e-pharma: delivering healthier outcomes

India is adapting to e-commerce rapidly with increasing internet penetration, mobile-first consumer behavior and improving digital payments infrastructure. Apparel, mobile and electronics, lifestyle, consumer products, etc. have already seen a significant traction in online transactions.

However, despite having high potential, the pharmaceutical industry continues to remain unpenetrated online. A significant portion of the Indian population fails to receive quality medicines on a timely basis. Rise in chronic/lifestyle diseases is drawing focus on the need to provide timely access to quality medicines. The industry is witnessing growth due to the rising per capita income and renewed focus of the government and households on healthcare spending. As per our estimate, the total addressable medicine market for e-pharmacies is likely to reach US$18.1 billion by 2023 from US$9.3 billion in 2019 at a CAGR of 18.1%, presenting a huge market opportunity.

Despite the global trend in China, the US and Europe, India has been a slow adapter of new technologies in the sector. Therefore, it comes as no surprise that offline pharmacies continue to dominate the distribution channel. Given their vast network, the traditional model of retail pharmacy will co-exist with the online pharmacies. However, e-pharmacies have the potential to enable a gradual yet faster shift of the market from an unorganized sector to an organized sector and provide a wider assortment of product accompaniments to enable greater access.

With unorganized retail pharmacies being the dominant distribution channel, achieving efficiencies in the supply chain has been a challenging task. This is where e-pharmacies come into play as they reduce multiple layers in the pharma supply chain to achieve efficiencies. The e-pharmacy market is expected to grow at a substantial pace, however, certain challenges remain:

a Trust: trust poses a challenge for online pharmacies because the customers are apprehensive about receiving counterfeit medicines and are unaware about where the medicines are being sourced from. While this is an issue of perception, it's a lot easier to trace the source of medicines with e-pharmacies viz.-a-viz. offline retail.

b Order and customer support issues such as timely delivery and quick redressal: after sale services are critical, since customers would not have a physical store to address their grievances promptly.

c Access: reaching remote parts of cities remains a challenge, with logistics playing an important part in the growth of this industry, because timely delivery of medicines is critical.

d Lack of mobile apps in regional languages: there is a need to develop mobile apps in multiple regional languages to help smartphone users in tier 2/3 cities to easily navigate through the interface and place orders.

e Data privacy: data privacy, especially with health records and prescriptions, is also a major concern for customers using the e-pharmacy platforms.

Global peers have pivoted from being just an online pharmacy to becoming a one-stop shop for all health needs, which includes an e-pharmacy, online consultations, health management and diagnostics. With three different business models coexisting in India - pure marketplace, hybrid – inventory and hybrid – franchise, the focus shifts from the products and services offered to the experience the customer gets – which will ultimately determine their loyalty towards a company and not keep discounts at the centre of their choice.

Online pharmacies, one of the verticals of e-commerce, are starting to gain momentum in India and have tremendous growth potential. We anticipate the e-pharma market to reach US$2.7 billion by 2023; with incremental flow from diagnostic, other health products and wellness services like health insurance. With several e-pharma players already operational and many e-commerce players looking to expand their portfolio, multiple scenarios including consolidation could play out. Additionally, the current hyperlocal players, could also use their delivery infrastructure effectively by introducing pharma delivery to their bouquet of solutions. It won't be surprising to see leading e-commerce players or large conglomerates having the technology, retail network and financial muscle make a bold move of entering this space, starting with a clean slate and disrupting the e-pharmacy space. However, such a move will require a greater understanding about the technical nature of the pharma business and its associated compliances to be successful.

Ankur Pahwa

Partner and National Leader
E-commerce and Consumer Internet
Ernst & Young LLP

Foreword

Executive summary

India will emerge as the sixth largest pharmaceutical market in the world by 2020 with an estimated market size of US$55 billion[1]. Increase in chronic diseases, rising per capita income and higher healthcare spend are the major drivers of growth.

Retail pharmacies (about 800,000 offline pharmacies) are the dominant distribution channel, accounting for 85% of the total pharmaceutical sales in India. While the overall market is split between acute (65%) and chronic medications (35%), the chronic market is projected to grow faster due to the increase in the prevalence of lifestyle-related diseases.

e-pharma presents a total addressable market size of ~US$9.3 billion as of 2019 and is estimated to grow at a CAGR of 18.1%to reach US$18.1 billion by 2023, driven by an increase in the targetable acute medicine market as a result of more efficient last mile delivery through collaboration with local pharmacies and partnership with hyperlocal delivery companies resulting in a shorter delivery time. Further, an increase in the ageing population base, greater internet penetration and higher smartphone adoption along with the convenience of ordering medicines online is likely to increase the   market penetration of the e-pharma market, resulting the e-pharma market to reach US$2.72 billion by 2023. e-pharmacies are likely to create a win-win situation for the stakeholders in the value chain. Consumers can access a wider range of authentic products at affordable prices, local pharmacies earn additional revenues by partnering with e-pharmacies, pharmaceutical companies may secure insights on drug sales while medical professionals can reach out to a wider audience. Finally, the government gets additional revenue for the exchequer in the form of taxes and compliance fees.

There are three prevalent operating models in this segment – market place, hybrid (offline/online) inventory led and hybrid (offline/online) franchise-led depending on the way the supply chain is structured. Each of these models have varying levels of profitability and differing levels of investment in assets. The current margins in the offline chain are about 30%, split between the stockist and the local pharmacy. The e-pharmacy models either seek to keep all the margins of the local pharmacy and/or partake a substantial part of the stockist margin.

With discounts (up to 35% for some) exceeding the margins in the chain (of 30%), cash burn in the industry is commonplace. The race to scale, when achieved, may help companies gain most of the 30% share in the chain which may be augmented by additional margins from sourcing directly from pharma companies and selling other products (private label supplements, FMCG, etc.) and services (diagnostics, etc.). Discounts are expected to reduce and a lowering of delivery costs may also help speed up the path to profitability.

In addition to the global retail e-commerce giants in India, others may compete in the online pharmacy space. Amongst multiple scenarios, consolidation of e-pharmacies may take place in the form of brownfield expansion through acquisition by a large horizontal player, greenfield expansion via opening of a vertical arm by one of the e-commerce players, tie-ups with hyperlocal companies through which logistics can be leveraged, widening of product portfolio by vertical players such as e-grocers, and conglomerates integrating together to build their own capabilities.

We expect investor interest to continue in this space, until certain scenarios, as discussed in this report, play out. The table below lists out selected PE/VC deals in the e-pharma sector. For this analysis, we have considered a period till 31 December 2018 and have taken information from various public sources.

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1   TechSci Research, Assocham and RNCOS

Company	Investor	Total funding (~US$m)
Medlife International Private Limited	Founders, Family Trust and others	30
Practo Technologies Private Limited	Sequoia, Matrix, Tencent and others	179
NetMeds Marketplace Private Limited (NetMeds.com)	Sistema Asia Fund, Daun Penh Cambodia group, OrbiMed and others	99
91Streets Media Technologies Private Limited	Eight Roads Ventures India, Bessemer Venture Partners, InnoVen Capital and others	108
1MG Technologies Private Limited	Sequoia, Maverick Capital, HBM Healthcare investments and others	83

Source: Crunchbase, VCCEdge, Thomson One, News articles

In addition to selling drugs and FMCG products, e-pharmacies would also have to focus on enhancing the user experience to differentiate their platform from the competitors. We believe those companies which offer end-to-end solutions for consumers are likely to be most successful. A host of other products may also emerge as a result such as patient management systems, electronic health record softwares, online platforms for local retail pharmacies and e-consultations.

Contents

India's pharmaceutical market

India is likely to emerge as the sixth largest pharmaceutical market in the world by 2020

The Indian pharmaceutical sector was valued at US$33 billion in FY17 and is projected to grow at a compound annual growth rate (CAGR) of 19% to reach US$55 billion by 2020, due to an increase in chronic diseases, an ageing population base and an increase in disposable income. According to EY analysis, India is likely to emerge as the sixth largest pharmaceutical market globally by 2020. India has a competitive edge as a manufacturing destination; its production costs are lower than the US[1] (one third the cost) and other European countries (almost half the cost).

Due to economic growth and increasing awareness, the purchasing power of India's middle class has improved, making personal healthcare and wellness services more affordable. Lifestyle diseases (such as diabetes), cardiovascular diseases and diseases such as cancer[2] have increased the demand for critical pharmaceutical drugs. Several leading multinationals from Europe, the US and Japan like GSK and Novartis, among others, have established their local presence in India to gain access to India's domestic demand at a competitive cost and expand their export opportunities.

▶ The Indian pharmaceutical industry is highly fragmented with approximately 24,000 manufacturers, of which a majority (94%) are unorganized.

▶ Generics accounted for 75% of the market share[3] while 25% of the share was accounted for by OTC (over the counter)[4] and patented drug sales in 2015.

▶ Acute medicines account for 65% of the market, while chronic medicines account for the remaining 35%[5].

▶ 50% of India's pharmaceutical manufacturing is presently exported and the other half is used for domestic consumption.

Retail pharmacies are the dominant distribution channel accounting for ~85% of overall pharmaceutical sales in India

The Indian retail pharmaceutical sector was valued at US$25 billion in FY17 and is projected to grow at a CAGR of 15% to reach US$59 billion from 2018-2023.

Figure 1: India's retail pharmaceutical market (in US$ billion)
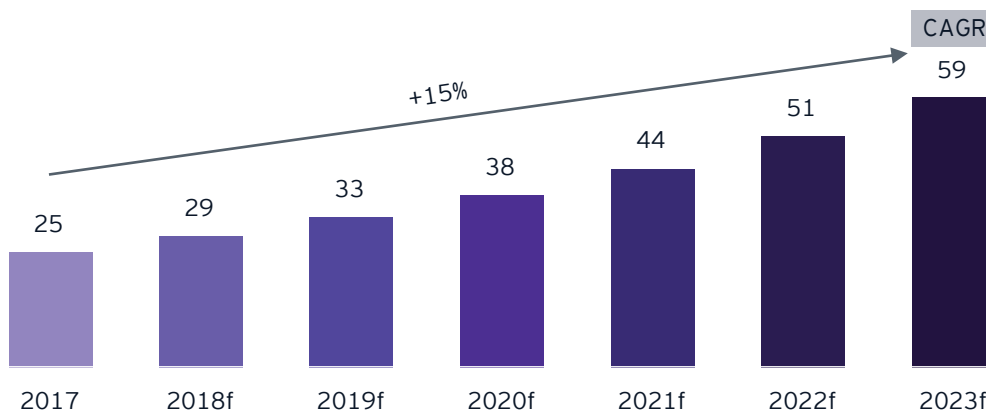
Source: IBEF; f = forecast

1   IBEF, Pharmaceuticals Market India, October 2018 (https://www.ibef.org/download/Pharmaceuticals_Oct_2018.pdf)

2   https://www.livemint.com/Politics/qXjSfkDp3RDnpjsFpTCkkM/Over-20--of-Indians-suffer-from-chronic-diseases-report.html

3   https://www.rncos.com/Market-Analysis-Reports/Indian-GenericDrug-Market-Outlook-2020-IM779.htm

4   Generic are drugs that are allowed for sale after the expiry of the patent of the original drugs. OTC: Over-the-counter (OTC) drugs are medicines sold directly to a consumer without a prescription

5   A chronic disease is a condition you can control with treatment for months. Asthma, diabetes and depression are common examples. Acute conditions are severe and sudden in onset. This could describe anything from a broken bone to an asthma attack

Pharmacy retail refers to the sale of pharmaceutical products, which includes over-the-counter drugs and prescription (Rx) drugs, FMCG (fast moving consumer goods) products (typically, pharmacies in India also sell FMCG products alongside medicines) as well as services (blood testing, sugar testing, etc.)

Although unorganized pharmacies[6] dominate 85% of the market, consumers' growing health awareness and knowledge about additional services offered by organized players is likely to result in a gradual shift towards modern pharmacy retail outlets. Moreover, with technology bringing in efficiency in the supply chain (which currently includes the manufacturer, stockist, several sub-stockists and the consumer) and giving customers a wide range of products to choose from, it is probable for organized players to gain market share from the unorganized segment.

Comparison with other regions

Table 1: India vs. global peers

Theme	Factor	India	US	Continental Europe	China
Driver	Internet penetration as of 2017*	35%	84%a	87%b	53%
Market size	Addressable e-pharma market size by 2022f in US$ billion	15.2	336	189	62
Regulations	Strictness and complexity of the regulations	●	●●●●	●●	●●
Distribution channel	Retail as a % of the distribution channel	~85%	85%	95%	25%
	Presence of retail chains#	Low	High	Low	Low
	Dominant distribution point	Offline pharmacies	Offline pharmacies	Offline pharmacies	Hospitals
	Share of top three retail pharmacies	Fragmented market with over 800,000 pharmacies	82%	Fragmented with >130,000 independent pharmacies	5.4%
	Share of top three distributors	Fragmented market	90%	DNA	34.6%

*Internet penetration is defined as the number of households with at least some form of internet connection (mobile or broadband)

DNA: data not available

#High indicates that retails chains have multiple outlets (like CVS Health in the US). Low means retail chains do not have/are not allowed to have multiple outlets.

a: https://www.marketingcharts.com/digital-81804

b: https://www.statista.com/statistics/377585/household-internet-access-in-eu28/

f = forecast

Source: EY analysis; Frost & Sullivan; Deutsche Bank Market Research

6   2018; EY analysis

The US: it has the most complex and strict regulatory policy that acts as a barrier for several players. The chronic mail order market already stands at US$50 billion as on 2017, with mature players such as CVS Pharmacy, Express Scripts and Optum catering to this segment. The e-pharma/mail order market is undergoing a shift from offering a pure delivery to delivery plus enhanced user experience from the likes of PillPack and Circadian Design, which are assisting the users in getting disciplined about the timing and intake of medicines.

Continental Europe: in terms of the dominance of independent pharmacies (and not pharmaceutical chains), Continental Europe is very similar to India, but the regulations governing the space are clearer in that region. The current regulatory framework prohibits single offline brick-and-mortar businesses from attaining a considerable size, thereby pointing towards low consolidation potential in the fragmented offline market.

China: despite a regulatory push from the government for online pharmacies, only 25% of the distribution channel is through retail with most medications still delivered through the hospital route. However, 111, Inc., over the years, has created the largest virtual pharmacy network of over 100,000 pharmacies and has been focusing not only on online retail but also on online wholesale distribution. PAGD is also creating an ecosystem of services ranging from online consultations to health and wellness programs and health checkups to online sales of drugs to not only increase their customer base but also retain the existing users.

e-pharma: sizing the opportunity

The e-pharma market size is expected to grow to US$2.72 billion by 2023 given the tailwinds this industry is witnessing; ancillary services and products provide greater growth opportunities

e-pharmacies solve several issues faced by the healthcare ecosystem – with last mile delivery and access to medicines at reasonable prices, being on top of the list. Last mile delivery remains a challenge given the geographic presence of most semi-urban and rural customers, but some e-pharma companies have already started partnering with third party logistics (3PL) players to ensure timely delivery of medicines to tier 2 and 3 towns. As per EY analysis, 35% of the domestic market relates to chronic medications and the remaining 65% to acute medicines. Basis our discussion with industry players, it was found that online pharmacies may target 80% of the chronic market and 25% of the acute medicine market, totaling for an addressable market size of ~US$9.3 billion in 2019. Further, it is expected that online pharmacies would be able to target 85% of the chronic market and 40% of the acute medicine market by 2023, totaling for an addressable market size of US$18.1 billion by 2023. This increase in the acute target market can be attributed to an improvement in last mile logistics through collaboration with local pharmacies, wherein the nearest local pharmacy would dispatch the product upon the placement of an order, and further supported by partnership with hyperlocal delivery companies enabling delivery of acute medicines ideally within two hours.

e-pharma market penetration levels are expected to increase over the next four years, given the increasing internet penetration and smartphone ownership along with the ease and convenience of ordering medications on through an e-commerce platform along with the rise in chronic disease treatment, which might increase the e-pharma market size from ~US$360 million to US$2.72billion.

Figure 2: Total addressable medicine market for online pharmacies in India (in US$ billion)
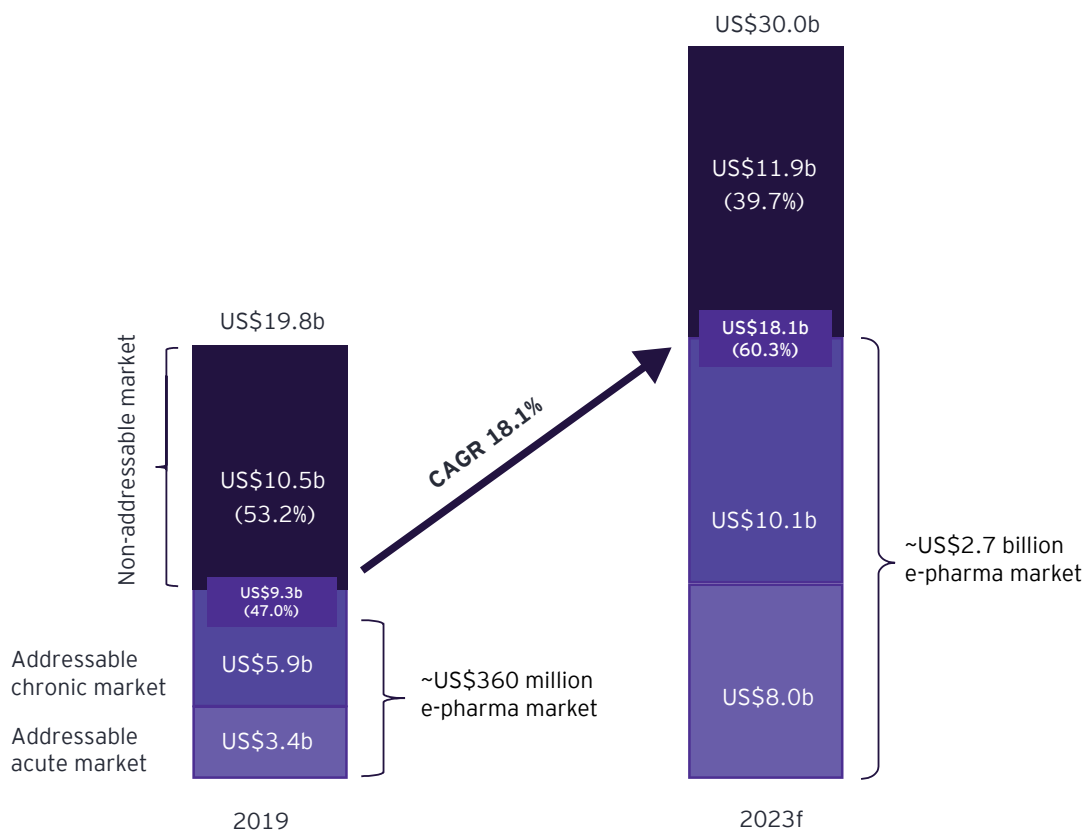
Source: EY analysis; f = forecast. Conversion factor US$1 = INR70

Note: The figures above represent only the market for medicines, however, other services and products like diagnostics and insurance provides incremental revenue streams has been discussed under other sources of revenue generation.

> "
> If you look at the US, 18.5% of the ~US$270 billion market is mail-order pharmacy, while India is currently between 1.5%-2%. Given the annual run rate that we are seeing for the industry today, we believe penetration levels can go to over 10% by 2023 on the back of rising demand of medicines, timely delivery, increased internet penetration and rising awareness. There is a need for the channels of the market, including the right mix of online and offline presence, to promote larger adoption and better access to quality products; both of which will result in better quality of healthcare in our country.

Pradeep Dadha
Founder, NetMeds

Other sources of revenue generation

e-pharmacies have other potential revenue generating opportunities due to the ubiquity by the internet

As per EY analysis, the following opportunities may be revenue accretive to e-pharma companies while giving them the opportunity to increase their overall market.

▶ Fast moving consumer goods (FMCG): the FMCG market is the fourth largest sector in the Indian economy. The sector has grown from US$31.6 billion in 2011 to US$52.8 billion in 2017-18[1] and is further expected to grow at a CAGR of 27.8% to reach US$103.7 billion by 2020, due to the rising disposable incomes. Household and personal care (51%), healthcare (31%) and food and beverages (19%) are the three main segments within FMCG.

▶ Diagnostics services: in 2016, the Indian diagnostic services market was at US$6.1 billion with the organized market standing at US$1.5 billion (25%) and the unorganized market at US$4.6 billion (75%). e-pharma companies are likely to provide a platform to the larger chains by hiring and training phlebotomists to collect samples and with the increase in samples, they plan to set up small labs to undertake routine tests.

▶ Other services: some players (e.g., Practo) in the online healthcare industry are currently following the patient management model, where the platform serves as a market place for doctors and allows patients to book appointments. Other avenues to monetize the platform can be by providing ePrescription services, where both doctors and patients will get the option to view past prescriptions, irrespective of their physical location.

▶ Life and medical insurance: the Indian insurance industry underwrote premiums worth US$94.5 billion in FY2018, with health insurance contributing ~US$5.5 billion of this market. With increasing awareness and rising disposable incomes combined with a renewed focus on healthcare, the market for health insurance has been growing at 10%-15% year on year. Within emerging economies, India is one of the least insured countries with penetration rates of approximately 20% up until 2016[2] - providing insurance players a large untapped market.Given that online pharmacies double as information aggregators and help customers make better healthcare decisions, they could partner with insurance providers to facilitate insurance needs for their customers. Additionally, options may be available for e-pharma customers to make informed choices in switching or renewal of their policies.

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1   https://www.ibef.org/industry/fmcg-presentation

2   https://www.ey.com/Publication/vwLUAssets/EY-global-analysis-of-health-insurance-in-india/$File/ey-global-analysis-of-health-insurance-in-india.pdf

▶ Financial services: in India, out of pocket expenditure amounts for 70% of the total healthcare expenditure[3]. During a medical emergency, in the absence of a health insurance or emergency funds, personal loans are generally taken to meet medical expenses. However, high interest rates and time required for loan disbursement makes them less attractive and provides a space for fintech players to offer an alternate form of loans. Some of the startups like LetsMD.com, InCred, Arogya Finance and NBFCs like Bajaj Finserv offer medical finance in the form of "no cost EMI loan" offered in collaboration with hospitals with the loan amount being directly disbursed to the hospitals. For such loans, the ticket size of medical loans typically ranges from INR20,000 to INR5,00,000, and the tenure is six months to three years[4]. The e-pharma companies can partner with these fintech companies and NBFCs to generate potential new leads for these companies and this would act as an additional source of revenue for the e-pharma companies.

3   https://thewire.in/health/who-is-paying-for-indias-healthcare
4   https://economictimes.indiatimes.com/wealth/borrow/should-you-opt-for-no-cost-emi-loans/articleshow/58429474.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

Enablers for e-pharma

Increasing internet penetration in India

In December 2017, the number of internet users in India were 465 million[1]. These figures are expected to reach 751 million in 2021, showing a growth at a CAGR of 12.7%. In 2017, internet penetration in the rural areas (defined by number of internet users out of total rural population) was 18% and this is likely to grow at a considerable rate of 26.3% to reach 45% by 2021[2].

1   IAMAI, NASSCOM, EY analysis
2   IAMAI, NASSCOM, EY analysis

Fall in smartphone prices and data rates have led to an increase in internet adoption

The number of smartphone users in India is likely to double by 2021 owing to a fall in the price of smartphones.

Additionally, after the launch of Jio, the data tariffs plummeted by 97% in 2017, thereby increasing the consumption of data.

Eighty-six percent of urban users and 87% of rural users consider mobile as the primary device for accessing the internet, largely driven by availability and affordability of smartphones.

Figure 3: Data consumption and data pricing trend
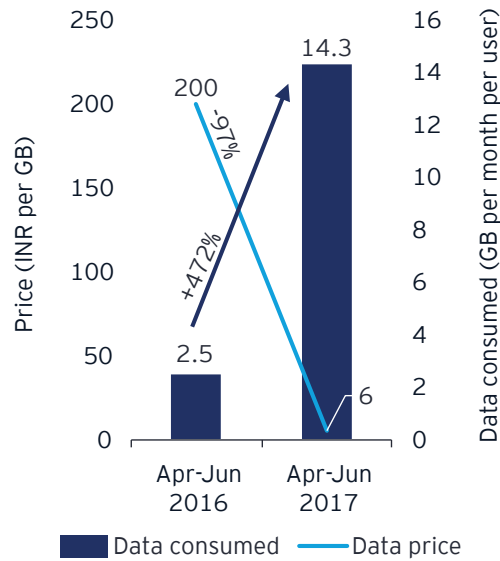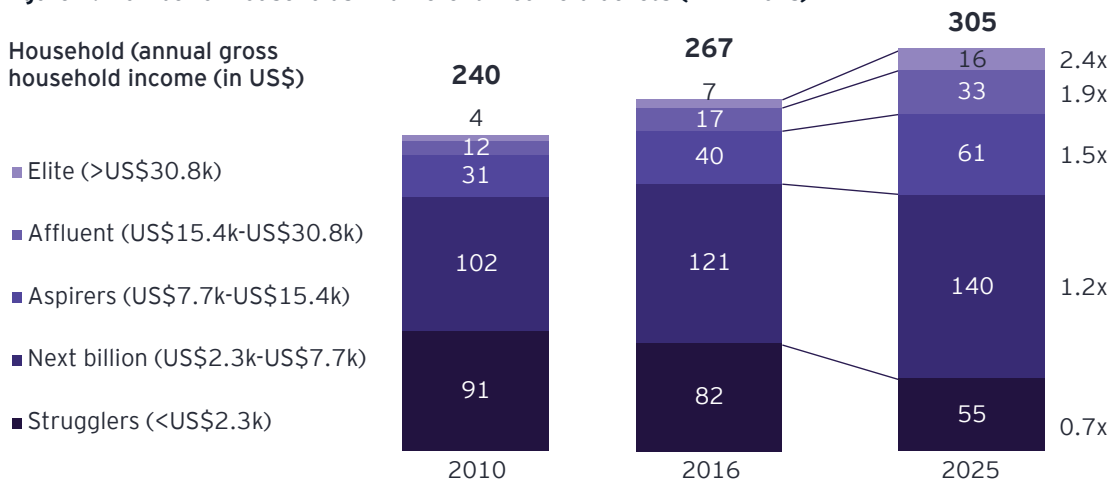

Source: EY analysis

Ageing population

According to the World Bank, the percentage of India's population aged 65 years and above grew at a CAGR of 3% to 80 million between 2007-2017. The aging population along with prevalence of chronic diseases and increasing life expectancy, is expected to drive the demand for healthcare services and products in India. With elderly population in urban areas becoming familiar with online shopping[3], it is expected that some of them might switch to online pharmacies to purchase medicines as well.

Rising spending power

Individual disposable income in India has experienced a rapid growth, making healthcare products and services more affordable.

Figure 4: Number of households in different income brackets (in millions)

Household (annual gross household income (in US$)

- Elite (>US$30.8k)
- Affluent (US$15.4k-US$30.8k)
- Aspirers (US$7.7k-US$15.4k)
- Next billion (US$2.3k-US$7.7k)
- Strugglers (<US$2.3k)

Source: BCG analysis, CCI City Income Database

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3   https://tech.economictimes.indiatimes.com/news/internet/how-senior-citizens-are-becoming-heavy-e-commerce-users/55257833

New draft rules and guidelines for e-pharmacies

Till recently, there were no specific guidelines and rules governing the functioning and operations of e-pharmacies in India. To minimize ambiguity, Government of India has proposed a draft policy[1]. Some of the guidelines issued by the Ministry of Health and Family Welfare according to the new draft rules are:

▶ It will now be mandatory for e-pharmacies to register with a central authority.

▶ e-pharmacies will be restricted from selling drugs covered under the categories of the narcotic and psychotropic as referred to in the Narcotic Drugs and Psychotropic Substances Act, 1985 as well as tranquilizers and the drugs as specified in the Schedule X of Drugs and Cosmetics Rules, 1945.

▶ e-pharmacy registration holders shall have a customer support facility and grievance redressal for all stakeholders. The facility shall be available for 12 or more hours each day throughout the week.

▶ The premises of e-pharmacies will be inspected every two years.

▶ The information received by the e-pharmacy registration holder from the customers by way of prescription or in any other manner shall neither be disclosed by the e-pharmacy registration holder for any other purposes nor shall the same be disclosed to any other person – rendering it impossible for them to share data with agencies like life insurance companies to supplement their business. Any violations could lead to either suspension or cancellation of licenses.

▶ e-pharmacies are ordered to keep the data localized i.e., they cannot store it on international servers. They are not allowed to share the patient's data with anyone but the central/state governments.

▶ e-pharmacies are prohibited from advertising any drug on radio, internet, print or any other media for any purpose, thereby eliminating a possible source of revenue for them.

1   Ministry of Health & Family Welfare, Notification dated 28 August 2018; G.S.R 817 (E)

Value chain perspective from e-pharmacies

1 Consumers

a Wide selection of products at competitive prices: e-pharmacies offer a vast variety of pharmaceutical and other health and wellness products and services at competitive prices since they procure them directly from the manufacturers and distributors in bulk.

b Authentic products: twenty-five percent of the pharmaceutical products sold in India are expected to be counterfeit in nature[1]. e-pharma companies solve this problem by sourcing the products directly from the manufacturer or authorized distributors.

c Convenience: e-pharmacies allow customers to avail multiple services like buying medicines, booking consultations and ordering services at their fingertips through well-designed apps/websites. In all cases, it is through convenience that they get new customers on-board in this on-demand economy.

d Consumer education: e-pharmacies are better poised at educating customers about the side effects of products/services, sending reminders about medicines' intake and informing about cheaper substitutes, creating stickiness with their platform

e Greater anonymity: e-pharmacies allow customers to order medicines at their doorstep keeping their identity private and confidential. This works wonders in cases where buyers refrain from visiting their local pharmacy with a fear that their disease or condition would be revealed.

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1 https://www.downtoearth.org.in/news/fake-drugs-constitute-25-of-domestic-medicines-market-in-india-assocham-45393

"

When you look at the offerings of e-pharmacies –availability of medicines, convenience of getting them delivered at your home in 24 hours (or sometimes even less), the guarantee of the products being authentic in nature combined with reasonable discounts – there is no doubt in our mind that the sector will grow at a rapid pace in the coming five years. But for the growth of the sector and benefit of the community, we also need to include small shops and pharmacies in this journey to use technology more effectively and make it a win-win situation for everyone. Smart integration of online, offline, logistics and data is the only way to make a greater impact on healthcare delivery in our country especially in Tier 2 towns and beyond.

Ravikant Sharma
CEO, Sastasundar Ventures

2 Pharmacies

a Tech infrastructure: e-pharmacies offer technological infrastructure to the pharmacies, which could include online prescription services and a platform to list their products.

b Procurement efficiency leading to reduced prices: retail pharmacies can leverage e-pharmacies' data and use it in the procurement of only those products which are either needed or in demand. Retail pharmacies can then make customized recommendations using predictive analytics. Additionally, this helps them consolidate their inventory, reduce working capital requirements and increase their margins.

c Online promotion: pharmacies can leverage the platforms to actively promote their products and services.

3 Pharmaceutical companies

a Distribution transparency and efficiency: presently, the products change 8-10 hands before they reach the end user (from the manufacturer to the distributor to the super stockist, sub-stockist retail pharmacy and finally to the end user). But e-pharmacies offer a transparent distribution channel that reduces the layers.

b Business intelligence: the data on the purchasing patterns of the consumers and the feedback received helps in making more informed decisions with respect to manufacturing and brand promotions.

4 Medical professionals

a Customer acquisition: by listing their services on the platform, medical professionals can acquire customers for a fraction of the cost and generate additional income.

b Patient management and e-Prescription software: online prescription services and medical records help medical professionals serve their patients better and reduce complexity

5 Marketplace sellers

a Source of revenue: e-pharmacies give marketplace sellers additional streams of revenue. They list their products on the online platform which helps them acquire new customers, which prevents the marketplace sellers to attract due to their physical restrictions.

b Technology infrastructure: web-based and mobile interfaces help in managing listings, orders and customer relationships. e-pharmacies provide marketplace sellers with analytics, which the latter uses to target ads to a certain group of customers basis their needs.

6 Government

a Data analytics: the government will have access to all the data the e-pharmacies generate with respect to buying trends geographically, which it can use to make public healthcare decisions.

b Source of revenue: e-pharmacies provide the exchequer with an additional source of revenue in the form of registration fees and taxes.

Understanding customers' challenges

Key concerns highlighted by customers on various platforms

Some of the key Indian online pharmacy players have over 10 million combined app downloads on the Google Play Store. The following are some of the key concerns highlighted in the customers' reviews:

1. Order placement and delivery

Customers have voiced concerns regarding the players accepting orders only to cancel them later, sometimes a day or two after the order is placed. Delay in delivery was highlighted as a major concern and in fact, constituted a major share of complaints. Disruption in the supply of chronic medicines poses health risks to consumers, especially those who are located at a distance from the supply chain. Some of the other concerns voiced include:

▶ Replacement with substitutes (i.e., same formulation, different brand as compared to what the doctor prescribed) or order manipulation (delivering more quantities than needed) without informing the customers.

▶ Missing items from the order and incorrect pricing (higher than MRP).

2. Customer support

▶ Delays and refusal to process refunds

▶ Inaccessibility or unresponsiveness of customer care agents

▶ Absence of order tracking and updates

▶ Cancellation of orders by agents

Additional challenges faced by e-pharmacies on customer retention

1. Trust

▶ Consumers are wary of where the product has been stored since there is no physical location from where they are buying the product.

▶ Inadequate background checks can turn futile for consumers as it allows even individuals who are not licensed to be doctors or providers of diagnostic services to sign up on the portal of e-pharmacies. In such cases, giving the wrong diagnosis or incorrect prescription of medications increases.

2. Order rejection

Brick and mortar stores typically don't ask for a prescription when selling medicines and since getting a prescription means spending extra money on a consultation, people avoid submitting it. Therefore, when they order medicines online, they simply place an order without uploading a prescription – leading to a rejected order.

3. Enhanced data security

Data security is essential for e-pharma companies to carry out their operations. A customer profile contains all the personal details of the patient (address, age, sex, diseases contracted/suffering from, dosages, etc.). It is easy to manipulate the data for filing fraudulent prescriptions and accessing or changing the medical records and hence consumers may be wary of sharing their information online.

Addressing customers' challenges
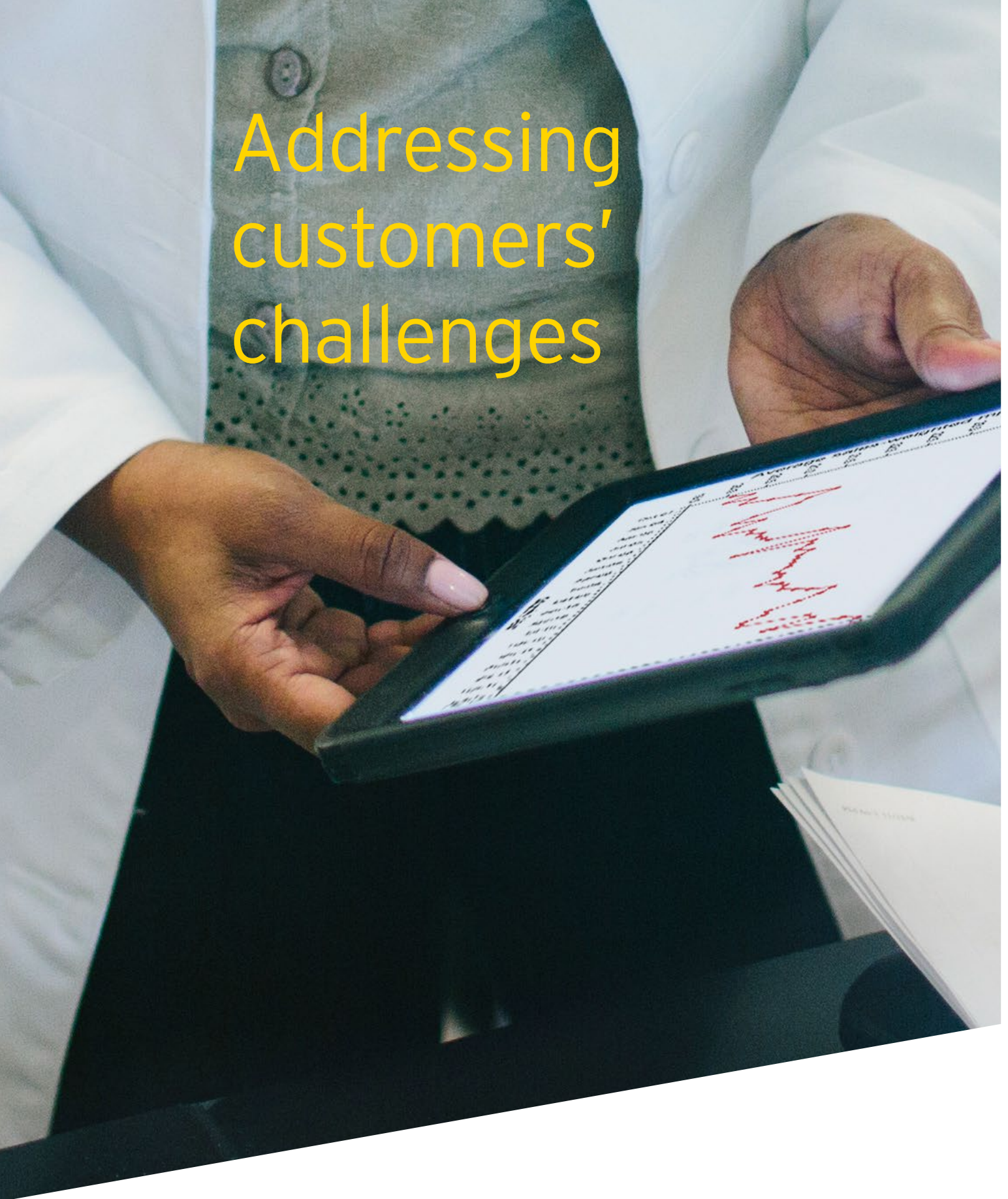
Following are some suggestions on how to mitigate these challenges

1. Marketing and assisted commerce

e-pharmacies may opt for small kiosks at malls and other places that receive high footfall to spread the word about their products and services. They may also conduct marketing campaigns across various cities and towns, to educate customers about the ease and convenience the online process offers and provide discounts to gravitate customers from offline retail to online retail.

In Tier 2 cities and beyond, people often lack the knowledge of ordering products online. In these markets, it might be more useful to have an offline to online model where kirana stores can be targeted, giving them the technology and training to help customers place orders via an app. Just like the model Sasta Sundar has already been implementing, where with their Health Buddy outlets (franchisees), after customers show their prescriptions, the Health Buddy uploads the order on the system.

2. e-Prescription services

To address the use of a single prescription several times over, a centralized e-Prescription service platform might be useful in tracking the patients' buying patterns, where the doctor would upload the prescription and the pharmacies would use them to verify the sale of drugs. A failure to monitor e-Prescription may increase the risk of drug misuse and addiction as well as self-medication, which may harm patients' health.

3. Mobile applications in regional languages

The ability to come out with advertisements and applications in regional languages may be a big determinant in learning who succeeds in the market and increase customer adoption since 88% of the Indian population is non-English speaking. The growth in the number of internet users using local Indian languages is likely to increase due to the increasing acceptance of internet in semi-urban parts of India. The Hindi user base is expected to outgrow the user base of English by 2021, followed by Marathi and Bengali. Sixty-nine percent of the internet users consume content in regional languages.

Further in the semi-urban landscape, language plays a pivotal role in interacting with customers. Customizing the application to interact with customers in their own vernacular languages, across different touch points such as mobile application and customer support, is crucial for establishing trust and encouraging customers to transact online in the future.

Figure 5: Regional language internet users

Total regional language internet users
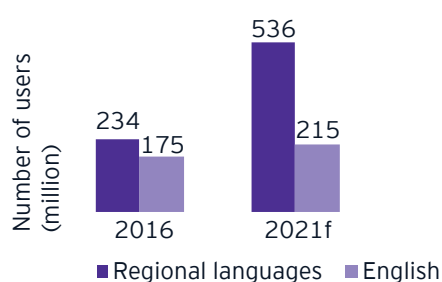
Source: IAMAI, NASSCOM, EY analysis; f = forecast

Table 2: Solutions to the challenges faced by the e-pharmacies

What is the problem?	Solution
Misuse of prescriptions over multiple times	Centralized e-Prescription service
Inability to access prescriptions/past records, irrespective of the location	
Lack of technical know-how needed to order from the mobile application	On-ground marketing
Trust deficit	
Inability of people to read and converse in English	Mobile applications in regional languages

## Use of technology in e-pharmacies to improve pharma supply chain

▶ A Blockchain[1] -based system may provide protocols for enhanced security and render efficiency in various scenarios, including permit exchange and authentication, prescription authentication and product tracking.

Further it might enable e-pharma companies to efficiently manage their inventory levels to prepare for spikes in demand. With better visibility into the inventory of wholesalers, the e-pharma companies are likely to manage their inventory levels for a shorter period, thus creating an efficient flow of product and delivering products on time to the customers. As companies grow and sell more inventory, these serialized tracking and tracing features may steadily become a necessity for pharmaceutical organizations.

▶ Artificial Intelligence[2] may also improve the quality of services. It is likely to provide operational efficiency, precise diagnosis, effective disease prevention and daily health prevention to improve customers' trust and retention. An AI assistant can be employed for patient routing, symptom and medical record collection connected to Doctor's dashboard thereby providing accuracy of online consultations.

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1 A Blockchain, is a growing list of records, called blocks, which are linked using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data.
2 Artificial Intelligence is a branch of computer science dealing with the simulation of intelligent behavior in computers.
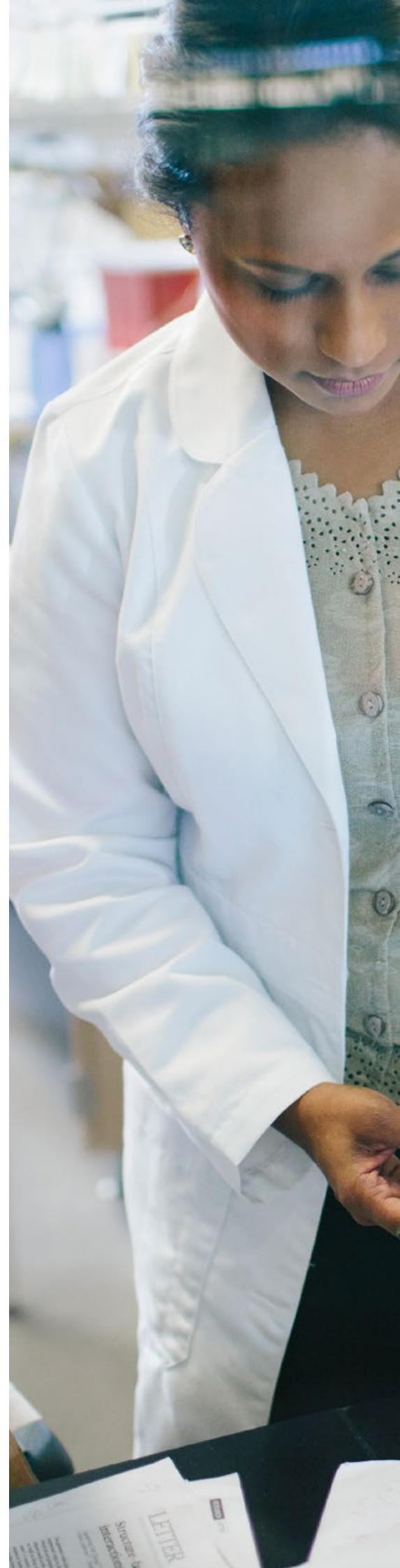
Insights from Chinese companies: how technology has enabled them serve the entire value chain

▶ 111, Inc. focuses on improving user experience for different participants in an ecosystem

111, Inc. uses advanced technologies enabled by Artificial Intelligence (AI)-driven predictive analytics to automate re-orders in pharmacies, deploy smart supply chain capabilities to improve data feedback loop of consumers for drug manufactures, facilitate and improve patient diagnosis for medical professionals using an AI-powered medical assistant services and has a comprehensive and cost-effective end-to-end healthcare management system for consumers.

▶ PAGD: a user experience empowered by an in-house medical team and innovative technology solutions

As per the company reports, customer satisfaction rate in 2017 was 97%. PAGD provides a one-stop portal which connects users to online and offline healthcare resources. High customer satisfaction is achieved as it offers quality healthcare 24X7 with minimal waiting time and it's medical-related costs are also low.

Ecosystem of comprehensive services for customers

PAGD has an in-house medical team as well as self-developed AI technology to provide high quality healthcare services. As of 2017, the company had 888 medical personnel. The team has the ability to provide on an average 370,000 online consultations daily. The company co-operates with a nationwide network of healthcare service providers covering 3,100 hospitals including 1,000 Class III Grade A hospitals, 1,100 health check-up centers, 500 dental clinics, and 7,500 pharmacy outlets. Its online pharmacy collaborates with third-party drug delivery couriers to provide 24/7, an hour express delivery across 14 cities in China.

The data collected from the plethora of services mentioned above is used to train the AI assistant technology to further improve the overall efficiency and accuracy, thereby further enhancing the customer experience

Operating models

"

Seventy-two percent of out of pocket (OOP) healthcare expenses are being spent on buying medicines where patients face several challenges including fulfillment, pricing and personalization. Retail pharmacies cannot fulfill 35% of the prescriptions due to their limited stocking abilities, particularly high-value chronic bills. Several e-commerce players address the issue of inventory limitations and service capabilities by adopting an inventory model with a large warehouse setup. That, however, comes with high operational costs, thus making it inefficient and burden-some for quick medicinal needs.

Physical presence of pharmacies will co-exist with e-commerce players to cater to the needs of both chronic and acute patients. However, we foresee large disruptions in models adopted by both online/offline players due to burgeoning demand for medicines at discounted prices.

Vishnu Prasath
Founder, Pulse+

Table 3: Operating model for an offline pharmacy

Offline				
Operating model	**Key feature**	**Operating margins**	**Pros**	**Cons**
Offline pharmacies procure from several distributors and stockists (who procure it directly from the manufacturer).	Currently, these are the most widespread form of pharmacies in India with the presence of over 800,000, most of them being non-branded.	~20%	▶ Well spread out and within the reach of most large population centers. ▶ Undertake deliver to the consumer as they can delivery within a small radius. ▶ Lower customer acquisition cost and can enjoy better customer loyalty	▶ High fixed costs (rent). ▶ Lower margins if the cost of salaries and rent are accounted for. ▶ Inability to scale given high capex requirement. ▶ Limited inventory. ▶ Quality of drugs cannot be guaranteed since they do not control sourcing.
Example: Emami Frank Ross				

Source: EY analysis

Table 4: Operating model for a market place model player

Pure market place model				
Operating model	**Key feature**	**Operating margins**	**Pros**	**Cons**
Aggregates several pharmacies and help themselves to onboard the offline pharmacies to its platform. Once the order is placed, the company and pharmacy verifies the prescription. Thereafter, the order gets dispatched by the company using either their in-house logistics team pharmacy or their third-party logistics (3PL) partner.	Aggregates and bring buyers and sellers on a common platform without holding any inventory.	~25%-27%	▶ Asset light business model – till they invest in warehouses, which happens with scale. ▶ Ability to provide other affiliated services. ▶ Data analytics: customer spending patterns may be used to target other products/ services	▶ They have little control over the quality/ authenticity of products sold. ▶ No physical presence for customers to visit which may lead to trust issues.
Example: Practo Technologies				

Source: EY analysis

Table 5: Operating model for a franchisee-led hybrid player

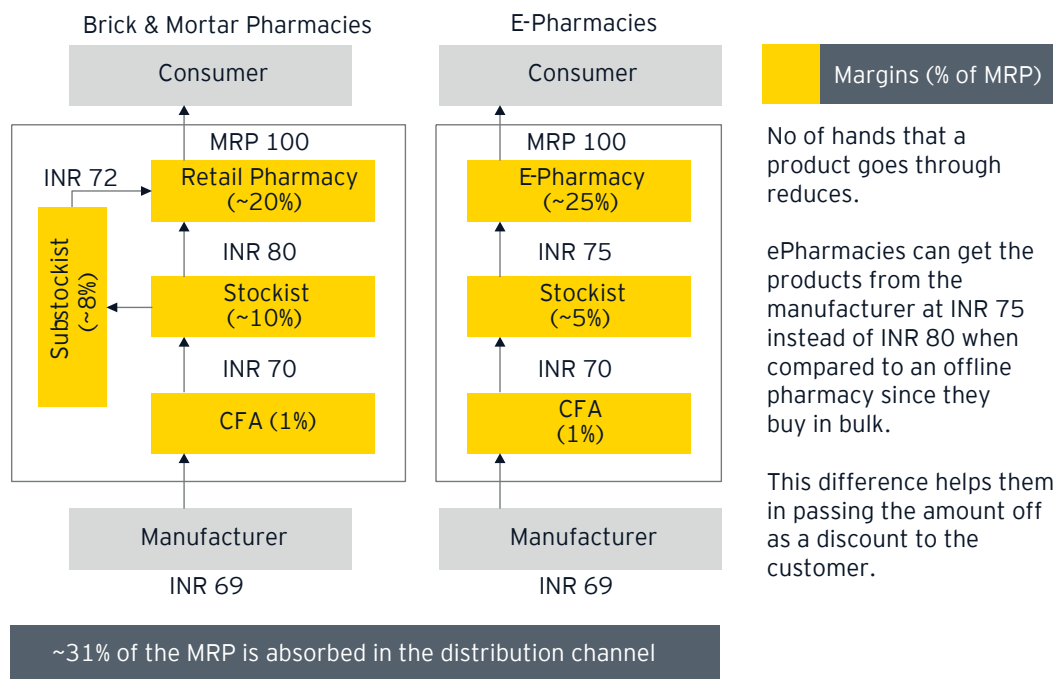| Hybrid: franchisee led				
Operating model	**Key feature**	**Operating margins**	**Pros**	**Cons**
Once the order is placed online, the franchisee verifies the prescription, then order the goods. Once the goods are delivered to them (from a distributor, which may also be an online pharma company), the order is delivered to the customer.	Companies following this model have their online platforms (website or mobile applications) as well as on-ground presence via franchisee partners/ pharmacies.	~25%-30%	▶ Operational costs are borne by the franchise. ▶ They have both online and offline presence. ▶ Procurement is directly from the manufacturer, ensuring authentic products and higher margins. ▶ Inventory ordering may be optimized using customer ordering patterns for chronic diseases as it is predictable. ▶ Higher operating margins. ▶ Gives customers the option to pick up goods from the store or have them delivered at home.	▶ Investment in franchisee and quality of growth depends on franchisees' selection. ▶ Franchisee may also place an order on other platforms. ▶ Franchisee is the face and therefore brand is likely to get impacted by the customer service that franchisee may provide. ▶ More asset-intensive compared to an online platform.
Example: Sasta Sundar				

Source: EY analysis

Table 6: Operating model for an inventory led hybrid model

Hybrid: inventory led				
Operating model	**Key feature**	**Operating margins**	**Pros**	**Cons**
Companies under this model operate using warehouses and tie-ups with pharmacies at strategic locations. A part of inventory is sourced from the manufacturer and other part, from local pharmacies. Once the order is placed, the prescription is verified by a pharmacist who then dispatches the products to the fulfilment center/ dark store, where the goods are packed and then sent for delivery.	It is a hybrid of inventory and marketplace model.	~20%	▶ They are in control of the entire process – from sourcing medicines to vetting prescriptions. ▶ Ability to service orders quickly due to hyperlocal pharmacy partners. ▶ Also gives customers the option to pick up goods from the local pharmacy partner.	▶ Working capital requirements for inventory management. ▶ More asset-intensive compared to a platform. ▶ Lower margins compared to the franchise-led model. ▶ A high focus on inventory management is needed
Example: NetMeds				

Source: EY analysis

Figure 6: Margin profile

Brick & Mortar Pharmacies

Consumer
MRP 100
Retail Pharmacy (~20%)
INR 80
Stockist (~10%)
INR 70
CFA (1%)
Manufacturer
INR 69

INR 72 — Substockist (~8%)

E-Pharmacies

Consumer
MRP 100
E-Pharmacy (~25%)
INR 75
Stockist (~5%)
INR 70
CFA (1%)
Manufacturer
INR 69

Margins (% of MRP)

No of hands that a product goes through reduces.

ePharmacies can get the products from the manufacturer at INR 75 instead of INR 80 when compared to an offline pharmacy since they buy in bulk.

This difference helps them in passing the amount off as a discount to the customer.

~31% of the MRP is absorbed in the distribution channel

Source: EY analysis

The high discounts currently given by some players (25%-35%) may attenuate as the customer acquisition cost stabilizes. Additionally, on reaching scale, players can deal directly with manufacturers and drive down costs.

Savings in operational cost may turn out to be the route to profitability. Models that can reduce local delivery costs while increasing the share of stockist margin are more likely to reach profitability faster.

Emerging scenarios

The battle for conquering India's e-commerce market has become a race with the top three players competing for a share of the consumer's wallet spend, however e-pharma is emerging as an interesting space with large opportunities that are gaining interest from some of the key players in this space.

The e-tail market in India is estimated to be worth ~US$18 billion in GMV terms as of 2017[1]. Here's how e-pharma vertical may play out in the following scenarios in the near future and the rationale why this vertical may make sense for some of these players.

Scenario 1 : global consumer tech giant making inroads

In the US, a leading e-commerce retail giant has made acquisitions to expand their product portfolio, broadening its reach in the healthcare market. In addition to expanding its footprint online, it has also been following the same model in India, i.e., by acquiring stakes in retail store chains with prime real estate to act as distribution centers. This strategy aligns its rationale with which it acquired a food chain in the US.

In India, a similar strategy can be adopted to acquire or enter into a JV with an online pharmacy to sell medicines. Given the customer base it has, they may potentially scale at a rapid pace, given their reach and delivery network.

Scenario 2 : homegrown e-commerce

After the acquisition by the world's largest leaders and capital having being infused in the business, India's home-grown e-commerce player now has the financial muscle to compete with its other deep pocketed rivals. With the acquirer having deep understanding of the retail business, omni channel presence through physical stores and strong sourcing capabilities, they can become a meaningful player in the segment.

Scenario 3 : FinTech and HealthTech

Due to demonetization (in November 2016), India adopted payment wallets at a rapid pace - the number of transactions happening on mobile wallets increased by 10x from 0.3 billion in FY15 to 3.4 billion in FY18 . Companies developed a digital payments infrastructure used their platform to scale the e-commerce businesses. Pharmaceutical products can be another extension of their product offering. Since the local kirana store is already a customer of most of these wallet companies, they can use these stores as pick-up points for customers who live in areas with little to no access to quality medicines. The strategy is an asset-light model with kirana stores becoming fulfilment points for the company. Similarly, HealthTech players can add this on to their existing portfolio to provide more products and services to customers and become a more complete healthcare ecosystem.

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1 (https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/zomato-swiggy-and-ubereats-paying-higher-cash-on-delivery/articleshow/65142563.cms)

Scenario **4**

: Hyperlocal companies (food tech, grocery, delivery only business)

Hyperlocal players have a strong logistics network in the urban areas and are a potential partner for last mile delivery for the online pharmacies. As we move towards an on-demand economy, these players are likely to gain scale and have a huge database of customers. With delivery being done several times a day to these customers, making their entry in medicines is only a natural extension for them. The top two- three players together have over 125,000 delivery executives on the road. These companies also partner with online pharmacies to help them meet the delivery needs.

Scenario **5**

: Indian conglomerates with presence in retail + telco

One of India's largest conglomerates with interests spanning from telecom to petrochemicals to retail has strategic assets and offline presence that may be leveraged to enter the business. With over 250 million subscribers pan-India, their telecom arm has access to a vast trove of data which is likely to be used to target ads, products and services to individuals.

Their retail business, with over 3,700 stores, may act as distribution centers to sell the products. With over a dozen subsidiaries, including retail chains selling consumer electronic items, food and groceries, the conglomerate has a wider reach on the ground than most retailers.
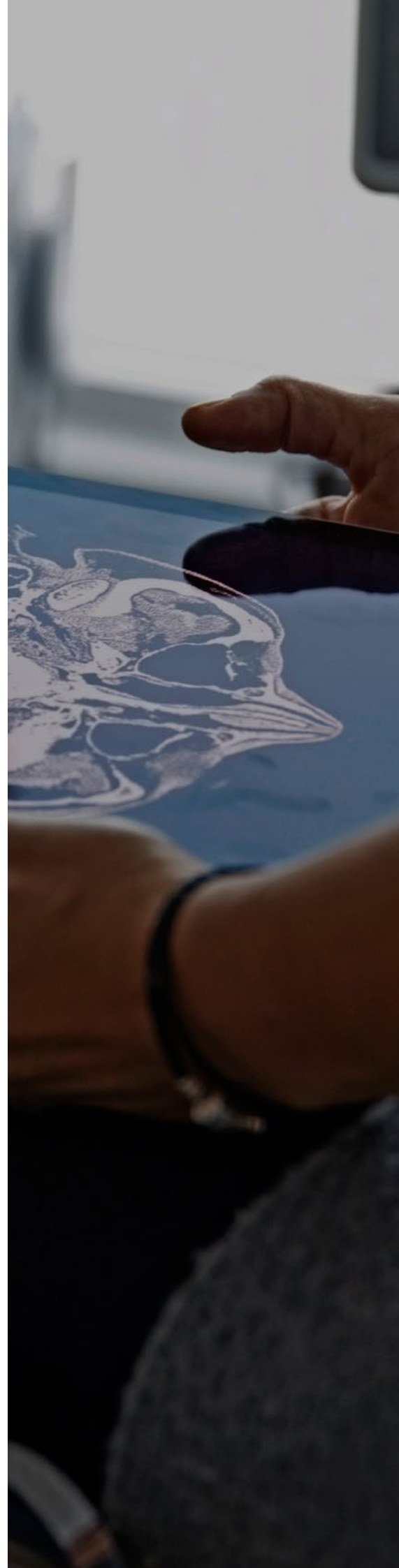
Multiple scenarios might play out in this highly competitive market

1 Consolidation of e-pharmacies

With at least a dozen known online pharmacies operating in India, the sector is expected to consolidate with a few players who are controlling the market and the rest are likely to either close their shop or be acquired/merged by other players. Despite the large addressable market, the bigger players often chase out the smaller/less capitalized competitors.

2 Brownfield expansion: vertical play for the horizontal player

Given the way the e-commerce market has shaped, the player with the largest pool of capital to spend on discounts and customer acquisition is surviving in India, there is a probability of a similar trend in this industry. Acquisitions by the biggest e-commerce players in India will depend on three things:

1   Repeat customers (indicating loyalty/customer stickiness)

2   Locations served/real estate presence

3   Intellectual Property (tech IP in the form of any software)

They can enter the market and bring down costs significantly owing to their superior tech infrastructure and data analytics tools.

3 Greenfield expansion: the biggest e-commerce players enter on their own

They may decide to enter the market on their own rather than opting for an acquisition. These companies have deep knowledge of consumer behavior coupled with strong analytics and technological capabilities and capital, which they may leverage to build their business.

4 Go hyperlocal to enhance last mile delivery network

Given, most of the e-pharmacies are currently building out their distribution network and channels, trying to reach the maximum number of customers, something the established hyperlocal platforms already have - having tie-ups and getting an access to the food delivery companies' delivery network might be more sensible.

5 Vertical players widening their product portfolio

For niche vertical players like e-Grocers, which are already selling consumer products like balms, chyawanprash, etc., selling medicines adds another feather to their product portfolio. Like hyperlocal platforms, their strength lies in the service they provide in the form of product deliveries to the end user – something they can leverage if they plan to deliver medicines as well.

6 Integrated conglomerates entering the market and building its own capability

If given a chance, these companies may enter this market single handedly, without opting for any tie ups owing to their retail presence, combined with their telco assets, which provides the internet network to over 250 million people, and disrupt the entire market if they believe the total addressable market is large and synergistic to their other businesses. They are likely to have the capital to sustain short-term losses and build a delivery network to reach the remotest parts of the country.

Key take

Though the Indian e-pharma market presents unique challenges, it is a large addressable market of ~US$18.1 billion by 2023 due to increasing smartphone ownership, reducing data costs, rising internet penetration and a shift towards e-commerce which is a byproduct of the convenience and competitive pricing (from clothing to books to now medicines) the online market offers.

1 There is more to online pharmacies than just selling medicines. They provide a host of other services ranging from diagnostic services to FMCG products to help generate revenues.

2 In addition to creating value for the customers, a host of B2B opportunities may also emerge (for e.g., patient management services and tech provided to local retail pharmacies to get them on board). The most successful companies in this sector will enable end-to-end solutions for everyone in the pharma value chain: right from the consumers to the regulators.

3 Offering a wide range of services at an affordable cost is not sufficient. Companies should also focus on enhancing the user experience by making the entire process, from ordering to delivery (with last mile delivery), seamless. Besides this, companies may also aim at building a one-stop shop to retain their customers (customer stickiness) for all healthcare needs. Once they gain traction and success in cross selling different products, they may look for options to leverage the platform to raise the average revenue per user and become profitable.

4 Despite increasing downloads of the mobile applications, certain challenges like the language barrier and trust deficit owing to the online presence remain. E-pharma companies are likely to rely on innovative digital marketing strategies to increase their customer base, user engagement and transactions/user.

5 A major issue with the online pharmaceutical sector is compliance, i.e., the online players only dispense medicines after they verify the prescription. e-pharma companies are likely to be more compliant than their traditional counterparts, who refrain from keeping records of any sort.

aways

6 A key concern for every online pharmacy company today is the last mile delivery. Reaching the remotest parts of the country with their small operating base is a challenge. In the broader e-commerce segment, companies have tied up with India Post to serve more than 22000 pin codes pan-India.

7 Expansion to other countries in the South East Asian region is likely to be possible once the technology platform is built out. e-pharma companies could use the same model and replicate the business model in other countries provided there are favorable factors to enter new markets.

8 Online pharmacies can also partner with insurance companies where they can sell medicines at a reduced price to the insurance companies' consumers. In the US there are mail-order pharmacies which work with health insurance companies to manage large drug orders and keep the prices low for insurers.

While the market today is relatively small compared to the addressable opportunity, we believe with increasing awareness and demand, market penetration rates are likely to increase over the next four years. While initially the chronic medicine segment would be the major driver of growth, the future growth may be attributed to larger share of acute medicine segment in the overall mix as a result of improved last mile logistics. As customer comfort on sharing their health data improves and the trust-deficit reduces, there will be a faster shift online.

Case study

1 PillPack

A leading e-commerce player of the US saw value in PillPack and acquired it in June 2018 despite initial talks hinting at a large retail giant acquiring it. Some of the reasons that made this move possible could be the increase in total addressable market, access to mail-order pharmacy licenses in 49 states, propensity of their subscription members to consume more pharma drugs compared to non-members.

PillPack is one of the largest and oldest players operating in the e-pharma space in the US

How PillPack works

1 Patient fills script and pays typical copay

2 PillPack acts as a digital pharmacy

3 PillPack delivers monthly prescriptions and over-the-counter (OTC) drugs

Value proposition

PillPack delivers every month	▶ Patients' medications, including vitamins and OTCs sorted by dosage ▶ The medicines are packaged into easy-to-use packets/dispensers ▶ Other common pharmacy product such as inhalers, creams, etc. are also available
PillPack monitors patients' accounts	▶ Automatically coordinates with doctors for refills ▶ Regularly reviews the schedule of the medication ▶ Manages claims for bills with insurance companies
Updates the medication as it changes	▶ Works closely with patients and healthcare providers for any updates pertaining to the change of the medication
Patients can order whatever, whenever required	▶ Makes sure patients have enough medicines even when they are travelling ▶ Easy to order or pause medications/supplies ▶ Can ship medication overnight
Access account from anywhere for patients	▶ 24/7 call service available ▶ Allows chatting with pharmacist using an app ▶ Check bill, track shipments and review medication list in the dashboard
Pateints know what they owe	▶ Each month the patient is responsible for copay

Source: CrispIdea Research/PillPack website; EY analysis

Case study 2

China's largest virtual pharmacy:

111, Inc.

111, Inc., one of the first online retail pharmacies in China, is reshaping the retail pharma value chain using its retail platform. It serves consumers directly and has enabled over 100,000 pharmacies through comprehensive, intelligent and integrated distribution solutions, which represent the largest virtual pharmacy network in the world, according to Frost & Sullivan.

All in one business model that enabled network effect which led to 111, Inc. becoming the world's largest virtual pharmacy. At its core, its business model is primarily trying to solve two issues:

a Reduce prescription refill time for ~300 million-~400 million chronic patients.

b Inefficient drug distribution system in a highly fragmented market consisting of ~450,000 pharmacies and ~13,000 distributors. The company intends to bypass ~13,000 distributors and source the products directly from the manufacturers, thereby providing shorter inventory days in hand at far more competitive prices.

Table 7: Description of 111, Inc.'s business models

Business models	Description	Product offerings
Online retail pharmacy – direct sales	111, Inc. acquires products from suppliers and sells them directly to consumers through the "1 Drugstore" app or website. The company maintains the inventory and offers competitive pricing to attract and retain consumers.	Prescription drugs: over 170,000 stock-keeping units (SKUs) with online order and offline delivery services. OTC drugs: 79,000 SKUs including western medicines and traditional Chinese medicine. Over 10,000 SKUs of nutritional supplements. Contact lenses, medical supplies and devices such as bandages and thermometers, other products such as skin care, family care products and baby products. Cloud-based solutions such as cloud-based inventory management services and cloud prescription services.
Online retail pharmacy – Marketplace model	Over 200 third-party sellers offer products to consumers over the online marketplace. Sellers set their own prices but are also encouraged to set competitive prices. 111, Inc. collects commission and platform usage fees from the sellers.	
Online wholesale pharmacy	111, Inc. provides comprehensive, intelligent and integrated distribution solutions through their "1 Drug Mall" app or website to independent pharmacies, pharmacy chains, in-house pharmacies of clinics and hospitals as well as selected distributors.	
Offline retail pharmacy	111, Inc. operates 12 offline retail pharmacies branded as "Yi Hao Pharmacy". The laws and regulations mandate that 111, Inc. needs to have an offline presence in order to operate the online pharmaceutical retail business.	
Online consultation and e-Prescription services	It provides services through a licensed hospital, namely, Southwest Internet Hospital, using user-friendly interface on 1 Drugstore website. Consumers access online consultations primarily through photo and text consultations (offered for free) as well as phone calls and video (fixed fee per consultation). e-Prescription is an integral part of the online consultation.	Medical team comprises of more than 60 full-time in-house medical professionals and over 2,000 external doctors that have been registered.

Source: CrispIdea Research/PillPack website; EY analysis

Case study

3

## China's largest healthcare ecosystem platform:

PAGD

PAGD is one of the few Chinese internet health providers having the most extensive and comprehensive services on offer underpinned by several monetization channels. They have created a one-stop healthcare platform to reshape user behavior by offering services such as consultation from hospitals and doctors, fitness, beauty care, health check-up, pharmacies and insurance.

- Unique business model, "If we build it they will come": PAGD has expanded far beyond traditional financial services creating health platforms where they draw in customers first and monetize their offerings by cross-selling and up-selling, contrast to the traditional model where a customer buys a product first and the service offerings are then customized based on their needs. PAGD has achieved success and built a one-stop portal connecting users to comprehensive online and offline healthcare resources.

- Creating user stickiness through strategically maximizing user interactions and engagement by addressing all healthcare needs of users

Figure 7: Different healthcare needs of users

Strategically maximize user interactions and engagement by addressing full range of healthcare needs of users
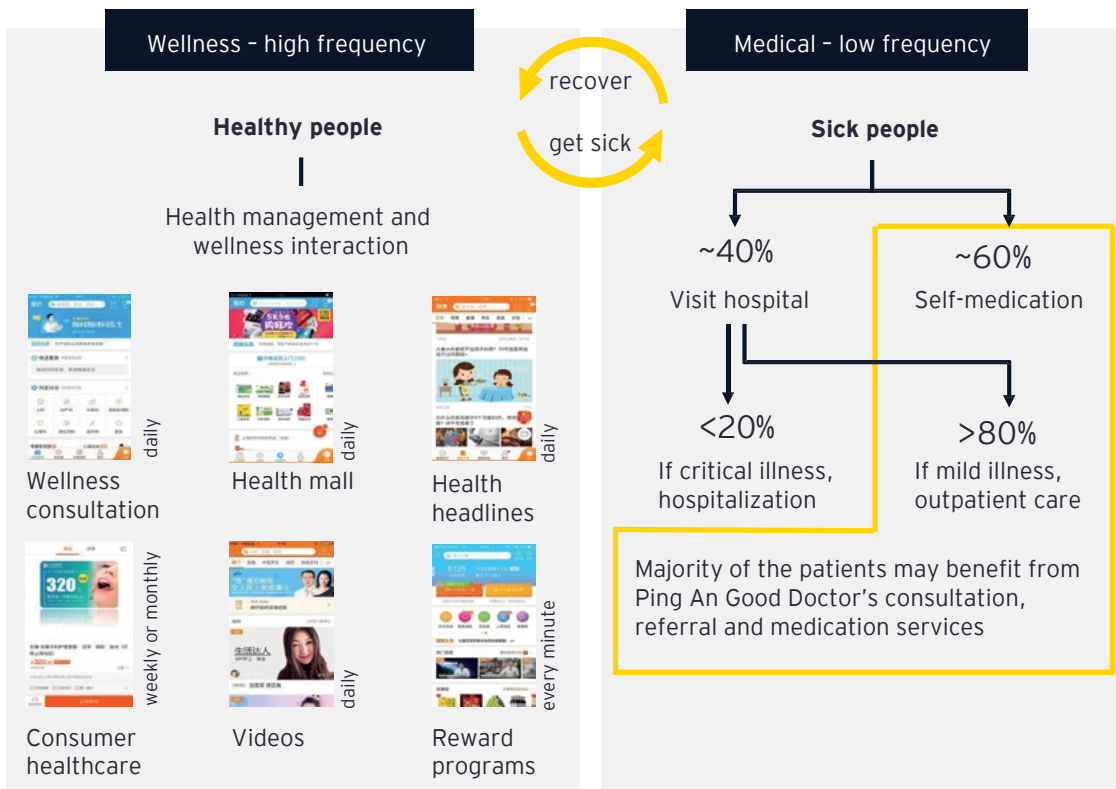
Note: Ratios estimated based on Frost & Sullivan analysis and data from National Bureau of Statistics
*Average ratio for 2017.

Source: PAGD investor presentation

- Providing comprehensive services underpinned by diversified monetization channels – with a vision of being portal to healthcare in China.

Table 8: PAGD online services with monetization channels

	Customer healthcare	Health mall	Family doctor service	Health management and wellness interaction
Online services	▶ Health check-ups ▶ Genetic testing ▶ Beauty care ▶ Oral hygiene services	▶ Healthcare products (health supplements, TCM and chemical drugs and medical devices) ▶ Wellness products (personal care products, maternal and infant care, and sports and fitness) ▶ Other products (home appliances, home necessities)	▶ Online consultation ▶ Hospital referral and appointment ▶ In-patient arrangement ▶ Second opinion services	▶ Recommend personalized content in the health headlines ▶ Reward plans to motivate users to engage in a healthy lifestyle ▶ Health programs and tests
Monetization	▶ Sale of customized healthcare service package to individuals as well as corporate clients	▶ Sales of products under direct sales model and commissions from third party vendors under the market place model	▶ Fee for service for online consultation and other medical services ▶ Fee from value-added packages and membership fees	▶ Large and highly engaged user base provides monetization opportunities through advertisements
Gross margins (revenue - COGS)	45.90%	10.20%	43.70%	82.60%

Appendix 1: Abbreviations	
Abbreviation	**Definition**
CAGR	Compounded Annual Growth Rate
OTC	over the counter
FMCG	fast moving consumer goods
Rx	prescription drugs
PBM	pharmacy benefit managers
TPA	third party administrator
GDP	Gross Domestic Product
ASP	Average Selling Price
IT	Information Technology
MRP	maximum retail price
PAGD	Ping An Good Doctor
AI	Artificial Intelligence
SKU	Stock Keeping Unit
SEC	Securities and Exchange Commission
TCM	traditional Chinese medicine
CTR	click through rate
CPS	cost per SMS
JV	Joint Venture
SEA	South East Asia
TAM	total addressable market
B2B	business-to-business
ARPU	Average Revenue Per User
PRC	People's Republic of China
3PL	third party logistics

Contact us

Partners

Ankur Pahwa
Ankur.Pahwa@in.ey.com
Partner and National Leader, E-commerce and Consumer Internet

Sailesh Rao
Sailesh.Rao@in.ey.com
Partner and National Leader, Corporate Finance Strategy

Authors

Aseem Madan
Aseem.Madan@in.ey.com
Vice President, Corporate Finance Strategy

Jay Mehta
Jay2.Mehta@in.ey.com
Associate, Corporate Finance Strategy

Avinash Kumar
Avinash9.Kumar@in.ey.com
Associate, Corporate Finance Strategy

Contributors

Shantanu Gharpure
Shantanu.Gharpure@in.ey.com
Director, Corporate Finance Strategy

Soumya Ranjan
Soumya.Ranjan@in.ey.com
Vice President, Corporate Finance Strategy

Rajnish Gupta
Rajnish.Gupta@in.ey.com
Executive Director, Business Tax Advisory

Our offices

Ahmedabad
2nd floor, Shivalik Ishaan
Near C.N. Vidhyalaya
Ambawadi
Ahmedabad - 380 015
Tel: + 91 79 6608 3800

Bengaluru
6th, 12th & 13th floor
''UB City'', Canberra Block
No.24 Vittal Mallya Road
Bengaluru - 560 001
Tel: + 91 80 4027 5000
          + 91 80 6727 5000
          + 91 80 2224 0696

Ground Floor, 'A' wing
Divyasree Chambers
11, O'Shaughnessy Road
Langford Gardens
Bengaluru - 560 025
Tel: + 91 80 6727 5000

Chandigarh
1st Floor, SCO: 166-167
Sector 9-C, Madhya Marg
Chandigarh - 160 009
Tel: + 91 172 331 7800

Chennai
Tidel Park, 6th & 7th Floor
A Block, No.4, Rajiv Gandhi Salai
Taramani, Chennai - 600 113
Tel: + 91 44 6654 8100

Delhi NCR
Golf View Corporate Tower B
Sector 42, Sector Road
Gurgaon - 122 002
Tel: + 91 124 443 4000

3rd & 6th Floor, Worldmark-1
IGI Airport Hospitality District
Aerocity, New Delhi - 110 037
Tel: + 91 11 4731 8000

4th & 5th Floor, Plot No 2B
Tower 2, Sector 126
NOIDA - 201 304
Gautam Budh Nagar, U.P.
Tel: + 91 120 671 7000

Hyderabad
Oval Office, 18, iLabs Centre
Hitech City, Madhapur
Hyderabad - 500 081
Tel: + 91 40 6736 2000

Jamshedpur
1st Floor, Shantiniketan Building
Holding No. 1, SB Shop Area
Bistupur, Jamshedpur – 831 001
Tel: + 91 657 663 1000

Kochi
9th Floor, ABAD Nucleus
NH-49, Maradu PO
Kochi - 682 304
Tel: + 91 484 304 4000

Kolkata
22 Camac Street
3rd Floor, Block 'C'
Kolkata - 700 016
Tel: + 91 33 6615 3400

Mumbai
14th Floor, The Ruby
29 Senapati Bapat Marg
Dadar (W), Mumbai - 400 028
Tel: + 91 22 6192 0000

5th Floor, Block B-2
Nirlon Knowledge Park
Off. Western Express Highway
Goregaon (E)
Mumbai - 400 063
Tel: + 91 22 6192 0000

Pune
C-401, 4th floor
Panchshil Tech Park
Yerwada
(Near Don Bosco School)
Pune - 411 006
Tel: + 91 20 4912 6000

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