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The impact analysis of O2O platform to shipping business

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THE IMPACT ANALYSIS OF O2O PLATFORM TO SHIPPING BUSINESS

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THE DECLARATION

I certify that al the material in this research paper that is not my own work has been identified and that no material is included for which a degree has previously been conferred on me.

The contents of this research paper reflect my own personal views, and are not necessarily endorsed by the University.

Signature: XIAO LINGLI

Date: 2015-07-02

ABSTRACTS

The research paper is a study of the impact of a new E-commerce business model—O2O platform applied on shipping business.

As is known to all that shipping industry remains in the doldrums, there is a urgent need for shipping companies to improve efficiency while lower cost to survive and thrive in this industry situation. E- Commerce is a good choice. After case study of INTTRA platform, it is concluded that the application of E-commerce on shipping is workable.

But third party platform is not the best business model. Due to the complex process of shipping business, O2O model is the more fit for it. With the example of Pan-Asia platform, it is clear to know the basic principle, characteristics and impact of O2O model.

In order to adapt O2O model to shipping business, there are some suggestions, including internal management improvement, external environment creation, security control and Big Data usage. Therefore, it can be concluded that, this new business model—O2O platform can bring a innovation to shipping business, and to achieve that, requires the efforts from all parties involved.

KEYWORDS: shipping, E-commerce, O2O platform, impact analysis,

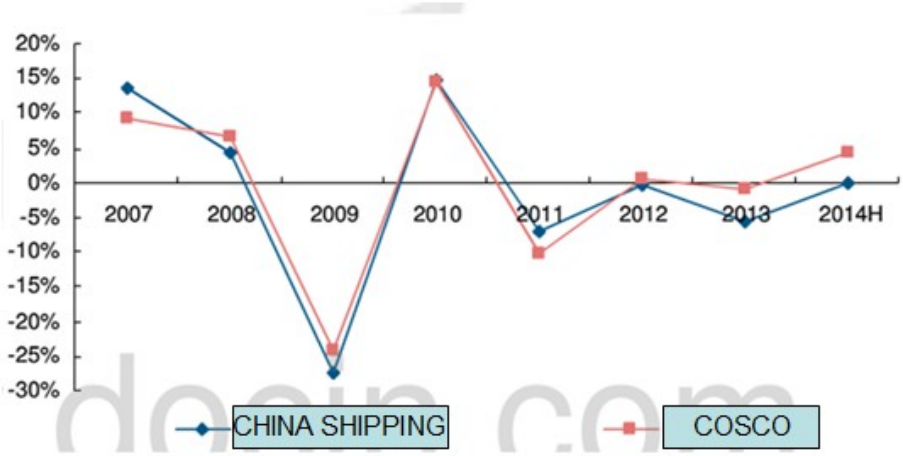
TABLE OF CONTENTS

1 Introduction

1.1 Significance and aim of the integrative paper

1.1.1 Background

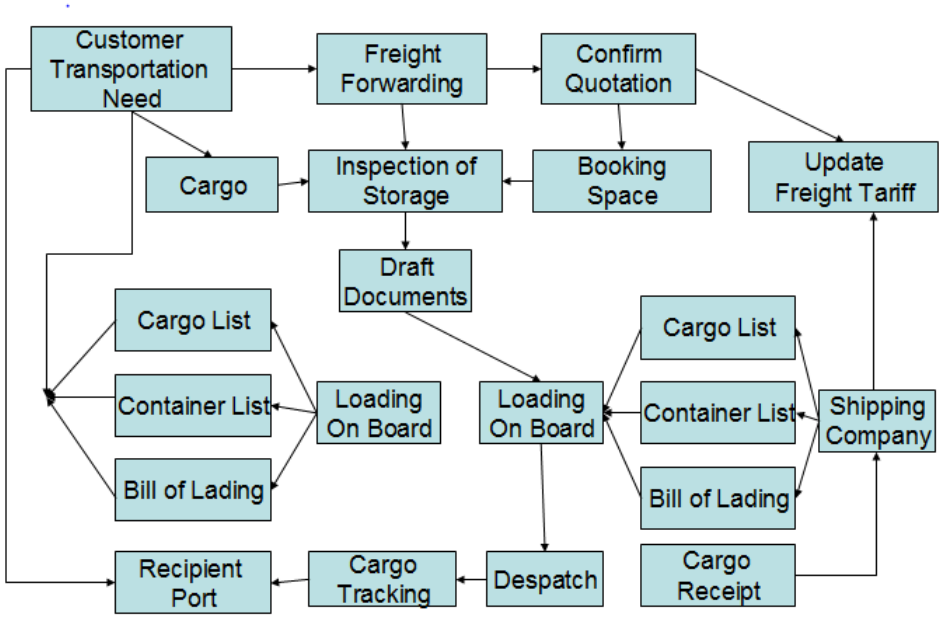
Shipping， as a typical cyclical industry, fluctuate with the world economy and domestic economic environment. The shipping industry is now facing a general economic weakness and excess capacity, in the past seven years has experienced a more stringent survival dilemma. The shipping industry in recent years has entered is difficult to profit, which can be seen from the CSCL and COSCO Container business gross margin in picture 1.



Picture 1: CSCL and COSCO Container business gross margin

Poverty gives rise to the desire for change. The major shipping giants competing for cooperation, after P3 were denied, 2M emerge; the shipping industry is in hope to make changes in unfavourable situation. 2012 Pan-Asia shipping introduce its electronic business platform, which has payment function, providing complete electronic shipping service and Pan-Asia shipping became the first breakthrough in the field of electronic business of shipping company. And this year, Alibaba and CSCL cooperation also demonstrated the future direction of the development of shipping business.

Traditional shipping process contains a large number of sectors and very complex, as can be seen in following picture 2.



Picture 2: Traditional shipping process

O2O model is a new business model of E-commerce. Due to its characteristics, this model is revealing enormous potential in improve service quality and attract more customers. Theoretically, O2O platform should be the best choice for E-shipping. But in practices, things are more complicated.

1.1.2 Significance and aim of the integrative paper

E-shipping is that shipping companies and shippers trade shipping service and the exchange information through the Internet. Shipping， as one of the international logistics and transport， is one of the most important carrier, is a key ring on the supply chain of multinational enterprises. The appearance of shipping electronic market, on the one hand, use electronic flow instead of the real logistics, significant reduce in manpower, material resources, and reducing the cost; on the other hand breakthroughs in the time and space constraints, make trading activities can be carried out at any time, any place, thus greatly improves the business efficiency.

Nowadays, there are two model of E-shipping platform. One is third-party platform. The other is self-build E-shipping platform. Both of two models has advantages and disadvantages. But which one is more fit for the development of E-shipping, is a question that concerns me.

As is known to us, after years of practice in E-shipping, many shipping companies have gained a lot of experiences. There is a new E-commerce model emerged and applied in shipping industry, namely O2O model. This new model has its unique characteristics, and well adapts itself in shipping industry. Therefore, it is worthy to analysis the O2O model and how it applied in shipping industry to create an innovation development.

1.2 Structure and Research methodology

1.2.1 Structure of the integrative paper

The whole integrative paper includes five parts. First part is introduction and problem description. Second part is literature review of international trade, shipping and E-commerce. Third part states the normal attempt of E-commerce in international trade and shipping, while the fourth part introduced a new model—O2O model and analysis its application in shipping, and give some suggestions. Last part is the conclusion of the integrative paper.

1.2.2 Research methodology

In this integrative paper, comparison analysis, case study, and international trade and economic theory analysis methods are used. International trade, shipping and E-commerce basic concepts are used. Through the case study of INTTRA to analysis the application of E-commerce on shipping. And use the case study of Pan-Asia shipping platform to demonstrate the possibility and advantages of O2O model applied in shipping. After comparison of shipping industry with and without E-commerce and the comparison of O2O model and other models, final conclusion can be settled.

2 Literature review

2.1 International trade and its relationship with shipping

2.1.1 The concept of international trade

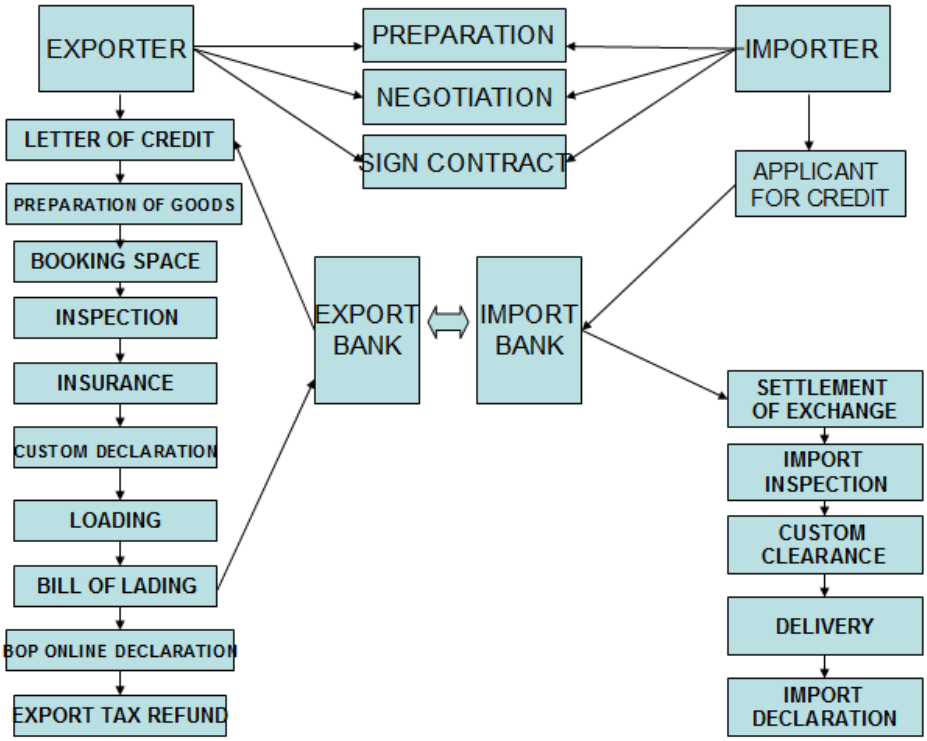
International trade is the exchange of capital, goods, and services across international borders or territories. In most countries, such trade represents a significant share of gross domestic product. Trading globally gives consumers and countries the opportunity to be exposed to new markets and products. Almost every kind of product can be found on the international market: food, clothes, spare parts, oil, jewellery, wine, stocks, currencies and water. Services are also traded: tourism, banking, consulting and transportation. Industrialization, advanced technology, including transportation, globalization, multinational corporations, and outsourcing are all having a major impact on the international trade system. Increasing international trade is crucial to the continuance of globalization. Without international trade, nations would be limited to the goods and services produced within their own borders.

In principle, international trade is no different from domestic trade as it is the exchange of goods and services, and the motivation and behaviour of parties involved in a trade do not change fundamentally regardless of whether trade is across a border or not. The main difference is that the trade environment, which included policies, economic situation, laws, languages, cultures and so on, is totally different when trade with different countries. Therefore, it has higher risk and more complex problems. Moreover, international trade requires cooperation with other sectors, such as transportation, insurance, bank, customs, inspection and quarantine. This brings extra concerns in international trade.

There are many types of international trade. According to the moving direction of the goods, international trade can be divided into three types: import trade, export trade, and transit trade. From trade content aspects, it also divided as: The service

trade, processing trade, commodity trade, and general trade.

International trade is a very complicated business, which contains many sectors and has connection with large amount of departments. Take import business as an example. The flow process of import international business in custom sector can be seen below in picture 3.



Picture 3: International trade process

2.1.2 The relationship between international trade and shipping

Through analyzing the process of import international business, it can be easily observed that international trade has a close relationship with shipping. Specifically speaking, the relationship embodies in three aspects.

Firstly, international trade is the foundation of international shipping.

Transportation is a crucial segment of the international trade. Trade needs to deliver goods from sellers to buyers by transport. In international trade, business is mostly done between two or more countries. Therefore, shipping is the most

common, cheap and indispensable activity. The scope and scale of international trade will have a significant impact on the shipping industry. International trade will be influenced by social, economic, political, technological and natural factors, which often affect the international shipping market with the same function.

Secondly, international shipping market is derived of the international trade market.

In history, due to the low level of science and technology, marine risks caused great uncertainty, so the international trade generally confined geographically adjacent countries and regions, so the size of the shipping corresponding is small. With the formation of the capitalist mode of production and international trade has been the rapid development, international shipping gradually replaced the original land, become in the main mode of transport in international trade. Until the end of nineteenth Century, the shipping industry has gradually differentiated into the industry, and has produced all the people and the lessee of the ship. As early as seventeenth Century, the Baltic Sea exchange, which provides a place for the ship's trade and lease. Therefore, the international shipping market is derived from the international economy and the global trade derivatives market, which is derived from the international shipping market.

International shipping has a considerable degree of dependence on the international trade market, which is derived from the essence of the international trade market. Recalling the evolution of modern international shipping market, we can find that it has a regular change, which is basically synchronized with the international trade market. It can be said that the international trade is dependent on international trade, and the development of shipping is closely related to the development of international trade. As can be seen in figure1 and 2, volume of world international export trade dropped dramatically in late 2008. At the same time, shipping industry nearly collapse and hit the bottom.

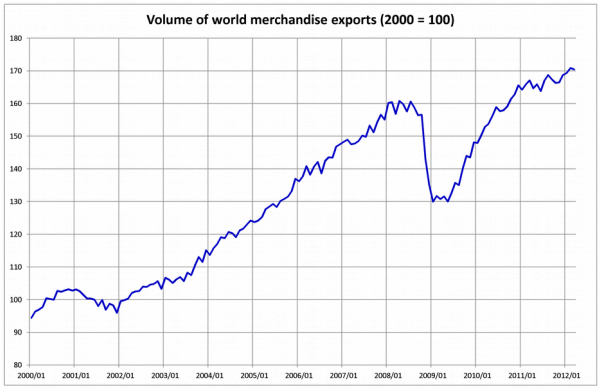


Figure 1: Volume of world merchandise exports from 2000-2014

Figure 2: BDI index from 2000-2014

Lastly, international shipping has a certain role in promoting international trade.

As an important means of transport, international shipping provides unlimited capacity for the development of international trade. Import and export trade must be achieved through a certain means of transport, due to the inherent characteristics of marine transportation; marine transportation is the first choice for the transport of large quantities of goods.

Shipping is the bridge and link between economic and trade exchange between different countries. International shipping connects countries and regions, and achieves mutual technical, economic, trade and communication. It combines

worldwide producers, operators and consumers together, so that production and consumption activities turn to global activities. The international shipping market plays an important role in the development of countries' market economy.

In conclusion, international trade is the important guarantee for the smooth progress of international trade. As the main means of transportation of international trade and international shipping for international trade provides unlimited capacity of the channel, bridge and link for the exchange of the world economy and international trade, maritime transport for the development of the world economy conveying industrial raw materials and fuel, become the lifeline of many industrialized countries and large enterprises.

2.2 Characteristics of the development of E-commerce

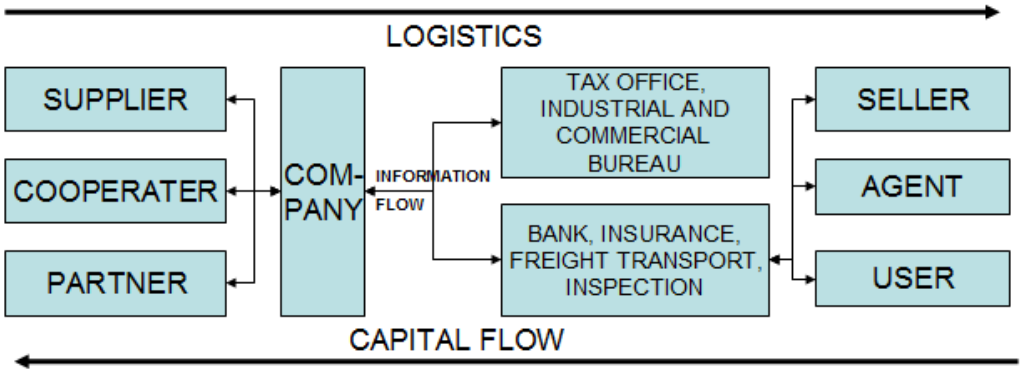
2.2.1 E-commerce and business model

E-commerce, short for electronic commerce, is trading in products or services using computer networks, such as the Internet. Generally speaking, electronic commerce should contains the following five meaning: a variety of electronic, especially through the Internet; exchange of commodity and service transactions (including human resources, capital, information service); includes both the business activities of enterprises, also contained within the enterprise business activities; covering all aspects of the transaction, including inquiry, quotation, order, after-sales service, such as; the use of electronic means is a form of across time and space and improve the efficiency is the goal.

Electronic commerce, covers a wide range, can generally be divided into 8 kinds of mode, including agent, business and consumer (ABC), business to business (B2B), business to consumers (B2C), consumer to consumer (C2C), Business-to-Government (B2G), online to offline(O2O), Business to Family, Provide to Demand, Online to Partner.

Any transactions in electronic commerce consists of four basic "flow", namely

information flow, business flow, capital flow and logistics, as the process of E-commerce is shown in picture 4.



Picture 4: Flow process of E-commerce

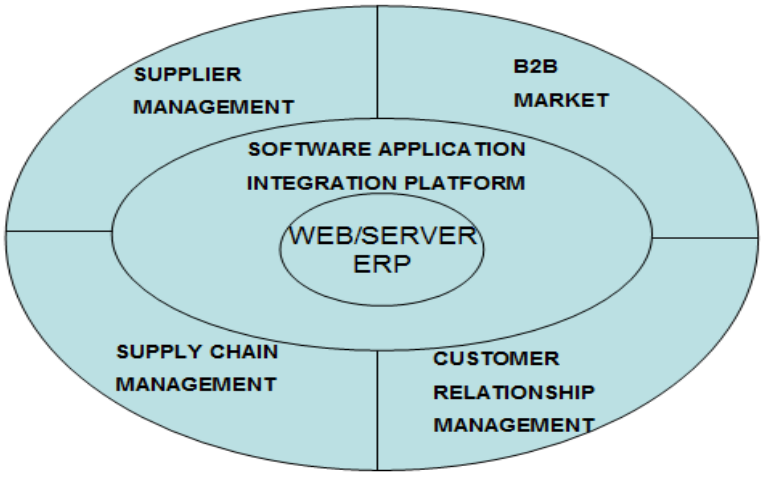
Flow of information, including provision of commodity information, promotions marketing, technical support, after-sales service, and also includes trade documents such as inquiry single, quotations, payment notice, transfer notice, counterparty's ability to pay, credit payment.

The flow of Commerce is refers to the commodity between the purchase and sale of the commodity trading and transfer of ownership of the movement process, specifically refers to a series of commodity trading activities.

Capital flow mainly refers to the transfer process, including the process of payment, transfer, etc. In the electronic commerce, the above three kinds of flow can be realized through computer and network communication equipment.

Logistics, as four streams in the special one is refers to the flow of material entities (goods or services), specifically refers to the transportation, storage, distribution, handling, storage, logistics information management activities.

As Electronic commerce application framework can be seen in Picture 5.

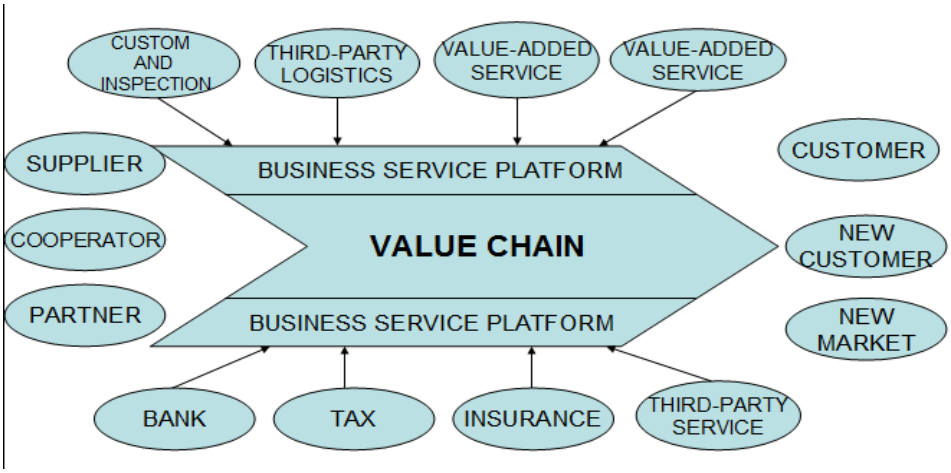


Picture 5: Electronic commerce application framework

Supply chain management is the core of electronic commerce for the production enterprises. The operation of the value chain is based on the raw materials as the starting point, the product is the end point, and supplier relationship is important in value chain. Only to improve the efficiency of production and the continuous reduction of costs, can bring profit, so as to realize the value chain. Supply chain management will be suppliers, logistics enterprises, distributors and end customers are connected into a whole, the organic integration of the production processes, reduce the product in all aspects of residence time, improve production efficiency and ability in response to the market, the cost is greatly decreased. For the global procurement of enterprises, they also need to establish supplier relationship management, improve the relationship between enterprises and foreign products suppliers, reduce the cost of imported products and import links.

For service enterprises (shipping company, for example), customer relationship management is the core of e-commerce, which is the embodiment of enterprise core competitiveness. The operation of the value chain to the customer as the starting point and end point, customer value chain is the source of value. Only fully understand and meet the needs of customers, and establish customer loyalty, can the

enterprises reach continued growth of sales, and realized value added chain. The model of value added chain can be seen in picture 6.



Picture 6: Model of value of E-commerce

2.2.2 Advantage of E-commerce

E-commerce has greatly improved the efficiency and efficiency of the traditional business activities. Compared with traditional business activities, it has the following advantages:

(1) Reduce cost. Through the network marketing activities can improve marketing efficiency and reduce the cost of promotion. According to the statistics on Internet, this can improve the sales volume 10 times. At the same time it is the cost of traditional advertising 1/10. Moreover, E-commerce can reduce procurement costs. Because of the use of Internet companies in the global market to find the most favourable price of the supplier, and through the sharing of information with suppliers to reduce the loss of information in the intermediate link due to inaccurate. Data show that the use of EDI can save the cost of 5%-10% for the enterprise.

(2) Improve efficiency. Enterprises can automatically handle business processes and cooperate with suppliers and suppliers through the network. Not only has the cooperation with other parties, but also inside the enterprises, E-commerce brought a

lot of benefit to improve the efficiency of the daily operation.

(3) Expand the market scope. Traditional transactions are subject to time and space constraints. The electronic commerce based on Internet is 24 hours global operation, the online business can be carried out to the traditional marketing personnel sales and advertising sales reach less than the market scope.

(4) Offer better customer service. Good communication with customers, with low cost, fast speed, and no direct two-way communication through the middleman. Due to the real-time interactive communication of Internet, and there is no interference of external factors, so that consumers are more likely to express their own products and services evaluation. The evaluation on the one hand enable online retailers can be more in-depth understanding of user of internal demand, and better to provide products and services; on the other hand makes to provide users with personalized services possible.

2.3 Background analysis of O2O model

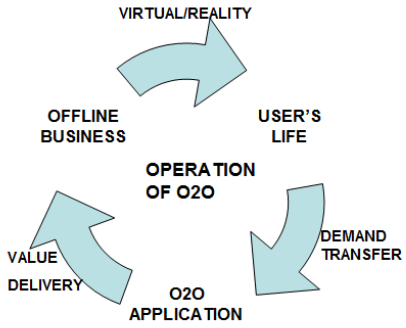
2.3.1 Concept of O2O model

What exactly is O2O? In fact, it is the online and offline entities to get through and integration, the formation of information, people and the transaction closed loop. This pattern has a big difference with the traditional concept of electronic commerce. It is mainly through the promotion of online transactions, in order to increase the participation of businesses and the user experience. Users can find information on the Internet, contrast services and prices, online orders and payment, online consumer products or services. This model is mainly applied to service oriented products. It aims to line the line of consumption, services better integration, through the timely release of new information, discount information and other ways to attract online customers to the store consumption.

Online is to display, communication and transaction, and improve marketing and service efficiency. Offline is to do products, services and expectations of

delivery, improve the user experience. In the middle, is to do the integration of large data users, to carry out more accurate marketing, and to provide users with more accurate service. O2O is a fusion of online and offline, the two are indispensable, as important.

The key to O2O business model is to look for consumers on the Internet, and bring them to the real store. It is the mode of payment and creative shop made traffic a binding (for the consumer, it is also a kind of "discovery" mechanism), to achieve a purchase online, offline service. For the shipping industry, which provides service product and involve many sectors of the industry, O2O has a very good effect. Picture 7 is the operation of O2O model.



Picture 7: Operation of O2O model

2.3.2 Business model of O2O

There are two converse business model of O2O.

One is Offline to Online model. Build their own websites and online shop, the use of their own traditional business channels and store the advantages, to bring their offline consumer groups to develop online. To target users reasonably plan to ensure that the offline activities and online promotion of mutual mapping, to achieve the purpose of online promotion and sales. Gradually guide the customer experience online fast and convenience, optimize the user groups.

The other is Online to Offline model. In order to guide customers in the online

experience and online payment, enterprise in the online marketing and sales can actively encourage users' online consumption through promotion, reduced price and gifts, etc., then experience the offline goods and services. At this time, the enterprise can use the user's online registration and payment information to the user's personalized classification and in-depth mining. Master these user data, can greatly improve the maintenance and marketing results for old users. Through the analysis, it can also provide a clue to find new users, pre sentence and even control the user traffic, and then analyze the user characteristics and sources, to re-organize the promotion and marketing.

Unlike traditional consumer in the business of direct consumption patterns, in O2O platform business model, the whole process of consumption can be divided into two parts—online and offline. Online platform is to provide consumers with consumer guide, preferential information, convenience services (booking, online payment, maps, etc.) and sharing platform, while the offline merchants are focused on providing services. In O2O mode, the consumer's consumption process can be divided into five stages:

Stage 1 is guide. Online platform as the entrance of consumer decision-maker of offline, a large number of consumer demand, or consumer demand can be gathered.

Stage 2 is transformation. Online platform provides information, concessions, convenient service, convenient consumer search, comparison shop to consumers, and ultimately help consumers choose offline businesses, consumer decision making.

Stage 3 is consumption. Consumers use online access to the information to receive offline services, and complete consumption.

Stage 4 is feedback. Consumers will share own consumer experience feedback to online platform, to help other consumers make consumer decisions. Online platform can attract more consumers to use online platform through combing and analyzing the feedback of consumers.

Stage 5 is persistence. Online platform for consumers and local businesses establish communication channels, which can help local businesses to maintain consumer relations, so that consumers repeat consumption, and become loyal customers.

2.3.3 Advantage of O2O model

Firstly, it achieves "win-win" effect. On the line businesses, O2O use online payment form, payment information will become an important channel for businesses to obtain consumer information. O2O model also can be used to direct the business of marketing results, analysis, tracking and assessment, make up for the past marketing promotion effect of the unpredictable. For consumers, O2O model provides them with a comprehensive, timely, rich and suitable for business information. Consumers can be quicker to screen and order the appropriate goods or services, but also to get a cheaper price than the traditional business model. On the platform, O2O mode can bring high viscosity of consumers, and have a strong role in promoting and measurable promotion effect, which can attract a large number of businesses to join.

Secondly, it improves the user experience. B2B has changed the way the manufacturing industry has changed, and B2C and C2C have changed the way the retail sales have been sold and the way people live. And the biggest limitation of these three business models is that the user experience". With the increasing demand for the product experience and product service demands, the bottleneck of a single online mode highlights out. O2O clearly solved this problem effectively. This leap also makes the O2O model into a new pattern and direction of the field of electronic commerce. Offline service could not be packing distribution; to express itself can not be transmitted social experience brings happiness. But through O2O mode, the line of goods or services to display and provide online payment reserve consumption which is for consumers not only broaden the choice, but also through online

comparison choice and enjoy the most exciting and appropriate service. Table 1 is the difference between B2B/B2C/C2C model and O2O model.

COMPARISON BETWEEN B2B/B2C/C2C AND O2O		
COMPARE	O2O	B2B/B2C/C2C
BUSINESS MODE	ECONOMIC MARKETING+CUSTOMER FLOW	ELECTRONIC MARKETING+LOGISTICS
PRODUCT TYPE	SERVICE	PRODUCT
TECHNICAL SUPPORT	INTEGRATE INTERNET RESOURCE	INTERNET INFORMATION EXCHANGE
WITH REAL ECONOMY	INCREASE SALES	COMPETITION

Table 1: Comparison of B2B/B2C/C2C and O2O

Thirdly, it can achieve precision marketing. The Internet has made the B2B/B2C/C2C model online, but it can not control offline part, this extensive trading can not improve the efficiency of electronic commerce. The biggest advantage of the O2O model is that it can be traced to the tracking of each transaction. On the one hand, through the online platform for businesses to import more traffic and improve user consumption data collection efforts, to help businesses achieve precision marketing; on the other hand, fully excavate the offline business resources, users can enjoy more convenient and more suitable products or services.

2.4 Application of O2O platform in the era of Big Data

2.4.1 Background and definition of big data

With the rise of emerging to blogs, social networks, location based service, as a representative of the new information publishing method, as well as cloud computing, Internet of things technology, data is at an unprecedented speed in continuous growth and accumulation. Big data era has come. In 2008, Nature launched special issue for big data. Computing community consortium in 2008 published a report (Big data computing: Creating revolutionary breakthroughs in commerce, science, and society), on the data driven research background, to solve the problem of large data technology and some of the challenges facing. Science launched in 2011 February issue, mainly around the big data problem in science exhibition. Experts and scholars in the United States in the field of data management,

jointly issued a white paper, from an academic point of view of describes the data and analysis the processing of large data, and put forward a number of challenges faced in big data era.

Big data usually includes data sets with sizes beyond the ability of commonly used software tools to capture, curate, manage, and process data within a tolerable elapsed time. Big data "size" is a constantly moving target, as of 2012 ranging from a few dozen terabytes to many petabytes of data. Big data is a set of techniques and technologies that require new forms of integration to uncover large hidden values from large datasets that are diverse, complex, and of a massive scale.

The difference between big data and database can be concluded. Firstly is the data scale. The processing object of the database is usually MB as basic unit, while big data is GB, even TB and PB. Secondly is the data type. In database, type of data is single, often only one or a few. These data are based on structured data. While in big data, data is variety. And these data contain structured, semi-structured and unstructured data. And the share of semi-structured and unstructured data is growing. Thirdly, the relationship between schema and data is different. In big data, data changed a lot. It’s hard to decided schema in advance.

Big data is not just the data volume. In fact, contains the Volume, Velocity, Variety, and Veracity.

(1) Volume. The quantity of data that is generated is very important. It is the size of the data which determines the value and potential of the data under consideration and whether it can actually be considered Big Data or not. The name ‘Big Data’ itself contains a term which is related to size and hence the characteristic. The data is stored in database servers (SQL) in Cloud computing.

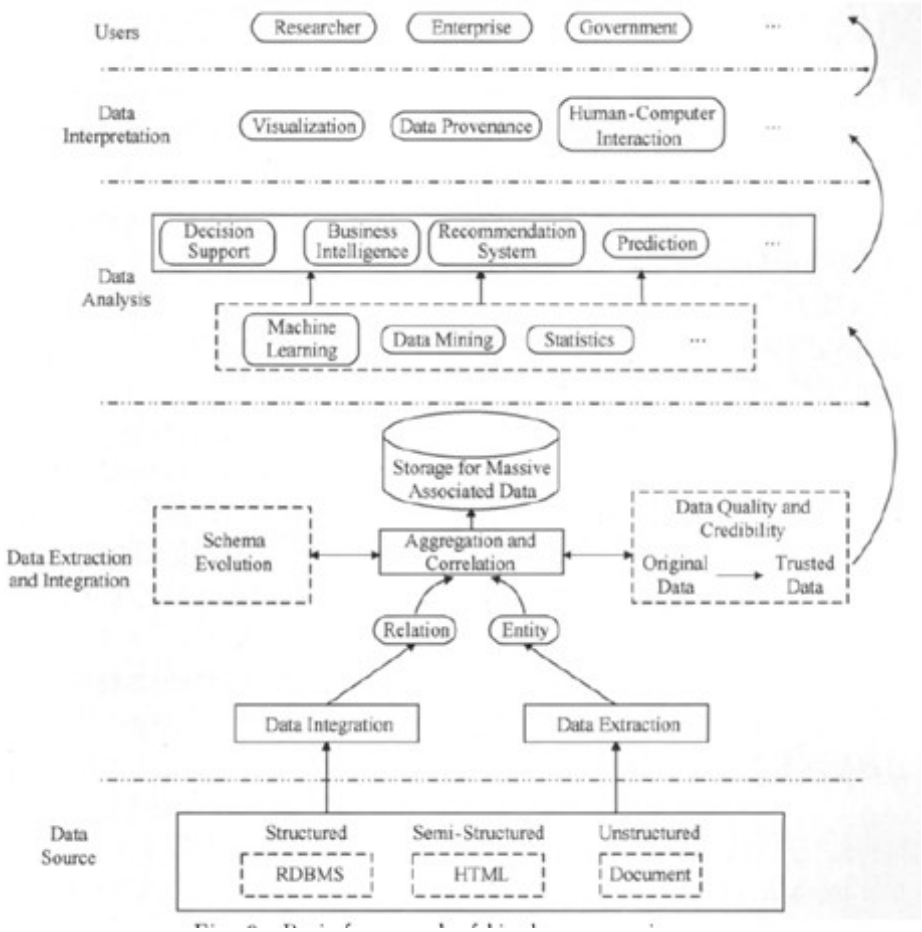
(2) Velocity. The term ‘velocity’ in the context refers to the speed of generation of data or how fast the data is generated and processed to meet the demands and the challenges which lie ahead in the path of growth and development.

(3) Variety. This means that the category to which Big Data belongs to is also an essential fact that needs to be known by the data analysts. This helps the people, who are closely analyzing the data and are associated with it, to effectively use the data to their advantage and thus upholding the importance of the Big Data.

(4) Veracity. The quality of the data being captured can vary greatly. Accuracy of analysis depends on the veracity of the source data.

2.4.2 Process flow of big data

The processing flow of the whole large data can be defined as: with the assistant of the appropriate tools, and the data source is extracted and integrated with the wide heterogeneous data sources. The results are stored in a certain standard. Using appropriate data analysis technology to analyze the data stored, extracts useful knowledge, and uses the appropriate way to show the results to the end user. Specifically, the process flow can be divided into data extraction and integration, data analysis and data interpretation. Picture 8 is the basic flow process of big data.



Picture 8: Basic framework of big data processing

(1) Data extraction and integration

An important feature of the big data is the diversity. This means that the data source is very wide; the data type is very complicated. This complex data environment has brought great challenges to the processing of big data. To handle big data, firstly requires extract and integrate the data from the data sources, extract the relationship and the entity from the data. After association and aggregation, a unified definition of the structure is used to store the data. In data integration and extraction process, it needs to clean the data to ensure data quality and credibility.

Data extraction and integration technology is not a new technology. Traditional database field has a more mature research in this problem. With the emergence of

new data sources, data integration method is also in constant development. From the data integration model, the existing data extraction and integration methods can be broadly divided into the following 4 types: materialization or ETL engine, federation engine or mediator, stream engine and search engine.

(2) Data analysis

Data analysis is the core of the whole data processing process, because the value of big data generated in the process of analysis. Original data for analysis comes from the heterogeneous data source extraction and integration. According to the different needs, applications can be selected from all or part of these data analysis. Traditional analysis techniques such as data mining, machine learning, statistical analysis, etc., need to be adjusted in the era of big data.

First of all, the application of big data has the characteristics of real time. The accuracy rate of the algorithm is no longer the most important indicator of large data applications. In many scenarios, the algorithm needs to achieve a balance between real time and accuracy.

Secondly, cloud computing is a powerful tool for large data processing. This requires algorithms to adjusted to adapt to the framework of cloud computing. The algorithm needs to be scalable.

Finally, be cautious in choosing the algorithm to deal with large data. When the amount of data grows to a certain scale, the algorithm can be used to dig out the effective information from small data and must be suitable for big data.

(3) Data interpretation

Data analysis is the core of large data processing. But users tend to be more concerned about the results of the show. If the result of the analysis is correct, but it is not appropriate to explain the results, it will be difficult for users to understand or even mislead the user. There are many data interpretation method. The comparison of the traditional output results is in text form or directly on the computer terminal to

display results. This method is a good choice in the face of a small amount of data. However, the data analysis results of big data era are massive, and the correlation between the results is very complicated, the traditional method of interpretation is not feasible. There are two methods to enhance the data interpretation ability.

One is visualization technology. Visualization as one of the most effective means to explain a large number of data is firstly to be used in the field of scientific and engineering computing. The results of the visual image of the results are shown to the user. And the graphical way is easier to understand and accept than words. Common visualization techniques including tag cloud, history flow, and spatial information flow and so on.

The other is to allow users to understand and participate in the process of specific analysis. This can be used to human-computer interaction technology, use interactive data analysis process to guide the user gradually to carry on the analysis, allows the user to get the results and better understand the origin analysis of the results. Through this technology can help trace the process of the whole data analysis, it will help users understand the results.

2.4.3 Application of big data in E-commerce and O2O platform

The birth of big data has brought a huge commercial value, especially in the application value. The development of large data has already affected all aspects of society. The production of big data has led to innovation driven, improved labour productivity, and realized the new growth of economy and the new competition mode and commercial value. Today, e-commerce has become a rapid development, high value industry.

The development of big data provides the data base for the development of the business enterprise to develop the user's personalized service. Through the analysis and take advantage of data, enterprises can to find potential customers and have effective communication, so as to obtain the marketing profit potential value. In this

way, companies can quickly capture the market, save costs and achieve efficient sales performance, thereby enhancing the competitiveness, to defeat the opponent.

The arrival of the era of big data has become the basis of the electricity business enterprise innovation, is an important opportunity for its development. There are three challenges that should be taken into consideration.

Firstly, it is the data acquisition. Data acquisition is one of the contents of the development of big data. Normally, the data can be obtained through three aspects. One is through the network search engine of the search results, including advertising the number of clicks, external access the enterprise website information search, link data to summarize data; followed by the data generated by a user on the mobile device. The last one is through shopping website of online trading platform to integrate data. E-commerce enterprises who want to develop personalized customer service must be master of big data.

Secondly, it is the data processing. Data processing is the key problem of large data users. Take Alibaba as an example. There are three main access to data: the first is to provide consumers with meet the consumption of all types of goods information and commodities store information; the second is integrating the information of consumers, from the consumption habits of through the consumer behaviour and other data available to seller, as well as the seller and analyze store in the real-time dynamic market prospects of the industry and competitors in the same industry. So that the seller can more clearly understand the commodity sales and market dynamics; the third is the consumer and business information system analysis and prediction is provided to third parties. So, enterprise electronic commerce only master data is incomplete. Modern business enterprise must have the ability to analysis and further tapping data, and use technology to solve the problems of the data. Only in this way can we make full use of big data, and to fully play the commercial value of big data, so as to enhance the core competitiveness of

enterprises.

Last but not least, it is the data security. In the era of big data, the behaviour of each network users will be collected. Through the data sorting, enterprises can know the preference of each customer and make predictions to dig more business value and create profit. But network user information usually contains the user's real information and related financial card number and other privacy, once the leak will cause trouble. How to ensure the security of data and user privacy for the business enterprise is a major challenge. Enterprises should set up multiple levels of protective measures, attaches great importance to the security of the data to avoid the disputes caused by the leakage of user privacy, while reducing the business secret leakage caused by legal troubles.

3 Analysis of the application of E-commerce in international trade and shipping

3.1 Application of E-commerce in international trade

International Electronic Commerce is the enterprise through the use of electronic commerce operation of various means to engage in international trade activities. That is to say, in the field of international trade, put aside the traditional way of trading, the use of simple, fast and low cost of modern information technology and communication means trading from negotiation, contracting, delivery payment in the whole process of electronic, to greatly improve the efficiency of the transaction.

From the content point of view, the international e-commerce can be divided into two categories, one kind is indirect trade of tangible products, refers to by electronic means, especially to the Internet, to deal with a tangible commodity negotiation, ordering, open invoice payment and commodity exchange related activities; another kind is direct trade of intangible products, is refers to through electronic means, to sell consulting report, computer software, digital control

program ,which can through the transmission network and in exchange for storage in a manner that intangible goods.

E-commerce has greatly improved the efficiency of the traditional international trade practice. The following is the application of the international electronic commerce in the international trade transaction to explain the promotion of the electronic commerce to the traditional international trade practice.

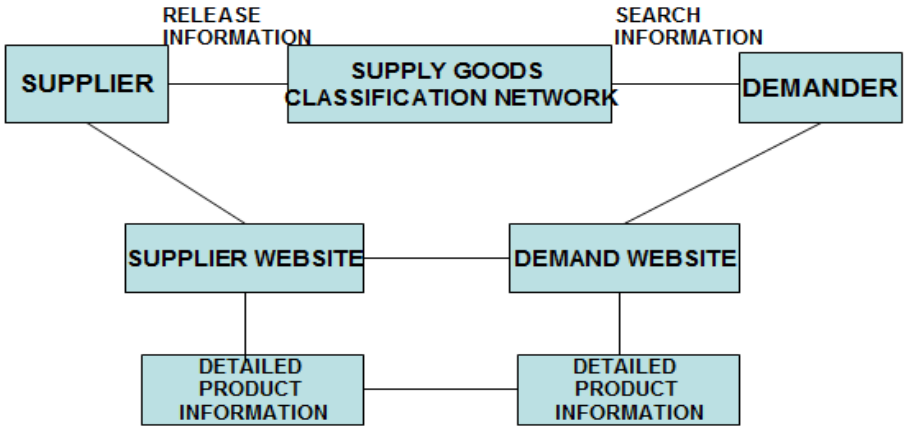
3.1.1 Pre-transaction preparation

The preparatory process of the transaction mainly refers to the sale of both parties in the transaction before the signing of the contract. Essentially the whole process is a commodity information release, query and matching process.

In this stage, the traditional approach is: According to their intention to buy goods, through advertising, commodity exchange, and other media, the buyer search for information, including suppliers, prices, etc. Then, based on previous research, they will make the import commodities business plan, including the contents of the program, the availability of domestic sources, the history cooperation, and so on. The buyer generally should do everything possible to find the relevant information of the goods they need to achieve the purpose of the purchase with reasonable trading conditions. The whole process is time consuming, not to mention that the relevant information can be limited, it is difficult to get the best supply and the lowest price.

And in the modern era of electronic commerce, things change a lot. Buyers obtain information mainly through the Internet. The buyer may at any time on the Internet to inquire about the related information of the goods that they need. At present, most of the countries in the world have established a government website on the Internet to provide the latest economic and market information. There are also a number of sites specifically for international trade services, which can provide a large number of international trade information. Seller mainly use Internet and various trade networks advertise products, actively to launch their own commodity

information resources, search for trading partners and trading opportunities, expand trade and goods accounted for market share, as can be seen in the picture 9.



Picture 9: Realization of supply and demand in Internet environment

The network becomes the largest intermediate business, buyers and sellers can direct contact, thereby reducing the import and export companies, agents and brokers. This is a situation that forces the trade brokers, agents and professional import and export companies to recognize their role, increase the type of service and improve the quality of service. On the other hand, it has also stimulated the innovation of transaction in the field of international trade.

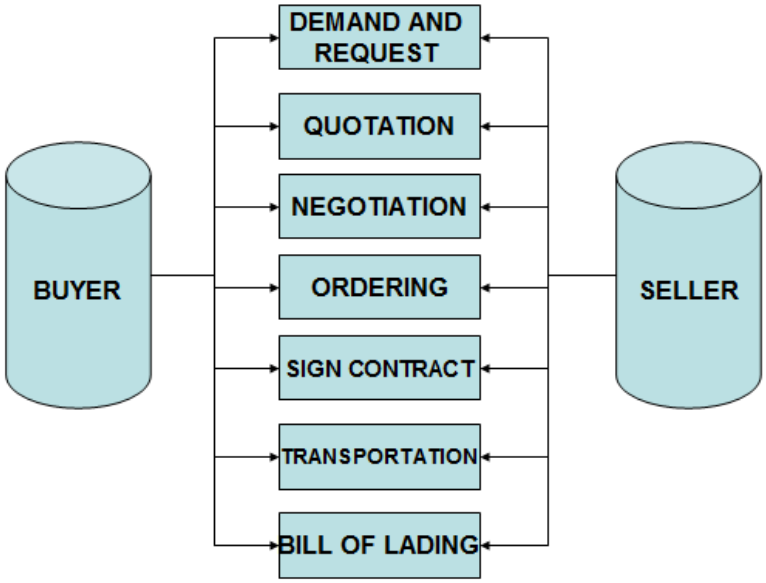
In general, in the international electronic commerce system, the exchange of trade information is usually accomplished through the Internet. This way of communication, is not only efficiency but also cost saving, compare to the traditional way.

3.1.2 Trade negotiation and contract

After buyers and sellers understand the supply and demand information about the goods, a specific commodity trading negotiation begins. Trade negotiations and the signing of the contract mainly refers to the seller and the buyer to negotiate the details of all transactions, the outcome of the negotiations between the two sides

signed in writing and signed in the form of contract.

The traditional business negotiations generally go through inquiry, offer, and counter-offer and acceptance process. Business negotiation including: subject of the contract (name, quality, quantity and packing, etc.); price contract; seller obligations (of goods delivery and presentation of documents); buyer obligations (the payment, receiving); prevention of dispute and controversy (commodity inspection responsibility, time of validity of a claim, free liability and the arbitration agreement). After the two parties have agreed, they sign the contract. Trading negotiation processing can be seen in Picture 10.



Picture 10: Trading negotiation processing

In fact, one of the major works in the trade negotiation process is to deliver trade information. Usually used by mail, telephone or fax and other means, but they have defects. The phone can solve the problem of the negotiation, but can not solve the problem of the document; the security of the fax is not enough. So, the only way to transfer the important trade documents in the traditional technology is the mail. But documents by mail to negotiate trade are time-consuming and laborious,

especially international postage will be very expensive if more round of trade negotiations.

And now, in the international electronic commerce as the basis of the transaction consultation is completely different. The whole negotiation process can be completed with the support of the network and the internet. The exchange of documents in the original trade negotiation process has become a record, document and message in the network transmission process. All kinds of electronic commerce system and special data exchange protocol automatically ensure the accuracy and safety of the process of information transmission.

All kinds of trade documents, files, such as price list, quotation sheet, inquiry, offer, counter offer, order indent, invoice in international electronic commerce have become standard message format, so as to improve the speed of the whole transaction process, to reduce the number of loopholes and errors, and standardize the commodity trade as a whole.

3.1.3 Performance of contract

Once the contract is signed, it is a basic legal document, which is bound by the seller and buyer. Both parties shall perform their duties according to the contract. The work of the performance of the contract mainly includes the export license and quota for the exporter. After receipt of the letter of credit, they have to stocking and checked, including inspection, charter, customs, shipping, insurance, and other work. And they have to making and settlement procedures documents after shipment. Importers will be required to fulfil the obligations of payment and delivery.

Electronic commerce makes the complex performance of the link simpler. Enterprises can export tax rebates, import and export license of network to apply for, export and import payment verification, applying for import and export goods country of origin certificate etc, through the government special website. Greatly improve the efficiency of foreign trade enterprises, while reduce the transaction

costs.

While performing the contract process, both parties will be involved in many aspects of the institution, such as: banking financial institutions and customs system, Credit Card Company, the inspection system, insurance companies, the tax system, transportation system etc. One of the most important aspects is the payment link. The traditional cross-border payment procedures are complex and slow, and the time period is long, with many unpredictable losses and risks. And the use of modern network communication technology and advanced computer processing system, can guarantee the high efficiency of capital operation.

After the seller and the buyer to complete the procedures of the transaction by agreement, they can track the goods through the electronic trading system; bank in accordance with the contract documents and the corresponding payment funds, issued by the corresponding bank documents, and finally complete the whole transaction process.

3.1.4 Documents transfer procedure

In the application of the international electronic commerce, the most unique is the process of dealing with the actual documents after the initial completion of the supply and demand. Compared with the traditional operation of foreign trade documents, e-commerce can save at least 15 steps in the process of transferring international trade documents (see in table 2).

STEPS	TRADITIONAL TRADE	E-COMMERCE TRADE
1	BUYER PREPARE DEMAND LIST	BUYER PREPARE DEMAND LIST
2	SELLER RECEIVE AND REPLY	SELLER RECEIVE AND REPLY
3	APPROVED OR AUTHORIZED	APPROVED OR AUTHORIZED
4	IMPUT LIST DATA	IMPUT LIST DATA
5	PRINT PURCHASE LIST	×
6	MAIL LIST TO SELLER	×
7	SELLER AGREED AND REPLY	×
8	UYER CONFIRM AND MAKE ORDE	×
9	SELLER CONFIRM ORDER	×
10	PREPARE CARGO	×
11	PRINT ORDER AND PACKING LIST	×
12	CARGO LOADING	CARGO LOADING
13	INVOICE	×
14	SEND INVOICE TO BUYER	×
15	BUYER RECEIVE CARGO	BUYER RECEIVE CARGO
16	BUYER RECEIVE INVOICE	×
17	WAREHOUSE ENTRY	WAREHOUSE ENTRY
18	SELLER SEND INVOICE TO BANK	×
19	WRITE A CHECK	×
20	SEND CHECK TO SELLER	×
21	SELLER REVEIVE CHECK	×
22	WRITE INTO ACCOUNT	×

Table 2: Comparison of document operation in traditional method and in E-commerce

3.2 Application of E-commerce in shipping

3.2.1 Background and definition of E -shipping

For shipping companies, the global Multi-National Corporation is constantly asking the carrier to provide services that cover the globe. Manufacturers continue to accelerate the business globalization, the demand for the global supply chain to further improve. And the international Internet with its globalization, personalized, real-time characteristics, so that the customer base is from reality into the Internet, in the presence of virtual form in front of the shipping company.

With the development of electronic commerce, the customer's demand is turning from the entity to the virtual transaction, that is, through the online transactions to meet the needs of the entity. The ultimate concern of customers is that the supply chain, supply chain integration, the perfect combination of online and real needs.

Also the shipping enterprise internal resource allocation, is by the resource allocation model for route type, to the global shipping resources allocation mode, across from around the world of the personnel, equipment, information, knowledge, the network and other resources to carry out a full range of three-dimensional coordination and integration, the formation of a global integrated marketing system. The globalization of the Internet makes the marketing system can be spread all over the world, to capture and explore any new customers, new demands and new changes in the world.

Therefore, the use of electronic commerce technology is inevitable trend of shipping companies. As the United Nations Trade and Development Commission's global maritime research report pointed out: the status of e-commerce in the ocean transportation is increasingly prominent. Shipping companies using Internet information technology to upgrade the quality of transportation services, provide the owner immediately tools to strengthen freight both sides communication channels, and becomes means to strengthen the competition of shipping enterprises.

General e-commerce has been applied very early in the shipping enterprise; date back to the early 1990s. The international shipping community use electronic data exchange of the manifest information transmission. But the Internet appears the breadth and depth of the electronic commerce application field expands greatly, makes the electronic commerce the revolutionary leap, and played a crucial role in the development of the shipping companies. Shipping industry as the modern logistics and information technology

The main battlefield, electronic commerce advanced technology and service means will be shipping companies to ensure and improve the magic weapon to win the competition. Under the new e-commerce environment date inquiry, inquiry rate, no paper office, intelligent decision-making, network marketing, electronic booking, real-time tracking, online services, swap space, business restructuring etc. reflects the

new concept of operation of shipping enterprises in the 21st century.

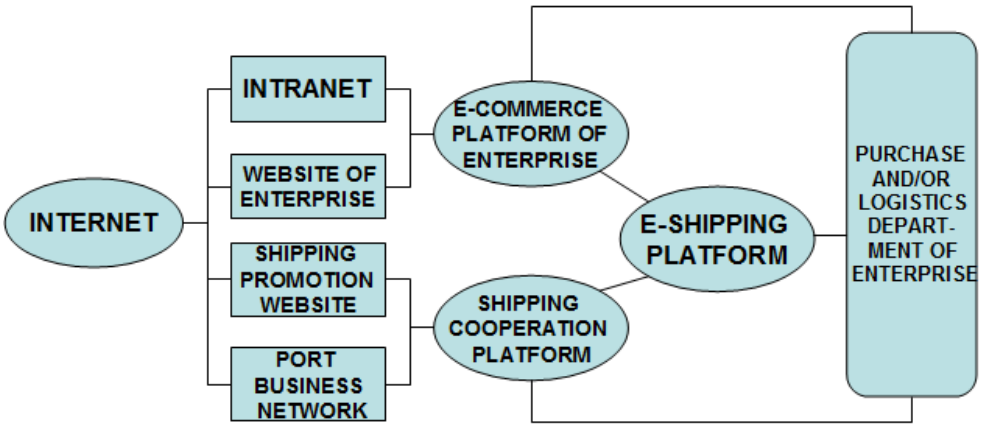
Internet enable the international shipping market to be connected as a whole, shipping enterprises face more fierce global competition than at any time in the past, and also provide more opportunities for the domestic shipping enterprises. Shipping enterprise under the environment of e-commerce network marketing can allow customers to have more and more extensive choice; on the other hand can also help companies to clear obstacles to the international market to expand their business. E-commerce breakthrough the unidirectional transport, and is the main part of the shipping enterprise operation pattern, under the electronic commerce environment, any amount of e-commerce transactions, all contain the information flow, business flow, capital flow and logistics. And the logistics of shipping companies operating on its modern function also set four a mere body. Therefore, shipping companies using its global network and improve the transportation system is fully capable of extending to the broader field, set up their own electronic commerce website, breakthrough time, space and geographical constraints, to develop modern logistics.

As a direct way to reduce costs, e-commerce is a necessary technology for shipping enterprises to participate in market competition. Electronic commerce to change the relationship between shipping companies and customers, so as to form a solid strategic alliance with upstream enterprises and downstream enterprises, so that enterprises can quickly learn to customer needs and timely feedback to the decision of the company to. Therefore, the supply chain management in the shipping enterprises should be based on the electronic commerce technology, and the commodity demand, the commodity circulation and the commodity production are organically linked. The information level of shipping enterprises will directly affect the effective establishment of enterprise supply chain, and then affect the competitiveness of enterprises.

Nowadays, the Maersk, Sealand and four other European shipping companies

INTTRA shipping website, APL, Canadian Pacific Shipping (CP), HANJIN Shipping, HYUNDAI Merchant Marine, KLINE, Mitsui O.S.K. Lines, Ltd., SENATOR, Yang Ming Marine with ZIM, nine carriers also established shipping portal through TRADIANT, its functions are to provide customers online booking, cargo tracking and transportation dynamic information service, the establishment of the so-called global transportation service network, unimpeded MULTI CARRERI INTERNET PORATL. COSCO Group and its subsidiaries and Chinese and foreign Transport group and other large domestic shipping companies have established their own websites, to begin offering to the schedule of the query, booking and other services and promote the corporate image through the Internet, the initial attempt to develop the electronic commerce.

E-shipping is that shipping companies and shippers trade shipping service and the exchange information through the Internet. Shipping， as one of the international logistics and transport， is one of the most important carrier, is a key ring on the supply chain of multinational enterprises. The appearance of shipping electronic market, on the one hand, use electronic flow instead of the real logistics, significant reduce in manpower, material resources, and reducing the cost; on the other hand breakthroughs in the time and space constraints, make trading activities can be carried out at any time, any place, thus greatly improves the business efficiency. The operation of E-commerce shipping can be seen in picture 11.



Picture 11: Operation of E-shipping

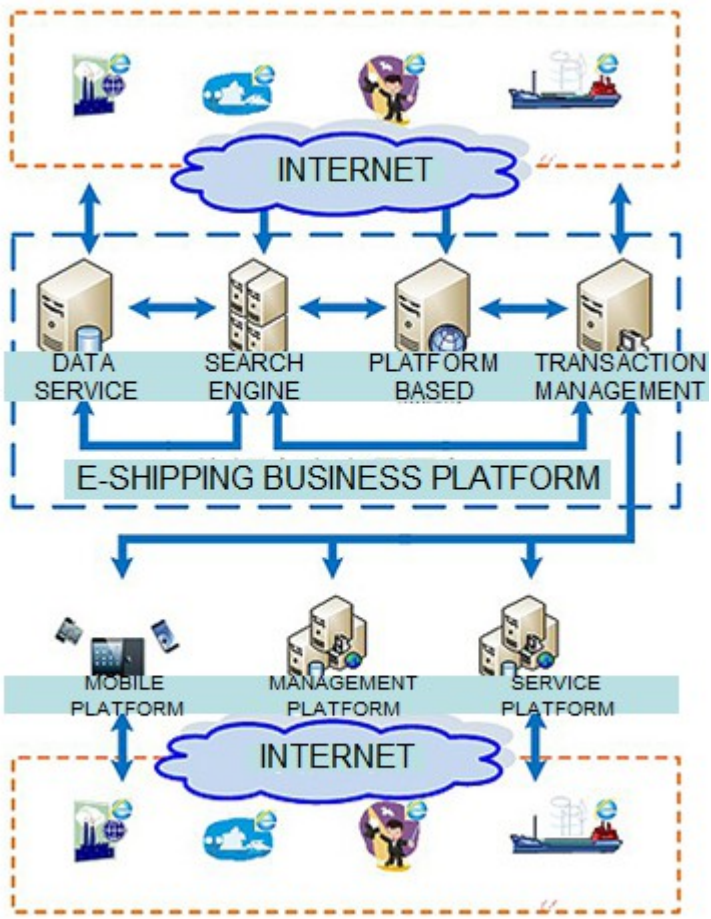
3.2.2 Model of the application of E-commerce in shipping

Operating mode from the Internet, said the shipping electricity suppliers can be divided into two types.

The first one is the shipping company itself to develop the company's electronic commerce system. Since the last century in 1990s, COSCO Group established a more perfect EDI system. Nowadays, including COSCO Container Lines Co., Ltd., Shanghai Pan-Asia Shipping Co., Ltd., also have to enter the Internet, the development of COSCON electric—Pan Asian economic shipping business e-commerce sector. This class of models as a new marketing channels, mainly for customers to provide various kinds of transport service company, the shipping line business moved to network is part of the company's shipping service system, which is O2O (Offline to Online).

The second is shipping companies or Internet service providers to build third-party trading platform, such as Sino-trans-booking, JC-trans, Walter cloud platform, and so on. This model mainly by shipping companies who have the resources or Internet companies to develop shipping tool, attract shipping practitioners gathered, then use Internet shipping trade platform, and gain profit from derivatives business.

E-shipping trading platform can be seen in picture 12.



Picture 12: E-shipping trading platform

The 1.0 version of the development of the economic shipping business platform is only to build an online platform, and little depth intervention for the back-end service. On the market, some third party business platform itself also has a number of freight forwarding logistics services, but online and offline business does not seem to promote each other. The platform has just started a few years of development, at that time it develops rapidly, mainly through the admission fee. But a few years later, new members are getting fewer and fewer. Old members feel pure information exchange can not meet their needs, and the new business platform is free, so the old platform facing how to development of the deep-seated problems.

The current business platform has entered the 2.0 version, in addition to information exchange, but also need to intervene more to the back-end trading services. In addition to providing information exchange, it is more important to get involved in the transaction process, all the transactions on the platform to have a record. In addition, also need to consider providing supporting services, such as logistics, clearance services, etc. Information service as the representative of the era has passed, in order to trade as the core business model has become the mainstream.

3.2.3 Problems and risks

The shipping industry entered the era of Internet industry later than others. This is due to the inherent nature of the industry , because the shipping industry has a large number of links and sectors, not a simple relationship between buyers and sellers. The shipping industry as a whole has been disconnected from the business organization model and the times. Shipping industry is a very traditional industry. Although the shipping industry's internal information works well, but there are too many links with the information opaque. For customer service, the information sharing in the industry is very backward. Shipping industry of this organization pattern and service ability has been out of touch, it can be said to be the external user needs in pushing down the shipping industry to better use of the Internet, including the change of its business model, in order to provide a better service.

At present, the development of the electric business electricity suppliers exist three difficulties. First, the business operation habits are subject to the tradition; do not meet the needs of the electricity business platform and the ever-changing Internet environment. Second, is that the platform can not be limited under the control of the line to the supplier; the line is often not the price of the platform on the platform is not the real price, or the transaction price is not consistent. Third, non - standard products and container industry has diversity and complex price and different body, different goods, different paths formed the diversity of products, fluctuations in the

market price of the product is very unstable, electronic business platform difficult to timely release of product and price.

E-commerce logistics has the characteristics of high investment, high risk and high professional ability. Shipping business risk is the biggest obstacle to its development. Therefore, it is necessary to think about the possible risk and the control strategy of the shipping business.

(1) Credit risks

At present, the credit system is still not mature; leading to risk management and control is still difficult.

Take Sino-trans-booking for example, most customers are small and medium-sized private enterprises, there is a firewall between the shareholders and corporate, individual shareholders reluctant to take risks for the enterprise. The company has tried to establish the relationship between the enterprise and the shareholders, the use of the individual credit to control the risk of enterprise transactions. Other banks also designed a number of products, such as the use of accounts receivable accounts receivable. Companies try to pass on a part of the risk to the financial institutions to bear.

How to establish a sound credit evaluation system, credit evaluation of the two parties, and the evaluation results of the network storage to effectively inhibit credit risk, will be need to address in the future.

(2) Legal risk

Because of the difference the knowledge of some country of e-commerce, even the e-commerce laws and regulations is constantly improving the situation, shipping business should make corresponding adjustments to avoid the risk according to their own situation, and the need to gradually establish and perfect a legal risk prevention control system, such as the timely collection of the introduction of new laws and regulations, or through the consult the relevant departments and help to relevant legal

departments to obtain relevant professional information, electronic business platform for the normal operation to find a legal basis, avoid any unnecessary disputes or suffer unnecessary losses.

(3) Information risk

Asymmetric information leads to adverse selection. Theoretically speaking, one of the advantages of e-commerce is fast transaction and convenient access to information, and to achieve information sharing through the use of various network technologies. But in the practice of business activities, from enterprises' own interests, relevant information as confidential business will be closed, rather than to be shared, which cause that the seller has more information than the buyer.

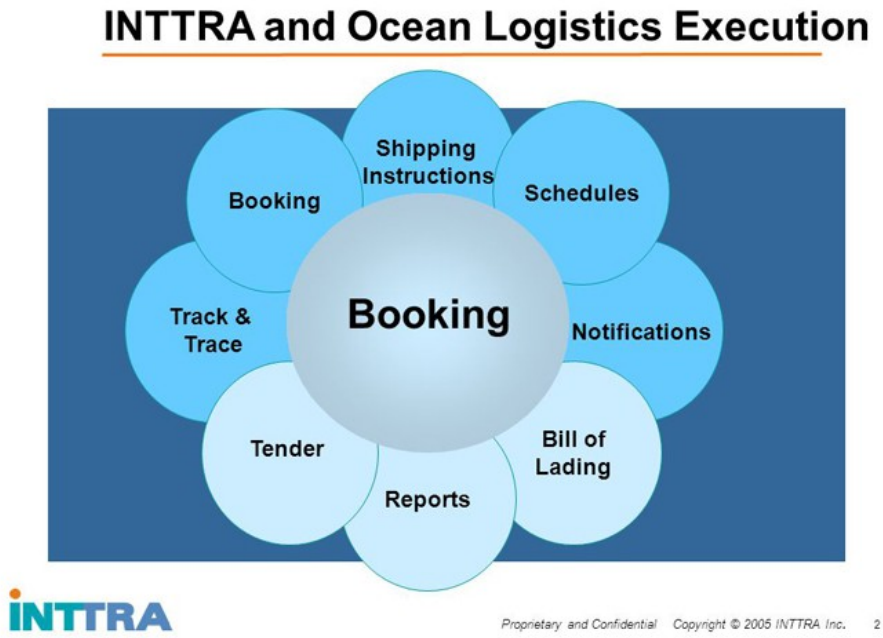
3.3 Case study of INTTRA platform

3.3.1 Brief introduction of INTTRA platform

INTTRA (picture 13) is the world's largest multi carrier electronic commerce shipping network portal, who is committed to offer a fundamental link between the shipper, intermediaries and carriers, through provide ocean sailing schedule, electronic booking, shipping instructions, bill of lading tracking, electronic invoices and reports, and other multi services to enhance the shippers, freight forwarders and shipping companies operational efficiency, reduce operating costs, improve the liner company performance. INTTRA has an absolute advantage in the data integration and platform service functions, with the freight forwarding contract providers, large shipping giants around the data integration and sharing of a steady flow of multi - cooperation.

INTTRA is ocean shipping's leading e-marketplace where companies go to ship efficiently and gain insights to grow. Backed by over 50 carriers and the world's largest network of ocean shippers, INTTRA technology changes the way shipping industry connects and does business with one another. More than 22% of the world's trade begins at INTTRA – and with unique visibility into 35% of global container

traffic, only INTTRA users can access the big picture insights needed to better collaborate, share knowledge, and manage shipments around the world.



Picture13: INTTRA and ocean logistics execution.

Users of INTTRA can gain a lot of benefits from E-shipping, including:

(1) Shorten the Booking Cycle: Submit booking requests to all carriers through one system and receive confirmations online.

(2) Improve Data Quality and Compliance: Submit shipping instructions with standard templates and set notify parties within a single form.

(3) Minimize Transit Delays: Receive and process Bills of Lading quickly.

(4) Achieve Cost Savings: Use INTTRA's e-invoice to save time and money through bill presentment and automated dispute resolution.

(5) Increase Visibility Track your INTTRA processed shipments and create standard reports to view all booking by carrier or by date.

3.3.2 Characteristics and development of INTTRA platform

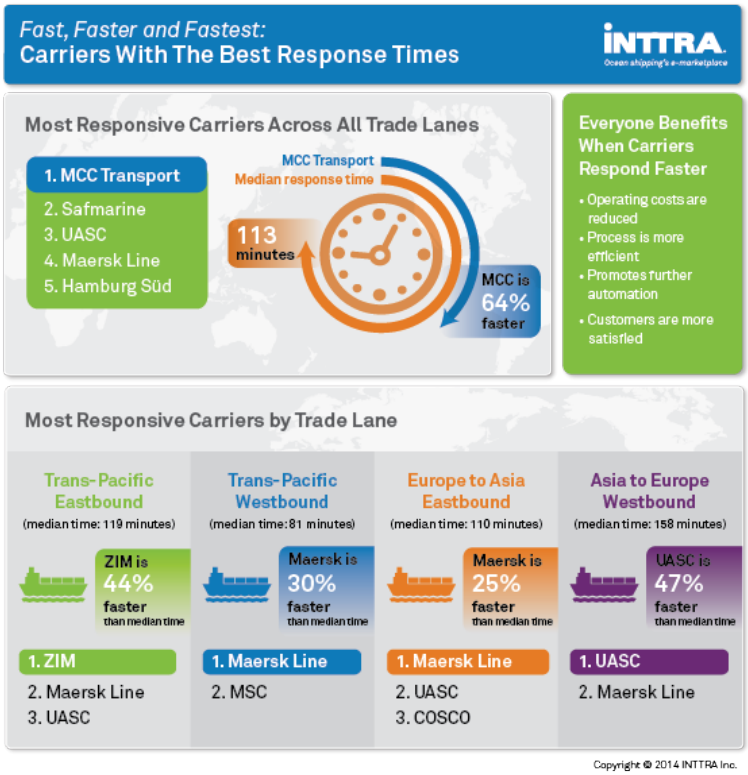
（1）Fast and time-saving

INTTRA's Ocean Carrier Booking Responsiveness Analysis provides the first global benchmark of the amount of time it takes to book a container shipment with leading ocean carriers electronically. The exclusive analysis sheds light on the barrier most often cited by shippers as the largest obstacle to e-shipping adoption—the speed in which a carrier responds to a customer's electronic booking request. With this analysis, INTTRA ranks the top five ocean carriers leading the way in responsiveness via e-booking.

Advanced automation and improved visibility data quality make e-shipping the most efficient, cost-effective way to manage global shipments when compared to a manual approach or combination of manual and automated processes. Yet, the time it takes for ocean carriers to respond to electronic booking requests still exceeds other support channels such as phone, offering a differentiating advantage to those that can do so in the fastest manner.

"As the shipping industry gains new efficiencies through process automation, we recognize that responsiveness – and the speed in which shippers can book with a carrier electronically – is a critical factor driving customer satisfaction," said Naresh Potty, Chief Commercial Officer, and MCC Transport.

"It has the added benefit of reducing costs for both us and our customers and is part of our strategy to deliver consistent service levels across all our customer intake channels. INTTRA is well-positioned to target this issue, and help MCC Transport continue to lead in driving greater responsiveness throughout our global operations."



Picture 14: INTTRA fast strategy

(2) Open and share data

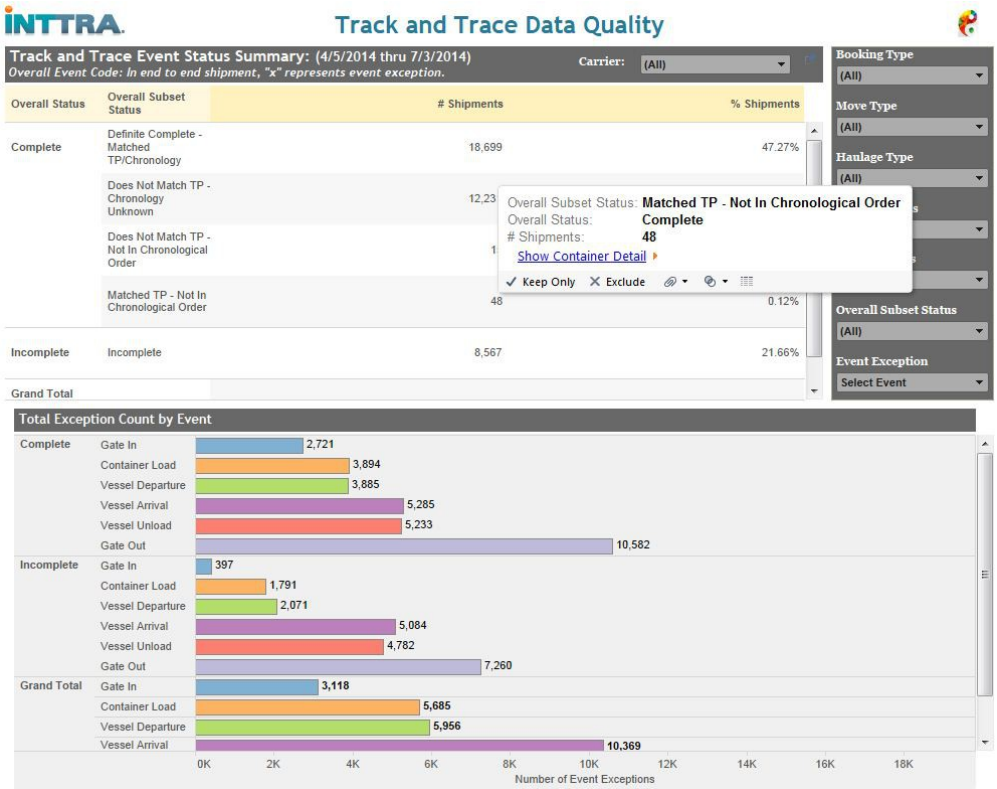
INTTRA's core competitiveness comes from the deep and close cooperation and detailed and accurate business data to improve the efficiency.

Openness and sharing is the essence of INTTRA. INTTRA has an absolute advantage, in the development of data integration and platform services , with the freight forwarding contract providers, large shipping giants around the data integration and sharing of a steady flow of multi cooperation.

INTTRA pays special attention to the data, depending on the quality of life. Construction of information shipping platform to improve the quality of the data is essential to improve the system, only the customer's data smoothly and quickly , can enhance the user experience. However, many of the main shipping companies, coordination is not easy, the liner companies from the terminal operators and other

relevant parties to collect data is numerous and complex, format, quality is uneven. Therefore, INTTRA efforts to upgrade the quality of monitoring data of three dimensions: precision: container actual arrival time and time database matching degree; timeliness: data within a reasonable time in place to provide; integrity: actually collected information on the state of the real and comprehensive.

INTTRA business platform based on EDI system, the owner can abandon the traditional telephone and fax contact way, directly on the platform electronically and INTTRA platform within the container transportation business information review and confirmation. The EDI system and INTTRA can consolidate the information into the electronic bill of lading, invoice, receipt, cargo tracking to, compared with the manual operation greatly reduces the operation time and the probability of error, to avoid delay the port customs clearance for a long time.



Picture 15: INTTRA data management

(3) One-stop service

INTTRA makes ocean shipping easy for over 220,000 logistics professionals around the world every day. It offers a standardized shipment execution process for the largest collection of ocean carriers on one simple, easy to use platform. This ocean shipping management platform allows users to find a voyage, book a container, submit shipping instructions, track cargo shipment, and more.

Picture 16: INTTRA's one-stop E-shipping solution

4 Analysis of the application of O2O model in shipping

As can be seen from the analysis above, it is concluded that E-commerce applied on shipping business is a good choice for shipping company to reduce cost while improve efficiency and service quality. But third-party platform such as INTTRA seems not the best model of E-shipping, because, this model pays more attention on online part, and barely no offline business. But shipping has complex process; only online service definitely can not satisfy its needs. Meanwhile, there are more and more shipping companies put their eyes on O2O platform and developing a virtuous cycle of online and offline service. The following paragraph will discuss the application of O2O model in shipping.

4.1 Characteristics of O2O model and the feasibility of it applied in shipping

4.1.1 Characteristics of O2O model

(1) Reasonable convergence of online and offline business

O2O model breaks through the online and offline transactions hinder, the online and offline business reasonable fusion, when there is a single competition effectively transformation for cooperation and mutual assistance relationship, to a higher stage of development of the Internet business. In the traditional mode of electronic commerce, online and offline is running separately. The transaction process of purchase, settlement and other aspects are all independent. And in O2O mode, businesses through online for promotional merchandise, the user see real goods offline; online booking payment, and offline to get goods or enjoy the service, in order to complete the transaction. All of the transactions are carried out in the online and offline, and make full use of the advantages of the network and the physical store, so that online and offline to achieve the best integration results.

(2) Provide a more accurate service target location for the business

O2O mode of electronic commerce system online sales of businesses were monitoring the data in the collation, so as to have a better understanding of consumer habits, and can also divide consumer groups of age, consumer credit, according to the statistical data analysis, so as to determine the target consumer groups more reasonable, let brand merchandise in a more accurate positioning, and enhance the competitiveness of the brand. At the same time, according to the consumption level and consumption, more reasonable and accurate to carry out production and sales planning, reduce logistics and warehouse reserves, reduce business costs, and improve sales profit margins.

(3) Perform better service for the user and the merchant

In the single business model, because of online transactions in goods is virtual, and user cannot contact to commodity. Only by pictures of the one-sided understanding commodity characteristics, businessmen can not offer the user of

sufficient communication; and online transaction process, because the store is located in the bustling commercial centre, though they have better communication environment, but many consumers is not very convenient to go there. And this O2O fusion, ease the shortage of single line and the line service, will be two business models complement each other, service upgrades. For users, through physical offline store display, can more comprehensive and true understanding of the product of the actual situation, also can more conveniently and online businesses or business consultation and communication. For sellers, to get more extensive publicity channels, to bring their own greater customer flow, can also through the online booking, reducing the compression cost store rent, and bring lower price.

(4) Break through the traditional electronic commerce mode of logistics obstacles

In the traditional electronic commerce online sales, the development of e-commerce depends on the development of the logistics industry. Especially in clustering network shopping, large scale, concentrated time delivery requirements to the logistics industry brought great difficulties, has also become a difficult to go beyond the bottleneck. And in O2O model, online ordering, under the net customer store pickup, skip the middle Express link, without the need for e-commerce enterprises to build own logistics or to seek cooperation in the third party logistics enterprises, to avoid the traditional e-commerce logistics barriers, to reduce the risk of logistics in the presence of, and reduce the logistics cost.

4.1.2 Feasibility of O2O model applied in shipping industry

In the market environment, business trend is irreversible, and penetrated into every industry in every link of; bring a major positive for many industries, showing strong vitality and the endless possibilities of the future. Shipping market cycle is getting shorter and shorter, volatility. In recent years, it is even experienced a few years long winter, let the shipping enterprises face difficulties to survive. Electronic commerce mode, especially O2O model， provide a way for shipping companies to

deal with the market environment, to win the living space, to break through the development of the bottleneck.

Combination of electricity suppliers and shipping industry to solve the problem that small and medium enterprises has been facing for a long time. At present, many small and medium-sized customers lack of reasonable procurement channels and information access way. In order to achieve the purpose of the transport of goods, and sometimes have to endure a very complicated process and opaque price.

O2O shipping business platform to subvert this phenomenon, in the booking and parity, it can achieve an open, transparent; at least give the owner some right to know and get information.

There are many e-commerce models. Which one is the best suit for shipping industry, is a question that should taken into consideration. Shipping companies has already do some attempt to find the best way of developing E-shipping. At present, in the global shipping and logistics industry, there is INTTRA, GT Nexus, Cargo Smart, three main public information portal platforms. GT Nexus successfully attracted APL, Hyundai and HANJIN; Maersk, Royal P&O Nedlloyd and CMA CGM, also began to introduce INTTRA; OOCL will consider its IT department as a subsidiary of the company and establish Cargo Smart. Three platforms include almost all of the major liner companies, route coverage rate is high, provides space for the number of carriers, attracting a large number of subscribers.

But, after reconsider the characteristics, it is easy to know that may be this model is not the best way for E-shipping, because shipping is very special. This industry provides transportation and logistics service. But unlike other virtual service provider industry, such as software, computer games, shipping industry must serve in real world. Therefore, only a platform for shipping companies is not enough. Shipping is not only need online part to offer information and find shippers, but also need to take good care of offline service products, and provide satisfactory

transportation services.

Moreover, as is mentioned above, shipping is an industry with a complex process. It has so many connections with other parties, such as custom, inspection and quarantine, bank and so on. Any problems in any sectors may cause stagnation of the whole shipping process. Third-party platform is not comprehensive enough to cover all the sectors.

There is still a question that should be aware. On third-party platform, shipping companies are competitors. If they want the shipper to pick up them as the carrier, they may be present all the good aspects to the customers, but hide the disadvantages. This may cause information dishonest or even fraud risks, which those third-party platforms can not control.

Therefore, in my opinion, O2O model is strongly recommended in shipping industry. On the one side, online offline model is not only put eyes on online service, such as information distribution, ordering, and communication, but also pay attention to the quality of shipping service provided offline, so that it is good to cultivate customer loyalty and become a virtual cycle. On the other side, for shippers, they can gain benefit from online service, to get a favourable price; while enjoy the visible and real service offline, which is more trustable. Furthermore, O2O platform is build by one shipping company. If there is any problem or dispute in the process of shipping business, cargo owners can go directly to the shipping company to get the problem solved. But in a third-party platform, it is hard to define the responsibilities, whether is the shipping company or the platform provider.

O2O model is a business model for consumers, businesses and O2O operators. All participants in this model can achieve win-win situation.

First, for the user, the O2O e-commerce model is a coupon. The users looking for corresponding values through the network, and understand their desired values of businesses and provide the service of information and others on the evaluation, and

then do purchase decision. Not only broaden the choice of room, but also to choose the most satisfactory service through online contrast, and also get preferential prices through the form of booking.

Secondly, for shipping companies, O2O e-commerce model is the low cost of marketing. With the network as a medium, online merchant stores can be used to display the offline goods and services, and provide online payment of the reservation. It is a good marketing opportunity not only for shipping company but also for the transportation service products. There are so many network users. Shipping companies can reduce offline marketing costs, improve efficiency and enhance marketing effectiveness through marketing online.

Lastly, for platform operators, O2O e-commerce is profitable. On the one hand, the characteristics of the network is fast and convenient, and bring the actual preferential information for users, so to quickly gather a large number of users online; on the other hand, it can f provide effective propaganda effect, and can be quantitative statistics of the marketing effect, so to attract a large number of offline business entities, the huge advertising revenue and economies of scale for website operators.

4.2 Case study of O2O model in shipping business—Pan-Asia platform

4.2.1 Brief introduction of Pan-Asia platform

Picture 17: Pan-Asia shipping platform

Shanghai Pan-Asia Shipping Co., Ltd, as the leading domestic branch line and the daily shipping company, launched Pan Asian shipping business platform for the domestic shipping market in 2012. Pan-Asia shipping business platform is the first business platform with payment function; provide a complete navigation business functions. And it is a breakthrough attempt in shipping business marketing.

Pan Asia shipping business products covering services of Pan Asian shipping's all routes, including shipping and transportation route query, query rates, online orders, online payment, full service, subscriptions, and tracking functions, including the facilitation services. What is worth mentioning is that Pan-Asia shipping also boldly extends service business platform, together with the coastal transport feeder line and port railway information query function, and through the way of customization to meet customer's special needs. Compared to other business platform, Pan-Asia shipping business has direct shipment point-to-point query, space display, and freight online payment, orders online inquiries and follow-up, sales and service simultaneously service advantage, whose function is more perfect.

At present, a number of online sales and business platforms do not have the ability to publish real rates, due to the lack of online payment, and no real role in the

electricity business platform. Pan-Asia shipping achieve the complete online payment function joint with third-party payment companies, this initiative also improves the freight recovery rate, which is a big headache for shipping companies.

Pan-Asia shipping uses O2O mode. It insists the concept of “online booking, offline operation”, booking, payment, query, subscription, and tracking all can be done online. Line operation is still charged by the freight company processing, electronic booking customers can inspect the scene of the actual operation. This model is more conducive to the owner, reflecting the humanized service. To this end, Pan-Asia shipping specially set up more than 20 professional teams to solve all the problems in the process of customer transaction and transportation.

Pan Asian shipping business platform use transparent price information, and changed the previous tradition of quotation and uniform, clear the unspoken rules of the industry, also indirectly contained price war of vicious competition to a certain degree.

4.2.2 Promotion impel the development of O2O E-shipping

The development of E-shipping can not ignore the importance of promotion. In 2013 Pan-Asia shipping hold “double eleven" business carnival, launched a decisive "double 11" marketing activities, and achieved good results. After that, "double twelve" business promotion activities continued, the results are very satisfactory. From this aspect, it is confirmed that the shipping business has extraordinary potential for the market, as is shown by Pan Asia shipping’s attempt.

A successful shipping business platform is not simply think online booking as the ultimate goal. It will pay more attention to the depth of integration of shipping and electricity suppliers, and forming a virtuous circle, which has an inclusive and expanding ecosystem. Pan Asia shipping business has launched a "double 11" and "double 12" Carnival activities, accumulated a certain number of customers. After study the customer data, Pan-Asia shipping has laid a good foundation for business

optimization and upgrade platform operation. At present, Pan-Asia shipping is scattered distribution in each business segment of the combination of personnel, and establishes a more specialized business operation group study and respond to the future development of the new demand.

Such promotion activities are not only to increase booking through price attract and promotion. Pan-Asia shipping business hopes to attract more customers to “Pan Asian shipping electric business platform” to experience, through the promotional activities, and accumulate more clientele. Using customers of online self-booking data, Pan-Asia shipping can understand the customer's spending habits, grasp the customer the new demands for the products and services, improve the quality of products and services, and enhance customer experience degrees.

4.2.3 Improved service guarantee the long-term development of O2O E-shipping

Opinions vary as to the advantages and disadvantages between the real economy and business, but one thing is for sure, it is the key for both the real economy and business platform to think highly of customer experience, and provide the products and service to meet customer demand.

According to the company on the "Pan-Asian shipping business platform" positioning, service object mainly concentrated in the small client. They can enjoy the full service online. For Pan-Asia shipping, this positioning is more useful to develop retail customers, rich marketing means, reasonable allocation of marketing resources, covering the end of the market. To these small and medium-sized customers, they can enjoy the service quality with a substantial upgrade.

Generally, shipping companies will focus on the development and maintenance of marketing services of large customers. Once in busy season, the market demand breaks out. Many shipping enterprises prefer to meet big customers’ demand at first. Small and medium customers are likely to be abandoned, which often cause great losses to the small and medium customers, and even endanger their own survival.

Pan-Asia shipping business platform clearly promised two guarantees for small and medium-sized customers: guarantee the use of box and guarantee the space on ship. Two guarantees to protect the actual interests of small and medium customers, it is bound to have a great appeal to them. Service is the customer's most sensible, the most real experience. Pan-Asian shipping business platform resolutely carry out the parent company COSCO Container Transportation Co., Ltd., and advocating commitment to service. Pan-Asia shipping business also opened the online advisory function and a global customer service phone for the convenience of customers' timely advice and complaints.

E-Shipping made a very high demand on the shipping companies, to achieve transformation and upgrading, and transformed from a single transport service to the whole supply chain supporting services. Pan-Asian shipping business platform most orders are full service. Many small and medium-sized customers transport program, often need Pan-Asia shipping to customize the detailed scheme. Customer demand transportation service rise to project management, thus Pan-Asia shipping has to provide the lowest cost and highest efficiency project plans. Therefore, Pan-Asia shipping starting from the actual production of customers, more closely fit the whole supply chain and customer. This also conforms to the requirements of the shipping companies from the carriers to the supply chain service providers.

According to the statistics, the existing major electric business platform average return rate of 20% to 10%, this is an unavoidable problem of current business platform. Pan-Asia shipping business platform has a back and change rate of about 6%, lower than the average level of the business platform. And if there is any retreat, Pan-Asia shipping line operators will do artificial modification at the first time in accordance with the standard procedures. As long as the customers complete the electronic booking and payment, Pan-Asia shipping will be contact the insurance company for customers immediately to insure goods and the interests of customers.

Pan-Asia shipping pays attention on optimizing the service process and interactive links. It will not stop in improving the service experience and customer repurchase rate, while focusing on the data collection and analysis, and continue to introduce products to meet the different needs of customers.

Pan-Asia shipping business is a breakthrough attempt. It strives to develop container transportation sales channels through the Internet, and expands the service object. At the same time, through the network media, publicity Pan-Asia shipping products and services, establish the Pan-Asia shipping in the domestic shipping industry benchmark image, to attract more potential customers.

Compared with other industry shipping business platform, Pan-Asia shipping business accurately located in the trade routes, collect domestic daily class, southwest nonstop and so on, customers can online self-booking, payment, query, subscription, tracking. After orders submitted successfully, Pan-Asia shipping will provide a one-stop logistics transportation services for customers, and can even customize personalized service. It can be said that Pan-Asia shipping business is a breakthrough of the traditional shipping industry with high degree of homogeneity in the service of container transportation services.

4.3 Suggestion of promoting the application of O2O model in shipping in the era of Big Data

O2O model has brought opportunities and challenges to the shipping enterprises. In O2O mode, the shipping companies should adjust their service mode, change management behaviours, and improve the customer relationship management, and make online and offline to be a sustainable development.

4.3.1 Transform operation process, improve internal management information system and safe online payment

At present, internal resource allocation model including the international shipping enterprises is transforming to the global shipping resources allocation mode

by the resource allocation model for route type, across to around the world of the personnel, equipment, information, knowledge and network resources for the coordination and integration of all-round, three-dimensional, formed the global integration of marketing system.

Enterprise internal management information is the basis, and a powerful internal information system is the key to the good development of electronic commerce. With the rapid development of market economy and business, many systems have been unable to meet the needs of new applications, including e-commerce. Therefore, it is urgent to establish a set of internal management information system, which is integrated with high standards, strict standards and powerful functions. It will lay a solid foundation for the development of e-commerce.

In the O2O online payment system, the bank will undoubtedly play a key role in the link. In online banking system, consumers through the Internet banking system and online shopping mall to pay. In offline business, the consumer and the store is also through the bank's POS system to pay. And the third party platform and merchants payment is also through the bank's online system to operate. Therefore, to build perfect online payment system, bank is the most important sector, and builds close cooperation with third-party network platform, shipping companies, reduce the access threshold, reducing the payment process, and provide more convenient and efficient way to pay. Moreover, shipping company can expand and enhance the volume of business, while strengthen the network security technology security, to provide a safe and fast payment channels, establish a safe and sound O2O online payment system.

4.3.2 Government streamlines administration and create favourable external environment

Integration of traditional shipping process, and cooperate with customs, inspection and quarantine departments, decentralization of government, integration

of functions, making application of E-shipping in every internal and external links, unimpeded.

From the experience of foreign shipping development, the premise of the development of e-commerce is a complete shipping information sharing platform. Although many of the domestic shipping companies have relatively good internal information platform, port, customs, commodity inspection, quarantine, maritime, border and other information system works independently, those are not connected to the network and isolated. This leads to confusion of data and resource conflicts. Due to the lack of a reasonable mechanism for the benefits equilibrium, each department only want to get information from others, and not to allow others to share information, resulting in the shipping information integration lags behind the needs of the majority of users.

Due to the characteristic of non - standard, the market price of the shipping product is very unstable. The lack of a good information sharing platform for shipping, shipping e-commerce platform is difficult to timely release products and tariffs information, which greatly limits the rapid development of e-commerce.

There are a large number of business transactions or data exchange between shipping enterprises and government department, and their internal information system is good enough. If they do direct business transactions or data exchange on the Internet, it will cause the same business data duplication because they can not enjoy the existing data. Communication costs are too high. Therefore, in this case, the use of EDI technology is an effective way. Share data with many subordinate port company and shipping companies, foreign agents and shippers, freight forwarding, terminals, tally and Customs enterprise to realize EDI is effective way to carry out electronic commerce.

Government should develop a set of unified international shipping standards, improve the network infrastructure, and solve the problem of network security

technology and the introduction of e-commerce law, so that shipping enterprises can really carry out online transactions, electronic commerce, and electronic bill payment online.

4.3.3 Security control and function transformation of freight forwarding

For marine transport processes through the integration of the shipping business platform, the shipowner's should be safer. Because what the ship company is responsible for is the same as that in the past, namely transport process security. For this part of the risk control, shipping industry has a fairly complete safety standards and management standards. But it’s still hard to say whether shippers and NVOCC have to assume more responsibility for security or not.

Since it is through the booking transaction platform, shipping company will arrange transport goods provided by the reference platform. However, if the actual goods and the information are inconsistent, whether it will appear to be a huge risk? For example, if shippers have to transport dangerous goods, then the traditional process is to forwarding enough documents, and then selects the shipping companies to make orders. As well known dangerous goods are divided into nine categories; the higher the risk coefficient is lower. If flammable liquid cargo transport which is high risk, so many shipping companies would prefer not to accept for carriage. Therefore, the forwarder may go to platform, and declare non hazardous goods on the electronic business platform, but the actual number of illegal means, making the dangerous goods on board which the shipper did not states.

With the cargo data provided by the shipping business platform, the carrier may simplify the verification process of the goods. Shipping business platform in accorded to the owners more broad sourcing and business development, but also gives more choices, rights and freedoms to shippers, freight forwarding. Previously, owner often complained shipowner of give information asymmetry. Now with the platform, the ship must pay attention to each other on the platform to ensure that

provided information is symmetrical with the goods, for shipping security. Platform for the future of the construction may not only lie in the level of information flow, but also need to focus on the credibility and security of information.

One of the security issues is the risk caused by "LCL". Alibaba is the most typical example. Its customers are small and medium-sized customers, LCL is unavoidable.

LCL is generally not acceptable to a specific ship company. Because shipping companies only accept FCL cargo booking, and do not directly accept LCL booking. Only through the freight agent will LCL spell whole to the shipping company booking. LCL business mainly consists of different shippers, so the LCL often has different types and characteristics. This may cause problems when goods in customs clearance, and will affect all the goods in the container transport, which in a large extent influence cargo transportation of consistency and integrity.

Previous LCL companies will keep container specifications, packing; quantity and weight are in accordance with the standard. But today, they have to rely on big data platform. If there are cargo owners that provided fraud information, this would influence the whole normal transportation of FCL with dozens of owner’s cargo.

Therefore, due to the complex process and situation of shipping industry, freight forwarding can not be replaced by the O2O platform. But its function is no longer information channel. If the freight forwarding wants to survive, they must transform their function to adapt to the development of E-shipping, and solve problems that only can be done by people, for example, communication, check information and inspection and quarantine.

4.3.4 Make good use of data in the process of O2O model in the era of Big Data

In the information age, he who has information is in control of everything. For enterprises, the company can gain the initiative to grasp customer data. The operation of E-Shipping can not be separated from the concept of big data. Big data lies in the

precise positioning of customer needs, and oriented product and service. Big data has the characteristics of high speed, diversity, and authenticity. Through a large number of data gathered from the customer groups' consumption habits, through the establishment of model analysis method for detailed analysis, enterprises can be accurate to a certain class of customer demand deep understanding, and provide products and services which are more attractive.

Big data needs new treatment mode with more decision-making power, insight discovery power and massive process optimization capabilities, high growth rate and the diversification of information assets. Enterprises should have the ability of digging distributed data, which has high requirements of enterprise software and hardware equipment.

In the era of big data, data will become the core assets of the enterprise, and will deeply affect the business model, and even reconstruct the corporate culture and organizational structure. As a result, it is far from enough for the light to be in the business of electronic commerce. The ship company is still lack of the idea of electronic commerce. If shipping companies cannot use the data which is closer to the consumer, and have deep understanding of demand, high efficiency and analysis of information and make a pre-judgment, all the traditional products are can only become a dependency of the new platform.

For shipping industry, to develop e-shipping must with vast amounts of incoming data, in order to achieve shipping company information transparency. Therefore, the Department of information sharing of data becomes is more important. Enterprises can use these data to make the supply chain visibility, implementation process of logistics trade throughout the video. At the same time, it can reduce operation procedures, improve transaction efficiency. In addition, based on the massive transaction data analysis, the enterprise or the government agency's decision-making consultation has certain help. The incoming data no matter to

customers, freight forwarding, shipping companies or government agencies, regulatory agencies, service agencies has great value in use. Therefore, to strengthen the information sharing of various departments in order to make full use of the data, improve the overall competitiveness of the entire shipping enterprise.

5 Conclusions

Behind the phenomena of shipping company chasing after E-commerce, is that shipping companies are facing deeply shipping market integration. Booming economic environment is not optimistic about the grim reality. And with contrast to other industry which is booming, shipping industry urgently needs to seek breakthrough. In the future, once the move the obstacles, E-shipping has a brighter prospects. But E-commerce is only mean. What the customers care most is till the service. With the supply chain integrated and transformation, the impact of the quality on customer is increasing.

Due to the complex process and characteristics of shipping industry, in the writer's opinion, the most suitable way of developing E-shipping is O2O model. Because O2O model not only pay attention to the online service, such as information publication, self-booking, promotions; but also put a lot of effort in offline service, to satisfy the customers' needs and cultivate customer loyalty so as to develop a virtuous cycle.

However, there are also some problems that shipping companies should taken into consideration when build up an O2O model platform. The shipping companies themselves should transform operation process and improve internal management information system. Government is required to streamline administration and institute decentralization, and promote the cooperation between government departments, like customs, inspection and quarantine, so to create a good external environment for E-shipping. Safety problem, especially information security can not be ignored, and to build up a safe and convenient online payment system. In Big

Data era, shipping companies should realize the importance of data, and take advantage of data to improve its efficiency and customer service.

REFERENCES:

1 Beyer, Mark. "Gartner Says Solving 'Big Data' Challenge Involves More Than Just Managing Volumes of Data". Gartner. Archived from the original on 10 July 2011. Retrieved 13 July 2011.

2 Billings S.A. "Nonlinear System Identification: NARMAX Methods in the Time, Frequency, and Spatio-Temporal Domains". Wiley, 2013

3 Delort P., Big data Paris 2013 http://www.andsi.fr/tag/dsi-big-data/

4 Delort P., Big Data car Low-Density Data , La faible densité en information comme facteur discriminant

5 De Mauro, Andrea; Greco, Marco; Grimaldi, Michele (2015). "What is big data? A consensual definition and a review of key research topics". AIP Conference Proceedings 1644: 97–104.

6 Ibrahim; Targio Hashem, Abaker; Yaqoob, Ibrar; Badrul Anuar, Nor; Mokhtar, Salimah; Gani, Abdullah; Ullah Khan, Samee (2015). "big data" on cloud computing: Review and open research issues". Information Systems 47: 98–115.

7 Laney, Douglas. "3D Data Management: Controlling Data Volume, Velocity and Variety" Gartner. Retrieved 6 February 2001.

8 Laney, Douglas. "The Importance of 'Big Data': A Definition". Gartner. Retrieved 21 June 2012.

9 Lee, Jay; Bagheri, Behrad; Kao, Hung-An (2014). "Recent Advances and Trends of Cyber-Physical Systems and Big Data Analytics in Industrial Informatics". IEEE Int. Conference on Industrial Informatics (INDIN) 2014.

10 Lee, Jay; Lapira, Edzel; Bagheri, Behrad; Kao, Hung-an. "Recent advances and trends in predictive manufacturing systems in big data environment". Manufacturing Letters 1 (1): 38–41.

11 Snijders, C.; Matzat, U.; Reips, U.-D. (2012). "'Big Data': Big gaps of knowledge in the field of Internet". International Journal of Internet Science 7: 1–5.

12 "Volume of world merchandise exports" by Jashuah - Own work by uploader, data from Bureau for Economic Policy Analysis. Licensed under CC BY-SA 3.0 via

Wikimedia Commons.

13 "What is Big Data?". Villanova University.

14 2014 shipping industry analysis report [R] 2014,08.

15 2014 shipping industry depth Research Report [R]. 2014, 12.

16 Cai Yonghong, Liu Ying. Research on business enterprise management mode based on big data [EB/OL]. [2014-12-05]. http://www.cnki.net/kcms/detail/11.3443.F.20141209.1047.138.html.

17Chi Lian. The opportunity and challenge of electronic commerce O2O model [J].Business era, 2014(25).

18 Chen Hao. Research on supply chain risk and Its Countermeasures in O2O mode [D].Suzhou University, 2014.

19 Chen Weihong. Research on the influence of O2O mode on the traditional business model [J].Modern Economic Information, 2014, 1001 — 828x(2014)07 — 0284(7).

20 Chen Ying. Analysis of the characteristics of O2O mode and suggestions for promoting its future development [J].E-commerce,2014, 005-5800(2014)05 (c)-111-02(5).

21 China big data. Data industry ecological map 3 - Information Map [EB/OL]. [2014-05-29]. http://www.csdn.net/article/2014-05-29/2820016.

22 Dai Xu. Research on the development path of modern shipping logistics enterprise electronic commerce [J].china storage& transport magazine, 2010(8).

23 Dai Yun. The new concept of "big network marketing" in the era of electronic commerce -- O2O model [J].China Market, 2014(5).

24 Hua Shi. Cold thinking under the tide of shipping electricity suppliers [J]. China ocean shipping, 2014(6).

25Hua Shi. Bring the Enlightenment of the construction of trans Asia shipping business [J]. China ocean shipping, 2014(3).

26 Lai Wenguang, Wang Jinggai. Analysis of the current situation of domestic and foreign shipping e - commerce development and Countermeasures [A].Port economy Forum, 2014.

27 Liu Chang, Liu Qingyuan. Shipping business: once broken into bud, leading to the towering clouds [EB/OL].
[2014-08-12]. http://www.cnss.com.cn/html/newspecial/2014/0812/25shipping-e/index.html.

28 Liu Xiao. Shipping safety test [J]. Chinese ship inspection, 2014(9).

29 Liu Xiawei. Trap of Traditional enterprise O2O transformation [J]. Sales and marketing, 2014(9).

30 Meng Fanjia. Research and application of the dynamic e - commerce system of shipping enterprises [D].Dalian Maritime University, 2011.

31 Meng Xiaofeng, Ci Xiang. Big data management: concepts, techniques and challenges [J]. Computer research and development, 2013(50).

32 Ning Peng, Shi Qiliang. The application of electronic commerce in shipping enterprises [J].Modern Economy, 2008(10).

33 Pan Yuxiang. Analysis of O2O electronic commerce model based on the comparative analysis method [J].E-BUSINESS JOURNAL, 2014(7).

34 Shi Peiwen. Pan-Asia: shipping business leader [J].China Ocean Shipping, 2014(8).

35 Wang Changsheng. Research on the application of e-commerce in small and medium sized shipping logistics enterprises [J].china storage& transport magazine, 2013(10).

36 Wang Lingfeng. The way of shipping logistics in the new era of electronic commerce [J].E-BUSINESS JOURNAL, 2010(4).

37 Wang Xiao. The predicament and outlet of the development of O2O mode in traditional enterprises [J]. China business, 2014(28).

38 Wang Shan, Wang Huiju, Tan Xiongpai, Zhou Heng. Big data: challenge, present situation and Prospect [J]. Journal of Computer Science, 2011(10).

39 Wang Yuanzhuo, Jin Xiaolong, Chen Xueqi. Network big data: current situation and Prospect [J]. Journal of Computer Science, 2013(6).

40 Wei Hao. O2O electronic business model analysis [J]. Modern commercial industry, 2014(23).

41 Xu Miaomiao. Electricity supplier era of shipping industry [J]. Chinese ship inspection, 2014(7).

42 Yan Fenghua. The national shipping e-commerce platform of Ningbo.[N]. China Ship, 2013/01/18(005).

43 Yan Zhi, Zhan Jing. Big data application mode and security risk analysis [J]. Computer and modernization, 2014(8).

44 Yi Nan. The rise of e-commerce O2O mode based on CRM [J]. Technology Outlook, 2014(7).

45 Zhang Rong. Development of O2O mode [J]. Logistics engineering and management, 2013, 35(12).

46 Zhong Hai. O2O electronic business model [J].Times Finance, 2013(12).