7th International Conference on Mass Customization and Personalization in Central Europe (MCP-CE 2016)
Mass Customization and Open Innovation
September 21-23, 2016, Novi Sad, Serbia

THE GROUP PERSONALIZATION SUPPLY CHAIN DRIVEN BY CO-CREATION KNOWLEDGE

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Abstract: *With the development of social media and information technology, the application of co-creation in aspects such as marketing, management, and production will bring opportunities and challenges, and it has become future development direction of more and more customized enterprises. The paper puts forward the group personalization supply chain model driven by co-creation knowledge and analyzes its operating procedures. The model could exploit the co-creation knowledge and promote the e-business supply chain of the merchants, manufacturers, suppliers and other parties to realize push-pull combination of co-creation. Then, the paper gives the online customized IDX shoes case to prove the operation process of the proposed model.*

Key Words:*Co-creation, Group Personalization, Knowledge Management*

1. INTRODUCTION

Co-creation describes the evolution of value innovation. The completion of innovation process changes from centralized by the company to multiparty interaction, especially the interaction with customers. With the rise of social media and the development of information technology, applying co-creation to marketing, management and production etc., which will bring opportunities and challenges to the customized enterprises. This will also become the future development direction of more and more production enterprises. With the mass production gradually transferred to developing countries, European and American companies have turned to producing more innovative, customized,sustainable and high value-added products with small quantities. In order to gain a competitive advantage in the competitive environment, manufacturing enterprises must seek new technology to deal with customer's dynamic changing needs and achieve economic production as well as intelligent manufacturing.

Group personalization is a process of gathering a small number of demands of certain personalized products on the customized platform. Manufactories do not produce until there are enough demands agglomerated in order to achieve relatively low cost and low price. It depends on more variety and limited-volume flexible personalization production. Current related researches mainly focus on mass personalization, which however, is not admitted by some international scholars because the word "mass" means "a great volume". Unlike mass personalization in some researches, group personalization emphasizes smaller number of demands.

This paper designs a group personalization supply chain model driven by co-creation knowledge, which can realize push-pull combination of co-creation and innovation of market, product and service by promoting customers,e-business merchants,manufacturers, suppliers and other parties in the supply chain. The paper then analyses a Chineses online personalization shoes company — — IDX to prove the feasibility of the proposed model. At last, it gives us some suggestions on implementing group personalization strategy.

2. LITERATURE REVIEW

There are four applications of mass personalization: personalized content layer, ad Hoc online community, real-time scoring and virtual media library service (Fink et al. 2008). The strategy of mass customization is being transformed into a strategy of mass personalization which enables one person market to be a reality, and it has already been realized in some industries (Kumar 2008). Achieving mass personalization is to get good users' experience and satisfy the customers' demand effectively and efficiently by providing personalized product design (Tseng 2010). A 3D fashion design method of mass personalization with customer's participation was put forward. (Wang 2011). We need a strategy that transcends customers' and manufacturers' cost value to meet the potential needs of personalized customers. They also analyzed the development of customization production from the perspective of co-creation (Zhou et al. 2012). The co-creation application

forms focus on interactive virtual community, open innovation and crowdsourcing (Zwass, 2010).

In 2012, 500 international customization companies which were selected by the famous mass customization specialists Walcher and Piller , did not emphasize the role of co-creation. Co-creation is the future trend of competition (Aguwa, 2012). In a customer centric era, customization enterprises emphasize more on co-creation. Current research mainly focuses on the customization mode from open innovation perspective and major literatures focus on the level of how to design a "toolkit" providing choices to customers. With the growing number of interactive technology, there are a lot of literatures paying attention to the interaction with customers, but they didn't build the group personalization supply chain based on co-creation combined with the advantages of mass customization and personalization. In summary, the "group personalization supply chain driven by co-creation knowledge" is the trend of future production which can be the new model of "Intelligent Manufacturing". Under the dynamic needs of customers, how to build this model, and how the supply chain parties use co-creation-driven technology to improve customer satisfaction and business productivity are important problems faced by companies.

3. GROUP PERSONALIZATION SUPPLY CHAIN DRIVEN BY CO-CREATION KNOWLEDGE

Co-creation redefines the organization by considering customers, employees, suppliers, partners and other stakeholders in the process of the value creation. Companies can no longer regard customers and other stakeholders as passive recipients of products and services, and must learn to redefine and deliver additional value. In the future competition, value will be more created by interactive work between customers and company. Traditional value creation which regards company and product as the center will be surpassed sooner or later. Currently, company should focus more on consumers and their consumption experience, to be more actively involved in the creation of value Market pressures, Development of technologies such as web2.0, P2P, B2C, B2B, communication technology, search and recommendation engine etc., which are required by customer participation in product design, CRM strategy development, further improvement of ERP software with individual needs and development of database and data mining technology, have made group personalization production become possible.Group personalization emphasizes the single market, and needs customers to actively participate in product design process.

In order to obtain dynamic customers' demands, online customization enterprises cooperate with the customer in creation continuously through a variety of co-creation technologies, such as social networking sites, open innovation and crowdsourcing. Now, in the process of implementing co-creation strategy, many companies have adopted social media such as blogs, social networking to find new cooperation with customers, business partners and suppliers. The value of the company not only comes from the platform itself, but also comes from the use of information created or shared by social media platforms. Group personalization is a new paradigm of co-creation and the future development trend for enterprises.

The basic design ideas of group personalization supply chain model driven by co-creation can promote customers,e-business merchants,manufacturers, suppliers and other parties in the supply chain to realize the push-pull combination co-creation and then realize product innovation, marketing innovation and service innovation. The basic concept model is shown in Figure 1.

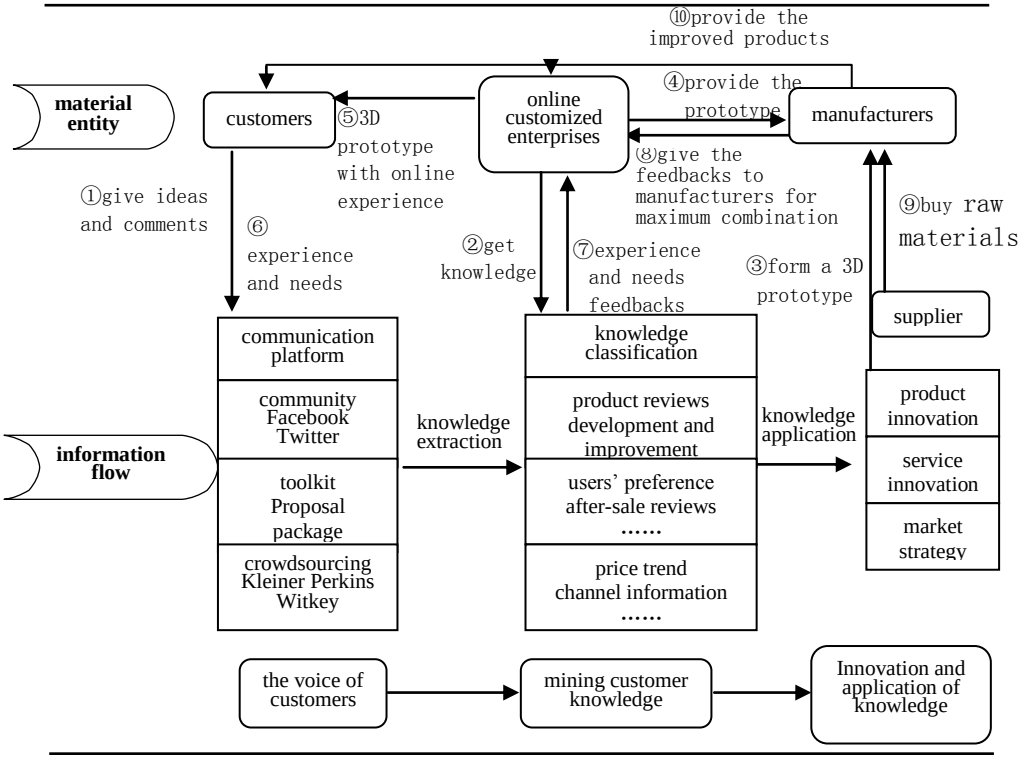

Fig.1. *Concept model of group personalization supply chain driven by co-creation*

Firstly, from the perspective of material entity, starting with the channels and ways of co-creation, the users put forward their own ideas or comments or communicate with each other via social community, kit, crowdsourcing etc. Online customized enterprises can obtain and collect users' communication from these three ways, then sort and give it to manufacturers. By learning and filtering customer knowledge and information, manufacturers redesign and improve the products, services and marketing strategy, then produce a new 3D model to the users. After that, online customized e-business provider delivers the model to users through the website which users can visit and experience virtually. Users can give the feedbacks on the website communication platform. The online customized e-business company regains the feedbacks and passes them to the manufacturer. Then the manufacturer makes improvement from those feedbacks, purchases raw materials of the product from supplier, and produces it and gives the improved product to the e-business provider to finish the process of co-creation with users.

Secondly, from the perspective of knowledge flow, co-creation mainly has three ways: social e-business communities such as Facebook and twitter; Kit such as recommended packages, wish packages etc.; Crowdsourcing forms such as Witkey, Kleiner Perkins Caufield&Byers etc. Users exchange knowledge such as product service and leave their voice (all kinds of demands) on that website. Then, e-business providers

and manufacturers extract the customer knowledge from these websites and sort out the information they collected with data mining technology to build co-creation knowledge database. It includes the users' experience evaluation, improvement ideas of product, the assessment of after-sales service, service satisfaction, as well as user's share of trends, the discussion of the price and the user's preference information etc. This information provides a very useful value in the subsequent production and services promotion of all kinds of enterprises. At this stage, customer knowledge is the result of data mining and the transition of continuous increment of information value. The sorted and optimized customer knowledge begins to enter and apply to the enterprises. The enterprises extract the corresponding knowledge of valuable users' data about products, services and market innovation from the information database to optimize product innovation, service innovation and market innovation.

From the view of the implementation of group personalization, it is mainly reflected in how to implement both meeting customers' individual needs and realizing the relatively low cost and quick delivery time. The new 3D model prototype produced on the co-creation knowledge is a prototype with improved combination or other added elements. When providing the selection and experience to customers on the network, manufacturers will set every combined product to ensure global limited production, thus they can satisfy the customer personalization. However, because manufacturers have decomposed the product properties, in the mining according to the requirements of clients and the given combination of selection, the manufacturers have measured the maximum combination and the costs of a number of different production. The manufacturer has reduced the cost by common combination. In order to meet the largest combination number of manufacturers and reach the combination batch and reduce cost, online customization enterprises can also achieve maximum combination by gathering requirements such as group-buying, thus they can realize the personalized products with relatively low price and fast delivery time. This not only improves the personalized customer satisfaction and the production efficiency but also reduces the production cost.

In a word, through the using and mining of co-creation knowledge, enterprises can realize the innovation of the product, service and market and promote e-business traders, manufacturers, suppliers and customers to participate in the co-creation process, in which enterprises and customers create value and achieve mutual benefits and win-win results.

4. CASE APPLICATION

Development of personalization is booming in China. We will give an example of shoes personal customization by IDX electronic commerce company, which has performed well in group personalization. IDX was founded in 2012 in Hong Kong and it began to sell customized T-shirts, cups and luggage, etc. in these years. Customers of customization enterprises of shoes can design their personalized shoes involving shoes uppers, soles, heels, decorative patterns, etc. Figure 2 shows the loafers attributes which customers can design on their own on the IDX custom website. Users can form more than two million custom attributes combination with different selection of materials, leathers and colors.

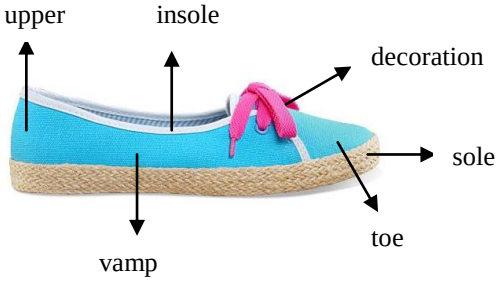

Fig.2. *Each part of the loafers*

Figure 3 shows the process of shoes online customization on IDX website. Firstly, users should choose a kind of shoes they want to design including main material, toe style and upper style. Secondly, users make decisions of colors and decorative patterns for each attributes of shoes like vamp and sole. The last step of customization is to select the right size.

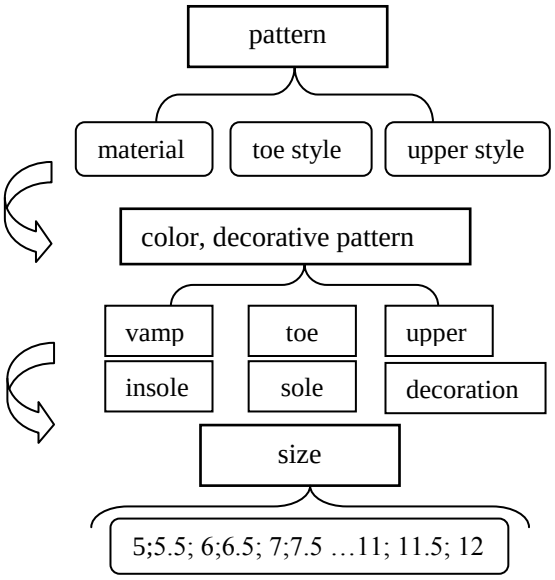

Fig. 3. *Flow chart of online customization shoes*

There are mainly two kinds of co-creation ways on the IDX custom platform. One is that customers can upload its own favorite patterns to the platform and edit their special signaures on the shoes. Another is toolkit "Design Your Own", by which customers can directly make the choice of personalized attributes combination on the customized website. IDX divides the shoes into different attributes so that customers can select the color, material with characterized combination. IDX can do knowledge classification and data mining of customized products information through its own knowledge database, then apply it to product innovation. However, customers can only customized their shoes from 2D plan image on IDX website now, which infuences consumer satisfaction to some extent. The improved model is shown in figure 4.

3D prototype is then sent to clients to get experience feedbacks. After receiving the feedbacks, the manufacturers improve the design and suppliers provide material to produce. Finally the products are delivered by the third-party logistics enterprises.With the whole industrial chain operation mode, IDX has integrated the processes of designing, customizing, selling, purchasing, producing, logistics and customer service. IDX also expands its production by cooperating with the best manufacturers besides its own factory.

In short, through the group personalization supply chain driven by the co-creation knowledge, IDX helps consumers dig more implicit demands, enhances consumer's experience to personalized design and their satisfaction with customized products, and thereby enhances customer loyalty. In addition, IDX expands the scale of demand through the means of agglomeration demand, and then forms mass customization, reduces costs for the manufacturer, and thereby reduces the price of customized shoes. As a result, the enterprise and customers create value together and achieve win-win situation.

5. CONCLUSIONS

There are two key factors to practice the group personalization supply chain model driven by co-creation knowledge. The big data mining technology of information is one key factor. Another key factor is that, how to play a role and what kind of role information could play under tight contact with suppliers, manufacturers, online customization and logistic enterprises. All in all, implementing group personalization strategy has higher requirements for the traditional customized companies. It relies on advanced information technology and needs to attract users to be involved in the interaction of individual characterized

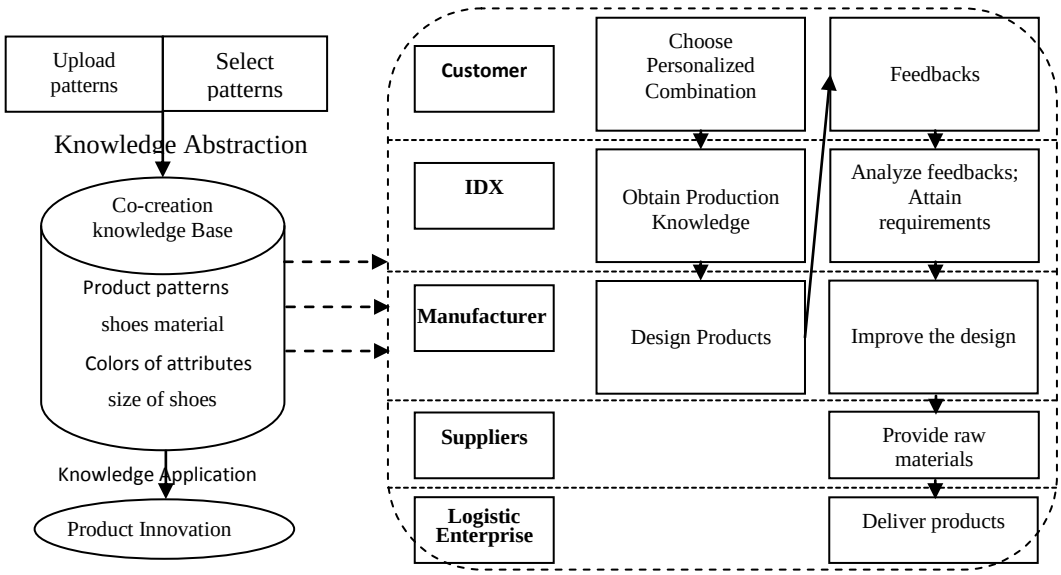

Fig.4. *IDX group personalization improved model driven by Co-creation knowledge*

To enhance consumers satisfaction and reduce the rate of goods return, manufacturers should design 3D prototype for the first-designed customized products. The

product innovations through IT technologies (including Web 3.0, P2P communication technology, engine search and recommendation engine etc.). In addition, the corresponding strategy of customer relationship

management, better aggregation of the community users and increase of the number of loyal users also need to be given attention accordingly.

6. ACKNOWLEDGMENT

The paper is supported by the project of National Natural Science Foundation, China (No.71302153);the project of China Postdoctoral Science Foundation(No. 2014T70838);the project of Natural Sciences of Guangdong Province, China (No. 2014A030313608).

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