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The Research on the Business Model Innovation Mechanism of Internet Fitness Platforms-Taking Keep Fitness as an Example

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Abstract. With the continuous improvement of global health and fitness awareness, online fitness platforms have rapidly become an important part of the fitness industry. By leveraging digital technology and integrating O2O (Online-to-Offline), such platforms are reshaping user experience and service models. However, due to the partial homogenization of online fitness products, user stickiness will further become the commercial marketing focus of Internet fitness platforms. This study takes Keep, a leading online fitness platform in China, as a case. Based on its annual financial report, operational data and user questionnaire survey, and combined with SPSS for statistical analysis, it explores its business model innovation and operational effectiveness. The research results show that Keep has maximized the high stickiness of users through its "trinity" innovative mechanism. However, considering the cost control in the technological innovation mechanism, the article suggests that a balance between user activity and profitability can be achieved by optimizing the revenue structure, enhancing high-margin businesses, and introducing intelligent training programs. This study aims to provide practical references and theoretical inspirations for the digital transformation and sustainable development of global online fitness platforms.

Keywords: Business model, Mechanism Research, O2O, Data analysis, Fitness

1. Introduction

As global health awareness continues to grow, fitness has increasingly become a vital part of modern urban lifestyles. The traditional fitness sector is limited by venue availability, time constraints, and a lack of interactivity, which makes it hard to cater to users' varied and fragmented exercise needs. The advancement of Internet technology has propelled the fitness industry online, and consequently, the O2O business model, known for its convenience and interactive features, has become central to market expansion, business innovation, and sustainable growth within the industry.

Someone believes that with the development of online operations, the "digitalisation" of fitness courses has a positive impact on the expansion of user numbers and user groups [1]. Zhang Qian argues that current sports apps are still targeted at individual users, and functions such as "appointment running" seem to cross spatial limitations but are actually "going far away", and their user experience is difficult to compare with face-to-face offline interaction [2]. Meanwhile, related

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research indicates that the O2O model combined with the fitness industry can enhance user interaction and community operation, increase user stickiness and retention rate, and increase corporate revenue through diversified revenue models such as membership services, content payment and brand peripheral products [3,4]. Current academic research has mostly focused on O2O business models and user behaviour [4]. Some studies have begun to focus on the development models and user value creation of Internet fitness platforms, but there is still a lack of systematic empirical analysis [5].

This paper will take Keep Fitness, which has typical O2O business model attributes in China's fitness industry, as an example to study whether the O2O model has a positive impact on the new mechanism of innovative development of commercial fitness enterprises through literature review, questionnaire survey and data analysis. It aims to reveal how user value synergy, technology empowerment and platform ecosystem evolution drive business model innovation on Internet fitness platforms, providing references for industry enterprises to optimise user operations and business models. The study enriches theories related to O2O business model innovation and provides practical references for fitness platforms to enhance user value and business value.

2. Research subjects and methods

2.1. O2O business model and the development status of keep fitness

The O2O (Online to Offline) model refers to directing online traffic through an Internet platform to offline scenarios for service delivery, which has the advantages of reducing transaction costs, expanding user coverage and enhancing user experience [5,6]. The O2O marketing model is mainly divided into two categories. One is that consumers experience offline and purchase products online [7]. This approach enables consumers to have a better understanding of product quality, service, etc. The second is offline marketing and online trading for consumers [8]. In addition to showcasing their products online, businesses can also actively develop long-term users offline, such as guiding them to sign up as members [8].

Keep Fitness is China's leading online fitness platform. Founded in October 2014, Keep topped the App Store's health and fitness chart for several consecutive days after its launch in February 2015 [8]. In August 2017, Keep had more than 100 million users. The Keep software, in the form of "Internet + sports", combined with mobile devices and made good use of the O2O model to build a fitness ecosystem [8]. In recent years, the user base and market penetration rate of Keep Fitness have continued to grow, and core indicators such as daily active users (DAU), user retention rate and paid membership penetration rate have remained at a high level, making it a representative enterprise in China's Internet fitness industry [8].

2.2. Research methods

This paper will conduct descriptive statistics and correlation analysis of user operation and enterprise revenue performance under the O2O model based on the data from Keep's annual report, performance report and questionnaire survey through literature review, questionnaire survey and data analysis.

3. Analysis of the operating mechanism of keep fitness

As a typical representative of the service industry, the core of the fitness industry's business development lies in user operations [9]. Good user operation not only enhances user experience and

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stickiness, but also promotes continuous conversion of users, thereby directly driving revenue growth for enterprises [10,11]. In recent years, the research and practice of Internet fitness platforms at home and abroad in user operation have mainly focused on four aspects. First, grasping the characteristics of user composition through precise profiling. The second is to analyse users' fitness habits and spending power. Third, identify users' deep-seated needs and provide personalised services. Fourth, enhance user stickiness and loyalty through community and interaction mechanisms [11]. These elements interact to form a complete chain of user operation. Based on this, this study will combine questionnaires and data analysis to systematically analyse the current status and effectiveness of Keep's user operations from five dimensions: user composition, user situation, user needs, user intention, and user stickiness.

3.1. User operation analysis

According to the survey data, Keep's user base is mainly composed of young white-collar workers and students aged 18-35, with an average exercise frequency of 2-3 times a week. This group is characterised by strong personalised demands, abundant energy, a strong desire to explore, a willingness to try new things, and a certain purchasing power [12]. At the same time, due to their limited time and energy, this group of people have a strong willingness to consume online fitness and a strong need for community participation(Figure 1). Therefore, in its online product design and user operation, it keeps focusing on user experience, such as "private customisation", personalised needs, ranking comparison, intelligent exploration, etc., to increase the frequency of user usage [12].

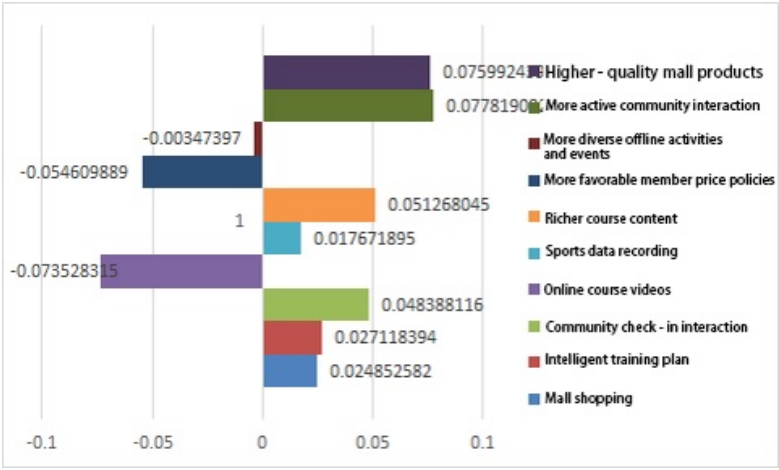

Figure 1. Correlation analysis between usage frequency and usage preferences

The increase in usage frequency will have a more direct impact on membership conversion rate and user penetration rate, indicating that usage frequency has a positive effect on enhancing user stickiness(Figure 2). At the same time, it was found through the questionnaire data that user satisfaction was significantly positively correlated with usage frequency (Table 1). That is, as Keep Fitness continues to optimise and balance its products and services with emphasis on user experience, it has further enhanced user satisfaction, enabling users to use the app more frequently or become its loyal members(Figure 3), thereby ensuring Keep's high intensity of user stickiness and user penetration [13].

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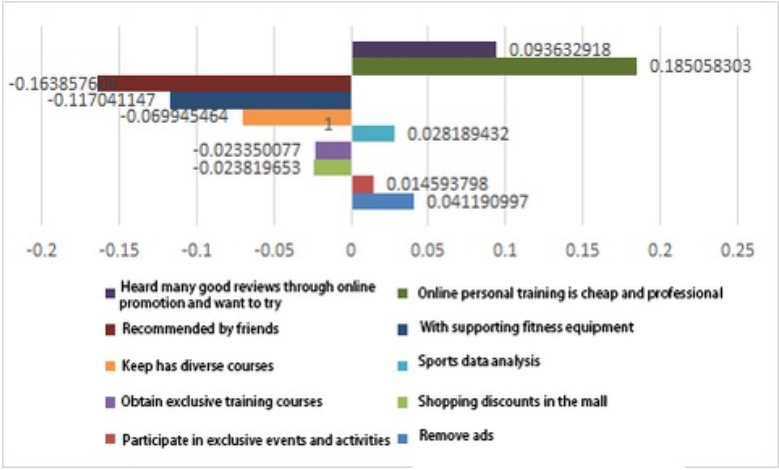

Figure 2. Correlation between usage frequency and member preferences

Table 1. Correlation analysis between usage frequency and user satisfaction (pearson correlation)

Variable relationships	Pearson correlation coefficient (r)	Significance level (p)	Sample size (n)
Frequency of use and user satisfaction	0.63	< 0.01	182

Note: $p < 0.01$ indicates a significant correlation at the 99% confidence level.

Figure 3. User retention

Although High satisfaction and high frequency of use mutually reinforce each other to build Keep's high user stickiness. Keep maintains a high level of user retention on the platform by constantly optimising course content, enhancing interaction experience and increasing community engagement [14]. According to the annual report data, both the membership renewal rate and the proportion of active users of the platform have maintained steady growth over the past year (Figure 4), further confirming the key role of user stickiness in the sustainable development of the platform [14].

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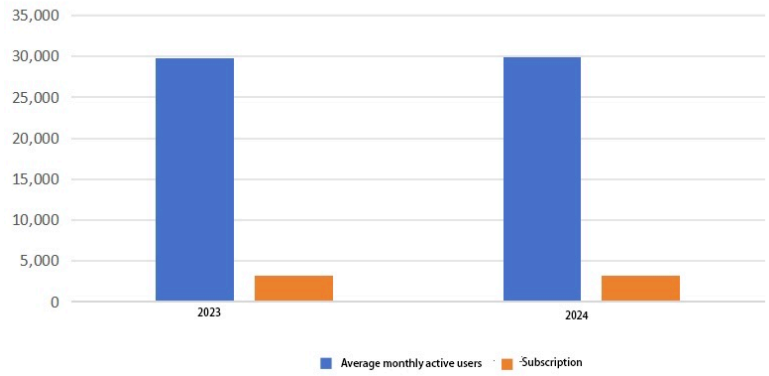

Figure 4. User retention(from annual report)

3.2. Technical operations analysis

Keep's user operations have been highly effective in precisely targeting the target group, meeting personalised needs, and enhancing user stickiness. However, efficient user operation cannot do without the support of technical means, especially in areas such as data analysis, intelligent recommendations and interaction optimisation [14-16].

Technology empowerment is one of the core supports in Keep's innovative operation model [14-16]. The platform continuously optimises intelligent training programs, course recommendations, and device interaction experiences through AI algorithms and big data technologies. Research data shows that 63.7% of users consider the smart training program "strong or very strong", with an average satisfaction score of 4.21 (out of 5) for intelligent features and device support, higher than course content (4.05) and community interaction (3.98). Based on the linear regression analysis, it was found that both user satisfaction and usage frequency were significantly positively correlated with willingness to pay (Table 2). Therefore, technology empowerment not only enhances user experience and perceived platform value, but also improves user experience, thereby driving user payment conversion and membership renewal, enhancing user retention intention and payment intention, positively achieving the conversion of technology operation to revenue for enterprises.

Table 2. Regression analysis of user willingness to pay

Independent variables	Regression coefficient (β)	Significance level (p)
User satisfaction	0.48	< 0.01
Frequency of use	0.32	< 0.05

Model metrics: Adjusted $R^2 = 0.41$, $F = 35.2$, $p < 0.01$, sample size $n = 182$

Note: $p < 0.05$ indicates significance at the 95% confidence level, and $p < 0.01$ indicates significance at the 99% confidence level.

3.3. Ecosystem operations

Keep continues to deepen its ecosystem construction, building a complete user ecosystem through the "content + community + device" trinity model. Through data collection from smart devices and intercommunication with the platform, users' exercise behaviours are continuously tracked and analysed, which in turn feeds back to content production and personalised service recommendations,

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forming a data-driven positive cycle [16,17]. Analysis shows that users' willingness to participate in the service experience is positively correlated with increased willingness to use the platform(Figure 5), indicating that the stronger the interaction and service participation of users on the platform, the higher the frequency and stickiness of their use of the platform. Therefore, keep actively conducting online check-in activities, offline events and community interactions, which can enhance users' ecological participation and sense of belonging. It provides a guarantee for Keep to maintain a large user base and commercial value in the long term [16,17].

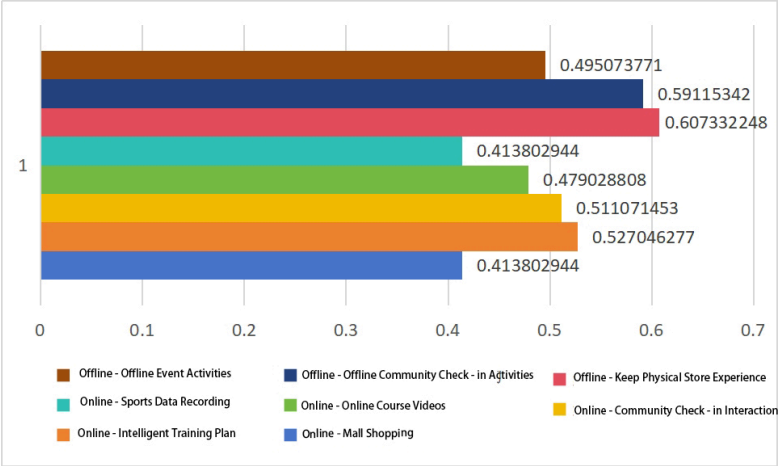

Figure 5. Correlation analysis of frequency of use and service usage preferences

Based on the analysis of the revenue structure in Keep's annual report (Table 3), the combined revenue from its own brand sports products and membership subscriptions accounted for more than 90%, indicating that Keep has formed a diversified and stable revenue model through ecosystem operations.

Table 3. Keep 2024 annual revenue composition table

Sources of income	Amount (billion yuan)	Percentage (%)	Year-on-year change
Self-owned brand sports products	9.54	46.2	+0.8
Online membership and paid content	9.18	44.4	-7.8
Advertising and other business revenue	1.94	9.4	-1.0

4. Business innovation mechanisms and development proposals for keep fitness

4.1. User value synergy mechanism

Based on the above analysis, it is found that currently, Keep's user operation relies on online data analysis to achieve personalised recommendations and precise reach, thereby significantly increasing the lifetime value of users. At the same time, Keep achieves user value synergy through diversified content and precise user operation strategies [17]. However, efficient user value synergy requires a high degree of personalisation, and currently, Keep has a certain degree of market homogeneity in the development of this service [17]. It is suggested to enhance the "uniqueness" of the product by introducing diversified interactive activities, expanding content in vertical segments, and combining user interest tags, etc., to improve user value synergy, help users smoothly transition

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from interest cultivation to payment behavior, and at the same time reduce the risk of user churn caused by market homogeneity [17].

4.2. Technology enablement mechanism

Based on the current technology operation mode of Keep, it can be found that Keep's technology-driven model is more conducive to forming large-scale and sustainable profit paths, helping enterprises achieve personalised and precise recommendations, dynamically adjust training plans, optimise the interconnection between hardware and platforms, and enhance the supporting role of data analysis for operational decisions [18]. At the same time, there will be a significant increase in enterprise costs under the technology-driven mechanism, so it is necessary to rationalise the input-output ratio to ensure revenue stability [18]. In addition, safeguards should be strengthened in terms of technology and data security, and a sound data encryption, access control and user privacy protection mechanism should be established to enhance users' trust in the platform [18].

4.3. Evolution mechanism of the platform ecosystem

Keep's "trinity" ecosystem enables user connection and value extension across scenarios and terminals on a larger scale [19,20]. By building its complete data platform to interconnect online, hardware and offline Spaces for data management, to understand users' exercise preferences through data, to continuously improve products and provide corresponding services based on users' needs, and to establish a "user profile" system to provide intelligent and integrated services to users [19,20]. However, it should be noted that the ecological structure is prone to formalisation, challenging the "uniqueness" of the enterprise and making it easy to be replaced by other formalised enterprises [19,20]. Therefore, in the process of developing ecological construction, enterprises should also focus on creating brand "uniqueness" to reduce the risk of homogeneous competition [19,20].

5. Conclusions

This paper takes Keep Fitness as the research object, combining the financial data of Keep Fitness with the results of questionnaire surveys, and explores how, under the O2O business model, the diverse and innovative operational mechanisms of Internet fitness platforms can help them better retain users and increase market share. The study found that user value synergy, technology empowerment and ecosystem evolution are key factors driving business model innovation, and intelligent training programs and device functions effectively enhance user experience and payment conversion. However, technological innovation and ecosystem building also need to pay attention to the balance between cost and revenue to avoid sharp fluctuations in business operations. Future research will expand the sample of Internet fitness enterprises and combine multi-platform and multi-year data to enhance the universality of the conclusions, further analyse the causal relationship between user behaviour, technology empowerment and enterprise performance, and provide theoretical support for the sustainable development of the fitness industry.

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Appendix

Internet Fitness Platform User Behaviour and Satisfaction Survey Questionnaire

(Keep Fitness)

1.Are you a user of Keep Fitness

a. Yes

b. No

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2. How often do you use the Keep platform?
    a. Use daily
    b. 3-5 times a week
    c. 1-2 times a week
    d. Use occasionally
3. Duration of your single use of the Keep platform:
    a. Less than 30 minutes
    b. 30 minutes -1 hour
    c. 1-2 hours
    d.More than 2 hours
4. Features you prefer when using the Keep platform (multiple options):
    a. Online (Online course video, Smart Training program; Community
    b. Check-in interaction, Exercise data recording, Mall shopping)
    c. Offline (Offline events, Keep in-store experiences, Offline community check-in events)
5. In what areas do you think the Keep platform needs further
    a. improvement or innovation in the future (multiple options):
    b. Richer course content
    c. More precise AI training recommendations
    d. More active community interaction
    e. More favourable membership price policies
    f. Higher quality mall items
    g. More diverse offline events and competitions
    h. Others:
6. Are you currently a paying member of Keep?
    a. Yes
    b. No
7. If you are a paying member, the main reasons for choosing to be a
    a. paying member (multiple options):
    b. Get exclusive training courses
    c. Mall shopping discounts
    d. Participate in exclusive events and activities
    e. Sports data analysis
    f. Remove ads
    g. Others
8. Would you like to try the paid membership service if you are not a paying member?
    a. Yes
    b. No
9. Reasons why you are willing to try paying (Multiple choice)
    a. Recommendations from friends
    b. Through online promotion, there are many positive reviews, and I want to give it a try
    c. Keep offers a wide range of courses
    d. Online personal trainers are cheap and professional
    e. It comes with fitness equipment
    f. There are active fitness communities
10. Reasons why you don't want to use Keep's membership Feature (Multiple choice)

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a. Although you are using keep, you feel that the general courses can meet your needs and are unwilling to pay for them

b. Already a member on other platforms

c. Courses on other platforms are cheaper than those on keep, and they are also more compatible.

d. I'm more interested in whether other apps have courses that Keep doesn't have

11.Would you like to try working out with keep

a. Yes.

b. No

12. Which services of keep would you like to try (multiple choice)

a. Online (Online course videos, Smart Training programs, Community

b. check-in interactions, Exercise data recording, Mall shopping)

c. Offline (Offline events, Keep in-store experiences, Offline community check-in events)

13. What are the reasons why you don't want to use keep for fitness (multiple choice)

a. Using other apps

b. I don't like online fitness

c. Others ()

14. Your gender:

a. Male

b. Female

15. Your age:

a. 18 and under

b. 19-25

c. 26-35

d. 36-45

e. 46 and above

16. Your current occupation:

a. Student

b. Corporate employee

c. Civil servant/public institution

d. Freelancer

e. others

17. How often do you exercise or work out per week:

a. 1-2 times per week

b. 3-4 times per week

c. more than 5 times per week

d. hardly any exercise