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## Study of cooperative product business support platform for new product development

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### ABSTRACT

The development phases of e-business is described firstly, then the new product development process in cooperative product business is presented in detail, the cooperative product business support platform including technical platform and information platform is discussed finally.

**Key words:** new product development; e-business; cooperative product business; platform

### 1. INTRODUCTION

With the more and more fierily of market competition, enterprise is obliged to adopt new administration operation mechanism and new business model, the key to this is electronic business. The kernel meaning can be presented like this, firstly, new business model should be built and the existing business model should be integrated on the basis of the Internet techniques platform; secondly, organization structure of enterprises should be reengineering and improved systematically by the technique of business process reengineering for the purpose of enhancement of enterprises operation; thirdly, relationship among manufacturer, supplier and customer should be redefined and extended by the technique of

supply chain management and customer relationship management; fourthly, internal and external resource of enterprises should be integrated, and attention to internal value chain should be changed to external one by the method of business process integration; finally, digital operation and decision should be fulfilled by the method of business intelligence.

Product is the key to manufacturing operation of enterprise. For manufacturing industry, cooperative business based on Internet is the senior type of electronic business, which includes electronic commerce and collaborative product commerce. Figure 1 gives us the development process of electronic business.

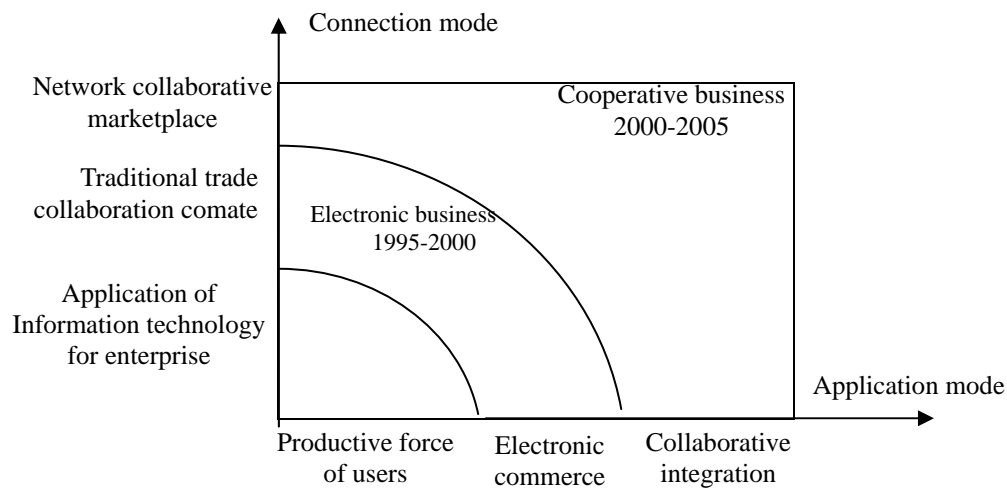


Fig. 1 The development phases of e-business

### 2. NEW PRODUCT DEVELOPMENT PROCESS IN COOPREATIVE BUSINESS MODE

With the coming of electronic business times, more and more manufacturing enterprises is thinking about how to integrate the company itself, suppliers and customer together and fulfill the collaborative development and sales of product by the network. As a result,

manufacturer and supplier will face the market together in electronic business times, and form the firm dynamic alliance by the method of collaborative product business. In this mode, the firm alliance subject builds its own collaborative business platform and fulfills the development and collaborative management of digitization prototype inside the kernel firm.

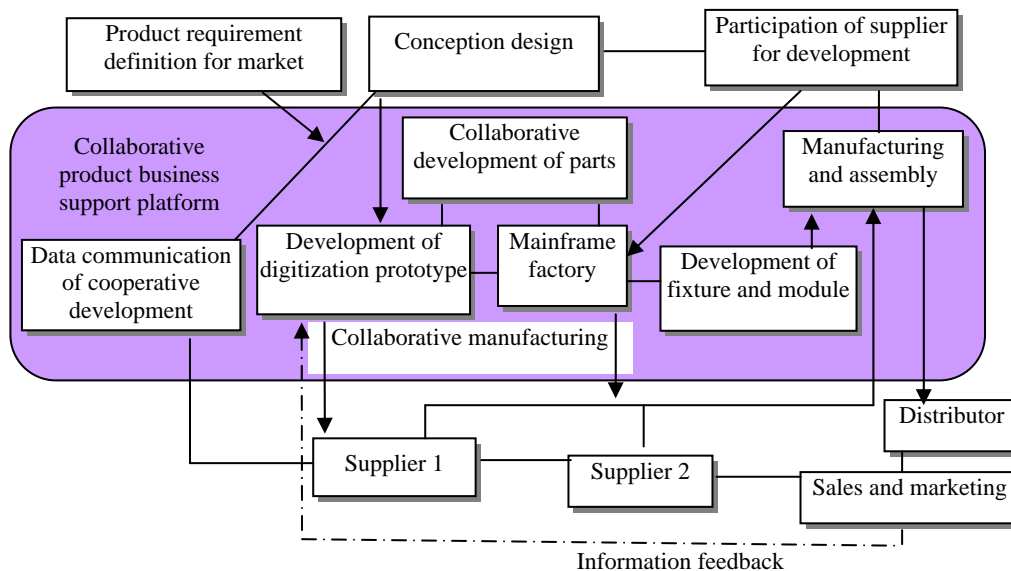


Fig. 2 A new product development process under cooperative business environment

On this platform, digital prototype development and collaborative management is fulfilled within the key firm, extends forwards to customer end through product requirement definition of customer, customer relationship management for market projection, and backward to maintenance, subassembly supply, distributor and customer relationship management for afterservice. In the medial product development link, the platform extends to supply chain to assure business to business model. Figure 2 gives us the new product development process under cooperative product business environment. Firstly, the function, performance, market object price, time putting on sale, supply chain and other strategy is defined by the key firm so as to map out the new product development plan according market

requirement and customer value added factor. Secondly, development project team of new product is built including the technique department inside the firm and supplier so as to develop the whole or parts of the new product with support of cooperative product business support platform,. During the process, the information of design, manufacturing, test and feedback for new product is exchanged and shared. Finally, when the new product has been cast to market, value added service after sale is extended to distributor and eventual customer though the cooperative product business support platform, including of supply chain management of parts, fault diagnosis and maintenance, and also the new product innovation information can be acquired form market and customer as the reference of the next new product development cycle.

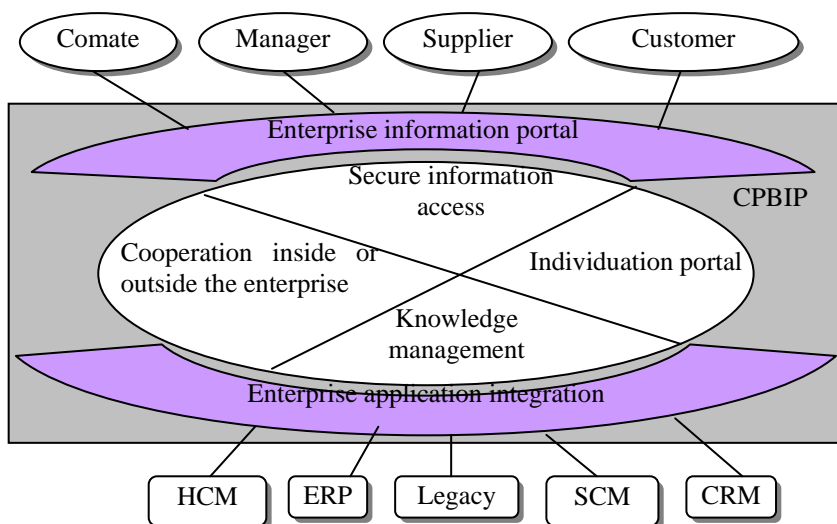


Fig. 3 the architecture of CPBIP

**3. COLLABORATIVE PRODUCT BUSINESS SUPPORT PLATFORM FOR NEW PRODUCT DEVELOPMENT**

The collaborative product business support platform

(abbreviated as CPBSP) for new product development is constituted by two main parts, one is CPBIP, a information support environment formed by Enterprise information portal, enterprise application integration,

knowledge management system and some secure information access techniques. the other is CPBTP, a technology support environment formed by series of product design and manufacturing techniques for virtual digitization prototype mode such as computer aided designing (CAD) /computer aided engineering (CAE)/ computer aided manufacturing (CAM) , virtual product data management (VPDM) / product data management (PDM).

The cooperative product business information platform uses the new Internet technology to fulfill the different business coordination inside the whole supply chain or across the supply chain, and change the enterprise business operation mode. The architecture of CPBIP is showed as figure 3.

Figure 4 gives us the architecture of the CPBTP. In organization, CPBSP is a network system formed by

persons from different tasks team such as product design, product analysis, manufacturing, simulation and support. In process, CPBSP supply the digital and virtual support for new product development, the new product is developed in method of concurrent engineering. In formality, the product under the support of CPBSP is a digital model actually which can be observed, analyzed, communicated and regenerated in demand, thus the design, analysis, producibility, maintainability and marketability of the product can be coordinated at the same time. In benefit and effectiveness, one product model is used in development such that the non-value added time is shorted and problem can be found and solved in time. Communication and coordination between enterprises in different place can be executed better so every worker in participation of the new product development can acquire his needed information in demand.

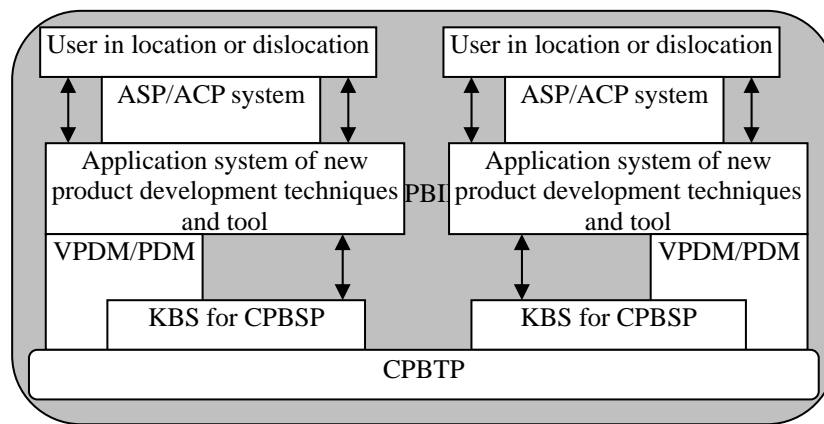


Fig. 4 The collaborative product business support platform

#### 4. CONCLUSION

As an advanced technique, the cooperative product support platform is used in the new product development process by enterprise to response to customer rapidly and flexibly, so the new product can be cast to market with prescriptive time, cost and quality. Through the CPBSP, different users within the key firm can use CPBTP to support the development of new product, and cooperative strategy comate can use either its own CPBTP or CPBIP to communicate with the member firms in the supply chain. The new product development under the cooperative business environment is becoming a strong measure to carry out the strategy translation for manufacturing industry and is paid high attention by the enterprise. The study of cooperative product business support platform is significant to the new product development of the future.

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