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## **INTERNET OF THINGS IN MARKETING AREA (CHINA EXPERIENCE)**

### **ИНТЕРНЕТ ВЕЩЕЙ В МАРКЕТИНГЕ (ОПЫТ КИТАЯ)**

With the vigorous development of science and technology today the Internet of Things, which leads the information technology revolution, has promoted the deep integration of information technology and traditional industries, and is presenting huge business opportunities on a global scale. In 2010 the Internet of Things, as one of China's five major strategic emerging industries, was included in the government's "Twelfth Five-Year Plan" and was officially promoted to a national strategy. Governments at all levels have made concerted efforts to comprehensively promote the construction of the Internet of Things, which was announced in 2013. The list of national-level smart city pilots was established, and the pace of top-level planning for the Internet of Things industry was accelerated. In 2014 the scale of China's Internet of Things market reached 600 billion yuan. In just a few years the development of China's Internet of Things has gradually entered the market-led stage from the conceptual stage guided by the government, and the new era has given birth to the development of new business formats. In the past, it was difficult to achieve a true one-to-one experience.

The Internet of Things (IoT) is an information carrier based on the Internet and traditional telecommunication network. It enables all ordinary physical objects that can be independently addressed to form an interconnected network. In 1999 the United States Auto-ID Center first proposed the concept of «Internet of Things», then called it «Sensor Network», referring to the technology based on item coding, RFID technology and the Internet. In the same year Chinese science also started the research of sensor network and established some applicable sensor network technologies. The ITU Internet Report 2005, released by the International Telecommunication Union (ITU), formally proposed the concept of «Internet of Things». The report says the era of ubiquitous «Internet of Things» communications is on the horizon, where everything in the world, from tires and toothbrushes to houses and paper towels, can be actively exchanged over the Internet. Radio frequency identification technology (RFID), sensor technology, nanotechnology, intelligent embedded technology will be applied to a wider range.

When the Internet of Things becomes a new era opportunity, enterprises must consider the input-output ratio when considering how to enter the Internet of Things market. The value of the IoT platform lies in its ability to centralize and manage decentralized, fragmented IoT applications and provide greater flexibility in reorienting them. In this way, when enterprises decide to invest, they will see not only the limited market space in the vertical field, but also the great prospect of the company's transformation to service-oriented and the development of new business segments after the construction of the Internet of Things platform. Especially for large and medium-sized enterprises, the choice of IoT platform strategy is the key to sustainable development in the commercial market in the future.

China accounts for 30 % of the world's Internet of Things connections. In 2019 the number of Internet of Things connections in China was 3,63 billion, among which mobile

Internet of Things connections accounted for a large proportion, growing from 671 million in 2018 to 1,03 billion at the end of 2019. By 2025 the number of IoT connections in China is expected to reach 8,01 billion, with a CAGR of 14,1 percent. By 2020 the industrial scale of the Internet of Things in China has exceeded 1,7 trillion yuan, and the overall industrial scale of the Internet of Things has maintained an average annual growth rate of 20 % during the 13th Five-Year Plan period.

IoT is the cornerstone of Industry 4.0, Made in China 2025, and the only way for China to transition to high-end manufacturing. The infrastructure construction of the Internet of Things and the ecological construction of the Internet of Things are strategic opportunities for the development of China's information industry.

At present, marketing digitalization is the main direction of development, and digital marketing replaces traditional marketing and becomes the mainstream. The digital marketing market is expanding day by day. At present advertisers, agents, outdoor marketing places, media, delivery platforms, technical support and other marketing industry chain formats are basically perfect.

In particular, the basic construction of online digital marketing ecology has been completed. Online media such as search engine, social media, video website, mobile video, vertical platform and e-commerce platform have shown the characteristics of platformer, closed-loop and intelligent. The digital process of marketing is evolving from advertising to the digital process of the whole chain of marketing. Marketing technologies, such as automated marketing, marketing cloud, artificial intelligence, Data Management Platform (DMP), have been used in the market. As for China, in the context of economic transformation and upgrading, the digital transformation of more and more traditional industries has been accelerated. For example, during the COVID-19, online education, online medical care, fresh logistics and other industries have been booming. New areas bring new consumer markets and scenarios, the new demand will stimulate the market potential of more digital marketing. Digital marketing and digital economy complement each other. On the one hand, the industrial upgrading of marketing drives the development of digital economy formats; on the other hand, the development of digital economy promotes the transformation and upgrading of marketing.

Internet of Things marketing is a new type of marketing, it still belongs to the category of digital marketing, is a more intelligent, scale, marketization, grid digital marketing. IoT marketing is an emerging marketing model based on values, connections, big data, scenes and new generation of analysis technology. With technology as the core, IoT marketing aims to reduce marketing costs, improve marketing efficiency and improve consumer experience. At present, Internet of Things marketing is the trend of the Times, widely used in all spheres of life in China. For example, smart home, smart community, smart travel, smart business circle, smart city, etc.

IoT is the Internet that connects gadgets and products (including lights, vehicles and even alarms) to computing devices, allowing them to exchange data with each other easily. Therefore, it allows marketers to obtain more background information about the customer's product usage behavior. In addition, it can help marketers provide more important information and higher customer engagement. The development of IoT will enable us to analyze, predict and respond to consumer behavior in every possible market. In this digital age, data is pouring in from all directions. Marketers are turning useful information into insights to guide better decisions, which improves the customer experience and marketing results. However, the continuous development of the Internet of Things and the emergence of more and more data devices are amplifying the impact of data-driven engagement, insight, and

results that are expanding every day and can be extended to a variety of different types of enterprises and even communities.

IoT is enabling marketers to bridge the gap between physical and digital environments, while at the same time improving listening, learning, and interactive experiences. The Internet of Things can help marketers gain insight into the customers they are targeting. When combined with efficient CRM tools, IoT tools enable marketers to build productive, lasting relationships with existing customers. The Internet of Things simplifies the buyer's consumption chain. This feature allows marketers to know where their potential customers are, which not only saves a lot of time, but also helps marketers get more reliable and useful information. The Internet of Things helps marketers and sales teams in many interesting ways. Smart devices collect data and then send IT back to the user in real time, without the intervention of any IT experts. All of this helps companies develop more influential marketing strategies, which in turn further helps increase ROI on future sales. So the Internet of Things seems to be a very popular and powerful technology when it comes to changing the world of marketing.

The World Internet of Things Conference 2020 released the top 500 IoT enterprises, among them were listed: USA companies – IBM, Qualcomm, Intel, Microsoft and Google; Chinese – China Mobile, China Unicom, ZTE; and Russian Rostelecom. Predictably, all these companies represent the high-tech sector, in particular mobile. Nevertheless, customer-oriented companies as Bosch and Nokia are interested and show good results in the application of Internet of Things technology in their marketing strategies. The sectors that have brought the highest revenue to IoT companies are: smart home (19 %), healthcare (14 %), wearables (13 %), smart cities (13 %), and automobiles (11 %).

IoT has great potential to change marketing strategies to usher in a new era of personalization and creativity. IoT is a truly revolutionary force that uses wireless technology to connect places, things and people to ensure seamless data transmission and sharing. So what is the impact of the Internet of Things on the marketing field. The following are several aspects of the application of the Internet of Things in marketing, as well as several case studies:

- a truly personalized one-to-one experience;
- customer data will be more accurate and useful, and customer relationship management (CRM) can be more effective;
- the relevance of advertising effects is more accurate, and the click-through rate can reach 100 % accuracy;
- smart marketing can interconnect social data with connected devices, and products can also become advertisements.

The most obvious feature of IoT technology in the marketing field is precision marketing. The key to precision marketing lies in how to accurately find the target group of the product, and then let the product penetrate into the hearts of consumers, so that consumers can recognize the product, understand the product, and trust the product to the final dependent product. Compared with traditional marketing methods that are costly and slow to take effect, the use of precision marketing for personalized marketing can be regarded as the killer of company marketing.

For example, consider IoT in the big data marketing for Xiaomi mobile. Whether it is the direct data of sales records or the feedback data of customers on the communication platform, these big data sources must be placed in the network marketing model. Use computer programming software to perform corresponding cluster analysis or association analysis, then use big data calculation mode to realize data analysis, and finally apply the

information extracted from these data to product marketing. Data collection is only the most basic aspect of big data marketing. It also involves the establishment of grass-roots database and the core process of big data processing.

The information contained in the data serves as the fundamental basis of marketing, and the data without information has no value, so how to extract the information contained in the data has become particularly important. The marketing data of Xiaomi mobile phone comes from a wide range of sources, and the data collected through different channels are not unified enough at the data level. Therefore, Xiaomi adopts a differentiation strategy in big data processing, dividing the data into basic layer, middle layer and application layer data. The division of different levels is not only beneficial to data aggregation, but also beneficial to the development of correlation analysis. The data of the base layer is similar to the collected original data, which is the basis of big data analysis without further aggregation and analysis. The company has unstructured data that profoundly reflects user information. The Xiaomi bracelet monitors users' sports in real time, etc., and Xiaomi has a huge technical reserve of big data. Xiaomi's big data processing does not depend on the number of teams, but pays attention to the unity and refinement of data processing, especially the basic data, which achieves the unity of the whole level of the company.

#### 1. Data mining refinement.

The refinement of data mining is conducive to grasping more appropriate information. Through the segmentation of users, information acquisition is more accurate. The most basic is to classify customers based on gender and understand the ways in which different groups of people pursue products. In addition, data processing in different regions is carried out separately. Through cooperation with Baidu Maps, Xiaomi accurately grasps the regional differences of users and pushes different models of Xiaomi phones according to the economic development status of different regions. For the data analysis of online browsing on consumption, Xiaomi applies DSP (Digital Signal Processing) technology. When users log in to the official website of Xiaomi, they have corresponding behavior habits and browsing purposes. Users with different ages, characteristics and interests have different levels of attention to the advertising space. DSP technology can separate different users from millions of visit records of the website. No matter gender division, region division, age division or even individual division, all reflect Xiaomi's refinement in data mining.

#### 2. Comprehensive coverage of consumer behavior.

Through powerful technical support, Xiaomi can systematically restore the behavior path of users according to their traces, and realize the closed-loop marketing. Xiaomi believes that the development of the mobile Internet has fundamentally changed the mobile phone industry, and that it has become common for users to decide to buy something by browsing the platform information. Through the organic combination of Xiaomi mobile phone application and MIUI system, Xiaomi can effectively obtain the network trajectory and living habits of 170 million Xiaomi users. Through the comprehensive coverage of consumer behavior, the company can effectively grasp the comprehensive information of Xiaomi users, and obtain a high attention rate by pushing advertisements in line with specific users.

#### 3. Supply of big data marketing products.

The key of big data marketing is to restore the user's demand to the production of the original product. Due to the particularity of mobile phones, the competition among brands is ultimately the competition of technology. Only by making products in line with the taste of consumers can we get the best sales space. At the same time of the marketing of Xiaomi mobile phones, the corresponding accessories are constantly improved to enrich people's lives and provide auxiliary support for the subsequent acquisition of customer information

of Xiaomi. At the same time, Xiaomi mobile phones provide a lot of software support, including fast applications such as Xiaomi Cloud, Xiaomi Wallet, and Xiaomi Life, which guarantee a good user experience.

#### 4. Social network marketing based on big data.

It can be said that the social network of Xiaomi mobile phone is the first among the domestic mobile phone brands in China. To accurately locate the development of mobile Internet, Xiaomi mobile phone has abandoned the traditional store sales and started from the Internet sales from the very beginning. The strength and essence of its marketing is that it devotes all of its energy to building a social network without any form of advertising. According to the results of big data processing, Xiaomi mobile phones rely on different media features to achieve complementary marketing advantages and attract different types of consumer groups. Xiaomi's big data social network marketing is mainly through QQ space, Weibo, WeChat and forum and so on. First of all, before the launch of new products, Xiaomi generally realizes interaction through the relatively active micro blog, and attracts people's attention through general introduction. The release of continuous information is conducive to the discovery of loyal followers. On this basis, through data mining technology, customers with potential to become fans will be directed to Xiaomi BBS (Bulletin Board System). As the fundamental platform for Mi fans to interact with each other, Mi BBS is the basis for Mi to achieve customer maintenance. It is easy to improve the participation and activity of fans through the release of the internal top posts of Xiaomi.

#### 5. Commodity association mining marketing based on big data.

The related marketing of Xiaomi mobile phones is firstly the connection between Xiaomi mobile phones and Xiaomi hardware products. As the core product of Xiaomi Technology, Xiaomi mobile phones occupy most of the market share of Xiaomi, but not all of Xiaomi. Center on Xiaomi mobile phone, connect all home smart devices is the guidance of the construction of Xiaomi ecological chain. This means that, as the core of the ecological chain, Xiaomi controls the whole ecological chain in the form of «hardware + software + service». Xiaomi bracelet, Xiaomi earphone, Xiaomi camera and other devices form a strong correlation with Xiaomi mobile phone. Through big data mining and analysis, Xiaomi recommend personalized packages for users, which not only saves capital, but also enhances user experience. Another kind of association of millet mobile phone marketing is the association between hardware and software. Users of millet mobile phone can automatically backup their mobile phone data through cloud services. When replacing a new Mi mobile phone, users can log in their Mi account to achieve a one-click replacement, in addition to the phone changes, the desktop, application location, SMS, call records, photos and other information to retain the original phone state. Through the perfect association between cloud service and Xiaomi mobile phone, users who enjoy the convenience of cloud service can make a repurchase behavior under the push of necessary accurate information.

#### 6. Differentiated marketing based on big data.

The diversification of Xiaomi's mobile products is also an important component of its big data marketing. By classifying the customer audience and mining the needs and preferences of different groups, precision marketing can be realized. Xiaomi has put forward the concept of «no design is the best design». This is mainly because consumers have different needs for appearance design, and different genders have different needs, which all change over time. Therefore, it is necessary to find the main requirements through comprehensive analysis of big data to facilitate the design of the product. The design of the appearance of millet mobile phone lays emphasis on simple and generous, and on this basis, it adds a dazzling shell to

adapt to the tastes of different consumers. In the face of the pressure and fall resistance of express transportation, the material of the small rice packaging box adopts the kraft paper package with good toughness, and the pressure resistance reaches 150 kilograms, which ensures the safety of transportation. The trend of product homogenization is increasingly serious, especially for the mobile phone industry, «brand + configuration + appearance» almost constitute the whole product. The company can only achieve a prominent position in marketing if it not only guarantees its own brand characteristics, but also has differentiated user positioning.

#### 7. User engagement marketing based on big data.

In traditional commercial activities, enterprises, as the supplier of goods, are responsible for the design, production and sales of goods, while consumers can only passively accept the products. Xiaomi established the idea of developing mobile phone operating system on the Internet for the first time, and invited 600000 Xiaomi fans to participate in the research and development of mobile phone mode. Every feature and design of Xiaomi's phones is well suited to the needs of most consumers, given the necessary processing of a vast database of 600000 consumer suggestions. Importantly, the feedback from these customer representatives will be incorporated into the redesign and improvement of the product. Through the mode of «from user to user», Xiaomi phones have a strong market fit. Xiaomi's user participation in marketing strategy has not only improved the sales ability of its products, but also brought about a constantly rising reputation.

Thus, the technology of the Internet of Things has already been widely used in the business models of world leaders, it is considered as an important prerequisite for building effective modern marketing strategies. The Chinese experience is especially indicative. Chinese companies are actively using the technology of the Internet of Things in collecting and analyzing information about potential and real customers, introducing marketing personalization and enhancing customer experience. A serious example of the introduction and active use of the technology of the Internet of Things can be considered Xiaomi. The company has built an effective system of marketing analytics and customer retention through the use of the Internet of things and big data technology.

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## **INTERACTION OF FINANCIAL CONTROLLING AND COST MANAGEMENT IN PROJECT MANAGEMENT**

### **ВЗАИМОДЕЙСТВИЕ ФИНАНСОВОГО КОНТРОЛЯ И УПРАВЛЕНИЯ СТОИМОСТЬЮ В ПРОЕКТНОМ МЕНЕДЖМЕНТЕ**

Контролинг как инструмент поддержки принятия управленческих решений на основе аналитической информации способствует повышению эффективности управления бизнесом. В современных условиях рынки становятся более глобальными, цели создания ценности меняют свою конфигурацию под влиянием инновационных технологий и развития 4.0 индустрии. Для повышения эффективности деятельности предприятия, в нынешних экономических условиях, необходимо применять соответствующие сложности внешней и внутренней среды, методы и инструменты контроллинга и управления затратами. Современные организации все чаще используют проектный подход для развития своего бизнеса, где заметную роль в успехе управления затратами играет контролинг.

The globalization of economic communications, information technology development, technological progress, competition and market requirements are processes which characterize the present stage of the world economy development. For the survival and development of the enterprises, especially small ones, they must adapt not only to rapidly changing environment conditions, but also to the speed of the changes. Tasks that enterprises tackle are associated with strategic changes and renewal of production, finding new markets and good sales channels, cost management and cost reduction, development of alternative strategies, and improvement of competitiveness. Solving these problems requires strategic vision and competences of the business managers. Therefore, the management of enterprises must pay attention to the modern concepts and approaches of business management where the controlling plays a key role. Consequently, the balance between control and flexibility becomes the main point in the modern controlling process. Controlling is a tool of support for the effectiveness of project and business management.

The modern enterprise is a complex system that has developed on the basis of scientific and technical progress, the rapid changes in the external environment and highly competitive environment. In these conditions achievement of their strategic targets is not a simple task. For the operative decision-making, every manager needs timely and relevant information about the changes occurring both in external and internal environment of the enterprise, therefore enterprise management system must be constantly improved. Consequently,