

Digital Platforms Support the Digital Development of E-Commerce: Taking JD Health E-commerce Platform as an Example

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Abstract: Under the epidemic, the demand for drugs continues to increase, while bringing more challenges and risks to the e-commerce supply chain. Therefore, in the context of the overall situation, the transformation and development of e-commerce mobility are particularly crucial. Relying on the Internet and big data, the transformation of the digital economy enabling service industry has brought great advantages. Starting from the EMOP mobile platform of JD.com, this article analyzes the process, reasons, and path of JD Health E-commerce platform's mobile transformation through case studies and SWOT analysis; Analyze the advantages brought by user needs based on the technical architecture and solutions of JD EMOP mobile platform, and study how mobile technology empowers JD Health Platform to achieve business development; Starting from the JD Health Data Compass system, this study explores how the JD Health platform can attract traffic and achieve cost reduction and efficiency improvement. Finally, it analyzes the specific achievements of the JD Health mobile platform.

Keywords: JD Health, Mobile Transformation; Digital Economy; Technological Architecture; Cost Reduction and Efficiency Enhancement

1. Introduction

1.1 Research Background

In terms of mobile transformation, according to the 14th Five-Year Plan for E-commerce Development issued by the Ministry of Commerce, the government encourages e-commerce platforms to strengthen innovation capacity building and promote the application of big data, mobile platforms, artificial intelligence and other information technologies in the field

of e-commerce [14].

However, it is pointed out in the White Paper on China's Retail Digitalization published by CCFN (China Chain Operation Association) that under the condition of sudden incidents, the operating costs of e-commerce continue to rise, and the user penetration rate tends to saturation [15]. After the epidemic, consumers' demand for drugs continues to increase, and the market size continues to expand, making the development of pharmaceutical e-commerce particularly crucial. On the other hand, since the outbreak of the epidemic, JD EMOP platform has played an important role as an empowering technology. JD Health Group, a subsidiary of JD.com, launched the JD Health APP on the EMOP platform in just one month during the epidemic. EMOP builds a highly intelligent information service platform based on a mobile architecture, providing intelligent medical services to a massive number of users and achieving enterprise mobility transformation.

Therefore, enterprises need to use mobile technology, attach importance to data empowerment of mobile e-commerce platforms, and mobile transformation has become an inevitable trend. How e-commerce platforms can transform and upgrade through technology, and how enterprises can bring huge economic benefits to consumers, have become hot topics.

1.2 Research Meaning

Demonstration effect of digital transformation: JD Health Platform's transformation and upgrading provide transformation case studies for other enterprises to demonstrate how to achieve innovation and development;

Understanding the advantages brought by mobile platform architecture: Starting from technology and practical applications, research how JD Health can reduce costs and increase efficiency through the EMOP platform, and what specific achievements have been made.

1.3 Research Objective

The driving force of digital transformation: Taking the JD EMOP mobile platform as an example, explore the driving force of JD Health E-commerce's mobile transformation, how to carry out mobile transformation, and what the implementation path is.

Economic benefits: Analyzing the characteristics of mobile platform information and data, digital platforms bring advantages in terms of user demand, market size, and other aspects.

1.4 Overview of Research Status

Under the epidemic, the special environment has brought no small risks and challenges to the supply chain and e-commerce platforms. For example, scholar mentioned that global shipping, sea transportation and other logistics channels are blocked [1].

Under the epidemic, consumers' demand for drugs has increased, and their acceptance of instant retail services is becoming higher and higher. The digital transformation of e-commerce enterprises relying on platforms has become an inevitable trend. The implementation path of the five in one approach, including digital empowerment, was mentioned. Enterprises should seize opportunities and promote high-quality development of the service industry. [2]. As for the impact of digital transformation stage on enterprises, the digital transformation of enterprises can further drive financial performance and productivity improvement [3]; From a business perspective, the digital transformation of e-commerce can provide high-quality goods and services [4]. From the perspective of cross-border e-commerce platforms, digital trade relies on the growth of cross-border e-commerce. Taking digital transformation ability as the intermediary variable, this paper explores the impact on the performance of cross-border e-commerce enterprises [5]. Explore the role of New Zealand mobile payments in digital platforms and visualize cross-border digital payment times. [6]. Discovering user purchasing preferences on the platform, such as data access layer class diagrams, can improve user interaction experience [7].

Regarding the medical e-commerce platform enabled by mobile technology, some scholars found that combining mobile platforms with open data, based on model design in healthcare,

strengthens patient-centered care and improves data integration [8].

Regarding the transformation of JD through digital mobile technology, from the perspective of the relationship between mobile technology and enterprise value, JD Logistics achieves information sharing and business connection through mobile digitalization, so as to realize the value creation of traditional business and new business [9]. JD Logistics digital transformation results; The transformation of JD's new business model has effectively enhanced the value of the enterprise: operating efficiency and profitability have been improved in the process of digital transformation [10]. JD's market share and brand value increased significantly [11]. Analyze the architecture of JD e-commerce platform. Research has shown that mobile e-commerce platforms based on B/S architecture have met the needs of users for shopping and transactions. [12] JD Health Platform has a wide range of mobile services, providing support for user behavior and needs to promote user experience. [13].

To sum up, from the domestic and foreign literature, most of the research is qualitative research. Few scholars discuss the digital development of medical e-commerce with mobile and digital technology from the perspective of mobile technology.

2. Research Method

2.1 Research Route and Steps

This article will use a combination of SWOT analysis and practical cases to conduct research. Conduct an investigation into the current risk situation faced by e-commerce enterprises and extract factors for mobile transformation; Establish an evaluation system for the achievements of JD Health APP in the e-commerce environment based on the JD EMOP platform architecture.

The first part is the background, collecting information released during the epidemic period; Building a theoretical framework for mobile transformation and digital transformation;

The second part is about research methods. Using case analysis to explore the process of platform mobility transformation; Showcased the driving forces and paths of transformation.

The third part is the research results. Analyze how to achieve cost reduction and efficiency improvement; Analyze potential advantages

from the perspective of increasing user base and other factors.

The fourth part is for discussion. Summarize the achievements of JD Health E-commerce relying on mobile platforms and look forward to the future trend of mobile development.

2.2 Method

The research method mainly adopts single case study and SWOT combination to analyze why e-commerce platforms are undergoing digital transformation (Why) and how to carry out digital transformation (How). Sort out the reasons and transformation paths for the mobile transformation of the case, and summarize the economic benefits generated by the case; Finally, provide reference opinions on the development trend of the platform to compensate for its disadvantages and shortcomings.

2.3 Data Collection

Firstly, relevant case study materials were collected through academic platforms, and a total of 52 research materials were obtained through keyword searches; Secondly, search for articles related to JD Health's annual reports and news reports, and integrate different sources of evidence. Obtained a total of 14 news reports; Finally, three financial reports released by JD Health from 2018 to 2022 were downloaded from the Wind database to collect relevant information.

2.4 JD Health Undertakes the Process of Digital Transformation

2.4.1 Digital information technology development stage

Since the beginning of the 21st century, big data and digital information technology have developed vigorously. Under the epidemic, national policies have encouraged and supported the development of the health industry. Under the promotion of the background of medical digitalization, JD Health was officially established in May 2019, and it has become a leading e-commerce enterprise of medical and health commodities and digital services in China.

2.4.2 The mobile platform field is in its infancy.

With the process of mobile transformation is accelerating. On the one hand, JD Group relies on the self-developed JD EMOP enterprise-class mobile research and development platform to provide mobile research and development

services for JD health APP developers; JD's EMOP platform continues to upgrade and update iterations, and its strong technical capabilities provide support for the transformation of the e-commerce field. EMOP platform development is divided into four stages:

Verison 1.0 phase. Based on JD Health application, modular decoupling tools have been designed to reduce labor costs;

Verison 2.0 phase. The technical capabilities of the service main station have been platformized to support more apps, such as JD Health, JD Finance.

Verison 3.0 phase. Reduce the differences in technical capabilities between mobile R&D platforms; Improve mobile business capabilities;

Verison 4.0 phase. This is the formation stage of the EMOP mobile platform. Platform technology empowers JD partners to rapidly expand their mobile business.

On the other hand, JD Health Platform relies on EMOP mobile architecture, product components, and template functions to develop digital and mobile systems, improving operational efficiency while alleviating the growing demand for high-quality products.

2.4.3 Mobile platform new e-commerce model development stage

The development stage of new e-commerce models on mobile platforms. After the epidemic, JD Health Platform quickly formed an electronic medical business model. Its new e-commerce model can effectively solve industry pain points and create social value. Specifically, let's take a look:

JD Health E-commerce. Based on the EMOP mobile platform, the construction of JD Health platform was completed within 30 days during the epidemic. In March 2020 JD Health APP was launched;

E-commerce operation mode transformation stage. The first stage: In 2019, JD Health developed a medical system and formed a "medical + pharmaceutical" e-commerce model;The second stage: In 2020, the platform will be established to establish a health system, mainly providing online consultation and other services.E-commerce operation mode under EMOP platform.

Users to the medical team full network coverage. Rely on EMOP platform to provide multi-component, multi-template scenarios to provide consumers with complete medical personnel information;

Online "medicine plus medicine" closed loop mode. Platform development of diagnostic system, including online consultation services; Rely on information transmission, combined with API development tools, to achieve accurate docking of medical personnel;

Offline "end-to-end" supply chain network. Form an end-to-end supply chain network for upstream manufacturers, midstream distributors and downstream pharmacies; In addition, mobile platforms empower user needs.

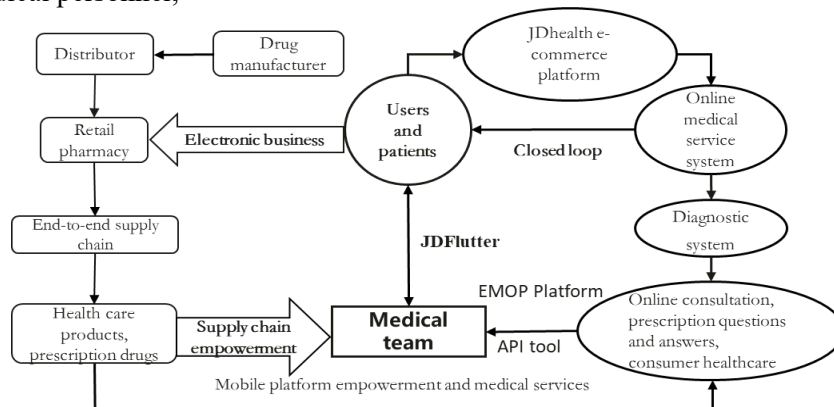


Figure 1. JD Health e-Commerce Platform Operating Model

2.5 Motivation of Mobile Transformation -SWOT Analysis

As JD health business model innovation is affected by many factors, SWOT is mainly used to analyze the motivation of mobile transformation of JD health e-commerce platform.

2.5.1 Advantage: Mobile technology drives product development

Accurately analyze user needs through data integration on the EMOP platform; Mobile components support different scenario requirements, achieve precise marketing, and increase user base. JD Health APP relies on the EMOP platform JD Flutter framework to achieve full process mobile technology component development. Can quickly develop business pages such as JD physical examination, rapid consultation, etc; Flutter framework provides network, image and other components to increase usage efficiency. In addition, the development architecture can provide operation monitoring and health management services for the APP; In terms of medical services, we rely on frameworks to develop digital medical modules and achieve data interoperability.

2.5.2 Disadvantages: e-commerce platforms lack adaptability

Under sudden events, changes in the consumer market are accelerating. Since 2019, the number of diagnosis and treatment per capita in China has steadily increased, and the demand for medical services has continued to increase; In terms of drug retail, the transaction volume of

health products continues to increase. Personalized consumption is becoming increasingly abundant, driving the industry's development to accelerate in reverse; The traditional consumption pattern has been broken down, and the verticalization and segmentation of product categories are necessary to effectively meet the diverse needs of consumers. Therefore, JD Health needs to constantly adapt to new consumer demands and market trends.

2.5.3 Opportunity: Mobile transformation expands consumer market scale

Through the EMOP platform, mobile technology provides an open-source research and development framework; Utilize big data to process information data and form a supply chain network from manufacturers to pharmacies. From a service perspective, JD Health provides consumers with services such as chronic disease management and online consultations.

In addition, health products have become a key focus of consumers on medical products, and the platform provides a rich selection of health products, further expanding its market share in the medical market. From the perspective of consumer preferences, there is an increasing demand for fatigue relieving health products among personnel in public institutions; In addition, middle-aged and elderly people have a higher demand for devices such as blood glucose meters and oxygen concentrators. Continuous medical retail business can effectively enhance user stickiness and promote the growth of logistics business on e-commerce platforms.

2.5.4 Threat: Competition in the field of healthcare e-commerce

In addition to JD Health platform, other emerging mobile medical e-commerce platforms have brought considerable pressure to JD Health, such as Alibaba Health and Ping An Good Doctor. From the perspective of income level factors, in 2022, Alibaba Health's revenue will be almost twice that of JD Health Platform; JD Health's profitability stability is slightly low. Comparison shows that the net profit margin of Ping An Good Doctor's sales is on the rise. Due to the limited online business of Alibaba Health and Ping An Good Doctor, relying on promotion channels to attract more users has resulted in user losses for JD Health as there are numerous platforms for promoting and attracting traffic.

2.6 The path of enterprise mobility transformation

2.6.1 E-commerce operation mode transformation, from traditional B2C operation mode to "Internet plus Big Health" mobile transformation

At the beginning, JD Health Platform mainly focused on the retail of health products and developed a B2B business model for drug wholesale. Since then, affected by the epidemic, it has continued to expand e-commerce health service business, gradually forming a "Internet plus Big Health" pattern, and forming a "B2B+B2C+O2O" comprehensive medical platform in 2021. Among them, the "Beijing Pharmaceutical Procurement" procurement section empowers customers and provides solutions; The O2O model combines offline pharmacies with online platforms, which drive user growth and meet consumers' medical needs.

2.6.2 Platform drainage promotes the development of mobile platforms

JD Health relies on its full lifecycle mobile marketing capabilities to expand multiple service scenarios and provide comprehensive support and services.

In terms of medical information. The data information sources of JD Health APP include consumers, medical institutions, pharmacies, etc. The platform guides professional physicians and pharmaceutical merchants to settle in through data exchange and management. JD Health Platform integrates hospital data, patient Internet electronic medical records and other data to provide clinical decision support for doctors, and contracted doctors will provide online diagnosis

and treatment services for patients.

In terms of product demand. In recent years, the demand for categories such as fatigue relief and health products has grown rapidly. JD Health Platform relies on the health medicine retail network chain to provide male consumers with fatigue relieving health products, such as health tea drinks, with drugs containing vitamin B and other ingredients being the most popular; It also provides a variety of nourishing products for female consumers, such as bird's nest, ass hide glue and other types of products.

Product promotion. In the process of creating and promoting new products, JD Health solves the problems of insufficient reach and low conversion rate of traditional new products through refined classification and differentiated operation. In addition, the digital architecture of the EMOP platform provides services such as user statistics and management, such as information system analysis of conversion rates and promotions, to support platform traffic.

2.7 Research content and process

JD Health E-commerce Platform's Mobile Transformation Solution and Highlights

(1) Enterprise Mobile Develop Platform

JD EMOP (Enterprise Mobile Develop Platform) mobile platform, also known as JD Retail Cloud mPaaS, was first established in 2010. EMOP platform is an enterprise level mobile R&D platform launched by JD Group, which provides a closed-loop solution for JD Health mobile applications. Greatly improves development efficiency and reduces development costs. The platform generally consists of two major sections: application solutions and platform services.

application plan.

EMOP provides a large number of business components to meet construction requirements while shortening development time. At the same time, it includes five major areas: requirements, development, testing, operation and maintenance, and operation.

Platform Services.

It mainly includes user management, data integration, and development tools, providing full process technical services to effectively assist in APP operation and maintenance.

In summary, JD EMOP can help companies quickly achieve mobile transformation, improve R&D efficiency and product quality. Below is a detailed analysis of the EMOP mobile platform

architecture, specifically:

(2) JD EMOP Mobile Platform Digital Architecture

four major development frameworks. It includes mobile iOS (native), Android development framework, JD React native technology (JD React Native), and JD Flutter development framework;

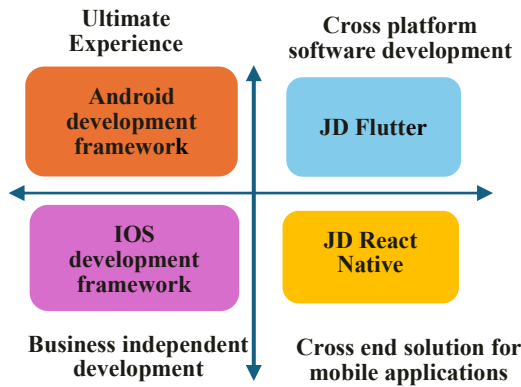


Figure 2. JD EMOP Four Major Development Framework Structures

(3) Development framework – JD Flutter.

The first step in developing the JD Health App is the integration phase. Use the creation script to complete the development of JD Health's business interface. Then comes the publishing and packaging process. Release the R&D project to the component market, followed by the debugging process. Just install the app on your phone for debugging. Finally, there is hosting and maintenance. Mainly includes basic data management such as business DAU, UV, PV, etc. Daily Active Users: refers to the number of users accessing a certain application. Unique Visitors, Refers to the number of visitors who visit a website within a certain period of time. Used to measure the size of traffic; Page Views, Refers to the number of visits made to the user page; It reflects the popularity of the content. In the Flutter framework, page embedding can generate more accurate business data.

(4) Operations analysis - message push.

Message push is the operational analysis section of the EMOP platform. Real time and precise delivery of notifications or messages to users of the application can improve user retention and activity.

Product Function: Provides client development tools (SDK). The main function is to upload device information, display messages, etc. Message management. Realize targeted and precise push through crowd configuration; Display the push effect from multiple

dimensions such as reach and open volume.

(5) Component capabilities - network components.

This module supports basic network request, file & image download and upload, HTTP/2.0, Http DNS, data compression, operation and maintenance monitoring and other functions.

(6) Component capability - picture component.

This technology supports loading and displaying online or local images, and has optimized caching function. The third-party image loading framework includes Glide and Fresco. The JD Image Toolkit module is an open-source image framework. It can support features such as displaying images and animations. The Glide Toolkit framework package has a small size and is more suitable for lightweight applications.

2.8 JD Health APP Technology Buried Data Governance and Practice

Against the backdrop of refined operations, JD Health Platform has begun to expand its data centric traffic flow. Technology embedding is based on JD EMOP mobile platform technology and business needs, collecting various user data (such as exposure, click through rate, etc.) to provide accurate strategic decisions to customers.

Taking the nutrition and health page as an example. Real time data reporting based on the classification of each drug page, including the transmission of drug information (price, manufacturer, etc.) and click through status; Next, perform data conversion and parsing to check the success rate and loss rate of data reporting; Once the data fluctuates beyond the threshold, page images, videos, etc. can be processed to ensure data quality; According to visualization tools, real-time indicators such as click through rates can be viewed in real-time, and real-time report logs and page data under the nutrition and health section (bone health, enhanced immunity, etc.) can also be viewed. Users' access, hotspot sources, order volume, and more can be calculated based on data points. For buried point governance, it not only reduces costs and increases efficiency, but also minimizes data loss. Buried point management facilitates the promotion of nutritional medicine retail business and continuously expands consumer traffic.

2.9 JD Health Data Compass

The Data Compass product integrates JD Cloud computing technology to provide professional and accurate store operation analysis for JD Health, empowering mobile technology with data to drive platform traffic. It includes more than 20 analysis modules, and its entrance is located in the upper right corner of the JD Health Merchant backend.

Traffic analysis. Real time visitor interface displays the status of the page being accessed, effectively assessing the promotion and effectiveness of activities; It is also possible to analyze the success of channel promotion construction ; Assist in determining the quality of product pages.

Promotion analysis. It is mainly for advertising analysis, which can view the content of store advertising placement, and so on. The effect of different advertising application types is compared on the three indicators of exposure times and clicks.

Customer analysis. Buyer analysis can view the number of users by time. Regional analysis can view detailed information about each region, including view count, visitor count, number of customers placing orders, etc.

make a hit. Creating popular products is the main way for JD Health Platform to attract traffic and promote. From a micro analysis perspective, creating a popular product means improving the optimization effect of its promotional activities, which can effectively increase the sales of medical products. There are four stages to creating a popular product. The first stage is the initial stage, analyzing the characteristics of popular products, such as bounce rate, to help the platform select popular

products. When first launched, attention should be paid to hot drugs and continuous product guidance should be provided, including promotional advertising, title optimization, etc; The second one is the growth period. We need to optimize the product, including optimizing the product title, keywords, and detail page. The third maturity period. Analyze which activities have high return on investment (ROI) and continuously optimize the effectiveness of keywords; Finally, there is the period of decline. In terms of silent conversion rate, the store should pay attention to drug brands and prices, and formulate advertising strategies; Analyze users based on data mining results such as health product user penetration rate and repurchase rate, and monitor the risk of user granularity churn.

3. Conclusion And Results

3.1 JD Health E-Commerce Platform Achieved Results

With the continuous expansion of JD Health consumption scenarios, JD Health platform relies on technology embedded data governance and data compass transformation solutions, which not only can reach more potential consumers, but also better meet their needs. In addition, the JD EMOP platform provides mobile support for medical and health services, and enterprises have also achieved cost reduction and efficiency improvement goals. The benefits brought by the mobile transformation of JD Health e-commerce platform are reflected in the following aspects.

3.1.1 Expansion of market scale

(1) Revenue

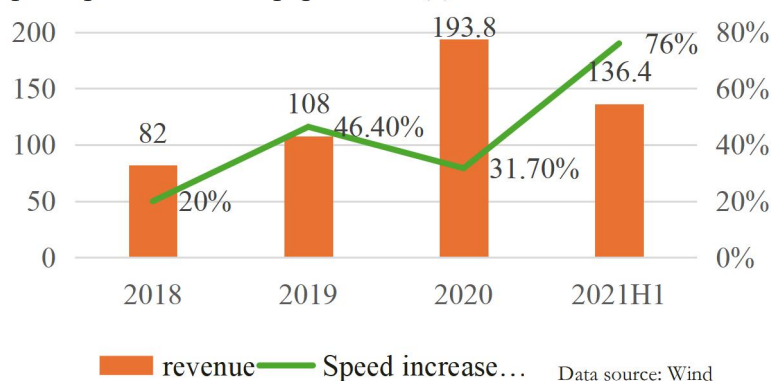
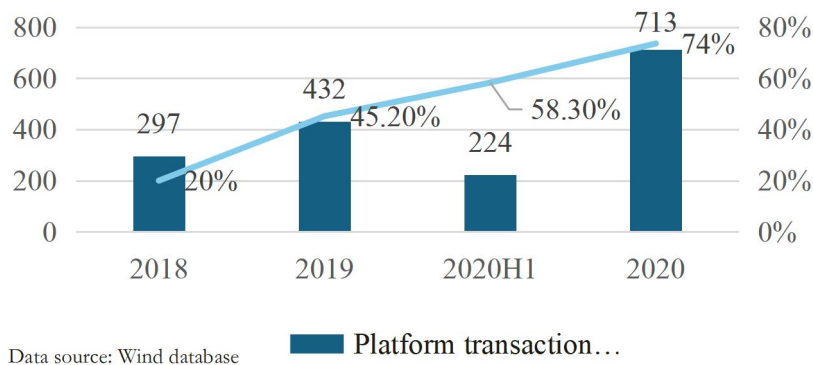


Figure 3. JD's health Revenue Growth (2018-2021)

With the support of mobile technology, JD's health revenue has achieved rapid growth. In 2019, the revenue scale reached 10.8 billion yuan. From 2019 to 2021, year-over-year revenue

growth increased from 46.4% to 76%. By 2024, revenue is expected to exceed 23 billion yuan

(2) Number of GMV and three parties



Data source: Wind database

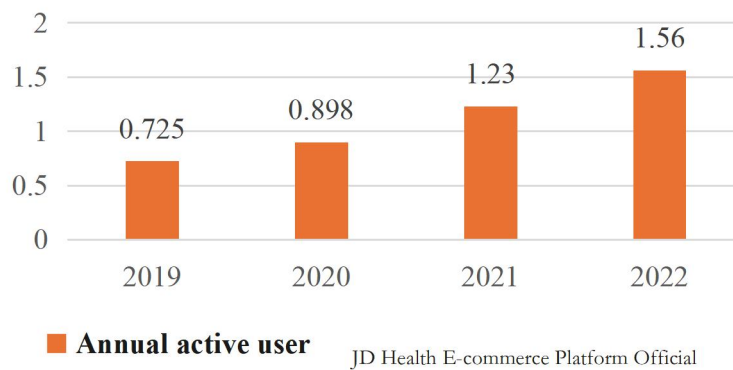
Figure 4. GMV of JD Health (2018-2020)

In 2018, the GMV of JD Health was 29.7 billion yuan, and the GMV of 2020 reached 71.3 billion yuan and 9,092 cooperative merchants.

reached 72.5 million; By 2021, the number of annual active users of JD Health App will further increase to 123 million; In 2022, JD Health continued to maintain its growth momentum, with the number of active users exceeding 154 million.

3.2 The User Scale Continues To Grow

In 2019, the annual active users of JD Health



Annual active user

JD Health E-commerce Platform Official

Figure 5. JD Health Annual Active User AAU (in billions)

3.3 Fee structure

In terms of performance expenses, since 2019, the proportion of JD Health's performance expenses has gradually decreased, while promotion expenses have gradually increased, accounting for about 40% in 2022; In terms of research and development expenditure, it increased by 3.3% compared to 2019.

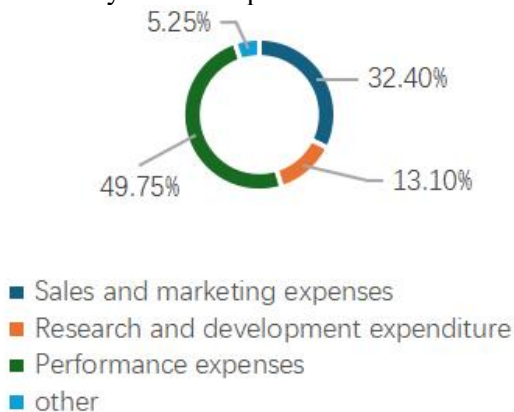


Figure 6. JD Health's 2019 Expense Structure

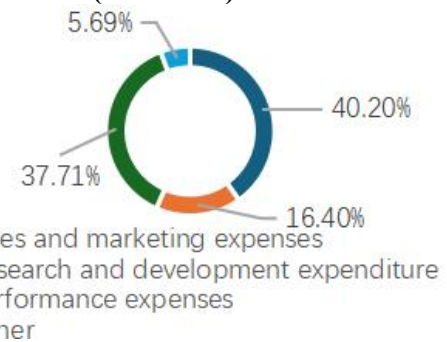


Figure 7. JD Health's 2019 Expense Structure

3.4 Health Category

In recent years, the health product market has become more refined, and JD Health APP relies on the data compass analysis module to attract consumers. Vitamins, calcium, and liver/lung cleansing products are the top three best-selling health product categories in the market, with sales exceeding 2 billion yuan for each category. In addition, the sales of calcium, liver, and lung cleansing categories increased by approximately 61% and 70% year-on-year, respectively.

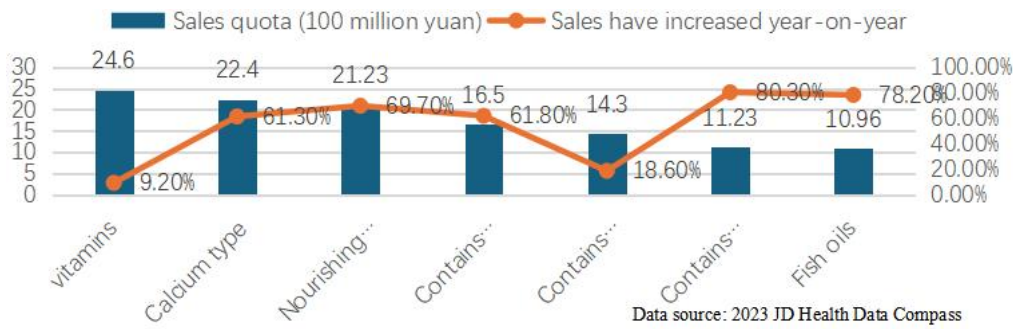


Figure 8. 2023 Sales Quota and Growth of Various Nutritional and Health Products of JD Health Structure billions)

3.5 Health Brand

JD Health platform uses mobile technology to attract many drug merchants to join and provide consumers with commodity needs including drugs and health care products. Swisse and By

health are the two largest brands in the market, both accounting for around 8% of the market. The data also shows that in 2023, the sales volume of Swisse brand health products on JD's health platform was more than 7.1 million, and the sales volume was more than 260 million.

Table 1-2023 Merchant Brand Market of JD Health Platform

Ranking	E-commerce platform merchant brand	Sales volume year-on-year	Sales market share	Sales quota market share
1	Swisse	45.79%	7.6%	8.1%
2	Byhealth Tomson	11.72%	7.4%	7.8%
4	Centrum	-1.90%	2.3%	1.9%

4. Discussion

This project is based on the digital and mobile platforms of JD EMOP, and takes JD Health E-commerce Platform as the research object to analyze the reasons for its mobile transformation; Analyze the highlights of its e-commerce platform transformation from the perspectives of JD EMOP R&D framework and JD Health Data Compass application. After research, it was found that the EMOP platform provides assistance for mobile applications. Greatly improves development efficiency and reduces development costs. In addition, creating popular products is the main way for JD Health Platform to attract traffic and promote.

for improvement and optimization should be proposed based on the actual situation, such as: the platform should increase user conversion rates; Optimize product quality and service to increase customer stickiness; Gathering brand effect; Expand new user groups.

There are also some shortcomings in this article: due to the relatively short establishment time of JD Health E-commerce Platform, the research and practice span is relatively short; Secondly, a small portion of the data collected from websites may affect the accuracy of the information.

Based on this, the effectiveness of JD Health e-commerce platform was also studied. Both in terms of revenue and active user numbers, there is a clear growth trend, but at the same time, the important role of EMOP architecture in data analysis, processing, and management of e-commerce platforms cannot be ignored. JD Health's mobile platform is developing towards a better direction; In addition, in recent years, after the epidemic, the consumption of health products has become one of the main sources. JD Health is attracting pharmaceutical merchants to join the platform while stimulating consumers' desire to purchase, greatly increasing sales of health products. In addition, suggestions

Reference

- [1] Guo, X.Y. (2020) Impact of COVID-19 epidemic on supply chain. Technology Economy Market, 08: 77-78.
- [2] Xia, J.C., Zhang, Y.J. (2024) The intrinsic mechanism and path of digital empowerment for high-quality development of the service industry. Social sciences front.,03: 41-50.
- [3] Cheng, W.X., Li, C., Zhao, T.J. (2024) The stages of enterprise digital transformation and its impact on internal control: Evidence from China. International Review of Financial Analysis, 92.
- [4] Mendez-Picazo, M.T., Galindo-Martin, M.A., Perez-Pujol, R.S. (2024) Direct and indirect effects of digital transformation on sustainable development in pre- and

- post-pandemic periods. Technological Forecasting & Social Change.,200.
- [5] Yang, Y.P., Chen, N., Chen, H.M. (2023) The Digital Platform, Enterprise Digital Transformation, and Enterprise Performance of Cross-Border E-Commerce—From the Perspective of Digital Transformation and Data Elements . Journal of Theoretical and Applied Electronic Commerce Research.,18.2: 777-777.
- [6] Wu, M., Liu, Y., Chung Henry, F.L., Guo, S.J. (2022) When and how mobile payment platform complementors matter in cross-border B2B e-commerce ecosystems? An integration of process and modularization analysis .Journal of Business Research.,139: 843-854.
- [7] Meng ,X.L. (2022)Construction of E-Commerce Economic Management Platform Based on Data Visualization Technology. Mathematical Problems in Engineering 2022.
- [8] Ailton, M., Manuel, F. S. (2024) An Open Data-Based Omnichannel Approach for Personalized Healthcare.Information.,15.7: 415-415.
- [9] Deng, M. (2023)Digital Transformation and Value Analysis of Logistics Enterprises: A Case Study of JD Logistics. Market Weekly .,36. 04: 38-41.
- [10] Ye ,S.Y., Chen , X.R., He, Y.L.(2023) Digital Transformation of Logistics Enterprises in Su Qian City: A Case Study of JD company. Management and Technology of Small and Medium sized Enterprises . ,12: 64-66.
- [11] Gao, J. (2024) Research on the impact of the new retail model on enterprise value in the digital background taking JD.com as an example. Master dissertation. Inner Mongolia University of Finance and Economics.
- [12] Wei, W. H.(2022) Research on Development Mode of Mobile E-commerce Platform. Software.,11:168-183.
- [13] Li, L. (2022)JD Health: "Second Generation" Fission - Emerging from Super Carrier Platform, and Reshaping New Super Platform. Manager., 02: 22-35.
- [14] Chinese Ministry of Commerce. (2021)" 14th Five Year Plan for E-commerce Development"
<http://m.mofcom.gov.cn/article/zcfb/zcwg/202202/20220203282001.shtml>.