

# A Research of Value-Net Based Business Model and Operating of M-Commerce

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**Abstract.** Recent advances in Internet and e-commerce have led industry to reengineer their organizational structures and value chains. One of the most prominent trends in this change is to conduct work and operation in the distributed or virtual environments. A new kind of business model, termed as value-net, is emerging. In this paper, the business and system mode from the value-net system is studied and proposed. The feature of this business model suitable for Mobile Commerce (M-Commerce) is analyzed on the basis of value-net. The ecosystems (ecology system) model based on value-net is presented for the M-Commerce with systematic structure, collaborate mode and working mechanism. A modified value-net based ecosystem for M-Commerce operators is proposed in this paper with practical case analysis.  
**Keywords:** Collaborate Commerce (C-Commerce), Mobile Commerce (M-Commerce), Mobile Business Operator (MBP), Value-Net, Business Model, Ecosystems (Ecology System)

## 1 Introduction

The rapid development of information modernization and e-commerce (or e-business, EB) has caused the significant and deep changes [1-2] of management concept, method, system and business model. It also has caused the production and development of the new type business model and operating mechanism, challenging traditional supply chain management and value chain model [2]. As impacts to a lot of industries or enterprises, the management idea, management orientation, strategy implementation and technology strategy have made great changes to meet the new environment. People in the advancing front have already realized that traditional supply chain management (SCM), commercial mode and value creation mechanism of the value chain can't meet the needs of development. So contracture and operation

mechanisms in industrial ecosystems need a reengineering or optimizing work. This change is challenging people's traditional concept in information modernization and e-commerce application. This has already permeated through technology and equipment into e-commerce to confront with personnel and organization refreshing strategy and management with new concept and new culture for information modernization. We must expand the vision, resurvey and explore industrial development.

Then we can set up value system and ecosystems of M-Commerce step by step in the industry, field and society, which is steady, harmonious, sustainable development and rich in competitiveness and vitality. The technology and business model of E-Commerce could be used to provide the enable technical basis and management system to build and operate value-net [3] of M-Commerce.

For example, telecommunication industry is in the advancing front of competitive, reforming. From the "Report on International Competitiveness of China's Telecommunication Industry in 2003" [4], China is worthy of the name "Telecommunication Power". The order of the international competitiveness of China's Telecommunication Industry is No. 2 in 31 countries. However, the order in "System Competitiveness" and "Corporation Competitiveness" are 27th and the last, correspondingly. This is because system construction of China telecommunication operators does not keep up with the national demand. The operation mechanism of corporation is not strong enough and the development of telecommunication market is not perfect or well organized. Viewing from the potential development in China, telecommunication corporations are world class, but their profitability, operation capacity, innovation ability and management ability of corporation are significant gaps below comparing to the advanced corporations. When the competitiveness of value system in China telecommunication industry is compared to the developed countries, there are many gaps in market environment, in industry competitiveness, and especially in operation capacity of telecommunication corporations. Therefore, we must innovate business model, integrate industry chain, and improve competitiveness in order to transform from "Telecommunication Power" to "Telecommunication Great Power".

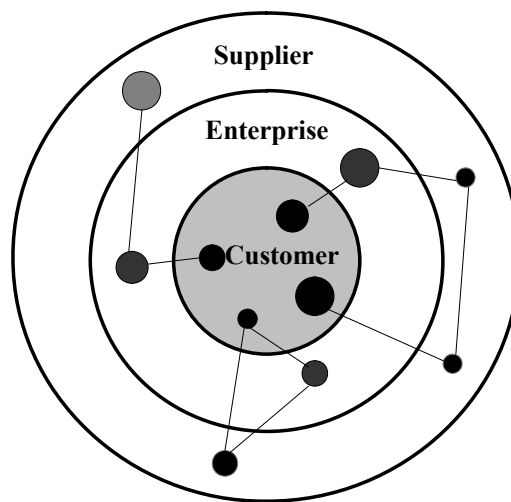
This paper has three objectives:

- (1) to analysis and discuss systematic perspective and methodology of value-net, to explain the mechanism characteristic and operating model of the new type business;
- (2) to study and describe the mechanism and system of value creation in mobile commerce in the age of e-commerce (or e-business), to show the construction and model of Ecosystems of value-net;
- (3) to identify the necessity and feasibility on building, developing and optimizing the value-net based ecosystems of M-Commerce by the real world case studies.

## 2 The System Model of Value-Net

### 2.1 The definition of value-net

As a new business model, the value-net was brought forward as a new management theory and method by Mercer Management Consulting Company in year 2000 [3]. By means of advanced electronic business technology, the value-net is a value-create system whose core is customers through integrating industry chains, and is evolution of value chain and supply chain management (SCM) which can satisfy customers' increasing diversified, individual and smart serve requirements. Being different from the traditional manage-object value chain and the linear chain model supply chain, the value-net is an interactive networked relation. The logic value-net model is shown in Figure 1.



. Fig. 1. The Value-Net Model

The origin of the value-net is customer, that customers' requirement is the trigger of activating the whole network. They can choose and integrate the most valuable product and value. Surrounding the customer, there are the core company and business partners that control the marketing relationship with customers to collect customers' information, maintain relationship, serve customers and so on. The outside suppliers constitute a strategic alliance with the inside core company, cooperate with development, carry a part function of research and development, and carry out material procurement, manufacture assembly and product shipment. It is worthy to distinguish that "customers" here is different from "consumers". The generalized customer may include individual consumers and consumer groups as well as companies.

## 2.2 Main characteristics of the value-net

To adopt the value-net, the characteristics can be compared with traditional business model based on an idea of supply chain as shown in Table 1.

(1) Customer-Focused. Customer's personalized requirements solicit activities of purchase, product and delivery on network in physical world or information world and marketplace. Different customer groups can get different customized service solution and customer command value-net. They are not passive acceptor of supply chain product or service.

(2) Systematization and collaboration. On value-net, core companies apply themselves to constitute a bouncy electronic value-net combining supplier, customer and other business cooperative partner. On this network, each activity is accredited to the most effective cooperative partner. A great many of parts in operation are accredited to the professional suppliers. Because of cooperation of wide communication and information management, the whole network can deliver product and service perfectly and incarnate the value and life force of Collaborate Commerce (C-Commerce) [2, 5].

**Table 1.** Operating mode comparison.

Business Mode Characteristics	Supply Chain	Value-Net
Operating Concept	the Same Specification	Accordance to Customer
Competition Manner	Opposition for long time and Order	Cooperation and Systematic
Performance	Rigidity and Unchanged	Flexibility and Agility
Customer Reaction	Slowness and Stillness	Quick Reaction
Business Process	Analog	Digital
System Structure	Linear Chain	Distributed Network

(3) Agility and flexibility. By agile production, distribution and information flow design, the whole value-net's response is intelligent and agile to requirement change, new product coming into the market, speedy development or supplier network reconstitution. Furthermore value-net can reduce or eliminate the strictness of entity-limits and arise in flexibility.

(4) Fast response. On value-net, the cycle speeds from order to delivery. In the process of production and delivery, the company's entire multi-value relation network can assist customer design product or may deal with transferring real-time business information among suppliers. All these activities are carried out through distributed network. Additionally, high effective productivity and distribution system make the value-net to establish very low cycle time.

(5) Digitization and networking [4]. E-commerce is an important business method. Besides Internet, the information process design and intelligent application is the core of value-net. The new Internet based digital information channel connects and cooperates to all activities in the chain of companies, customers and suppliers. Based on business rules, the event-driven tools may substitute many management

decisions, the business intelligence (BI) can be used to provide the feasible solution quickly.

### **3 A Value-Net Based Ecosystem**

With rapid development of technologies and applications of mobile communication, the progress of development from traditional voice services to added-value services for data, such as SMS (Small Message Service), MMS (Multimedia Message Service), social networking, and etc., has bring in a significant effect and strong impact on our daily life today. It impacts consumer, entertainment and work profoundly and widely. At the same time, as the mainstay, the industry on mobile communication services is transferred rapidly. The market subjects and business principles are being changed deeply and evidently within days. In essence, the aim of this change is to break the traditional industrial chain, and reform or optimize the mechanism and pattern of creating value and operating business [2]. The emerging trend of this change is to construct a new, cooperating, open and multi-win ecosystems based on value-net facing the network age.

#### **3.1 Limitations of the traditional supply chain based business model**

Though mobile communication, market has undergone a transferal course from monopolization and close to competition and open, because of limitations of technology, business circumstance and innovation being changed. The business models and operational principles of industry are based mainly on the traditional supply chain, that is to say the linear construction of supply chain management (SCM). It has been proven by practices and theories that the traditional industry construction has been not fitted to the social developments and customer's demands with the progress of technologies. Changes of customer's demands have confronted more and more competition, and also resulted in the expectation of Business Process Reengineering (BPR) by implementing M-Commerce. Some shortcomings of industry structure based on traditional supply chain and operating mode are described as follows.

(1) Monopolization and close. Market's subjects included by industry chain are so few and lack middle process. It is the same in mobile communication industry that new subjects are difficult squeeze into this market. This industry chain is monopolization and close comparatively.

(2) Single linear mode. Links among nodes of industry chain are not only simple. The relations among nodes are single linear and upright from up to down.

(3) Technology oriented. At this stage, the value of industry chain is mainly dependent on technology, so the power of technology is more important than power of market in the development of M-Commerce. Only technologies keep running ahead, the supplies for mobile service providers (MSP) by manufacturers of telecom facilities may upgrade to certain satisfaction level to meet customer demands.

With the developments and general applications of information modernization and e-commerce (or e-business), more professions and colligations of

mobile communication join into operations day by day, bring in the emerging technologies of ISP (Internet Content Provider), IPP (Internet Platform Provider), ASP (Application Service Provider), and ISV (Independent Software Vendor). At the same time, the competition among mobile business operators is more and more intensive because of the open of mobile business market and the transfer from sell-side market to buy-side market. Facing to more and more mellow customers, mobile business operators have a few dependence on ICP, ASP and telecom equipment provider, to satisfy the cheap, abundant, and personal demands of customers. Therefore, mobile business operators are still the key position of industry chain by depending on predominance of network resources and customer aggregation, but it shall be fit to the change and adjust its' competition strategy. What's more, it shall integrate the different parts of industry chain to satisfy the demands of customers and gain the advantage of market competition.

### **3.2 The value-net based ecosystem architecture and operating mechanism**

The changes and developments of new technology, market and social environment requires the existing industry-chain to dynamically evolve to new industry architecture with more vitality, stability and sustainability [5]. In the process, the mechanism of competition, value creation, and representation changes profoundly demand the mobile business operator (or provider) to utilize its advantages in resource and strength in status. By taking duty and responsibility of a certain degree in market supervision, the new industry may construct new rules and regulations, and integrate the industry chain on the basis of cooperation. A new win-win mode can be constructed an open, cooperative and integrative ecosystems with the customers, business partners and suppliers. This is because the customer-focused market competition is no longer the competition between business entities or traditional supply chains, but evolves to the comprehensive competition between the ecosystems of the industry and the other ecosystems.

#### **3.2.1 The value-net based ecosystem architecture**

The concept and principle of value-net was proposed by Mercer Consulting in year 2000 [3]. Because the e-commerce technologies and methods provides us with the technological and operational basis and means, so we can to construct and run a value-net based business model for M-Commerce effectively. We can present a value-net mode of mobile business by integrating technologies and e-commerce into the industry chain for mobile telecommunication service. Based on the development and mержence between the telecommunication industry and Internet business, we present a modified value-net based ecosystems model of M-Commerce using the e-commerce value integrating mechanism [2, 6].

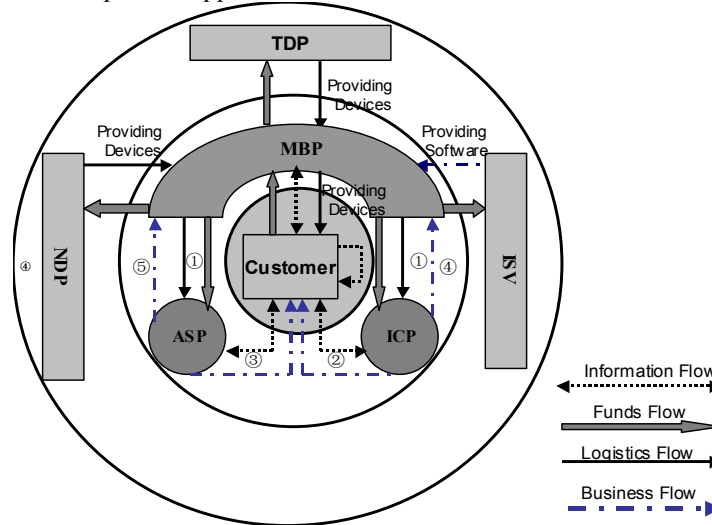
The model architecture is shown in Figure 2 with definitions of elements of ecosystems of M-Commerce as follows.

- (1) TDP: Terminal Device Provider;
- (2) MBP: Mobile Business Operator, it includes the Internet Platform Provider (IPP) of software system platform;

- (3) NDP: Network Device Provider, it includes the Internet Platform Provider (IPP) of hardware system platform;
- (4) ISV: Independent Software Vendor;
- (5) ICP: Internet Concept Provider;
- (6) ASP: Application Service Provider.

At the same time, the collaborated business relation between these entities is very important. Besides the meaning of arrows or lines marked in Figure 2, the marked numbers are used to describe following business activities:

- mark ①: to provide the network platform to ASP, ICP by MBP;
- mark ②: concept services;
- mark ③: application services;
- mark ④: to provide content services;
- mark ⑤: to provide application services.



. Fig.2. The modified value-net based ecosystems mode of M-Commerce.

### 3.2.2 The operating mechanism of value-net based ecosystem of e-commerce

The operating system of the ecosystems model can be described as following:

(1) Managing concept. It is a kind of customer-focused value creating system. The sustaining competitiveness and vitality of the value system requires constant improvement of both customer satisfaction and customer loyalty.

(2) System of value creating and distribution: The network operator still plays the role of value distributor. In realization of customer value, the funds flow uniformly goes from customers to the network operator. But in order to construct a vigorous ecosystem and to enhance the overall competitiveness, the network operators must share both profit and risk among suppliers and business partners of different value orientation in a cooperative, win-win, reasonable and effective way. Suppliers should be effectively motivated to cooperate and intensify R&D and innovation in addition to the payment of their products and services. The business

partners should be extensively invited on the basis of reasonable business regulations and win-win profit sharing systems. Competition should be encouraged with supervision reinforcement.

(3) Customer information flow. It does not simply flow to the operator but to related service providers according to the services they provide. Only under such mode can the operators, ASP and ICP run their corresponding SCM and CRM according to the services they each provide. Consequently, they can analyze the demand features to change the trends of their customers in order to develop new and better services. Furthermore, these activities will meet or even create the needs of their customers.

(4) Collaboration commerce. High level and extensive collaboration operating is one of the main features of this mode and system, which emphasizes the integration and collaboration of logistics flow, funds flow, information flow, knowledge flow, work flow, business flow and value flow. This is the crucial element of the core competitiveness of the value-net ecosystems.

(5) Information processing structure and technology frame [2, 5, 6]. The networked computing platform for the collaboration of the operators, business partners and customers is Intranet/Extranet/Internet, the integrated and distributed services provided by the ecosystems has excellent standardization, openness and integrity.

#### 4 Case Analysis

China Mobile Limited (<http://www.chinamobileltd.com>) is the top 1 of mobile service providers (MSP) in China. It has about 320 millions subscribers. Among them, China Mobile Limited provides E-mail and Internet accessing service for its mobile telephone users by Monternet.com. In the field of M-Commerce, China Mobile Limited creates a new service model by Monternet.com in China, which is a successful creation by composition of technology and marketing. As an example, China Mobile Limited establishes a perfect value-net integrated basic telecom managing and added-value telecom managing together.

In fact, we can use the above ecosystems model of M-Commerce which we proposed to delineate the business model of China Mobile Limited. This ecosystem is successfully constructed in the industry, with successful experiences accumulated in the practical operations. We do research on the key factor of China Mobile Limited 's success, abstract and generalize the following effective operating strategy of the ecosystems based on value-net.

(1) Constructing a multi-win business model. The mobile business Operator (MSP) should treat the symbiosis as strategic assets, and as a result, builds a integrated and effective industrial alliance. Such as cooperates and communication equipment providers, the multi-win business model in the industrial chain will be created by reasonable profit sharing plan and strategic relationship constructed by integrating capital and technology together.

(2) Networked and dynamic application integration. The MSP should establish an advanced E-Business system for virtual operation based on business rules, and integrates business partners and providers together in the system. As a result, the



customer requirement will be efficiently satisfied and the flexible alliance will be dynamically constructe

(3) Availability inspiration and monitor to value segment, Service Provider for example. The MSP should keep its outstanding achievement, brand, reputation, and quality of service to customers' expectation by maintaining the quality of the partners through some kinds of supports such as constituting technical standard, establishing a industry of business standard to assess and evaluate the SPs, setting up a well competitive mechanism, supplying fund and personnel to SPs.

(4) Building customer-focused brand and upgrading core competition. The core ability of MSP is about the operation capability on value-net and capability on CRM. In the communication age of ecological competition, an effective business model is the core competition, and it is the most important to build customer-focused brand.

## 5 Conclusion

The discussion of business model of M-Commerce based on value-net in China in this paper is a collaborative and multi-win model which can effectively cope with the complex variety and the intense competition in the market. And so as to offer a kind of new systemic view and methodology, and then effectively improve the competitiveness of the whole industry, the model constructs an ecosystems basing value-net in the industry and a vicious-cycle industrial ecosphere. But it must be mentioned that we shouldn't neglect the important factors such as technology, economy and society etc when we study and use the critical success factors of the system in the industry or field.

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## References

1. N. Adam, Y. Yesha, *Electronic Commerce: Current Research Issues and Applications*, New York: Springer Publisher, 1996.
2. Y. L. Wu, "Research on the Metasynthesis and Solution of e-Business Applications for Process System", the Research Report of the *Key Project of National Natural Science Foundation, China* (No. 79931000), March 2003 (in Chinese), pp. 1-9.
3. D. Bovet, J. Martha, R. Kirk Kramer, *Value-nets*, John Wiley & Sons, Inc., New York, 2000.
4. W. Cascio, "Managing a Virtual Workplace", *Academy of Management Executive*, Vol. 14, No.3, 2000, pp. 81-90.

5. B. M. Wiesenfeld, S. Raghuram, R. Garud, "Communications Patters as Determinants of Organizational Identification in a Virtual Organizations", *Organization Science*, Vol.10, No.6, 1999, pp. 777-790.
6. M. P. Koza, A. Y. Lewin, "The Co-Evolution of Network Alliances: A Longitudinal Analysis of an International Professional Service Network", *Organization Science*, No.50, 1999, pp. 1477-1490.
7. Definition of Social Bookmarking, [en.wikipedia.org/wiki/Social\\_bookmarking](http://en.wikipedia.org/wiki/Social_bookmarking). [2006-12-12]
8. P. Maes and R. Kozierok, , "Learning interface agents". *Proceedings of AAAI*, 459-465(1993).