

Design of a start-up enterprise based on the new live streaming business format in the pharmaceutical industry

Yu Liu

Nanyang Technological University, Singapore

N250003@e.ntu.edu.sg

Abstract. Based on my more than four years of work experience in the pharmaceutical industry, I once regarded "compliance" as an external constraint rather than a core competitiveness. In the era of short videos, numerous peers have released content that skirts regulatory rules to drive traffic and achieve considerable profits. This situation made me somewhat eager for quick success and instant benefits, as I was overly eager to achieve better results and more career development opportunities. Consequently, pharmaceutical supervision laws and regulations such as Decree No.24 once became a straitjacket that hindered me from creating outstanding and influential promotional content. Later, when contemplating entrepreneurship, I realized this issue—what was a constraint for me could also be an opportunity from another perspective. Upon reflection, the particularity of the pharmaceutical industry (e.g., the stringent restrictions on publicity stipulated in the Advertising Law and the Drug Administration Law) is precisely the cornerstone for building user trust. Some practitioners have resorted to edge-ball practices, leading to market chaos and a decline in consumer trust. During a business trip for market research last year, I found that traditional pharmaceutical marketing models (e.g., offline promotion) are experiencing diminishing efficiency. These models have failed to fully embrace the digital trend, resulting in the loss of early traffic dividends. The number of in-store purchasers has decreased, and more young people choose to buy pharmaceutical products through online food delivery platforms.

Keywords: pharmaceutical e-commerce, live streaming sales, entrepreneurial design, compliance, value proposition, customer persona

1. Introduction

China's pharmaceutical and health market is in an era of drastic transformation. The continuous deepening of the "Internet Plus Healthcare" policy has brought unprecedented digital opportunities to the traditional pharmaceutical industry. In particular, the pilot launch of online medical insurance payment and the attempts of food delivery platforms at live streaming for pharmaceutical product sales signify the accelerated formation of the closed loop of online pharmaceutical purchase. However, in contrast to the rapid development of live streaming in traditional e-commerce, the live streaming business format in the pharmaceutical and health sector has developed slowly. Behind this phenomenon is a stringent regulatory system composed of laws and regulations such as the *Advertising Law* [1], the *Drug Administration Law* [1] and the *Interim Measures for the*

Supervision and Administration of Internet Medical Diagnosis and Treatment [2]. For a long time, such regulation has been regarded by many practitioners as a "straitjacket" for innovation, leading to two extremes in the industry: some practitioners hesitate to move forward for fear of compliance risks; others take reckless risks for traffic and profits by conducting exaggerated promotion and edge-ball marketing, which has seriously damaged consumer trust and industry reputation.

Through profound reflection on my own career experience, I have come to realize that "compliance" is not a constraint but the cornerstone for building long-term trust and core competitiveness in the special pharmaceutical industry. There is a huge market gap between the current market chaos and users' strong demand for professional and credible health content. Therefore, this paper aims to systematically construct a pharmaceutical live streaming entrepreneurship model rooted in medical professionalism and compliance, which is designed to solve market pain points, meet user needs, explore ways to discover, shape and capture business opportunities under the context of stringent regulation, and ultimately realize the unification of commercial and social values.

2. Discovering and shaping business opportunities: insight into the future from the gaps between policies and the market

Entrepreneurial opportunities are often hidden in policy changes, market inefficiencies and user complaints. The discovery of business opportunities for this project stems from my cross-analysis of these three aspects after a business trip.

3. Source of business opportunities: policy dividends and market vacuum

3.1. Structural opportunities driven by policies

In recent years, the national multi-level and multi-dimensional policy support has paved the way for the upgrading of pharmaceutical e-commerce. The issuance of regulations such as the *Opinions on Further Improving the Medical and Health Service System* [3] and the *Measures for the Supervision and Administration of Online Drug Sales* [4] has not stifled online channels, but rather justified them through "compliance". Most notably, first-tier cities such as Shanghai, Hangzhou, Beijing and Shenzhen have successively launched pilot programs of online medical insurance payment. This means that the core payment closed loop of "online pharmaceutical purchase - medical insurance settlement" has been opened, which greatly reduces the user's payment threshold and releases huge potential demand. At the same time, policies encourage innovation in "Internet Plus Healthcare" services, providing potential living space for new forms such as pharmaceutical live streaming, provided that their operation models comply with relevant requirements such as the Interim Measures for the Supervision and Administration of Internet Medical Diagnosis and Treatment [2].

3.2. Opportunities arising from market supply-demand mismatch

The current market presents a typical characteristic of "booming demand and scarce high-quality supply".

3.2.1. Demand side

With the advancement of the Healthy China Strategy and the improvement of residents' health awareness, consumers' demand for pharmaceutical and health information and products has been continuously surging. In particular, the younger generation is more accustomed to obtaining information and making consumption

through online channels (e.g., food delivery platforms and short video platforms). They have higher requirements for convenience, professionalism and credibility.

3.2.2. Supply side

However, the current supply side faces serious problems. On the one hand, traditional offline pharmacies and medical representative models are experiencing diminishing efficiency and fail to effectively reach young users. On the other hand, some practitioners who entered the online market in the early stage, including certain official WeChat accounts and streamers, lack professional qualifications and create and disseminate a large amount of incorrect even harmful health information for traffic, or use absolute terms such as "special effect" and "cure" in live streaming. This not only exposes them to the risk of account suspension, but also leads to a decline in the trust of the entire industry. The market is in urgent need of a channel that can provide professional, compliant and credible content to fill this vacuum.

3.2.3. Empowering opportunities brought by technological evolution

The development of Artificial Intelligence (AI) technology, especially the maturity of Natural Language Processing (NLP) technology, has made real-time compliance review of live streaming content possible. This provides a technical solution to the long-standing problem of compliance risks in large-scale live streaming, making "compliance" no longer a high-cost link that relies entirely on human resources, but a core competitiveness that can be managed efficiently and at low cost through the "AI plus human labor" model.

3.3. Market segmentation and target customer focus

No entrepreneurial idea can serve everyone, and precise market segmentation is the first step to success.

3.3.1. Target segment

This research chooses to focus on the online live streaming sales market for Over-The-Counter (OTC) drugs, medical devices, health food and chronic disease management services. This market has a broad space, with relatively rational consumption decisions, and is more suitable for conversion through professional content guidance. At the same time, it avoids the complex regulatory issues related to the online sales of prescription drugs.

3.3.2. Customer persona

The customer persona [5] is shown in Figure 1.



Figure 1. Customer persona

3.3.3. *Adaptation of problems and solutions: building the iron triangle of "professionalism-trust-compliance"*

The essence of entrepreneurship is to solve problems. The following will conduct an in-depth analysis of the core market problems and elaborate on the highly adapted solutions.

3.3.4. *Analysis of core problems*

3.3.4.1. *Compliance risk*

This is the Sword of Damocles for the pharmaceutical live streaming industry. Article 16 of the *Advertising Law* [1] clearly stipulates that advertisements for medical treatment, drugs and medical devices shall not contain assertions or guarantees indicating efficacy and safety, nor shall they state cure rates or effective rates. Many non-professional streamers are highly likely to step on these minefields, resulting in the suspension of live streaming rooms and even administrative penalties, making it impossible for enterprises to operate sustainably.

3.3.4.2. *Lack of professionalism*

The health field has an extremely low fault tolerance rate. When internet celebrities or models rather than professional medical personnel explain drugs, they cannot accurately describe indications, contraindications and adverse reactions, which may mislead consumers at best and delay treatment and trigger serious public social incidents at worst.

3.3.4.3. *Trust crisis*

Due to the long-term existence of the above two problems, users have an instinctive distrust of the entire ecosystem. Without trust, it is impossible to achieve online sales conversion of high-risk categories such as pharmaceutical products.

3.3.5. *Systematic solution design*

In response to the above three major problems, this project has designed an interlocking solution system:

3.3.5.1. *Solution 1: Build a system of licensed physician streamers to ensure professionalism from the source*

(1) Specific measures: 100% of all live streaming sales streamers must hold a valid *Practicing Physician Qualification Certificate*, and complete real-name authentication and public disclosure on the platform. Their professional backgrounds (e.g., Internal Medicine, General Practice, Pharmacy) must match the categories of products they recommend.

(2) Problem-solving mechanism: This measure fundamentally eliminates the professionalism risks of "internet celebrity live streaming sales". Licensed physicians have the legal qualification to interpret drug instructions and answer medical questions, and their explanatory content is naturally more credible. They can translate professional medical knowledge into plain language understandable to users, effectively fulfilling the user's Jobs to Be Done (JTBD) of "understanding diseases and solutions".

3.3.5.2. *Solution 2: Establish a medical content committee to create authoritative trust endorsement*

(1) Specific measures: Jointly establish an independent Medical Content Committee with Chief Physicians and pharmaceutical experts from well-known Grade A tertiary hospitals in China, such as Tongji Hospital, Peking Union Medical College Hospital and Xiangya Hospital.

(2) Functions:

1) Pre-review: Conduct pre-review on the compliance and scientificity of live streaming scripts, product presentation scripts and PPT materials.

2) Standard formulation: Formulate the platform's White Paper on *Compliance Standards for Live Streaming Content*, specifying acceptable and absolutely prohibited terms.

3) Endorsement and empowerment: Experts from the committee can participate in live streaming as guest speakers, or provide the label of "Expert Group Recommendation" for the content that has passed the review, providing strong brand trust endorsement for the platform.

3.3.5.3. Solution 3: Develop an AI real-time compliance supervision system to realize full-process risk control empowered by technology

(1) Specific measures: Develop a real-time audio/text monitoring system by utilizing NLP technology.

(2) Workflow:

1) Establish a risk vocabulary database: Embed a database of words expressly prohibited by pharmaceutical supervision laws and regulations (e.g., "cure completely", "the most effective", "refund if ineffective") as well as sensitive and misleading words identified by the Medical Content Committee.

2) Real-time monitoring and early warning: During live streaming, the AI system transcribes voice and analyzes text in real time, and immediately issues a red alert to operators in the background once absolute terms or non-compliant remarks are detected.

3) Dynamic intervention: The system can be set to automatically delay the live streaming feed (e.g., for 30 seconds), providing a time window for operators to make manual judgments and conduct stream switching and intervention. This greatly reduces the probability of broadcasting non-compliant content and avoids the devastating risk of live streaming room suspension.

3.4. Clear formulation of value proposition

Through the above three major solutions, the core value proposition delivered by this project to target customers is: "We provide an urban residents concerned about health with a pharmaceutical and health consumption platform featuring live streaming by licensed physicians, endorsement by Grade A tertiary hospital experts and strict protection by AI technology, allowing you to obtain professional health knowledge and choose and purchase reliable products with peace of mind, without worrying about the authenticity of information and compliance risks".

3.5. Product-market fit: building a minimum viable product and iteration roadmap

Even the perfect idea needs to be implemented through products and tested by the market. This section will define the core product form and plan its evolution path.

The specific product form and core functions are as follows:

(1) Product carrier: In the initial stage of entrepreneurship, embedding in existing large-scale platforms is a more lightweight strategy to rapidly validate the market. The first choice is to cooperate with platforms with existing drug sales qualifications and traffic such as Meituan Medicine and Ele.me Pharmacy, settle in the form of a "cooperation zone", and utilize their mature payment, logistics and medical insurance interfaces. An independent APP can be considered for development in the later stage.

(2) Core functional modules:

- Live Streaming Hall: Display live streaming rooms of physicians that are ongoing or scheduled, with their professional backgrounds and affiliated committees marked.

- Content Replay: Edit popular science clips from live streaming into short videos to form a knowledge base and realize long-tail value.

- Product Showcase: Directly associate with drug SKUs on food delivery platforms, allowing users to jump to purchase with one click and form a closed loop of "watch and buy instantly".

- AI Shield Logo: Mark "This live streaming content is subject to real-time AI supervision and review by the Medical Content Committee" in a prominent position of the live streaming room to enhance users'

perception of "compliance" and "safety".

3.6. Competitive analysis and differentiation advantages

Table 1. Competitive analysis & differentiation advantages

Dimensions	Host Qualifications	Content Review/Audit	Trust Endorsement
Traditional E-commerce	Influencers, models, general operators	General rules; lacks pharmaceutical expertise	Personal IP/Influencer brand
Existing Healthcare Vertical Platforms	Pharmacists, Nutritionists	Manual review; high cost and low efficiency	Platform branding
Our Project	Licensed Practicing Physicians & Pharmacists	Real-time AI supervision + Medical Committee expert review	Collective endorsement from Grade A Tertiary Hospital Expert Committee

As shown in Table 1, this project has built a solid differentiation barrier through combinatorial innovation in four dimensions: host qualifications, review mechanism, trust endorsement and risk control technology. Its core competitiveness lies in transforming "compliance costs" into "trust assets".

3.7. Product & technology roadmap

See Table 2 for the product and technology roadmap.

Table 2. Product & technology roadmap

Stage	Timeline	Core Objectives	Product & Tech Highlights
MVP Validation	Months 0 - 12	Validate business model feasibility and acquire early adopters.	<ol style="list-style-type: none"> 1. Establish partnerships with 1- 2 on- demand delivery platforms and launch operations in the first pilot city (e.g., Shenzhen) 2. Sign 10-20 certified physician-streamers and establish preliminary collaborations with one hospital expert team. 3. Develop and deploy a basic AI auditing system covering the most critical database of prohibited terms and compliance violations. 4. Conduct 10 pilot livestream sessions to collect comprehensive user data and qualitative feedback.

Table 2. Continued

Growth & Expansion	Months 13 - 24	Expand city coverage and categories; build brand awareness.	<ol style="list-style-type: none"> 1. Expand operations to all medical insurance pilot cities, including Beijing, Shanghai, and Hangzhou. 2. Establish a formal Medical Content Committee to refine and standardize compliance review processes. 3. Iterate the AI system to improve recognition accuracy and integrate advanced semantic analysis capabilities. 4. Initiate development of a proprietary app and explore value-added services such as member subscriptions and online consultations.
Maturity & Consolidation	Months 25 - 36+	Build an ecosystem and become a key industry standard participant.	<ol style="list-style-type: none"> 1. Shift to platform-based operations, opening the ecosystem to a broader range of pharmaceutical brands and medical professionals. 2. Productize the AI compliance system to potentially provide "Compliance-as-a-Service" (CaaS) to other platforms. 3. Deeply engage in chronic disease management by integrating with insurance providers and hospital HIS (Hospital Information Systems) to build a holistic health management ecosystem.

3.8. Comparative analysis of industry cases and VPC tool analysis

Although there are still no fully consistent mature cases, the exploration of platforms such as Yaoshibang and Dingdang Express Pharmacy in the field of pharmaceutical e-commerce, as well as the attempts of Xiaohe Health in content creation, have provided valuable references. This section takes a virtual platform "Yibokangxuan" as an example and conducts an analysis by using the Value Proposition Canvas (VPC) [6].

3.8.1. Customer persona

See Figure 2 for the customer persona [5].

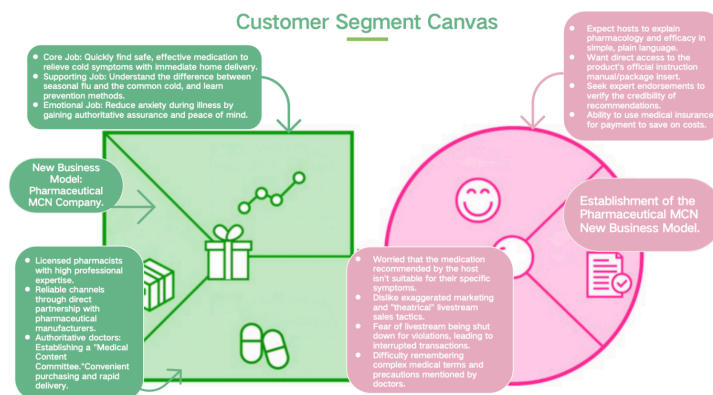


Figure 2. Customer persona

3.8.2. Value map

See Figure 3 for the value map.

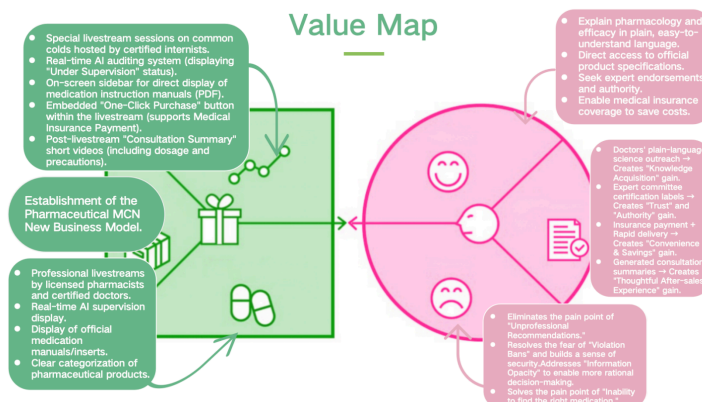


Figure 3. Value map

3.8.3. Fit analysis

The value map is highly consistent with the customer persona [5]. Each product function directly addresses one or more pain points or gain needs of customers. For example, "licensed physicians" simultaneously solve the pain point of "professional trust" and the gain need of "obtaining authoritative advice"; the "AI supervision logo" resolves the pain point of "compliance risk" and creates the emotional gain of "a sense of security". This indicates that the value proposition of "Yibokangxuan" accurately targets the core jobs, pain points and expectations of the target customer group.

4. Conclusion and prospect

This paper systematically elaborates on the design of a pharmaceutical live streaming entrepreneurship project based on compliance and professionalism. The research shows that:

(1) Against the background of favorable policies coexisting with market chaos, there are huge structural business opportunities in the pharmaceutical live streaming field, the core of which is to solve the problem of "trust".

(2) Transforming "compliance", which was once regarded as a cost, into a core "competitiveness" is realized through model innovation (physician streamers + expert committee) and technological empowerment (AI supervision), which constitutes a solid barrier for this entrepreneurial project.

(3) Through systematic market segmentation, precise customer persona [5] and clear value proposition, start-up enterprises can focus on core resources, find their differentiated positioning in the e-commerce ecosystem dominated by giants, and develop steadily through a step-by-step product roadmap.

The innovative business model [7] has a broad prospect. In the short term, it is an innovative pharmaceutical marketing channel; in the long term, it may develop into a digital health management portal connecting drugs, hospitals, doctors, medical insurance and consumers, deriving more value-added services such as online consultation, chronic disease management and health insurance, and ultimately contributing a commercial force to promote the implementation of the Healthy China Strategy.

Of course, the project also faces challenges, such as the difficulty of cooperating with hospital experts, the investment in AI technology research and development, and how to balance commercial conversion and medical rigor. My next work will involve constantly reviewing my entrepreneurial ideas through continuous

learning, and the graduation period may be the time for me to put them into practice. It is possible that I will carry out more in-depth resource integration, technology development and pilot verification around the construction of the MVP, and continuously iterate and improve this business model in practice.

References

- [1] Wang, G. (2022). Legislative evolution and doctrinal interpretation of drug crimes in China—Centering on the latest revisions of the Drug Administration Law and the Criminal Law. *Journal of Beijing Union University (Humanities and Social Sciences Edition)*, 20(3), 90–100.
- [2] National Health Commission of the People's Republic of China. (2022). *Interim Measures for the Supervision and Administration of Internet Medical Diagnosis and Treatment*.
- [3] Issuance of the Opinions on Further Improving the Medical and Health Service System. (2023). *Office Operations*, 8, 4–4.
- [4] National Medical Products Administration of the People's Republic of China. (2022). *Measures for the Supervision and Administration of Online Drug Sales*.
- [5] Zhuo, F. L. (2024). Data mining and customer persona of cross-border e-commerce. *Foreign Investment in China*, 4, 80–82.
- [6] Li, H. Q., & Wang, Y. (2021). Analysis of value proposition and operation logic of maker spaces in universities—Based on the business model canvas framework. *Innovation and Entrepreneurship Education*, 12(1), 72–80.
- [7] Chen, S. C. (2019). Analysis on the transformation of commercial operation model of Pharmaceutical Enterprise A. *China Circulation Economy*, 18, 9–10.