.
- The version of Chelaile launched in February 2025 has achieved approximately 90% accuracy in predicting bus arrival times, significantly outperforming the industry average, according to CIC.
- Following the programmatic advertising platforms' initial screening, we conduct secondary sample reviews of advertisement content after advertisers submit winning bids and their advertisements are published on these platforms, a process typically completed within one business day. According to CIC, it is an industry norm that advertising service providers conduct sample review on published programmatic advertisement content, due to technical constraints.
- According to CIC, our content review practices align with industry standards.
- According to CIC, buses in operation in China generated over 1,000 terabytes of time series data from onboard sensors in 2024, including information such as vehicle real-time location, passenger boarding time, stop duration and unplanned detours.
- According to CIC, mobile app distribution channels usually have a strong bargaining power.
- In 2022, 2023 and 2024, our five largest customers in each year during the Track Record Period aggregately accounted for approximately 74.4%, 72.4% and 68.2% of our total revenue for the same years, respectively. Except for Customer F, a brand advertiser for our mobile advertising services, and Customer H, a customer of our data technology services, all the other five largest customers in each year during the Track Record Period are programmatic advertising platforms we collaborate with in providing mobile advertising services. According to CIC, such customer concentration is not uncommon for companies providing mobile advertising services in the PRC.

## Verifications

- According to CIC, China's mobile advertising market is dominated by a few key players, limiting the number of established programmatic platforms that meet our needs. As a result, we have collaborated with a select few during the Track Record Period and expect to continue to do so in the foreseeable future.
- According to CIC, we are the third largest public bus information service provider in China in terms of revenue in 2024.
- According to CIC, Chelaile is the largest real-time bus information platform in China by city coverage, spanning 274 cities as of December 31, 2024.
- However, according to CIC, local transportation entities encounter several issues with their own platforms, including:
  - I. Imprecise data and suboptimal user experience. Many local transportation entities lack data cleansing techniques and data quality management systems needed to eliminate inaccuracies and inconsistencies in raw data before analysis, resulting in unreliable predictions and bus information.
  - II. Technical limitations. These entities often lack the expertise and resources to develop and maintain high-performance technology infrastructures capable of processing large volumes of bus data effectively.
  - III. Limited geographic reach. Most platforms developed by local transportation entities are designed for a narrow user base and cannot easily expand to other regions without significant adjustments.
- According to CIC, Chelaile ranked the third in terms of average MAUs among real-time bus information platforms in China in 2024, with an average of approximately 29.1 million MAUs in 2024.
- According to CIC, such technologies are readily available in the market for acquisition.

## Verifications

- The programmatic advertising ecosystem comprises three core components: Sell-Side Platform (SSP), Demand-Side Platform (DSP), and advertising exchange platform (ad exchange). Each of these components plays a distinct role in automating the buying and selling of digital advertising inventory in the mobile advertising marketplace. DSPs serve advertisers and agencies by providing access to multiple sources of inventory to manage campaigns, apply targeting parameters and optimize bidding strategies in real time. SSPs serve media publishers by managing their advertising inventory, optimizing yield and connecting them with demand from multiple DSPs. Ad exchanges function as marketplaces where DSPs and SSPs transact through real-time auctions to facilitate efficient inventory discovery and price discovery at scale.
- Programmatic platforms replace traditional manual media buying with algorithm-driven, real-time bidding. When a user accesses an interface of a mobile media publisher, an ad request is generated to fill an available advertising slot, which carries user attributes such as location, demographics and interests, along with contextual information such as the type of media content being accessed. The platform evaluates each bid based not only on price but also on criteria such as relevance, predicted engagement, compliance with advertising policies and the overall impact on user experience, among others. The winning bid, typically the highest that satisfies these conditions, is automatically assigned to the available advertising slot.
- According to CIC, the size of mobile programmatic advertising service market in terms of revenue has increased from RMB591.3 billion in 2020 to RMB1,200.5 billion in 2024, representing a CAGR of 19.4% between 2020 and 2024, and is expected to reach RMB2,051.6 billion in 2029, representing a CAGR of 11.3% between 2024 and 2029.
- With the rapid development of China's economy, China's urbanization process is accelerating, profoundly transforming the urban landscape and reshaping residents' commuting patterns. Public buses, known for their convenience, affordability and environmental benefits, have become a key component of urban transportation systems. As cities expand and population density rises, the demand for public bus services continuously grows, underscoring the essential role of public buses in easing traffic congestion, reducing carbon emissions, and promoting sustainable development.



## Verifications

- Increasing Demand for Public Bus Information Services:
  - With the continued advancement of urbanization, it is expected that the role of the public bus system in supporting public mobility and optimizing urban transportation infrastructure is to become increasingly significant, positioning it as a key driver of social and economic development and a crucial element in improving residents' life quality. To improve urban development, optimizing the public bus system enhances transportation efficiency, reduces congestion, lowers pollution, and improves the urban environment, therefore boosting residents' life quality and the city's appearance and landscape. It also facilitates the rational use of urban resources, enhancing economic vitality and competitiveness. Recognizing these benefits, the PRC government has prioritized the transformation of the public bus system toward intelligence, sustainability, and convenience.
  - For commuters, the ongoing urbanization and fast pace of modern life have intensified commuting pressures, making daily travel increasingly challenging and creating the demand for real-time information of public bus services. Commuters expect real-time updates on bus locations, arrival times, and route adjustments to plan their journeys efficiently, rather than relying on traditional station displays and on-vehicle screens. These shifts have fueled the growing demand for efficient and user-friendly public bus information services.
  - For transportation entities, comprehensive analysis of operational data of public bus systems is crucial, because it enables precise identification of bus route bottlenecks, areas with higher commuting demands, and potential service gaps. This data-driven approach allows them to optimize bus route layouts, improving coverage and convenience of their services. Real-time vehicle monitoring also helps transportation entities identify and address issues promptly, ensuring stable service. Additionally, by integrating data across various routes, transportation entities gain deeper insights into traffic patterns and future demands and formulate effective transportation policies. Robust public bus information services are essential for enhancing operational efficiency and guiding the strategic development of urban transportation networks.

## Verifications

- The complexity of public bus information data creates high entry barriers, requiring advanced systems and technologies to process and analyze large-scale data effectively.
  - High-performance data access and storage systems. Public bus operations generate a vast amount of data daily, encompassing numerous timestamps and measurements. Only service providers equipped with robust data access and storage systems can handle this complexity, accessing data efficiently and cost-effectively to unlock its potential value and maintain a competitive edge.
  - Sophisticated pre-processing technologies. Public bus data often contains noise and outliers due to sensor errors and equipment malfunctions. To optimize operations and enhance passenger experience, public bus information service providers must deploy advanced preprocessing techniques to effectively detect and correct these errors and inconsistencies.
  - Well-designed data analytics methods. Public bus data is highly complex, featuring multiple variables and attributes, such as bus IDs, locations, and commuter counts. Tailored analysis methods are required to process this high-dimensional data, enabling accurate predictions and data-driven decision-making.
  - In-depth understanding of temporal patterns. Public bus information data exhibits complex temporal patterns, such as dependencies on previous data points and recurring patterns within fixed intervals. Machine learning models and other methodologies are required to identify and analyze these patterns, thereby optimizing resource allocation.
- China's mobile advertising industry mainly employs four pricing models: CPM (cost per thousand impressions), CPC (cost per click), CPA (cost per action), and CPT (cost per time). Among these, CPM is the most widely used model, with pricing based on advertising exposure. Most advertisements are priced through automated and real-time bidding mechanisms by programmatic advertising, which awards advertising placements targeting specific demographics or time slots to the highest bidder.
- The rapid growth of the mobile internet has changed the supply and demand structure of the advertising industry and accelerated the adoption of automated advertising transaction models. To meet growing expectations from advertisers for greater targeting accuracy and operational efficiency, and from publishers for scalable monetization, programmatic advertising has gained prominence as the primary method of buying and selling mobile advertising inventory, accounting for over 90% of mobile advertising spend in 2024.

## Verifications

- Programmatic advertising is an automated system that manages the buying, selling and placement of digital advertisements. Unlike traditional advertising methods that involve manual negotiations and purchases, programmatic advertising features real-time bidding and algorithm-driven decision-making to enable advertisers to access inventory at scale and in real time and at the same time allow media publishers to maximize yield through real-time pricing and demand aggregation.
- Expanding mobile internet population. Driven by advancement in internet technologies and growing penetration of mobile devices, the number of mobile internet users in China has significantly increased during the recent years. According to CIC, as of December, 2024, China's average monthly number of distinct mobile devices amounted to over 1.4 billion, with an average daily usage time of 272.4 minutes per device. This large base of active mobile users boosts engagement on APPs and creates extensive exposure and interaction opportunities for advertisers, bolstering the mobile advertising service industry.
- Advancements in mobile internet technology. The adoption of cutting-edge technologies, such as 5G, AI and big data analytics, has transformed the mobile advertising service industry. These innovations enhance the efficiency of advertisement production and delivery, reduce operational costs, enhance user experience and improve advertisement effectiveness, thereby driving the growth in demand for mobile advertising services.
- Enhanced channel value of mobile media platforms. With the decline of traditional media, users have increasingly turned to mobile media platforms. These platforms, mastering extensive traffic and advanced user profiling capabilities, enable targeted advertising.
- Continuous industry innovation. Mobile advertising service industry participants are actively investing in R&D to improve advertising effectiveness. By integrating resources such as advertisement inventory, traffic, media and marketing tools, they deliver higher-value and one-stop advertising solutions. In addition, innovations in advertising formats, such as short videos and live streaming, further boost user engagement, driving superior advertising performance and sustaining industry growth.

## Verifications

- Continuously rising penetration rate of programmatic advertising in China. As advertising technology matures and data infrastructure improves, programmatic advertising has become increasingly prominent in China's mobile internet advertising market. By leveraging advanced algorithms, data analytics, and diverse traffic sources, programmatic platforms enable more precise and efficient ad targeting, leading to higher ROI and stronger user engagement. This effectiveness has prompted advertisers to allocate more budgets to programmatic channels, accelerating the market's shift toward greater intelligence and precision.
- China's mobile advertising service market is highly competitive, with over 10,000 participants as of December 31, 2024. However, a few leading media publishers, such as search engine companies, social media platforms and e-commerce giants, dominate the landscape. In 2024, the top five players accounted for approximately 80% of the market share by revenue, and the market share of the Group was 0.02%.

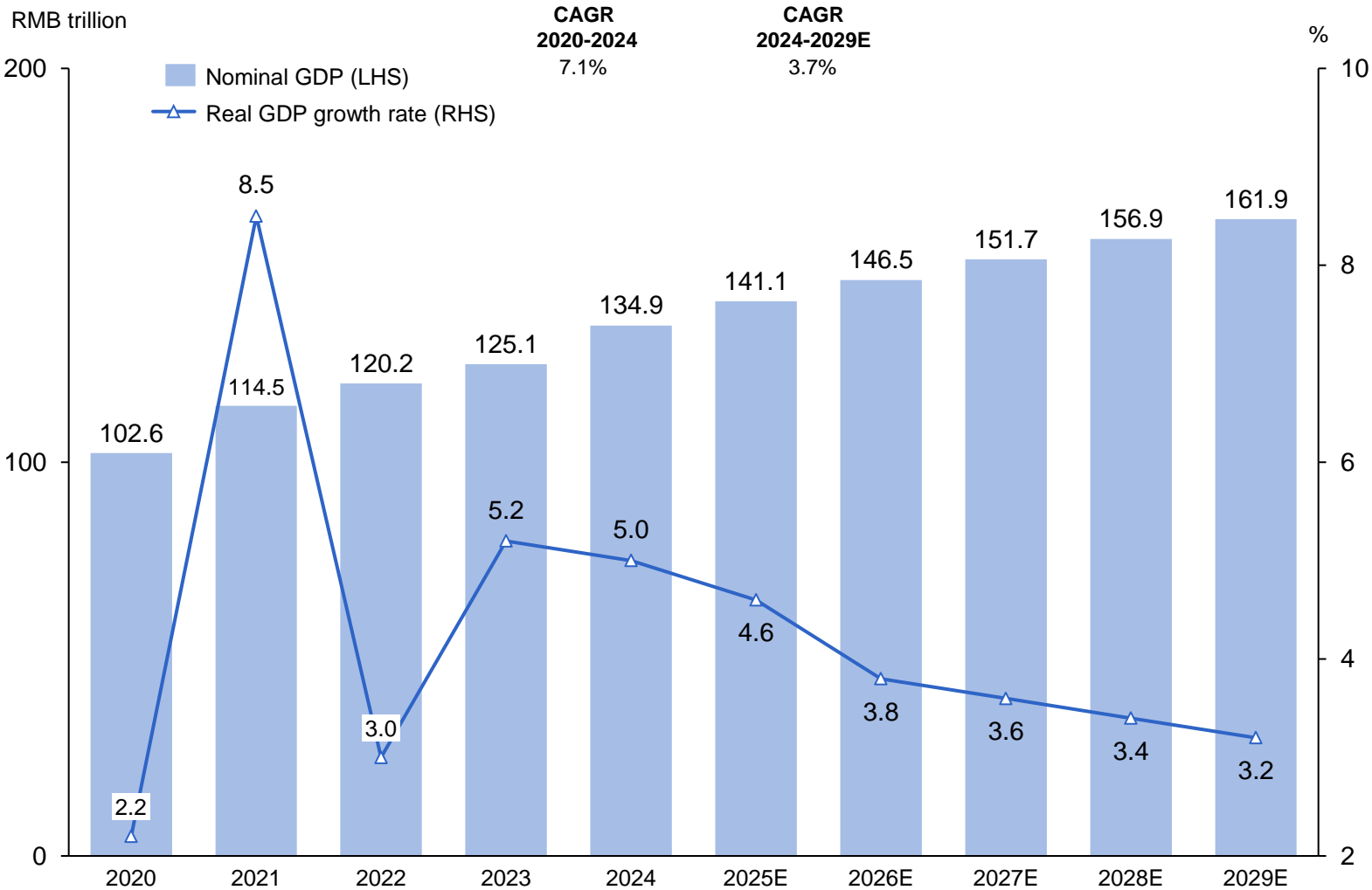
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- V. **Appendix**

China has experienced a period of rapid growth in terms of its nominal GDP and became the second-largest economy in the world in 2010, with this growth trend expected to continue over the long run.

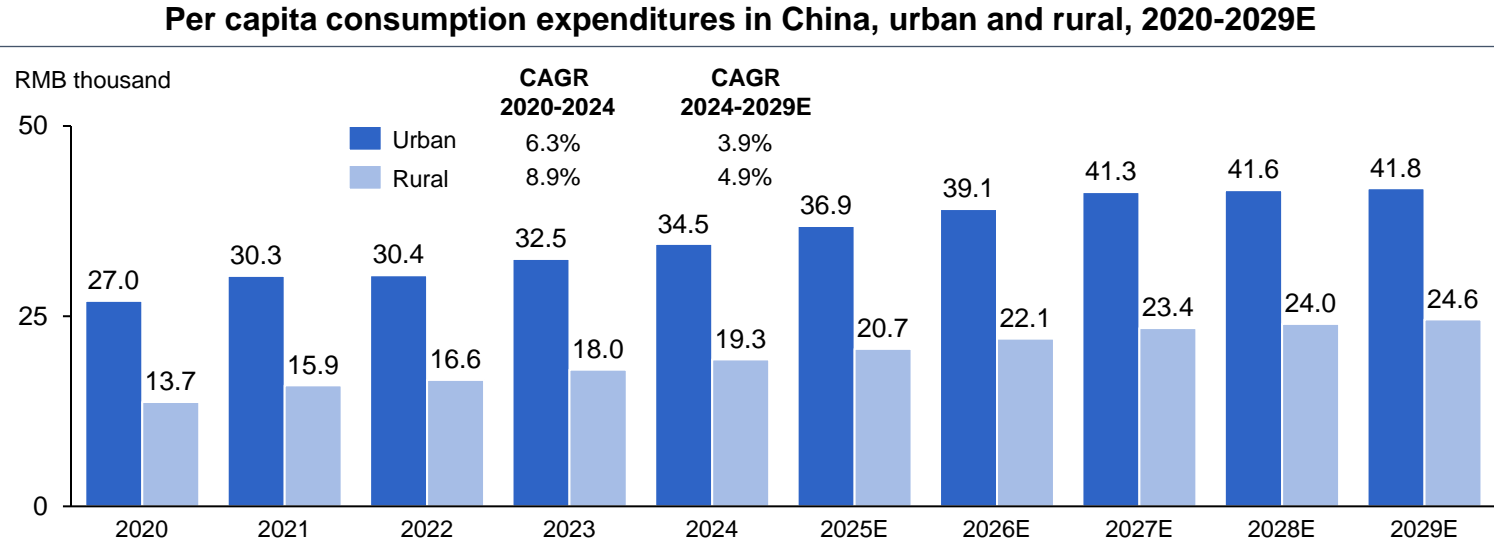
Nominal GDP and Real GDP growth rates, China, 2020-2029E



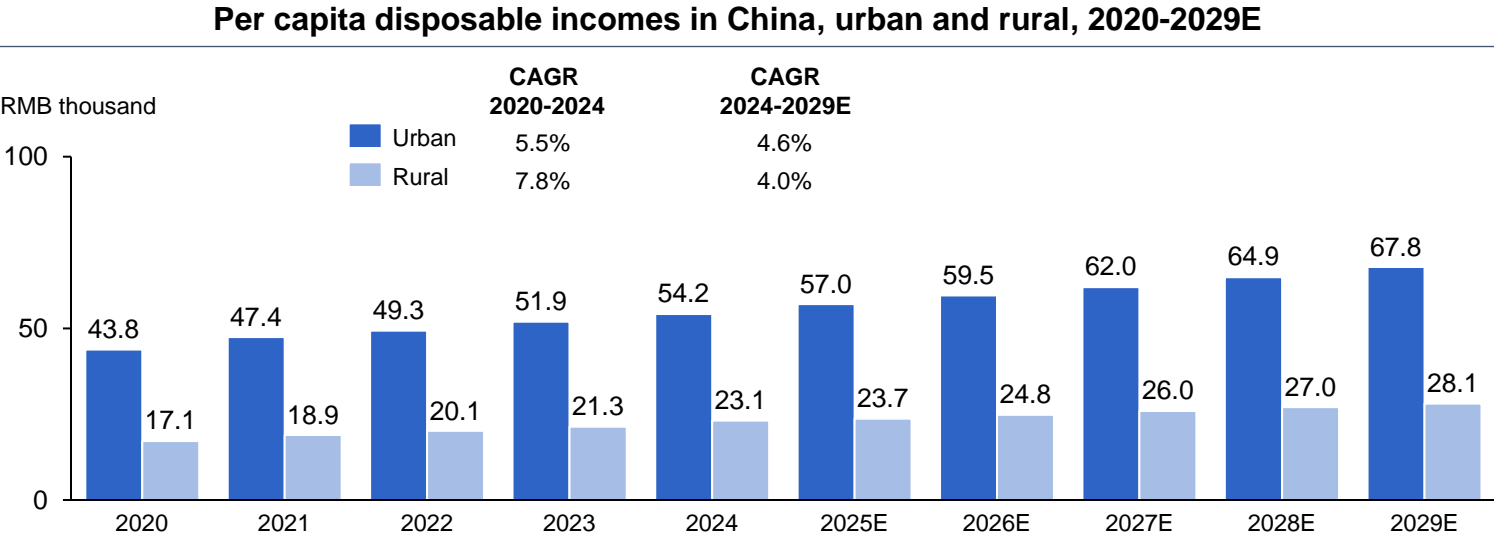
Analysis

- China’s economy has shown significant growth in recent years, with its nominal GDP rising from RMB 99.1 trillion in 2019 to RMB 134.9 trillion in 2024 and is projected to reach RMB 161.9 trillion by 2029. However, the value of real GDP growth took a plunge in 2020 due to the covid-19. Although there was a one-time increase in real GDP during the economic recovery in 2021, the future GDP growth is expected to remain stable after 2023.
- China's economic outlook is currently facing several challenges. The ongoing trade tensions with the United States have led to uncertainty and a potential slowdown in economic growth. In addition, China's aging population is putting pressure on its labor force and social security system. Despite these challenges, China continues to invest heavily in infrastructure and technology, which could drive future economic growth. The government's commitment to economic reform and opening up to foreign investment also presents opportunities for sustained growth.

China’s purchasing power, underwent an increase over the past years, and is expected to maintain this growth trend in the years ahead as a result of continuous structural changes and industrial upgrades.



- Analysis
- In 2024, the country’s per capita consumption for urban and rural areas showed growth, with urban resident’s spending increasing nominally by 4.7%, reaching around RMB 34.5 thousand, while rural resident’s consumption grew by 6.1%, surpassing RMB 19 thousand over the same period. The national per capita disposable income of urban residents increased by 4.6% to RMB 54.2 thousand in 2024, while rural residents saw a 6.6% increase to reach RMB 23.1 thousand.
  - The ongoing increase in consumption expenditure is the direct result of rising per capita disposable income. This growth in income has mainly been driven by the rapid development of the Chinese economy and the continuous upgrading of China’s manufacturing sector, along with a structural shift in the mainstay of development, from the primary and secondary sectors to the tertiary sector. Growing purchasing power and consumption upgrades in both urban and rural areas suggest a stronger level of consumer confidence and sustainable internal circulation, thus giving rise to the new retail and logistics industry. It provides tremendous development potential for China’s consumer and FMCG industries.

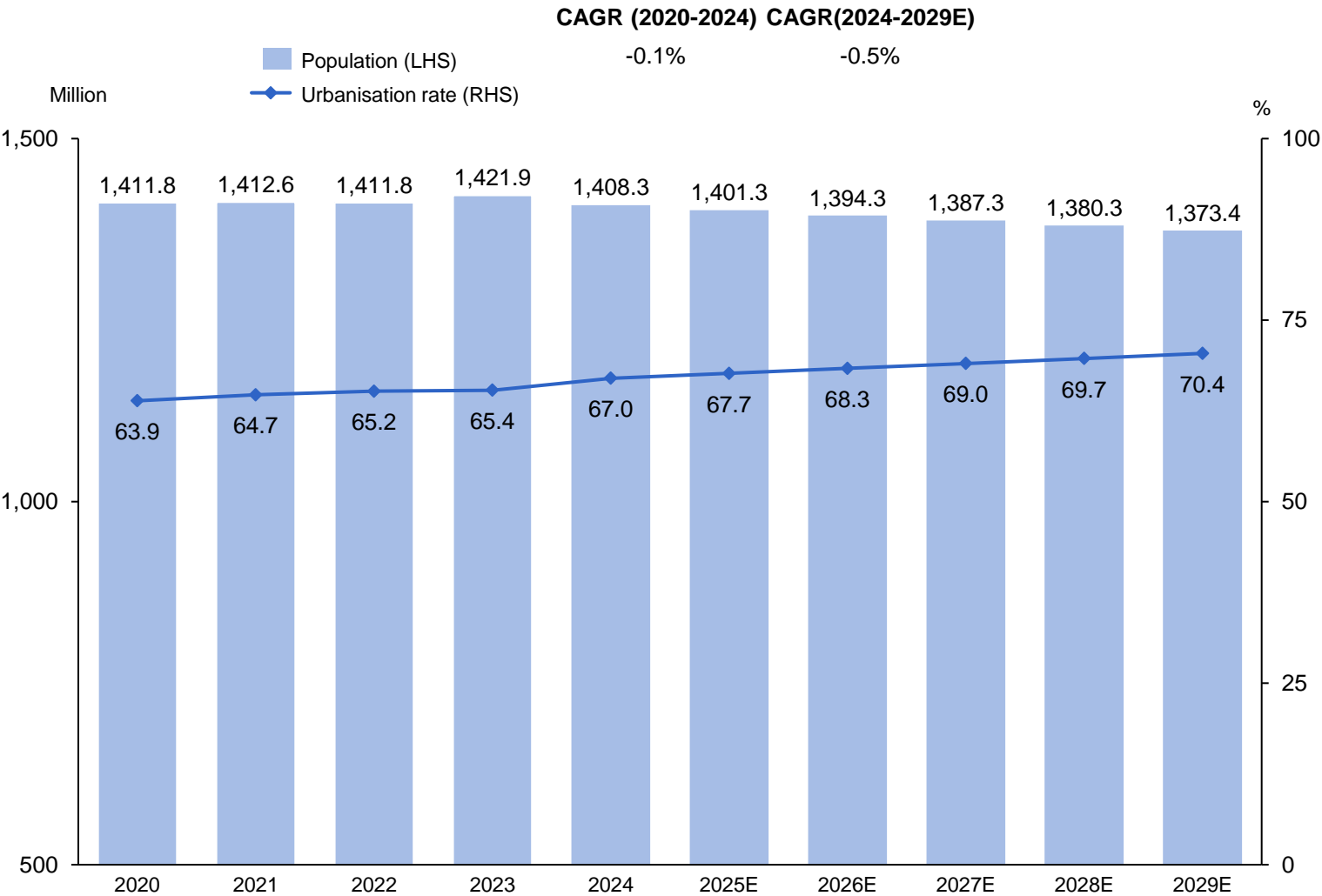




Appendix

China’s population growth is expected to slow down in the future. With the steady development of economy, the urbanization rate rose continuously and is projected to increase even further in the future.

Urban population and urbanization rate, China, 2020-2029E

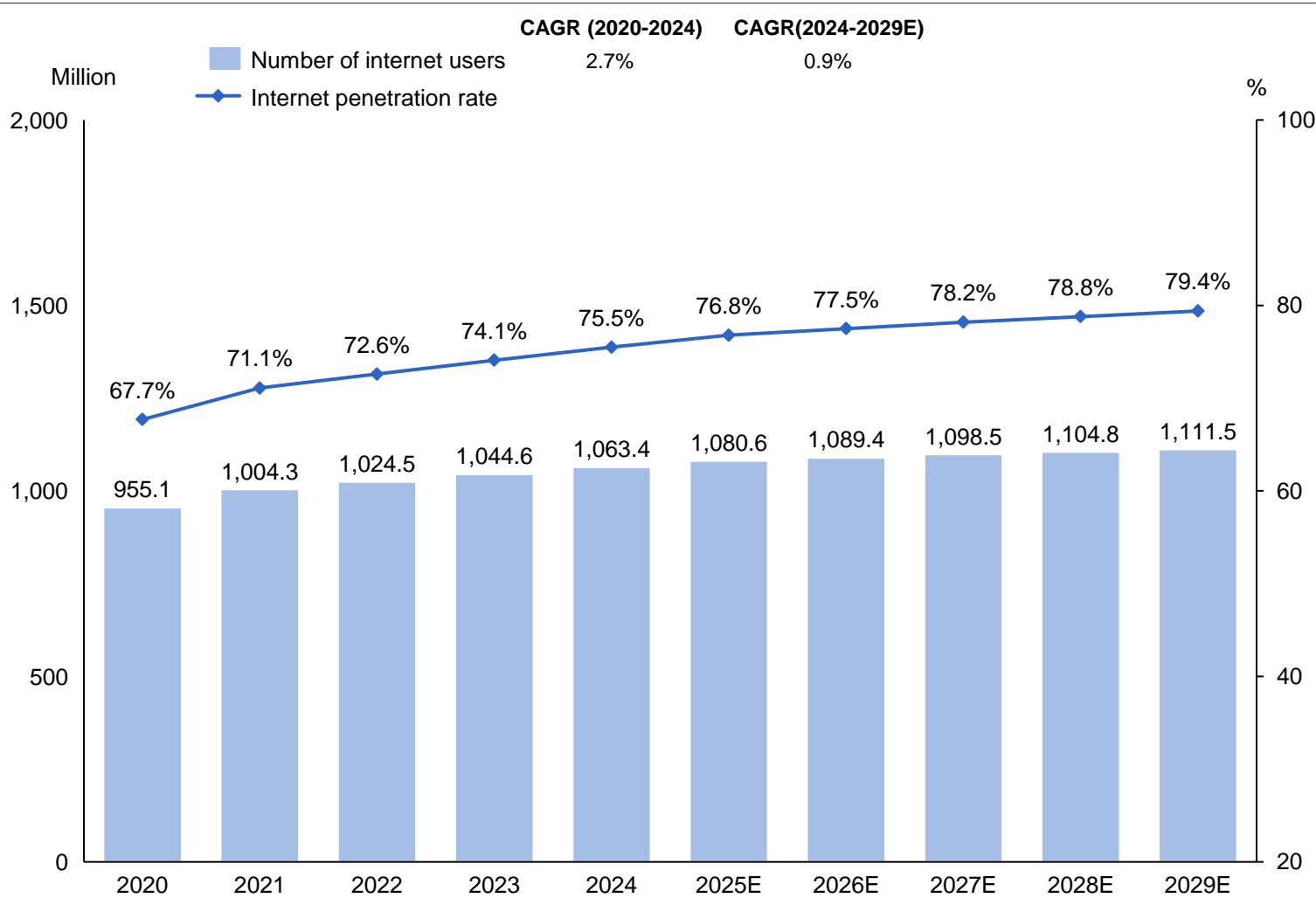


Analysis

- China's population and urbanization data highlight the intricate nature and diverse aspects of its economic and social progress. Being the second most populous country, accounting for 20% of the global population, China is confronted with both challenges and prospects due to its enormous size. Despite having a sizable population, the impact of the one-child policy has led to consistently low population growth in recent years. It is projected China's population will reach 1.37 billion with a minus compound annual growth rate from 2020 to 2024 continuing to the 2029.
- By 2029, the growth rate of the urbanization rate will remain at around 70.4%. This suggests that more people will migrate from rural to urban areas in the coming years, fueling urban economic development but also posing challenges in areas such as urban planning, infrastructure development and social security. China's population and urbanization figures have far-reaching implications for economic and social development. As population growth continues and urbanization accelerates, the demand for resources will increase, as will the pressure on the environment.

# The growth rate of the number of Internet users in China will slow down in the future, while the Internet penetration rate will continue to increase.

Number of Internet users and Internet penetration rate, China, 2020-2029E



Key Analysis

- With the fast spread of Internet, the number of Internet users has increased constantly in the past five years, up from 955.1 million users in 2020 to 1,063.4 million users in 2024 and presented a CAGR of 2.7% during this period. Meanwhile, as the average age at which people use the Internet for the first-time lowers decrease, the Internet penetration rate has been increasing year by year. In 2024, China’s Internet penetration rate has reached 75.5%, up 7.8% from 2020.
- The enhancement of digital information infrastructure construction has fulfilled the growing demand for universal connectivity among diverse populations. Simultaneously, digital ageing and accessibility services have helped the elderly and disabled groups to cross the digital divide. In addition, as technology advances and services continue to improve, the accelerated popularization of network applications will continue to promote people's “access to the Internet”. Therefore, China’s Internet users and penetration rate for the Internet continues to grow. Internet users is expected to cross 1,111.5 million users in 2029, representing 79.4% of the population.





China Insights Consultancy

# Industry Report on China's Public Bus Information Services Industry

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