China / Hong Kong Company Guide

SenseTime Group

Bloomberg: 20 HK Equity | Reuters: 0020.HK

Refer to important disclosures at the end of this report

DBS Group Research . Equity 13 Jan 2023

BUY (Initiating Coverage)

Last Traded Price (12 Jan 2023): HK$2.16 (**HSI :** 21,514)
Price Target 12-mth: HK$2.70 (25.0% upside)

Analyst
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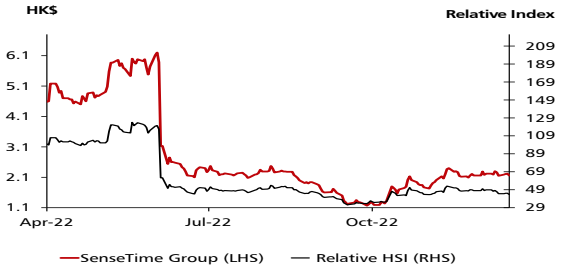
Price Relative



Forecasts and Valuation

FY Dec (RMBm)	2021A	2022F	2023F	2024F
Turnover	4,700	4,922	7,230	10,393
EBITDA	(16,705)	(5,139)	(2,124)	(920)
Pre-tax Profit	(17,142)	(5,701)	(3,091)	(2,062)
Net Profit	(17,140)	(5,509)	(2,979)	(2,112)
Net Pft (Pre Ex) (core profit)	(17,177)	(5,509)	(2,979)	(2,112)
Net Profit Gth (Pre-ex) (%)	(41.3)	67.9	45.9	29.1
EPS (RMB)	(0.51)	(0.16)	(0.09)	(0.06)
EPS (HK$)	(0.60)	(0.19)	(0.10)	(0.07)
Core EPS (RMB)	(0.52)	(0.16)	(0.09)	(0.06)
Core EPS (HK$)	(0.60)	(0.19)	(0.10)	(0.07)
EPS Gth (%)	(41.0)	68.1	45.9	29.1
Core EPS Gth (%)	(41.3)	68.1	45.9	29.1
Diluted EPS (HK$)	(0.60)	(0.19)	(0.10)	(0.07)
P/S (X)	14.15	13.51	9.20	6.40
BV Per Share (HK$)	1.11	0.92	0.85	0.81
Net Div Yield (%)	0.0	0.0	0.0	0.0
P/Book Value (X)	1.9	2.3	2.5	2.7
Net Debt/Equity (X)	(0.7)	(0.5)	(0.4)	(0.3)
ROAE(%)	(316.7)	(18.8)	(11.7)	(8.8)
Earnings Rev (%):		New	New	New
Consensus EPS (RMB)		(0.12)	(0.09)	(0.07)
Other Broker Recs:		B:10	S:2	H:1

Source of all data on this page: Company, DBS Bank (Hong Kong) Limited ("DBS HK"), Thomson Reuters

At A Glance

Issued Capital (m shrs)	33,282
Mkt Cap (HKm/US$m)	71,889 / 9,206
Major Shareholders (%)	
SoftBank Group Corp	18.0
SenseTalent Management Ltd.	14.9
Alibaba Group Holding Ltd.	8.8
Free Float (%)	58.3
3m Avg. Daily Val. (US$m)	63.90

GICS Industry: Information Technology / Software & Services

AI for good, SenseTime for Better

- Largest AI computer vision software company in Asia
- Digital economy growth to top China's national development strategy
- Well poised to keep gaining market share in an expanding industry
- Initiation with Buy rating and TP of HK$2.7

Leading global AI company. SenseTime is the largest Artificial Intelligence (AI) company in Asia by revenue in 2021, with a leading position in four key verticals: smart business, smart city, smart life, and smart auto. SenseTime has established an effective business model for AI, from algorithms, infrastructure to commercialisation, to meet the fast-growing demand from various industries.

A great Time for AI to make Sense. AI will likely boost the 4th Industrial Revolution, to leapfrog the development of science and technology and the transformation of economic structure in China and other Asian countries. As AI is a general-purpose technology that can be applied across many domains, China will rely on technology giants such as SenseTime to develop the AI ecosystem. Meanwhile, the transformation using AI has only just begun. Other than in AI chips & sensors, smart auto and AIGC, we can see the infusion of AI into existing businesses in the areas of problem-solving, generating efficiencies, and new ways of working. SenseTime's digital twin technology is blurring the boundary between reality and virtuality, paving the way to the "metaverse".

Well-established management team and AI infrastructure to support the next quantum leap. The AI software market in China is expected to grow at an CAGR of 41.5% from RMB29.5bn in 2020 to RMB167.1bn in 2025, the fastest growing among major markets globally, According to Frost & Sullivan. In our view, SenseTime is well poised to keep gaining market share in an expanding industry, supported by its pioneering technology, well-established AI infrastructure and proven management team. We expect SenseTime's revenue to grow by 30% CAGR from RMB4.7bn in 2021 to RMB10.4bn in 2024, mainly driven by smart life and smart auto business.

Where we differ:

The market is concerned with increasingly fierce competition and immature business model of AI, but we believe AI empowering is a long-term trend worldwide. AI commercialization is still in the early stages, we tend to analyze SenseTime based on a long-term perspective. Higher standardization and improving cost-efficiency will lead to a flourishing AI industrialization, with its cutting-edge technology and market leading position, we remain positive about Sensetime's long term growth.

Valuation:

We applied P/S multiples 7.6x for FY24E revenue (a 40% premium over industry average), yielding a valuation of USD$11.6bn or TP of HK$2.7

Key Risks to Our View:

Commercialization of AI, regulations and governmental policies of AI, limited operating history, significant operating losses, customers may become more conservative during macro headwind.

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Investment Summary

The largest AI software company in Asia. Headquartered in Shanghai, SenseTime is the largest AI software company in Asia in terms of 2021 revenue. Its market leadership is supported by its strong capability in cutting-edge research, with 12,502 AI patents. Through licensing software, SenseTime have served more than 3,600 customers in various industries by 2021, including over 250 Fortune 500 companies or listed companies, 140 cities and 34 auto companies.

AI to drive the Fourth Industrial Revolution. Although AI has been in development mode for more than half a century through three waves, the current mainstream technology route i.e., deep learning (DL) has only been in place for 15 years. In the 2010s, with high-speed computers and sufficient data to train the large neural networks, deep learning is now feasible. From automation to augmentation and beyond, AI is already starting to make visible changes to our lives. AI software is the fastest-growing segment of AI technology. The global market size is expected to expand at a CAGR of 32% to US$122bn in 2025 (Frost & Sullivan).

AI offers China strategic opportunities in many areas. AI offers strategic opportunities to fast track the development of science and technology and the transformation of economic structure in China and other Asian countries. The government has reiterated the importance of AI development. China is already the second largest AI software market, after the US. Looking ahead, the AI software market in China is expected to grow at a higher CAGR of 42% to RMB167bn in 2025 (Frost & Sullivan).

Favourable ecosystem to support AI development in China. Based on massive data that is available, China's expertise in designing and integrating high-performance computing systems will give China a strong advantage in AI. Technology giants such as SenseTime will play an important role in supporting China's national AI strategy and developing the AI ecosystem. China has world-class propositions in the field of AI, which will attract talents and cultivate market leaders. China's strong position in AI R&D and commercial applications has been enabled by access to international markets, technology, and research collaboration.

SenseTime's competitive edge. We summarize the business model of AI, from algorithms, infrastructure to commercialization, which provides us with a framework to analyse the value of investment in the AI field. SenseTime's strategy and unique business model should enable the company to achieve commercial success:

- The open science nature of AI means that firms' competitive advantage often stems from the extent to which they can assemble a larger database — and develop deeper domain-specific knowledge and applications around the database — faster than anyone else.
- The ability of large scale AI deployment across various industries and applications plays a key role in maintaining a competitive advantage. Companies that are able to build their own infrastructure as quickly as possible and gain a first-mover advantage should be able to achieve industry leadership.
- For model developers, high production efficiency and low marginal costs are key parameters. We see continuous improvement from SenseTime's data and expect this to further improve led by the launch of SenseCore.

  The SenseCore AI Infrastructure creates a new paradigm of technology advancement, by achieving efficient, low-cost, and highly scalable AI innovation and empowerment. Driven by SenseCore, SenseTime has developed standard software platforms with modular flexibility to customers, including: SenseFoundry-Enterprise for Smart Business, SenseFoundry for Smart City, SenseME, SenseMARS and SenseCare for Smart Life, SenseAuto for Smart Auto. These platforms would ultimately meet the growing demand for various applications, accelerate applications at scale, and address the long-tail challenges.
- SenseTime achieved market leading positions in four key verticals. SenseTime's revenue in 2020 was c.4.5x of the average of other AI players in China, and its profit stood at c.7x of the average. The company's strategic priority placed on software expansion and improving operating leverage significantly improved gross margin.
- SenseTime's digital twin technology enables seamless connection between physical and virtual worlds, blurring the boundary between reality and virtual reality, paving the way to a real "metaverse".

We expect SenseTime's revenue to grow by 30% CAGR from 4.7bn, in 2021 to RMB10.4bn in 2024, mainly driven by smart life and smart auto businesses.
Our TP is $2.7 pegged to 7.6x P/S on FY24E financials, benchmarked (a premium of 40% over peers) to global peers such as UI Path (PATH.US, not rated), Palantir (PLTR.US, not rated) and Chinese players such as AInnovation (2121.HK, not rated), Cloudwalk (688327.SH, not rated), Deep Glint (688207.SH, not rated), Arcsoft (688088.SH, not rated), given the similarity in business models and value proposition to clients.

Valuation & Peers Comparison

Peers: AInnovation, Cloudwalk, Deep Glint, Arcsoft, UI Path, Palantir

We selected a group of AI comps for peer comparison. We believe AInnovation (2121.HK, not rated), Cloudwalk (688327.SH, not rated), Deep Glint (688207.SH, not rated), Arcsoft (688088.SH, not rated), UI Path (PATH.US, not rated) and Palantir (PLTR.US, not rated) are the closest comparables to SenseTime, given the similarity in business models and value proposition to clients.

AInnovation focuses on AI empowerment in manufacturing, finance and other industries, providing full-stack AI products and solutions, including AI platforms, algorithms, software and AI enabling equipment, so as to reduce costs and increase efficiency for enterprises and through Intelligent transformation and optimization decision-making of business operation and information management.

Cloudwalk's business covers smart finance, smart governance, smart travel, smart business and other fields, providing customers with personalized, scene-oriented and industry-oriented intelligence service.

Deep Glint focuses on the integration ofcomputer vision technology and big data technology with application scenarios, providing AI products and solutions for city management, smart finance, commercial retail, sports health, railway operation and maintenance.

ArcSoft offers computer vision AI technologies for enabling advances camera applications among smart phones, smart cars, smart homes, smart retail, Internet video etc.

These companies, as domestic AI algorithm companies, represent the pioneers of domestic AI technology. The development of product and technology is in the similar stage of commercialization. The research and development of general-purpose basic software enables the company to have long-term growth potential and has a strong comparability with SenseTime.

Similar to SenseTime, UI Path (PATH.US, not rated) and Palantir (PLTR.US, not rated) aid governments and companies crunch data using AI-powered tools, taking unstructured data such as documents, memos, notes, images, videos and so on and putting them onto AI platforms in a holistic and centralized way. The results help to drive client's capability to operate and manage various scenarios. Palantir and UI Path launched successful IPOs in 2020 or 2021 and are comparable peers.

Valuation Method: P/S

Since SenseTime's business model is based on the universal AI infrastructure SenseCore and AI software platforms, which makes it easier for various industries to achieve efficient, low-cost and scalable AI innovation and empowerment, we believe it is more appropriate to adopt P/S rather than SOTP to value SenseTime. Meanwhile, AI commercialization is still in the early stages, we tend to analyze SenseTime based on a long-term perspective. We have applied P/S multiples 7.6x for FY24E revenue, a premium of 40% to reflect the leading position and higher growth rate potential of SenseTime, with USDCNY assumption of 6.75, yielding a valuation of USD$11.6bn.

Valuation & Peers comparison

Company	Ticker	Price (Local)	Price (USD)	Mkt cap (USD mn)	Sales (USD mn)					P/S		
					FY2020	FY2021A	FY2022E	FY2023E	FY2024E	FY2022E	FY2023E	FY2024E
AInnovation	2121 HK	24.1	3.09	1,703	67	134	216	344	537	7.9	5.0	3.2
Cloudwalk	688327 SH	15.48	2.29	1,684	110	167	170	256	417	9.9	6.6	4.0
Deep Glint	688207 SH	24.52	3.63	644	35	45	55	77	102	11.7	8.4	6.3
Arcsoft	688088 SH	23.37	3.46	1,402	99	89	77	102	150	18.2	13.7	9.3
Palantir	PLTR US	7.02	7.02	13,687	1,093	1,542	1,902	2,306	2,857	7.2	5.9	4.8
UI Path	PATH US	13.57	13.57	6,883	608	892	1,028	1,215	1,451	6.7	5.7	4.7
Average										10.3	7.5	5.4

Source: Bloomberg Finance L.P., Thomson Reuters, DBS HK

Key Risks

- If AI technology commercialization or the usage of AI products and services does not meet market's expectation, the company's growth and prospects may be significantly affected.
- The company's businesses are subject to complex and evolving laws, regulations and governmental policies regarding privacy and data protection.
- The company has a limited operating history, which makes it difficult to evaluate its business and prospects.
- There are significant operating losses during the track record period and may not be able to achieve profitability in the near future.
- If the company's expansion into new verticals or attempt to develop new products and services is unsuccessful, its business, prospects and growth momentum may be materially and adversely affected.
- Any flaws or misuse of AI technologies, whether actual or perceived, by company or third parties, could have an adverse effect.
- COVID-19 and lock-down policies could affect the Company's Smart City and Smart Business segments to a large extent. Product delivery and deployment would be delayed, and enterprises' capital expenditure plans as well as fiscal budgets of local governments on digitalization may become more conservative.

SWOT Analysis

Strengths	Weaknesses
• Technology Pioneer and Industry Leader in AI • Powerful AI Infrastructure • Comprehensive and Scalable Software Platforms • Successful Commercialization with Broad Coverage of Industries and Regions • Effective AI Talent Development • Visionary Management Team with a Young and Deep Talent Pool	• Limited operating history • Higher-than-average accounts receivable turnover days • Requires vast investment to keep products and services innovative and competitive in the market • Lack of familiarity with new verticals • U.S. government has imposed economic and trade sanctions affecting China-based technology companies
Opportunities	**Threats**
• A vibrant AI Ecosystem in China • Favourable environment for AI, such as China's new national policy "New Infrastructure" and "Digital China" • AI technologies and commercialization are at early stages of development and continue to evolve • Increasing demand of autonomous driving technologies and intelligent in-vehicle software • Proliferation of IoT devices	• Increasing competition from existing players and new entrants • AI products and services may not achieve widespread acceptance • Potential decreases in government and corporate spending • Data security or privacy concerns

Source: DBS HK

Business Model

SenseTime's business is based on its cutting-edge research. So far, it has published more than 700 top-tier academic papers, owning over 12,502 AI patents. It serves various industries through its software platforms: SenseFoundry-Enterprise for Smart business, SenseFoundry for Smart City, Sense ME, Sense MARS and Sense Care for Smart Life and SenseAuto for Smart Auto.

SenseTime to ride on AI wave. AI will drive the Fourth Industrial Revolution and offers strategic opportunities to fast track the development of science and technology and the transformation of economic structure in China and other Asian countries. We believe, based on massive data available, China's expertise in designing and integrating high-performance computing systems will give China a strong advantage in AI. Technology giants such as SenseTime will play an important role in supporting China's national AI Strategy and developing the AI ecosystem. Although AI has been developing for more than half a century through three waves, deep learning, was only developed 15 years ago. From the 2010s, with high-speed computers and enough data to train large neural networks, deep learning became feasible.

Four drivers of AI:

(i) Data is long considered to be the new oil in the digital economy. SenseTime's market leading position and wide client base enable it to access quality and diversified sources of data.

(ii) Models are the core building blocks. SenseTime's AI infrastructure – SenseCore - facilitates centralised mass production. It is undisputedly one of the world leaders, and has built the world's largest computer vision model containing three billion parameters, setting a new state-of-the-art record.

(iii) AI models are trained from large datasets that usually require substantial computing power. SenseTime has launched its own AI Data Center (AIDC) in Shanghai Lingang, at the beginning of 2022, which helps it gain a first-mover advantage and further strengthens its market leadership.

(iv) The open science nature of AI means that firms' competitive advantages often stem from the extent to which they can assemble a larger database — and develop deeper domain-specific knowledge and applications around the database — faster than anyone else.

SenseTime to benefit from China AI strategy as well. China's government sees AI as a promising economic "leapfrog development" opportunity. China has world-class propositions in the field of AI, which will generate world-class application scenarios, attract world-class talents, and cultivate world-class companies such as SenseTime. SenseTime alone has 40 professors leading R&D efforts by 2021, with 4,274 R&D members, about two-thirds of whom hold or are pursuing master's or doctoral degrees, including more than 250 doctoral and doctoral degree candidates. By 2021, SenseTime had an extensive portfolio of 12,502 intellectual property rights (IPs), including 5,841, or close to half, that were overseas IPs, spanning across 20 countries and regions, primarily in East Asia, the United States and Southeast Asia.

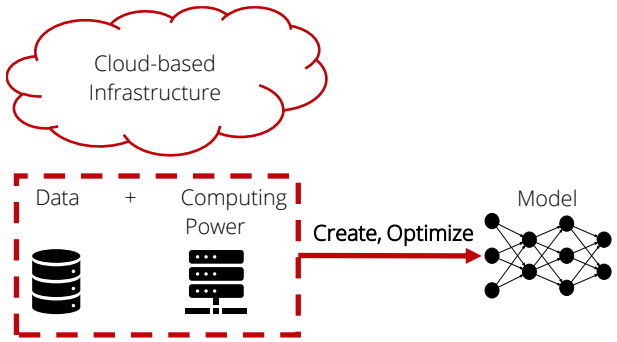
China's strong position in AI R&D and commercial applications has been enabled by access to international markets, technology and research collaboration. A large part of SenseTime's research team is devoted to improving SenseTime's internal machine learning framework, Parrots, and improving SenseTime's computing infrastructure.

AI Business model, SenseTime leads in this space

We have summarized the business model of AI, from algorithm, infrastructure to commercialization, which provides us with a framework to analyse the value of investments in the AI field. We believe SenseTime's advanced strategy and unique business model will help the company to achieve commercial success.

Phase 1
Massive Data + Huge Computing Power → Large Scale Model
(大数据+大算力→大模型):

Massive Data + Huge Computing Power → Large Scale Model



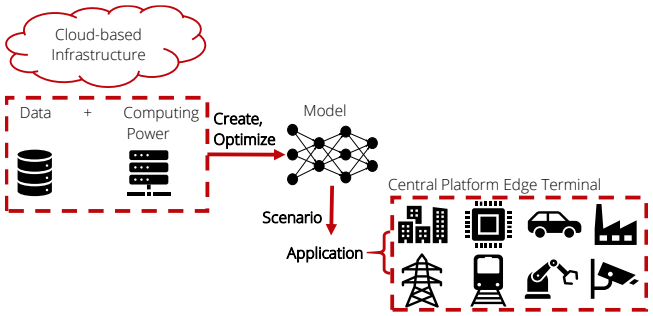
Source: DBS HK

Most AI today is still under the definition of weak AI and the use is limited to selected narrow fields. This is determined by infrastructure, which means that if one has more data and computing power, one can come up with a more robust model. And a robust model will give a company an advantage in persuading customers to use it.

OpenAI's GPT-3 announced in 2020 that it has 175 billion parameters, far more than the 1.5 billion parameters of GPT-2 in 2019. To produce GPT-3, OpenAI used 45 TB of data, compared to 40 GB for GPT-2. Microsoft's Azure customized a supercomputer for OpenAI that ranks among the top five supercomputers in the world. The cost of training this model has reached almost USD5 million. Without strong computing power and large amounts of data available, it is impossible to innovate with big models. Nowadays, the computing infrastructure of almost all big models is based on advanced supercomputers, which becomes a strong technological moat for most companies that want to use AI, making leading AI companies more competitive.

Phase 2
Large Scale Model + Scenarios → Powerful Application
(大模型→大应用):

Large Scale Model + Scenarios → Powerful Application



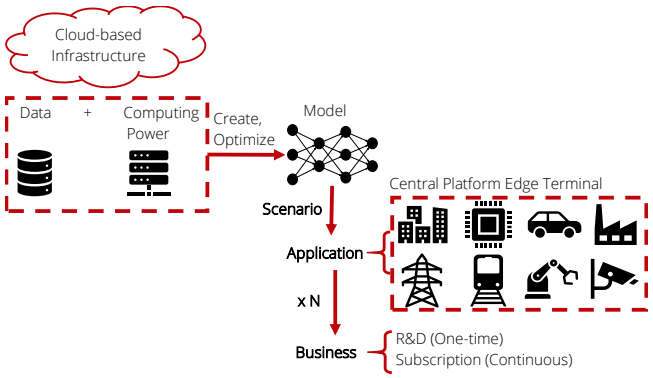
Source: DBS HK

The models will then be put to use in real-world scenarios. Sometimes, base models trained with large amounts of training data may not be perfectly suited for certain industries. Therefore, companies would also need to train industry specific models derived from base models to make it more suitable for deployment. There are now many applications of AI, both platform-side and edge-side, which makes it important to develop models covering a wide range of areas.

AI deployment needs to integrate multiple technical capabilities and business knowledge based on complex business scenarios and goals to form scalable products and service. AI providers should work with their customers to gain in-depth insights into industry verticals and understand their existing and potential needs.

Phase 3
Powerful Application x N → Big Business
(大应用→大生意):

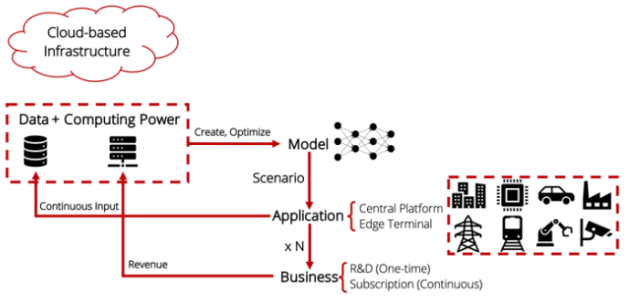
Powerful Application x N → Big Business



Source: DBS HK

The ability of large scale AI deployment across scenarios plays a key role in obtaining competitive advantages. As more applications are used by customers, AI companies start to earn revenue. Traditionally, AI models are developed specifically for a client's needs, so AI companies may charge the client for a one-time R&D fee. However, more and more AI companies are developing base models that can be accommodated to suit many scenarios. This means they can provide up-to-date services to all customers by updating their base models, prompting companies to collect recurring fees from customers.

AI Business model: Virtuous circle



Source: DBS HK

Virtuous circle: More applications mean more data, and more revenue streams mean greater ability to increase computing power. After that, advances in data and computing power can further lead to advances in application models, creating a virtuous cycle for AI companies' business.

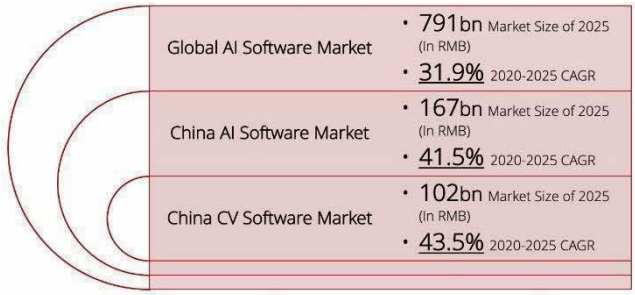
With scalable AI software platforms and proprietary AI infrastructure, SenseCore, SenseTime is able to perform industrial-grade AI model production at a larger scale, higher efficiency and lower cost and continue solidifying its technology leadership.

Market scale: Software Is Eating the World, but AI Is Going to Eat Software

As the quantity and complexity of captured data grows, especially unstructured data, traditional software is getting inadequate in analysing and extracting useful information. Fortunately, a variety of artificial intelligence (AI) technologies is arriving just in time to help exploit this growing underutilized digital resource. According to Frost & Sullivan, global spending on AI technology, including AI software, hardware and services, is expected to reach USD221.2bn in 2025 from USD68.7bn in 2020, representing a CAGR of 26.3%.

AI software, with its ability to utilize massive amounts of data, is expected to represent an increasingly significant portion of software spending. AI software will be the fastest growing and largest segment of the AI technology market, projected to account for approximately 55.1% of global AI technology market in 2025. The global AI software market size is expected to reach USD115bn in 2025, representing a CAGR of 32% from USD29bn in 2020, according to Frost & Sullivan.

AI software market size



Source: Frost & Sullivan

China is the second largest AI software market, after the United States. The AI software market in China is expected to grow at a CAGR of 41.5% from RMB29.5bn in 2020 to RMB167.1bn in 2025, which would make it the fastest growing among major markets globally. The contribution of AI software to the China software market is projected to rise from 9.0% in 2020 to 24.1% in 2025, according to Frost & Sullivan.

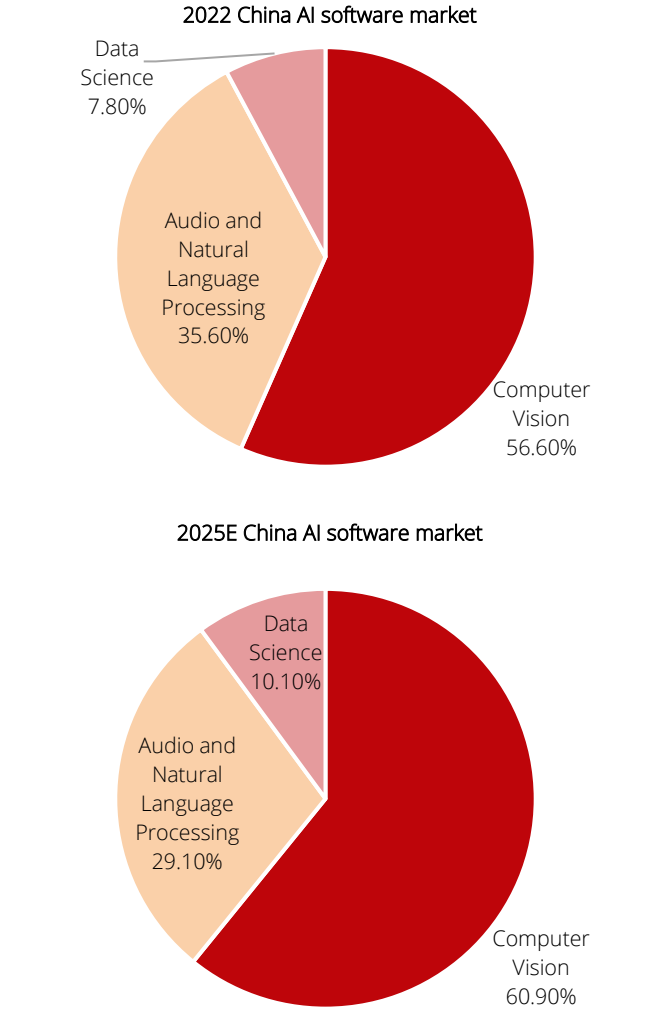
AI software market segments

AI software markets can be categorized into computer vision, speech recognition and natural language processing, and data science, according to Frost & Sullivan. These fields are mainly supported by four types of AI models, namely, (i) perception intelligence, (ii) decision intelligence, (iii) AI-enabled content generation, and (iv) AI-enabled content enhancement. Computer vision is a major perception capability that has been successfully commercialized through industry-grade mass production of AI models.

Due to successful commercialization, computer vision software is the largest segment of the global AI software market at 46.9% in 2020 and is expected to reach USD68.0bn in 2025, representing a CAGR of 36.6% from USD14.3 bn in 2020.

The computer vision software market in China is projected to reach RMB101.7bn in 2025, representing a CAGR of 43.5% from RMB16.7bn in 2020. Audio and natural language processing software is projected to reach RMB48.6bn in 2025, representing a CAGR of 35.9% from RMB10.5bn in 2020. Data science software market is projected to reach RMB16.8bn in 2025, representing a CAGR of 48.8% from RMB2.3bn in 2020.

China AI software market segments

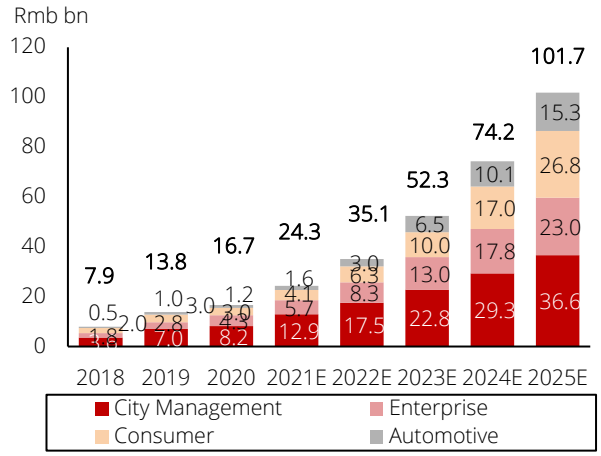


Source: Frost & Sullivan

Overview of the computer vision software market in China

The computer vision software market in China is projected to grow at a CAGR of 43.5% from 2020 to 2025, accounting for 23.0% of the global computer vision software market, compared to 18.0% in 2020, according to Frost & Sullivan.

Computer vision software market in China

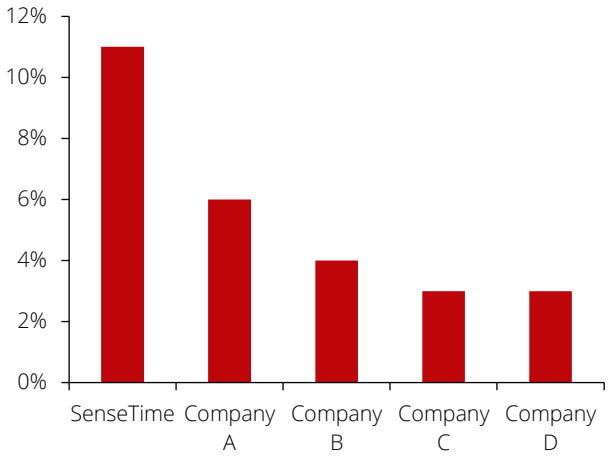


Source: Frost & Sullivan

Competitive landscape

By revenue in 2020, SenseTime is the largest AI software provider in Asia and the largest computer vision software provider in China, according to Frost & Sullivan. SenseTime's competitors in the computer vision software market in China can be categorized into (i) computer vision-centric software companies; (ii) computer vision related hardware providers; and (iii) cloud service providers. The following graph shows the market share of the top five computer vision software providers in China by software revenue in 2020:

Market share of Computer Vision Software Providers in China 2020



Source: Frost & Sullivan

1) Company A is a leading computer vision-related hardware provider with businesses mainly covering the public sectors and enterprises. Company A is listed on the Shenzhen Stock Exchange.

2) Company B is a leading cloud service, telecom equipment and consumer electronics provider.

3) Company C is a leading computer vision-centric software company with businesses mainly covering public sectors and enterprise applications.

4) Company D is a leading technology company offering Internet-related services and products in entertainment, artificial intelligence, cloud services and other technologies.

Critical Factors

Short-term factors: Smart City/ Smart Business are core revenue drivers. Mid-term: more focus on Smart Life and Smart Auto to boost revenue growth

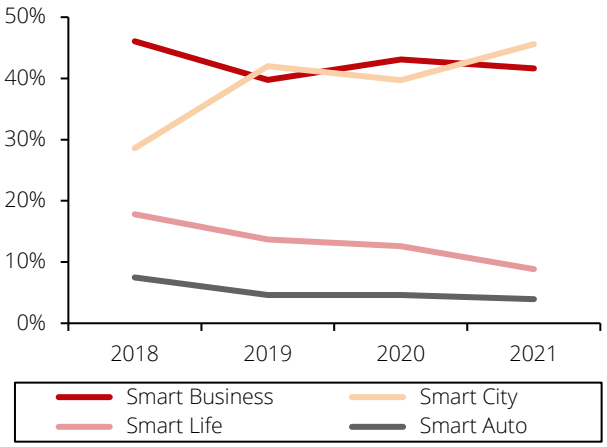
During FY18-21, Smart City and Smart Business contributed most of total revenue (c.46% and c.42% in FY21, respectively), driving Sensetime to the top in the city- and enterprise- level computer vision market. The growth rate of Smart City revenue is expected to be maintained as it expands its coverage of cities. Many Asian countries have launched digital economy-oriented policies, including Manufacturing 2025 in China, Smart Nation 2025 in Singapore, SmartJapan, etc., providing a favourable institutional environment for the construction of smart cities. There still exists large room for Sensetime to expand its customer base and business coverage. Likewise, more potential customers and higher revenue per customer will underpin growth in the Smart Business space.

To be on the right side of change, Sensetime sees Smart Life and Smart Auto as the next fields to conquer. Smart Life offers AI applications and devices, and revenue contribution has dropped from c.18% in FY18 to c.9% in FY21. To arrest the decline, Sensetime officially launched the strategy to integrate AI software and hardware in FY21 and managed to land 4 AI sensors and its first IP licensing business. In the first half of 2022, SenseTime further completed and delivered 5 AI sensors, and the RGBW AI sensor among them has undergone mass production and launched with a flagship model of a top-notch mobile phone manufacturer. Smart Life contributed 21% of total revenue in 1H22 Additionally, Image Signal Processor (ISP) chips will be launched in FY23. Revenue from IP licensing fee and sales of AI sensors and ISP chips brings more user stickiness than the original Software Development Kit (SDK) licensing business, creating future opportunities for revenue growth.

Smart Auto business benefits from intelligent automobile upgrade. The SenseAuto product has been applied to over 23 million cars as of FY21, and attracted automobile companies, bus operators, and public sector customers. At present, there are two mainstream technology routes for autonomous driving: the pure vision route relies on cameras and the Light Detection and Ranging (LiDAR) route on multi-sensors including LiDAR, wave radars, ultrasonic sensors, etc. Sensetime has not only launched SenseAuto Pilot-V, a sensing product based on pure vision, supported by its advantage in computer vision, but also developed Pilot-P and -L (based on multi-sensor fusion and LiDAR sensing, respectively). The broad product mix covers a larger scale of target audience and avoids the risk of possible changes in the industry's prevailing technology route. Additionally, we believe the establishment of Smart Automotive Business Group in Jan 22 will further boost the expansion of Smart Auto and thus achieve strong growth in this sector.

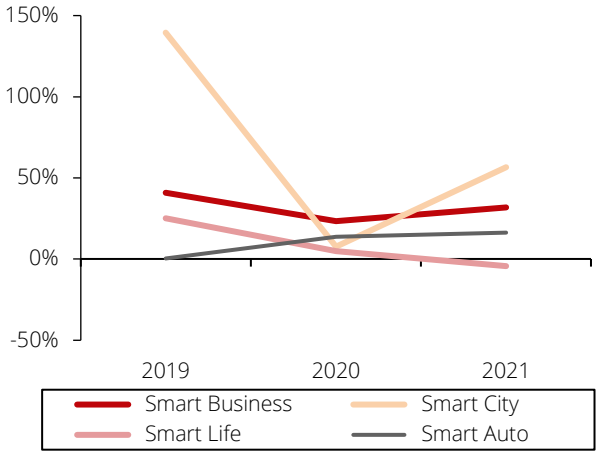
Combining the stable growth of Smart Business and Smart City, as well as the growing emphasis on Smart Life and Smart Auto, we expect current business model should enable the company to accelerate revenue growth, despite the shock in 2022. Additionally, we expect gross margins to remain high but this may decline from c.70% recorded in recent 3 years, since the higher proportion of hardware costs in the developing to-C business would raise marginal costs.

Proportion of 4 business segments



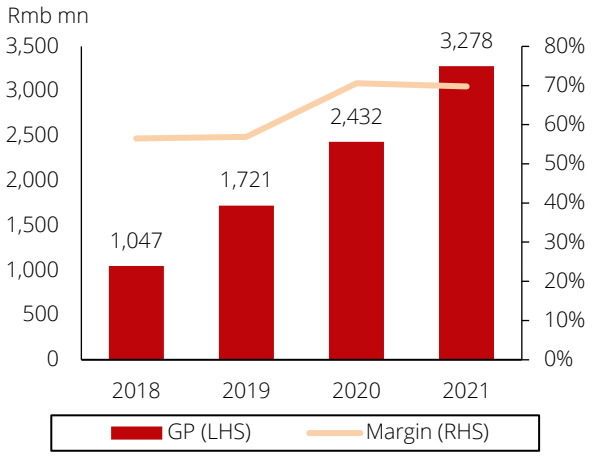
Source: SenseTime, DBS HK

Revenue growth rate of 4 business segments



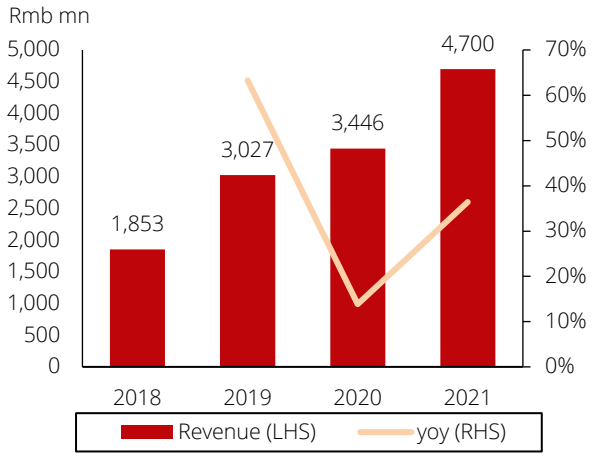
Source: SenseTime, DBS HK

Gross Profit and Gross Margin



Source: SenseTime, DBS HK

Volume and growth rate of the total revenue



Source: SenseTime, DBS HK

Long-term factors: scale effect and cutting-edge techniques

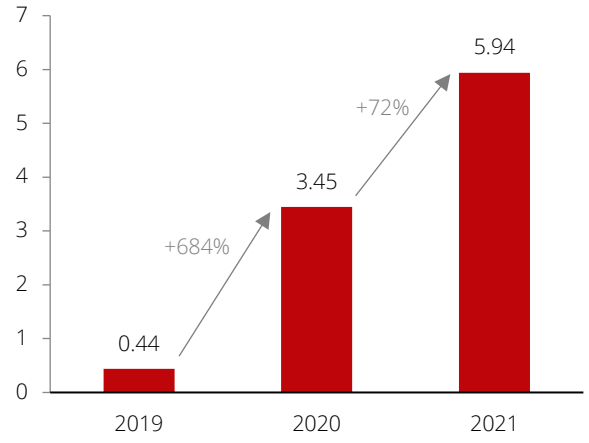
Scale effect shown in both R&D and COGS. Leveraging on SenseCore AI infrastructure as the foundation of R&D, SenseTime has continuously improved the flywheel efficiency from data, production of AI models, application scenarios to commercialization. The average number of AI models produced per R&D employee has climbed from 0.44 in FY19 to 5.94 in FY21. As R&D staff has become larger as well (from 2,618 in FY19 to 4,275 in FY21), the number of developed AI models has soared to over 49,000, making up various vertical scenarios. Meanwhile, the production & deployment cost of models has been declining. The average cost of AI model is RMB1.13mn, 0.10mn, and 0.06mn during FY19-21, representing a rapid decline.

Role of scenario-oriented deployment. The commercialization process of AI comprises production based on algorithms and hardware, as well as subsequent applications into various scenarios. Despite the high efficiency in R&D and production, Sensetime has yet to fully exploited the scale effect on the deployment side. The application of AI models into specific scenarios especially long-tail scenarios usually features high customization cost. SenseTime is developing scalable AI software platforms to facilitate the rapid deployment of AI models and applications in numerous scenarios, minimizing the need for human intervention, which has significantly improved model deployment efficiency.

With the drop in marginal cost of AI business landing, we expect AI industry to move into "overwhelming growth stage" according to Sensetime's CEO XU Li. In a sense, the technology allows for large-scale mass production, and the

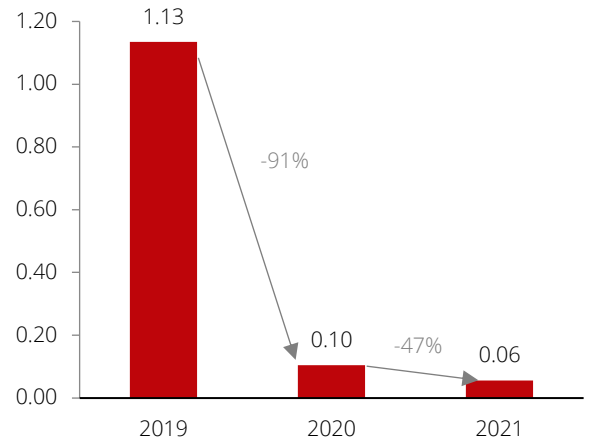
technology is truly landable and usable. For small-scale, small-scene applications, the manual vertical chain is transformed into a truly large-scale, factory-style mass production. Thus, AI will eventually become an inclusive technology to the real in-depth industrial application from the breakthrough of science and academic.

No. of AI models produced per R&D employee (FY19-21)



Source: SenseTime, DBS HK

Average cost of AI models (FY19-21)



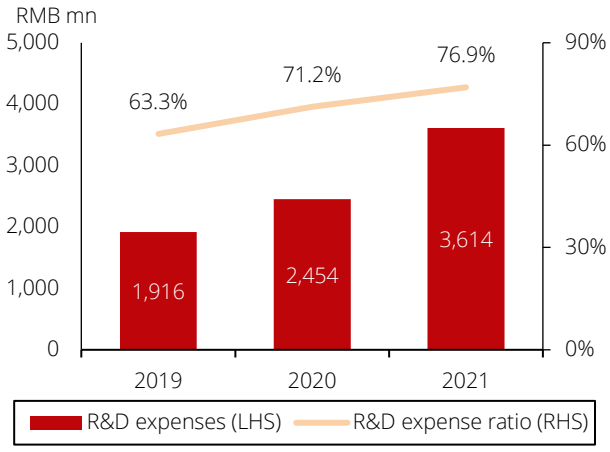
Source: SenseTime, DBS HK

Strong computing power and high algorithm processing efficiency. Sensecore, a technological cornerstone of the company's business, comprises of the computing platform, deep learning platform, and model library. Computing platform refers to the AI Data Center (AIDC) with AI chips, sensors and other equipment to support the training of models.

Owing to AIDC in Lingang, Shanghai, the peak computer power of Sensetime will more than triple from 1.17 in FY21 to over 5 exaflops in the future, implying its superiority in training models with more parameters. The training framework of the deep learning platform, named SenseParrots, could realize over 90% acceleration rate on 1,000 GPUs for a single model. Based on its abundant computing power and efficient algorithm, Sensetime has developed more than 49,000 commercialized AI models and also launched the open source platform such as open-source framework OpenMMLab, accumulating over 60,000 GitHub stars as of 1H22. Furthermore, SenseTime continued to open-source their AI algorithm platform, including the high-performance deep learning inferencing engine, OpenPPL, the general vision platform, OpenGVLab, and jointly released the decision making intelligence platform, OpenDILab, as well as a new generation vision technology system "INTERN". These 3 interlocking layers ensure Sensetime's leading innovation performance in the industry.

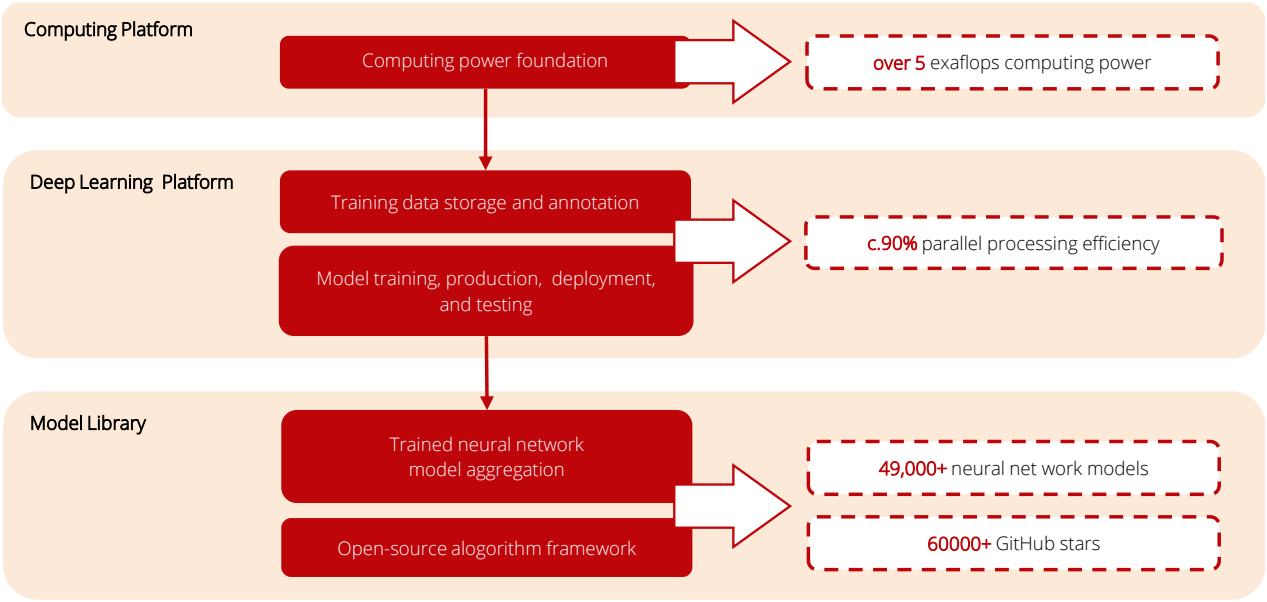
Staying in the early stages of commercialization, Sensecore still needs further upgrades for the model and algorithm library. Accordingly, the company continues to raise its R&D expenses, from c.RMB1,916m in FY19 to c.RMB3,614 m in FY21 and has been granted 12,502 patents as of June, FY22. Judging from the evidence of high R&D conversion rate and adequate commercialization cases, we expect Sensetime to shorten the training duration and gradually realize the mass production of AI models, reflecting a potential increase in the total revenue and thus sending a positive signal to the investors.

R&D expenses and expense ratio (FY19-21)



Source: SenseTime, DBS HK

Structure of Sensecore



Source: SenseTime, DBS HK

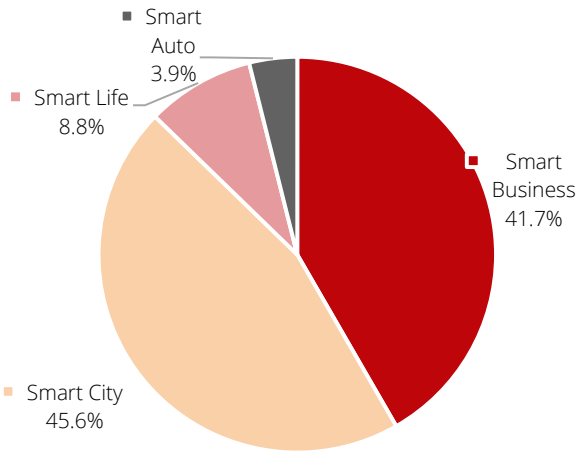
Financials

Revenue

AI software leader, strong historical growth

The continuous investment in talents and underlying technology has already brought SenseTime a return. From 2018 to 2021, the company's revenue reached RMB1.85 bn, RMB3.03 bn, RMB 3.45 bn, RMB 4.70 bn, respectively, representing a CAGR of c.26.19%. SenseTime also performed well in terms of gross margin, which reflects the profitability of the company's main business. From 2018 to 2021, SenseTime's gross profit margin was 56.5%, 56.8%, 70.6%, and 69.7% respectively. According to Sullivan's industry report, SenseTime has become the largest AI software company in Asia based on revenue in 2020.

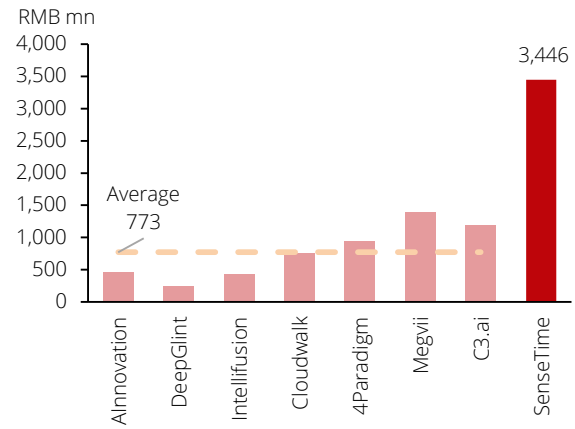
2021 Revenue by Segment



Source: SenseTime, DBS HK (pls universe change)

SenseTime generates revenue primarily from (i) license of software installed on customers' devices or on-premises at customers' servers; (ii) AI software-embedded hardware, combining AI chips and AI sensors to effectively run its AI models, (iii) related R&D and deployment services.

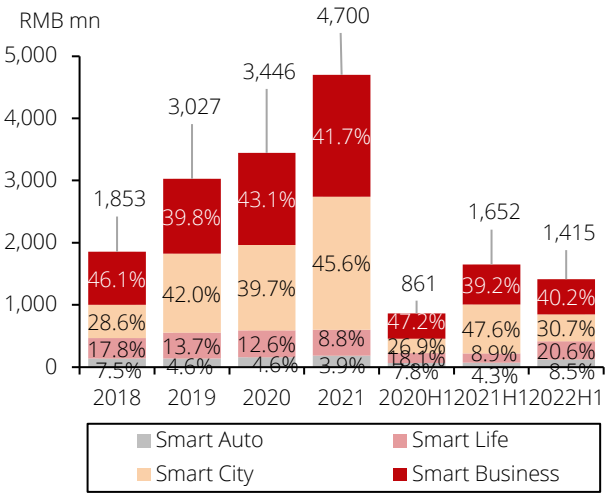
2020 Revenue of major AI players (in RMB mn)



Source: SenseTime, AInnovation, Intellifusion, Cloudwalk, 4Paradigm, Megvii, Bloomberg Financial L.P., DBS HK

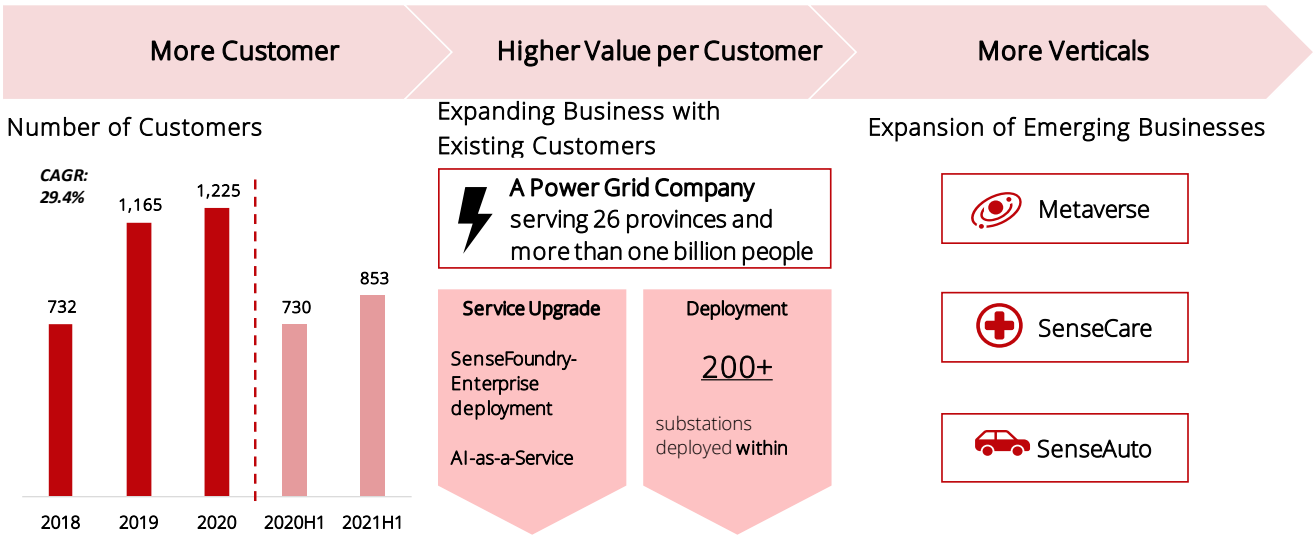
SenseTime's 2020 Revenue was 4 times that of average of the next 6 AI players in China. Despite the impact of Covid-19, the company delivered 13.9% revenue growth in FY20, which accelerated to 36.4% y-o-y in FY21.

Revenue Breakdown by Streams (in RMB mn)



Source: SenseTime, DBS HK

Revenue Drivers (do we have no. of customers for 2021 & 2022H1?)



Source: SenseTime, DBS HK

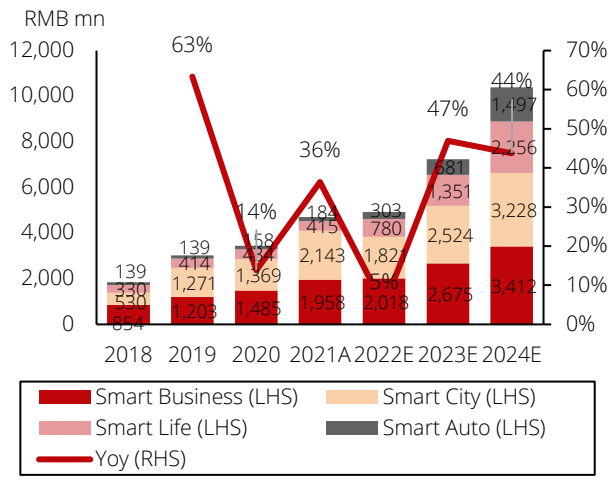
SenseTime is the largest computer vision software provider for city management applications in China in terms of software revenue in 2020, according to Frost & Sullivan. SenseFoundry has become the operating system for digital city operations and improved the safety, efficiency, convenience and environmental quality of cities. By June 30, 2022, it had been deployed in 155 cities in China and overseas. Revenue from Smart City significantly increased from 2019, meanwhile, company started overseas Smart City business, served overseas cities such as Singapore, Dubai, Riyadh and Kuala Lumpur.

As city administrators face increasing city management complexity and difficulties in timely identifying and responding to incidents and emergencies, we expect Smart City business will continue to benefit from this trend. But as percentage of the total revenue, we expect smart life and smart auto business to show strong growth momentum.

Although it always involves new risks and challenges, we are optimistic that company's expanding offering categories into areas such as AI sensors and ISP chips, Metaverse offerings, autonomous driving products and cloud services.

In addition, the physical world and virtual world converge through various IoT devices, including smartphones and AR/VR devices. This trend leads to the emergence of the Metaverse, referring to the convergence of physical, augmented, and virtual reality in one shared online space. we expect company will continue to benefit from this trend.

Revenue forecast by Segment (in RMB mn)



Source: SenseTime, DBS HK

We expect SenseTime's revenue to grow by a 30% CAGR from RMB 4,700mn in 2021 to RMB 10,393mn in 2024.

Smart City and Smart Bus were affected by pandemic

Some of the Company's businesses were significantly impacted by COVID-19 in the first half of 2022. Revenues from both the smart business and smart city sectors, which empower enterprises and governments digitalisation separately, have decreased year-on-year. The short-term impact of the pandemic is that product delivery and deployment of certain customers and cities were restricted by local social distance and lock-down policies and could not be completed as scheduled, resulting in delayed recognition of part of the Company's sales revenue. In the longer term, enterprises' capital expenditure plans related to the digital transformation may become more conservative under the challenging macro environment, while the fiscal budgets of local governments may also be affected.

Revenue from Smart Business achieves RMB568.3mn in 2022H1, decreasing by 12.2% year-on-year. Some customers were unable to complete the launch of SenseFoundry-Enterprise products as originally planned due to restrictions on containment and control measures during the pandemic, resulting in a delay in the recognition of some of our sales revenue. The total customers served in this segment is 512, showing a decrease of 19% year-on-year. Affected by the relatively weak macro environment, some enterprises slowed down their digitalisation process and reduced capital expenditure on AI. Meanwhile, the revenue per customer of Smart Business increased by 9%, indicating a maintained high-quality customer base.

Revenue from Smart City is 434.1 million yuan in 2022H1, decreasing by 44.8% year-on-year. The deployment of certain Smart City projects was delayed since some city administrators in Mainland China prioritize counter-pandemic efforts, especially in cities under lock-down in the first half of 2022. During the period with relatively weak economy and tight local government finance, the authority might significantly reduce government spending and budgets, prioritise pandemic prevention costs, and slow down digital transformation plan temporarily.

To-C Strategic Layout

SenseTime is paying more attention to developing to-C businesses strategically as a new revenue driver in future. In August 2022, the SenseTime AI Chinese chess robot, "SenseRobot" was officially launched, marking the breakout in AI consumer products for household. SenseRobot integrates AI vision, robotic arms and AI decision-making intelligence, and controls consumer product production costs and guarantee product safety successfully. The teams and experiences accumulated would benefit the Company's further bringing industrial AI technologies to daily consumption. Besides, AI-Generated-Content (AIGC) and metaverse may lead to new opportunities in consumption. AIGC provides a different way to produce contents with AI, which promotes the efficiency and ability of production. NFT technology enables the ownership confirmation of data, meaning that the User-Generated-Content (UGC) can transfer to tradable User-Generated-Asset (UGA). Based on SenseMARS, SenseTime has come up with the AR cultural creation platform, and actively explores the creation of an intellectual property metaverse with innovative AI+AR technologies. What's more, the Intelligent Automotive Group also has made their efforts to develop to-C business. SenseTime will tailor an AI-powered Smart Motorsport solution for Alfa Romeo F1 Team ORLEN based on deep learning and smart auto technological capabilities to help the team remain competitive. With the strategic layout in to-C businesses, SenseTime can generate more revenue from Sense Life and Sense Auto segments in future and shorten the time to achieve a balanced revenue structure.

AIGC

AIGC empowers a more efficient and low-cost way of content generation with AI and could be applied to various scenarios. SenseTime has come up with mature solutions based on AIGC technology in short video marketing and digital human industries.

SenseTime has launched a one-stop platform, SenseNeo, in 2020, integrating the function of content creation, distribution, and results analysis, which reduce the costs and time for marketing significantly. The build-in AIGC video production engine can realize generating creative short videos automatically, including steps of script generation (extract and structure information from each shot in videos and generate split-screen scripts automatically, with the accuracy of 98%, and store these as materials for re-creation), background replacement, converting horizontal videos to vertical format, subtitling and many other services covered in short video ad production. AIGC transforms the traditional human-led short video shooting and production into an AI-assisted automated generation model, helping advertisers to save costs and improve efficiency in ad content production.

As a pioneer in AI digital human technology, SenseTime has built one-step AI digital human production pipeline with three engines of intelligent generation, intelligent drive and intelligent interaction based on its original multi-mode interaction, deep learning, and full-stack AIGC technologies. SenseTime has launched two kinds of human related digital products, SenseMARS Avatar and SenseMARS Agent. An Avatar is the representative and digital identity of a certain individual in the Metaverse, which enables everyone to enter the Metaverse with their own character through mobile apps. With accurate pose and micro expression recognition, SenseMARS Avatar enables users to generate their own Avatars easily with IoT devices such as mobile phones, supporting functions that previously required professional motion capture devices. SenseMARS Agent is developed to enable intelligent human-machine interactions. For instance, SenseMARS Digital Human, a human-like software agent, interacts with users naturally and vividly through dialog, expressions and gestures. Compared with the Avatar, SenseMARS requires more advanced perception intelligence and decision intelligence covering natural language processing and speech, hand gesture, pose and gaze. Benefiting from the automated assembly line, SenseTime has created many AI digital human with different roles quickly and flexibly according to industry needs, which are used on a large scale in industries such as cultural tourism, exhibition halls, finance, education and supermarkets.

Background Replacement (with Green Curtain)

Source: SenseTime, DBS HK

Horizontal & Vertical Format Converting

Source: SenseTime, DBS HK

Virtual IP Xiaotao (LHS) and Avatar of Xuli (RHS)

Source: SenseTime, DBS HK

SenseMARS Agent as Digital Customer Service Staff

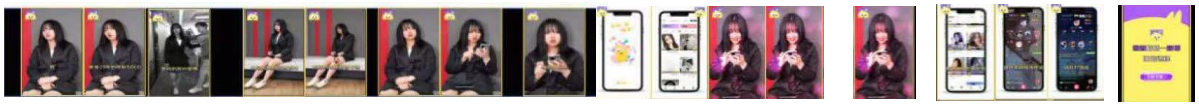
Source: SenseTime, DBS HK

SenseMARS Digital Human Products

Source: SenseTime, DBS HK

Following table is an example of the video structuralization and analysis function. The original material is a short-video ad promoting a social networking APP designed for youth. The AIGC video production engine divides the whole video into several storyboards according to the content it recognized, and marks these cuts with serial number, shot size, figures, lines, timeline, scene, and surroundings. These structuralized elements would further become new materials for users to re-creation and can be found by keyword search in the platform.

Video Elements Structurization and Analysis



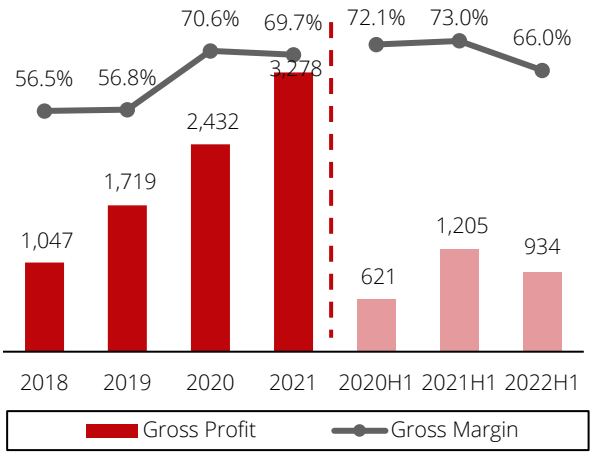
Storyboard No.	01	02	03	04	05	06	07	08	09	10
Shot size	Medium	Medium	Full	Close	Medium close-up	Medium	Medium	Medium close-up	-	-
Male	1	1	0	0	1	1	0	1	0	0
Female	1	1	0	0	1	1	1	1	0	0
Age 19-24	1	1	0	0	1	1	1	1	0	0
Home	1	1	1	0	1	1	1	1	0	0
Lines	I've been single for 23 years	I used to despise love	But when I want to fall in love, I can't find any chance	(Get her mobile)	(Open the APP, surprised)	Introduction of APP	Wow	Intrigued	Click the link below! Boys and girls! Join us and enjoy the game!	Ending
Timeline	00:00:00-00:03:61	00:03:622-00:04:31	00:04:32-00:06:31	00:06:32-00:08:31	00:08:32-00:12:31	00:12:32-00:14:31	00:14:32-00:16:31	00:16:32-00:18:31	00:18:32-00:20:31	00:20:32-ends
Elements	sofa, mobile, pillow	sofa, mobile, pillow	sofa, mobile, pillow	-	-	sofa, mobile, pillow	sofa, mobile, pillow	sofa, mobile, pillow	-	-

Source: SenseTime, DBS HK

Gross profit

The company's strategic focus on software expansion and operating leverage significantly improved its gross margin. In 2018, 2019, 2020 and 2021, gross profit amounted to RMB1,047mn, RMB1,719mn, RMB2,432mn and RMB3,278mn, respectively, corresponding to gross profit margin of 56.5%, 56.8%, 70.6% and 69.7%, respectively.

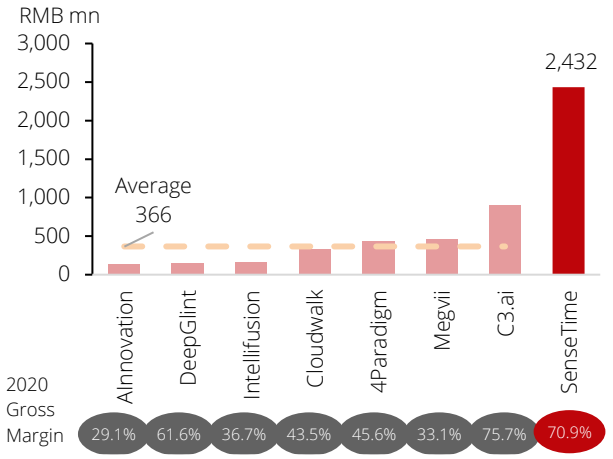
Gross profit (in RMB m) and Gross margin



Source: SenseTime, DBS HK

2020 gross profit was 7X larger than average of other AI players in China.

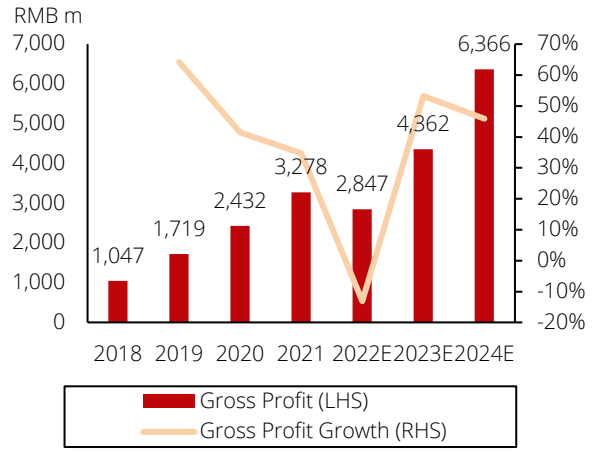
2020 Gross profit (in RMB mn) and margin of major AI players



Source: SenseTime, AInnovation, Intellifusion, Cloudwalk, 4Paradigm, Megvii, DBS HK

In the future, leveraging the increasing productivity and capabilities of SenseCore, we expect the company to generate economies of scale and shorten the time-to-market of AI model deployment and commercialization, and therefore achieving an improvement in operating leverage as business grows.

Gross profit forecast (in RMB mn)



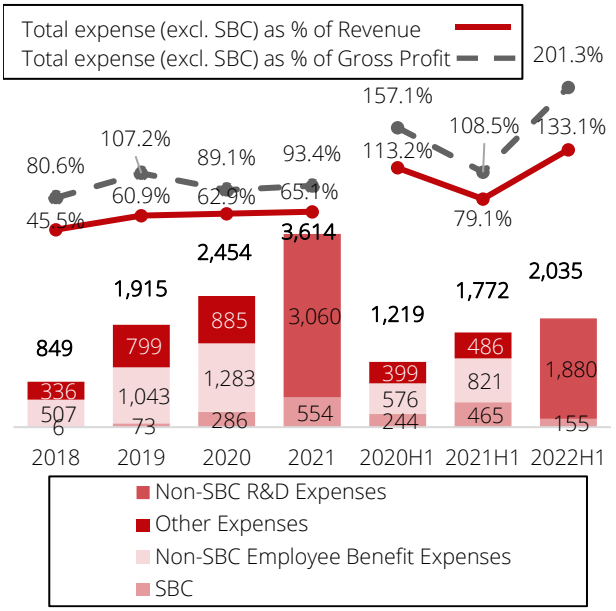
Source: SenseTime, DBS HK

Company's gross profit margin grew from 56.5% in 2018 to 56.8% in 2019, and further to the peak of 70.6% in 2020 before dipping slightly to 60.7% in 2021. However, we believe the current commercialization of AI will be realized largely by enabling hardware, which may partially offset the increase in gross profit margin brought about by the scale effect, so we expect gross profit margin remain stable.

R&D

In 2018, 2019, 2020, and 2021, SenseTime's R&D expenditures were approximately RMB850mn, RMB1.92 bn, RMB2.45 bn, and RMB3.61 bn, reaching an accumulated of approximately RMB8.9bn in four years. Computing on the disclosed financial data, except for changes in the fair value of convertible and redeemable preferred shares, and share-based payment expenses incurred by equity incentives, huge R&D investment has become a main reason for the loss, but it is also expected to establish barriers for SenseTime in the long-term industry competition.

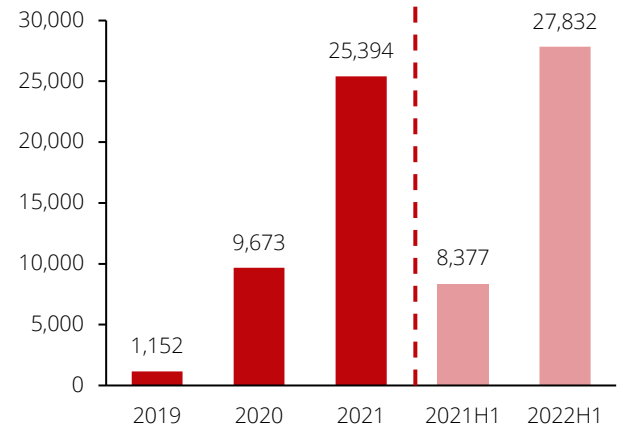
R&D Expenses (in RMB mn)



Source: SenseTime, DBS HK

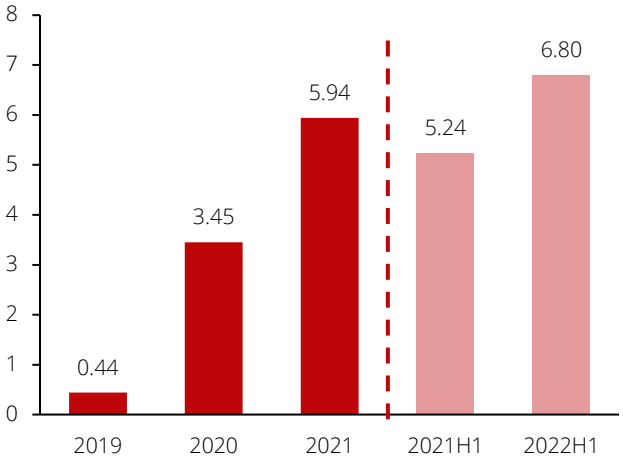
The number of commercial models produced through SenseCore is rapidly increasing, from 1,152 in 2019 to 25,394 in 2021. Compared with the industry's average of several weeks, SenseTime's R&D and engineering team can shorten the development time to several hours. In 2019, 2020 and 2021, the number of commercial models produced per person by SenseTime's R&D staff increased from 0.44 to 3.45 and continued to increase to 5.94, greatly improving production efficiency. In the long run, this is a key step to keep lower marginal cost for AI deployment.

Annual Commercial AI Models Developed



Source: SenseTime, DBS HK

Annual Average AI Models Developed per R&D Person



Source: SenseTime, DBS HK

Broad Industry Coverage, Massive Business Opportunities

The urgency and criticality of leveraging on AI for business transformation are driving the demand for operational AI platforms. This involves moving AI projects from concept to production, so that AI solutions can be relied upon to solve city- and enterprise-wide problems.

The SenseCore AI Infrastructure creates a new paradigm of technology advancement, by achieving efficient, low-cost, and highly scalable AI innovation and empowerment. This is enabled by integrating three layers – computing power, platforms and algorithms. SenseCore is built upon SenseTime's New Generation Supercomputing Center (AIDC), which supports the analysis, training and reasoning of data, and algorithm models that ultimately accelerates applications at scale, addressing the long-tail challenges.

Empowered by SenseCore, SenseTime has developed standard software platforms with modular flexibility to customers, including:

SenseFoundry-Enterprise for Smart Business

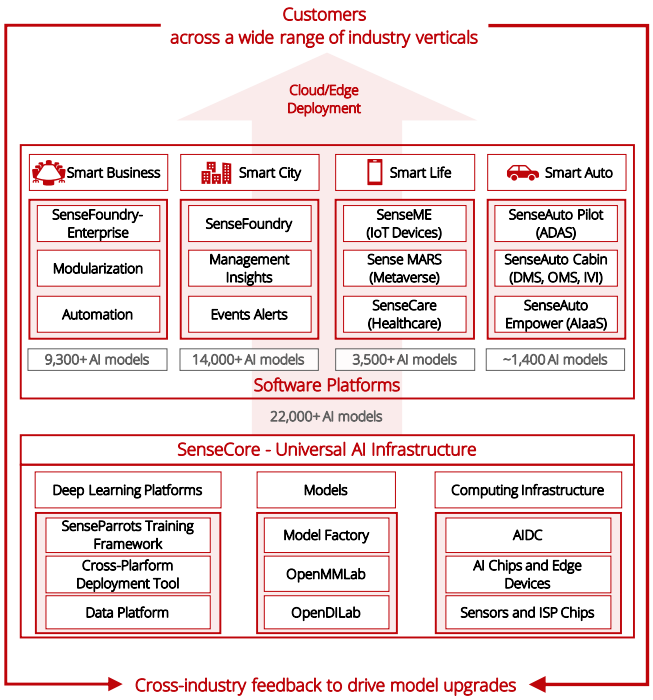
SenseFoundry for Smart City

SenseME, SenseMARS and SenseCare for Smart Life

SenseAuto for Smart Auto

Furthermore, to expand more industry verticals and clients, SenseTime provides AI-as-a-Service offering to customers using SenseCore through software platforms, enabling them to produce AI models tailored to their business needs.

Commercialization through software platform based on SenseCore



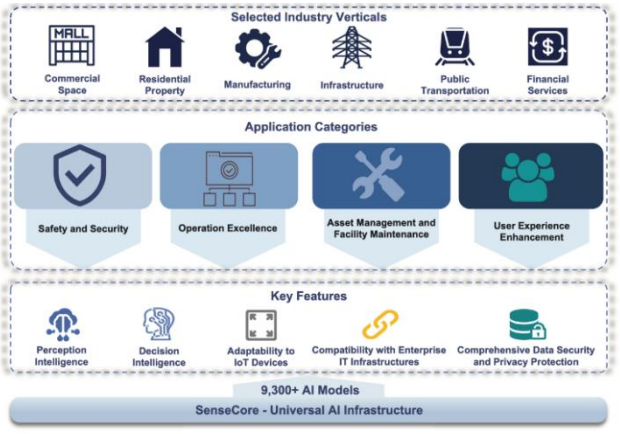
Source: SenseTime, DBS HK

Smart Business

In the process of digital transformation, companies often face the challenge of handling large amounts of unstructured data. Traditional data transformation processing methods are about solving structured form-based input and output stuff. Traditional IT systems are less flexible and more costly in addressing the diverse requirements arising from emerging application scenarios. Also, long-tail scenarios that occur less frequently make traditional IT systems less effective in this scenario. SenseTime's training data platform can automatically batch unstructured data for processing. SenseFoundry-Enterprise helps enterprises' transformation through spatial digitalization, data structuring and mapping and workflow automation.

SenseFoundry-Enterprise has integrated more than 13,000 AI models into the platform to empower the industry verticals including manufacturing industry and services industry.

SenseFoundry-Enterprise Platform for Smart Business



Source: SenseTime

Key Features

SenseFoundry-Enterprise has some key features that meet its customers' needs including perceptual intelligence, decision intelligence, compatibility with enterprise IT infrastructure and comprehensive data security and privacy protection.

Perceptual Intelligence: Used to transcribe raw data input from different IoT devices into structured data for further processing. The advanced perceptual intelligence enables enterprises to recognize, detect, sequence, replicate and analyze objects, actions, and events.

Decision Intelligence: To use information and business insights generated by structured data to automate workflow, thus realizing resource allocation optimization, task scheduling automation and decision-making intelligence.

Compatibility with enterprise IT infrastructure: Can be rapidly deployed on a wide range of edge devices and platform infrastructures, such as cloud servers and local servers.

Comprehensive data security and privacy protection: A comprehensive data security policy is in place to protect data from unauthorized access and misuse. The platform protects customers' privacy from potential cyber-attacks through dual security. With desensitization technology, personal information, characters, and numbers can be hidden.

Application Categories

Business needs vary across industries but share many common requirements. SenseFoundry-Enterprise can address these needs, including improving safety and security services, achieving operational excellence, enabling intelligent asset management and facility maintenance, enhancing user experience, and improving user experience.

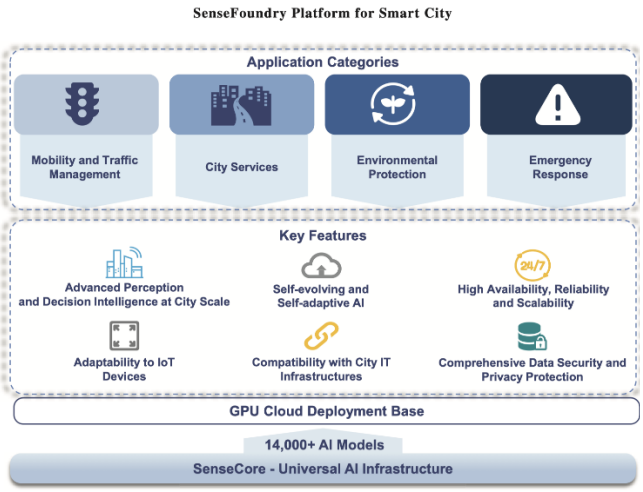
Major applications of SenseFoundry-Enterprise

Source: SenseTime

Smart City

Major cities are facing challenges arising from expectations for a high quality of life. City managers are increasingly looking for technologies to achieve digital transformation of city management, especially to leverage on the massive amount of data generated by edge devices, including interactions between people, urban infrastructure, and public space. Managers urgently need a one-stop AI software platform to conduct comprehensive digital analysis of objects, events, and information in the city. SenseTime's city-level application software platform, SenseFoundry, uses the same steps as SenseFoundry-Enterprise to help cities transform.

SenseFoundry Platform for Smart City



Source: SenseTime

With around 29,000 AI models, SenseFoundry can be seamlessly integrated into existing city management systems by combining the platform with real-world 3D city models. SenseFoundry also has advanced perception intelligence and decision intelligence that evolves itself and provides highly scalable functionality.

In terms of application, SenseFoundry supports city management in the areas of mobility and traffic management, city services, environmental protection, and emergency response.

Major applications of SenseFoundry-Smart City

Source: SenseTime

Mobility and Traffic Management

SenseFoundry makes intelligent decisions based on bottom-up real-time data feedback to solve urban traffic congestion.

Traffic Violation Detection: Identify, report, and collect evidence of traffic violations, including: (i) vehicles carrying passengers and riders without helmets; (ii) parking violations; and (iii) overloading and violations of special vehicles.

Highway Anomaly Warning: Identify and alert highway abnormal events such as pedestrian trespassing, congestion, illegal parking, smoke, and fire.

Traffic Flow Optimization: Identify traffic congestion, perform real-time diagnosis of abnormal conditions, and assist in efficient traffic flow management through signal control.

Traffic Condition Information Extraction: Extract and digitize traffic information such as traffic flow, queue length, vehicle distance and intersection travel time through perceptual intelligence, and perform traffic condition assessment.

City Services

By providing integrated intelligence for city service, SenseFoundry helps to reorganize the processes of city services and promote the refinement and transformation of city services.

Public Safety: Monitor crowd flow and anomalies at attractions and track abnormal behaviors near restricted areas to enhance public safety. Real-time detection of possible smoke and fire.

Public Facility: Monitor for vehicles or other large items blocking emergency exits and alert owners or administrators of the situation.

Public Health and Social Services: Identify and alert smoking, sewage violations, illegal roadside stands, and other incidents like shared bicycle management in public parking areas.

Environmental Protection

SenseFoundry enables automatic detection, early warning, analysis and resource dispatching in the fields of public area sanitation, water level monitoring and air pollution detection, thus covering the whole process from pollution source tracking, pollution management, resource allocation to result evaluation.

City Landscape Oversight: Support the management of city landscape oversight, including the detection of plantation area reduction and inappropriate land use.

City Environmental Protection: Detect litter in public areas and alert administrators to dispose of it in a timely manner. Detect and identify construction vehicles, determine if there is a spill of objects, and send alerts accordingly.

Emergency Response

SenseFoundry supports relevant departments to form emergency response systems to assess and handle emergencies more efficiently through early warning, intelligent incident detection and automated incident handling procedures.

Disaster Detection: Detect fires and smoke, detect stranded vehicles. Predict the location of cities prone to water-logging.

Production Safety: Monitor the storage and transportation of hazardous chemicals and alert on potential safety issues. Instruct construction site workers to implement good safety practices such as proper wearing of helmets, gloves, masks, uniforms and reflective undershirts.

Epidemic Preventive Measures: Provide practices and oversee epidemic control measures.

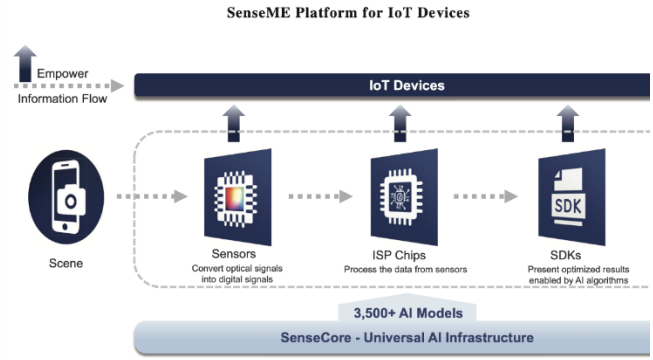
Smart Life

Many smart IoT devices and software applications based on these devices are present everywhere in people's lives nowadays. SenseTime's smart life products include AI-enabled software platforms, AI applications and embedded AI hardware to enhance people's daily life. Smart Life has three products in three different areas. With the industry-leading AI capabilities, SenseME, SenseMARS and SenseCare platforms have become an integral part to drive the rapid growth of emerging areas like IoT devices, Metaverse and Healthcare.

SenseME

SenseME platform comprised of over 3,500 AI models and offers a full suite of products including software development kit (SDKs), AI sensors and ISP chips that can support a wide range of IoT devices to enable perception intelligence and content enhancement.

SenseME Platform for IoT Devices



Source: SenseTime

SenseTime is developing Sensetime Processing Unit (STPU) and image signal processor (ISP) chips to further enhance synergy with AI sensors.

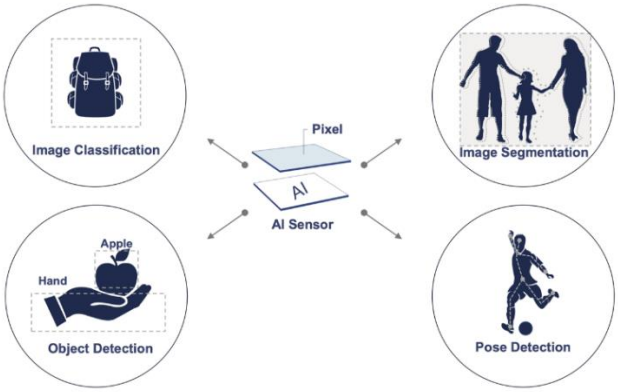
AI Hardware Capability

AI Chips - STPU	✓ Better performance for model training ✓ Lower hardware Cost
AI Sensors	✓ Better visual signal quality ✓ Lower power consumption ✓ Higher data security
ISP Chips	✓Improve performance of AI sensors ✓ Compatible with various types of sensors

Source: SenseTime, DBS HK

AI sensors can dramatically improve the user experience by enhancing real-world perception, improving image and video quality, enriching content details, while minimizing device power consumption and enhancing data security. The AI model helps AI sensors on IoT devices to enable (i) multi-spectrum imaging, (ii) image and video enhancement in various lighting conditions, (iii) high dynamic range imaging, (iv) slow motion imaging, and (v) 3D depth effects. AI ISP chips are also designed to maximize the sensors' performance. With the help of hardware and software, many applications like image classification, image segmentation, object detection and pose detection can be achieved.

AI applications achieved through AI sensors



Source: SenseTime

As of June 30, 2022, SenseTime's AI algorithms have pre-installed in more than 1.7bn mobile phones of more than 180 mobile phone models.

SenseMARS

SenseMARS platform works with IoT device companies, mobile app providers, content providers and commercial properties to build a multi-layered infrastructure to support the development of Metaverse and create new interactive experiences. SenseMARS is compatible with different applications and multiple IoT devices. As of June 30, 2021, SenseMARS provides more than 3,500 artificial intelligence models.

SenseMARS has a variety of key features to support various Metaverse applications. The core elements of the platform are SenseMARS Avatar, SenseMARS Agent and SenseMARS Reconstruction.

SenseMARS Avatar: Helps generate digital figures from real people's photos easily on IoT devices like mobile phones.

SenseMARS Agent: Provides virtual assistant services through the use of technologies such as Natural language processing (NLP) to enable interaction between humans and machines.

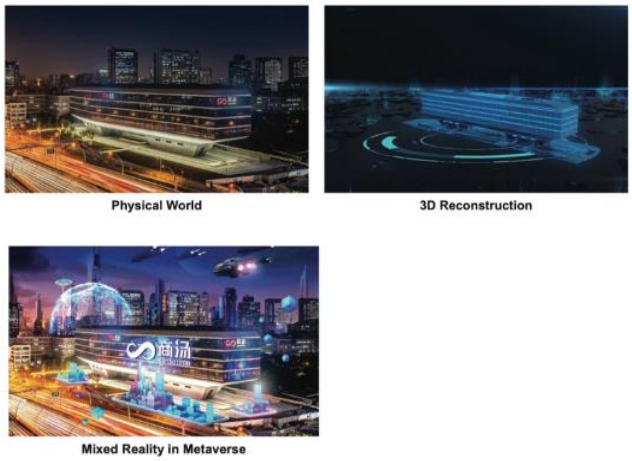
A typical scene on the Metaverse

Source: SenseTime

Remarks:
1) Avatars or software agents
2) 3D Reconstruction of the physical world

SenseMARS Reconstruction: Creates high-precision 3D digital replicas of the physical world to allow for AR and MR applications.

SenseMARS- Digital Reconstruction of the Physical World



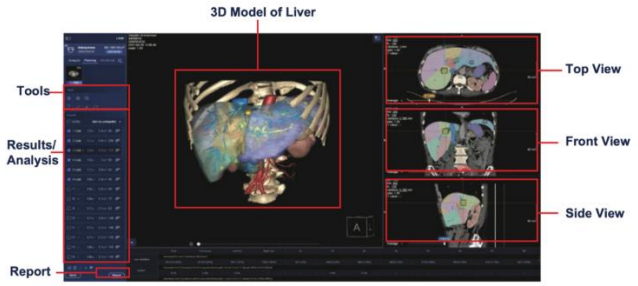
Source: SenseTime

SenseCare

SenseCare uses AI models to assist doctors in diagnosis, treatment planning and rehabilitation. SenseCare is embedded with many artificial intelligence models to support abnormality detection, identification and automatic diagnostic analysis multiple organs. SenseCare platform has 18 AI modules including Liver CT and MT Intelligent Analysis System, Liver Intelligent Surgery Planning System, Lung Intelligent Surgery Planning System, Cardiac Coronary Intelligent Analysis System, Head and Neck Vascular Intelligent Analysis System, covering 6 clinical directions. It has obtained 16 domestic and overseas certifications in total and landed in 75 hospitals and medical institutions.

Comprehensive diagnosis offerings: Can cover 13 body parts and organs, such as heart, liver, lungs, stomach, intestine and cervix. SenseCare also serves in multiple key clinical departments including radiology, pathology, radiotherapy, surgery and orthopedics.
Treatment planning and rehabilitation: Offers 3D services to medical professionals and patients.
Flexible deployment supported by high concurrency rendering: Concurrent access by doctors from multiple terminals across hospitals and other medical institutions.

SenseCare's imaging and automatic 3D reconstruction



Source: SenseTime

Smart Auto

SenseAuto is SenseTime's automobile platform designed to help customers capture the new business opportunities emerging from the trend towards car intelligence. The SenseAuto platform commenced development in 2016. Since 2017, SenseTime has been a strategic partner of Honda, provide its AI technology related to autonomous driving. From the start, SenseTime has collaborated with leading car companies, and it has focused directly on mass production requirements. The technology is optimized for use in mainstream operating systems and chips, enabling products to meet the requirements of different car companies.

SenseTime has been working on L4 autonomous driving technology, translating strengths in perception intelligence into full-stack capabilities. In 2021, SenseTime was granted the tenth place in the Global Smart Auto Patent Rankings published by IPR Daily.
SenseAuto consists of five products, namely SenseAuto Pilot, SenseAuto Cabin, SenseAuto Empower, SenseAuto Robobus and SenseAuto Connect, providing a full stack of AI auto services.

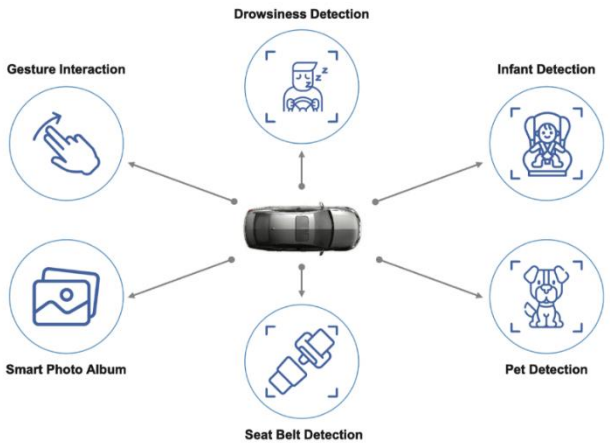
SenseAuto Cabin
SenseAuto Cabin includes three functions: Driver Monitoring System (DMS), Occupant Monitoring System (OMS) and In-Vehicle Infotainment (IVI) system.

DMS: DMS provides driver identification, sleep detection, attention detection, absence detection and abnormal condition detection to help drivers improve drive safety. DMS is an essential safety measure for L2+ autonomous driving and provides critical support for SenseAuto Pilot products. 2022 Honda China's new pure electric brand "e: N" series of two first models Dongfeng Honda e: NS1 and Guangqi Honda e: NP1 have been installed with DMS system.

OMS: OMS identifies unauthorized passengers and unattended objects in the cabin, and offers detection of infants/children, pets, lost items, safety belts and safety seats, which enhances the safety of passengers.
IVI: SenseMARS has been embedded into the IVI system to deliver innovative features including in-cabin image quality enhancement, AR high-precision navigation and beauty camera effects, as well as intelligent photo albums and virtual assistant.

In 1H22, the smart cabin products have been delivered in mass production to many vehicle manufacturers, including SAIC, GAC, Dongfeng, BYD, Nio, Chery, etc., and owns the largest market share in the pre-installed AI software for Smart Cabin of passenger cars industry in China, according to High-tech Intelligent Vehicle Research Institute.

SenseAuto Cabin

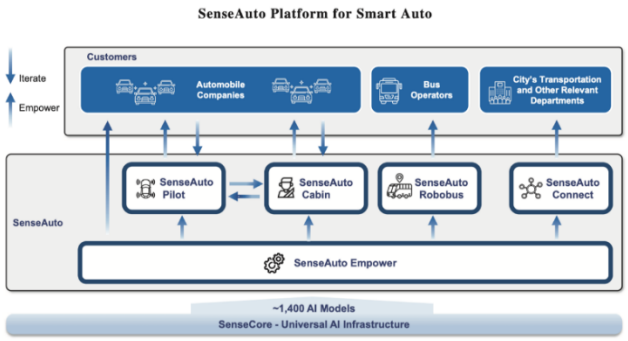


Source: SenseTime

The AI-as-a-Service product SenseAuto Empower for automotive companies brings a one-stop solution consisting of about 1,400 AI models and cloud computing capabilities. This product is designed to support internal AI development programs of auto companies and can be efficiently deployed on more than 30 types of vehicle models with different chips.

SenseTime has also launched SenseAuto Robobus and SenseTime Connect. The first one is a product based on its autonomous driving and AR technology, and the second one offers V2X (Vehicle-to-Everything) capabilities to the products.

SenseAuto Platform



Source: SenseTime

SenseAuto Pilot

SenseAuto Pilot offers two different options for customers, a cost-effective system based on vision and a premium system based on multi-sensor fusion, covering both mass and high-end markets.

Vision-based system: SenseAuto Pilot offers a system that can detect vehicles up to 200 meters and pedestrians up to 150 meters. Only Digital Video Recorder (DVR) is needed to be used as the perception camera, which is common in most vehicles, to provide highly accurate ADAS functionality. This proof the high scalability of the vision system.

Multi-sensor fusion system: SenseAuto Pilot also offers multi-sensor fusion systems with wider viewing angles and high-definition features. It embeds AI perception models into the sensors, including LiDAR. SenseAuto Pilot offers a full range of features such as Adaptive Cruise Control (ACC), Lane Centering Control (LCC), Traffic Jam Assist (TJA) and Navigation on Pilot (NoP).

SenseAuto V2X Platform

SenseTime has updated and launched the vehicle-road collaboration platform, SenseAuto V2X in September 2022. The products matrix includes the vehicle-city network system, V2X-I, autonomous vehicle series, RoboX (autonomous driving bus SenseAuto Robobus and autonomous driving sweeper SenseAuto RoboSweeper currently), edge computing platform, V2X-E, intelligent computing platform, V2X-M, and the cloud control platform, V2X-C. The V2X platform has been implementing in V2X pilot area, closed-end parks, highways and urban traffic management scenarios, an is dedicated to creating integrated analysis and decision-making solutions.

SenseAuto V2X Product Portfolio

Source: SenseTime

Environment, Social & Governance (ESG)

Green AI

To enhance its contribution to the environment, SenseTime has built the internal environmental governance system and strived to peak carbon dioxide emissions by 2025, achieve operational carbon neutralization by 2030, and eventually eliminate net emission in 2050. The Carbon Neutral Development Research Center is set to work out efficient solutions for the dual-carbon goal, from top-level design to pilot implementations. The existing solutions during the reporting period could be divided into 3 directions:

1) Advanced technology to improve energy consumption efficiency. In the digital sector, for example, an undersea data center was built in China in FY21, which features green energy-saving and contributes to the dual-carbon goal. In the energy sector, SenseTime applied AI+VR technology into grid inspection and thus improve the efficiency of electric power operation.

2) Monitoring and reducing carbon emission in production process. For one, the Shanghai Lingang AIDC is equipped with a carbon reduction system to report real-time energy consumption, providing evidence for the output of optimizing the energy system, applying energy conservation technology, and operating in a low-carbon way; for another, the increasingly pronounced scale effect shown in SenseTime's production process could reduce the average energy consumption per AI model.

3) Low-carbon penetrating in daily operations. For facilities, an integrated energy management platform is set in SenseTime Shanghai Headquarter Building to assess their energy efficiency. For employees, SenseTime is dedicated to arranging trainings and thus fully arousing employees' low-carbon awareness, especially on more efficient use of equipment and facilities.

In addition to carbon emission, Sensetime also pays attention to reducing unnecessary use of water resources, as well as promoting the recycling of packaging materials and waste. With an overall green atmosphere and diversified solutions, Sensetime do make contributions to environmental protection.

Responsible AI

- Supporting the growth of AI industry

Deeply involved in industry-academia-institution cooperation, SenseTime always keeps itself at the frontier of AI technologies. For the output of R&D, the Company not only sticks to intellectual property protection, but also commits itself to promoting resource and information exchanges in the industry, such as sharing 10 code databases and c.1,500 AI models on open-source algorithm platforms, hosting the 2021 Science and Technology Frontier Congress of the WAIC (World Artificial Intelligence Conference), etc.

- AI technology penetrating other industries

1) Sports: SenseTime managed to apply AI and AR technology into Beijing Winter Olympics, powered by which the audience could acquire guides to various sports in an interactive way, as well as view athletes racing more directly. The AI/AR application helped boost up the Winter Olympics mood, engage more eyes on ice and snow sports, and, most importantly, build China's image as a leading sports nation.

2) Tourism: The VR/AR/MR technology of SenseTime could restore the appearance of ancient building and meanwhile present historical facts; The AI/AR technology enables people visit key location from afar. The combination of above 2 functions provides an interactive and immersive space for visitors to know about rural cultural heritage, catering to the promotion 'accelerate the construction of digital villages' in China's 14th Five-Year Plan.

3) Education: SenseTime has launched the AI teacher training program 'Liaoyuan Plan', supporting AI to penetrate deeply in elementary education. The program succeeded to cover 192 teachers from 19 provinces and cities in FY21. Being exposed to the concept of AI early, the students would improve the acceptance and understanding of AI, and form the talent pool for AI in the future.

4) Culture: SenseTime use AI technology to enrich the form of cultural creative products, such as a digital platform providing gameplays and presentations concerning Dunhuang, Palace Museum Calendar combing AI and AR technologies, etc. The innovative products efficiently preserve the cultural heritages as well as make culture more accessible and attractive to the public.

- AI technology contributing to Covid-19

During the outbreak of COVID-19, SenseTime collaborated with several hospitals and medical institutions across China to assist COVID-19 diagnoses. The company upgraded its diagnosis application, which dramatically improved the effectiveness, accuracy, and speed of the current analysis of CT scans with the help of AI algorithms, according to Xinhua News Agency. Additionally, SenseTime developed the monitoring system SenseThunder-E to detect the body temperature, whether people wear face masks, and other abnormal conditions, largely improving the efficiency of screening suspected patients.

Reliable AI

- Principles

SenseTime advocates the "AI ethics that promotes human development" and calls on all institutions, enterprises, and individuals to follow the three principles of "sustainability, human-centric approach, and controllable technology", and to respect, understand and balance the differences between countries and regions around the world in terms of historical, cultural, social and economic development.

- Data security

SenseTime has passed three international safety standards evaluations and one national standards review, i.e. ISO/IEC 27001:2013—information security management systems certification, ISO/IEC 29151:2017—personal identity information protection practical guidance certification, ISO/IEC 27701:2019—privacy information management systems certification, and the Ministry of Public Security's "Multi-Level Protection Scheme (MLPS) 2.0" Level-3 requirements for cybersecurity. SenseTime has become the first AI enterprise to concurrently receive these four certifications.

- Council and research

SenseTime has set up AI Ethics Council, Corporate Social Responsibility Department and Intelligence Industry Research Institute, jointly formulating and implementing strict ethical standards on the application of AI technologies to respect and protect individual privacy to the greatest extent possible, and ensure the proper utilization of AI technologies.

As the company's primary organization at the ethical level, the AI Ethics Council is mainly responsible for AI ethics-related responsibilities, including principle formulation, concept publicity, and promoting the implementation of AI ethics measures, and determining SenseTime's goals, policies, work guidance and implementation measures concerning AI ethics. It also aims to facilitate the implementation of AI sustainable development strategies through AI ethics-related measures. One of its core tasks is to execute ethical review of all SenseTime product lines, evaluating relevant algorithms, data and social impact.

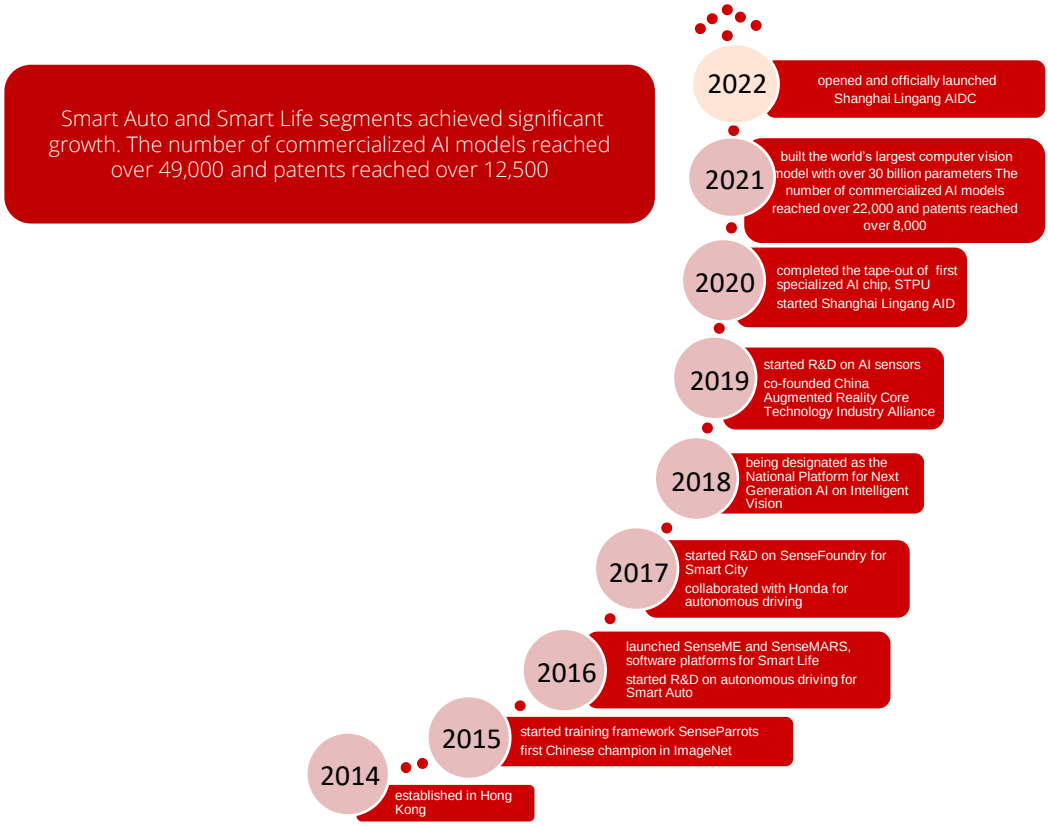
SenseTime's Code of Ethics for AI Sustainable Development has been selected by the United Nations as one of the key publication references in the United Nations Resource Guide on AI Strategies published in June 2021.

Company Background

SenseTime is a leading AI software company focused on creating a better AI-empowered future through innovation. Upholding a vision of advancing the interconnection of the physical and digital worlds with AI, driving sustainable productivity growth and seamless interactive experiences,

SenseTime is committed to advancing the state of the art in AI research, developing scalable and affordable AI software platforms that benefit businesses, people and society, and attracting and nurturing top talents, shaping the future together.

Milestones



Source: SenseTime, DBS HK

Management & Strategy

Management

Name	Role	Description
Xu Li	Co-founder, Executive Chairman of the Board, Executive Director, chief Executive Officer and member of the remuneration committee and the nomination committee	Dr. Xu Li was appointed as a Director in 2015 and re-designated as an Executive Director in 2021. He is primarily responsible for the Group's vision strategy, business development and daily operations. He has been an adjunct professor at Shanghai Jiao Tong University since 2018.
Tang Xiao'ou	Founder and Executive Director	Prof. Tang Xiao'ou is primarily responsible for designing the Group's research and innovation strategies and driving research partnerships with leading universities and academic institutions. Prof. Tang has been a professor at the Department of Information Engineering at the Chinese University of Hong Kong since 1998, and an associate director of the Shenzhen Institute of Advanced Technology of the Chinese Academy of Science since 2009. Prof. Tang has been a fellow at the IEEE since 2009. He was the Editor-in-Chief of IJCV (a leading journal on computer vision) and a general chair of the ICCV (a leading conference on computer vision).
Wang Xiaogang	Co-founder, Executive Director and Chief Scientist	Dr. Wang Xiaogang was appointed as a Director in 2016 and re-designated as an Executive Director in 2021. He is primarily responsible for overseeing and supervising the Group's research team. He joined the Department of Electronic Engineering at the Chinese University of Hong Kong as an assistant professor in 2009 and has been a professor since 2020. He has been the Chairman of China Augmented Reality Core Technology Industry Alliance since 2019. Dr. Wang has published numerous papers at major conferences and journals and his publications have received over 65,000 citations according to Google Scholar. He was awarded the honorable mention of PAMI Young Researcher Award by the IEEE Computer Society in 2016, and the Hong Kong RGC Early Career Award in 2012. He was the area chair of various international conferences between 2011 and 2017, including the CVPR, ICCV and ECCV.
Xu Bing	Co-founder, Executive Director and Board secretary	Mr. Xu Bing is the co-founder, Executive Director and Board secretary. He was appointed as a Director in 2015 and re-designated as an Executive Director in 2021. He is primarily responsible for the Group's corporate development strategies and overseeing fundraising and strategic investments.
Fan Yuanyuan	Non-Executive Director and member of the audit committee	Ms. Fan Yuanyuan was appointed as a Director in 2017 and re-designated as a Non-Executive Director in 2021. She is primarily responsible for providing advice to the overall development of the Group. Ms. Fan has years of experience in private equity investments, management consulting and financial services.

Source: Company, DBS HK

Management (con't)

Name	Role	Description
Xue Lan	Independent Non-Executive Director, chairperson of the corporate governance committee and member of the nomination committee	Prof. Xue Lan was appointed as an independent Non-Executive Director in 2021. He is primarily responsible for offering independent advice to the Board on the operations and management of the Group. Prof. Xue has been a professor at Tsinghua University since 1998 and the Dean of Schwarzman College since 2018. He was the Dean of the School of Public Policy and Management at the same university from 2008 to 2018. Prof. Xue has been serving as the vice chairman of the board of Chinese Association of Science of Science and S&T Policy (CASSSP) since 2015, a member and chair of the National Expert Committee on New Generation of Artificial Intelligence Governance since 2019 and a member of the Standing Committee of the China Association for Science and Technology since 2021.
Lyn Frank Yee Chon	Independent Non-Executive Director, chairperson of the audit committee and member of the remuneration committee and the corporate governance committee	Mr. Lyn Frank Yee Chon was appointed as the independent Non-Executive Director in 2021. He is primarily responsible for offering independent advice to the Board on the operations and management of the Group. Mr. Lyn has been an independent Non-Executive director and the chairman of the audit committee of Standard Chartered Bank (China) Ltd. since 2020. He served the same positions at Mox Bank Limited since 2020. He was previously a partner at PricewaterhouseCoopers (PwC) from 1993 to 2019 and has held multiple senior positions at PwC China & Hong Kong. Mr. Lyn served at The Community Chest as a director from 2015 to 2021 and as a treasurer during the financial years between 2015/2016 to 2019/2020. He was a member of the Chinese People's Political Consultative Committee of the Guangxi Zhuang Autonomous Region from 2000 to 2018.
Li Wei	Independent Non-Executive Director, chairperson of the remuneration committee and the nomination committee and member of the audit committee and the corporate governance committee	Mr. Li Wei was appointed as the independent Non-Executive Director in 2021. He is primarily responsible for offering independent advice to the Board on the operations and management of the Group. Mr. Li is the chairman of the board of Songhe Venture Capital Co., Ltd. and the founding partner of Green Pine Capital Partners, a venture capital firm specializing on strategic emerging industries including artificial intelligence.
Wang Zheng	Chief Financial Officer	Mr. Wang Zheng has been the chief financial officer since 2019. He is primarily responsible for overall financial planning and management of the group. Prior to joining the group, Mr. Wang worked at Silver Lake from 2008 to 2018, with his last position as managing director and head of Greater China, primarily responsible for sourcing and executing private equity investments in the technology and technology-enabled industries. He worked at General Atlantic from 2005 to 2008, with his last position as vice president focusing on technology, media and telecom (TMT) and healthcare related private equity investments in North Asia. Mr. Wang was a senior business analyst at corporate finance practice at McKinsey & Company from 2003 to 2005. He served as financial analyst at Morgan Stanley from 2002 to 2003 and at Credit Suisse First Boston from 2001 to 2002.
Yang Fan	Co-founder and Vice President	Mr. Yang Fan is the Co-founder and has been the Vice President since 2014. He is primarily responsible for strategic planning and corporate development of the group. Mr. Yang has been serving as an industry expert at the Shenzhen Stock Exchange from 2020 and the vice president of the Strategic Cooperation and Development Committee of the Institute for AI International Governance of Tsinghua University from 2021. Prior to joining the group, Mr. Yang was the research software development engineer at Microsoft (China) Co., Ltd. from 2006 to 2014.

Source: Company, DBS HK

Segmental Breakdown (RMB m) pls show 2024 financials

FY Dec	2020A	2021A	2022F	2023F	2024F
Revenues (RMB m)					
Smart Business	1,485	1,958	2,018	2,675	3,412
Smart City	1,369	2,143	1,821	2,524	3,228
Smart Life	434	415	780	1,351	2,256
Smart Auto	158	184	303	681	1,497
Total	3,446	4,700	4,922	7,230	10,393

Source: Company, DBS HK

Income Statement (RMB m)

FY Dec	2020A	2021A	2022F	2023F	2024F
Revenue	3,446	4,700	4,922	7,230	10,393
Cost of Goods Sold	(1,014)	(1,423)	(2,075)	(2,868)	(4,027)
Gross Profit	2,432	3,278	2,847	4,362	6,366
Other Opng (Exp)/Inc	(4,244)	(7,007)	(8,634)	(7,637)	(8,620)
Operating Profit	(1,812)	(3,730)	(5,787)	(3,274)	(2,254)
Other Non Opg (Exp)/Inc	(10,564)	(13,526)	0	0	0
Associates & JV Inc	(6)	(40)	50	80	100
Net Interest (Exp)/Inc	62	154	36	103	92
Dividend Income	0	0	0	0	0
Exceptional Gain/(Loss)	0	0	0	0	0
Pre-tax Profit	(12,319)	(17,142)	(5,701)	(3,091)	(2,062)
Tax	161	(36)	192	112	(50)
Minority Interest	0	(37)	0	0	0
Preference Dividend	0	0	0	0	0
Net Profit	(12,158)	(17,140)	(5,509)	(2,979)	(2,112)
Net Profit before Except.	(12,158)	(17,177)	(5,509)	(2,979)	(2,112)
EBITDA	(12,037)	(16,705)	(5,139)	(2,124)	(920)
Growth					
Revenue Gth (%)	13.9	36.4	4.7	46.9	43.7
EBITDA Gth (%)	(130.9)	(38.8)	69.2	58.7	56.7
Opg Profit Gth (%)	12.8	105.9	55.2	(43.4)	(31.2)
Net Profit Gth (%)	(145.0)	(41.0)	67.9	45.9	29.1
Margins & Ratio					
Gross Margins (%)	70.6	69.7	57.8	60.3	61.3
Opg Profit Margin (%)	(365.8)	(369.4)	(122.9)	(46.1)	(22.1)
Net Profit Margin (%)	(352.8)	(364.7)	(111.9)	(41.2)	(20.3)
ROAE (%)	76.3	(316.7)	(18.8)	(11.7)	(8.8)
ROA (%)	(39.0)	(45.5)	(15.9)	(9.4)	(6.8)
ROCE (%)	(48.9)	(54.1)	(17.4)	(10.6)	(7.9)
Div Payout Ratio (%)	N/A	N/A	N/A	N/A	N/A
Net Interest Cover (x)	NM	NM	NM	NM	NM

Source: Company, DBS HK

Balance Sheet (RMB m)

FY Dec	2020A	2021A	2022F	2023F	2024F
Net Fixed Assets	1,906	2,909	6,524	6,727	7,002
Invts in Associates & JVs	70	27	32	39	47
Other LT Assets	4,846	5,951	6,706	7,539	8,270
Cash & ST Invts	17,811	21,793	13,618	9,579	6,716
Inventory	716	496	853	895	961
Debtors	4,584	5,776	4,817	6,159	7,861
Other Current Assets	8,616	19	23	27	33
Total Assets	**38,479**	**36,944**	**32,541**	**30,926**	**30,842**
ST Debt	594	0	0	1	1
Creditors	1,834	2,446	3,039	3,548	4,373
Other Current Liab	7,395	349	228	232	241
LT Debt	423	340	407	489	587
Other LT Liabilities	49,166	1,822	2,180	2,026	2,210
Shareholder's Equity	(21,068)	31,893	26,592	24,522	23,332
Minority Interests	136	95	95	108	99
Total Cap. & Liab.	**38,479**	**36,944**	**32,541**	**30,926**	**30,842**
Non-Cash Wkg. Capital	4,686	3,496	2,425	3,302	4,240
Net Cash/(Debt)	16,795	21,453	13,210	9,089	6,129
Debtors Turn (avg days)	490.5	402.2	392.8	277.0	246.2
Creditors Turn (avg days)	2,077.9	1,021.3	859.4	725.2	544.8
Inventory Turn (avg days)	470.4	289.1	211.3	192.4	127.6
Asset Turnover (x)	0.1	0.1	0.1	0.2	0.3
Current Ratio (x)	3.2	10.0	5.9	4.4	3.4
Quick Ratio (x)	2.3	9.9	5.6	4.2	3.2
Net Debt/Equity (X)	CASH	(0.7)	(0.5)	(0.4)	(0.3)
Net Debt/Equity ex MI (X)	0.8	CASH	CASH	CASH	CASH
Capex to Debt (%)	128.3	369.9	949.8	180.9	192.7
Z-Score (X)	NA	NA	NA	NA	NA

Source: Company, DBS HK

Cash Flow Statement (RMB m)

FY Dec	2020A	2021A	2022F	2023F	2024F
Pre-Tax Profit	(12,319)	(17,142)	(5,701)	(3,091)	(2,062)
Dep. & Amort.	570	658	910	1,210	1,373
Tax Paid	(13)	(38)	(57)	(85)	(128)
Assoc. & JV Inc/(loss)	0	0	0	0	0
(Pft)/ Loss on disposal of FAs	1,278	2,543	1,585	347	634
Chg in Wkg.Cap.	(1,290)	(2,026)	417	(906)	(1,162)
Other Operating CF	10,545	13,519	(864)	0	0
Net Operating CF	**(1,229)**	**(2,485)**	**(3,710)**	**(2,525)**	**(1,344)**
Capital Exp.(net)	(1,304)	(1,257)	(3,874)	(885)	(1,132)
Other Invts.(net)	(5,637)	(343)	(2,779)	(453)	811
Invts in Assoc. & JV	(18)	(1)	0	0	0
Div from Assoc & JV	0	0	0	0	0
Other Investing CF	(112)	53	0	0	0
Net Investing CF	**(7,070)**	**(1,548)**	**(6,653)**	**(1,338)**	**(320)**
Div Paid	0	0	0	0	0
Chg in Gross Debt	(2,435)	(695)	(88)	12	28
Capital Issues	6,847	14,817	0	0	0
Other Financing CF	8,774	(4,743)	(450)	12	(26)
Net Financing CF	**13,186**	**9,378**	**(538)**	**24**	**2**
Currency Adjustments	0	0	0	0	0
Chg in Cash	4,886	5,345	(10,901)	(3,840)	(1,662)
Opg CFPS (RMB)	0.00	(0.01)	(0.12)	(0.05)	(0.01)
Free CFPS (RMB)	(0.08)	(0.11)	(0.23)	(0.10)	(0.07)

Source: Company, DBS HK

DBS HK recommendations are based on an Absolute Total Return* Rating system, defined as follows:

STRONG BUY (>20% total return over the next 3 months, with identifiable share price catalysts within this time frame)

BUY (>15% total return over the next 12 months for small caps, >10% for large caps)

HOLD (-10% to +15% total return over the next 12 months for small caps, -10% to +10% for large caps)

FULLY VALUED (negative total return, i.e., > -10% over the next 12 months)

SELL (negative total return of > -20% over the next 3 months, with identifiable share price catalysts within this time frame)

**Share price appreciation + dividends*

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