Factor Analysis and Optimization Strategy of Differences in Dual Channel Service Experience

Deran Zhang\textsuperscript{1,}\textsuperscript{a} and Yunyun Yuan\textsuperscript{2,}\textsuperscript{b}

\textsuperscript{1}Bozhou University, Department of Electronics and Information Engineering, Bozhou, 237800, China
\textsuperscript{2}Fuyang Normal University, School of Business, Fuyang, 236037, China

\textsuperscript{a}541711812@qq.com; \textsuperscript{b}2664519534@qq.com

Abstract. Dual channel sales provide consumers with different service experiences. Studies have shown that “cheap” and “safety” are the most important factors for consumers in the online direct selling experience, however, with the higher pursuit of quality of life, The traditional entity sales experience is unique, and a series of real shopping experiences such as “situation consumption” and “physical experience” can bring joy to the consumers, and stimulate the consumer's desire to purchase to a certain extent. Therefore, scientifically integrating the dual-channel supply chain, carrying out orderly competition, and complementing each other is an effective strategy to further optimize the dual-channel supply chain and better serve consumers.

1. Introduction

The rapid development of the Internet economy and e-commerce has enabled China to enter a new era of Internet of Things [1]. A number of physical entities are connected to each other and integrated into the information space. The information is provided and consumed through the network, seamless integration the domain of the user, the information space domain and the physical space enables dynamic collaboration of "People - Machine - Things". In this context, online retailing has developed rapidly, combining traditional retail channels to form a dual-channel supply chain. In the era of Internet of Things, many companies such as IBM, HP, and Lenovo have succeeded in adopting a dual-channel sales approach. This undoubtedly shows that it is the dual channel structure supply chain model which match for consumers' demand in the era of Internet of Things. Dual channel sales combined with different channel advantages and bring different shopping service experiences to consumers [2]. Breaking through the original service is mainly to solve the binary problem domain of “human-machine” and “machine-machine” interaction, which is user domain and information space domain. In the era of the Internet of Things, its services also need to solve the seamless integration and dynamic interaction with the physical world. The service actually faces a ternary problem domain of “user individual, information space and physical space” [3]. In this context, convenient and fast online shopping has become an important shopping channel for consumers, but online shopping lacks physical experience, so that products received by consumers may not match their expectations, resulting in higher Return rate. In turn, traditional channel sales are still active in the Internet of Things era due to its unique sales experience. So studying the characteristics of traditional retail channels and online direct sales channels, using their advantages to complement each other and building a two-channel harmonious mechanism is in line with current consumer preferences, it is of great significance to promote the standardized
development of the logistics supply chain in the new era of the Internet of Things and to meet the material and cultural needs of different groups of people.

2. Online direct sales service experience

Along with the new era of Internet of Things, consumers realize the interconnection of people, machines and things through the Internet of Things. According to the 41st China Internet Network Development Status Report released by China Internet Network Information Center (CNNIC), as of December 2017, the number of online shopping users in China has reached 533 million, while at the same time, the whole year The online retail transaction volume reached RMB 715.71 billion, a year-on-year increase of 32.2%. Nearly 50% of Chinese companies sell their products through e-commerce platforms [4]. At present, manufacturing companies have introduced online direct sales channels to expand sales channels. Compared with traditional channels, online shopping has the advantages of convenience and speed. However, with consumers' higher pursuit of quality of life, better products and better service experience have gradually become consumers' new shopping pursuits. However, we believe that the main body of the supply chain is the main body of logistics demand [5]. The level of utility of customers is the psychological convergence point of their choice of purchasing channels. Therefore, only by fully understanding the psychological tendency of consumers and providing targeted services to win the good reputation of consumers, and thus bring more benefits. According to Broekhuizen, the factors that influence customer channel choices are product factors, customer factors, retailer factors, channel factors, and situational factors. Shopping experience and surveys show that consumers will choose a channel before they shop, and always to weigh the cost and benefits of the purchase before deciding to choose. According to Broekhuizen's theory and social status, in the general sense, whether to choose online shopping, people pay attention to timeliness, cheap, trust and safe. Among them, convenience means that the consumer gets the purchased product in the desired time, cheap refers to the relatively low cost of shopping, trust refers to the degree of trust of the merchant in the mind of the consumer, mainly refers to the reputation of the merchant, safety refers to the safe and reliable of the goods. Based on this, we have established a set of factors that affect the direct sales revenue of online channels:

\[ U = \{\text{timeliness, cheap, trust, safety}\} \]

In order to clarify the importance consumer attach to each factor, the evaluation set can be:

\[ V = \{\text{very willing, willing, indifferent, not willing}\} \]

In order to judge the single factor of the factor concentration, considering the technical factors of the online shopping experience, we selected 120 people from the regular shoppers under the age of 50 to conduct a questionnaire survey. The results are as follows(Table1):

Table 1. Summary customer survey by rating level and evaluation factor.

| Evaluation elements | very willing | willing | indifferent | not willing |
|---------------------|-------------|---------|-------------|-------------|
| timeliness          | 120         | 130     | 50          | 28          |
| cheap               | 180         | 120     | 20          | 8           |
| trust               | 145         | 120     | 63          | 0           |
| safety              | 200         | 80      | 48          | 0           |

Using the frequency as the membership of each level of comments, the evaluation matrix is:
Since the characteristics of the evaluation elements are not equal to the evaluation object, the influence of the performance of each evaluation element on the overall performance is also different. Therefore, different online consumers have different starting points for their shopping. After many sample surveys, we found that convenience and safety have become the main evaluation factors for online consumer shopping. Therefore, it is considered that the weight distribution of the following evaluation factors is reasonable, that is

\[
A = (0.12, 0.30, 0.20, 0.48)
\]

The evaluation model is synthesized by the modularization of fuzzy mathematics.

\[
B = A \circ R = (0.12, 0.30, 0.20, 0.48)
\]

\[
R = \begin{pmatrix}
0.37 & 0.40 & 0.15 & 0.09 \\
0.55 & 0.37 & 0.06 & 0.02 \\
0.44 & 0.37 & 0.19 & 0 \\
0.61 & 0.24 & 0.15 & 0
\end{pmatrix}
\]

(1)

The above judgement results show that among the frequent shoppers, 59% of consumers are “very willing” to shop online, and only 2% of consumers express unpleasant tendencies.

This study shows that the subjective preference of most consumers is online channel shopping, so as the owner of online sales channels, we should grasp the consumer psychological preferences of the Internet of Things era. At the same time, from \(A = (0.12, 0.30, 0.20, 0.48)\) (according to the results of the multi-sample survey and the evaluation of the evaluation factor weights agreed by the experts), we can see that in the online direct selling experience, the most important factors for consumers are “cheap” and “safe”. This differs from the existing view of choosing online channel shopping because of cheapness and convenience. The main reason is that with the improvement of material level, consumers will consider safety factors based on the price of goods. For example, when choosing food, consumers are willing to buy safer food at a higher price. Therefore, in the era of Internet of Things, online direct-seller suppliers should consider the factors that influence the quality of life on consumers' shopping concepts, and enhance their competitiveness from the two elements of cheap and safe goods.

3. Traditional sales service experience

Although with the arrival of the Internet of Things era, online direct sales bring consumers a new shopping service experience, but it also cannot win the entire market because of the lack of physical experience. Compared with online direct sales, traditional channel sales have the following unique advantages. First, traditional channel shopping can satisfy all consumers, not just young people who understand electronic devices and the Internet, old people and children can also meet the shopping needs through traditional channels, which is the main reason why the survey part selects the people under forty-five years old. Secondly, “scenario consumption” allows consumers to experience specific items in real life, which can help stimulate consumers' desire to shop and increase the number of purchases. Finally, once the offline channel service overflow factor increases, the free rider effect increases, and the likelihood of customers shifting to traditional channels after accepting online information increases, and the demand for traditional channels will increase significantly [6].

Proposition The actual consumption under the situational experience must be greater than the planned purchase amount

In fact, the actual amount of shopping \(q = q_1 + \Delta q \left( \frac{\xi}{\xi} \right) \)
$q$ is the actual amount of shopping $q_1$ is the planned purchase amount

$\xi$ is a random variable subject to two points distribution, $\Delta q(\xi)$ is the situation shopping volume.

In order to get this result, the following lemma is introduced first

**Lemma[7]** Number of customers entering a store at any given time $X \sim P(\lambda)$. The probability that each customer buys an item is $p$. The number of people who enter the store to buy this product $Y \sim P(\lambda p)$

Proof

$$((P(X = m) = \frac{\lambda^m}{m!}e^{-\lambda}, m = 0,1,2,...))$$

$$((Y = k \mid X = m) \sim b(m, p))$$

By the full probability formula,

$$(P(Y = k) = \sum_{m=k}^{\infty} P(X = m)P(Y = k \mid X = m))$$

$$= \sum_{m=k}^{\infty} \frac{\lambda^m}{m!}e^{-\lambda} \cdot \frac{m!}{k!(m-k)!}p^k(1-p)^{m-k}$$

$$= e^{-\lambda} \sum_{m=k}^{\infty} \frac{\lambda^m}{m!} \cdot \frac{m!}{k!(m-k)!}p^k(1-p)^{m-k}$$

$$= e^{-\lambda} \sum_{m=k}^{\infty} \frac{\lambda^m}{k!(m-k)!}p^k(1-p)^{m-k}$$

$$= \frac{(\lambda p)^k}{k!} e^{-\lambda} e^{\lambda (1-p)}$$

$$= \frac{(\lambda p)^k}{k!} e^{-\lambda p}, \quad k = 0,1,2,...$$

$$(Y \sim P(\lambda p))$$

$$(P(Y = k) > 0)$$

the proposition $q = q_1 + \Delta q(\xi) > q_1$ is proven.

If $m$ is large enough, $\hat{q} = q_1 + \lambda p$

This fact shows that “situation consumption” makes the actual offline consumption larger than the planned shopping volume. The promotion effect of this offline channel is not possible for online shopping.

4. Conclusion

This study uses questionnaires and derivation to analyse the differences between online direct selling services and traditional channel service experiences in the Internet of Things era. It is considered that both have irreplaceable unique advantages, so, manufacturers meet the consumer preferences and higher standard consumer experience while combining online and offline channels to build a reasonable dual-channel supply chain system, reduce costs and improve service levels through dual-channel sales, and achieve parallel advancement of dual-channel sales.
4.1. Formatting the title Scientific integration of dual channel supply chain
Consumers choose shopping channels to follow the principle of matching shopping costs and revenues, meaning that only when they are “value for money” will they choose to buy. In this sense, the level of utility that channels bring to consumers is largely dependent on the products sold in the channel. Although online direct sales bring more convenience to consumers, such as cars, luxury goods, etc, are not suitable for online direct sales. But in the offline physical display, sales staff's purchase advice is the most suitable for consumers' purchase needs at this time. In the current state, a manufacturer must not only actively carry out online direct sales, but also establish its own physical store, franchise store or joint store (multi-manufacturer product joint retail store), and pay attention to the full coverage of the region. However, these retail institutions will still exist due to their advantages of “trust consumption” and “scenario consumption”, even in the era of robotic offline retail marketing in the future of the Internet of Things. Tasy et Agrawal [8] found that traditional retail channels have a cost advantage over direct sales channels in terms of promotions, the combined use of repurchase prices and total wholesale price contracts to coordinate supply chains to achieve “chain members” benefits. At the same time, many factors such as computer use ability and hobbies cause consumers different channel preferences. Therefore, rational integration of the dual-channel supply chain to meet the different items, time, location and age factors of consumers can fully satisfy the consumer's purchasing needs and play the combined effects of the dual channels of the Internet of Things era. In any sense, the dual-channel supply chain will further increase the market penetration of manufacturers' products and greatly increase the possibility of profitability.

4.2. Orderly competition and incentives for a win-win situation
Yan and Pei [9] believe that the development of electronic direct sales channels will prompt retailers to improve the service of retail channels, stimulate the potential demand of the market, achieve a win-win situation for manufacturers and retailers, and greatly enhance the market competitiveness of the supply chain. Although the production of direct sales channels has occupied the market share of traditional channels, However, the unique incentives of traditional retail channels to stimulate consumer desires and situational consumption advantages can attract customers who prefer the offline retail channel experience to the channel, while paying attention to the free ride of the electronic channel information service, it can recover the losses caused by the competition of the two channels. As a manufacturer, while consciously using online direct sales to expand the market, we should take into account the interests of retail channels, such as reducing the wholesale price of products or profit compensation, creating the conditions for retailers to increase profits, and trying to achieve a win-win situation in orderly competition.

The two channels bring different consumer service experiences to customers, so that they can better meet the customer needs of different channel preferences. However, due to the identity of the service market and the crowd, it naturally leads to competition between the two channels. How to make the supply chain of the corresponding model develop healthily under the optimal benefit is the problem that needs to be solved now. Although many scholars have carried out many studies in theory and practice, it is difficult to give a unified standard answer at the macro level. Whether it is a manufacturer or a retailer, only by understanding the external and changing market environment, paying attention to absorbing innovative and advanced business ideas and management methods, constantly improving its own strategy, can we remain invincible in cooperation and competition.

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