
Independent Research on Nutritional Product Industry

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Scope

- The project scope is defined as follows:

Research Period

- Historical Year: 2018-2022
- Base Year: 2023
- Forecast Year: 2024E-2028E

Geographic Scope

- The PRC

Target Market

- Nutritional Product Industry

Limitations

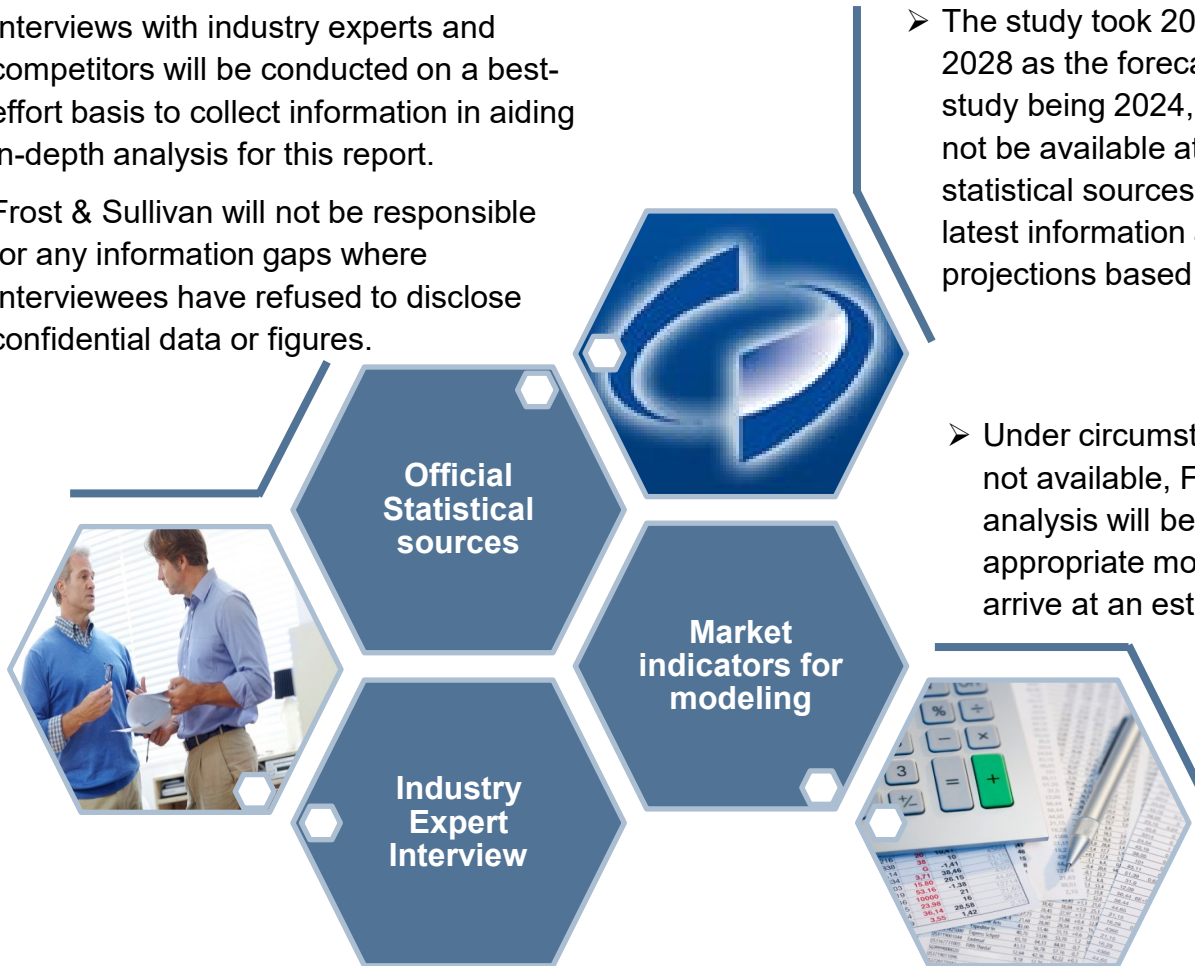
■ Source of Information

- Interviews with industry experts and competitors will be conducted on a best-effort basis to collect information in aiding in-depth analysis for this report.
- Frost & Sullivan will not be responsible for any information gaps where interviewees have refused to disclose confidential data or figures.

- The study took 2023 as the base year and 2024-2028 as the forecast period. As the point of this study being 2024, some of the figures of 2023 may not be available at the moment from public statistical sources. Frost & Sullivan will use the latest information available (e.g. 2022) or make projections based on historical trends.

- Under circumstances where information is not available, Frost & Sullivan in-house analysis will be leveraged using appropriate models and indicators to arrive at an estimate.

- Source of information will be stated in the right hand corner at the bottom on each slide for easy reference.



Methodologies and Assumptions

■ Methodologies and Assumptions

- Frost & Sullivan is an independent global consulting firm, which was founded in 1961 in New York. It offers industry research and market strategies and provides growth consulting and corporate training. Its industry coverage includes automotive and transportation, chemicals, materials and food, commercial aviation, consumer products, energy and power systems, environment and building technologies, healthcare, industrial automation and electronics, industrial and machinery, and technology, media and telecom.
- The Frost & Sullivan's report includes information on nutritional product industry in the PRC.
- Frost & Sullivan has conducted detailed primary research which involved discussing the status of the industry with certain leading industry participants. Frost & Sullivan has also conducted secondary research which involved reviewing company reports, independent research reports and data based on its own research database. Frost & Sullivan has obtained the figures for the estimated total market size from historical data analysis plotted against macroeconomic data as well as considered the above-mentioned market key drivers.
- Frost & Sullivan's Market Engineering Forecasting Methodology integrates several forecasting techniques with the Market Engineering Measurement-based System. It relies on the expertise of the analyst team in integrating the critical market elements investigated during the research phase of the project. These elements include:
 - ✓ Expert-opinion forecasting methodology
 - ✓ Integration of market drivers and restraints
 - ✓ Integration with the market challenges
 - ✓ Integration of the Market Engineering Measurement trends
 - ✓ Integration of econometric variables
- In compiling and preparing the Report, Frost & Sullivan has adopted the following assumptions:
 - ✓ The economy in the PRC is likely to maintain stable growth in the next decade
 - ✓ Social, economic and political environments are likely to remain stable in the PRC in the forecast period
 - ✓ Related industry key drivers are likely to drive the market in the forecast period

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Overview of Milk Powder Industry

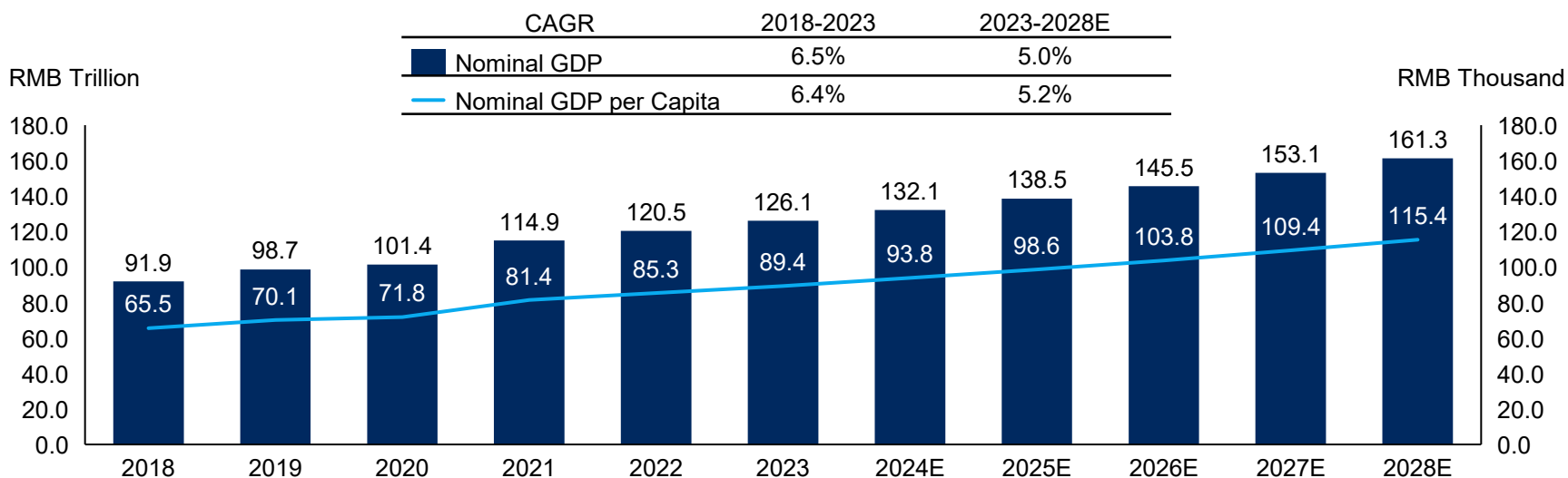
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Macro Economy Overview in the PRC

Nominal GDP and Nominal GDP per Capita

Nominal GDP and Nominal GDP per Capita in the PRC, 2018-2028E



- The nominal GDP of the PRC experienced a stable growth from RMB91.9 trillion in 2018 to RMB126.1 trillion in 2023, representing a CAGR of 6.5%. Notably, the GDP of Guangdong Province, Jiangsu Province, and Shandong Province ranked in the top three in 2021, 2022, and 2023. In the first half of 2024, the nominal GDP in the PRC reached RMB61.7 trillion, growing by 5.0% from 2023H1 to 2024H1. In comparison, the nominal GDP in the first half of 2023 was RMB59.3 trillion, with a growth rate of 5.5% from 2022H1 to 2023 H1.
- It is expected that the nominal GDP will continue its steady growth at a CAGR of 5.0% from 2023 to 2028, mainly driven by macroeconomic stability and economic upgrading. The Chinese authorized institutions promulgate laws and policies from monetary and fiscal aspects to maintain domestic macroeconomic stability. Likewise, the trend of the nominal GDP per capita is in accord with that of nominal GDP in the review period, growing from RMB65.5 thousand in 2018 to RMB89.4 thousand in 2023 at a CAGR of approximately 6.4% and is expected to reach RMB115.4 thousand in 2028 at a CAGR of roughly 5.2% from 2023 to 2028.

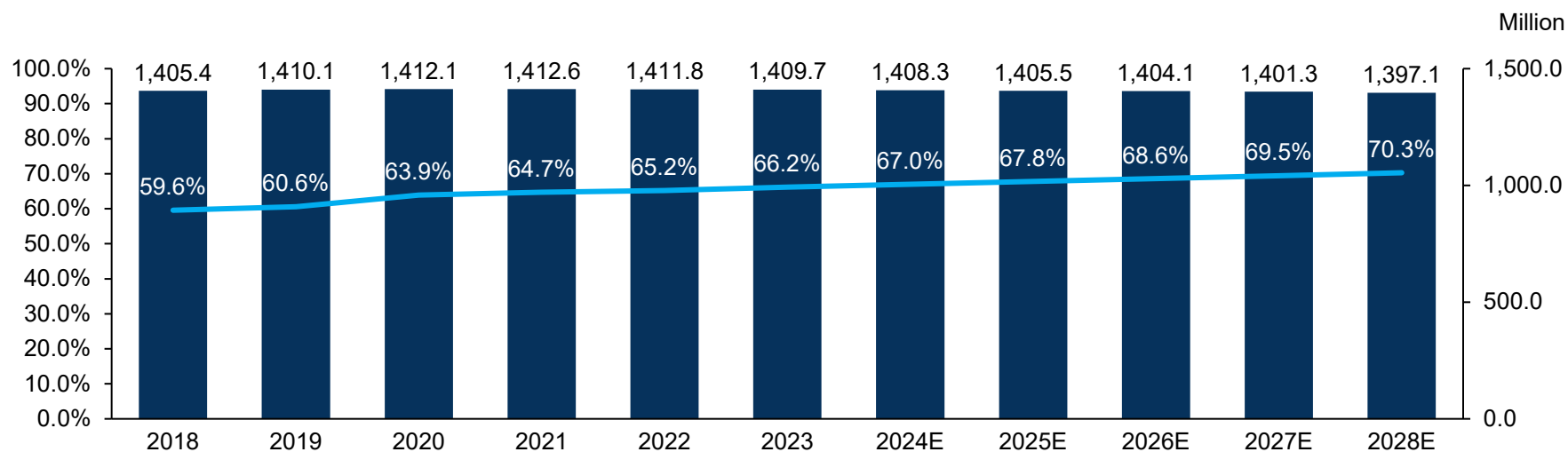
Source: National Bureau of Statistics, Frost & Sullivan

Macro Economy Overview in the PRC

Population and Urbanisation Rate

Population and Urbanisation Rate in the PRC, 2018-2028E

	CAGR	2018-2023	2023-2028E
Population		0.1%	-0.2%
Urbanisation Rate		2.1%	1.2%



- The period between 2018 and 2023 witnessed a muted growth in the population of the PRC from 1,405.4 million to 1,409.7 million at a CAGR of 0.1%. China's population growth is facing challenges, characterized by the three major trends of aging, fewer births and an increase in the number of unmarried individuals. Thus, the population of the PRC is expected to decline to 1,397.1 million in 2028. As upheld by continuous growth in the national economy and the government's initiative to accelerate the process of urbanization in the PRC, the urbanization rate increased from 59.6% to 66.2% from 2018 to 2023 at a CAGR of around 2.1%. The PRC's urbanization rate is expected to maintain an upward trend, growing to 70.3% in 2028 at a CAGR of approximately 1.2% from 2023 to 2028.

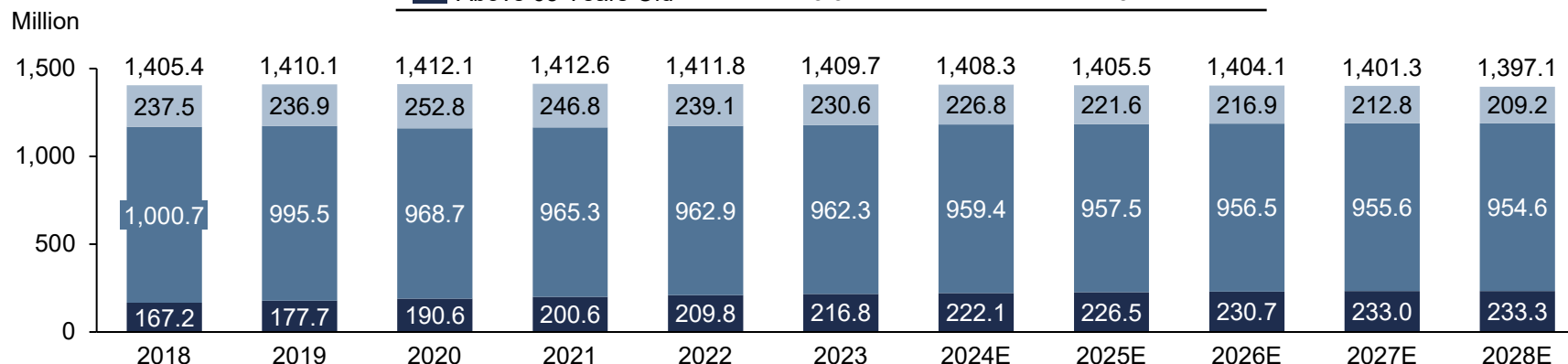
Source: IMF, National Bureau of Statistics, Frost & Sullivan

Macro Economy Overview in the PRC

Population Breakdown by Age Structure

Population Breakdown by Age Structure in the PRC, 2018-2028E

	CAGR	2018-2023	2023-2028E
0-14 Years Old		-0.6%	-1.9%
15-64 Years Old		-0.8%	-0.2%
Above 65 Years Old		5.3%	1.5%



- The population group aged under 14 years old increased from 237.5 million in 2018 to 230.6 million in 2023, representing a CAGR of approximately -0.6%. Looking forward, this population segment is expected to decrease and reach 209.2 million in 2028 at a CAGR of -1.9%.
- The population group aged 15 to 64 years old predominates in the total population. In line with its proportion of the total population, this population segment decreased from 1,000.7 million in 2018 to 962.3 million in 2023 at a CAGR of -0.8%. The population of this group is expected to reach 954.6 million by the end of 2028, representing a CAGR of -0.2% from 2023 to 2028.
- The government promulgated a series of encouragement on giving birth from 1949 to 1953, which remarkably contributed to the upward trend in the population group above 65 years old in the current, increasing from 167.2 million in 2018 to 216.8 million in 2023 at a CAGR of 5.3%. As the post-effect of such period is anticipated to fade gradually, the CAGR of this population group from 2023 to 2028 is expected to be approximately 1.5%, with a population of 233.3 million in 2028.

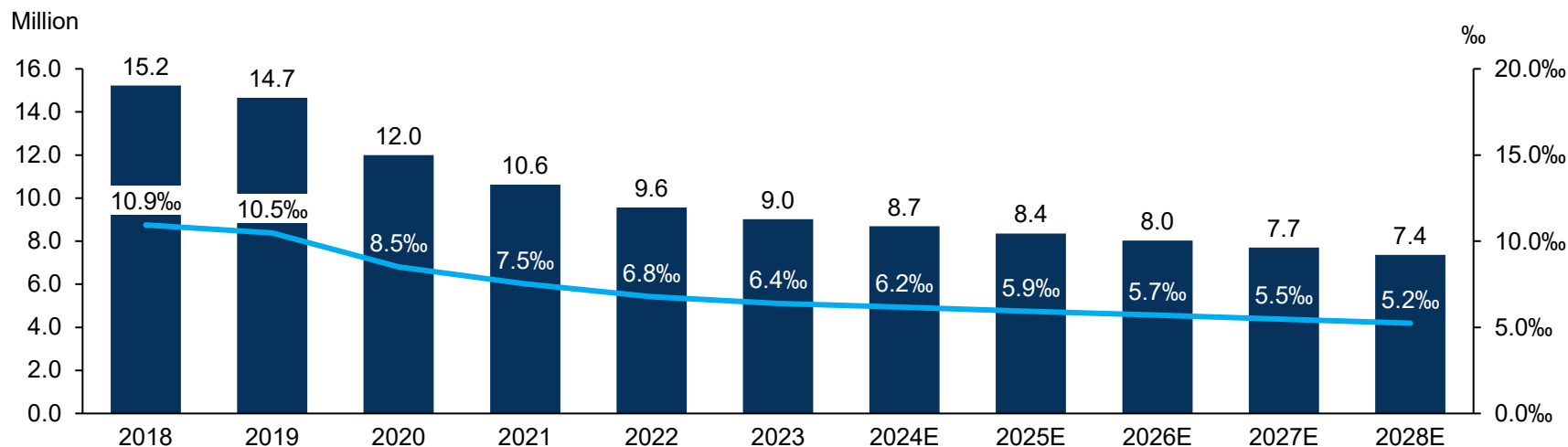
Source: National Bureau of Statistics, Frost & Sullivan

Macro Economy Overview in the PRC

New Birth and Birth Rate

Number of New Birth and Birth Rate in the PRC, 2018-2028E

	CAGR	2018-2023	2023-2028
■ Number of New Birth		-10.0%	-3.8%
— Birth Rate		-10.1%	-4.1%



- The number of new birth in the PRC decreased from 15.2 million in 2018 to 9.0 million in 2023 at a CAGR of -10.0%. In line with the number of new birth, the birth rate decreased from 10.9‰ in 2018 to 6.4‰ in 2023. Though policy allowing couples to have up to three children could support fertility but was unlikely to change the low birth rate drastically. The PRC's declining birth rate has been driven by a decreasing number of women of childbearing age, changes in young people's attitudes toward marriage and fertility, enhancing education levels, and rising childcare costs, etc. In the future, the number of new birth and birth rate will continue to decrease and reach 7.4 million and 5.2‰ in 2028, respectively, showing a CAGR of -3.8% and -4.1%.

Source: National Bureau of Statistics, Frost & Sullivan

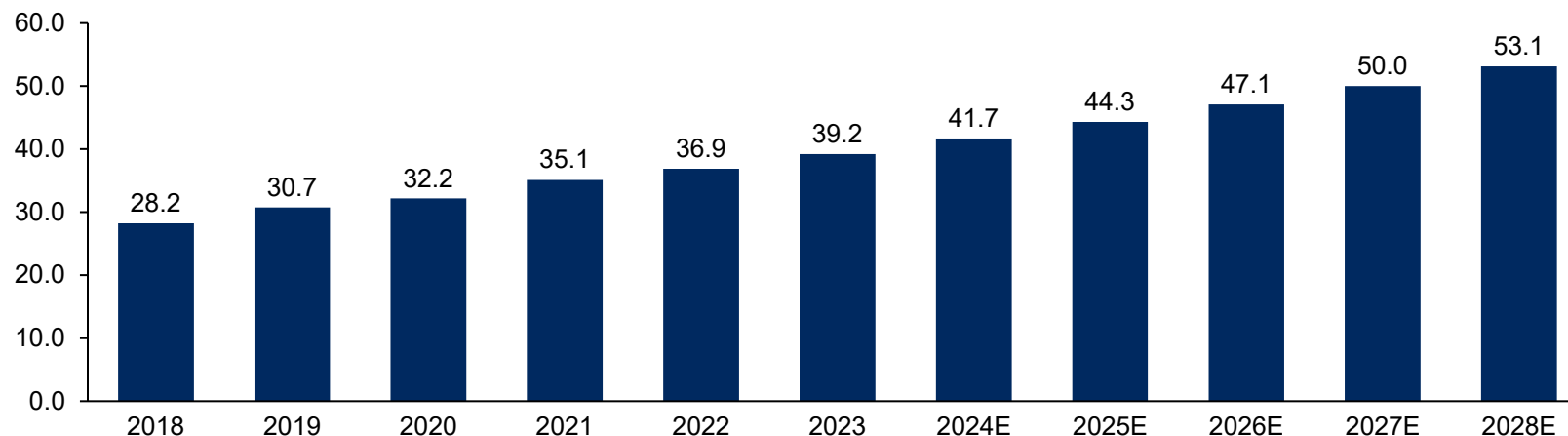
Macro Economy Overview in the PRC

Disposable Income per Capita

Disposable Income per Capita in the PRC, 2018-2028E

	CAGR	2018-2023	2023-2028E
■ Disposable Income per Capita		6.8%	6.3%

RMB Thousand



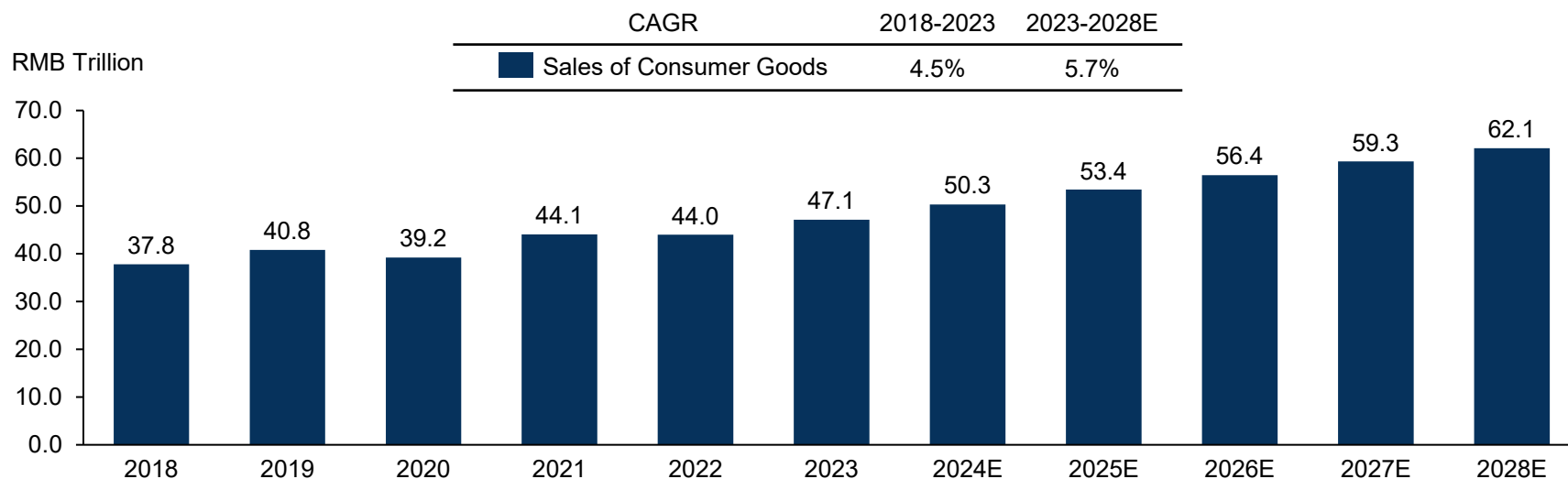
- In line with the economy, the disposable income per capita of the PRC soared from RMB28.2 thousand in 2018 to RMB39.2 thousand in 2023, achieving a CAGR of 6.8%. In the first half of 2024, the per capita disposable income of residents nationwide was RMB20,733, representing a growth of 5.4% from 2023H1 to 2024H1. In the first half of 2023, the per capita disposable income was RMB19,672, reflecting a year-on-year real growth of 5.8% from 2022H1 to 2023H1.
- It is expected that the disposable income per capita in the PRC will continue this momentum in the following five years, reaching RMB53.1 thousand in 2028 at a CAGR of 6.3% from 2023 to 2028. As the disposable income per capita of the PRC has kept increasing, the consumption and investment demand in the PRC has increased accordingly, which calls for a broader global market from different industries, including the nutritional products market, to meet such growing demand.

Source: National Bureau of Statistics, Frost & Sullivan

Macro Economy Overview in the PRC

Sales of Consumer Goods

Sales of Consumer Goods in the PRC, 2018-2028E



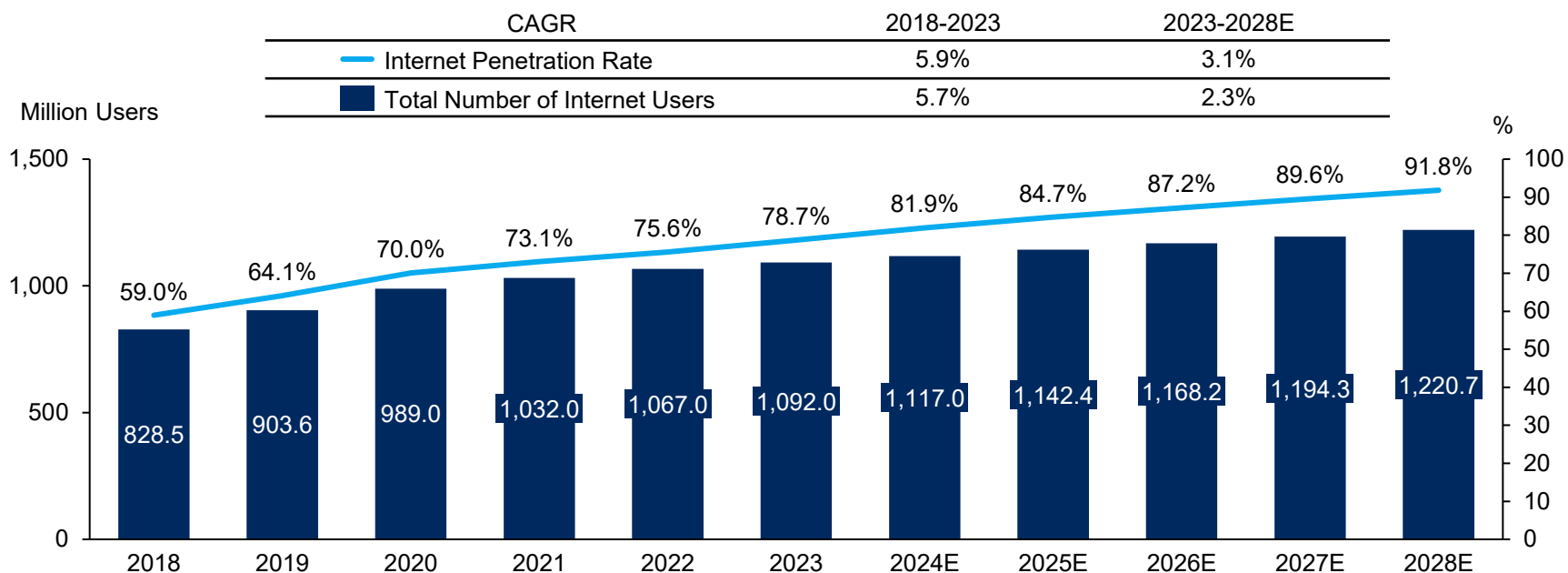
- Total sales of consumer goods in the PRC saw an upward trend, with the value rising from RMB37.8 trillion in 2018 to RMB47.1 trillion in 2023, realizing a five-year CAGR of 4.5%, which was mainly due to the improving consumption power brought up by the healthy and sustainable economy. In 2023, with the COVID-19 pandemic largely behind and the government introducing extensive consumption stimulus policies. (i) the growth in disposable income per capita in the PRC witnessed a sharper increase from 2022 to 2023 (i.e. from approximately RMB36.9 thousands to approximately RMB39.2 thousands) as compared to that from 2021 to 2022 (from approximately RMB35.1 thousands to RMB36.9 thousands); and (ii) the growth in retail sales value of nutritional product industry in the PRC also witnessed a sharper increase from 2022 to 2023 (i.e. from approximately RMB235.8 billion to RMB260.1 billion) as compared to that from 2021 to 2022 (from approximately RMB212.4 billion to RMB235.8 billion). The sales of consumer goods saw a substantial boost in growth, however, the momentum slowed in 2024 due to the impact of the global economic downturn, coupled with a domestic economic slowdown in the PRC, as well as the tapering off of pent-up consumer demand. In 2024, consumer spending was negatively affected by the economic downturn, as evidenced by total retail sales of consumer goods in the PRC, which amounted to RMB23.6 trillion in the first half of the year, reflecting a modest increase of only 3.7% compared to the same period in 2023. In comparison, retail sales in the first half of 2023 had risen by 8.2% from the first half of 2022.
- Upheld by the promising economic momentum of the PRC, the total sales value of consumer goods is projected to maintain the growing trend, reaching approximately RMB62.1 trillion in 2028, representing a CAGR of 5.7%.

Source: National Bureau of Statistics, Frost & Sullivan

Macro Economy Overview in the PRC

Internet Users and Penetration Rate

Internet Users and Penetration Rate in the PRC, 2018-2028E



- Along with improving internet coverage in the PRC, the total number of internet users increased from 828.5 million in 2018 to 1,092.0 million in 2023 at a CAGR of approximately 5.7%. Accordingly, the Internet penetration rate grew from 59.0% in 2018 to 78.7% in 2023.
- As the PRC strives to boost the development of the Internet industry, the deployment and upgrading of network infrastructure are expected to continue to expand. In light of the favorable policy and development plan for the internet industry, the number of internet users in the PRC is projected to reach approximately 1,220.7 million, with a penetration rate increasing to approximately 91.8% in 2028.

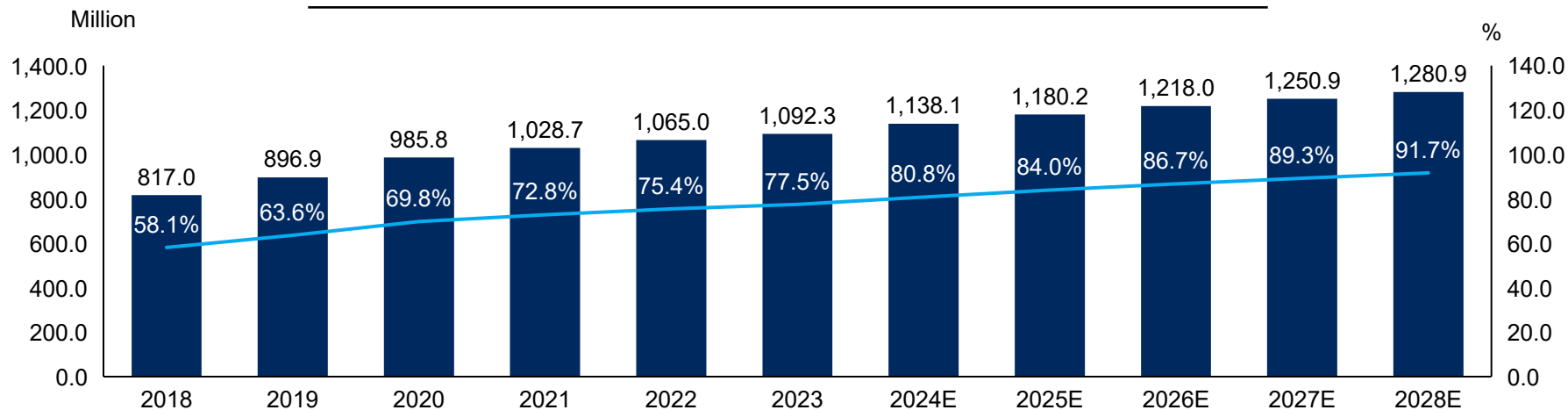
Source: China Internet Network Information Center, Frost & Sullivan

Macro Economy Overview in the PRC

Mobile Internet Users and Penetration Rate

Mobile Internet Users and Penetration Rate in the PRC, 2018-2028E

	CAGR	2018-2023	2023-2028E
■ Number of Mobile Internet Users in the PRC		6.0%	3.2%
— Mobile Internet Penetration Rate in the PRC		5.9%	3.4%



- Promoting “mass entrepreneurship and innovation” on the internet and mobile internet has become one of the main items on the Chinese government’s agenda in recent years. Driven by the continuous innovation stimulus and upgrading construction of network infrastructure during the last few years, the number of mobile internet users experienced a rapid increase from approximately 817.0 million in 2018 to 1,092.3 million in 2023 at a CAGR of 6.0%, with the penetration rate in the total population rising from approximately 58.1% to 77.5% during the same period. As the supportive and improving environment of mobile internet maintains, and another upcoming bout of infrastructure upgrades for 6G is in progress, the number of mobile internet users is expected to reach approximately 1,280.9 million by the end of 2028 with a penetration rate in the total population of approximately 91.7%.

Source: National Bureau of Statistics, Frost & Sullivan

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Overview of Nutritional Product Industry in the PRC

Definition and Classification

Definition



Nutritional Products refer to products are designed to provide essential nutrients and bioactive substances to balance the intake of nutrition and regulate bodily functions for specific groups of people. They are not intended to treat diseases, nor can they replace a normal diet, and they should not cause any acute, subacute, or chronic harm to the human body.

Classification



- Nutritional Products can be categorized by dosage form into hard capsules, soft capsules, tablets, oral liquids, granules, powders, gummies, and etc.
- According to product categories, they can be divided into vitamins, animal and botanical products, minerals and others. Based on the purpose of nutritional product, it can be divided into special nutritional products and sports nutrition products, etc.

Vitamins are generally classified into two categories, fat-soluble vitamins (A, D, E, K) and water-soluble vitamins (B complex and C). Fat-soluble vitamins can be stored in the body, while water-soluble vitamins are not typically stored and need to be regularly obtained through diet.

Animal and botanical Nutritional Products are derived from animal tissues and various plants, which can be used as capsules, tablets, syrup and fresh and dried plants. These products are normally used to enhance immune function, improve digestion, support organ and skin health, and alleviate stress and improve sleep.

Minerals are essential inorganic elements required for various physiological functions and health. They can be divided into two main categories: macrominerals and trace minerals.

Special nutritional products provide targeted nutrition for special populations such as infants, pregnant women, the elderly, vegetarians, immune-deficient and malnourished individuals who may be unable to obtain nutrition from regular diets due to physiological or pathological conditions.

Sports nutrition products are designed specifically for athletes and individuals who are actively engaged in physical training. They aim to enhance athletic performance, accelerate recovery, increase muscle mass or manage body weight.

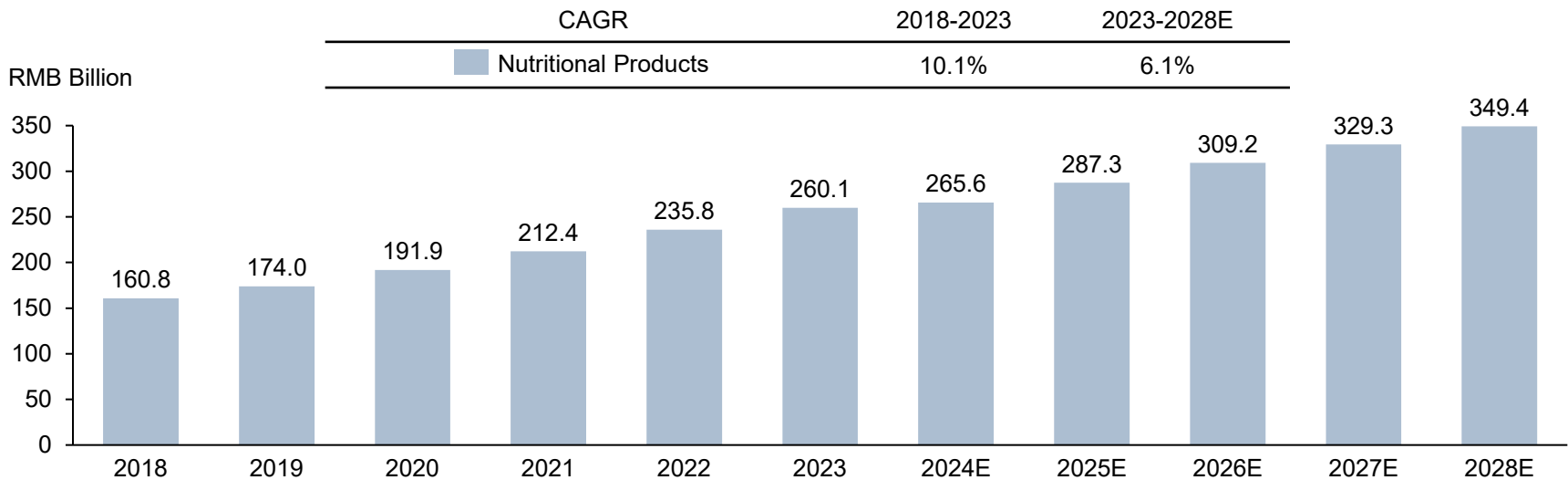


Source: Frost & Sullivan

Overview of Nutritional Product Industry in the PRC

Market Size Analysis of Nutritional Product Market

Market Size of Nutritional Product Industry in the PRC, by Retail Sales Value, 2018-2028E



- The development of China's Nutritional Product industry started in the mid-1980s, however, in recent years, the industry has developed rapidly. The Nutritional Product market in the PRC includes thousands of players, featuring a diverse range of domestic and international brands competing across various product categories. The scale of China's Nutritional Product market has been witnessed to increase from RMB160.8 billion in 2018 to RMB260.1 billion in 2023, representing a CAGR of 10.1%.
- Due to the economic downturn, consumers reduced their expenditure on non-essential goods, which is evidenced by the fact that per capita consumer expenditure nationwide rose by 6.8% from the six months ending June 30, 2023, to the six months ending June 30, 2024, marking a slowdown in growth compared to the 8.4% increase from the six months ending June 30, 2022, to the six months ending June 30, 2023. This reduction has contributed to the slowdown in the growth of the Nutritional Product market in the PRC in the first half of 2024. In addition, with the COVID-19 pandemic largely behind and the government implementing significant consumption stimulus policies, per capita consumer expenditure experienced significant growth in 2023.
- Although the market competition is fierce, with international leading enterprises, large pharmaceutical and food enterprises involved overseas brands competing with domestic brands through cross-border e-commerce. The penetration rate of Nutritional Products in the PRC is expected to be lifted by the following factors, including policy support, such as the issuance of "Healthy China 2030" Planning Outline, which clearly points out the importance of development of the nutrition and health industry, also economic growth, deepening of the aging society, the increase in the proportion of sub-healthy individuals in the middle age group due to social competition pressure, and the enhancement of residents' health awareness, especially in the post-pandemic era. All these factors are expected to lift the penetration rate of Nutritional Products in the PRC, driving the market size to expand to RMB349.4 billion in 2028, depicting a CAGR of 6.1%.

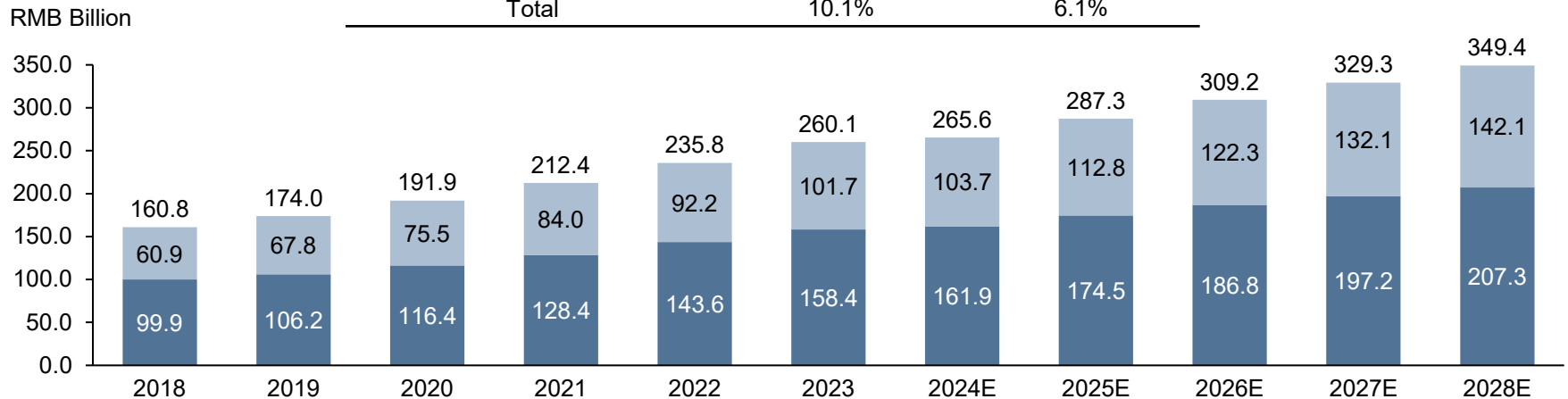
Source: Frost & Sullivan

Overview of Nutritional Product Industry in the PRC

Market Size Analysis of Nutritional Product Market

Market Size Breakdown of Nutritional Product Industry in the PRC by Product Category, by Retail Sales Value, 2018-2028E

	CAGR	2018-2023	2023-2028E
Maternal and Children Products		10.8%	6.9%
Others		9.7%	5.5%
Total		10.1%	6.1%



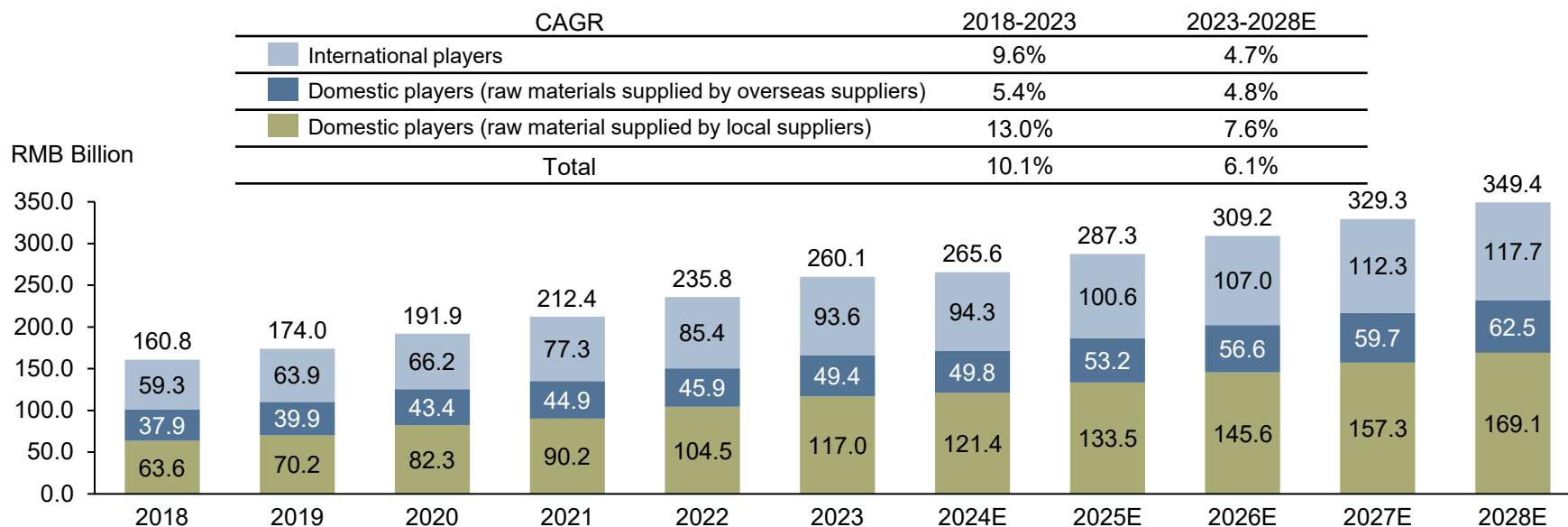
- The Nutritional Product industry is divided into the maternal and children products market and the general market based on the target audience. The general market includes adults, seniors, and specific groups of people, with primary purposes such as supplementing an insufficient daily diet, improving health status, and preventing or promoting recovery from diseases. From 2018 to 2023, the overall market size of Nutritional Products in the PRC grew significantly, with the maternal and children products market increasing from RMB60.9 billion to RMB101.7 billion, representing a CAGR of 10.8% and accounting for 39.1% of the nutritional market in 2023. The general market, which includes all other target groups, also saw notable growth, contributing to the industry's expansion. The nutritional products industry is highly competitive, with thousands of companies vying for market share, ranging from established brands to new entrants. Key challenges include regulatory changes, shifting consumer preferences, and fluctuating raw material costs, all of which are important risk factors to be considered.
- In the future, as Generation Z becomes the main childbearing population with a more scientific approach to nutrition, the maternal and children products market is expected to become more segmented and professional. This segment is projected to continue growing at a CAGR of 6.9% from 2023 to 2028 supported by increasing health awareness and the rising demand for dietary nutritional products, reaching RMB142.1 billion by 2028. Meanwhile, the general market is anticipated to grow at a moderate pace among adults and seniors.

Source: Frost & Sullivan

Overview of Nutritional Product Industry in the PRC

Market Size Analysis of Domestic Brands in the Nutritional Product Market

Market Size Breakdown of Nutritional Product Industry in the PRC by Type of Players, by Retail Sales Value, 2018-2028E



- Between 2018 and 2023, the Nutritional Product industry in the PRC exhibited substantial growth from RMB160.8 billion in 2018 to RMB260.1 billion in 2023, with a CAGR of 10.1%. The market size of domestic players increased from RMB101.5 billion in 2018 to RMB166.4 billion in 2023, representing a CAGR of 10.4%. By 2023, domestic players, particularly those sourcing raw materials locally, saw a significant rise in market share. The market size of domestic players using locally supplied raw materials grew from RMB63.6 billion in 2018 to RMB117.0 billion in 2023, representing a CAGR of 13.0%. This shift is driven by several factors, including technological advancements, increased consumer trust in domestic products, and supportive government policies. Meanwhile, international players also experienced robust growth, with the market size increasing from RMB59.3 billion in 2018 to RMB93.6 billion in 2023, reflecting a remarkable CAGR of 9.6%. The market size of domestic players using raw materials supplied by overseas suppliers increased from RMB37.9 billion in 2018 to RMB49.4 billion in 2023, with a slower CAGR of 5.4%.
- Looking ahead, the market for domestic players using locally supplied raw materials is projected to continue its upward trend, with the market size expected to reach RMB169.1 billion by 2028. International players are anticipated to grow to RMB117.7 billion by the same year, while domestic players using overseas-supplied raw materials are projected to grow to RMB62.5 billion. This ongoing growth highlights the increasing prominence of domestic brands and the evolving dynamics of the Nutritional Product industry in the PRC.

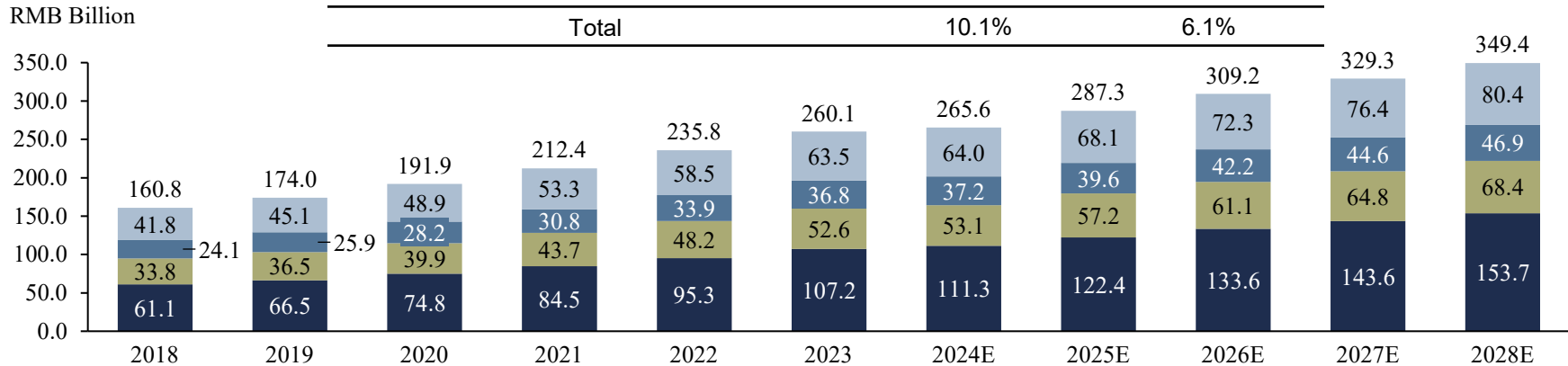
Source: China Chamber of Commerce for Import and Export of Medicines and Health Products, Frost & Sullivan

Overview of Nutritional Product Industry in the PRC

Market Size Analysis of Nutritional Product Market

Market Size Breakdown of Nutritional Product Industry in the PRC by City Tiers, by Retail Sales Value, 2018-2028E

	CAGR	2018-2023	2023-2028E
First-tier cities		8.7%	4.8%
New first-tier cities		8.9%	5.0%
Second-tier cities		9.2%	5.4%
Third-tier and below cities		11.9%	7.5%
Total		10.1%	6.1%



- In the past five years, the Nutritional Product industry in the PRC has experienced significant growth across different city tiers. Third-tier and below cities have shown the most remarkable expansion, driven by increasing health awareness and improving access to health products. The market size in these cities increased from RMB61.1 billion in 2018 to RMB107.2 billion in 2023, reflecting a robust CAGR of 11.9%. This growth is expected to continue, with a projected CAGR of 7.5% from 2023 to 2028, reaching RMB153.7 billion by 2028.
- Second-tier cities have also seen substantial growth due to rapid economic development and rising consumer purchasing power. The market size in these cities grew from RMB33.8 billion in 2018 to RMB52.6 billion in 2023, representing a CAGR of 9.2%. This growth is expected to moderate, with a projected CAGR of 5.4% from 2023 to 2028, reaching RMB68.4 billion by 2028.
- New first-tier cities have experienced steady growth, driven by increasing health awareness and consumer spending. The market size expanded from RMB24.1 billion in 2018 to RMB36.8 billion in 2023, achieving a CAGR of 8.9%. Looking ahead, the growth is expected to slow slightly, with a projected CAGR of 5.0%, reaching RMB46.9 billion by 2028.
- First-tier cities, characterized by higher economic levels and greater per capita consumption capacity, have experienced consistent growth. The market size in these cities increased from RMB41.8 billion in 2018 to RMB63.5 billion in 2023, with a CAGR of 8.7%. Moving forward, growth in first-tier cities is anticipated to be moderate, with a CAGR of 4.8%, reaching RMB80.4 billion by 2028.

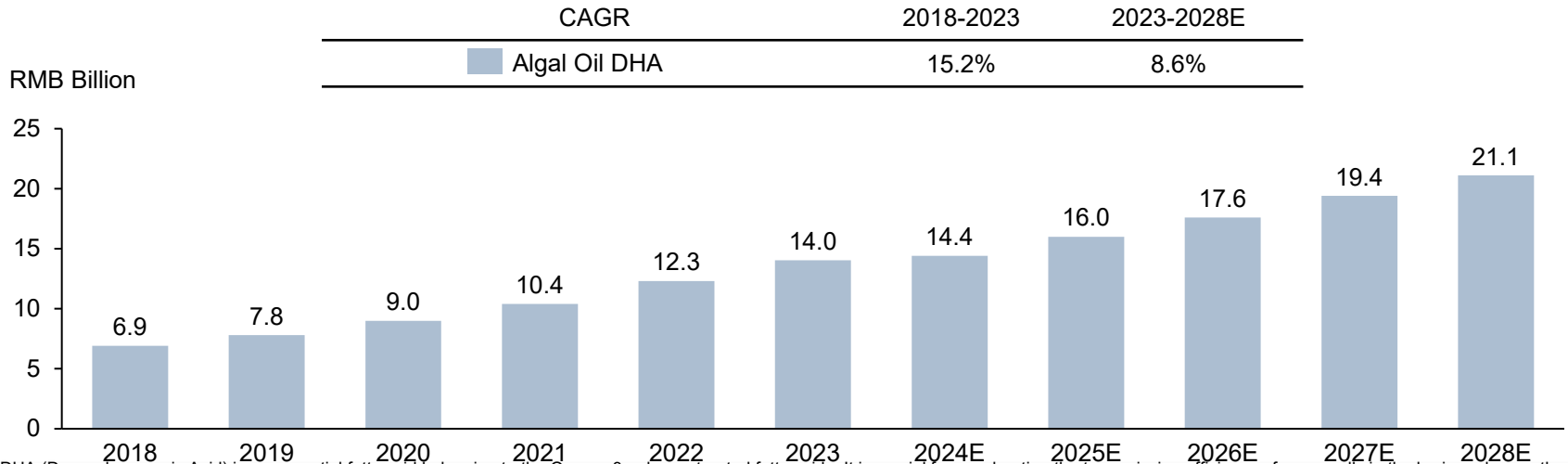
Note: New first-tier cities are included in the second-tier cities.

Source: Frost & Sullivan

Overview of Nutritional Product Industry in the PRC

Market Size Analysis of Algal Oil DHA Market

Market Size of Algal Oil DHA industry in the PRC, by Retail Sales Value, 2018-2028E



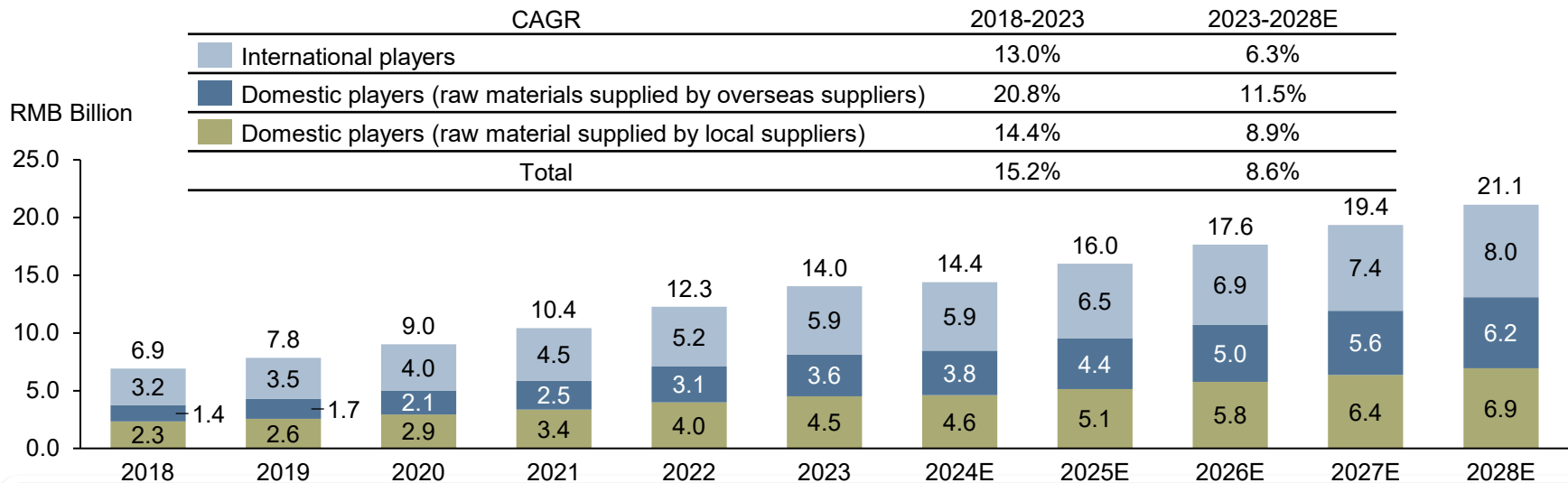
- DHA (Docosahexaenoic Acid) is an essential fatty acid belonging to the Omega-3 polyunsaturated fatty acids. It is crucial for accelerating the transmission efficiency of nerve cells in the brain and eyes, thereby enhancing brain memory and vision and other organ functions. The algal oil DHA market includes DHA powder and DHA oil used in infant formula and Nutritional Products. The algal oil DHA market is experiencing rapid growth. DHA algae oil market in the PRC is strongly supported by policies. In 2010, the Ministry of Health listed DHA algae oil as a new resource product. In 2015, the national standard for DHA algae oil was published. In 2021, the National Health Commission and the State Administration for Market Regulation issued new standards for infant formula food, which mandated a minimum limit for the addition of DHA in infant formula. In 2023, DHA was included in the directory of health food raw materials as a nutrient. DHA algae oil market in the PRC sees rapid technological development. Domestic manufacturers have successively broken through the commercial production technology of algae DHA and are actively expanding production capacity, driving down the supply price of DHA algae oil in China's market.
- The market size of algal oil DHA doubled from RMB6.9 billion in 2018 to RMB14.0 billion in 2023, pointing to a CAGR of 15.2%. In the first half of 2024, domestic consumption was significantly suppressed by the ongoing economic downturn in China, resulting in reduced demand for non-essential products like algal oil DHA. Consumer expenditure growth slowed, with per capita expenditure rising by only 6.8% from the six months ending June 30, 2023, to the same period in 2024, a notable deceleration compared to the 8.4% growth seen in the previous year. Total retail sales of consumer goods in the PRC reached RMB 23.6 trillion in the first half of 2024, marking a modest 3.7% increase compared to the previous year, far lower than the 8.2% growth recorded in the first half of 2023. This sharp decline underscores the impact of the economic downturn on consumer confidence and spending habits. The maternal and children nutritional product, alongside other non-essential consumer products industries, are directly hit by the economic slowdown as consumers tend to reserve their purchasing power for essential consumer products, or opt for more affordable algal oil DHA products as alternatives. Additionally, heightened safety concerns surrounding Japan's discharge of contaminated water in 2023 triggered stockpiling behavior, leading to a surge in demand for algal oil DHA that year, which further dampened sales in 2024 as the maternal and children nutritional product market faced reduced demand following this spike. The release of radioactive water from Fukushima, Japan, which first started in August 2023 raised concerns about its potential impact on marine ecosystems, which triggered the consumers to stock up DHA products that were manufactured before the release, and as a result the overall retail sales value of nutritional product industry and maternal and children nutritional product in the PRC for the second half of 2024 increased.
- Benefiting from the increased public awareness of health, policy support, and advancements in algal oil extraction technology, the market is expected to continue its robust growth, increasing to RMB21.1 billion in 2028, reflecting a CARG of 8.6%.

Source: Ministry of Health, National Health Commission, State Administration for Market Regulation, Frost & Sullivan

Overview of Nutritional Product Industry in the PRC

Market Size Analysis of Algal Oil DHA Market

Market Size Breakdown of Algal Oil DHA industry in the PRC by Type of Players, by Retail Sales Value, 2018-2028E



- International brands have traditionally relied on high-quality raw materials, continuous investment in research and development, and higher product quality to hold a significant market share in the early days. However, with technological breakthroughs by domestic algae oil DHA enterprises, the purity and quality of extracted DHA are continuously improving, and production costs are decreasing, boosting the growth of domestic players.
- The market size of international players saw an incremental trend, climbing from RMB3.2 billion in 2018 to RMB5.9 billion in 2023, suggesting a CAGR of 13.0%. The retail sales value of domestic-branded algal oil DHA products made from raw materials imported from overseas accounted for 1.4% of the entire nutritional product industry in the PRC in 2023. In the next five years, the market is expected to expand to RMB8.0 billion by 2028. With the rise of domestic products and growing consumer recognition, the CAGR during this period is expected to moderate to 6.3%.
- Conversely, the market size of domestic players increased from RMB3.7 billion in 2018 to RMB8.1 billion in 2023, and the robust growth is anticipated to continue, reaching RMB13.1 billion by 2028. Specifically, the market size of domestic players with raw materials supplied by overseas suppliers grew from RMB1.4 billion in 2018 to RMB3.6 billion in 2023, representing a robust CAGR of 20.8%, and it is expected to reach RMB6.2 billion by 2028, with this type of players accounting for 1.4% of the entire nutritional product industry in the PRC in 2023. Meanwhile, the market size of domestic players with raw materials supplied by local suppliers increased from RMB2.3 billion in 2018 to RMB4.5 billion in 2023, with a CAGR of 14.4%, and it is anticipated to continue with a CAGR of 8.9% from 2023 to 2028, reaching RMB6.9 billion by 2028.

Source: Frost & Sullivan

Overview of Nutritional Product Industry in the PRC

Domestic Players of Algal Oil DHA Market Competitive Landscape Overview

- The market competition for algal oil DHA is intensifying, and the market share is relatively fragmented. The companies mainly engage in fierce competition through online and offline channels. Online sales channels include the official flagship stores on the cross-border e-commerce platforms of JD.com, Tmall, Taobao, as well as distributors, and short video e-commerce platforms, etc. Offline channels include maternity and baby products stores, pharmacies, and general supermarkets. Historically, offline sales have been the mainstay, with the proportion of online contributions gradually increasing. Competitors differentiate their products by emphasising on the source of algae oil DHA, dosage levels, taste profiles, innovative shapes (such as the creation of small fish shapes that facilitate easy dispensing), forms of intake (like gummy candies or strip nutritional product), also by promoting overseas imported manufacturing and the acquisition of inspection qualifications from different countries.

Top 5 Algal Oil DHA Domestic and International Brands in the PRC in 2023

Ranking	Brand Name	Brand Description	Retail sales value of algal oil DHA products in 2023 (RMB million)	Market share in 2023
1	The Group	It entered the Chinese market since 2007 and is a company that mainly sells products such as DHA algae oil, probiotics, vitamins, and algae calcium within China.	658.8	4.7%
2	Brand A	It is an Australian brand headquartered in Sydney with Nutritional Products for children and adults as main products.	585.7	4.2%
3	Brand B	It is a leading supplier of dietary Nutritional Products and sports foods in China.	576.2	4.1%
4	Brand C	It is a leading German brand focusing on Nutritional Products for infants, children, and adolescents.	397.2	2.8%
5	Brand D	It is a nutritional product brand in China targeting pregnant women and infant.	362.0	2.6%
		Top 5	2,579.9	18.4%
		Total	14,045.4	100%

Note: Brand A: It is an Australian brand headquartered in Sydney with nutritional products for children and adults as main products. Brand B: It is a leading supplier of dietary nutritional products and sports foods in China. Brand C: It is a leading German brand focusing on nutritional products for infants, children, and adolescents. Brand D: It is a nutritional product brand in China targeting pregnant women and infant. The retail sales value was derived from the value of the respective brand's algal oil DHA products sold in the retail market (i.e. at the retail level to end-consumers). In contrast, the Group's revenue from algal oil DHA products was primarily generated from the sales to e-commerce companies and regional distributors, which would on-sell the Group's products to end-consumers through online shopping platforms or retail outlets. As a result, the Group's revenue from sales of algal oil DHA products of approximately RMB404.1 million was lower than the retail sales value of approximately RMB658.8 million for FY2023. This discrepancy accounted for the profit margins retained by the e-commerce companies, regional distributors and retail outlets through which the Group sells its algal oil DHA products.

Source: Frost & Sullivan

Overview of Nutritional Product Industry in the PRC

Domestic Players of Algal Oil DHA Market Competitive Landscape Overview

- The leading domestic brands mainly use imported raw materials from DSM, while the remaining brands with smaller market shares generally have lower pricing and use domestically produced raw materials such as from Cabio (嘉必优) and Youkang Biology (友康生物), etc., as well as domestic contract manufacturers to reduce production costs. They also adopt methods like producing gummy candies and combining with other nutritional elements to comprehensively enhance the competitiveness of their products. Most small and medium-sized domestic brands have their own signature products and have entered the algae oil DHA market through mergers and acquisitions or self-research.

Top 5 Algal Oil DHA Domestic Brands in the PRC in 2023

Ranking	Brand Name	Brand Description	Retail sales value of algal oil DHA products in 2023 (RMB million)	Market share in 2023
1	The Group	It entered the Chinese market since 2007 and is a company that mainly sells products such as DHA algae oil, probiotics, vitamins, and algae calcium within China.	658.8	8.1%
2	Brand B	It is a leading supplier of dietary Nutritional Products and sports foods in China.	576.2	7.1%
3	Brand D	It is a nutritional product brand in China targeting pregnant women and infant.	362.0	4.4%
4	Brand E	It is a pharmaceuticals company in the PRC primarily providing medicine and Nutritional Product products.	246.1	3.0%
5	Brand F	It is a company that serves pregnant women, infants, and children in China, with main products imported in original packaging.	156.5	1.9%
		Top 5	1,999.6	24.5%
		Total	8,146.3	100%

Note: Brand B: It is one of the top nutritional brands in China, known for high-quality DHA products for mothers and children. Brand D: It is a brand that focuses on innovative health products, including algal oil DHA for child development. Brand E: It is a brand known for premium algal oil DHA products for maternal and infant nutrition. Brand F: It is a brand that offers family health products, emphasizing high-quality algal oil DHA for optimal growth. The retail sales value was derived from the value of the respective brand's algal oil DHA products sold in the retail market (i.e. at the retail level to end-consumers). In contrast, the Group's revenue from algal oil DHA products was primarily generated from the sales to e-commerce companies and regional distributors, which would on-sell the Group's products to end-consumers through online shopping platforms or retail outlets. As a result, the Group's revenue from sales of algal oil DHA products of approximately RMB404.1 million was lower than the retail sales value of approximately RMB658.8 million for FY2023. This discrepancy accounted for the profit margins retained by the e-commerce companies, regional distributors and retail outlets through which the Group sells its algal oil DHA products.

Source: Frost & Sullivan

Agenda

1 *Introduction of the Research*

2 *Macro Economy Overview*

3 *Overview of Nutritional Product Industry*

4 **Overview of Maternal and Children Nutritional Product Industry**

5 *Overview of Maternal and Children Algal Oil DHA Industry*

6 *Overview of Maternal and Children Probiotics Industry*

7 *Overview of Milk Powder Industry*

8 *Appendix*

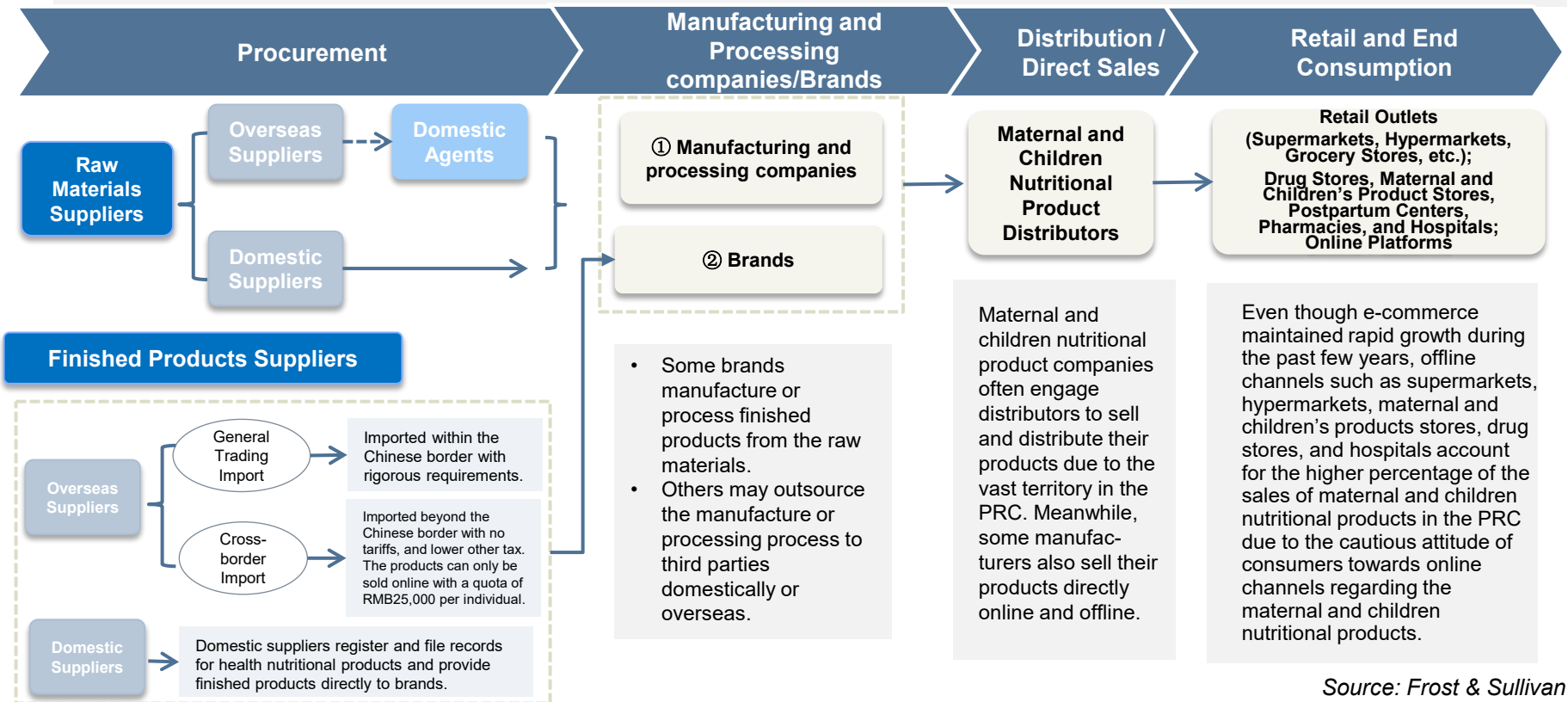
Overview of Maternal and Children Nutritional Product Industry

Definition and Industry Value Chain Analysis

Definition of Maternal and Children Nutritional Product Industry

Nutritional products refer to products taken orally that contain one or more ingredients such as DHA, vitamins, probiotics or others containing calcium, iron, etc., or any combination thereof that are intended to supplement the diet of the consumers. Maternal and children nutritional products are intended to supplement the nutrition apart from the daily diet for mothers in pregnancy preparation, child-bearing and of both mothers and children in the early parenting stage (children aged 0-6).

Value Chain of Maternal and Children Nutritional Product Industry



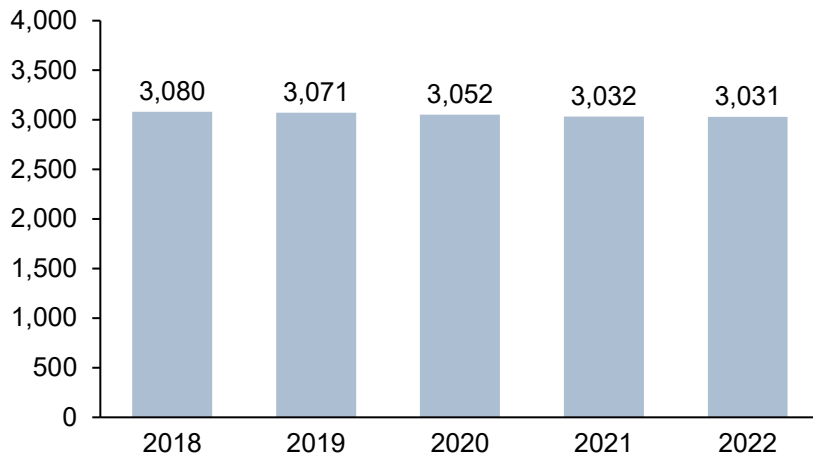
Source: Frost & Sullivan

Overview of Maternal and Children Nutritional Product Industry

Number of Maternal and Children Specialist Hospitals and Drug Stores

Number of Maternal and Children Specialist Hospitals, 2018-2022

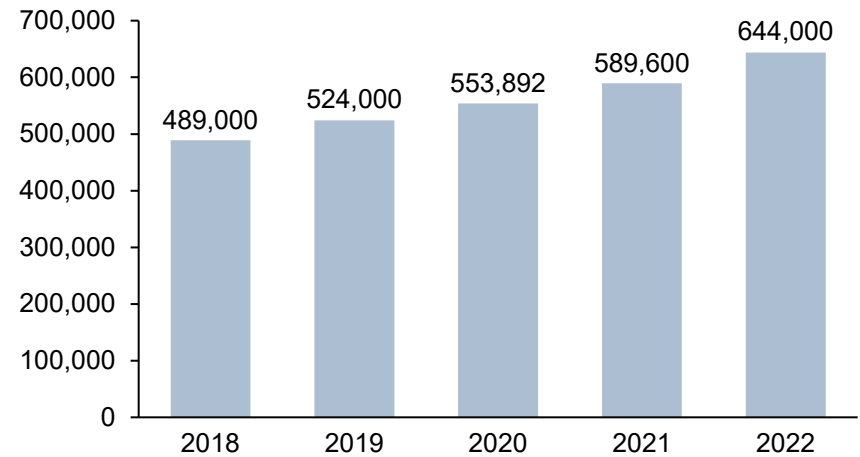
	CAGR	2018-2022
Maternal and Children Specialist Hospitals	-0.4%	



Note: The data for 2023 will be updated after official release.

Number of Drug Stores, 2018-2022

	CAGR	2018-2022
Drug Stores	7.1%	



- During the period from 2018 to 2022, the number of maternal and children specialty hospitals decreased at a CAGR of -0.4% from 3,080 in 2018 to 3,031 in 2022. Meanwhile, drug stores steadily increased from 489,000 in 2018 to 644,000 in 2022, representing a CAGR of 7.1%. The maternal and children specialty hospitals and drug stores are major offline distribution channels, and the relatively stable development is vital for the maternal and children nutritional product market.

Source: National Health Commission of the PRC, National Medical Products Administration, Frost & Sullivan

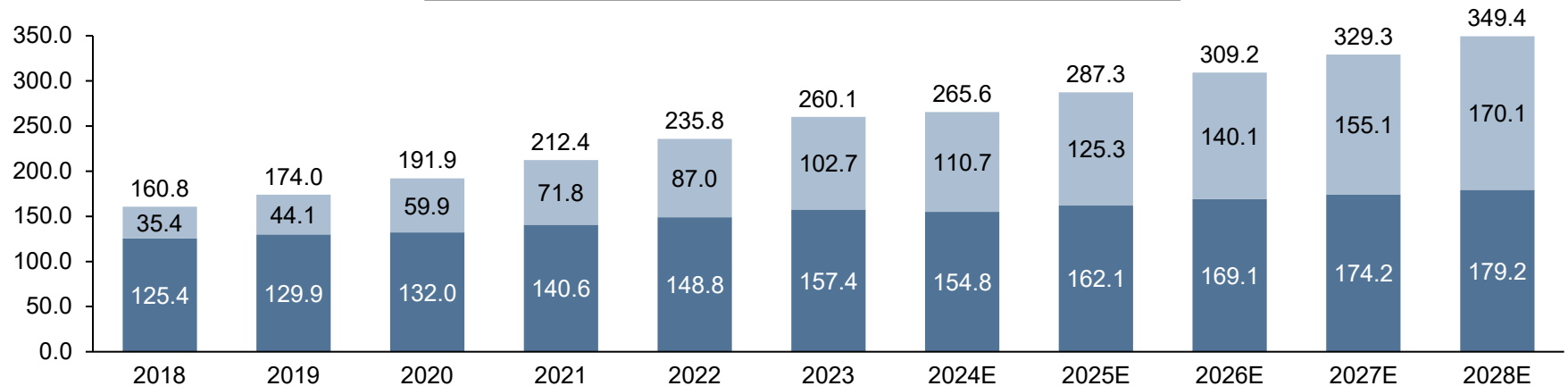
Overview of Maternal and Children Nutritional Product Industry

Market Size Analysis of Nutritional Product Market

Market Size Breakdown of Nutritional Products by Sales Channel in the PRC, by Retail Sales Value, 2018-2028E

	CAGR	2018-2023	2023-2028E
Online		23.7%	10.6%
Offline		4.7%	2.6%
Total		10.1%	6.1%

RMB Billion



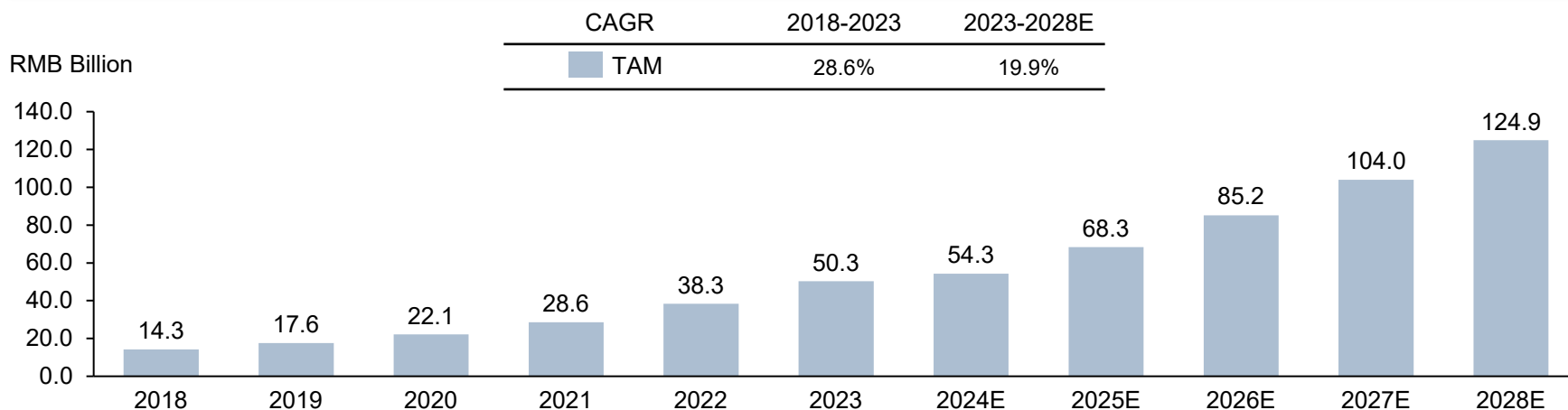
- In terms of retail sales value, the size of the nutritional product market in the PRC increased from approximately RMB160.8 billion in 2018 to approximately RMB260.1 billion in 2023, representing a CAGR of 10.1%. People over 50 years old may need more vitamins and minerals than younger adults. Hence, the rapid rise in the aging population in the PRC has augmented the nutritional product industry growth. Besides, the sudden outbreak of the COVID-19 pandemic in 2020 has profoundly changed consumers' health concepts and induced a massive increase in demand for products that claim to enhance health and immunity, i.e., nutritional products. In the post-pandemic era, national health awareness has burst forth, bringing growth opportunities for nutritional products. In the first half of 2024, the economic downturn led to weak consumer demand, negatively impacting the consumption of nutritional products categorized as non-essential items.
- Benefiting from the rapid development of the logistics system and e-commerce platforms in recent years, the online penetration rate of nutritional products increased from approximately 22.0% in 2018 to approximately 39.5% in 2023, and it is expected to increase to approximately 48.7% in 2028. The offline market size of nutritional products in the PRC is expected to maintain stable growth due to customers' prudent shopping habits toward nutritional products and food safety. The tangible products in offline physical stores are more likely to give customers a sense of authenticity, and customers can communicate face-to-face with the salespersons and receive immediate feedbacks.

Source: Frost & Sullivan

Overview of Maternal and Children Nutritional Product Industry

Demand Analysis of Nutritional Products in the Third- and Fourth-tier Cities in Guangdong Province, Jiangsu Province, Shandong Province, Zhejiang Province, and Anhui Province

TAM of Nutritional Products in the Third- and Fourth-tier Cities in Guangdong Province, Jiangsu Province, Shandong Province, Zhejiang Province and Anhui Province, by Retail Sales Value, 2018-2028E



Note: The third-and fourth-tier cities in Guangdong, Jiangsu, and Shandong provinces include Shantou, Jiangmen, Jieyang, Zhanjiang, Zhaoqin, Chaozhou, Qingyuan, Maoming, Meizhou, Shaoguan, Shanwei, Yangjiang, Heyuan, Yangzhou, Yancheng, Taizhou, Zhengjiang, Lianyungang, Suqian, Huai'an, Jining, Zibo, Heze, Weihai, Dezhou, Tai'an, Liaocheng, Zaozhuang, Rizhao, Binzhou, Dongying, Lishui, Quzhou, Taizhou, Zhoushan, Suzhou, Fuyang, Bozhou, Liu'an, Anqin, Chuzhou, Huangshan, Huaibei, Huainan, Bengbu, Tongling, Xuancheng, Wuhu, Ma'anshan.

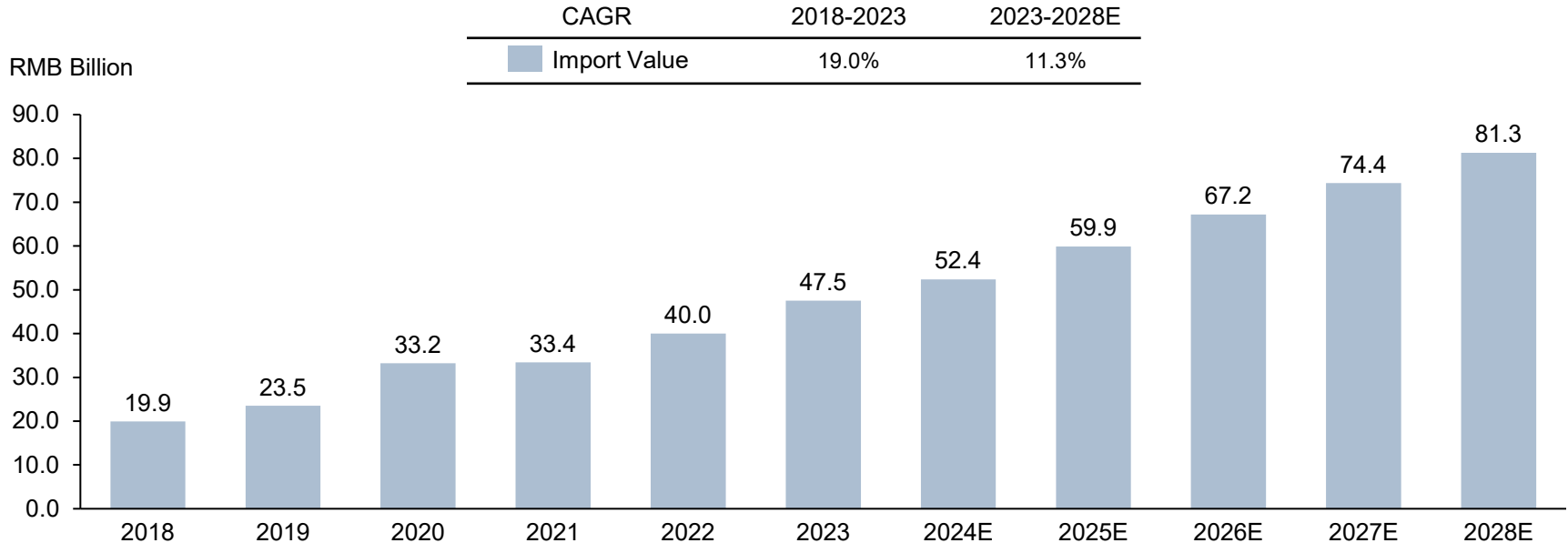
- The nutritional product market in third and fourth-tier cities in Guangdong Province, Jiangsu Province, Shandong Province, Zhejiang Province, and Anhui Province has potential for growth. Taking advantage of the lower cost of living, especially in accommodation, in lower-tier cities, consumers in the third-and fourth-tier cities in Guangdong Province, Jiangsu Province, Shandong Province, Zhejiang Province, and Anhui Province can afford to live comfortably and have all the trappings of an upper-middle class lifestyle as these five provinces are considered as economically developed provinces in the PRC. The annual disposable income per capita in first-tier and second-tier cities of Guangdong, Jiangsu, Shandong, Zhejiang, and Anhui Provinces in 2023 ranged from approximately RMB35 thousand to RMB76 thousand, whereas the annual disposable income per capita in third-tier and fourth-tier cities of the aforementioned provinces in 2023 ranged from approximately RMB25 thousand to RMB68 thousand, indicating that there is an overlapping range to a certain extent.
- The total addressable market size of nutritional products in the third-and fourth-tier cities in Guangdong Province, Jiangsu Province, Shandong Province, Zhejiang Province and Anhui Province increased impressively from approximately RMB14.3 billion in 2018 to RMB50.3 billion in 2023, representing a CAGR of 28.6%. Stimulated by the growing income level and rising health awareness, it is anticipated that the market size of nutritional products in the third- and fourth-tier cities in Guangdong Province, Jiangsu Province, Shandong Province, Zhejiang Province and Anhui Province could continue to grow and reach approximately RMB124.9 billion in 2028.
- The nutritional product market in the third and fourth-tier cities is less competitive because the leading brands in the industry historically focused their marketing and sales in the first, new first and second-tier cities in the PRC.

Source: National Bureau of Statistics, Frost & Sullivan

Overview of Maternal and Children Nutritional Product Industry

Market Size Analysis of Imported Nutritional Product Market

Market Size of Imported Nutritional Products in the PRC, by Import Value, 2018-2028E



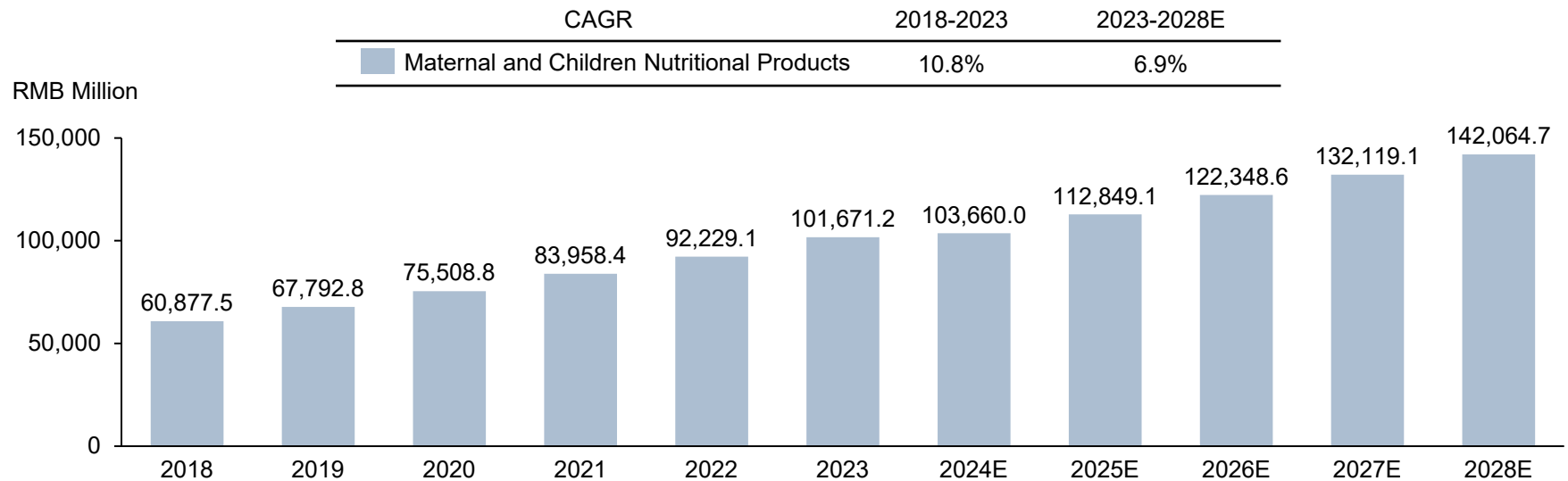
- In terms of import value, the size of the imported nutritional product market in the PRC increased steadily from approximately RMB19.9 billion in 2018 to approximately RMB47.5 billion in 2023, representing a CAGR of 19.0%. As imported nutritional products are often regarded as high-quality, changing lifestyles and pursuing quality living for a healthier and better life have been vital in driving Chinese consumers towards imported nutritional products. The growing trend of the import value of nutritional products in the PRC will continue and it is expected to reach approximately RMB81.3 billion in 2028.

Source: China Chamber of Commerce for Import & Export of Medicines & Health Products, NBSC, Frost & Sullivan

Overview of Maternal and Children Nutritional Product Industry

Market Size Analysis (1/3)

Market Size of Maternal and Children Nutritional Product Industry in the PRC, by Retail Sales Value, 2018-2028E



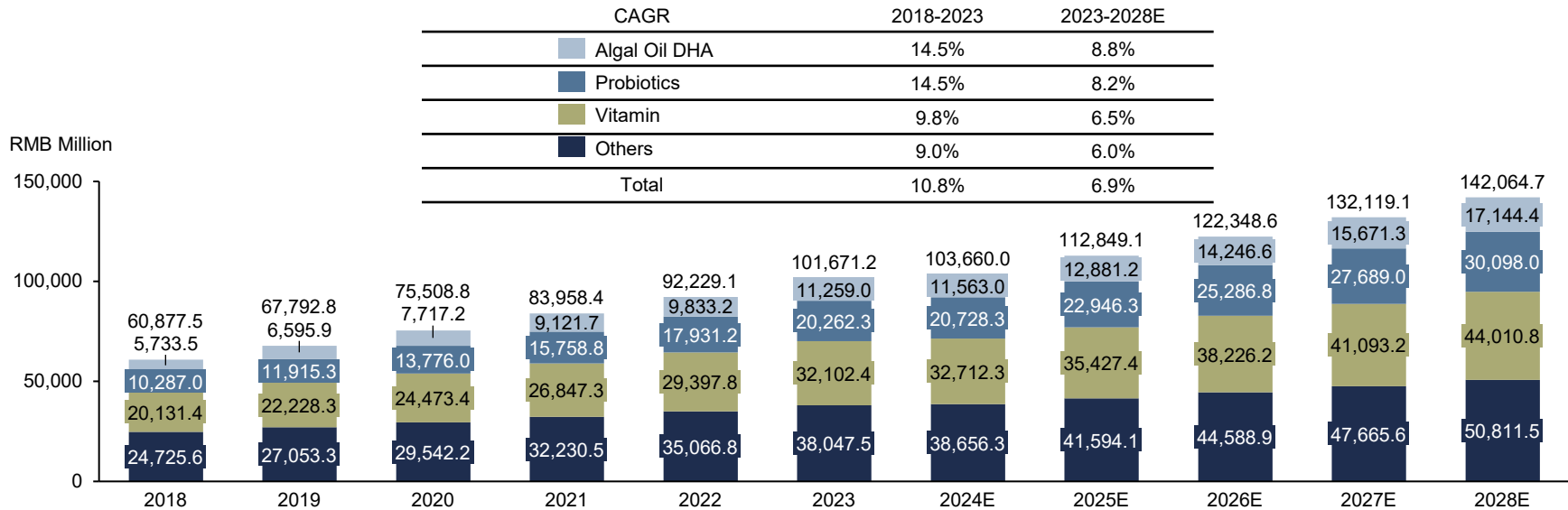
- During the period from 2018 to 2023, the market size of the maternal and children nutritional product industry steadily increased from approximately RMB60,877.5 million in 2018 to approximately RMB101,671.2 million in 2023, representing a CAGR of 10.8%, which was mainly contributed by the increasing health and nutritional awareness as well as purchasing power of customers and the Chinese culture of longing for children to thrive. As the market matures, it is forecasted that the market size of maternal and children nutritional product industry will continue to increase and reach approximately RMB142,064.7 million in terms of retail sales value by the end of 2028, representing a CAGR of 6.9%. Although the decline in the birth rate may negatively affect the maternal and children nutritional product industry, the growing appreciation of the multi-faceted importance of maternal nutrition to the health and development of infants and toddlers is stimulating the demand for maternal and children nutritional products. Meanwhile, parents born in the 1990s and 2000s have taken over as the core consumer group, which generally emphasises scientific and delicate parenting. Thus, the spending on maternal and children nutritional products has been increasing substantially over the past decade and is expected to continue to increase substantially.

Source: Frost & Sullivan

Overview of Maternal and Children Nutritional Product Industry

Market Size Analysis (2/3)

Market Size Breakdown of Maternal and Children Nutritional Product Industry by Product Category in the PRC, by Retail Sales Value, 2018-2028E



- During the period from 2018 to 2023, the maternal and children algal oil DHA segment demonstrated the fastest growth among all maternal and children nutritional products in the PRC in terms of retail sales value, which increased from approximately RMB5,733.5 million in 2018 to approximately RMB11,259.0 million in 2023, representing a CAGR of 14.5%. Meanwhile, the market size of the probiotics segment increased from approximately RMB10,287.0 million in 2018 to RMB20,262.3 million in 2023, representing a CAGR of 14.5%. The rapid growth of algal oil DHA and probiotics as compared to other maternal and children nutritional products was mainly contributed by the rising health consciousness among consumers, higher spending power, the development of new biotechnologies, and years of consumer education. Vitamin has been the largest sub-segment of the maternal and children nutritional product market and is likely to continue to be the largest sub-segment due to increased awareness about the prevalence of vitamin deficiencies and their effect during pregnancy. Due to the economic downturn, consumers' willingness to spend on non-essential goods decreased. As a result, the growth of the maternal and children's Nutritional Product market in the PRC slowed in 2024, as households prioritized essential expenditures and became more cautious with their spending on non-essential health products. Particularly in the first half of 2024, as the strong release of consumer demand in 2023 further dampened spending willingness, leading to an additional reduction in non-essential purchases. Moreover, it is forecasted that algal oil DHA and probiotics will maintain high growth rates than other sub-segments and reach approximately RMB17,144.4 million and RMB30,098.0 million in retail sales value in 2028, respectively.

Note: Others include nutritional product categories such as minerals, protein powder, folic acid, and special formula nutritional products.

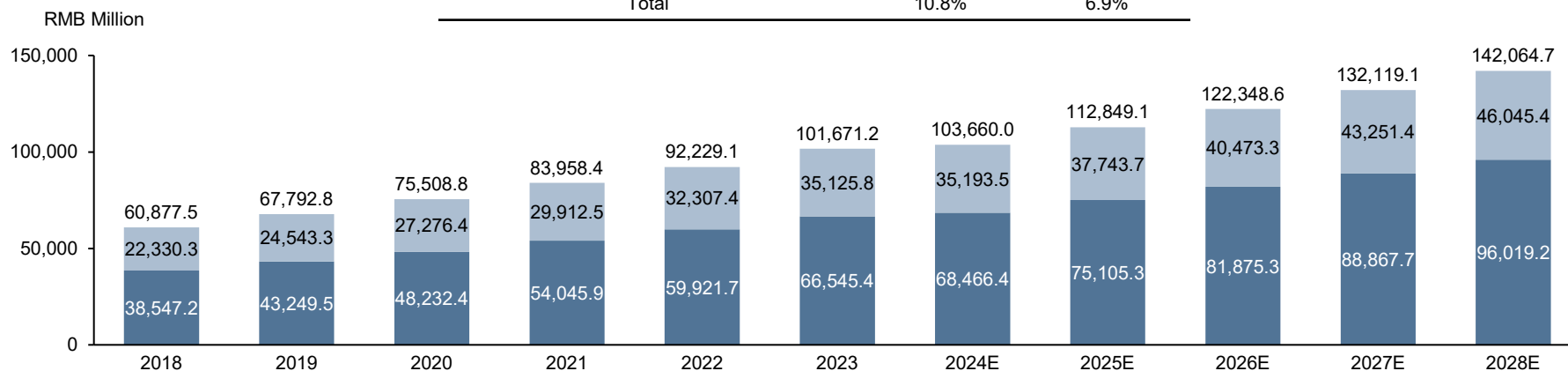
Source: Frost & Sullivan

Overview of Maternal and Children Nutritional Product Industry

Market Size Analysis (3/3)

Market Size Breakdown of Maternal and Children Nutritional Product Industry in the PRC by Type of Players, by Retail Sales Value, 2018-2028E

	CAGR	2018-2023	2023-2028E
International players		9.5%	5.6%
Domestic players		11.5%	7.6%
Total		10.8%	6.9%



- During the period from 2018 to 2023, the market size of the maternal and children nutritional product industry in the PRC increased steadily from RMB60.9 billion in 2018 to RMB101.7 billion in 2023, representing a CAGR of 10.8%, which was driven primarily by the rising nutritional awareness among consumers as well as purchasing power of customers and the Chinese culture of longing for children to thrive. As the market continues to mature, the overall market size of the maternal and children nutritional product industry is forecasted to reach approximately RMB142.7 million by the end of 2028, representing a CAGR of 6.9% from 2023 to 2028.
- The market size generated from international players increased from RMB22,330.3 million in 2018 to RMB35,125.8 million in 2023, achieving a CAGR of 9.5%. This growth can be attributed to their strong brand equity, superior product quality, and effective marketing strategies. However, the growth rate for international players is projected to moderate to a CAGR of 5.6% from 2023 to 2028, with the market size expected to reach approximately RMB46,045.4 million by 2028.
- In contrast, domestic players demonstrated a more robust growth trajectory, with their market size rising from RMB38,547.2 million in 2018 to RMB66,545.4 million in 2023, corresponding to a CAGR of 11.5%. This significant growth is driven by domestic players' in-depth understanding of local consumer preferences, competitive pricing strategies, and expanding distribution networks. Moving forward, domestic players are projected to maintain a strong growth rate with a CAGR of 7.6%, reaching RMB96,019.2 million by 2028.

Source: Frost & Sullivan

Overview of Maternal and Children Nutritional Product Industry

Regulatory Environment and Industry Policies in the PRC (1/2)

Name	Effective Time	Content
PRC Food Safety Law 《中华人民共和国食品安全法》	October 2015	The Law is enacted to regulate food production and processing, food sales and catering services, production and management of food additives, packaging materials, containers, detergents, disinfectants and tools and equipment used for food production and management and the safety management of food, food additives, food-related products.
Health Food Registration and Filing Management Measures 《保健食品注册与备案管理办法》	July 2016	The Measures are enacted to regulate the registration and filing of health products. Health foods sold in the PRC (whether domestic or imported) need to be registered and filed. Health foods whose raw materials are all listed in the health food raw materials list only need to be filed, otherwise need to be registered.
Health Food Raw Materials Directory (the first batch) 《保健食品原料目录一》	January 2017	The directory is enacted to regulate the specific health food raw materials put in the products and the amount of the nutrient nutritional product marked on the label for target users.
Health Food Filing Guideline (Trial) 《保健食品备案工作指南（试行）》	May 2017	The guideline is enacted to officially list the applicable scope of filling and applicants' qualification, then to help applicants better understand the filing requirements
PRC Maternal and Child Health Care Law 《中华人民共和国母婴保健法》	November 2017	The Law is enacted to protect the health of mothers and babies and to regulate the medical institutions which provide medical service for mothers and babies.

Source: Frost & Sullivan

Overview of Maternal and Children Nutritional Product Industry

Regulatory Environment and Industry Policies in the PRC (2/2)

Name	Effective Time	Content
Naming Guidelines for Health Food (2019 Edition) 《保健食品命名指南（2019年版）》	November 2019	The guidelines are enacted to standardize the naming of product names for health food registration and filing, and avoid misleading consumption
Regulations on Available Excipients and Their Use for Health Food Filing Product (2021 Edition) 《保健食品备案产品可用辅料及其使用规定（2021年版）》	June 2021	In order to further promote and standardize the management of health food filing, according to the relevant national food safety standards and the situation of registered products, the General Administration of Market Supervision has formulated and revised the supporting Provisions on the Available Auxiliary Materials and Their Use for Health Food Filing (2021 Edition) and the Formulation and Technical Requirements for Health Food Filing Products (2021 Edition) to include powder, gel candy into the formulation of health food filing
Catalogue of Health Food Ingredients Nutrient Nutritional Product (2023 Edition) 《保健食品原料目录 营养素补充剂（2023年版）》	October 2023	It is a management regulation for nutritional products' raw materials, mainly involving the types, requirements, filing process, labeling, and supervision and inspection of raw materials. This directory aims to standardize the market for nutritional products and safeguard consumer health rights. By clearly defining the sources of raw materials, production processes, quality standards, and implementing measures such as filing management and supervision and inspection, the safety and effectiveness of nutritional products are ensured

Source: Frost & Sullivan

Overview of Maternal and Children Nutritional Product Industry

Analysis on Imported Nutritional Products



With the rapidly increasing number of upper and middle class households in the PRC, the changing demand on health and wellness of upper and middle class households is not fulfilled by the market. In the overall health food industry, certain domestic companies failed to provide reliable information about health nutrition products and services, which results in popularity of products using imported raw materials among consumers in the maternal and children nutritional product industry in the PRC. The maternal and children nutritional product industry is in line with the overall health nutrition industry which relies heavily on imported raw materials and products. In the scenario of maternal and children nutritional product industry of the PRC, consumers' confidence was undermined by a series of scandals involving maternal and children nutritional products such as the Chinese Milk Scandal in 2008. Over years of effort, domestic brands are gradually gaining consumers' confidence but restricted by the R&D technology and patents. The raw materials used by the largest domestic brands are still mostly imported from international chemical and nutrition companies such as DSM and Chr. Hansen, etc.

And thereby imported finished DHA which use key raw materials sourced overseas and processed overseas are regarded as having high quality and have high levels of consumer confidence and demand in the PRC.

Source: Frost & Sullivan

Agenda

1 *Introduction of the Research*

2 *Macro Economy Overview*

3 *Overview of Nutritional Product Industry*

4 *Overview of Maternal and Children Nutritional Product Industry*

5 **Overview of Maternal and Children Algal Oil DHA Industry**

6 *Overview of Maternal and Children Probiotics Industry*

7 *Overview of Milk Powder Industry*

8 *Appendix*

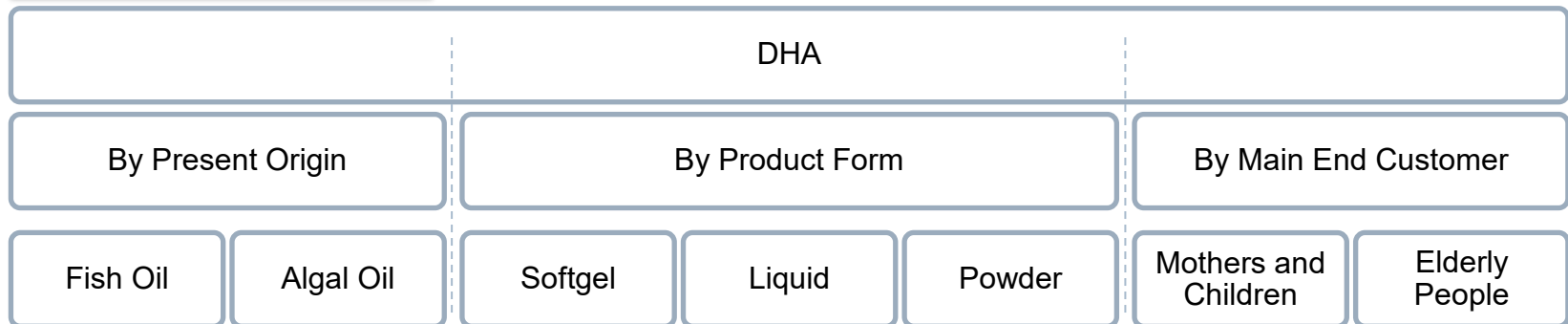
Overview of Maternal and Children Algal Oil DHA Industry

Introduction (1/2)

Introduction of DHA

- DHA refers to docosahexaenoic acid, which is an essential fatty acid widely present in algae, certain fishes, marine animal oils, etc. It is crucial to the development of infants and toddlers, especially for their brains and eyes. Apart from this, low content of DHA is also related to the occurrence of cognitive decline for elderly people, supported by several observational studies. Regular DHA intake for elder people can considerably reduce the risk of developing Alzheimer's and other age-related cognitive decline.
- The end products of DHA can be presented in the form of liquid, softgel and powder to meet different demands from downstream customers, while the largest proportion is present in softgel form.
- DHA can be classified into fish oil DHA and algal oil DHA by present origins. Algal oil DHA is more suitable for pregnant women and toddlers while fish oil DHA is for elderly people, with regards to the effects of each category. In addition, the recent release of nuclear contaminated wastewater by Japan since August 2024 has raised some concerns on marine-related products in the PRC. For instance, in addition to extensive media reporting in the PRC, the PRC government has published official statements and taken actions such as imposing stricter import regulations on marine products from Japan. The release of nuclear contaminated water raised concerns not only on fish oil DHA but also algal oil DHA. This apprehension stems from the perception that such contamination could impact algae, which consumers commonly believe may absorb various nutrients and substances from their marine environment, and that algae as primary producers in aquatic ecosystems may accumulate contaminants, potentially affecting the quality and safety of algal oil DHA products.

Classification of DHA



Source: Frost & Sullivan

Overview of Maternal and Children Algal Oil DHA Industry

Introduction (2/2)

Introduction of Algal Oil DHA

- DHA is always cited as the beneficial component of fish oil, yet they actually originate in algae. algal oil DHA is a vegetarian product, considered purer and more stable than fish oil DHA.
- As the algal oil DHA is more suitable for pregnant women and children aforementioned, the form of the end product is diversified for the best practice for intake. For example, liquid algal oil DHA is produced in order to be more user-friendly for toddlers and infants. For the same consideration, algal oil DHA is made with various flavours, such as chocolate, strawberry, vanilla, etc. By comparison, fish oil DHA is mostly sold in soft gel.
- The intake duration for pregnant women and children is suggested to be 10 months during pregnancy and 6 years after babies are born, respectively, indicating a larger market of children algal oil DHA in potential.
- The DHA(algal oil) has different types in terms of the algal types. Now there are three types of algae that can extract DHA, schizochytrium sp.(裂壶藻), crypthecodiniumm cohnii(寇氏隐甲藻), and ulkenia amoeboida(吾肯氏壶藻). The DHA extracted from schizochytrium sp. and crypthecodiniumm cohnii, are also called type-S and type-T DHA respectively. Both type-S and type-T DHA are the major products in the market. The crypthecodiniumm cohnii is the earliest algae species developed for the production of algal oil. With the upgrading of technology, schizochytrium sp. has been discovered. Although schizochytrium sp. contains slightly more EPA than crypthecodiniumm cohnii, its natural DHA content is higher. Currently, schizochytrium sp. is a well-recognized high-quality source of DHA in the industry.

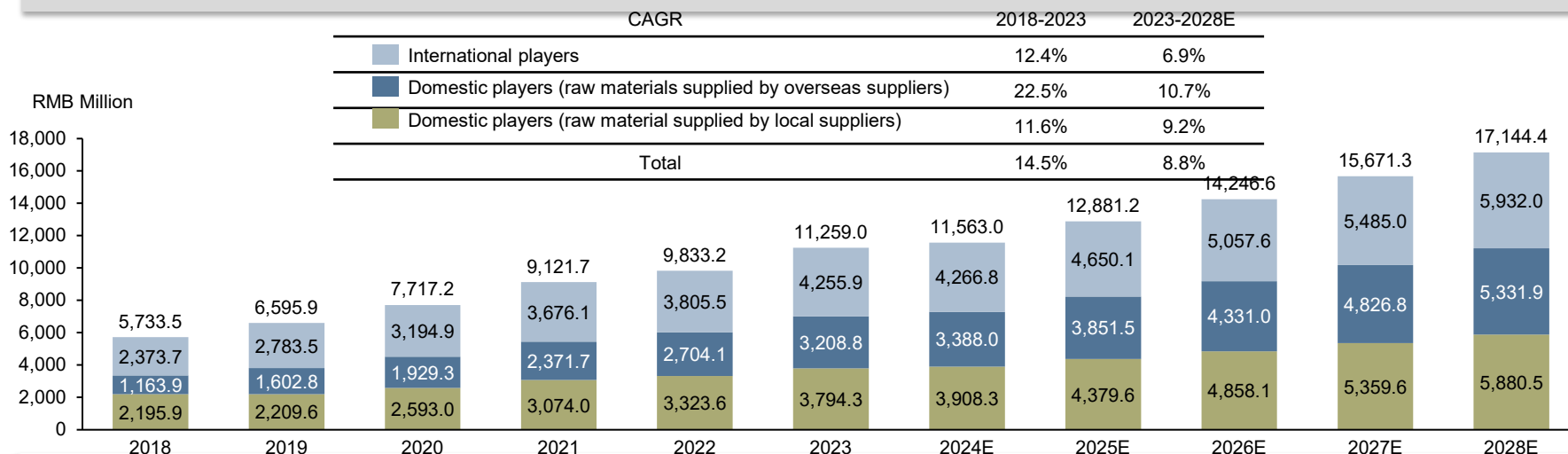


Source: Frost & Sullivan

Overview of Maternal and Children Algal Oil DHA Industry

Market Size Analysis

Market Size Breakdown of Maternal and Children Algal Oil DHA Product Industry in the PRC by Type of Players, by Retail Sales Value, 2018-2028E



- The maternal and children algal oil DHA market in the PRC has experienced continuous growth over the past five years from 2018 to 2023, with the retail sales value rising from approximately RMB5,733.5 million in 2018 to approximately RMB11,259.0 million in 2023, representing a CAGR of 14.5%. The growth of the maternal and children algal oil DHA product industry in the PRC is expected to slow down in 2024, with the forecast retail sales value projected to remain flat at approximately RMB11,563.0 million, as compared to approximately RMB11,259.0 million in 2023, representing a year-over-year growth of 2.7%. This marks a significant contrast to the rapid growth observed in retail sales value over the previous years, which increased by 7.8% from approximately RMB9,121.7 million in 2021 to approximately RMB9,833.2 million in 2022, and further increased by 14.5% to approximately RMB11,259.0 million in 2023. And the retail sales value of the maternal and children algal oil DHA product industry in respect of domestic players (with raw materials supplied by overseas suppliers) increased significantly by approximately 14.0% from approximately RMB2,371.7 million in 2021 to approximately RMB2,704.1 million in 2022 and further increased by approximately 18.7% to approximately RMB3,208.8 million in 2023. Thanks to the rapid development of omni-channels over the past few years, the sales channels to the end customers were remarkably broadened and diversified, covering these territories that offline stores alone were used to be incapable of deployment. In addition, consumption upgrading, which can be indicated by the fact that the per capita disposable income of residents nationwide and per capita consumption expenditure have both represented a robust CAGR of 6.8% and 6.2% from 2018 to 2023, and growing awareness of algal oil DHA were also attributing factors. The maternal and children's algal oil DHA product market was driven by contributions from international players, domestic suppliers using overseas-sourced algal oil DHA raw materials, and those utilizing locally manufactured algal oil DHA raw materials, accounting for approximately 37.8%, 28.5%, and 33.7% of the market, respectively.
- In the first half of 2024, domestic consumption weakened due to the economic downturn in China, leading to softened demand for algal oil DHA as a non-essential product. In 2024, the economic downturn resulted in weak consumer expenditure, with per capita consumer expenditure nationwide rising by 6.8% from the six months ending June 30, 2023, to the six months ending June 30, 2024. This reflects a slowdown in growth compared to the 8.4% increase observed from the six months ending June 30, 2022, to the six months ending June 30, 2023, contributing to weaker market performance in the first half of 2024 compared to the same period in 2023. This trend is further reflected in total retail sales of consumer goods in the PRC, which reached RMB23.6 trillion in the first half of 2024, marking a modest increase of just 3.7% compared to the previous year. In contrast, retail sales in the first half of 2023 had risen by 8.2% from the first half of 2022, highlighting the impact of the economic downturn on consumer confidence and expenditure. In particular, the release of radioactive water from Fukushima, Japan, raised concerns among the PRC consumers about its potential impact on marine ecosystems. The release of radioactive water by Japan raised concerns not only on fish oil DHA but also algal oil DHA. This apprehension stems from the perception that such contamination could impact algae, which consumers commonly believe may absorb various nutrients and substances from their marine environment, and that algae as primary producers in aquatic ecosystems may accumulate contaminants, potentially affecting the quality and safety of algal oil products. Such concerns triggered the consumers to exhibit stockpiling behavior in 2023 as individuals sought to secure their supply of algal oil DHA products. As a result, this led to a substantial surge in demand and sales volume for these products that year, resulting in a decline in sales volume in 2024, while sales prices remained relatively stable.
- The per capita food & tobacco & liquor expenditure in the PRC has grown from RMB5,631 in 2018 to RMB7,983 in 2023 at a CAGR of 7.2%, indicating an increasing purchasing power of consumers. In response to the consumption upgrading, the average price of the maternal and children algal oil DHA product consumed in Chinese market is estimated to increase accordingly. From the demand end, the benefit of intake of algal oil DHA is progressively cultured in the Chinese market, which increases the penetration rate of the products, especially into lower-tier cities, indicating a growing demand in the future. Despite the declining birth rate, upheld by the sound and healthy economy in the PRC, the growth of the maternal and children algal oil DHA market is expected to continue with the upward momentum, with the market size reaching approximately RMB17,144.4 million in 2028 at a CAGR of 8.8% over the period from 2023 to 2028., taking into account the declining birth rate in the PRC.

Source: Frost & Sullivan

Overview of Maternal and Children Algal Oil DHA Industry

Market Segmentation

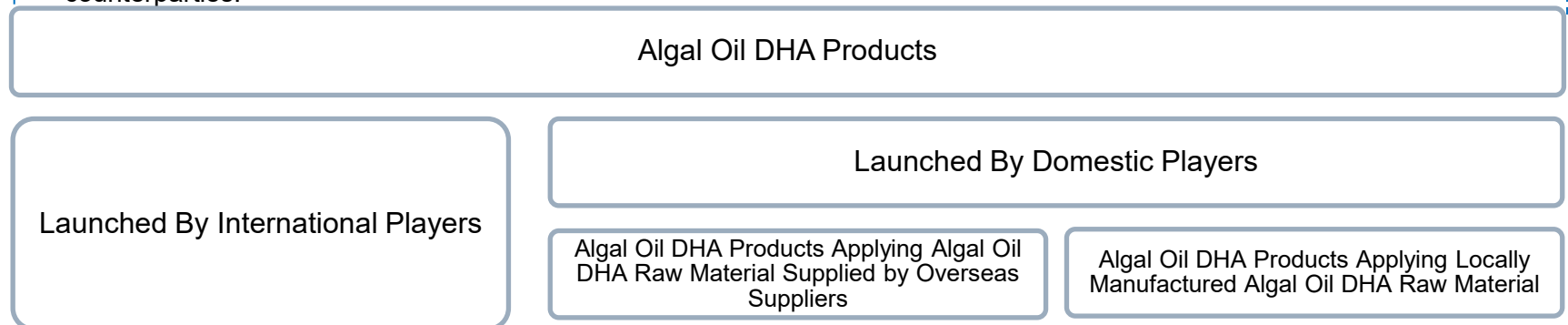
According to the origins of the algal oil DHA products, the maternal and children algal oil DHA market can be divided into products launched by international players and domestic players, where products labelled with domestic brands could be further categorized into products with the introduction of locally produced and imported algal oil DHA raw material.

International players

- Maternal and children algal oil DHA products launched by international players are transacted via cross-border trade between countries mainly through B2B and B2C by business form, which are mostly traded via online channels in the PRC market. As food security of maternal and children-related products has been a cause of concern, products launched by international players are progressively gaining popularity in the PRC market.

Domestic players

- As for the finished maternal and children algal oil DHA products, including imported finished and domestically packaged, released by domestic brands, the quality is variable among products, where the supplier of the algal oil DHA raw material is considered as the main indicator. Specifically, products made from algal oil DHA raw material supplied by overseas suppliers are regarded as having higher quality than those made from locally produced algal oil DHA raw material among counterparties.



Source: Frost & Sullivan

Overview of Maternal and Children Algal Oil DHA Industry

Market Drivers in the PRC

Market Drivers	Impact (1-2 years)	Impact (3-5 years)
1 Increasing purchasing power	High	High
2 Rising awareness of algal oil DHA products	High	High



MARKET DRIVERS

Major Drivers	Description
Increasing purchasing power	According to NBSC, the disposable income per capita in the PRC increased from approximately RMB28.2 thousand in 2018 to approximately RMB39.2 thousand in 2023, representing a CAGR of 6.8%, indicating a higher purchasing power of PRC consumers. As a result, the sales of consumer goods in the PRC increased from approximately RMB37.8 trillion in 2018 to approximately RMB47.1 trillion in 2023. In the first half of 2024, the per capita disposable income of residents nationwide was RMB20,733, representing a growth of 5.4%, however, the total retail sales of consumer goods in the PRC, which amounted to RMB23.6 trillion in the first half of the year, reflecting a modest increase of only 3.7%. With increasing disposable income and purchasing power, consumers in the PRC tend to pay more attention to their health issues. They are more willing to purchase nutritional products in the hope of maintaining and improving their physical conditions. Benefiting from the climbing income and purchasing power of domestic consumers, the maternal and children algal oil DHA market in the PRC is likely to flourish further in the foreseeable future.
Rising awareness of algal oil DHA Products	With the development of new media, people are gaining awareness of algal oil DHA through the flush information from all aspects of life, such as word of mouth between friends, advertisements in diversified platforms, etc. Moreover, in response to the unprecedentedly fast-improving life quality, the health topic is overwhelmingly drawing people's attention, especially in relation to pregnant and postpartum women and children. This fast-improving life quality is reflected in some economic indicators of the PRC, such as the increased disposable income per capita and expenditure on consumer goods over the past five years. On one hand, the growing awareness of health, environment protection, social responsibility, etc., facilitates the improvement of life quality. On the other hand, these brand owners are cultivating the public on the benefit of algal oil DHA intake in the hope of enlarging their range of target customers.

Source: NBSC, Frost & Sullivan

Overview of Maternal and Children Algal Oil DHA Industry

Future Trends

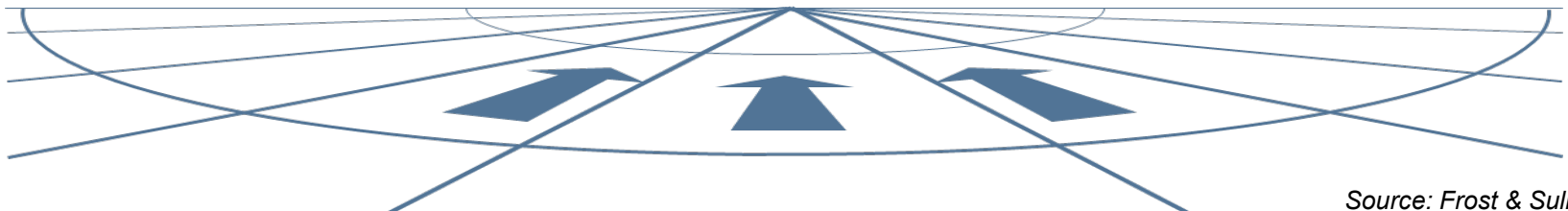
More mature regulatory system

Due to the complicated registration process and divergent regulatory system from international standards, the development of the maternal and children algal oil DHA market has been significantly impeded, discouraging the launch of products from other countries. End customers have no choice but to purchase these products even without obtaining a certificate or getting inspected, further hindering the overall product quality of maternal and children algal oil DHA. Looking forward, both the regulatory system and the market are progressively becoming more mature and efficient, inviting more domestic and international players to engage in the market.

Expanding online channels

The online channels of maternal and children algal oil DHA have witnessed rapid growth over the past few years and the trend is expected to continue in the following few years. The increasing popularity of online channels of maternal and children algal oil DHA is greatly driven by the advantageous word of mouth that imported products have received more preferences than products made domestically. Besides, consumers are more inclined to purchase products directly based on referrals from friends or KOLs (Key Opinion Leader) on social media platforms.

Market Trends



Source: Frost & Sullivan

Overview of Maternal and Children Algal Oil DHA Industry Opportunities

1 Great potential in lower-tier cities

- Maternal and children algal oil DHA market is relatively mature and saturated in tier 1 cities, including Shanghai, Beijing, Guangzhou and Shenzhen, where the awareness of preventative healthcare has been cultivated, calling for product upgrading.
- By comparison, the formation of the DHA market in lower-tier cities is in progress under the widespread marketing on new product innovation, enhanced effectiveness and product safety from the manufacturers. Lower-tier cities can be exploited with attractive potential for early movers.

2 Omni-channel retail

- In order to reach a broad set of customers, maternal and children nutritional product companies are trying to diversify the sales channels. Given that the internet provides customers with better price transparency, more convenient shopping experiences and detailed product information than offline shopping, it is expected that distribution channels of maternal and children algal oil DHA will undergo revolutionary transformation to omni-channel retailing with an increasing proportion of sales revenue realized in online channels.
- Specifically, companies culture the public on maternal and children algal oil DHA and increase product stickiness through offline channels from hospitals, pharmacies and maternal and baby stores, while online channels focus on closing deals.

3 Production diversification

- Organic concept has swept the whole food-related industries, which is regarded as an assurance of food quality, especially in tier 1 cities, where people place emphasis on food quality and prefer natural biodiverse over genetically engineered sources. Replacement with the organic raw material can be an opportunity for the manufacturers.
- Apart from the category sophistication in raw material, that in packaging, product appearance, product flavour, and element containment of product also provide the chance for players to capture as a possible source of incremental growth, especially in the market for children and pregnant women.

Source: Frost & Sullivan

Overview of Maternal and Children Algal Oil DHA Industry

Threats

1 Stringent regulation

- The PRC is increasingly regulated and progressively moving to a mature system over health and wellness food products, including maternal and children algal oil DHA. The “Blue Hat” program is regarded as a frontier move. Specifically, all the products aforementioned in the PRC are supposed to be labelled with a “Blue hat” certificate so that they can be legally categorized as health products.
- However, the registration and filing processes are considered costly, time-consuming and complex, hindering the industry development. On top of these, this regulatory system is divergent from the globally standardized system, discouraging international investment. Hence, a batch of customers has to purchase products via cross-border procurement services such as Taobao, Tmall, JD, etc.

2 Varied product quality

- Over the past few years, the regulatory institution has continuously detected certain algal oil DHA that might contain unauthorised elements in the products for pregnant women and children. In response to such findings, customers might be reluctant or more cautious towards taking algal oil DHA, which jeopardises the development of the maternal and children algal oil DHA market. This issue needs to be addressed by the coordination between leading players and government to set up a stringent standard for the maternal and children algal oil DHA market.
- On the other hand, these algal oil DHA products bought from unofficial channels should be regulated and under surveillance to guarantee the overall product quality in the PRC.

Source: Frost & Sullivan

Overview of Maternal and Children Algal Oil DHA Industry

Analysis on the Key Factors of Competition

Reliable suppliers of raw material

The global market of pure algal oil DHA manufacturers is relatively concentrated as the technology embedded in the production process is demanding. These leading players invest remarkable funds in conducting research and compounding new ingredients, which imposes a bar on most brand owners. Moreover, industry-leading manufacturers set selection criteria by region on the product quality and sales performance of their downstream customers, ruling out candidates failing to meet their requirements. Hence, possessing a strong algal oil DHA supplier in the long term can be regarded as the assurance of product quality to some extent, which settles the concern from the customer's end.

Product innovation

As for the end customers, children take up a significant proportion of algal oil DHA users, accounting for approximately 70% in 2023. Products are supposed to be diversified in terms of form and flavour to retain them. Considering toddlers' and babies' safety and intake experience, products are undoing form proliferation, removing the long-established iconic image as a soft gel. Moreover, in response to the natural inherent that children are keen on products with sweet flavour, an increasing number of algal oil DHA end products suppliers are progressively launching manifold tastes of algal oil DHA, with the hope to enlarge their penetration in maternal and children algal oil DHA market. Hence, product diversification can be another determinant factor for suppliers to stand out in the industry.

Source: Frost & Sullivan

Overview of Maternal and Children Algal Oil DHA Industry Ranking

- The total retail sales value of maternal and children algal oil DHA products was approximately RMB11,259.0 million in 2023, which was contributed by algal oil DHA products supplied by international players and domestic players made from algal oil DHA raw material supplied by overseas suppliers and those supplied by domestic players applying locally manufactured algal oil DHA raw material at approximately 37.8%, 28.5% and 33.7%, respectively. Considering that the food security of maternal and children-related products is given special attention, people are more inclined to purchase products launched by international players and domestic players with the application of algal oil DHA raw material supplied by overseas suppliers, the aggregate share of which accounted for 66.3% in terms of retail sales value in 2023.
- In 2023, the market size of the maternal and children algal oil DHA products made from algal oil DHA raw material supplied by overseas suppliers among domestic brands in the PRC in terms of retail sales value was approximately RMB3,208.8 million. This specific market was considered concentrated for FY2023 in terms of retail sales value. The market was shared by approximately 35 players with maternal and children algal oil DHA made from raw materials supplied by overseas suppliers. Leading players who have formed stable contracts with world-famous algal oil DHA suppliers display a strong market presence in the PRC and benefit from the established reputation and recognition of their products. There are currently about 100 participants in the maternal and children algal oil DHA industry which comprise international players and domestic players using algal oil DHA raw material supplied by overseas suppliers and those supplied by domestic suppliers in the maternal and children algal oil DHA industry in the PRC and the market of the maternal and children algal oil DHA products made from algal oil DHA raw materials supplied by overseas suppliers among local brands in the PRC in 2023 was considered concentrated in terms of retail sales value.. These players face risks related to high production costs, which can squeeze profit margins, especially as raw materials and technology costs rise. Additionally, the market is sensitive to consumer awareness and education, meaning shifts in public perception about the health benefits of DHA could impact demand. For FY2023, the aggregate value generated from the sales of algal oil DHA products with algal oil DHA raw material supplied by overseas suppliers from the top five domestic brands was approximately RMB1,997.4 million, contributing 62.3% to the entire relevant market.
- The Group ranked first in terms of retail sales value of RMB658.8 million generated and took up a share of approximately 20.5% for FY2023.

Top 5 Maternal and Children Algal Oil DHA Domestic Brands with the Application of Algal Oil DHA Raw Material Supplied by Overseas Suppliers in the PRC in 2023

Ranking	Brand Name	Retail sales value of maternal and children algal oil DHA products in 2023 (RMB million)	Market share in 2023	Average Product Price and Price Range (RMB per capsule)
1	The Group	658.8	20.5%	Average price: 5.4 Price Range: 2.0-9.5
2	Brand B	574.0	17.9%	Average price: 5.9 Price Range: 2.6-10.1
3	Brand D	362.0	11.3%	Average price: 5.9 Price Range:4.3-12.5
4	Brand E	246.1	7.7%	Average price: 3.3 Price Range:1.7-5.0
5	Brand F	156.5	4.9%	Average price: 5.2 Price Range:3.3-7.8
	Top 5	1,997.4	62.3%	
	Total	3,208.8	100%	

Note: Brand B: It is one of the top nutritional brands in China, known for high-quality DHA products for mothers and children. Brand D: It is a brand that focuses on innovative health products, including algal oil DHA for child development. Brand E: It is a brand known for premium alga oil DHA products for maternal and infant nutrition. Brand F: It is a brand that offers family health products, emphasizing high-quality algal oil DHA for optimal growth. The retail sales value was derived from the value of the respective brand's algal oil DHA products sold in the retail market (i.e. at the retail level to end-consumers). In contrast, the Group's revenue from algal oil DHA products was primarily generated from the sales to e-commerce companies and regional distributors, which would on-sell the Group's products to end-consumers through online shopping platforms or retail outlets. As a result, the Group's revenue from sales of algal oil DHA products of approximately RMB404.1 million was lower than the retail sales value of approximately RMB658.8 million for FY2023. This discrepancy accounted for the profit margins retained by the e-commerce companies, regional distributors and retail outlets through which the Group sells its algal oil DHA products.

Source: Frost & Sullivan

Overview of Maternal and Children Algal Oil DHA Industry

Company Profile of Major Players

- There exists a small amount of sizable domestic brand owners providing algal oil DHA products made from imported algal oil DHA raw material in the PRC. Some players, like Numans Group, have entered agreements with renowned product suppliers, while some players may offer a variety of algal oil DHA products with diversified qualities. In the meantime, Numans Group has set foot in the maternal and children nutritional products market since 2007 and is considered the pioneer in the algal oil DHA segment and in the maternal and children nutritional products industry in the PRC. For customers in tier 1 and tier 2 cities, they are more prone to purchase products with imported algal oil DHA raw material, whereas the growth rate of the algal oil DHA market in lower-tier cities turns out to be increasing impressively, mainly benefiting from the growing awareness in these regions. It is worth mentioning that, as a whole, the revenue generated from off-line channels grows faster than that from online channels, whereas the deployment of the online platform is in progress for most of the players to capture these pregnant women aged below 30 years old who are getting indulged in the joy of convenience brought up by the e-commerce.

Leading Domestic Brand Names with the Introduction of Imported Algal Oil DHA Raw Material in the PRC

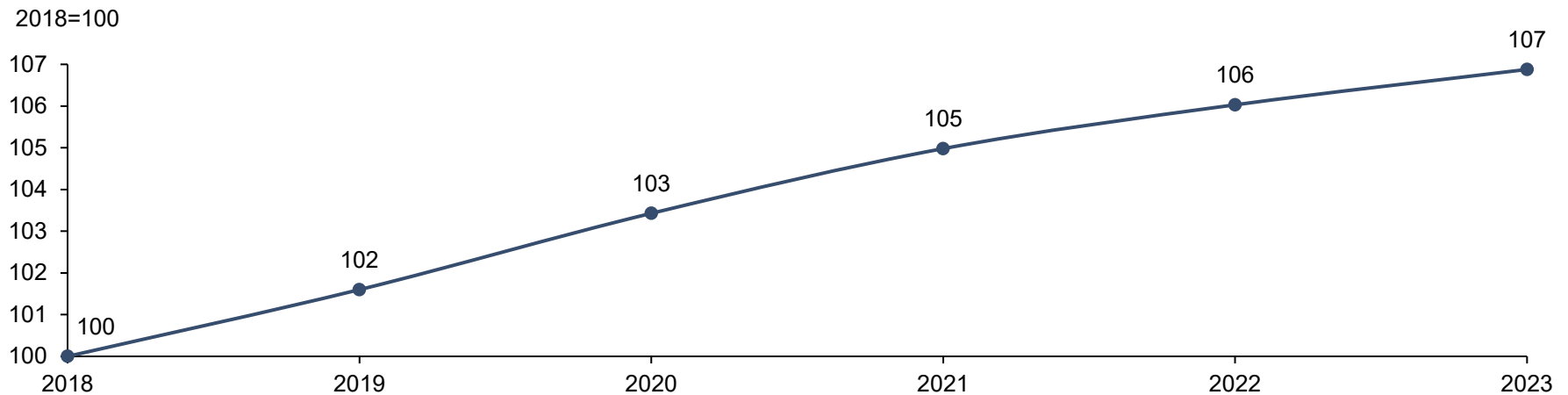
Brand Name	Business Description	Description of Algal Oil DHA Products
The Group	Sales of high-end algal oil DHA softgel, Probiotics, Vitamins and Nutrients with most of the product imported from the world-renowned suppliers	<p>Domestically Manufactured: DHA Algal Oil Softgel (Adult)-30 capsules and 60 capsules, 140mg DHA per capsule DHA Algal Oil Softgel (Children)-30 capsules and 90 capsules, 100mg</p> <p>Processed Overseas: DHA Algal Oil Softgel (Adult)-30 capsules and 60 capsules, 200mg DHA Algal Oil Softgel (Children)-30 capsules and 90 capsules, 100mg</p>
Brand D	Sales of fish oil DHA, algal oil DHA softgel, Probiotics, Calcium, Compound Zinc Gluconate and Ferrous Gluconate products and Protein Powder	<p>Domestically Manufactured: DHA Algal Oil Softgel (Adult)-90 capsules and 270 capsules, 100mg DHA Algal Oil Softgel (Children)-90 capsules and 270 capsules, 100mg</p>
Brand F	Sales of algal oil DHA softgel, Probiotics, Calcium, Compound Vitamins and Essence Oil Soap	<p>Processed Overseas: DHA Algal Oil Softgel (Adult)-45 capsules, 200mg DHA Algal Oil Softgel (Children)-60 capsules, 100mg</p>
Brand L	Sales of Nutritional Products, Calcium, Compound Vitamins, fish oil DHA softgel, algal oil DHA softgel, Probiotics, Protein Solid Drink	<p>Processed Overseas: DHA Algal Oil Soft Sweet (Adult and children)-45 capsules and 90 capsules, 120mg</p>
Brand M	Sales of mainly 16 categories of products, including but not limited to Protein, vitamin/Minerals, Childhood Nutrition, Nutrition of Pregnant Women, etc.	<p>Domestically Manufactured: DHA Algal Oil Softgel (Children)-30 capsules, 85.2mg DHA Algal Oil Softgel (Adult and children)-30 capsules and 60 capsules, 100mg DHA Algal Oil and Walnut Oil Softgel (Adult and children)-60 capsules, 100mg</p>
Brand N	Lemibeiyu is an eco-brand specializing in high-quality maternal and infant nutrition and parent-child nutritional guidance.	<p>Domestically Manufactured: DHA Algal Oil and Linseed Oil Softgel (Children)-30 capsules and 100 capsules, 120mg</p>

Source: Frost & Sullivan

Overview of Maternal and Children Algal Oil DHA Industry

Analysis on Historical Price Trends of Algal Oil DHA Raw Material

Price Index of Algal Oil DHA Raw Material in the PRC, 2018-2023



- The main purpose of the procurement is to source algal oil DHA raw material, or the finished products incorporated into diversified forms internationally or domestically, the prices of which co-move in the PRC market. As for the algal oil DHA industry, the price of the algal oil DHA raw material in the PRC is determined by the balance between the demand and supply and exchange rate, which witnessed a CAGR of 1.4% from 2018 to 2023. Mainly driven by the growing awareness and consumption upgrading in the PRC, the price of algal oil DHA raw material is expected to continue with an upward trend in the following years.
- The contracts of algal oil DHA raw material between suppliers and downstream brand-owners are mostly locked on a long-term basis in algal oil DHA industry. In other words, from the demand side, the prices of algal oil DHA raw materials among brand owners are distinctive, which is driven mainly by two reasons. Firstly, there is a no standardized contract with regard to the duration and the initiation time in the industry, leading to the diversified periodicity of risk exposure in relation to the price fluctuation in raw materials. Secondly, the bargaining power among downstream brand owners is not identical. Brand owners with large volume on purchasing orders are able to negotiate with the suppliers at a concession price and even enact supplementary clauses on co-undertaking potential risks embedded in the procurement.

Source: Frost & Sullivan

Agenda

1 *Introduction of the Research*

2 *Macro Economy Overview*

3 *Overview of Nutritional Product Industry*

4 *Overview of Maternal and Children Nutritional Product Industry*

5 *Overview of Maternal and Children Algal Oil DHA Industry*

6 **Overview of Maternal and Children Probiotics Industry**

7 *Overview of Milk Powder Industry*

8 *Appendix*

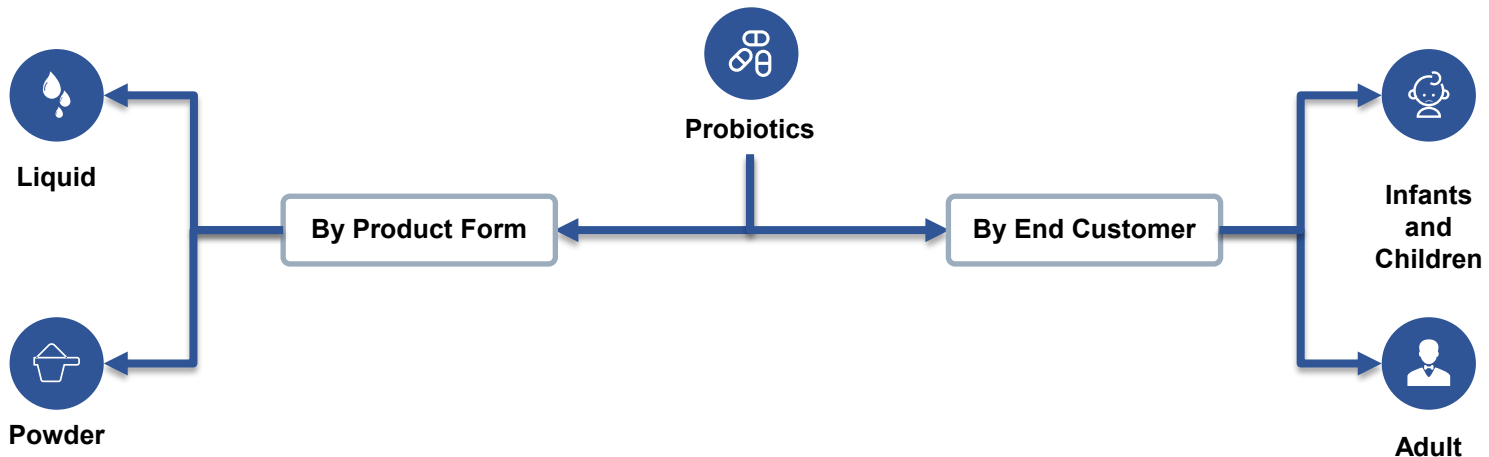
Overview of Maternal and Children Probiotics Industry in the PRC

Brief Introduction

Introduction of Probiotics

- Probiotics are live microorganisms that confer a health benefit on the host when administered in adequate amounts. These microorganisms are typically bacteria but can also include certain yeasts. Probiotics are often called "good" or "friendly" bacteria because they help maintain a healthy balance of microorganisms in the gut microbiome. They can be found in certain foods such as yoghurt, kefir, and sauerkraut or taken as nutritional products. The potential health benefits of probiotics include improved digestion, enhanced immune function, and the prevention and treatment of certain gastrointestinal disorders. Due to its diversified functions, it has been one of the most popular functional food additives.
- The end products of probiotics can be presented as liquid and powder to meet different demands from end customers. Dairy products account for approximately 80% of probiotic food products in daily life, especially fermented milk and lactobacillus beverage products. The most commonly consumed probiotics are strains of two main species: Bifidobacterium and lactobacillus. Each probiotic strain has a different effect on the body.
- With increasing health awareness and the intensified promoting activities on the healthcare function of probiotic products, Chinese consumers (infants, children and adults) have become interested in probiotics, especially in middle-sized and large-sized cities. Probiotic is specifically suitable for infants and children of a young age when their immune systems are undergoing development.

Classification of Probiotics

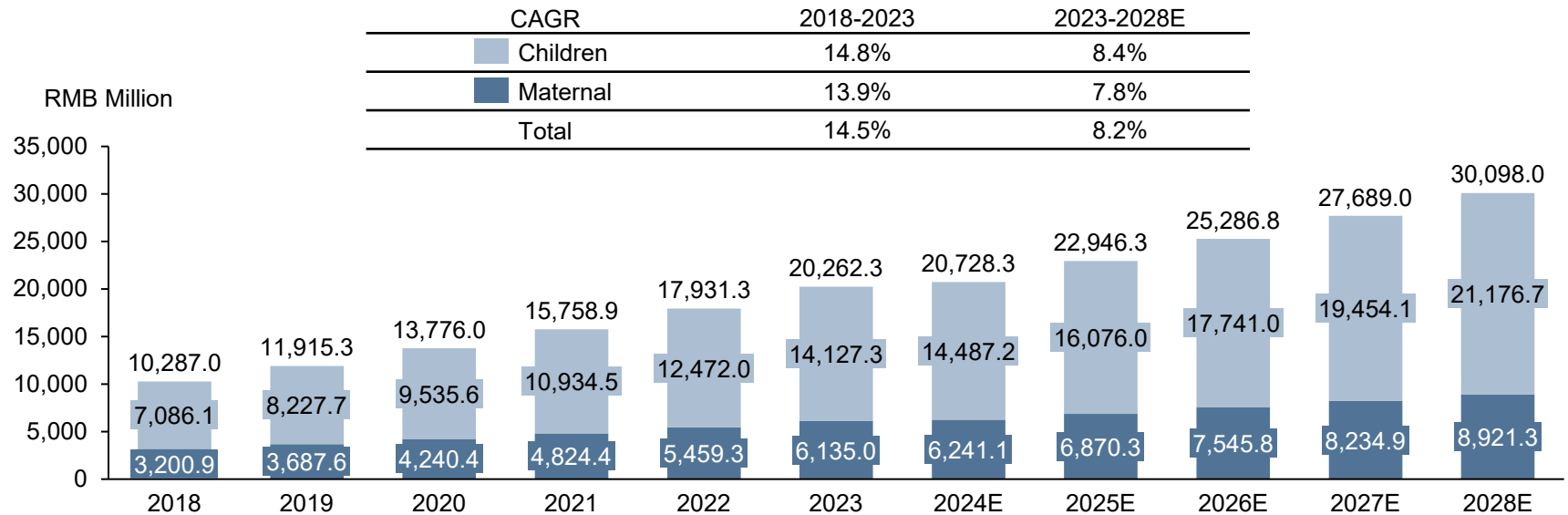


Source: World Health Organization, Frost & Sullivan

Overview of Maternal and Children Probiotics Industry in the PRC

Market Size of Maternal and Children Probiotics Industry in the PRC

Market Size Breakdown of Maternal and Children Probiotics Industry by Audience in the PRC, by Retail Sales Value, 2018-2028E



- From 2018 to 2023, the market size of the maternal and children probiotics industry in the PRC increased at a double-digit CAGR of 14.5%, mainly driven by the development of the children probiotics sub-segment. The market size of children's probiotics in terms of retail sales value increased from approximately RMB7,086.1 million in 2018 to approximately RMB14,127.3 million in 2023, representing a CAGR of 14.8%. The rapid increase was underpinned by the strong demand and rising awareness of maintaining digestive health and boosting children's immune systems in higher-income families. In the first half of 2024, the economic downturn led to overall weak consumption, prompting consumers to reduce spending on non-essential goods, which negatively impacted the maternal and children probiotics market.
- It is forecasted that the growth trend may continue in the next five years due to the accelerating penetration of online channels, making good quality probiotics products more accessible to consumers in lower-tier cities. The retail sales value of children's probiotics products in the PRC is projected to achieve approximately RMB21,176.7 million in 2028 with a CAGR of 8.4% from 2023 to 2028.

Source: Frost & Sullivan

Overview of Maternal and Children Probiotics Industry in the PRC

Market Drivers

Market Drivers	Impact (1-2 years)	Impact (3-5 years)
1 Favourable policy environment	High	High
2 Growing concern for the gut health	High	High



MARKET DRIVERS

Major Drivers	Description
Favourable policy environment	In 2017, China released the “National Nutrition Plan (2017-2030)”, which first proposed to “integrate nutrition into all health policies”. Subsequently, President Xi Jinping officially proposed the “Healthy China 2030” strategy in the report of the 19th National Congress. Since then, various policies related to reasonable nutrition have been intensively implemented and interconnected, creating a favorable environment and opportunities for probiotic products. Heavy investment directed towards research and development of probiotics has led to the development of more effective species, which drives the development of the probiotic nutritional products market. To further bolster the quality and efficacy of probiotic health foods, the State Administration for Market Regulation and the National Health Commission jointly issued a series of technical documents on probiotics in 2020, which aims to enhance the safety and functional effectiveness of probiotic health foods and promote high-quality development within the industry.
Growing concern for the gut health	The growing consumer awareness about gut health is expected to fuel the growth of the probiotics market. Guts are 70% responsible for keeping the immune system strong, keeping the body fit, and reducing obesity. Probiotics help treat diseases such as intestinal inflammation, urogenital infections, and antibiotic-associated diarrhoea by fighting against bad bacteria in the guts. Just as adults and older children can have an unbalanced digestive flora, it can also happen to more vulnerable infants. Therefore, it is significant for infants to take probiotics to help prevent many infant conditions, including gastroenteritis and diarrhoea.

Source: Frost & Sullivan

Overview of Maternal and Children Probiotics Industry in the PRC

Future Trends

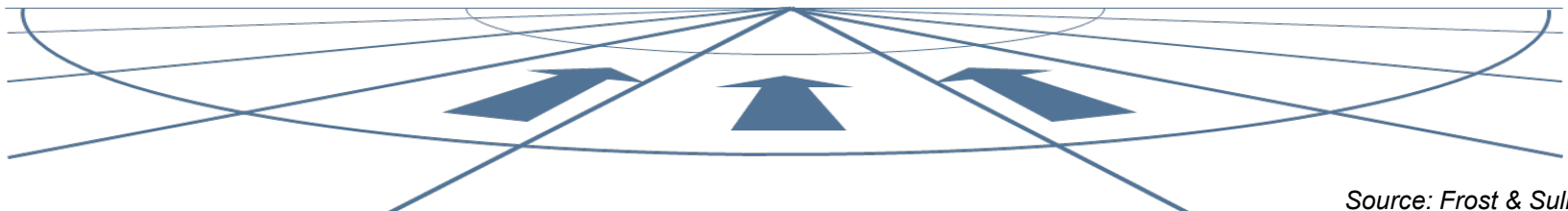
Product innovations

Innovations in flavours and functional ingredients boost the maternal and children probiotics market. The manufacturers of these foods and ingredients are laying special emphasis on balancing functional benefits and flavour. Technological advances have enabled the development of products that mask the unpleasant taste of some functional ingredients and increase the shelf life of functional ingredients. For instance, effective microencapsulation allows manufacturers to hide the bitter taste of amino acids and other ingredients. Moreover, innovations are also happening in packaging, designing, and labelling. Production processes have become faster, enabling faster delivery of products to retailers and accelerating the development of the maternal and children probiotics industry.

Wider application range of probiotics

Probiotics are mostly consumed as functional foods and drinks. However, their use is gradually expanding in skin care and personal care. Many clinical studies conducted and published by the American Academy of Dermatology and the British Journal of Dermatology concluded probiotics' advantages for better skin. Clinical studies have proved that probiotics form a protective layer that prevents skin from inflammation, UV rays, and dehydration. The players in the market are starting to recognize the potential of probiotics in personal care and introducing relevant products.

Market Trends



Source: Frost & Sullivan

Overview of Maternal and Children Probiotics Industry in the PRC

Opportunities and Threats

Opportunities

Growing Health Awareness

In the PRC, there is a notable rise in health consciousness among consumers, particularly concerning maternal and child health driven by increased access to information through the internet, social media, and educational campaigns that emphasize the importance of gut health and immunity. Consumers are becoming more knowledgeable about the benefits of probiotics, understanding how they can enhance digestion, prevent common ailments, and support overall health. As a result, the growing emphasis on maintaining health through nutrition and nutritional products is significantly driving the demand for probiotic products tailored for mothers and children.

E-commerce

The rapid expansion of e-commerce in China provides a robust platform for the probiotics industry to reach a wider audience. Online retail channels allow companies to market products directly to consumers, leveraging digital marketing strategies and data analytics to optimize their offerings. E-commerce platforms also facilitate easier access to rural and remote areas, where traditional retail penetration may be limited, thereby expanding market reach and driving sales growth. Additionally, the integration of live streaming into e-commerce enables brands to create more dynamic and informative shopping experiences, educating consumers about the benefits of probiotics and enhancing engagement and trust.

Threats

Regulatory Hurdles

Despite government support, the probiotics industry faces stringent regulatory requirements and a complex approval process in China. Companies must navigate the regulatory landscape, which includes obtaining necessary certifications and complying with safety and efficacy standards. The National Health Commission of China (国家卫生健康委) updated the “List of Strains Available for Food” and “List of Strains Available for Infant Food” to standardize the production licensing for strains and their preparations used in food processing and mandates that companies must accurately label these strains and preparations. This regulatory framework is designed to enhance product quality and safety, but it also requires companies to continually innovate and maintain high transparency and accountability standards in product ingredients and marketing.

Fierce Competition

The probiotics market in China is highly competitive, with numerous domestic and international brands vying for market share. The issue of product homogeneity exacerbates the competition, making it difficult for brands to stand out. Building and maintaining consumer trust is crucial. Companies have to invest heavily in research and development to ensure the quality and effectiveness of their products. Additionally, they need to implement robust marketing strategies to differentiate their products and establish a strong brand presence in the market.

Source: Frost & Sullivan

Overview of Maternal and Children Probiotics Industry in the PRC

Competitive Landscape

- The total retail sales value of maternal and children probiotics products was approximately RMB20,262.3 million in 2023. The industry is relatively deconcentrated with the aggregate share of the top 5 brands accounting for 17.6% in terms of retail sales value in 2023. The market is competitive with approximately 120 players which have a limited number of sizable market players. The maternal and children probiotics industry in PRC faces risks from strict regulatory approvals for product claims, which can delay market entry. Additionally, fluctuating consumer preferences for natural or organic ingredients, as well as increasing competition from both domestic and international brands, pose significant challenges to maintaining market share. The Company had a market share of approximately 0.2% in the maternal and children probiotics industry in the PRC in 2023.

Top 5 Maternal and Children Probiotics Brands in the PRC in 2023

Ranking	Brand Name	Description	Retail sales value of maternal and children probiotics products in 2023 (RMB million)	Market share in 2023
1	Brand G	It is a leading Nutritional Product brand, particularly in the maternal and children's products sector, including probiotics and milk powder.	1,273.9	6.3%
2	Brand H	It is an international probiotics brand, particularly focusing on maternal and children's probiotics products.	1,092.2	5.4%
3	Brand I	It is an international probiotics brand, with a strong emphasis on children's probiotic products.	505.7	2.5%
4	Brand J	It is an international dietary nutritional products brand, with probiotics as its main products.	424.8	2.1%
5	Brand K	It is an international brand, specializing in providing maternal and children's food and dietary nutritional products.	262.9	1.3%
	Top 5		3,559.5	17.6%
	Total		20,262.3	100%

Source: Frost & Sullivan

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7 **Overview of Milk Powder Industry**

8 *Appendix*

Overview of Milk Powder Industry in the PRC

Brief Introduction

Introduction of Milk Powder



Milk Powder

- **Milk powder**, or powdered or dried milk, is a dairy product made by evaporating milk until most moisture has been removed, leaving behind a dry powder. Milk powder can be made from whole, skimmed, or partially skimmed milk and is often used as a convenient alternative to liquid milk. It has a longer shelf life than liquid milk and is easier to transport and store. **The milk powder industry** refers to the entire ecosystem involved in producing, processing, and distributing powdered milk. Milk powder can be classified into **infant milk formula** and **adult milk powder** by type of end customers.
- **Infant milk formula (IMF)** refers to a manufactured food designed for feeding babies and infants with special dietary use solely as a food for infants because it simulates human milk or its suitability as a complete or partial substitute for human milk. **Adult milk powder** is powdered milk designed for adults, typically made from cow's milk or soy milk.

Classification of Milk Powder



Infant Milk Formula

- **Infant milk formula (IMF)** can be further classified into **normal IMF**, **organic IMF**, and **grass-fed IMF** by the source of milk.
- **Grass-fed IMF** is made from milk from cows that have been exclusively fed grass and forage.
- **Organic IMF**, on the other hand, is made from organic ingredients, meaning that the ingredients have been grown without synthetic pesticides or fertilizers, and are free from genetically modified organisms (GMOs) and antibiotics. According to national standards by the State Administration for Market Regulation, organic products should bear a certification mark labelled with “China Organic Products” and “Organic” wordings.



Adult Milk Powder

- **Adult milk powder** would supplement different nutrients according to the specific consumer group, which can be divided into full cream, low-fat and skim milk powder.
- The major consumer groups for adult milk powder are **students, women and middle-aged and seniors**. Iron and folic acid should be added to the milk powder for women, especially pregnant women. As for the middle-aged and seniors, fat should be reduced, and calcium and other special ingredients should be added.

Source: State Administration for Market Regulation, Frost & Sullivan

Overview of Milk Powder Industry in the PRC

Value Chain Analysis



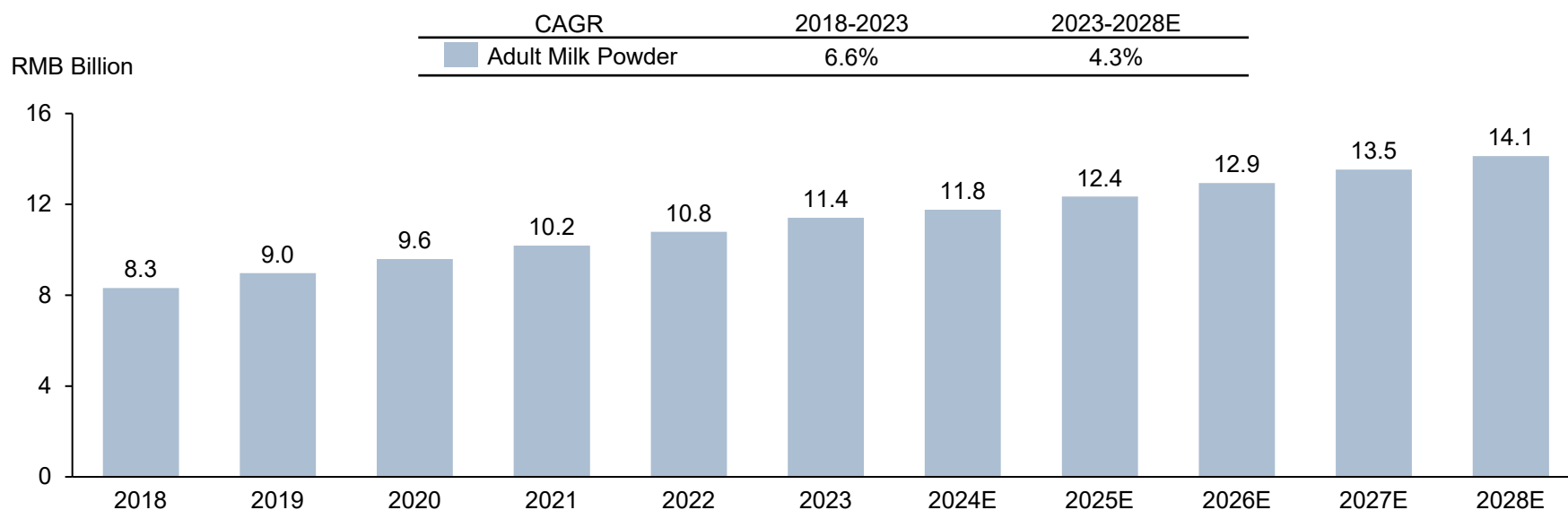
- The value chain of the infant milk formula market in the PRC comprises three sequential steps: milk source supply, manufacturing and processing of infant milk formula and circulation and distribution.
- In the upstream of the industry, milk source supply in the PRC is undergoing an upgrade from small household raising to large-scale ranching. This transformation is to promote the yield of milk as well as improve the quality of production. Since demand for milk products is expected to increase significantly in the future, high-quality dairy farming is in great demand, and the vertical integration process will be accelerated throughout the industry.
- Original Equipment Manufacturer (OEM) is very sophisticated and popular in the infant milk formula industry. OEM of infant milk formula in the PRC can be divided into domestic OEM and overseas OEM based on their place of production. Stricter regulations have been imposed to domestic OEMs for the safety and quality of products. These restrictions will make the industry more concentrated and benefit renowned brands.
- There has been a significant change in the landscape of circulation and distribution of infant milk formula. The rapid growth of E-commerce channels casts deep impacts on the behaviours of consumers, becoming a growing threat to traditional distribution channels.

Source: Frost & Sullivan

Overview of Milk Powder Industry in the PRC

Market Size of Adult Milk Powder Industry in the PRC

Market Size of Adult Milk Powder Industry in the PRC, by Retail Sales Value, 2018-2028E



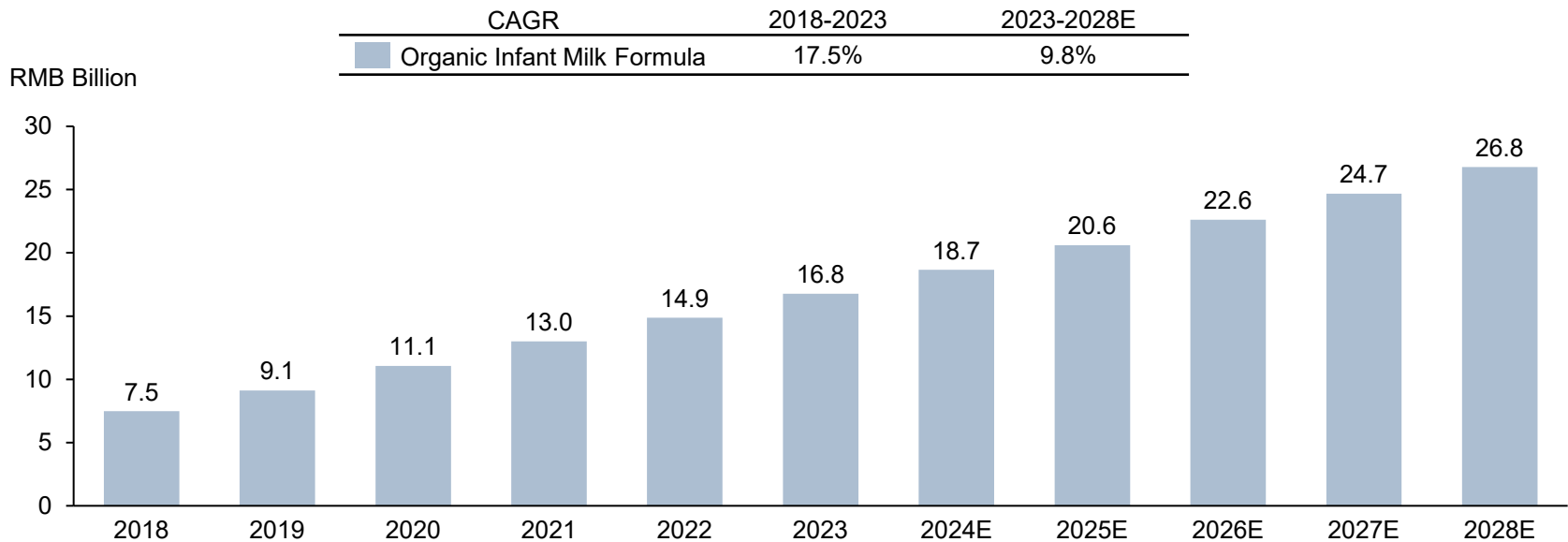
- The adult milk powder market is mainly dominated by international brands, especially on online sales channels. Benefiting from increasing health awareness and rising disposable incomes among consumers in the PRC, the adult milk powder market in the PRC has shown steady growth, with the retail sales value increasing from RMB8.3 billion in 2018 to RMB11.4 billion in 2023, representing a CAGR of 6.6%, from 2018 to 2023.
- With the rapid increase in the ageing population in the PRC, there is a growing demand for products that can help maintain bone health, improve immunity, and reduce the risk of chronic diseases. Adult milk powder can effectively meet these health and wellness needs as a convenient and nutritious source of protein, vitamins, and minerals. The retail sales value of the adult milk powder market in the PRC is expected to reach approximately RMB14.1 billion in 2028, with a CAGR of 4.3% from 2023 to 2028.

Source: Frost & Sullivan

Overview of Milk Powder Industry in the PRC

Market Size of Organic Infant Milk Formula Industry in the PRC

Market Size of Organic Infant Milk Formula Industry in the PRC, by Retail Sales Value, 2018-2028E



- Characterized by growing demand, regulatory changes, domestic production expansion, entry of foreign players, and the emergence of e-commerce platforms as a major sales channel, the organic infant milk formula industry in the PRC experienced significant growth. The retail sales value of the organic infant milk formula market in the PRC increased from RMB7.5 billion in 2018 to RMB16.8 billion in 2023, representing a CAGR of 17.5% from 2018 to 2023.
- The demand for organic infant milk formula will likely continue growing in the PRC, driven by concerns about food safety and health. In addition, as the middle class in the PRC expands and becomes more affluent, more parents may be willing to pay a premium for organic products. The organic infant milk formula market in the PRC is expected to grow at a CAGR of 9.8% from 2023 to 2028, reaching RMB26.8 billion in 2028.

Source: Frost & Sullivan

Overview of Milk Powder Industry in the PRC

Market Drivers of Organic Infant Milk Formula Industry in the PRC

Increasing demand for premium products

- Organic food is at the top level of the food safety pyramid, representing "health", "nature", "zero additives", "environmental protection", and "high-end". Consumer demand for organic infant milk formula has increased in recent years due to growing concerns about food safety and the increasing awareness of the benefits of organic food. In addition, the increasing disposable income of the middle class and the upgrading of the consumption level in the PRC has led to a shift in consumer preferences towards premium organic infant milk formula products that offer higher quality and safety standards.

Government support

- The PRC government has been encouraging the development of the organic infant milk formula industry in recent years as it seeks to improve the quality and safety of domestic milk products. For instance, it has established a certification system for organic infant milk formula, which requires manufacturers to meet strict requirements regarding raw materials, production processes, and quality control. Moreover, the government has increased its oversight of the industry, including increased testing and monitoring of products, as well as stricter penalties for companies found to be violating regulations. Furthermore, the government has provided subsidies and other incentives to encourage the production and sale of organic infant formula.

Growing e-commerce industry

- E-commerce platforms have played a significant role in the growth of the organic infant milk formula industry in the PRC. E-commerce platforms have made it easier for consumers to access organic infant milk formula products from different international brands. E-commerce platforms have also enabled manufacturers to reach a wider audience by delivering products to consumers in remote areas and regions in the PRC where traditional retail channels are not available. The continuous growth of the e-commerce industry is expected to drive the growth of the organic infant milk formula industry in the PRC.

Source: Frost & Sullivan

Overview of Milk Powder Industry in the PRC

Future Trends of Organic Infant Milk Formula Industry in the PRC

Innovation of formula



Organic infant milk formula has unique advantages in being "natural, safe, and green". Its organic raw material content must reach more than 95%, which to some extent, limits the choice of ingredients that can be added to organic infant milk formula powder. However, to meet infants' formula needs, organic milk powder is expected to become more formulaic in the future. By expanding their product line to include fourth-stage infant formula, infant milk formula companies can meet the needs of infants and children at different stages, provide essential nutrition for their growth, increase bone strength, promote brain and vision development, maintain gut health, and enhance the immune system.

Emphasis on premium products



As consumers in the PRC become more concerned about food safety and health, they may be willing to pay a premium for higher-quality and safer organic infant milk formula products. Therefore, companies may focus on developing and marketing premium organic infant milk formula products to cater to this demand. For instance, companies may use more expensive ingredients or production methods to create a higher-end product with superior quality and safety features. They may also differentiate their products based on the specific nutritional requirements of different age groups. In addition to product development, companies may focus on marketing and branding to position their premium products as safe and reliable choices for consumers, highlighting their adherence to stricter safety and quality standards.

Future Outlook



Source: Frost & Sullivan

Competitive Landscape

Ranking of Organic Infant Milk Formula Industry in the PRC

- The organic infant milk formula industry (IMF) in the PRC is a highly competitive market with many domestic and international players. The market has been growing rapidly in recent years. New organic brands have sprung up one after another as companies vie for a share of the growing market. These companies competed on price, product quality, brand recognition, distribution networks, and marketing and advertising strategies. The market concentration in 2023 was high, with the top 5 players accounting for approximately 48.2% of the total market share. The Company had a market share of approximately 0.03% in the organic infant milk formula industry in the PRC in 2023.

Company	Business Description	Estimated Retail Sales Value of Organic IMF in 2023 (RMB Billion)	Market Share in 2023 (%)
Company A	Founded in 1962 and listed on the Hong Kong Stock Exchange, it is a leading manufacturer and distributor of infant milk formula and related products in the PRC. The company's product portfolio includes a wide range of infant milk formula products, including powdered milk, liquid milk, and special formula products that cater to the nutritional needs of infants and young children. Its organic IMF brands include "Zhenzhi" and "Chunrui".	2.1	12.5%
Company B	Founded in 1993 and listed on the Shanghai Stock Exchange, it is one of the largest dairy producers in the PRC. Yili Group is one of the PRC's leading producers and distributors of infant milk formula. It has a strong presence in the infant nutrition market, with a range of products that cater to different stages of a baby's development. Its organic IMF brand includes "Namu".	1.9	11.3%
Company C	It is a multinational food and beverage company operating in over 190 countries worldwide. Its infant milk formula business in China is operated through its subsidiary, and is primarily involved in the production and distribution of infant milk formula products. The company offers a range of infant milk formula products under various brand names. Its organic IMF brands include "NAN" and "Illuma".	1.5	8.9%
Company D	It is a leading dairy company in the PRC, specializing in producing and distributing infant milk formula. The company was founded in 1995 and is headquartered in Shijiazhuang, Hebei province. Its infant milk formula products are made from high-quality raw materials designed to meet the nutritional needs of infants and young children. Its organic IMF brand includes "Youcui".	1.4	8.3%
Company E	Founded in 1999 and listed on the Hong Kong Stock Exchange, it offers a wide range of products, including standard infant, follow-on, and specialized milk formula for infants with specific nutritional needs. Its infant milk formula products are designed to provide essential nutrition for infants and young children. Its organic IMF brand includes "Bellamy's".	1.2	7.1%
Top 5 Total		8.1	48.2%
Total		16.8	100.0%

Source: Frost & Sullivan

Competitive Landscape

Key Success Factors of Organic Infant Milk Formula Industry in the PRC

Brand recognition

- In the PRC's highly competitive market for organic infant milk formula, building a strong brand is essential for companies that want to stand out and gain a competitive advantage. Strong brand recognition can help companies to build trust and credibility with consumers, which is particularly important in the infant formula market, where safety and quality are major concerns for parents. Developing brand recognition can be achieved through targeted advertising and marketing campaigns, as well as through building a loyal customer base through quality products and customer service.

Distribution and sales channels

- A robust distribution network and effective sales channels are essential for success in the PRC's organic infant milk formula market. Companies must ensure that their products are widely available to consumers through various channels, including e-commerce platforms, brick-and-mortar stores, and other retail channels. Companies that can efficiently reach their target customers through these channels will likely see strong sales growth and gain a competitive advantage in the market.

Product quality

- Consumers in the PRC are increasingly concerned about the quality and safety of the products they purchase, particularly when it comes to infant nutrition. Organic infant milk formula market players must provide high-quality, safe, and reliable products to build consumer trust and loyalty. This means ensuring that their products meet or exceed regulatory standards for ingredient quality and purity, as well as for product safety and efficacy.

Source: Frost & Sullivan

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Appendix

Annual Disposable Income per Capita in Guangdong, Jiangsu, Shandong, Zhejiang, and Anhui Provinces

- The annual disposable income per capita in first-tier and second-tier cities of Guangdong, Jiangsu, Shandong, Zhejiang, and Anhui Provinces in 2023 ranged from approximately RMB35 thousand to RMB76 thousand, whereas the annual disposable income per capita in third-tier and fourth-tier cities of the aforementioned provinces in 2023 ranged from approximately RMB25 thousand to RMB68 thousand.
- The average annual disposable income per capita in the third and fourth-tier cities of the Guangdong Province, Jiangsu Province, Shandong Province, Zhejiang Province, and Anhui Province increased from approximately RMB26.8 thousand in 2018 to RMB37.7 thousand in 2023, representing a CAGR of 7.1%, and is forecasted to reach approximately RMB52.9 thousand in 2027 at a CAGR of approximately 7.0% from 2023 to 2028.

Source: Statistics Bureau of above Cities, Frost & Sullivan

Appendix

- DHA products made from algal oil DHA supplied by world-leading overseas supplier and with retail price of above RMB4.0 for each algal oil DHA capsule are considered as high-end products.
- The Group's products can be classified as high-end nutritional products in terms of their sources of raw materials, their retail selling prices and the market positioning of our brands. Our brand (Numans) is one of the most well-recognised high-end DHA brands in the PRC in 2023.
- Regional distributors have no right to return our(Numans) products to us except when such products are defective in quality and packaging or upon termination of the distribution agreements. Within 30 days after the termination of the distribution agreements, if not more than half of the shelf life of the unsold products has passed, our regional distributors generally can return such products to us and we will refund the purchase price of such products to our regional distributors. Such product return policy is in line with the industry practice.
- There is a large number of suppliers who are capable of providing finished algal oil DHA products that are processed overseas in the PRC market.
- The Probiotics Raw Material Supplier (Chr. Hansen) was listed on a Nasdaq OMX Copenhagen listed company until it merged with another company listed on NASDAQ OMX Nordic exchange in January 2024, and the world's largest food cultures and dairy enzymes producer, and a leading manufacturer of probiotics which sells its products in more than 140 countries and recorded revenue of more than €1,334 million in its financial year of 2022/23, up 10% from the same period in 2021/22. according to public records.
- Multi-nutrients: refer to substances from food and used in the body to promote growth, maintenance, and repair of body tissues.
- OEM: refers to original equipment manufacturing or original equipment manufacturer (as the case may be), a term used to refer to arrangements under which products are manufactured in whole or in part in accordance with the customer's specifications and are marketed under the customer's own brand names. A manufacturer that manufactures products under such arrangements is an original equipment manufacturer.
- Chr. Hansen Holding A/S. was the second largest supplier of probiotics raw materials in the PRC in 2023, accounting for approximately 35% of the total revenue in the market for supply of probiotics raw materials in the PRC in 2023.
- DSM Group is regarded as the leader in the algal oil DHA market in the PRC, manufacturing over 40% of the raw materials and finished products in terms of volume and value in the algal oil DHA market in the PRC in 2023, while Chr. Hansen A/S was one of the largest suppliers of probiotics raw materials in the PRC in 2023 accounting for approximately 35% of the total revenue in the market for the supply of probiotics raw materials in the PRC in 2023. Therefore, it is not uncommon to have material reliance on the principal raw material suppliers like DSM Group and Probiotics Raw Material Supplier (i.e. Chr. Hansen A/S) and it is not commercially realistic for the Group to diversify its reliance.

Source: Frost & Sullivan

Appendix

- There are strong consumer preference towards milk powder products imported from Australia and New Zealand in the PRC, which are generally perceived to be of high quality, safe and reliable.
- In early 2021, the new national food safety standard (“New National Standard”) of the PRC for milk powder products was released and became effective from 22 February 2023.
- As of 31, June 2024, 390 series under 89 dairy companies have passed the registration of the new national standard, and currently 69 series of imported milk powder have passed the new national standard, accounting for approximately 17.7% of the new national standard products.
- While milk powder manufactured before 22 February 2023 could be legally sold in the PRC within its shelf life, consumers considered accreditation under the New National Standard to be an indication of quality and safety of the milk powder.
- Adopting a multi-channel sales network as mentioned above that involves both online and offline sales channels for selling and distributing products is a common practice and norm in the nutritional product industry in the PRC.
- Major brands of nutritional products have been investing more and more on marketing and promotion in recent years for strengthening their brand recognition, in particular for online marketing and promotion on different social media platforms and attracting traffic to online sales channels. For example, one of the major brands of nutritional products incurred marketing and promotion expenses which account for approximately 28.9% of the revenue for the year 2023. There is a correlation between the level of marketing and promotion expenses devoted to online marketing channels and the amount of sales recognized on online channels, provided the right marketing strategies and channels are adopted.
- According to Frost & Sullivan, customers of our official online stores are generally our loyal supporters or those who require absolute guarantee of product authenticity and origin of the stock.
- According to Frost & Sullivan, while some brand owners maintain consistency between their company names and products, it is however not necessary. For example, Schiff, a famous American nutritional supplement manufacturer, uses Move Free as its product brand name, and Costco uses Kirkland as its brand name for nutritional supplement products.
- According to Frost & Sullivan, although some brand owners may choose to use their product brands in their company names, this is not necessarily the case for many famous brands in the market.

Source: Frost & Sullivan

Appendix

- Recruiting famous KOLs is the common industry practice for online marketing in the PRC within the nutritional products industry. Famous KOLs utilize their follower base (at least 1 million followers) to advertise the products to targeted groups of customers which is considered to be more effective than traditional methods of advertisement which targets wider customer groups and sub-groups and increasing the visibility of our products and our brands.
- The popularity of social media platforms and KOLs may change unpredictably and rapidly.
- Brand marketing and promotional products offered by e-commerce companies are essential marketing tools for online marketing, brand and products promotion.
- Our brand(Numans) is one of the most well-recognized high-end DHA brands in the PRC in 2020 and 2021, our brand(Numans) was one of the largest local brands in terms of retail sales value of algal oil DHA products made from algal oil DHA raw materials supplied by overseas suppliers in 2020, 2021, 2022 and 2023.
- Due to inconvenience for procuring essentials during lockdown, consumers are less willing to change their essential products.
- The sales expenses of BYHEALTH increased by 21.8% in 2023, out of which 28.8% is used for advertising fees, 23.4% is used for platform expenses and 28.9% is used for market promotion expenses, which is 41.0% of its revenue. During the year, BYHEALTH marketed its products through digital media advertising, live streaming promotion, enhancing brand awareness, promoting relevant events, sponsoring variety shows, and investing resources in key products, etc. As a result, BYHEALTH achieved a 19.7% increase in sales revenue in 2023.
- Given the increasing popularity of online shopping and consumers' growing reliance on online information in recent years, brand marketing and promotional products offered by e-commerce companies are essential marketing tools for online marketing, brand and products promotion.
- According to public records, it is not uncommon that the nutritional products companies would incur a large amount of advertising fees, which includes expenses for such branding marketing and promotional products in the e-commerce platforms, and such expense could amount to more than 20% of its revenue for the year.

Source: Frost & Sullivan

Appendix

- The raw materials of other algal oil DHA and probiotics brands in the nutritional supplement market have raw material suppliers other than DSM Group (including DSM Shanghai) and Probiotics Raw Material Supplier.
- There are other alternative suppliers in the market to our existing supply chain, in particular (i) in New Zealand, there are approximately 20 companies that can provide contract processing services for algal oil DHA; (ii) in the U.S., there are nearly a hundred nutrition product manufacturers that can offer algal oil DHA processing services; and (iii) approximately tens of thousands of importers in the PRC are well-positioned in the market to handle businesses similar to Shanghai Trilives.
- There are other alternative raw materials suppliers in the market to our existing supply chain, in particular (i) there are approximately dozens of algal oil DHA raw materials suppliers worldwide; and (ii) there are hundreds of probiotic raw material suppliers worldwide.
- It is an industry norm for brand owners of algal oil DHA products and probiotics products like our Group to maintain consistent direct and indirect suppliers within the supply chain for stability, leading to some degree of reliance on those suppliers.
- Other high profile nutritional product companies also have reliance on their suppliers for finished products, thus it is an industry norm for our Group to have reliance on a single set of suppliers for each location in our supply chain for consistency of product quality and more efficient procurement chain and quality control management.
- Shanghai Trilives and Confidence Group also have reliance on our Group(Numans) having considered the number of years of working relationship with us and our market position as the largest domestic brands in terms of retail sales value of algal oil DHA products made from imported raw materials according to Frost & Sullivan.

Source: Frost & Sullivan

Appendix

- E-commerce companies offers a variety of one-stop brand marketing and promotional products to help brands and retailers quickly acquire new users and enhance brand awareness. These marketing and promotional products allow merchants to direct traffic to their storefronts. Such marketing and promotional products generally included the following types:
 - Pay for performance (P4P) marketing services: Merchants primarily bid for keywords that match product or service listings appearing in search results through the online auction system on a cost-per-click (CPC) basis.
 - In-feed marketing services: Merchants primarily bid to market to groups of consumers with similar profiles that match product or service listings appearing in browser results through the online auction system on a cost-per-click (CPC) or cost-per-thousand impression (CPM) basis.
 - Display advertising services: Merchants can place advertisements on mainstream websites like Tencent and Toutiao. The merchants are charged based on the period during which the advertising services are provided or on the number of times that the advertisement has been displayed based on cost per thousand impressions (CPM).
 - Third party promotion services: E-commerce companies collaborate with third party medium and platforms to offer marketing services to merchants. The merchants are charged based on cost-per-sale (CPS). The commissions paid by merchants are based on a percentage of transaction value generated from the online sales platform.
- Given that products using imported raw materials enjoy popularity among consumers in the maternal and children nutritional products industry in the PRC, domestic brands setting up offices and stores in Hong Kong will further reinforce and deepen the impression of their products made of imported raw materials and processed overseas in the minds of consumers. As imported finished DHA products which use key raw materials sourced overseas and processed overseas are usually regarded as high quality, opening overseas office is beneficial for the brand's marketing strategy in the domestic market which can boost consumer's confidence on their products.
- The company's products promotion in Hong Kong will further boost consumers' purchasing confidence, as mainland consumers may perceive that the nutritional products products sold in Hong Kong are more trustworthy and reliable.
- According to the Frost & Sullivan Report, in the PRC, algal oil DHA products (domestic brands with raw materials supplied by overseas suppliers) priced at [above RMB5.0] per capsule are categorized as premium, while those priced at RMB5.0 or below per capsule fall into the mass market category. With an average price of RMB5.4 per capsule, our algal oil DHA products hold a higher market positioning. Furthermore, approximately 70% domestic brands (with raw materials supplied by overseas suppliers) of algal oil DHA products in the PRC that are more economic and affordable in terms of average product price than ours (i.e. at RMB5.4 per capsule).

Source: Frost & Sullivan

Appendix

- Supplier A(上海康营生物科技有限公司) had a market share of approximately 15.0% in the imported finished algal oil DHA product market in the PRC in 2023. On the other hand, domestic brands with imported algal oil DHA raw materials accounted for 28.5% of the total retail sales value of algal oil DHA products in the PRC in 2023, out of which the Group accounted for approximately 20.5% in 2023, ranking the Group the largest domestic brand in terms of retail sales value of algal oil DHA products made from imported raw materials.
- The market shares of the Group and Supplier A are measured on different parameters in different markets due to their different business natures and positions in the industry chain. The ranking and market share of the Group are calculated as follows: the Group's retail sales value of algal oil DHA products (which include finished DHA products which are processed in New Zealand, the U.S. and the PRC) divided by the total retail sales value of algal oil DHA products (made from raw materials supplied by overseas suppliers) in the PRC, whereas the ranking and market share of Supplier A is calculated as imported value of finished algal oil DHA products of Supplier A divided by the total imported value of finished algal oil DHA products in the PRC. Such parameters are chosen in order to best represent the Group and Supplier A's position in their respective market (i.e. the Group as a nutritional product distributor whereas Supplier A is an importer of nutritional products). Therefore, the Group's market share is based on the retail sales value, whereas the market share of Supplier is based on the imported value.
- The Group's practice of engaging Supplier A to source and import finished algal oil DHA products from overseas countries is consistent with the industry norm and common market practice, having considered: (i) sourcing and importing finished DHA products require technical know-how and effort in handling various time-consuming and burdensome processes, including (a) liaising with various parties overseas for raw materials procurement; (b) liaising with the New Zealand Processing Company regarding the production schedules and manufacturing arrangement; (c) arranging quality testing by independent third party laboratory; (e) trouble shooting for issues arisen during the procurement and (f) preparing export and import declaration forms and arranging customs clearance procedures; (g) arranging domestic logistics services overseas and importation from overseas to the PRC; and (ii) leading brands of nutritional products usually focus on their resources on brand development and managing different distribution channels and would usually outsource the sourcing management and importation of nutritional products to the PRC.
- It is common practice for brand owners like the Group(Numans) to make orders of algal oil DHA finished products one-stop services through the appointed third-party traders such as supplier A in the industry.
- Source: HUANG Shuting, LI Hongxin, YU Yue, et al. Research Progress on Physiological Functions of DHA Algal Oil and Its Synergistic Application in Food [J]. Science and Technology of Food Industry, 2023, 44(6): 468–476. (in Chinese with English abstract). doi: 10.13386/j.issn1002-0306.2022050329

Source: Frost & Sullivan

Appendix

- DSM's own brand of finished algal oil DHA products are processed at DSM's own factory in Columbia, Maryland USA.

➤ Definition, classification and comparison of General Trading imports & Cross-border e-commerce imports

Definition

- The import of goods from abroad is divided into two methods: general trading imports and cross-border e-commerce imports. General trading imports refer to the traditional trade activities where enterprises with import rights in China unilaterally import goods. Cross-border e-commerce imports involve trading entities from different customs territories, who conclude transactions through e-commerce platforms and self-operated online stores, carry out payment settlements, and deliver goods through cross-border logistics to complete transactions, which is an international business activity. General trade entails the import of branded products that are processed overseas with both the buyer and seller being in the PRC. For instance, PRC individual end-consumers can purchase our New Zealand DHA Products, which are imported into the PRC by Shanghai Trillives (established in the PRC), in retail outlets or on e-commerce platforms in the PRC. On the other hand, the cross-border e-commerce model involves the sale of branded products on e-commerce platforms that transcend national boundaries. For instance, PRC individual end-consumers can only purchase our U.S. DHA Products on e-commerce platforms in the PRC, where the sellers (i.e. cross-border e-commerce enterprise) on such platforms are incorporated overseas.

Classification

- Based on the nature of the buyer and seller, it is divided into B2B, B2C, and C2C, where general trading imports are mainly B2B, and cross-border e-commerce is mainly B2C. According to the nature of the business model, it is divided into third-party platforms and self-operated online stores. Import third-party platforms, such as Tmall International, JD Worldwide, Suning International, etc., gather and integrate many sellers on an integrated virtual platform, linking the platform with overseas buyers, which has more economies of scale, a larger customer base, and stronger bargaining power, with lower sales costs. Self-operated online stores are where the seller directly sells goods to overseas consumers through their own website or mobile app, and is responsible for the entire production, sales, transportation, and after-sales service process. The customer acquisition cost and operating costs of self-operated online stores, such as potential customer identification and consumer preference analysis, are relatively higher compared to platforms. However, in the long run, self-operated online stores will benefit from a stronger brand image and better product reputation, resulting in higher customer loyalty.
- Under the temporary economic downturn in the PRC in 2024, consumers tend to either reserve their purchasing power for essential consumer products, or opt for more economic and affordable algal oil DHA products as alternatives, which further impacted the sales performance of algal oil DHA products with higher average product price, including products offered by our Group, for FY2024.
- With the anticipated economic recovery in the PRC in 2025, consumers are expected to revert their previous spending habits, favouring algal oil DHA products with a higher market positioning.
- There was an economic downturn in the PRC during the first half of 2024 according to Frost & Sullivan, which led to fierce price competition.
- According to the Frost & Sullivan Report, there are approximately 70% domestic brands (with raw materials supplied by overseas suppliers) of algal oil DHA products in the PRC that are more economic and affordable in terms of average product price than ours(Numans) (i.e. at RMB5.4 per capsule).
- For instance, according to the Frost & Sullivan Report, other international brands and domestic brands (with raw materials supplied by overseas suppliers) of algal oil DHA products that have higher average product price than us also suffered decrease in revenue in 2024.
- While the selling prices of our algal oil DHA products and those of other premium brands have remained relatively stable, the substantial decline in sales volume has adversely impacted the revenue of our Group and other premium brands in 2024. Brand owners of algal oil DHA products in the PRC typically refrain from reducing their reference retail price during temporary economic downturns due to strategic pricing considerations. *Source: Frost & Sullivan*

Appendix

Comparison

- The differences between general trading imports and cross-border e-commerce imports mainly lie in the time, cost, customs clearance methods, taxation, and applicable regulatory policies.
- Compared to cross-border e-commerce imports, general trading imports are more suitable for importing goods with high import thresholds and for small and medium sellers to carry out large commercial wholesales. They usually face higher tariffs (the specific levy standards are based on the classification of imported goods by customs), value-added tax, consumption tax, etc., resulting in higher final product sales prices. Customs will inspect the quality of the goods according to the current regulations of PRC, and the goods must meet PRC's production and packaging standards, with a longer customs clearance time.
- The cross-border e-commerce model is a relatively new import model in the PRC market in recent years, and thus it has a greater potential for growth as compared to traditional general trade model. Since cross-border imported DHA products are generally perceived by PRC consumers as foreign-made products for foreign markets, and because cross-border e-commerce model does not involve tariffs, the selling prices are usually more competitive. As a result, cross-border imported DHA products began to gain popularity among PRC consumers. This consumer behaviour was particularly pronounced during the COVID-19 pandemic, driving a significant increase in the retail sales value of cross-border imported DHA products in 2022.
- Cross-border e-commerce imports only needs to pay lower value-added tax, consumption tax, and has been exempt from customs duties since 2018. The registration and approval standards are more relaxed, all online, and the goods do not need to be modified according to the requirements of local Chinese standards. The transportation efficiency is higher, and the sales volume of goods depends on consumer demand. Cross-border e-commerce has lower risks for merchants in the transportation process during the trial and promotion of new products. But cross-border e-commerce is greatly influenced by policies, and products must conform to the "Cross-Border E-Commerce Retail Imported Goods List".

Source: National Medical Products Administration(NMPA), Frost & Sullivan

Appendix

Comparison

- General trading imports and cross-border e-commerce imports are routine operations for nutritional products in the market.
- General trade and cross-border e-commerce are the two conventional methods for importing nutritional products. Cross-border e-commerce has been particularly supported by national policies, with the expansion of pilot programs since 2012 and the signing of free trade agreements that have further promoted its development. Policies such as the "Notice on Improving the Supervision of Cross-Border E-Commerce Retail Imports" provide a clear regulatory framework for cross-border e-commerce. General trade maintains its traditional status, requiring imported products to comply with Chinese regulations and standards, with the need to provide registration or filing certificates. Both models complement each other in China's import of Nutritional Products, jointly promoting the healthy development of the industry.
- For instance, the sales volume of premium brand algal oil DHA products (domestic brands with raw materials supplied by overseas suppliers) is anticipated to decline by approximately 17.2% from 272.1 million capsules in 2023 to 225.3 million capsules in 2024, and subsequently rebound by 14.6% to 258.2 million capsules in 2025. In contrast, the sales volume of mass market algal oil DHA products (domestic brands with raw materials supplied by overseas suppliers) in the PRC is anticipated to grow by 20.9% from 475.0 million capsules in 2023 to 574.3 million capsules in 2024, and further increase by 10.1% to 632.2 million capsules in 2025.

Source: National Medical Products Administration(NMPA), Frost & Sullivan

Appendix

Private Domain

The use of private domain traffic is becoming increasingly popular in today's digital marketing landscape, as consumers value more personalised and meaningful interactions with brands, companies. Brands and companies that effectively leverage private domain traffic can create stronger relationships, enhance customer loyalty, and drive sales growth.

Generally, a seller that sells and distributes products in its private domain traffic leverages its own channels to engage directly with customers, creating a more personalised and controlled shopping experience. Sellers typically create their own private database of potential buyers and establish private groups with these potential buyers on platforms like WeChat and Douyin or other dedicated forums to promote and sell the products.

Since interactions occur in a private domain managed by the companies or brands, they can spend less resources to compete for visibility and attention as compared in public platform and have more control over customer data and insights which facilitate their operations with better insights and tailored marketing strategies. By creating exclusive and personalised interactions, the conversion rates will tend to be higher because customers will usually feel a sense of belonging and are more likely to respond and return.

Source: Frost & Sullivan

Appendix

Other alternative suppliers in the market

Globally, there are approximately dozens of suppliers providing algal oil DHA raw materials, including DSM, Corbion, and Runke. Currently, there are hundreds of probiotic raw material suppliers worldwide, such as Chr. Hansen, DuPont, Lallemand, and Bayer.

In the United States, there are nearly a hundred nutrition product manufacturers that can offer algal oil DHA processing services. For example, KD Nutra, United Pharma LLC and InvaPharm, Inc. are nutrition product manufacturers based in the U.S. with GMP certifications.

New Zealand has approximately 20 companies that can provide contract processing services for algal oil DHA. For example, Unipharm, New Zealand Health Manufacturing Limited and Universal Pharmaceuticals are professional nutrition product manufacturers based in New Zealand with GMP certifications.

Additionally, approximately tens of thousands of importers in the PRC are well-positioned in the market to handle businesses similar to Shanghai Trilives.

- The pricing of algal oil DHA products varies by brand. International brands are priced between RMB1.9 and RMB18.3 per capsule, while domestic brands utilising raw materials supplied by overseas suppliers are priced between RMB1.7 to RMB16.0 per capsule, and domestic brands utilising raw materials supplied by local suppliers are priced between RMB0.7 to RMB6.9 per capsule.

Source: Frost & Sullivan

Appendix

- The market turnover rate of regional distributors was generally 20% - 40% in 2023. Therefore, the Company's turnover rate of its regional distributors is within the industry range in 2023.
- Customer A (i.e. Alibaba Group) and Customer B (i.e. JD.com, Inc.) are among the largest e-commerce companies in the PRC, and as such it is not uncommon to have material reliance on Customer A and Customer B and it is hard for the Group to diversify its reliance.
- There are other contract manufacturing service providers like Shanghai Trilives Biotech Co., Ltd.(上海康營生物科技有限公司) and there are other processing companies in the U.S. and New Zealand like Confidence Group and New Zealand Health Manufacturing Limited, respectively.
- The cross-border e-commerce model is a relatively new import model in the PRC market in recent years, and thus it has a greater potential for growth as compared to traditional general trade model. Since cross-border imported DHA products are generally perceived by PRC consumers as foreign-made products for foreign markets, and because cross-border e-commerce model does not involve tariffs, the selling prices are usually more competitive. As a result, cross-border imported DHA products began to gain popularity among PRC consumers. This consumer behaviour was particularly pronounced during the COVID-19 pandemic, driving a significant increase in the sales value of cross-border imported DHA in 2022.
- In the nutritional product industry, it is not uncommon for manufacturers or processors of algal oil DHA softgels, particularly those with smaller production lines and capacity, typically procure essential raw materials (including algal oil DHA) in advance of receiving formal purchase orders from the customers, who have cooperated quite well with the manufacturers for years. They also pre-produce algal oil DHA softgels to more effectively manage the production schedule of their relevant production lines.
- It is not uncommon for large-scale algal oil DHA production factories in the United States refuses to disclose the procurement records of its main raw material (algal oil) to its customers.
- As advised by Frost & Sullivan, in recent years PRC consumers of DHA products have shown a preference for DHA products that do not contain additional supplementary ingredients, placing greater emphasis on the purity of DHA. In particular, as PRC consumers become more health-conscious, There is a growing demand for DHA products that are perceived as natural and free from additives, and many PRC consumers generally believe that purer DHA products tend to offer better health benefits.

Source: National Medical Products Administration(NMPA), Frost & Sullivan

Appendix

The business strategy of selling nutritional products to and through e-commerce companies despite the online shopping platforms are operated by the same group of e-commerce companies (e.g. Alibaba/Taobao and JD.com). Such business strategy of direct sales to e-commerce companies is compatible with that of our sales through online shopping platforms to our customers operated by the same e-commerce companies:

- **Increase brand exposure.** Selling directly to the e-commerce companies while also being featured on their online shopping platforms can increase overall brand visibility, making it easier for end-customers to discover the brand.
- **Channel differentiation.** By having both channels, the Group can target different target customer segments. Direct sales to e-commerce companies can focus on bulk orders, while sales through online shopping platforms can cater to individual consumers. This differentiation allows both channels to coexist without direct competition necessarily.
- **Unified brand messaging.** Selling at both channels can help the Group maintain consistent branding across all channels, reinforcing brand identity whether the end-customers buy directly from the e-commerce companies or from the Group through online shopping platforms.
- **Unique offerings.** By having both channels, the Group can make unique offerings at different channels. For instance, sales through online shopping platforms can include exclusive sales packages or offers that suit individual customers and differentiate from that sold by the e-commerce companies, thereby attracting a wider audience.
- **Cross-channel analytics.** Selling at both channels can enable the Group to analyse and identify recent market trends and formulate marketing strategies across all channels.

Also, such business strategy is a common market trend.

- With a view to increase the market share of our probiotics products, during 6M2024, as part of our sales of algal oil DHA products to our Type C regional distributors, we strategically provided to them on a complimentary basis some of our probiotics products as gifts for their promotional sales of our algal oil DHA products. As a result, our gross profit margin for probiotics products decreased significantly to approximately 29.6% for 6M2024 from approximately 64.6% for 6M2023. According to Frost & Sullivan, it is not uncommon for brand owners to adopt such bundle offer strategy to promote products that are less recognised by consumers within the brand owners' product portfolio.
- As advised by Frost & Sullivan, other high profile nutritional product companies (including Catalo) also have reliance on their suppliers for finished products, thus it is an industry norm for our group to have a single set of suppliers for each location in our supply chain for consistency of product quality and procurement management.

Source: Frost & Sullivan

Appendix

The economic downturn and weakened domestic consumption in the PRC during 2024 are considered temporary. Having said that, the economy in the PRC is believed to keep stable growth or rebound in the coming 2025. For instance, the retail sales value of the nutritional product industry in the PRC is projected to increase by 11.4% from approximately RMB11,563.0 million in 2024 to approximately RMB12,881.2 million in 2025, and further increase by 10.6% to approximately RMB14,246.6 million in 2026, considering that:

- Debt resolution policy: The 12 trillion RMB debt resolution plan issued by the Chinese government significantly reduces local government debt, easing their fiscal burden and allowing greater flexibility for economic support policies. This measure is expected to promote healthier local economies, creating a stronger foundation for 2025 economic growth.
- Internal fiscal stimulus: The effects of fiscal stimulus policies introduced in 2024 are anticipated to materialize in 2025, coupled with additional robust fiscal measures. Together, these fiscal policies are expected to materialize and enhance economic momentum in 2025, thereby stimulating the consumer goods sector, including the maternal and children nutritional product industry in the PRC.
- The booming of the second industry: in the first three quarters, GDP generated from the second industry in the PRC witnessed a CAGR of 5.7%. The Chinese government has issued many positive strategic policies to stably promote the growth of the second industry, including photovoltaics, hydrogen energy, energy storage, semiconductor, etc. The implementation of the "Liang Zhong (兩重)" and "Liang Xin (兩新)" policies has played a critical role in this process. The "Liang Zhong" policy, which focuses on major national strategic projects and the enhancement of security capabilities in key areas, strengthens infrastructure and essential sectors through the issuance of ultra-long-term special bonds, ensuring resource and facility support for the development of the secondary industry. The "Liang Xin" policy, which promotes large-scale equipment upgrades and the replacement of consumer goods, directly contributes to improved manufacturing efficiency and stimulates market demand.
- This combination of policies has not only provided a short-term economic boost but also laid the foundation for long-term structural upgrades. By 2025, the effects of these policies are expected to further unfold, accelerating growth in the second industry and driving a recovery and enhancement of overall GDP.
- External economic drivers: The IMF's projection of more accommodative monetary policies globally in 2024 will support international economic recovery, leading to increasing demand for Chinese exports and enhancing international demand for Chinese goods and services.
- It is not uncommon to engage suppliers and processing companies with business akin to process or arrange processing companies to process key materials into finished algal oil DHA and probiotics products. Other nutritional product companies also (i) utilize algal oil DHA raw materials supplied by algal oil DHA raw materials suppliers and engage processing companies in New Zealand and the U.S. to produce algal oil DHA products; and (ii) procure algal oil DHA products from suppliers in the PRC, which in turn import those products that were processed by processing companies in the U.S. As such, Frost & Sullivan is of the view that our Group's procurement and production arrangement aligns with established industry norms, leveraging external processing expertise to ensure product quality and efficiency.

Source: International Monetary Fund(IMF), Frost & Sullivan



Thank You!