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## China Commerce 2020

Technology was ubiquitous in the global commerce sector as 2020 dawned. Companies of all sizes digitally connected with consumers, stores, transportation, warehouses, customer service, and other parts of the retail value chain. Incumbents such as Walmart, Tesco and Carrefour worked to digitize their legacy businesses to compete with Amazon and other digitally native enterprises.

China, however, had charted its own path, especially in consumer-facing aspects. B2C e-commerce grew to over 36% of China's retail sales in less than 15 years, more than triple the rate in America.<sup>1</sup> Chinese residents were mobile first, completing over 60 billion mobile transactions (with transaction volume of \$41 trillion) representing over 70% of all digital transactions.<sup>2</sup> Chinese retailers raced to digitize all aspects of their supply chains, physical stores and consumer demand-generation capabilities. Chinese retailers held the most comprehensive consumer data in the world and created new ways to engage consumers, such as live video-based promoting. They leveraged insights to personalize and promote "C2M" (consumer to manufacturer) rapid product development processes.

China was a provocative case about how the commerce sector in other countries might evolve. This note describes China's "online merged with offline" (OMO) operations and to what degree these capabilities might globalize. The note draws from co-author Daniel O'Connor's research, including on-site interviews with leading Chinese companies. Many Chinese aspects will not spread globally, but business leaders should familiarize themselves with the workings of China's digitized commerce and consider applications to their environment:

- How will consumer expectations and behavior evolve? Which aspects of the most advanced tech models will transfer globally (or are already arriving at an underappreciated pace)?
- How can companies leverage these emerging capabilities? Should they develop them internally, engage with a leading Chinese platform, or "federate" with others digitally?
- What can organizations gain by being first movers? Or, should they instead allow competitors to test markets? What impact do these actions have for capital and talent allocation?
- How can leaders personally prepare for the management changes ahead?

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## Global Retail Industry Evolution to Online Merged with Offline (OMO)

In the 1980s, the global commerce sector began to digitize as databases, computerized point-of-sale technologies, and barcodes became regular features. In the 1990s, the first online stores launched, and digital commerce quickly grew in importance. For most incumbents, early online operations were just a small portion of their larger physical-based business, frequently constituting a digital catalog of existing store inventory. The digital organization operated in parallel to physical stores, with many managers viewing them as separate and sometimes competing processes in online-vs-offline (OVO). (This evolution is discussed in “A Note on the Future of Commerce,” HBS note 819-017 (2019).)

As online sales grew, operators adapted to encourage cooperation between their online and offline operations. Consumers began to expect greater integration, such as in-store pickup for goods purchased online, and a bigger selection. Retailers responded with “multi-channel” or “omni-channel” strategies that integrated digital and physical capabilities. Multi-channel retailers invested in better websites, larger assortments, personalized digital content, automated pricing capabilities, new delivery/fulfilment centers, and better capabilities to speed delivery. Most retailers, however, could not compete at the speed or efficacy of the pure play marketplaces such as Amazon due to basic operational disadvantages. For example, retailers rarely knew in real time what inventory they should promise to consumers and stock outs or delays were frequent. The unit economics of digital commerce were less attractive than store-only sales due to greater price transparency, customer acquisition costs, and pick/pack/delivery costs. Finally, the digital sites of retailers were mostly transactional and not integrated with social media, payment, gaming, or other digital experiences.

Multi-channel retailers also began to appreciate that their capital was invested in assets (e.g., big stores, legacy networks) that did not match the new consumer environment. Retailers like Amazon also increasingly attacked new spaces, such as frequently replenished and consumable categories. Over time, multi-channel retailers embraced online-to-offline (O2O) strategies:

- **Mobile first investment.** Retailers shifted focus from desktop to mobile commerce.
- **Better in-app third-party integration.** Retailers enhanced direct links in apps to social, payment, messaging/chat, food, and other delivery providers.
- **Improved “promise-able” inventory visibility.** Retailers made all inventory, no matter where located, visible to customers and associates.
- **Better measurement of order economics and key drivers.** Retailers used data insights to drive average order size, product mix, services attachment rates (such as installation), impulse sales (harder with digital sales), lower cost delivery, and new revenue streams.
- **Optimized customer acquisition costs and expected lifetime value.** Retailers counteracted higher customer acquisition costs online through a blend of the online and offline worlds (to own the customer in both realms), providing a better return on capital.
- **Improved digital order management and fulfilment for speed and highest review scores.** Retailers built new order fulfilment strategies, including digitally integrated regional fulfilment centers, store pick-and-pack teams, and delivery networks.
- **More sustainable marketing methods.** Retailers build direct relationships with consumers through smart, connected stores and products. Retailers relied increasingly on real-time data, localization, and algorithms to remove consumer frictions.

These strategies were critical for O2O businesses but, nonetheless, proved insufficient to keep pace with escalating consumer demands. Sales flowed to the largest marketplaces, and the costs and complexity of retailers increased as improvements by any retailer elevated the shopper expectations for others. Online customer acquisition costs rose significantly, even while many of those visitors bought little or were fake traffic. Retailers faced compressed product margins and greater expenses.

To solve these challenges, Chinese retailers envisioned a new value chain with seamless online and offline experiences so that customers could shop anything, anytime, anywhere. This required all players in the value chain digitize and link together. This “online merged with offline” (OMO) model allowed consumers to conduct all functions via a single app. This strategy promised:

- **Effortless shopping environment** where consumer can easily access shopping, payment and delivery, no matter from online or from offline
- **Increased consumer engagement, experience and conversion** while speeding up and improving the economics for the retailer and platforms.
- **Rewarded consumer engagement and socially shaped commerce** as consumers re-marketed products across their social networks, provided reviews, and demonstrated loyalty.
- **Increased entrepreneurial selling** as retailers directly engaged with consumers and their platform’s tools to influence and convert shoppers.
- **Reduced switching by consumers** that increased customer lifetime value.
- Intensive focus on **winning an equal share of their customer’s online and offline spend**. Retailers found their most valuable in-store shoppers often did less than 25% of digital purchases with them; winning equal share was key to making digital commerce profitable.
- **Building overall responsiveness and better economics for businesses upstream in the value chain**. Better data drove better sales forecasts, leading to improved production and inventory management practices. These advantages greatly improved financial returns.

OMO was a fundamental shift and represented to Jack Ma, Alibaba’s founder, the “new retail.”<sup>3, 4</sup> Erica Matthews, Alibaba’s head of corporate relations, explained, “Many people think of new retail as just omni-channel. That’s not it. With new retail, we want to digitize the entire retail value chain.”

Yet OMO was very complex and required leaders commit to new tech solutions, partners, processes, and workforce capabilities. The Chinese consumer sector aggressively sought full OMO capabilities, while leading retailers in other countries more typically focused on productivity improvements to legacy assets and had not sought to integrate the fragmented digital ecosystem.

## Forces Shaping OMO Commerce in China

### 1. “China Speed”

Chinese business culture emphasized speed. Firms raced to develop prototypes and launch products to consumers in days, compared to the weeks or months typical in advanced economies. It reflected a willingness to “move fast with minimal viable solutions.” Consequently, competitors took several strategies:

- **Achieve scale advantage first.** In digital environments characterized by a winner-takes-all dynamic, companies invested heavily to gain scale quickly and later optimize costs.
- **Keep a “founder culture”.** Companies sought to foster entrepreneurship at scale, expecting their workforce to drive to solutions quickly. Senior management focused on getting incentives right and decentralizing decisions. Teams sometimes competed with each other inside the same company to complete projects. Talent strategies emphasized recruiting generalists over specialists to enable rapid adjustments.
- **Invest frequently in adjacent ideas even when they directly competed with a core business.** For example, Tencent made many investments such as those into JD.com and Pinduoduo (PDD). PDD was founded in 2015 and became the first scaled group buying marketplace, largely enabled by WeChat messaging apps. By many metrics, PDD is the second largest marketplace in China today with over 200 million monthly active users.<sup>5</sup>

Ben Hassing, Senior Vice President of Wal-Mart China, noted: “In China generally, there is a huge first-to-scale advantage. The largest player is at a competitive advantage as companies plan their growth strategy for speed. They’ll lose money for years to build scale and will optimize cost structure to turn a profit only later. The fastest learner wins in the new commerce environment, which is a fundamentally different dynamic.”

Phillip Kuai, CEO of Dada, observed: “Chinese companies want to be first to market. So, they are much quicker to launch a minimal-viable-product. They’ll launch an imperfect offering and then expect to improve it over time. Even Silicon Valley companies that praise speed and iteration tend to be slower and more cautious.” This first-to-scale mindset was particularly true of companies building last-mile delivery networks.

## 2. Leapfrogging infrastructure

China entered the 21<sup>st</sup> century with less developed infrastructure for commerce than advanced economies: fewer shopping malls per capita, poor logistics networks, and limited Internet access. China subsequently jumped to next-generation digital e-commerce infrastructure, complemented by modern, synchronized networks of markets, convenience stores, restaurants, and supporting transportation and vendor networks. Internet coverage expanded rapidly and with sharp price declines. By 2018, Chinese Internet users were 98% mobile, and location-based apps exceptionally popular.<sup>6</sup> Instead of adopting credit cards, Chinese commerce relied on mobile payments.

Wern-Yuen Tan, CEO of Walmart China, reflected: “The Chinese leapfrogged the developed world in mobile technology, and they are much more open to experiences through their phone than perhaps any population in the world.” Cecilia Tian, assistant general manager of Tencent smart retail, noted: “China is different, because it isn’t just the young population who are technology savvy. My mother uses every new digital tool.”

## 3. More walking, biking and third-party transport

Unlike the West, most China consumers walked or used third-party transport.<sup>7, 8, 9</sup> As mobile became integral to daily life, digital apps had to focus on “nearby” to save time. With digitization, retail moved from weekly stock-up trips to smaller-value, high-frequency trips. This trend was especially strong in dense areas.

#### 4. Authenticity

Chinese consumers valued authenticity and trusted products. If trust was a default in western economies, retailers needed to earn trust first in China.<sup>10</sup> Chinese consumers favored products, companies, and business models that continuously demonstrated trust. Alibaba, for example, released the consumer's money to a Taobao seller after acceptance by the consumer. The U.S. model, by contrast, emphasized payment upfront paired with easy returns.

#### 5. Carnival feel of shopping

Chinese consumers expected shopping to be a social and adventurous activity. Shoppers were accustomed to a carnival-like, high-energy experience where they were surrounded by other customers, friends, and associates with whom they can discuss deals. In many stores, associates exclaimed excitement about products into microphones while stocking the shelves. Others hired fake shoppers to fill the store, and grocery stores had frequent product demonstrations. This carnival feel carried over to digital commerce.

#### 6. More personalization

According to some observers, Chinese consumers had lower expectations for privacy and greater interest in personalization than most markets. The telephone number for many served as a universal ID, and digital footprint of consumers allowed detailed traits for marketing and data-driven apps. The Chinese government was working in 2019 on privacy regulations and warned tech companies against collecting "excessive amounts of personal data, going beyond service requirements."<sup>11</sup> The authors' observations are that China has completely pivoted to the principles of Europe's General Data Protection Regulation. Permitted data practices were emerging that aligned closely with efforts such as the Europe's General Data Protection Regulation.<sup>12</sup>

#### 7. AI/Automation

In 2019, Chinese companies held the most AI/Automation patents in the world. China accounted for two-thirds of global AI investment, helping the industry grow 67% in 2018. Top emerging companies in 2019 included facial recognition ventures (SenseTime and Cloudwalk) and drone producer DJI. The largest ecosystems such as Tencent and Alibaba adopted AI, machine learning (ML), and advanced robotics across their value chains. Prominent use cases spanned marketing, supply chain, delivery, and workforce optimization.<sup>13</sup>

### Capabilities Delivering OMO Commerce in China

#### 1. Highly scaled, digital ecosystems

Alibaba and Tencent were two significant ecosystems. Each maintained over 15 touch points (physical and digital) with consumers, and they helped digitize partner companies (sellers, brands, transportation, etc.). In 2019, these ecosystems were still developing and increasingly encroaching on each other. Tencent was moving increasingly towards e-commerce by investing in partners like JD.com and PDD while Alibaba moved in the opposite direction towards using social platforms for work. The ecosystems soon encompassed many touch points to consumers: e.g., maps, travel, video, government services, insurance, health, etc.

Alibaba was very different from Amazon. Matthews (Alibaba) explained: "Our mission is to make it easy to do business anywhere. We are a platform, not a retailer. I think of us as the mall operator. We

set up the infrastructure. We provide traffic and technology. But, the brands themselves own the experience of their particular store. People often refer to Alibaba as ‘The Amazon of China.’ This drives us crazy. Yes, there are some similarities. We both have media and entertainment businesses. We both do logistics, cloud computing and offline retail. But, we are completely different in how we monetize. Amazon started as a retailer. We started as a platform and remain a platform. We earn commissions from the companies that sell with us, plus marketing spend. The incentives are more aligned.” (See **Exhibit 1** for a revenue comparison.)

Tian (Tencent) also explained, “I see Tencent as a phone line. We offer a variety of phone lines to connect people. We know when best to ring people and how. We do not compete with commerce providers, and we don’t interrupt your conversation with your consumer. We offer the tool for you to build your relationship.”

The ecosystems reached scaled and monetized audiences of 0.5-1 billion active users daily. These populations were often in dense cities like Shanghai, where significant network effects enabled new revenue streams and distribution speed. The marketing revenues earned often offset merchandise margin while deepening relationships with manufacturers.

## 2. Super Apps

One tech journalist defined super apps as “applications that consolidate versatile, multi-functional features such as chat, social media, mobile payments, games, and much more.”<sup>14</sup>

- **WeChat.** Tencent launched WeChat in 2011 as a social network and messaging app. Users chatted with each other and in groups. By 2019, Tencent had 1.1 billion daily users, and many relied on WeChat for all of their communication. Brands had official accounts that could send messages to followers. WeChat Pay enabled online and in-store purchases and the exchange money with friends. In 2017, WeChat Pay handled 40% of Chinese mobile payments.<sup>15</sup>
- **Taobao.** Alibaba launched Taobao in 2003 as a digital marketplace on which anyone could sell. Alibaba’s Tmall further provided brand-managed digital storefronts for approved sellers. Alibaba charged fees, sales commissions, and marketing services. Taobao became the dominant shopping destination, expanding into travel booking, event tickets, car sharing, and more. To increase engagement, Taobao launched entertainment services (e.g., movies) and chat functions that allowed shoppers to ask questions of sellers and other shoppers. Over 53% of Chinese e-commerce was on Alibaba in 2019.<sup>16</sup>

Alibaba’s affiliate Ant Financial operated Alipay, a payment and escrow service. As Alipay began to handle payments outside of Taobao, it came into competition with WeChat Pay. Alipay had 54% of Chinese mobile wallet market.<sup>17</sup> By 2019, Alibaba’s ecosystem connected over 10 million businesses and more than 200,000 brands to over 700 million shoppers.<sup>18, 19, 20</sup> According to Alibaba, the \$768 billion gross merchandise value (GMV) transacted within its ecosystem during 2018 surpassed all U.S. e-commerce combined.<sup>21</sup>

Matthews (Alibaba) elaborated: “Taobao is very sticky. People see Taobao as a source of entertainment. They open the app eight times per day on average. They spend an average of 25 minutes per day on the app. A typical e-commerce site only gets eight minutes, because you see what you want and you buy it. We are much closer to social in terms of time spent. The standard behavior on Amazon is that you open the app, you search for what you want, one-click you are done. You are very happy with yourself, because you are

very efficient. It is the opposite motivation on Taobao. People use it to spend time, not to save time, because it truly is a form of entertainment. Most of the traffic on Taobao is generated through product recommendations, not search.”

Super apps bundled shopping, entertainment, and social messaging into one fluid experience. The culture of Chinese retail had been social before smart phones, but super apps made shopping even more social. Chinese shoppers were more likely to rely on social influence along their shopping journey to discover new brands and complete purchases.<sup>22</sup> While the average U.S. consumer shopped through 4-5 touchpoints, the average Chinese customer made 12 or more because of the many functions and desire to spend time doing so.

### 3. New, Distinctive Marketing Mediums

China’s new content mediums made visible compelling consumer propositions. These new marketing mediums drove increased engagement, collected more data, lowered customer acquisition costs, and were key OMO distinctions. Store-based customer acquisition costs were the lowest, and millions already shopped in the stores. Getting offline shoppers to add online and the reverse was accelerated through several techniques:

**Live video.** Chinese commerce was theatrical in nature. Examples included:

- **Taobao Live.** Taobao Live featured live videos of influencers. In 2019, over 1,200 influencers surpassed one million followers.<sup>23</sup> Consumers used livestream to learn about products and discounts. One expert explained, “Chinese live-streamers tend to focus on creating two-way conversations – they literally interact and talk to their audience every second.”<sup>24</sup>
- **Kuaishou.** This app featured short-form video and live-streaming where sellers demonstrated products, and the app directed buyers to third-party sites to complete transactions. Sellers moved fresh foods, toothpaste, thermal underwear, and more in just minutes. Actress Liu Yan posted videos of her daily life and attracted over one million to her flash e-sales.<sup>25</sup> Kuaishou partnered with JD.com, Taobao, Tmall, mobile platform Youzan, and PDD. Competitor Douyin (owned Bytedance) was similar but did not require shoppers leave the app to make a purchase.
- **Xiaohongshu.** Founded in 2013, Xiaohongshu was a platform for shoppers to learn about new products and share suggestions. Users curated a list of products and combined photo, video, and text to review them in-depth. By 2019, Xiaohongshu claimed to have more than 200 million registered users.<sup>26</sup> Both Alibaba and Tencent invested in Xiaohongshu.<sup>27</sup>

**Socially shaped, multi-level marketing.** Chinese consumers responded to paid engagement as a form of recognition and savings. Multi-level marketing and savings strategies evolved. Founded in 2015, PDD grew to \$68 billion GMV by 2018.<sup>28</sup> All shopping on PDD was social through the WeChat platform. Shoppers browsed for products, received discounts by sharing deals with friends, and joined “shopping teams” made of friends and strangers.

**Mini-programs.** Alibaba and Tencent opened their super apps through APIs to third-party contributors. WeChat had a system of “mini-programs” that were lightweight apps that ran inside of WeChat. For example, bike-sharing companies created mini-programs that mapped available bikes, and Walmart China used them to support store specific scan-and-pay functions and location-specific promotions. Tian (Tencent) said, “Often sending people outside of the app to a separate website is a bad experience. It’s not smooth. It’s slow. Going to a mini-program inside WeChat is

faster and almost frictionless. It costs less data. And, the user interface is structured in a familiar way.” (See **Exhibit 2** for WeChat mini-programs.)

Alipay launched a similar effort and by 2019 hosted 120,000 mini-programs with 230 million daily active users.<sup>29</sup> As Alipay expanded internationally, retail mini-programs followed the adoption of its payment model.

Mini-programs offered strategic value to retailers. Hassing (Walmart) explained, “Since people already spend so much time in WeChat, it is much more affordable for retailers to acquire new users to a mini-program than to a separate app. Moreover, we can understand a lot about our users based on the data WeChat shares. Some digital businesses begin with WeChat mini-program and build from there.”

#### 4. Stores as Delivery Nodes

Chinese physical stores had rarely been designed for digital commerce or local delivery, yet by 2019 all of the major platforms and retailers were committed to both. Alibaba’s signature effort was its chain of fully digitized **Hema (aka Freshippo)**. Freshippo promises its entire in-store assortment (over 3,000 SKUs) in 30 minutes within 3 kilometers of its store;<sup>30</sup> an additional approximately 20,000 SKUs are available for next-day delivery.<sup>31</sup> Alibaba more broadly is working towards providing 24-hour delivery of all products within China.<sup>32</sup> In 2020, over 60% of Hema sales were conducted online.<sup>33</sup> These stores quickly absorbed sales from those that required consumers to travel to and through a store for similar goods as well as more centralized pick and pack distribution centers. These stores supplanted traditional fulfillment centers (i.e., warehouses where supplier goods were received, stored, and then packed into parcels for delivery to consumers) as delivery nodes.

Kuai (Dada) explained, “Delivery networks in China are set up to use the store as a fulfillment center. When a customer places a digital order, sometimes the most efficient spot to pick and pack is a big traditional fulfillment center, but often there is a retail store closer to the customer.” To meet customer demands for speed (especially on fresh items), delivery networks sought to be as close to customers as possible. Some retailers built local depots to hold top selling items, using the larger store as a distribution center to re-stock the depot. For example, Walmart built a series of depots for its Sam’s Club stores in federation with Dada in major cities to provide one-hour delivery service. In 2019, Walmart China reported picking orders in under three minutes.

New retail floorplans were set specifically for order fulfillment. Stores and restaurants allocated more counter space for delivery workers to pick up orders. Stores also set up aisles of shelves with popular inventory and widths for pickers, rather than customers. Restaurants allocated more space to food preparation relative to dining. (See **Exhibits 3a** and **3b**.) These store designs were indicative of the China OMO design thinking. Common aspirations:

- **Drive frequency and multiple consumer interactions.** Strategies included grocery shopping, restaurants, financial and related services, and digital order pick-up.
- **Excel in perishable / temperature-controlled product such as produce, meat, fish and ready-to-eat meals.** Pairing online and offline grocery shopping with in-store prepared and restaurant meals drove higher fresh-food inventory turnover, even as the traditional stock-up trip declined. This consumer benefit boosted retailer profitably via less spoilage.
- **Be the fastest with a new back-to-front layout and digitized associate workflows.** The receiving area in the back of the store was adjacent to the outbound delivery doors.

Inbound delivery was digitally sorted to flow immediately outbound through the last mile network, to an adjacent mini-pick room, or to the sales floor for in-store shopping. Pickers with mobile devices and hand-held baskets picked digital orders.

- **Minimize the consumer friction and be deeply personalized.** Alibaba designed the Hema store to capture shopper data and personalize shopping. Customers could scan individual items, checkout, pay, and manage delivery via their phones (e.g., choosing items to carry home vs. delivery). Baseline tech capabilities included:
  - Advanced sensing through cameras and non-visual sensors to track movement of shoppers and products.
  - Facial recognition that identified consumer profiles, provided personalized data, and even directed store managers to greet high-valued customers.
  - Digital shelf tags that afforded real-time pricing updates.
  - Mobile handsets for store associates to manage digital orders and workflow.
  - Advanced AI/ML capabilities and IOT/cloud computing infrastructure for real time capabilities and interactions.
  - AI-based point-of-sale technology that allowed facial recognition for payment, spot credit checks, and even loans.
- **Feature online and offline products.** Stores used selling floor space as a showroom, expecting customers to order digitally for home-delivery. Hema built a link from its stores to Tmall sellers with sponsored offers unique to each store and shopper. One goal of the Hema design was to push further shoppers to use via the app.
- **Emphasize local choice.** Food tastes and other consumer attributes varied significantly across China. Taobao's data were very helpful for localizing store assortments.

Hema's CEO called the store an "experience center plus consumption center plus logistics center."<sup>34</sup> The stores averaged \$25 million per year, reached maturity in 36 months, and were profitable. The average store sold 60% of its volume through the Hema app and handled over 250,000 orders per month. Stores targeted being pervasive neighborhoods to drive sales density. In 2016 and 2017, Hema opened 100 locations<sup>35</sup> and Alibaba also digitized 8,000 brick-and-mortar retailers through its Ling Shau Toa (LST) initiative. JD aimed to open 1,000 stores by 2023.<sup>36</sup>

## 5. Last-Mile Delivery Networks

Chinese platforms connected their fulfillment centers and stores with delivery networks that focused on maximizing speed, top customer reviews, and sales per square mile.

- **JD.com Logistics Network.** In 2007, JD began building an in-house logistic network to provide a better customer experience. By 2019, JD's logistics covered 99% of China's population and provided same-or-next day delivery service on 90% of orders. JD also launched scheduled delivery that enabled customers to select a 30-minute time slot.
- **Dada-JD Daojia.** Dada collaborated with retailers to offer delivery of their goods, particularly groceries. In 2018, the company claimed to have over 6 million drivers and offered delivery in under one hour on most goods. Founder Philip Kuai led the startup, with backing by JD and Walmart.<sup>37</sup> In China, Walmart worked with Dada exclusively.

- **Cainiao.** Founded in 2013 by Alibaba and logistics partners, Cainiao sought to ship packages anywhere in China under 24 hours and globally in 72 hours.<sup>38</sup> The network had 15 express delivery partners who owned their own assets but coordinated digitally.<sup>39</sup> Cainiao handled 69 million packages per day in 2018, more than 60% of China's volume (exceeding FedEx, UPS, and DHL combined).<sup>40</sup>
- **Meituan Dianping.** Created through the merger of two start-ups, Meituan Dianping offered several services, especially delivery of take-out food. In the first half of 2018, the company facilitated nearly 2.8 billion food deliveries for more than 350 million people.<sup>41</sup>

Success in the last mile networks required sophisticated order management logic, real-time supply-chain data, and AI analytics. Critical data included store level inventory, picker and driver availability, and traffic conditions. Kuai (Dada) commented, "We can reduce out-of-stock experiences to effectively zero, because our app only markets products that are in-stock. We can then help retailers understand which brands and assortments they should start carrying and exactly how much sales they are losing due to insufficient inventory levels of particular items."

Powerful delivery networks changed consumer behavior and encouraged frequent small purchases. Hassing (Walmart) warned: "In China, the stock-up shopping trip is almost obsolete. People can get anything ordered same-day. Even in Mongolia, you can get same-day delivery. More and more products are available with one-hour delivery. So, if you think about it, you don't need to buy two weeks of goods anymore. It is very important to watch last-mile costs. Last mile delivery costs in the U.S. are still significantly higher than they are in China. However as those costs fall, they will impact retailers' and brands' businesses."

## 6. Digital Infrastructure

OMO required end-to-end digital infrastructure to orchestrate players in the value chain. Many links remained work-in-progress, especially in the repositioning of physical stores. New communication technologies enabled machine-to-associate (e.g., notifications for low inventory), associate-to-associate (e.g. trading shifts), or associate-to-customer (e.g., customer service messaging) coordination. Kuai (Dada) said, "We have equipped hundreds of thousands of store associates with our app. So, that store associate can use apps to check into their work, to pick-and-pack, and to serve customers. The job they have done is closed-looped to customer feedback. We can literally track at the order-level who you served, their feedback, and picking efficiency." Automation expanded to check-out, price relabeling, and inventory management, with retailer repositioning associates to pick for delivery and interact with customers.

## 7. Data Integration and Management

The construction of new datasets, their quality control, and processing at speed were critical requirements for OMO businesses. Super apps enabled permissioned and unified data on consumers, spanning more than 10,000 traits that included demographic information, browsing behavior, location, social connections, and financial transactions. Apps also captured external data such as weather, community health, traffic, and supplier data.

By contrast, the U.S. and Europe had fragmented data markets. Facebook, Amazon, Google, Walmart, CVS, banks, etc. had extensive consumer data, but the linkages were much more modest due to privacy regulations and the fragmented consumer ecosystem. As a result, Alibaba and Tencent are able to offer deeper, more complete consumer insights than their US counterparts.<sup>42, 43, 44, 45</sup>

Tian (Tencent) said, “Retailers outside of China have less opportunity to build data assets about their consumers. Grocers have the best data, because people come in repeatedly and use the loyalty program. However, even loyalty programs could be improved. These programs have an annoying sign-up process; the data is not rich and can be faulty. Going to mobile payment with a super-app is the best way to identify the shopper and get into better data.”

Activating insights from large data sets was a distinction. Companies provided shopper-specific coupons, for example, versus targeting segments (e.g., young moms, returning visitors). Within a retailer’s mini-program inside of a super app, locations-specific and personalized data built shopping experiences around individuals. Hassing (Walmart) noted, “We are moving from marketing to shopper segments to personalized engagement. We know who is a high-value customer at risk of shopping elsewhere and can target efforts towards them.”

Super apps and unified data increased the share of marketing that companies spent digitally given the greater tracking of results and integration into key shopper conversion moments. In 2018, digital marketing accounted for 65% of China advertising spend<sup>46</sup> compared to 48% in the U.S.<sup>47</sup>

Kuai (Dada) elaborated:

The data is only useful if you integrate it. So, once a retailer has its digital infrastructure in place, we start integrating the data. We track inventory in real-time at the store level. That way, we can merchandise to customers based on actual availability. We integrate all promotions and pricing data, so customers get a standardized experience... Integrating shopper data is just as important as inventory or planogram data. We ID customers for retailers when they walk in the store and associate every scan and purchase to their digital account. We know their prior purchases, interactions, and satisfaction scores. This sets us up to manage customers not just to maximize short-term order value, but lifetime customer value.

## 8. Customer Relationship Management (CRM) Systems

A good return on investment for OMO depended upon owning good consumer share online and offline. Store- and market-level CRM systems activated store-level associates in these efforts, especially for the most valuable shoppers. Retailers personalized customer interactions and designed multi-step efforts. For example, some retailers offered coupons to loyal customers that activated only after the customer used it online (to drive digital adoption) or shared it with others (to drive referrals). Others activated store-only shoppers with telephone, loyalty, or payment data. Compensation packages for store associates often rewarded the number of activations achieved.

CRM systems further shaped in-store product demonstration. Historically, the only measure of effectiveness was same-day sales, but now OMO retailers allowed shoppers to scan a QR code at the demonstration to receive an instant discount, which then allowed the company to track future individual behavior with respect to the product online and offline. Retailers were further developing centralized offer libraries to support their localized CRM efforts, and these centralized groups took end-to-end responsibility for meeting sales targets. A prominent example was Tencent's Group Chat, a feature that facilitated discussions between consumers and businesses and often resulted in individual or group-level purchases. Platforms were increasingly leveraging these CRM tools across their whole ecosystem capability set.

## 9. New Organizational Structures, Metrics and Operating Norms

New organizational roles, structures, metrics, and norms were essential to OMO activation. The barriers to scaling any consumer business had changed, with micro-brands and entrepreneurs competing as if fully scaled but faster. OMO required organizations to consider new models.

- **Federations.** Few companies could compete at the scale of the largest platforms. Consequently, Walmart China sought to build an OMO federation with critical partners, including Tencent, JD, Dada, Microsoft and others. The federation's goal was to accelerate each organization's transformation and minimize duplication. Tian (Walmart) explained, "In China, no one single entity owns the shopper. Every player that plays a role in the value chain sees some aspect. We then get together and see how we can collaborate to create shared value in this industry. Walmart became incredibly successful in the US by managing the entire value chain. But, in China, Walmart has realized that it is better to grow the pie by working with partners." Whereas most federations focused on aggregating demand, those in China focused on speed and customer engagement.
- **Algorithmic interfaces.** Retailers, brands, and delivery networks increasingly coordinated through machine-to-machine communication. This required understanding the algorithms of partner companies, building appropriate algorithms to respond, and ensuring good workflow integration. Kuai (Dada) said, "Many of our retail partners have specific OMO teams that are responsible for both digital and physical demand." Hassing (Walmart) added, "At Walmart, we combined e-commerce and marketing into the same function. We decentralized technology into domains so that we could offer transparency to each business function on cost and product roadmaps as well as be more user focused."
- **Key performance indicators and talent.** KPIs increasingly focused on serving high valued customers, generating strong shopper reviews, and owning the customer in digital and physical realms. Hassing (Walmart) said, "Our core metric is the number of customers that have shopped both online and offline in the past 90 days. Those customers are far more loyal.... While we have long-term plans, we need to operate in today's China and remain flexible and adaptive to change. Our integration with our ecosystem partners requires that we be ready to respond rapidly to their decisions. We hire for ability to learn, not expertise." Automation and digitization allowed for new measurement and bonus programs at every employee level, even those not traditionally customer facing.

## From China to the World

### Global Expansion of China's Super Apps and Retail as a Service (Raas)

As 2020 approached, the OMO models of Chinese commerce were already expanding globally. Alibaba and Tencent both targeted overseas expansion. Matthews (Alibaba) said, "We are interested in expanding to countries that have similarities to China: developing nations with low credit-card penetration that are ready to digitize quickly." Alipay and WeChat Pay also began offering payment solutions for overseas retailers courting Chinese tourists.<sup>48</sup> In 2019, Alibaba launched Tmall Global in English<sup>49</sup>, and WeChat app continued to grow tourists outside of China.<sup>50</sup> These overseas expansions began with a single use case but left hooks for further growth. Tencent and Alibaba also invested into new markets. For example, Tencent invested in India's Flipkart marketplace, while Alibaba controlled Lazada, a leading e-commerce marketplace in Southeast Asia.<sup>51</sup>

Chinese tech giants provided “Retail as a Service” capabilities to retailers outside of China. The licensing of capabilities as a service significantly expanded their reach. U.S. retailer Office Depot used Alibaba’s technology platform and sourced inventory directly from Alibaba’s global marketplace.<sup>52</sup> Spain’s El Corte Inglés, the biggest department store in Europe by sales, likewise partnered with Alibaba for retail, payments, cloud computing and OMO capabilities. The partners were also exploring logistics synergies, such as leveraging El Corte Inglés’ shipping capabilities and Spanish distribution centers to support AliExpress. Victor del Pozo, CEO of El Corte Inglés, noted “This agreement will allow us to combine both the physical and online worlds. Together, we are writing the future and placing ourselves at the forefront of trade and technology.”<sup>53</sup>

### Tech Giants Copy China

U.S. technology giants copied innovations emerging from China. Following Alibaba’s example, Amazon added a livestreaming platform and acquired Twitch, a prominent livestreaming website focused on gamers.<sup>54</sup> Amazon also invested in entertainment to make its customer relationships stickier. Entertainment is a major hook to retain Amazon customers, as the company now offers Amazon Music, Amazon Prime Video (including original content from Amazon Studios), Fire TV, and the Kindle.<sup>55, 56, 57</sup>

Following Tencent’s example, Facebook and Google both sought to build more shopping features into their social media networks, namely Instagram and YouTube.<sup>58</sup> In addition, start-ups, such as Store and Friendshop, launched social commerce platforms. New selling models are emerging in the U.S., borrowing elements from Chinese platforms.<sup>59</sup> Other consumer brands, such as Starbucks, launched pilot programs first in China, such as mobile commerce and digitized stores, before transferring them to other markets.<sup>60</sup>

Finally, major companies and start-ups worldwide invested in developing last-mile delivery networks to match those in China. Instacart, Grubhub, Deliveroo, and Postmates received billions in venture investment, several reaching multi-billion dollar valuations. Walmart began to provide delivery to U.S. households using its stores as fulfillment centers, incorporating learnings from China. Hassing (Walmart) said, “While Walmart has a growing business in China, it has served to inspire other markets worldwide with some of the new models being deployed.”

Amazon, Facebook, and Google all attempted to enter mobile payments, but as of 2019, none had managed major market penetration. In 2019, only 13% of U.S. smartphone users had used Apple Pay and only 7% had used Google-linked Android Pay, although usage of both was growing.<sup>61</sup> Outside the U.S., technology giants pursued similar goals. In Japan, the chat app Line and e-commerce app Rakuten both launched mobile wallets and entertainment offerings to pursue super-app status.<sup>62</sup>

By 2020, China had developed a unique and remarkable consumer economy. These innovations were beginning to spread to the rest of the world and the transformations forced the entire retail and consumer sector to ponder what their local future might hold.

## Appendix A: Innovation Programs at Walmart China

Hassing explained how Walmart China pursued innovation:

We receive roughly 80% of new and local technology innovations through ecosystem partners and tech giants. They develop a lot of technology for managing data, logistics, internal communications etc. However, the other 20% of new technology innovation is a source of competitive advantage and need based on our particular pain points for customers and associates. And, we had to figure out how to achieve it with great speed and with a low cost of experimentation.

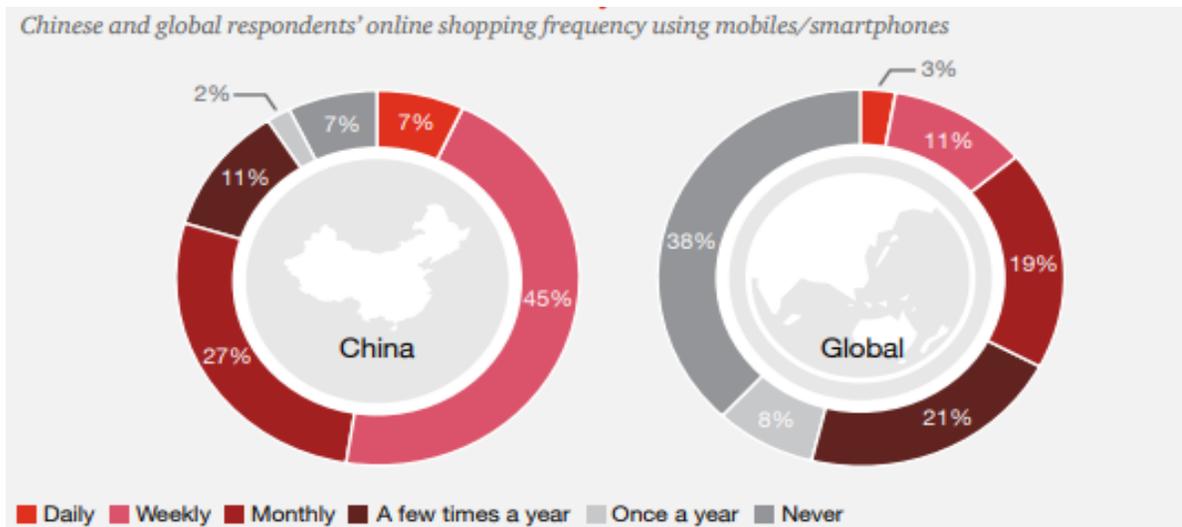
First, we decentralized the technology division and aligned resources with each business function. Business units kept clamoring and competing with each other for centralized technology resources as there was low transparency. By dedicating technology resources to particular business units and having them be part of the resource allocation process, we could be certain that the most critical business problems were getting the technology resources they needed and free our knowledge workers to move quickly.

Second, we developed Omega 8, an innovation platform allowing us to work with local Chinese startups on specific pain points we identified. We host hackathons focused on particular business problems. Instead of heavily screening technology partners, we are very open to partners and teaching them about Walmart processes and pain points is a key part of identifying the right startup to conduct a proof-of-concept with. But, they have to move fast. Just 60 days to a proof of concept.

One innovation we sourced through Omega 8 is the ability to use machine vision to identify bulk produce items through translucent bags. Previously, customers would wait on associates within the produce department at a weigh scale and the experience was poor. One option was to convert to a self-service scale where customers would click through several pages to find the right item. This resulted in a poor customer experience and shrink if the customer selected a different item.

Source: Ben Hassing, interviewed April 2019.

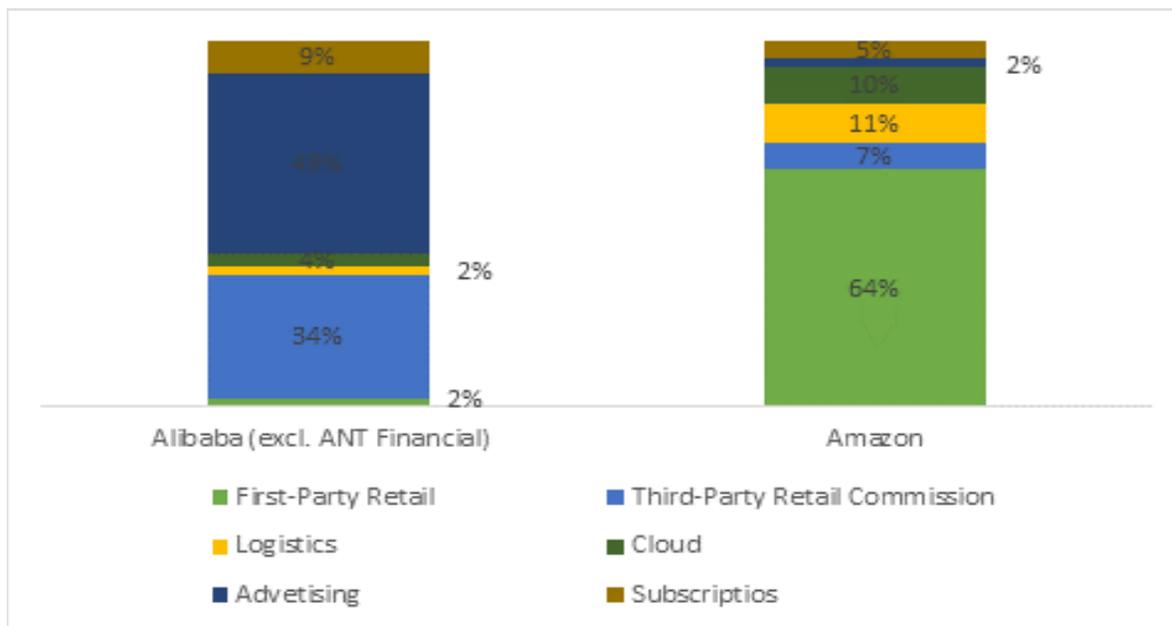
**Exhibit 1** Role of Mobile in e-Commerce, China vs. Global, 2017



Source: PwC, "Total Retail 2017," Research Report, <https://www.pwccn.com/en/retail-and-consumer/publications/total-retail-2017-china/total-retail-survey-2017-china-cut.pdf>, accessed June 2019.

Note: Base = 905 (China), 24, 471 (Global).

**Exhibit 2** Amazon vs. Alibaba Group Revenue Comparison



Source: Casewriter based on presentation by Erica Matthews, Alibaba Group, 2019.

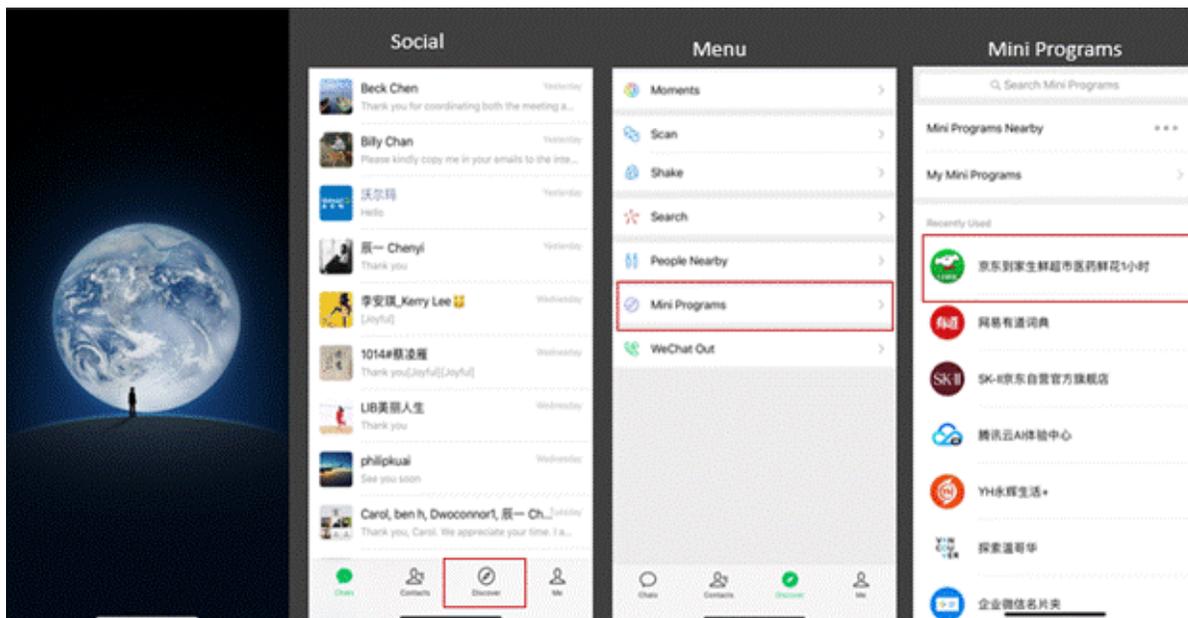
Exhibit 3 Role of Social in Shopper Journey, China vs. Global, 2017



Source: PwC, "Total Retail 2017," Research Report, <https://www.pwccn.com/en/retail-and-consumer/publications/total-retail-2017-china/total-retail-survey-2017-china-cut.pdf>, accessed June 2019.

Note: Respondents were asked to select all options that apply. Base = 905 (China), 24,471 (Global)

Exhibit 4 Screenshot of Navigating to Mini-Programs in WeChat App



Source: <http://jingdaily.com/wp-content/uploads/2019/04/wechat-mini-program-playbook-for.pdf>, accessed Dec. 2019.

**Exhibit 5a** Dada Pick-Up Counter at Walmart Store, 2019



Source: Troy Beeler, April 2019.

**Exhibit 5b** Delivery Pick Room at Walmart Store, 2019



Source: Troy Beeler, April 2019.

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