Big Data Helps Reorganize Production and Upgrade Manufacturing Industry in China

2019 Report on Industrial Internet C2M E-commerce of China’s Manufacturing Industry
Abstract

Against the background of industrial internet, e-commerce plays an important role in helping the intelligent upgrade of the manufacturing industry. Consumption big data guides upstream production changes to realize no inventory, reduce costs, and increase efficiency.

C2M e-commerce model has the largest influence on the change of the upstream. It increases the added value of manufacturers from both the brand and the channel. The direct connection between e-commerce and factory has 3 modes. 1 Self-operated F2C e-commerce, such as NetEase YEATION, Taobao Xinxuan, JD Jingzao. 2 F2C e-commerce platforms such as Pinduoduo factory stores. 3. C2M e-commerce platform model such as Biyao. Among them, the C2M e-commerce model has the largest influence on the transformation of factories. Consumption big data guide production, and production after receiving orders can realize “zero inventory”. The platform model helps manufacturers to build their own brands, create flexible production lines and gain a competitive advantage in transformation and upgrade of the manufacturing industry.

The broad market space benefits from the expansion of consumption upgrade and the factories’ active connecting with the internet. The model of the direct connection between e-commerce and factories emphasizes on price-performance ratio on the consumption side. In 2018, the GMV reached 17.52 billion yuan. The penetration rate in the overall cost-effective market capacity was 4.1%. It is expected to maintain a compound growth rate of 24.4% in the next four years.

For such e-commerce, improving the user experience will be an important layout direction in the future. Such e-commerce companies focus on high price-performance ratio. In the future, they will face competition with traditional cost-effective brands and emerging offline brands. The key of such e-commerce companies’ layout is to improve their customers’ online experience.
Description of The Research

Background

In the context of the industrial Internet, except the traditional B2B e-commerce and technology companies, more and more consumer e-commerce companies have started entered the upstream supply chain. They use their accumulated data and technology to improve the efficiency of factories and provide information about consumers' needs. Meanwhile, they cater to the trend of consumption upgrade, providing consumers with cost-effective and personalized products through a direct connection to the factories.

The typical participants such as Biyao, NetEase YEATION, Taobao Xinxuan, JD Jingzao, Pinduoduo factory stores with different models have different influence on the change of industrial chain.

The integration of consumption Internet and the industrial Internet provides digitalization, helps the improvement of industrial Internet efficiency and the conversion of old and new kinetic energy

Industrial Internet is the product of the extension of consumption Internet to production

• The industrial Internet is the progress and deepening of Internet development. The Internet is brought from the consumption side to the production side to realize the closed loop of C2B2B2C, drive the overall transformation and upgrading of various industries, and promote the development of emerging industries.
• Service objects expand from consumers to enterprises.
• The integration of the two involves the integration of generated bodies, operation methods, and culture which includes values.

Include many concepts such as industrial internet, “intelligence +”, “Internet +”, etc.

• Industrial Internet is not application of a single technology. Based on data, it uses information technologies such as Internet, mobile Internet, Internet of Things, big data, cloud computing, and artificial intelligence to promote the efficiency improvement of traditional industries and the conversion of emerging kinetic energy
Description of The Research

**Relevant Concepts** (The scope of this report is the consumer goods sector)

**C2M and F2C**

- **C2M** Customer-to-Manufacturer, is a new business model of industrial internet e-commerce. It is also known as the “short-circuit economy.” For example, Biyao.
- **F2C** Factory-to-customer, is a totally new modern business model. In the F2C model, the transaction only include producers and consumers. Electronic money is used for payment. And the products are delivered via logistics. It includes ①Self-operated F2C e-commerce, such as NetEase YEATION, Taobao Xinxuan, JD Jingzao. ②Open platform F2C e-commerce, such as Kaola factory store, Pinduoduo factory store.

**Industrial Internet C2M e-commerce**

- **Industrial Internet C2M e-commerce platform** refers to the e-commerce platforms which adopt the C2M business model, start from the perspective of consumers’ personalization needs, and guide upstream selection, design, and “on-demand production” through consumer behavior data. This model is also the e-commerce platform’s exploration of the factories and supply chain support in the context of industrial internet.
- **Commercial Value** In this process, by directly linking the upstream factories and downstream consumers and analyzing users' preferences via consumption big data, the e-commerce platforms guides the upstream factories to improve their designs and technology levels. Moreover, they provide consumers with cost-effective and personalized products by removing the price increasing link and brand premium links of distributors in the circulation. On the other hand, through the method of “production after receiving orders” the factories can reduce inventory pressure and improve efficiency.

- **Research object involved** Chinese processing factories in manufacturing industry, consumers, consumption e-commerce platforms
- **Technical concepts involved** Big data, cloud computing, AI, Sensor, IoT, AR/VR


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Consumption Upgrade: Focus on Quality, Price - Performance Ratio And Personalization

- **Quality**: The continuous improvement of the residents’ income level directly stimulates the increase in quality demand. p.7

- **Price-performance ratio**: Domestic consumer market, especially the first and second-tier cities have entered the period of debranding. p.8-p.9

- **Personalization**: The post-80s and post-90s gradually become the main consumers and are leading the trend of personalization. The demand for niche customization is also increasing. p.10
The Continuous Improvement of The Residents' Income Directly Stimulates The Increase in Quality Demand

High Quality Products Becomes The Primary Pursuit of Consumers. Demand for High Quality Suppliers is Thriving.

With the economic development, per capita disposable personal income in China keeps growing. Per capita disposable personal income in China was 28,228 yuan in 2018. The per capita disposable personal income in the first-tier cities in China reached 60,000 yuan. The increase in income level directly drives the increase in residents' consumption demand, which is reflected as the pursuit of the quality products in the aspect of consumption model.

The continuous increase in residents' income directly stimulates the increase in consumption demand and leads to higher requirements for the quality and quantity of goods.

E-commerce channels are mature. A huge number of SKU solve the issue of the number of goods. Quality improvement has become the theme of this consumption upgrade.

Producing and selling products that can meet the quality demand of consumers have become the common direction of the producers and channels.

• Manufacturers need downstream consumer market data to guide their selection, design and pricing
• The circulation side needs to connect high quality supply chains to provide suitable goods.

Source: National Bureau of Statistics

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The First-tier Cities And New First-tier Cities Have Entered The Period of De-branding

Per Capita GDP is Around 20,000 USD. The Consumers Pursue High Price-Performance Ratio and Simple Style.

According to the development experience of the consumer market in Europe, America and Japan, the de-branding trend appears when the per capita GDP reaches 20,000 USD. Japan's MUJI, Uniqlo and the US Costco were all established and developed during the period when the per capita GDP was about 20,000 USD. At present, with the trend of domestic consumption upgrade, the economy of the first-tier, new first-tier and even second-tier cities is surging. The per capita GDP of these countries is close to 20000 USD. The consumption behavior and patterns are also gradually approaching the level.

**Key Analysis**

- Per Capita GDP of Beijing in 2018: 20,300 USD
- Per Capita GDP of Shanghai in 2018: 19,600 USD;
- Per Capita GDP of Guangzhou in 2018: 21,900 USD;
- Per Capita GDP of Shenzhen in 2018: 27,600 USD;
- Per Capita GDP of the new first-tier cities in 2018 ≈ 16,700 USD.

In terms of consumption, the demand of general consumers have returned to the essence of consumption. The consumption for showing off is gradually disappearing. High price/performance ratio and simple style have become the mainstream demand trend.

Source: World Bank, choice. The source of the new first-tier cities is “YiCAi”. In 2018, the 15 new first-tier cities were Chengdu, Hangzhou, Chongqing, Wuhan, Suzhou, Xi’an, Tianjin, Nanjing, Zhengzhou, Changsha, Shenyang, Qingdao, Ningbo, Dongguan and Wuxi.

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High Cost of Living in First-tier Cities Leads to The “Invisible Poor” Problem

Cost-effective Economy Has Become Rigid Demand. The Whole Production Line Needs to Control Cost and Pricing.

Most of China’s middle class is in first- and second-tier cities. But the consumption status of the middle class varies in different cities. Due to the high housing prices and high cost of living, the middle class with the same income level are faced with the “invisible poor problem” in first-tier cities. According to macroeconomic data, the growth of domestic commodity housing sales is negatively associated with the increase in per capita consumption expenditure of urban residents. Due to the rapid increase in housing prices in first-tier cities and new first-tier cities, repayment pressure and rental cost have become factors affecting the improvement of their consumption levels and quality of life. Cost-effective economy has become rigid demand.

Accumulated YoY Growth Rates of Sales of Commodity Homes and Per Capita Consumption Expenditure of Urban Residents From Sep.2008 to Jun.2018

Key Analysis

- This group of people, whose income level is not low, are under the pressure of living costs such as high housing prices.
- In terms of consumption, they have a high pursuit of quality, but they do not blindly pursue the most expensive products. On the basis of quality priority, they also attach importance to cost-effectiveness and advocates the aesthetics of life.

The Post-80s and Post-90s Consumers Are Leading Personalization Demand

The Production Side Needs to Improve The Production Line And Enhance The Small-scale Customization Ability

According to iResearch Usertracker database, the main online shoppers China are post-80s and post-90s. Due to different backgrounds such as economic development and family structure, the post-80s and post-90s have different consumption tendency with the post-60s and post-70s. Most of the post-80s and post-90s are the only child in their families. In recent years, the rate of late marriage and the rate of singles have increased, and they have paid more attention to personal consumption. In recent years, the late marriage rate and single rate have been increasing. The post-80s and post-90s attach more importance to personal consumption and pursue a healthy, high-quality and personalized lifestyle.

The Best Consumer

- The post-80s and post-90s are now between 20 and 39 years old. The youngest of them have just entered universities. Most of the older ones who have been working for over 10 years are middle and senior managers and have relatively high spending power.

- In addition, the post-80s and post-90s grow along with the Internet, have personalized consumption concepts and curiosity. They have aesthetic faculties, do not pursue brands blindly, and are more confident. With strong spending power and unique growth experience make this generation the beacon leading the consumption. They do not blindly follow the crowd and have a high demand for personalization. The niche demand for customization is also increasing.

- The production side needs to improve the production line and enhance the small-scale customization ability to meet consumers' demand.

Source: Usertracker multi-platform internet user behavior monitoring database (desktop and intelligent devices.)
Factories “Connect The Internet”: Industry Chain Pain Points Drive Transformation

- Difficulty 1: Low profit margin  
  p.12-p.13

- Difficulty 2: Excessive inventory  
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- Difficulty 3: The rise of processing factories in manufacturing industry in Southeast Asia  
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- Difficulty 4: Demand For Flexible Supply Chain Transformation  
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Status Quo And Development of Processing Factories in Manufacturing in China

The Risk of These Factories is High Due to Dependence on Orders. These Factories Are in Urgent Need of Transformation And Upgrading

OEM and ODM are the main models of cooperation between Chinese processing factories and their customers. With years of experience, these factories have advanced production technology and great design capabilities. The production and research capabilities of some of these companies are at the world leading level. However, Chinese processing factories have long been engaged in the production, processing, and assembly work which have small profit margins and low added-value. Such a model cannot fully utilize the production capacity of the factories. Due to long-term dependence on customers’ orders, these factory’s revenue sources are very limited. Due to low gross margin and high risk brought by single revenue resource, Chinese processing factories are in urgent need of transformation and upgrading.

### Business Models of Processing Factories in Manufacturing in China

<table>
<thead>
<tr>
<th>Business model</th>
<th>OEM</th>
<th>ODM</th>
<th>OBM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>Original equipment manufacturer</td>
<td>Original design manufacturer</td>
<td>Original brand manufacturer</td>
</tr>
<tr>
<td></td>
<td>The factory produce according to the contract with the original company (brand company). The trademark belongs to the original company. The original company is responsible for the operation and sales.</td>
<td>The factory designs and produces products according to the requirements of the original company (brand company). The factory uses the trademark of the original company. The original company is responsible for the operation and sales.</td>
<td>The factory have its own brand (the manufacturer creates its own product brand) and marketing network, and produces and sells products of its brand.</td>
</tr>
<tr>
<td><strong>Design capability requirement</strong></td>
<td>No</td>
<td>Certain level of design ability</td>
<td>Strong design and sales ability</td>
</tr>
</tbody>
</table>

Source: Publicly available information and iResearch Consulting Group.
Difficulty 1: Low Gross Margin

Many High-quality Chinese Factories Have Been Long Engaged in Low Added-value Production. They Have Strong Need For Building Their Own Brands

With years of experience of processing for international brands, many Chinese factories have advanced production technology and great design abilities. To improve gross margin, such processing factories have relatively strong need for building their own brands and have been trying constantly, but have not yet find the right channels. Attempt 1 - Open offline retail stores. Due to the high rental cost of offline retail stores and the low brand awareness, the companies have suffered losses for years. Attempt 2 - Open brand stores on mainstream e-commerce platforms such as Taobao and JD. Due to the increasing concentration of traffic on the mainstream e-commerce platforms, factories need to pay high marketing expenses to open stores in this channel. They are unable to obtain traffic support, and their inventory risk is high. Large medium and small factories are all facing low-margin status. Transformation and upgrading have become an inevitable demand.

![Smiling Curve Diagram]

Based on the “Smiling Curve”, Profit Margin of Chinese Processing Factories in Manufacturing is Small

Comparison of Gross Margins of Processing Factories And Companies With Their Own Brands in China (Taking cosmetics as an example)

<table>
<thead>
<tr>
<th>Company</th>
<th>Business model</th>
<th>2014 Gross margin</th>
<th>2013 Gross margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOX BELLCOW</td>
<td>ODM</td>
<td>31.94%</td>
<td>37.04%</td>
</tr>
<tr>
<td>Jahwa</td>
<td>Self-owned brand</td>
<td>61.89%</td>
<td>63.08%</td>
</tr>
<tr>
<td>H&amp;B Corporation</td>
<td>Self-owned brand</td>
<td>57.43%</td>
<td>56.27%</td>
</tr>
<tr>
<td>Lantern</td>
<td>Self-owned brand</td>
<td>56.07%</td>
<td>45.29%</td>
</tr>
</tbody>
</table>

Gross margin is 20% lower

Source: Baidu Baike. “Smiling Curve Theory” was proposed by Mr. Shi Zhenrong, the founder of Acer Group, to describe the medium- and long-term strategy of the company. It points out that the most valuable area in the industry are concentrated in the two ends of the value chain, which are R&D and market.
Difficulty 2: Excess Inventory

Risk of Unsalable Problem Due to Long Production Cycle of The Products And The Failure in Meeting The Demand of Consumers

The main reason for the excessive inventory pressure is the risk of unsalable problem due to long production cycle of the products and the failure in meeting the demand of consumers. Taking the clothing industry as an example, brands generally predict trends half a year or even a year in advance. Then they arrange production and procurement according to the prediction based on sales volume in the past. It usually takes about half a year from making orders to the launch of new products. However, with the consumers becoming younger and the pursuit of trends, the market dynamics have changed a lot. Sometimes, the popular products are out of stock while the unpopular ones are unsalable. During the cooperation between the processing factories and the brands, some, or even all of the stock can be returned to the factory, which results in inventory pressure on the factories and squeezed profit margin.

Example: Inventory of Guangdong Xinbao Electrical Appliances Holdings, A Leading Home Appliances Processing Factory in China

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>Piece</td>
<td>97,617,093</td>
</tr>
<tr>
<td>Production</td>
<td>Piece</td>
<td>99,553,769</td>
</tr>
<tr>
<td>Inventory</td>
<td>Piece</td>
<td>9,945,555</td>
</tr>
</tbody>
</table>

Account for 10.0% of the production on average

Difficulty 3: The Rise of Processing Factories in Manufacturing Industry in Southeast Asia

Due to the Rising Labor Cost in China, Some International orders have left China for Southeast Asian Countries and other countries

Due to the rising labor cost in domestic China, some international orders have left China for countries in Southeast Asia to find a cheaper production and processing base, resulting in the loss of orders and customers. Taking the clothing and textiles industry as an example, the most important OEMs in China, which are gathered in the Yangtze River Delta and the Pearl River Delta, such as Dongguan, Shenzhen, Wenzhou, have been growing at a low rate since 2005. Generally, they have been experiencing negative growth since 2012. The domestic consumer goods processing factories are in urgent need of new orders and new growth points.

Note: Guangzhou and Ningbo are not in the above picture due to lack of continuous data.

Source: Statistics Bureau of Shenzhen, Statistics Bureau of Dongguan, Statistics Bureau of Wenzhou

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Difficulty 4: Demand For Flexible Supply Chain Transformation

The Trend of “Quick Response to Small Orders” Requires Adjustment of Production Lines Accordingly

The strategy of traditional brands is “production of a few styles”, focusing on large batch and large-scale production. To meet such demand, the factories usually focusing on refined processes to improve production efficiency and quality. However, with the changes in end consumers and their demand, more and more brands are adjusting their supply chains, with small orders, diverse styles and shorter cycles. And with the development of e-commerce, there are more and more smaller orders from the online brands. To meet the demand of the brands for “quick response to small orders”, the factories need to transform their production lines to reduce production costs and meet the demand of the customers. But generally speaking, incapable of handling such small orders, the traditional factories have huge demand for flexible supply chain transformation.

Changes in Order Demand of The Brands (Take Zara For Example)

- Smaller Order
  - Cooperation of Hempel and Zara: the size of single order decreased from 10,000-20,000 pieces to thousands and even hundreds of pieces
  - The first order of the e-commerce brands is 100-500 pieces/style, and reorders are about 200-600 pieces/style

- Diverse Style
  - The brand owners hope to see the market reaction via small orders and diverse styles, and place more orders for products well-accepted on the market to reduce losses.
  - Zara launched new products twice a week and 12,000 new styles in total in 2018.

- Shorter Cycle
  - The brand owners hope that they may reduce inventory pressure by placing smaller orders and placing new orders when there is demand.
  - Cooperation of Hempel and Zara: delivery cycle is reduced from 1-3 months to 10-15 days

Flexible Production Line: Different Arrangement For Cost Optimization

Arrangement Plan: U-shape Single-piece Flow Production Line
(Shorter production line and multi-process operation)

The essence of flexible production line transformation: small and multiple batches, fast reorder. “U-shape” single-piece flow production lines are short and need fewer operators. The standard arrangement is easy to copy.

Source: Publicly available materials, factory survey, iResearch Consulting Group
E-commerce Empowers Upstream Manufacturers: Drive by Data and Win by Model

- The models that e-commerce empower upstream manufacturers
  
- The value of the C2M e-commerce model of manufacturing industrial internet

- Big data contributes to intelligence upgrade of the upstream manufacturers

- Consumer portrait

- Industry scale and prediction
The Models That E-commerce Empower Upstream Manufacturers

There Are Three Mainstream Models. Self-operated Brand E-commerce Model Has The Most Players

<table>
<thead>
<tr>
<th>Model of C2M e-commerce platform</th>
<th>Model of F2C e-commerce with self-operated brand</th>
<th>Model of F2C e-commerce platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>The e-commerce platform is only used for connecting factories and consumers. Factories join the platform as brand owners and adopt the model of &quot;production after receiving orders&quot;.</td>
<td>As brand owners, the e-commerce platform give production to factories. They adopt the model of production before sales and the products are sold in the brand of the e-commerce platform.</td>
<td>The e-commerce platform is only used for connecting factories and consumers. The factories join the platform as brand owners and adopt the model of &quot;production before sales&quot;.</td>
</tr>
<tr>
<td>Feature one: Platform model. The brand belongs to the factory</td>
<td>Feature one: Self-operation model. The brand belongs to the e-commerce company</td>
<td>Feature one: Platform model. The brand belongs to the factory</td>
</tr>
<tr>
<td>Feature two: Production after receiving orders. No pressure from inventory.</td>
<td>Feature two: Production before sales. Under pressure from inventory</td>
<td>Feature two: Production before sales. Under pressure from inventory</td>
</tr>
</tbody>
</table>

Common feature 1: The upstream directly connects the factory, removing the price increasing link, and providing cost-effective products.

Common feature 2: E-commerce companies use consumption big data to guide upstream manufacturers in selecting, designing, and transforming technology to provide products that better meet market needs.

Source: Publicly available information, interviews with experts, grassroots investigation, iResearch Consulting Group.

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C2M Model Value Analysis 1

The C2M Model Has The Largest Influence on The Changes of The Upstream Supply Chain.

Chinese processing factories in manufacturing are under pressure from independent brand building, excessive inventory, flexible supply chain transformation, etc. From the perspective of the manufactures’ three-dimensional pain points, the C2M model has the largest influence on the changes of the upstream supply chain.

The Matrix Map of E-commerce Participation Models From The Perspective of Solving The Pain Points of The Manufacturers

- **Self-owned brands**
- **Self-operated brands F2C e-commerce model**
  1) The brand belongs to the e-commerce companies. 2) Manufacturers must be responsible for the inventory. 3) Batch order requires certain production flexibility.
  Typical companies: 

- **Open platform F2C e-commerce model**
  1) The brand belongs to the manufacturer, but faces competition with merchants with other attributes on the platform. 2) Manufacturers must be responsible for the inventory. 3) Batch order requires certain production flexibility.
  Typical companies: 

- **C2M e-commerce platform**
  1) The brand belongs to the manufacturer. The attributes of the merchants on the platform are consistent, and the consumers have clear understanding. 2) Production after receiving orders. No inventory pressure 3) Small orders need strong flexible production.
  Typical companies: 

Source: iResearch Consulting Group.
C2M Model Value Analysis 2

“Order Before Production” Leads to a Win-win Result For All

Industrial internet C2M Model Value Analysis

Cost-effective Commodities Meet Their Personalized Needs

- By directly linking the factories and the consumers and reducing the circulation and brand premium links, provide cost-effective commodities
- Order before production, produce personalized and customized commodities to meet the needs of the consumers

For consumers

For upstream manufacturers

For C2M platforms

New Market Segment And a Business Model With Sustainable Profitability

- Targeted at the consumers' upgraded demand for high quality and customization, C2M model has a place and opens a new segment in the e-commerce market by providing the right commodities for consumers
- C2M model provides the e-commerce a profitable and sustainable development path

① “Zero Inventory”
- The model of “order before production” helps the manufacturers to achieve zero inventory

② Building Their Own Brands
- The model allows the manufacturers to enter the platform and provide pre-sales and after-sales services as independent brands and allows the users to directly contact the manufacturers. This helps them build their own brands
- The brands on the platform have similar attribute, so the consumers have a clear perception of the e-commerce platforms. The factory brands has direct influence on the consumers.

③ Consumption Big Data Guiding Production
- The platform links the manufacturers on the platform directly to the consumers. With the help of consumption big data, the manufacturers can directly learn about the basic information and preference of the consumers, to guide product selection, design, process upgrade and sales prediction, etc.
- The model of “order before production” + big data feedback helps the factories check the market reaction in real time and dynamically adjust production plans and also helps them reduce inventory pressure.

Source: Publicly available materials, iResearch Consulting Group
Operation Standards of C2M Model

Business Model Requires That C2M platform Needs to Pay Attention to Each Link in The Value Chain

Specific standard is set for each link: manufacturer selection standard, production line standard, advanced productivity, commodity management standard, service standard, and these should become the operation standards of C2M model.

Operation Standards of Manufacturing Industrial internet C2M Model

**C2M Value Chain**

- Supplier
- Manufacturing
- Commodity Management
- Marketing & Sales
- Membership Management

**Application of Industrial Internet**

- Real-time interaction
- Online Services
- Precision marketing
- Digital supply chain
- Intelligent production
- Personalized design

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**Standard 1: Upstream manufacturers with manufacturing factory background for global brands and capacity for improving production lines ---**

C2M prefer upstream manufacturers with the technology and capacity for transformation of flexible production lines, so manufacturers should be selected in accordance with this standard.

**Standard 2: “Flexible production line” and new capacity ---**

Under the C2M model, the production is driven by orders. At the consumption side, the orders are scattered and not fixed. The upstream manufacturers must reform their ways to organize production, and adopt advanced intelligent approaches to improve efficiency and to reduce costs, to meet the demand for “quick response to small, scattered and not fixed orders”.

**Standard 3: “consumption-driven commodity management system” ---**

C2M originated from the consumption side, and should be led by the actual consumption demand: 1) Product selection and design should refer to consumer needs or involve the consumers; 2) commodities are put on shelves or taken off the shelves according to how they are bought and rated by the consumers. For example, after removal of negative reviews, if the ratio of vegetative reviews is over 0.75%, Biyao will take the commodity off shelves.

**Standard 4: Timely response and professional services ---**

Pre-sales and after-sales customer services, including customer reception, business processing, complaint handling, etc. For example, as the production and sales of the commodities are driven by consumers, it is necessary to learn why the consumer return the goods or give negative comments in time. Timely following up the negative comments must be an indicator of the customer services of the C2M model. There are other indicators such as “response within 2 hours” and other promises, to improve consumer experience.
How Does C2M Empower Upstream Manufacturers

Similarity: Big Data Promotes The Intelligent Upgrade of Upstream Supply Chain

The value of e-commerce platforms for the upgrade and transformation of upstream supply chain lies in the fact that guided by the consumption big data, it directly links the production and final consumption. At the production side, resource allocation will be optimized by planning the design, production and capacity distribution according to the actual consumption. At the same time, consumption data modelling may provide foundational support for small-scale personal customization.

E-commerce Platforms Provide Consumption Big Data For Manufacturers Helps Them Achieve Intelligent Manufacturing

- **Production Guidance & Sales Prediction**
  - Consumer preference is used to adjust commodity R&D, production process and design, to respond to changes in demand and to adjust production and inventory in time.
  - Predict sales, adjust stock and reduce inventory according to sales history and style of the commodities.

- **Personal Customization 2B customization**
  - With the help of consumption big data, especially biological data, the manufacturers may create their databases of consumer big data, and categorize the models and improve the production lines. In the future, the highly standardized categories may achieve small-scale personal customization.

- **Data Modelling**
  - Order: Size, color, price, return and other tags
  - Traffic: Browsing duration/time, tracks and other tags
  - Consumer: Sex, age, purchasing power and other tags

Source: Publicly available materials, iResearch Consulting Group

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Consumer Portrait

Consumption Upgrade Users in 1st-tier And New 1st-tier Cities: Middle Class And New Middle Class Users in Cities

1) Well-off and medium-and-high-income consumers in 1st-tier and new 1st-tier cities, who have high time costs. With refined SKUs, e-commerce may save decision-making costs for such consumers.

2) For the female consumers, beauty makeup, skin care and clothing commodities are essential.

3) Mainly small families. Articles of daily use and household supplies are essential for the e-commerce platforms. The commodities will be smaller, portable and aesthetic at the same time.

Source: Publicly available materials, interviews with experts and iResearch Consulting Group

City tier: mainly 1st-tier cities
- Popular in 1st-tier cities and penetrating the new 1st-tier cities, including Beijing, Shanghai, Guangzhou, Shenzhen, Chengdu, Hangzhou, Nanjing, etc.

Sex: mainly female
- Mainly female users
- Affected by their attributes, the platforms mainly have male users, and female consumers are also an important development direction

Age: mainly 20-39
- Mainly young consumers aging 20-39 who were born in the 1980s and 1990s
- Debranding, personalized, fashionable, simple

Income: well-off + medium & high income
- Mainly well-off and medium & high income
- According to iResearch, personal income falls into 4 levels, low, well-off, medium and high

Marriage and kids:
Married and with no kids
- Small families of married couples with no kids
- Small and personalized product design
Market Size: Trillions of Yuan

Increment Market: With The Expansion of The Middle Class, The Market Size Will Also Keep Growing

Calculation Logic

The rise of the middle class leads to potential “debranding” consumption market

\[
\text{Market size} = \text{Middle-class population} \times \text{annual spending per customer} \\
= \left[ (\text{Total population of China} \times \text{Share of middle class}) \right] \times \left[ (\text{per customer transaction} \times \text{annual purchase frequency}) \right]
\]

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2022E</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STEP 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total population of China</td>
<td>1,395 million</td>
<td>1,415 million</td>
</tr>
<tr>
<td>Share of middle class (%)</td>
<td>29%</td>
<td>34%</td>
</tr>
<tr>
<td>Middle-class population</td>
<td>400 million</td>
<td>480 million</td>
</tr>
<tr>
<td><strong>STEP 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per Customer Transaction</td>
<td>175.0 Yuan</td>
<td>210.0 Yuan</td>
</tr>
<tr>
<td>Annual purchase frequency</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Annual spending per customer</td>
<td>1,050.0 Yuan</td>
<td>2,100 Yuan</td>
</tr>
<tr>
<td><strong>STEP 3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market size</td>
<td>424.89 billion Yuan</td>
<td>1,008.00 billion Yuan</td>
</tr>
</tbody>
</table>

Note: Market size projection is based on 3 assumptions: 1. conservative estimate is based on the current online consumption; 2. on the cost-effective market, iResearch assumes that the per customer transaction will be stable; and 3. the users only place 1 order each time.

Source:
1. Population data of China is from NBS.
2. Share of middle class is based on the Credit Suisse Research Institute’s calculation and forecast of the middle class population 2017 and 2022E. According to the Global Wealth, the middle class is defined as those with an income of $10,000 - $100,000 (about 70,000-660,000 Yuan).
3. Per customer transaction and annual purchase frequency are based on the average level in the industry, publicly available materials, interviews with experts and iResearch statistical model.
4. 2022 projection is based on the population growth rate and the inflation rate over the years.
GMV at Present: 17.52 Billion Yuan

In 2018, The Penetration Was Only 4.1% of The Overall Market, Still With Plenty of Room For Growth

According to statistics of iResearch and calculation based on the number of e-commerce platforms with factory-support programs and their data, the GMV was about 17.52 billion Yuan in 2018 and the penetration of only 4.1% on the overall market indicates that there is plenty of room for growth in the future.

iResearch believes that as the enterprises focus on cost-effective commodities, the per customer transaction will not change much in the next future. The growth will be mainly driven by the increase in the number of users, including increase of new users, retention of old users and a high repurchase rate.

Calculation Logic of The Enterprises

Enterprise GMV = Number of Paying Users × Amount per Transaction × Annual Purchase Frequency

Major growth drivers according to iResearch

Increase of new users
Retention and activation of old users
Activation of new and old users

GMV of China’s Debranding E-commerce Market 2018-2022

CAGR=24.4%

17.52 42.00
2018 2022e

Unique Devices of China’s Factory-support E-commerce APPs 2017 –2018

User Growth in Previous Years

Note: GMV projection is based on an assumption that each user only place one order each time
Source: Usertracker multi-platform internet user behavior monitoring database (on PC and mobile devices), publicly available materials and iResearch Consulting Group
Typical Cases

- Overview
- Biyao: Industrial internet C2M Model
- NetEase YEATION: A Self-operation brand of articles of daily use and household supplies
- Pinduoduo Factory Store: Open-platform F2C Model
## Typical Cases

### High-quality Factory Resources Are Important Strategic Assets of C2M Platforms

#### Typical Cases of E-commerce Support Factories in China 2019

<table>
<thead>
<tr>
<th>Main Player</th>
<th>Biyao</th>
<th>NetEase YEATION</th>
<th>Taobao Xinxuan</th>
<th>JD Jingzao</th>
<th>Pinduoduo Factory Store</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Positioning</strong></td>
<td>Industrial internet C2M platform</td>
<td>A brand of articles of daily use and household supplies</td>
<td>An independent lifestyle brand</td>
<td>A brand of articles of daily use and household supplies</td>
<td>—</td>
</tr>
<tr>
<td><strong>Slogan</strong></td>
<td>“Quality of Big Brand and Factory Price”</td>
<td>“Good Life, not so Expensive”</td>
<td>“Nice &amp; Useful”</td>
<td>“Good Life, From Jingzao”</td>
<td>—</td>
</tr>
<tr>
<td><strong>Business Model</strong></td>
<td>Platform</td>
<td>Self-operation</td>
<td>Self-operation</td>
<td>Self-operation</td>
<td>Platform</td>
</tr>
<tr>
<td><strong>Role of factory</strong></td>
<td>As brands on the platform and building their own brands</td>
<td>Commissioned manufacturers</td>
<td>Commissioned manufacturers</td>
<td>Commissioned manufacturers</td>
<td>Sellers on the platform and building their own brands</td>
</tr>
<tr>
<td><strong>Factory Selection Criteria</strong></td>
<td>Manufacturing factories of top global brands</td>
<td>Domestic and overseas origin of high-quality raw materials/manufacturer</td>
<td>Domestic and overseas origin of high-quality raw materials/manufacturer</td>
<td>Domestic and overseas origin of high-quality raw materials/manufacturer</td>
<td>Manufacturing factories of domestic and overseas well-known brands</td>
</tr>
<tr>
<td><strong>Order-sales model</strong></td>
<td>Order before production</td>
<td>Batch production before sales</td>
<td>Batch production before sales</td>
<td>Batch production before sales</td>
<td>Batch production before sales</td>
</tr>
<tr>
<td><strong>Inventory</strong></td>
<td>Basically zero inventory</td>
<td>Inventory Held by YEATION</td>
<td>Inventory Held by the factories</td>
<td>Inventory Held by the factories</td>
<td>Platform helps reduce inventory</td>
</tr>
<tr>
<td><strong>Development direction in 2019</strong></td>
<td>Attract more high-quality factories</td>
<td>Build its own brands</td>
<td>Work with designers to incubate original brands</td>
<td>Build its own brands</td>
<td>Attract more manufacturers and incubate Pinduoduo brands</td>
</tr>
</tbody>
</table>

Source: Publicly available materials, interviews with experts and iResearch Consulting Group
Biyao

Industrial Internet C2M Platform, Order-driven Production For “Zero-Inventory”

Biyao is positioned as an industrial internet C2M platform. It adopts a “Quality of Big Brand and Factory Price” business model to connect the high-quality manufacturers and users engaged in consumption upgrade in China. On-demand production model is adopted for “zero-inventory”.

Under the Biyao model, the factories enter the platform as independent brands and the orders placed by the users are directly sent to the factories who, after receiving the orders, organize production, shipment and delivery. This model removes the intermediate links like inventory, logistics, wholesale, retail, etc. The e-commerce platform uses big data to portrait the users and analyze the consumption features, and helps the manufacturers to select commodities and improve production process. The factories may reduce the inventory pressure by producing according to the users’ personalized demand and at the same time, relying on the scaled orders on the platform, the factories may balance costs and maximize their profits. This is typical case of the integration of industrial internet with consumer internet.

Diagram of Biyao C2M Platform in 2019

Source: Publicly available materials, iResearch Consulting Group
Biyao

System Design Leads to Optimal Cost Performance

【Quality】Biyao has complete system for quality control:
• 1) At the production side, high entry criteria is adopted to control product quality. There are 57 criteria in total. The factories must have served top global brands and must be capable of developing and designing products independently. Of the quality factories, 200 are working with Biyao.
• 2) At the consumer side, actual user comments are used to filter out the goods with negative reviews. Biyao calculates the ratio of negative reviews based on user comments. After removal of negative reviews due to logistics, malicious bad reviews and other non-quality related issues, if the ratio of vegetative reviews is over 0.75%, the platform will remove the goods or the sellers.
• 3) Do not profit from traffic advertising, guaranteeing that the suppliers merely compete over product quality. Biyao only profits from sales commissions, not from traffic and advertising. Sellers compete with each other based on ratings of the goods, and the ratings are based on the actual quality of the commodities.

【Price】Biyao adopts cost-oriented pricing for the commodities. Commodity price = BOM price (raw materials, labor and process) + logistics fees + factory gross profit + platform commission. The platform commission is 2%-15% of the selling price. As a result, by avoiding the high brand premium and markup links in the intermediate links, it offer more favorable prices for the consumers.

Comparison of Final Retail Price Under Biyao And Traditional Models in 2019 (Clothes)

<table>
<thead>
<tr>
<th>The Final Retail Price of Clothes Under the Biyao Model</th>
<th>Final Retail Price of Clothes under Traditional Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOM price (raw material, labor and process) + Factory gross profit + Rate of logistics fee + Platform commission</td>
<td>Domestic brand Guide Price ≈ factory price * 400%~600% Global Brand Guide Price ≈ factory price * 1000%</td>
</tr>
<tr>
<td>= Factory price</td>
<td>The markup rate is 400%~600%.</td>
</tr>
<tr>
<td>= Factory price*6%</td>
<td>The markup rate is 1000%.</td>
</tr>
<tr>
<td>= (Factory price + factory price * 6%) * (2%~15%)</td>
<td></td>
</tr>
</tbody>
</table>

Note:
1. Rate of logistics fee is calculated based on an average factory price of 200 Yuan/piece and a logistics fee of 12 Yuan/order.
2. The markup rate is a common indicator adopted by the commodity circulation enterprises. Markup rate = the ratio of sales value after deduction of sales costs to sales costs, and "guide price" = “factory price” * “markup rate”

Source: Publicly available materials, iResearch Consulting Group
Biyao

Relying on The High-quality And Stable Supply Chain And High-quality Traffic to Build Barriers

Established in the end of 2014, Biyao is the earliest e-commerce platform ever launched. Thanks to its first mover advantage and many years of operation, Biyao covers about 1/3 of the superior targeted factories and loyalty users who are willing to buy again. And it strengthens its links with the factories and build barriers in various forms such as exclusive agreement or equity relationship.

Core Competition Advantages of Biyao

- **Entering the users’ mind**
  - Biyao has a clear business model, validated users with obvious shopping preferences, loyal and willing to buy again.
  - Factory negotiation and transformation of flexible supply chains take a long time. With funds of its own, Biyao may give 1-2 years time for factory negotiation and production line transformation, leaving sufficient time for sustainable development of the business model.

- **Constant technology and data input**
  - 1) Downstream user data are open to the factories, helping them make user portraits and design products.
  - 2) About 90% of the staffs in the organization chart are in the technical teams. With 100+ copyrights and patents for AI, 3D, industrial data, etc., it uses new technologies to improve user experience.

- **Its own funds for sustainable development**
  - Biyao signs exclusive agreements with upstream suppliers or establish joint ventures with the suppliers to form equity relationship, to ensure loyal and stable cooperation.

- **Win-win and stable cooperation model**

- **Superior factory resources**
  - The upstream suppliers of Biyao all manufacturing factories of top global brands, with mature design and manufacturing capacity. As the first mover in the industry, it has accumulated many factory resources in the stream. As of now, it covers 1/3 domestic superior factories.

Source: Publicly available materials, iResearch Consulting Group
NetEase YEATION

For a Brand of Articles of Daily Use And Household Supplies, Brand Building Has Become an Important Strategic Target

NetEase YEATION, a brand of articles of daily use and household supplies run by NetEase, was launched in April 2016. It provides cost-effective goods for the middle class and new middle class users in 1st-tier and 2nd-tier cities. NetEase YEATION has been focusing on the upstream supply chain for three years and during this period of time, the brand has been enhanced constantly. After several years of accumulation, NetEase YEATION has established its own design team with experience in commodity development and quality control. It designs and entrusts production according to consumer requirements. It also offers brand building experience in the form of poverty alleviation projects. Now, NetEase YEATION is no longer limited to online e-commerce. Instead, it is building a business matrix via online and offline layout and crossover cooperation.

Business Matrix of NetEase YEATION

Source: Publically available materials, interviews with enterprises and iResearch Consulting Group

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Pinduoduo Factory Store

Open-platform F2C Model is an Important Part of Pinduoduo’s Quality Upgrade Strategy

Pinduoduo 1,000-factory project, launched in July-August, 2018, is an important part of Pinduoduo’s quality upgrade strategy and its strategic expansion to 1st-tier and 2nd-tier markets. It is also an important goal of Pinduoduo in 2019. Under this business model, Pinduoduo opens its platform and invites the factories to enter the platform as independent brands. The platform is responsible for attracting traffic and the factories are responsible for production, sales, shipment & delivery as well as pre-sales and after-sales services.

Pinduoduo support the factories in the following aspects: 1) traffic, offering Zhitongche and other activities for the factories free of charge; 2) data, offering the factories big data reports to guide production, sales forecast, etc.; 3) inventory, committed to helping the factories to reduce inventory by offering them promotional scenarios, such as flash sale; and 4) profits, offering the factories free support and does not charge commissions in any forms.

Pinduoduo Project to Support 1,000 Factories

- **Offer Free Traffic**
  Zhitongche and other activities offered by Pinduoduo are free of charge

- **Help reduce inventory**
  Pinduoduo is committed to helping the factories to reduce inventory by offering them promotional scenarios, such as flash sale

- **Offer Big Data Support**
  Offer the factories big data reports to guide production, sales forecast, etc.

- **Charge no Commission**
  Currently, Pinduoduo offers the factories free support and does not charge commissions in any form

Source: Publically available materials, interviews with experts and iResearch Consulting Group
Trends

- Affected by the high costs and aesthetical difference, personal customization will be dominated by manufacturers in the short term

- Industry internet C2M will promote transformation and upgrade of the manufacturing industry in China
  - In the context of industry reshuffle, manufacturers with capacity for flexible production and their own brands are more competitive
  - C2M accelerates the transformation towards flexible production in the manufacturing industry in China and the reflow of orders

- Under the trend of cost-effective economy, e-commerce platforms will have to compete with traditional brands
Future Prospects 1

Affected by The High Costs and Aesthetical Difference, Personal Customization Will be Dominated by Manufacturers in The Short Term

Currently, the consumer goods e-commerce platforms, especially C2M, are exploring personal customization and are offering many personalization options for consumers on the terminal e-commerce platforms. However, affected by the high costs and the aesthetical differences between the consumers, now, scale customization is mainly dominated by manufacturers. The model of “fully customized” consumer goods for the general public still has a long way to go. In this process, the C2M platforms and manufacturers need to transform their production lines to reduce customization costs. At the same time, the e-commerce platforms and manufacturers need to help the consumers to improve one’s aesthetic taste, preparing for the popularization of personal customization. Offering personalization options will be the eternal theme for customization in the short, medium and long terms.

Biyao APP Screenshots – Garment Customization

Source: Biyao APP screenshot, iResearch Consulting Group
Future Prospects 2-1

In The Context of Industry Reshuffle, Manufacturers With Capacity For Flexible Production And Their Own Brands Are More Competitive

In China, there are a large number of consumer-goods manufacturing factories at different levels. Affected by the higher requirements at the demand side, costs is no longer the only indicator for the selection of partners. Technology upgrade is a major trend in the manufacturing industry. The manufacturers will be reshuffled and those with capacity for flexible production and their own brands will be more competitive. In this process, e-commerce platforms, especially C2M platforms, will play an important role.

**Demand And Upgrade Path of Different Types of Manufacturers in China**

**For large manufacturers, it is essential to build their own brands by improving R&D capacity ——**

1. Flexible production chain is an important measure for large manufacturers to build competitive barriers, attract back the lost customers and improve customer stickiness.
2. To develop their own brands and improve gross profit rate are also the only way for big manufacturers to develop in the long run.
3. Open data, platform models and C2M will help achieve the goals said above.

**For small and medium-sized manufacturers to survive the competition, order quantity is of essential in the short term and technology capacity is essential in the long term ——**

1. For small and medium-sized manufacturers, order quantity is essential in the short term. Order quantity is a major reference for the cooperation with e-commerce platforms.
2. Affected by changes in the demand, the orders of popular network brands on Taobao and other e-commerce platforms will be smaller and smaller. The major challenges are to upgrade the production lines and to improve efficiency.
3. Affected by the rising labor costs, China is losing its comparative advantages to Vietnam and other Southeast Asian countries. In the process that the manufacturing industry is changing from a labor-intensive industry to a technology-intensive industry, the small and medium-sized manufacturers will be reshuffled in China.

Source: iResearch Consulting Group
C2M Accelerates The Transformation Towards Flexible Production in The Manufacturing Industry in China And The Reflow of Orders

Though the brands are moving their factories to the Southeast Asian countries with lower labor costs, China boasts incomparable advantage in supply chain and infrastructure. iResearch expects that the orders will flow back because: 1) The labor and rental expenses keep increasing in Southeast Asia, especially in Ho Chi Minh City in Vietnam, almost as high as in China. The advantages in costs are disappearing gradually. 2) With a vast territory and rich natural resources, China has high efficiency thanks to the complete industrial chains, well-established storage and delivery systems, a full range of raw materials, as well as timely delivery based on the supply chain infrastructure. 3) C2M platforms require that the factories have flexible production lines to meet the demand for “quick response to small orders”. This is an important capacity for many brands and has become the core competitiveness that distinguishes the Chinese manufacturers from the cost-driven markets in Southeast Asia. Therefore, iResearch believes that China will remain the world’s manufacturing center and that the C2M will be an important impetus for the transformation.

Why The Manufacturing Orders Are Flowing Back From Southeast Asia

- The labor and rental expenses keep increasing in Southeast Asia and the advantage in costs is disappearing: in an industrial park about 70km from Ho Chi Minh City, the long-term rental for industrial land increased by 38.5% from 60-70 USD/m² in 2018 to 90 USD/m².  
- China has complete industrial chain and well-established supply chain infrastructure: a full range of raw materials for processing and production, timely delivery based on networks for fast logistics, and efficient logistics at a low cost.  
- C2M accelerates the transformation towards flexible supply chains and intelligent upgrade and has a core competitiveness of “quick response to small orders”: Platforms require transformation towards flexible production lines in the factories to meet the demand for “quick response to small orders”. This is an important capacity for many brands. In practice, such transformation will attract the orders to flow back.
Future Prospects 3

Under the Trend of Cost-effective Economy, E-commerce Platforms Will Have to Compete With Traditional Brands

In China, debranding cost-effective economy has become an important part of the consumer market. As the e-commerce platforms keep developing and are accepted by more consumers, the e-commerce platforms will have to compete with traditional cost-effective brands like UNIQLO, ZARA, MUJI and IKEA.

On the one hand, thanks to online channels and fewer offline physical stores, the e-commerce platforms have great price advantage.

On the other hand, with no offline links, the e-commerce platforms are weak in improving user experience and attracting offline traffic. In the future, the e-commerce platforms will focus on improving the user experience by developing offline scenarios, or by using AR, VR and other emerging technology.

E-commerce Platforms Will Compete Traditional And Emerging Cost-effective Brands (Part)

Source: iResearch Consulting Group

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