

## Changes and Countermeasures of Product Web-fit in All-Channel Retail Era

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**Keywords:** Product Web-fit; Customer Acceptance Index; All-channel Retail; Multi-channel Strategy; Perceived Attribute

**Abstract:** The arrival of all-channel retail era allows manufacturers and retailers begin to re-formulated channel strategy, and current channel strategy is inseparable from the judgment of Product Web-fit. The variable of Product Web-fit has played a very important role in the multi-channel strategy planning. This paper discusses the external economic environment changes in the applications of Product Web-fit, the progress of technology, and the changes in consumer shopping habits and perceived attributes, so that proposed conditions of the generated, consumer perceived attributes, calculation methods of Product Web-fit in previous studies are no longer applicable in the present, and suggests that the perceived attributes, calculation methods and the range of the variable needs to be redesigned.

### 1. Introduction

With the rapid development of computer, Internet and mobile Internet, the growth level of China's online shopping market continues to rise. In 2020, the annual sales of China's online shopping market will reach 10.8 trillion yuan, accounting for 21.9% of the total social sales. With the change of consumers' shopping habits, traditional manufacturers and retailers gradually carry out dual channel or multi-channel sales, and Omni-channel era has come.

In this context, the concept of Product Web-fit came into being. The Product Web-fit, also known as consumer acceptance index, is defined and calculated by Kacen (2003). The Product Web-fit is the variable of the adaptability of online sales, which is the ratio of the price that consumers are willing to pay online to the price that traditional physical stores are willing to pay. Kacen calculates the network adaptability of all kinds of goods, and concludes that consumers prefer to shop in traditional physical stores compared with online shopping, unless the price of online products is 8-22% cheaper [1]. This conclusion is still used today. At the same time, previous studies believe that consumers prefer to go shopping in physical stores because of the freight and delivery costs of online shopping, as well as the delayed consumption caused by transportation. Unless the price is favorable, consumers can bear to wait. But is that really the case?

After research, we found some exceptions. In 2019, the online retail transaction volume of fresh agricultural products in Jingdong will exceed 110 billion yuan. Fine fruit is one of the best. Even the overseas sales of fine fruit are increasing. The price of these fruits is several times or even more than ten times higher than that of supermarkets, so consumers are willing to go far and stay low. From this, we can see that the online price is higher, the delivery time is longer, and the delay of consumption is serious. Consumers of some products are still more willing to buy online.

At present, are consumers more willing to shop in traditional stores? The perceived value of

online stores must be less than that of offline stores? Are online consumers willing to pay less than offline? In the framework of the above analysis, we need to re explore and study these issues, which has the value of the times and practical significance.

## 2. Literature Review

### 2.1 The Emergence of the Product Web-fit

As a substitute of traditional channels, online shopping has emerged in the 1990s. Liang and Huang (1998) proposed that the acceptance of electronic channel should be different for different consumers. Products with high customer acceptance level are more likely to be successful through online sales. The results show that consumers prefer to buy shoes, toothpaste and microwave ovens in traditional stores; when buying books and flowers, they prefer online stores [2].

Kacen (2003) thought that the value obtained by consumers in online shopping is lower than that obtained by physical stores. The main reasons are: first of all, the attributes of many commodities cannot be reflected in online channels, such as whether a garment fits. Second, possession and satisfaction are often delayed, while buying in traditional stores is immediately available. Third, consumers need to pay for freight and delivery. In order to distinguish the different attitudes of consumers towards traditional stores and online stores, the author measures the customer acceptance index, that is, the Product Web-fit  $\theta$ , It is equal to the ratio of the price  $R_{\text{online}}$  willing to pay for goods purchased online and the price  $R_{\text{traditional}}$  willing to pay for physical stores, where  $R_{\text{online}}$  and  $R_{\text{traditional}}$  represent the perceived value of consumers' online and physical stores [1].

$$\theta = \frac{R_{\text{online}}}{R_{\text{traditional}}} \quad (1)$$

Kacen measured the value of  $\theta$  of six commodity categories, including DVD, shoes, toothpaste, books, flowers and food. The measurement results are shown in Table 1. It can be seen that the biggest  $\theta$  is 0.92 for books and 0.78 for shoes [1]. Compared with online shopping, consumers prefer to shop in traditional physical stores unless online products are 8-22% cheaper [1].  $\theta$  is greater than 0 and less than 1, and the range of value is not affected by commodity category. The price that all the respondents are willing to pay online is significantly lower than that of the physical store.

**Table 1.** Customer acceptance coefficient of network-based direct marketing channel  $\theta$

Category	Book	Shoes	Toothpaste	DVD Player	Flower	Food
$\theta$	0.904	0.769	0.886	0.787	0.792	0.784

Note: the Product Web-fit of all commodity categories is significantly less than 1 at the level of 1%.

### 2.2 Application of the Product Web-Fit in Multi-Channel Strategic Planning

Jiang (2003) explored the game relationship between the manufacturer and the original retailer after opening the direct sales channel. If the Product Web-fit  $\theta$  is very small, vertical integration enterprises will not open up direct sales channels, at this time the efficiency of direct sales is very

low. For an independent manufacturer, whether it chooses direct selling is not about its efficiency. Even if its efficiency is very low, the manufacturer may choose it for the purpose of profit strategy. The strategic application of direct marketing channel stimulates independent retailers to reduce prices and increase sales [3]. Yan (2011) discussed the problem of channel coordination in a "retailer multi-channel manufacturer" supply chain. The results show that online and traditional retail channels exist at the same time, and the Product Web-fit  $\theta$  is improved when multi-channel manufacturers and retailers have their own consumer demand information. The bigger, the more the multi-channel manufacturers are willing to share information with retailers, the more information sharing will not affect the profits of retailers and information sharing equilibrium can be achieved [4]. Moon (2011) studied the dynamic optimal price and stocking strategy of manufacturers and retailers after adding a direct online sales channel to the original retail channel structure according to consumer behavior. The research shows that the Product Web-fit  $\theta$  is the overall profit of vertical integration increases with the increase of economic growth rate, especially when the economic growth rate increases,  $\theta$  is very high ( $\theta$  Between 0.8-0.95). For vertically integrated enterprises, slightly increase  $\theta$  can bring the rapid growth of the overall profit. And when  $\theta$  is very low, its change has no obvious effect on the overall profit. Strategically, operators should find ways to increase consumers' preference for online shopping, but if the Product Web-fit is very low, such efforts are sometimes unnecessary [5]. Shi (2013) shows that when the online price in supply chain a increases, while the traditional retail price decreases. At the same time, the traditional and online prices in supply chain B increase. The reason is that the retailer in supply chain B decides the online and traditional price [6].

To sum up, the Product Web-fit  $\theta$  is closely related to channel selection, channel coordination and pricing strategy formulation in dual channel and multi-channel marketing. However, with the development of the times, technological progress and the change of consumer habits, many problems in the existing research conclusions have been solved. There are some defects in the concept, measurement method and value range of the method, which need to be discussed again.

### **3. The Change of the Product Web-fit**

#### **3.1 The External Environment Changes the Adaptability of the Original Product Network**

Retail war, transformation, store closures, bankruptcies, layoffs, broken capital chains and breaking with investors are constantly on the stage of global retail industry; a large number of once successful enterprises are disappearing in the consumer market, and many are on the verge of death [7]. According to the "A Deep Dive into the US Store Landscape" released by Fung Business Intelligence Centre, the rapidly changing user shopping mode, especially the rapid growth of e-commerce, forced retailers to re-examine their business model, including the number of stores and shopping applications [8]. In China, the same thing was happening. According to the statistics of linkshop.com, a total of 201 stores were closed by major retail enterprises (department stores and supermarkets) in 2014, with a year-on-year increase of 474.29% compared with 35 stores closed in 2013. It is worth noting that in the statistics of store closures, foreign retail closures account for 70% of the total, and domestic retail closures account for 30% [9].

In short, the external environment of the Product Web-fit has changed completely. In 2001, the sales of traditional American stores accounted for 96.6% of all retail sales, while online or mail orders accounted for only 1.1% and 2.5% [10]. Now the retail business is closed, and manufacturers

and brand manufacturers have carried out double channel and multi-channel operation, and vigorously develop online business. Such an external environment makes the premise of the concept of the Product Web-fit completely changed, that is, the customer perceived value of online stores is not as good as offline physical stores, but this premise is not established, so the Product Web-fit should also be redefined and designed.

### **3.2 With the Development of Technology, the Adaptability of the Original Product Network is Improved**

The Product Web-fit depends on the attribute value perceived by consumers [11]. Every consumer has different reasons to choose online shopping or physical store shopping. Even the same consumer has different reasons to choose channels in different situations.

#### **3.2.1 The Progress of Technology Improves the Weak Attributes of Online Shopping**

First, the development of information technology enables consumers to get more product information in online shopping. The development and application of modern information technology make these perceived risks smaller and smaller [12]. From the online shopping, the customer perceived value can be improved, and the Product Web-fit  $\theta$  can be improved.

Secondly, the progress of logistics technology accelerates the speed of consumers' access to goods and reduces the distribution cost. Although convenience in online shopping is needed by consumers, it is not the only factor that affects the purchase decision. Consumers are more concerned about the freight and distribution costs of online shopping, and mind the consumption delay [2]. Customers can immediately own goods and consume in physical stores, which is the value that consumers can meet immediately when they need them. This need is delayed in online shopping, and it is also an important problem that affects the perceived value of customers. However, the rapid progress of logistics technology mainly includes the renewal of transportation equipment, the improvement of transportation speed, the reduction of transportation cost, the diversity of packaging and the improvement of storage.

#### **3.2.2 The Application of Modern Technology Further Improves the Better Attributes of Online Shopping.**

The value attributes that promote the Product Web-fit mainly include: (a) easier access to product information (b) Product diversity (c) Easy to compare goods (d) Quick selection and purchase (e) Easy to browse products, etc.

### **3.3 The Change of Consumers Leads to the Change of the Product Web-Fit**

Just as the global economic environment, technology and products have changed in the past 10 years, consumers have also undergone earth shaking changes. Consumers will become the protagonists of the retail revolution. Every consumer is likely to become a revolutionary. The four characteristics of these revolutionaries are: social, local, mobile and personalized, that is, solomome consumer group [7]. The changes of consumers' shopping habits and value attributes directly lead to a thorough change in the Product Web-fit.

E-commerce is rapidly changing the way Chinese consumers buy goods. According to the survey data of McKinsey, on average, a Chinese consumer will have 10-12 commodity contacts before purchasing valuables such as consumer electronics products in 2011, including online and offline

contacts. The main contact points are search engines, product websites and physical stores. The actual sales are not always completed in physical stores. In fact, 16% of consumer electronics products are sold online, compared with 1% five years ago. The display effect of physical stores is particularly obvious for 30% of consumers, who will browse in the store and conduct research with mobile phones at the same time, while only 16% of them will eventually buy in the store. At the same time, with the popularity of mobile Internet and mobile Internet devices, consumer contact with goods is more diversified, and the channels of purchase are also diversified. All these show that the shopping habits of Chinese consumers are undergoing fundamental changes. The change of consumers' shopping habits makes consumers rely on these new channels to improve consumers' online perceived value, so as to improve the Product Web-fit.

Consumer perceived value is determined by value attributes. Previous studies have shown that the structure of perceived retail attributes includes benefits and costs. That is to say, in every shopping activity, consumers want to get the maximum possible benefits and pay the minimum cost (Williamson 1979, Mahoney 2002). The benefits include value, goods preparation, service, convenience, privacy, atmosphere and social participation (Jarvenpaa & Todd, 1997; Linqvist, 1974-1975; Shim, 2000). Cost, as another component of retail attributes, includes money, time and energy. Money and time are easy to understand. The energy here refers to the energy and physical strength spent waiting in line for payment, looking for goods, traffic jams and parking in physical stores. Similarly, in online shopping, looking for goods, maintaining the network and other activities also need to pay energy and physical strength. These attributes are changing.

To sum up, changes in economic environment, technology and consumers will inevitably bring about changes in the variable of the Product Web-fit. The original measurement method and value range will be completely changed, which needs to be re explored.

#### **4. The Future of the Product Web-Fit**

##### **4.1 The Perception Attributes That Affect the Product Web-Fit Should Be Redesigned.**

Modern Internet consumers are social local consumers of "So" and "Lo". By 2014, Facebook has connected more than 1.2 billion global citizens, QQ has more than 850 million global users, Sina Weibo, Tencent Weibo and wechat have more than 500 million global users. Social network has evolved into a media with the purpose of social communication and great information dissemination ability [7]. The degree of social participation in online shopping is also increasing. It is obviously not enough to use social participation to evaluate the perceived value of distinguishing physical store shopping from online shopping. In addition, consumers are "Mo" consumers, and convenience is also reflected in "Mobile" convenience. According to the survey report released by Accenture in 2014, China's digital consumers have formed the consumption habit of multi platform and multi device. According to the survey, consumers spend 12.6, 9.4, 8.3 and 7.2 hours a week on computers, TVs, mobile phones and tablets, respectively. The consumer stickiness of mobile devices such as mobile phones and tablets is constantly improving. Consumers in the new era are "me" consumers, that is, personalized. It is an urgent task for manufacturers and retailers to meet the personalized needs of consumers. The original value attributes perceived by consumers do not reflect the personalized content, so it does not conform to the real feelings of consumers at this stage. Privacy has a negative impact on the purchase intention of physical stores. Consumers want to see, touch and experience some products, but for other products involving privacy, they prefer

not to be seen, bought or carried.

## 4.2 The Calculation Method of the Product Web-Fit Needs to Be Reset

Kacen (2003) calculates the Product Web-fit by using the multi-attribute attitude model to calculate the consumer surplus and the ratio of the price that online consumers are willing to pay to the offline price. This price ratio is the ratio of prices consumers are willing to pay in different channels. Only by the price, we cannot fully reflect the channel preferences of consumers. With the progress of technology, more and more categories are sold in the network, and with the landing of e-commerce enterprises, the trend of online and offline same price will be irreversible. It is obviously unreasonable to use the price ratio to decide whether a commodity is more suitable to be sold in physical stores or on the Internet. We should develop a more complex and multi factor decision-making method to determine the Product Web-fit.

In the past, a lot of research has focused on the Product Web-fit. The value range of  $\theta$  is  $0 < \theta < 1$ . We have done a lot of research on dual channel, multi-channel and even Omni-channel, including channel selection strategy, channel coordination strategy, pricing strategy, product strategy and stock strategy under Omni channel retail environment. With the advent of Omni-channel retail era, the boundaries between online and offline sales of products will gradually blur, and consumers' online acceptance will be infinitely close to 1, or even greater than 1. Based on this value range, the strategy needs to be reformulated, and the Product Web-fit  $\theta$  needs to be improved. The range of value of will not be the same as before.

## Acknowledgements

In this paper, the research was sponsored scientific research project of Jilin Provincial Department of Education (JJKH20211349SK).

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