Impact of Task-Technology Fit on Improving the Performance of Meituan Application

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Abstract: In this paper, the impact of task-technology fit (TTF) on improving the performance of Meituan app is explored. Nowadays, with broad research scope, the research on TTF covers many fields, and it is found to be applicable to many fields. However, few scholars have researched about performance from the perspective of TTF. Therefore, with the help of the structural equation model (SEM), attitudes have been empirically verified and analyzed to build a structural model involving TTF, attitudes, user behavior, and performance in this paper. The results showed that the fit degree of task technology significantly affects the performance of Meituan app positively, and attitudes positively affect the user behavior of Meituan app users. Moreover, the two factors directly affect the performance of Meituan app, among which the user behavior of Meituan app users positively affects its performance. In addition, suggestions, such as continuously optimizing users' feedback and giving users positive responses in terms of user experience, have been proposed, so that they will continue using the application (app).

Keywords: Task-technology fit; Performance; Meituan app

1. Introduction

As China's leading e-commerce platform for life services, Meituan has had 630 million users and has supported 7.7 million active merchants since 2010. It can be said that Meituan has penetrated the lives of users. Furthermore, in the past ten years, its business has gradually diversified, spanning multiple industries, such as hotels and tourism. It has occupied most of the market in the field of group buying and food delivery. According to the 2021 financial report, the company receivables of Meituan reached 43.8 billion yuan in its second-quarter results, with a year-on-year increase of 77%, making it the third-largest internet company in China after Alibaba and Tencent.

1.1. The rise of mobile applications in the internet era

According to research on the development status of China's internet industry and the forecast report of its development trend, the number of mobile phone users in China has reached 986 million at the end of 2020, accounting for 99.67% of the total internet users. The number of mobile internet users is increasing, while the functions of smartphones are gradually improving. What follows is the improvement of the functions of mobile applications. Besides, overcoming the limitations of time and place, mobile apps provide convenient services for people anytime and anywhere. Every day new applications are generated, and

people install various apps according to their own needs. Moreover, the installation process is very simple. By searching in the app store, downloading, and then installing it, the application can be used immediately. Nowadays, people can download mobile apps without limitations from various app stores. This is the era that the development of mobile app is at its climax. With the popularization of smartphones, business investments continue to increase, and the scale of netizens as well as the number of apps also show a blowout growth. However, not every app can meet the needs of users. Although the number of applications continuously increase, it is difficult for apps with little value to realize their actual value. In other words, the proliferation of applications cannot answer to user needs. The key issue that mobile app developers should consider is how to match the functions of mobile apps with the needs of users.

1.2. Development and growth of Meituan app

Meituan is a diversified electronic platform that focuses on take-out services. Today, online food-delivery platforms are the first choice for users when ordering food. Among them, Meituan has the highest usage rate, followed by *Are You Hungry*. Moreover, the business scope of Meituan is very wide, mainly involving takeaways, hotel accommodations, travel ticket purchases, taxi services, etc. After downloading the app, users can solve all their problems pertaining to eating, drinking, and having fun with only a click away. Today, Meituan can be called a one-stop service application. Furthermore, with the accelerating pace of life and the advent of lazy economy, people prefer convenient and fast services. Therefore, Meituan app can meet the various needs of people and solve their life problems pertaining to diet and entertainment. Meituan now has more than 600 million users, showing the success of the app. Indeed, Meituan meets the daily needs of netizens today. Additionally, people's needs are becoming more and more evident.

The impact of TTF on performance is an important part of the TTF model, and it is a good choice to use TTF to study the performance of information systems. Meanwhile, TTF has been widely used in information systems, and many scholars have verified the effectiveness of TTF models from multiple fields. However, research on TTF models still has certain limitations, and its scope can be further improved. Although the research subjects of the TTF model have been extensive, no scholars have used this model to study the Meituan app. Carrying out this research does not only provide a theoretical basis for the research of other applications, but also further expand the research scope of the TTF model.

Nowadays, with wide research scope, the research on TTF covers many fields, and it is found to be applicable to a number of fields. However, few scholars have conducted research on performance from the perspective of TTF. According to previous studies, task characteristics and technical characteristics will affect TTF, while TTF will affect performance. Some scholars have suggested that attitudes and usage behavior will affect performance, and TTF will also affect attitudes and usage behavior. Therefore, in the context of the successful operation of Meituan app, the impact of TTF on the performance of Meituan app is discussed in this paper to provide reference for other software developers and operators in terms of product design.

The main research objectives of this paper are as follows:

(1) explore the impact of task characteristics, technical characteristics, TTF, attitudes, and user behaviors on improving the performance of Meituan app;

(2) discuss the impact of TTF on the performance of Meituan app;

(3) provide guidance and suggestions for Meituan app operators as well as other software developers and operators on application optimization and user satisfaction.

2. Literature review

Goodhue and Thompson first proposed the TTF model to examine the fit degree between technical capabilities and tasks [1]. The model mainly measures task characteristics, technical characteristics, TTF, performance, and actual usage, which is widely used to explain user satisfaction. Among them, task characteristics refer to some concepts that can make individuals more dependent on information technology; technical characteristics refer to the tools needed by individuals to complete tasks; TTF refers to whether the task that the individual wants to achieve fits the technology used; performance means that when the information system has a high fit degree of task technology, it will affect its performance; actual usage means that when the information system has a high fit degree of task technology, it will increase the actual utilization rate of the individual. Therefore, task characteristics and technical characteristics are important factors that affect the information system and performance. If the information system has a high fit degree of task technology, the performance of the information system will also improve. Moreover, a good information system should fit the task characteristics and technical characteristics.

The original TTF model is not limited to a certain situation or field but extended to more specific fields. Zigurs and Buckland applied the TTF model to the organizational support system, drawing a conclusion that the TTF model has an effective role and applicability in decision-making at the organizational level [2]. Besides, Dishaw and other researchers used the TTF model to study the willingness of software maintainers in using software maintenance tools [3]. It was concluded that the willingness of software maintainers in using software maintenance tools is not solely affected by tasks or technologies, but by the fit degree of task technology. D' Ambra and Rice extended the TTF model to the internet usage behavior, finding that the fit degree of task and technology could have a certain impact on the efficiency of internet users [4]. In addition, Wells and other researchers extended the TTF model to the field of e-commerce [5]. E-commerce websites are different from other information systems. Wells established a TTF model suitable for e-commerce based on the characteristics of e-commerce websites, thus providing reference for future research on the TTF model in the field of e-commerce. Furthermore, Lee used the TTF model to study the application of mobile devices in the insurance industry [6]. The research was to explore whether the handheld mobile commerce system is suitable for the insurance industry. Based on actual situations, a model suitable for the handheld mobile commerce system was constructed, and a hypothesis was put forward. The hypothesis was then verified, and it was found that the handheld mobile commerce system is suitable for the insurance industry. In addition, Junglas applied the TTF model to the mobile commerce environment [7]. The research not only explored the impact of the fit degree between tasks and technologies on performance, but also integrated the fit between task technology and the mobile environment. The TTF model has been further expanded.

Foreign scholars have greatly extended the TTF model, the research on which has been well integrated with other models. Although the theoretical research on the TTF model is mature and its research scope is also very wide, the research on the performance of applications from the perspective of TTF is incomplete and few. Therefore, this research is carried out to further expand the research scope of the TTF model, so as to make up for the inadequacy of the TTF model in application research.

3. Data analysis

The overall model fit of this study is mainly measured from three aspects: absolute fit index, incremental fit index, and simplified fit index. In regard to the absolute fit index, $\times 2/df = 3.850$, GFI = 0.847, RMR = 0.082, and RMSEA = 0.093. Although it does not reach the standard value of 0.9, it reaches an acceptable level. In terms of the incremental fit index, CFI = 0.924, AGFI = 0.800, and NFI = 0.871. Among them, CFI has reached the ideal level. Although AGFI and NFI did not reach the ideal level, they are acceptable.

4. Conclusion and implications

4.1. Conclusion

The impact of the TTF model on the performance of Meituan app have been studied in this paper. From the results of the path coefficients of the overall structural equation model and the research hypotheses, it can be seen that the hypotheses proposed are all valid and have significant effects. Furthermore, this research explores the impact of TTF on the performance of Meituan app. According to data analysis, the fit degree of task technology has significant positive effect on the performance of Meituan app. The higher the fit degree of task technology, the better the performance.

The businesses of Meituan app include food delivery, travel, hotels, etc. Meituan cooperates with millions of merchants across China to provide users with various choices. Besides, there are professional technical teams in Meituan, and its open-source technology can support a wide range of businesses. Meituan app has a high degree of TTF, so its performance is also very high.

In summary, both TTF and user behavior have significant positive impact on the performance of Meituan app, and the two factors directly affect the performance of the application. Therefore, in order to improve the performance of the app, the two aspects should be paid attention to. Moreover, they are the cues to improving the fit degree of task technology. However, attitudes indirectly affect the performance of Meituan app. This is also a factor that cannot be neglected.

4.2. Implications

Based on the conclusion and the actual utilization of Meituan app, several marketing suggestions have been put forward to provide reference for the future operation and development of Meituan app.

4.2.1. Improve the fit between users' task characteristics and the technical characteristics of Meituan app

TTF will directly affect the performance of Meituan app. Therefore, to improve the performance of the application, attention must be paid to users' task characteristics and the technical characteristics of the app. Moreover, the developers of Meituan app can publicize the features of the app or use short videos to propagandize the app, so that more users can understand its functions, thus improving the fit degree of task technology and making all its functions pertaining to diet and entertainment tally with the needs of users. Meanwhile, in order to improve the technology of the application, it is necessary to ensure the stability of the system, provide convenient payment methods, and guarantee that it can support various businesses.

4.2.2. Pay attention to users' attitudes toward Meituan app

Users' attitudes toward Meituan app will directly affect their usage behavior, so operators should pay more attention to users' evaluation of the app. Nowadays, there are various similar mobile applications, and the conversion cost is meager. Users may develop negative feelings about the app and switch to other apps if they are constantly being disappointed by the app. Therefore, operators should always pay attention to users' attitudes toward the app, understand how users feel about it through regular feedback via weekly or monthly questionnaires, and use big data to collect user feedback. Changes must be made in time when there is a poor review. Nowadays, the scale of takeaway users continues to expand, and the demand for takeaways is also increasing. Therefore, the developers of Meituan app should also be a bridge between merchants and users. When there are negative reviews or situations that lead to poor user experience, efforts should be made in such a way to invigorate positive attitudes among users toward the app. Moreover, ways such as customer service contact and maintaining users' experience with the help of merchants should be applied to alleviate negative attitudes so that users would continue to use the application.

4.2.3. Cultivate users' behavior habits

Meituan has more than 600 million users, and the average daily order volume of Meituan food delivery has now exceeded 20 million. The continuous development of the internet and the convenience of society have prompted users to become more dependent on life apps, which is enough to show that users have a strong demand for Meituan app and familiarity with the the app. As a result, the possibility of users continuing to use the app is also increasing. In other words, in order to increase the stickiness between users and Meituan app, the operators must continuously improve the functions of the app and keep pace with the times. In addition, it can be seen from this research that Meituan Takeaway is mainly for the college market, and its target audiences are young people around 18-25 years old. Therefore, Meituan operators can carry out some promotional activities, issue red envelopes from time to time, and increase cooperation with merchants. In addition, more choices can be provided for users to continuously optimize user feedback in terms of user experience and give users a positive response, so that users can be attracted to use the app continuously. From the conclusion, it is known that user behavior has significant positive impact on the performance of Meituan app. If users continue to use the app, the performance of Meituan app will improve accordingly. Therefore, operators should find ways to make users dependent on and accustomed to using the application.

Disclosure statement

The authors declare no conflict of interest.

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