Research on the Realization of C2B Mode in the Commercial Intelligence Era

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Abstract

The era of intelligent business has come. Under the dual driving of network collaboration and data intelligence, many enterprises and their products will evolve into C2B mode. Based on the perspective of supply chain, this paper will provide a new angle of view in analysis, and broaden the idea of achieving C2B mode by the utilization of intelligent data, in which also includes the main ways to obtain the personalized needs of massive user, the means to achieve accurate positioning of customer requirements; the key steps to realize the connection between users' personalized requirements and Business side factories on the industrial chain; the principle of "customization-massing" to realize the enhancing of profitability by customized production of personalized products, and the future intelligent data of the embodiment of innovation has become an important breakthrough point in the development of C2B.

Keywords

C2B, Network Coordination, Data Intelligence, Customization-Massing

1. Introduction

In the past 20 years, with the continuous improvement of economic living standard and information technology, consumers' diversified and personalized requirements are gradually released, which had been captured by enterprises. As a result, the new commercial C2B model quietly emerged. It was followed by the continuous innovation and development of big data network technology, which gave birth to the concept of "Intelligent Business". With its double helix structure of "network collaboration" and "data intelligence", it will make human commercial civilization evolve towards intelligence again, which leaves a lot of space for enterprises to think and try. The era of intelligent business has come.

Whoever can follow the trend will become the industry benchmark and business leader of the future.

2. Theoretical Review

C2B (Customer to Business) is an e-commerce model, which is driven by the real demands of customers from customers to enterprises. Customers can put forward personalized demands in terms of product function modules, design and pricing, and then enterprises can make customized production according to the personalized needs of customers. At its core, C2B is "driven by customer demand," where customer s decide what to produce. How many? When will it be produced? C2B is a fundamental subversion subversion of the traditional industrial era, and is a real customer-driven business model. It will fundamentally solve the contradiction between customization and large-scale, and will create a new broad market for personalized requirements based on the trend and willingness of personalized consumption.

Intelligent business was proposed by Zeng (2018), chairman of the academic Committee of Alibaba Group. He summarized intelligent business as a "double helix structure", that is, intelligent business = network collaboration + data intelligence. The so-called "network collaboration" refers to the collaborative approach to solve specific problems through large-scale, multi-role real-time interaction. The essence of "data intelligence" is to replace human beings with machines to make direct decisions about operations and management. The specific content includes the use of cloud computing to realize the storage of massive data and the low-cost operation of computing, and the continuous learning through the "algorithm", the core "brain", to generate optimization decisions. While network cooperation promotes the development of data intelligence, data intelligence also becomes an indispensable aid to the expansion of network cooperation.

The concept of "customization-massing" was first proposed by Tseng et al. (1997). It means that in mass customization systems, there are a lot of similarities in tools, production plans and product design, etc. Enterprises can scientifically integrate and optimize these similarities, which will help reduce the complexity of the manufacturing system. In China, Wu & Qiu (2001) believed that grouping technology was a new technology applied to mass customization production mode in the era of big data. Yang & Qi (2007) believed that there were similarities in different products and processes in the mass customization system, and the key was how to identify and effectively use these similarities. The concept of "customization-massing" was proposed by Wang et al. (2014), who divided mass customization into two different processes: mass customization and customization scale, and studied the balance model of mass customization as well as the application methods and key technologies of customization scale. The author Song & Tang (2017) believes that "customization-massing" means that enterprises, driven by consumers' personalized orders, search for identical

or similar modules and components in the orders, carry out large-scale production and coordinate with each other, so as to not only meet consumers' personalized needs, but also gain benefits brought by economies of scale.

3. How to Accurately Obtain the Customer Side Personalized Demand Information

3.1. Focus on Customer Side Demand Information Acquisition with the Advantages of Various Platforms

3.1.1. E-Commerce Platform

Through such as Tmall, Jingdong mature electric business platform, can quickly get the customer side needs a lot of information, including the customer's region, age, level of consumption, be fond of, shopping cart, browsing time, evaluation information. At the same time, as all major e-commerce platforms are experts in data mining and algorithms, the majority of Business side enterprises, if they can establish the cooperation mode of "data sharing" with such e-commerce platforms, can directly collect the real demand of customer side and the analysis results of intelligent data, and practice in their own product development, design and production, greatly benefiting from the intelligence of data application.

3.1.2. Social Platforms

With the widespread use of smart phones, social software such as WeChat and Tik Tok has gradually covered more than 90% of smart phone users in China. In such a large social group, some new "social e-commerce" models have successively emerged, such as "acquaintance economy + trust economy" model, "fan economy" model, "web celebrity economy" model, etc. This kind of social e-commerce model, which makes use of "word-of-mouth effect" and generates benefits driven by influence and contacts, can help merchants attract and stabilize their vast customer groups, and will also have great market potential in the future.

3.1.3. Self-Built Platform

There are also some enterprises at the core of the supply chain. In order to realize the C2B mode, they choose to build their own platforms to directly collect consumers' demands and provide big data storage and support for the production of personalized customized products. For example, in the "RCMIM Platform" of red Collar Group, the customer passes the data of 19 parts to the platform through 5 minutes of volume measurement, and then selects dozens of model details such as fabric and style according to their preferences. When the details are finalized, the order is sent to the data platform, and the system automatically matches the version and sends the information to the production department for customized production. This wave of smooth operation truly realizes the dream of personalized customization, and all the information operations, such as data acquisition, processing, generation and transmission, are completed through the enterprise's self-built "RCMIM platform" *see* Figure 1.

3.1.4. Cooperation with Network Service Platform

Companies also can work with professional network services platform for cooperation. They can be provided the customer requirements and intelligent data processing services by the network service platform. Then establish a long-term stable win-win cooperation, it will be the future C2B model of a great innovation. For example, the "Spider Wisdom Selection" platform *see* Figure 2 & Figure 3 of the C2B intelligent customization project jointly created by "SAIC Chase" and "Autohome" APP has been officially launched. Through the "Spider Wisdom Selection" platform, customers can freely choose the functional modules of the car according to their own requirements and preferences. Currently, more than 1.2 million users have browsed, among which 30% have placed orders to determine the customization requirements.
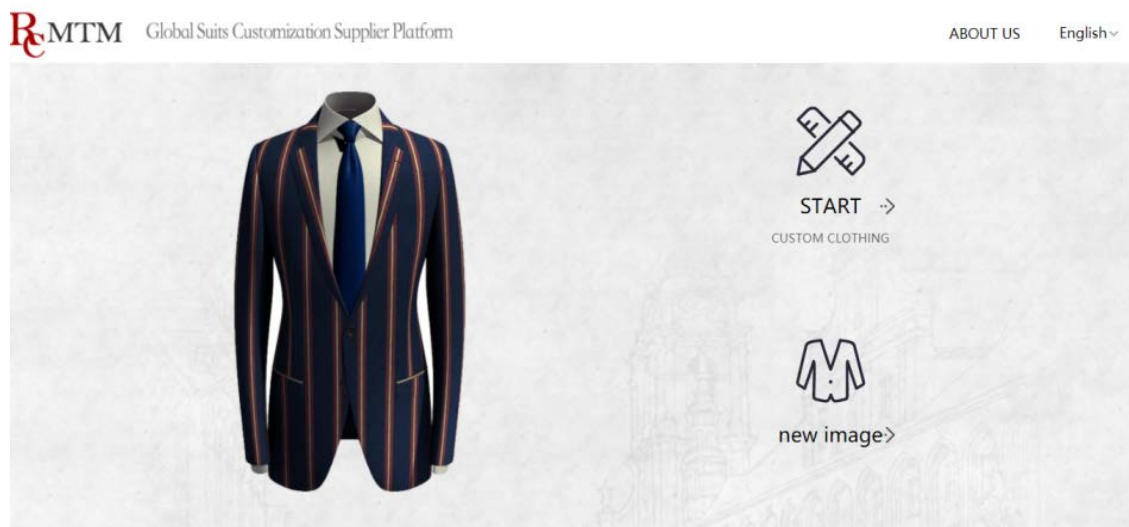

Figure 1. The homepage of "RCMIM Platform" of Redcollar group.

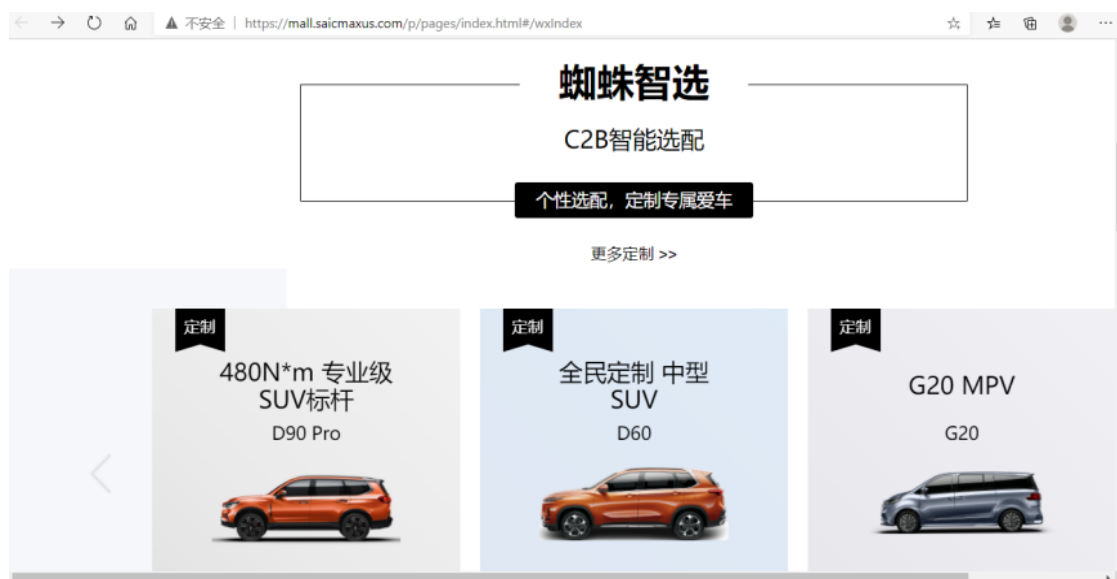**Figure 2.** Home page of "Spider Smart Selection" platform.

Figure 3. "Spider Smart Selection" platform page.

3.2. "Precise" + "Accurate" Positioning of Personalized Requirements in Mass Data

On one hand, to achieve precision in C2B mode, it is necessary to achieve dimension-reduction strike through "network coordination", which mainly takes into account two tasks: One is through a collaborative network expands, access to a customer in different scenarios of more data integration, so that businesses can quickly capture the customer in a specific scenario precise requirements, and shall be satisfied. For example, if all the data of WeChat, Taobao, Tik Tok and other software can be connected, then customers' preferences can be understood in a more comprehensive way. Maybe a customer wants to buy a water cup according to a chat message in WeChat, then through the network coordinated data integration and the algorithm in the background, the customer's brand preference and price selection and other details can be determined, and the recommendation link can be generated. When the customer opens taobao software, product options that meet their current requirements will be automatically promoted, greatly improving their shopping experience satisfaction. The second, "precision" refers to the accurate design and good use of "online interactive product selection tools", in order to facilitate users at the same time quickly and accurately collect customers' preferences for personalized customization. In fact, many C2B companies have shown that as the complexity of the model for a customized product increases, customers' online conversion rates increase.

On the other hand, accuracy is the embodiment of "data intelligence", which requires more accurate mining of customers' potential requirements and direct recommendation and decision making by machines instead of human beings. In the past, the electricity business enterprise software recommendation engine role of "following the customer's will". But now, through the network collaborative pattern of intelligent data processing, is to realize the recommendation engines

consume "leading" role. Through the accurate calculation of intelligent algorithm, the potential requirements of customers in different scenarios are approached infinitely, and the direct decision is gradually realized by replacing human with machine. The "recommendation engine" is truly "in front" of customer requirements, and the broad value space brought by "leading consumption" is released, so that consumers' shopping experience is more comfortable and convenient.

4. The Accurate Personalized Requirements of Consumers Are Quickly Connected with B-Terminal Factories on the Industrial Belt

C2B mode at the core of the enterprise is B side. In the era of intelligent business, B-end enterprises should do the following two things: First, B-terminal enterprises need to establish a long-term dynamic interactive relationship with C-terminal users. They need to continuously update C-terminal personalized demand information and provide customers with services closer to their needs through accurately designed technical means such as "online interactive product matching tool" and "recommendation engine". Second, building an "intelligent platform" is the key link to realize the fast connection between C-terminal and M-terminal factories. This "intelligent platform" will depend on the "cloud computing", "intelligent algorithm" and other high-tech means of integrated application, gradually achieve by machine instead of manual make fast approaching potential user demand choice and decision, provide accurate data for subsequent mass customization production security and docking. To be able to quickly close to the customer demand potential choices and decisions, B-terminal enterprises need to complete two steps: The first step is to complete the collection and summary of "big data of perceived capillaries" with the help of the intelligent platform, which serves as the basis of the algorithm. The so-called "perceiving caprile big data" includes manufacturing enterprises connecting each product with customer experience, matching individual user who with behavioral details When, Where, Why and How one by one. At the same time, it also includes collecting data of a customer on different platforms and in different scenarios through network collaboration, so as to explore the correlation between data, which is an effective way to get close to customers' real and potential requirements. As the statisticians maintain, the accuracy of the sampling analysis increases substantially with the increase in the randomness of the sampling. Therefore, as more dimensions of data are recorded, analyzed and integrated, it will constitute a comprehensive description of customers, close to the real requirements of customers, and ultimately improve customer satisfaction. For example, the RCMIM platform has the world's largest database resources of suit edition, and the 100 million version database basically meets more than 90% of customers' requirements. No matter what country or region you are in, you can find your own unique suit shape from this massive database and make it your own. The second step is based on data and algorithms, so that machines can

make choices and decisions instead of humans. When the enterprise has completed the data of the business scene, the algorithm is the idea of extracting the value of the data. The key point is that the upgrade of the algorithm depends on the accumulation of data, and only through constant update and iteration can the algorithm get closer to the real potential needs of customers. That is to say, even a very rough algorithm model can find those extensive latent relationship structures that we can't detect through data exploration without prediction and direction in real-time online and comprehensively recorded data, and continue to optimize to infinitely approximate the potential requirements of customers. In the future, enterprises expect to use machines instead of manual labor to quickly make choices and decisions closer to user needs, which is to let the machine complete its self-learning, and the core of "machine self-learning" is algorithmization. Any algorithm model, especially one that is self-learning and self-optimizing, is faced with the arduous task of finding hidden correlations among thousands of possible factors, which must be realized by analyzing massive amounts of data and by rapidly iterating and optimizing in real-time updated data. Therefore, the "intelligent platform" built by the core B-terminal enterprises under the C2B mode puts forward new requirements and directions for algorithmization, that is, the iterative direction and parameter engineering of the algorithm must be integrated with its business logic and mechanism design.

5. Based on the Principle of "Customization-Massing", Realize the Profit Method of Customized Production of Personalized Products

5.1. Apply "Intelligent Platform" and "Production Software" to Control the Cost of Customized Production

On one hand, "intelligent platform" by setting the complicated and interesting "online interactive product selection tool" to obtain the customer's preferences, generated automatically to the user suggestion "recommended" configuration, the C-terminal precision in a very short time specification order, thus reduce operating costs. On the other hand, the realization of "intelligent platform" and "enterprise in the production of software" connection, the B terminal enterprisesget customer ordersrapidly and exactlyto match the receiving capacity of the factory, then proceed to mass customization production. The key is to be able to calculate the total cost of each customization option module, and manage the output of each option module, as long as possible to delay the customization of the assembly time, in order to comprehensively control the production cost of customization.

5.2. Use a Variety of Process Technology, Expanding Parts Production and Final Product Scale Advantage, Reduce the Production Cost

First of all, the design of product family refers to the stage in the development and design products, should carefully consider whether can product extension

into a series, or the size of a population. Because the scale advantage of product family can be translated into the production of standardized or modular products within the family, while expanding the scale of production and procurement of standardized/modular parts, it also expands the group scale of users, releases the advantage of scale economy to the greatest extent, and reduces the cost of customized procurement, production and logistics.

Second, "modular" design is the basis and core of the mass production of customized products. "Modular" design is considered to be the most economical way to maximize external diversity by minimizing internal diversity. In the future, enterprises will focus on in-depth research on the design ideas and solutions of internal modular subdivision brought about by the external diversity of modular design, thus reducing customized procurement and production costs. For example, in the activity of "TCL & JD Network Customized Smart Air Conditioner" in December 2014, consumers were allowed to make personalized customization of the name, appearance, function and remote control of air conditioners. Consumers could choose 6 out of 22 functions such as intelligent WiFi remote control, energy saving, silence, sterilization and formaldehyde removal to customize their own exclusive air conditioners. JD.com will feed back customized information and data to TCL, and TCL will enter into the modular customized production process.

Finally, group technology, refers to the enterprise production of all kinds of products and product components, according to the similarity between the structure and process principle of categorizing, and organization and management on the set of the production operation. For example, "Shang pin home delivery", a famous brand of customized furniture in China, combines the new C2B model with O2O model. Its approach is to take orders from different users and decompose them with the help of computer technology. Each board has an independent bar code, and the boards of the same size will be combined together for mass production.

5.3. Based on the Flexible Manufacturing System, to Obtain the Scale Advantage in the Process of Production, Thereby Reducing the Cost of Production

Customized mass production mode requires enterprises to have the ability of flexible manufacturing. At the same time, flexible manufacturing system is also crucial for small batch customized mass production to achieve profitability. In the C2B mode, the flexible manufacturing system is mainly realized through the flexible manufacturing system of the production enterprise and its data docking and processing with the B-terminal e-commerce platform. Among them, flexible manufacturing system is an automatic manufacturing system composed of CNC machining equipment, logistics storage and transportation device and computer control system. It is a high-efficiency, high-precision and high-flexibility processing system. However, the B-terminal e-commerce platform is the core enterprise of the internet-based enterprise alliance mode. It can

be through the SCM system of product from design to manufacturing, assembly and sales and feedback the whole industry chain of monitoring and management. Through its strong data integration ability, it maximizes the scale advantage generated by modularization and grouping technology in the customized production process, which greatly reduces the cost of customized production and improves the flexible manufacturing capability of enterprises.

6. Intelligent Data Will Become a Major Breakthrough Point in the Future Development of C2B Model

In the future, to achieve C2B model of two important dimensions: one is that with fast understand customer requirements and ability for customers to customize products; second, to achieve machine learning and the corresponding decision automation. However, both must rely on the application of "smart" data and support.

The practical embodiment of smart data in the future is to create a way to combine products and services, that is, the original offline users online, generate a continuous information interaction, realize the real-time record of user feedback information, and then optimize the algorithm and service. For example, in July 2020, Midea and Huawei reached an "ecological strategic cooperation". The two sides will explore new generation of information technologies such as 5G, smart computing and cloud computing and innovate their applications in rich scenarios such as smart homes and smart factories. At the same time, Midea's full range of smart devices will connect with Huawei's smart home cloud platform to achieve the connectivity of smart home ecology between the two sides. In the future, Midea and Huawei's "Hongmeng" system will cooperate to build an "ecological chain", which may present such user experience: When you hold a Huawei phone, as long as you "get close" to a beautiful product (such as a refrigerator) in your home, your Huawei phone automatically shows what is in the refrigerator and what is not. Then a link to the desired food will appear on your phone, reducing your search time. If you're willing to authorize it, and you don't even have to click on the link, the phone will automatically place an order to buy the food you need if there's anything missing from the fridge.

7. Conclusion

The era of intelligent business has come, the double helix structure of "data intelligence" and "network collaboration" is leading people to a "No data, no intelligence; No intelligence, no business" era. In the future, data intelligence will become the foundation of business, and intelligent business will also become a new business paradigm in the data era, which will be an unstoppable process of business evolution. And as a driving force "to the real demand for the customers" C2B model will also be an intelligent business era under the core business model. Therefore, the core issue that needs to be considered and studied by enterprise leaders and professional scholars is how to make use of the tremendous

energy of "data intelligence" and "network collaboration" to meet customers' personalized customization requirements to the greatest extent. In this paper, the author mainly from the theory and the actual case summary, analysis, and expounds her views and thinking on this question. However, there are still some limitations in the comprehensiveness and in-depth quantitative analysis of the theory, as well as the particularity of various industries, as well as the research and application of intelligent technology in the future. It is hoped that the thinking and content of this paper will enlighten the research of enterprises and scholars.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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