

ANALYZING AND OPTIMIZING THE ORDER PROCESS AT THE FREIGHT FORWARDER

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Abstract <p>This thesis is based on the current order process at Panalpina World Transport (PRC) LTD, Chengdu branch. The aim of this thesis was to carry out a research on analyzing the order process and the existing problems of this process at the Panalpina Chengdu branch as well as to propose some improvement approaches.</p> <p>The research method was qualitative due to the nature of the order process. A survey about the order process of Panalpina Chengdu branch was carried out to get opinions of internal employees, agents and customers. The background knowledge and the analyzing tools in the study were acquired mainly from literature, internal interviews and internet.</p> <p>The research showed not only the insufficiency of the Panalpina Chengdu branch in using the existing information systems but also several weak points in current order process. The activities and problems involved in each step of the order process at the Panalpina Chengdu branch are clearly described. The usage of several analyzing tools helps to critically point out flaws in the current order process. Modifying the information flow, drawing up a standard booking format and integrating different information systems by the SAP system were suggested to improve current order process. Several recommendations concerning the operation and technology were also proposed.</p> <p>With the help of this bachelor´s thesis, the company can have some support information to develop its order process.</p>		
Keywords Order booking process, information flow		
Miscellaneous		

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ABBREVIATIONS

EDI	Electronic Data Interchange
ERP	Enterprise Resource Planning
PA CTU	Panalpina Chengdu Branch
MRP	Material Requirements Planning
HAWB	House Air Waybill
MAWB	Master Air Waybill
Pancom	Panalpina Communication
PanTrace	Panalpina Tracing System

1. INTRODUCTION

1.1. Background

As a part of the supply chain, the order process plays an important role in connecting customer with supplier. A customer order serves as one of information sources that make logistics activities in operation. The key element included in the order process is information flow, which has a great impact on operation efficiency, total cost, and the level of customer service. Inefficient information flow may lead to the loss of customers, high inventory level, and inaccurate production forecast.

As stated by Grant, Lambert, Stock and Ellram (2006, 68), an information system and order process are the foundations for logistics and corporate management information system, an area which has potential to improve logistics performance. Nowadays, organizations are equipped with information systems to support logistics activities. Several studies have shown that information systems have been the keys to improve enterprises' competitiveness.

A freight forwarder is usually a company that acts as a logistics provider to deal with shipments for other companies or even individuals. Nowadays, there are many third-party forwarders which are not carriers but agents that provide logistics services. Panalpina, which is the case company analyzed in this thesis, acts as a freight carrier in some countries while acting only as a third-party agent to process shipments in other areas. Panalpina owns an integrated information system to support its daily business. However, in some local branch companies of Panalpina, they do not sufficiently use these information systems. There are several reasons for

the insufficient use. One of the obvious reasons is the limited development of information systems in some local areas. This phenomenon of Panalpina's local branch companies has provided a possibility to improve and change the current business process by integrating the existing information systems

1.2. Research Objectives

The main objectives of this thesis were to describe each step existing in the current order process, critically point out the flaws and find out the potential ways of optimization in order to make Panalpina Chengdu Branch's order process more efficiently and more effectively. Optimization of order process can be achieved from two aspects: operational optimization and technology optimization. In detail, the major aim is to find solutions from these two aspects.

To achieve this goal, various sub-aims which will be discussed in the following chapters have to be met. The sub-aims can be summarised as follows:

- ✧ Critically examine the existing information flow in PA CTU's order process.
- ✧ Clearly point out shortcomings of current process by several analyzing tools.
- ✧ Study internal employees, agents and customers' opinions about current order process by questionnaire.
- ✧ Propose development suggestions that can be implemented rather than only theoretical ones.
- ✧ Improve information access and sharing between separated workmates.

1.3. Research Problems

The PA CTU cooperates mainly with two local freight forwarders to deal with its export business. However, due to the limitations from several aspects, PA CTU met some problems, including misunderstandings, delivery delays, wrong freight

deliveries, broken packages, over booking and even natural or manual disasters. On the other hand, the separated working places, different time zones, and language barriers among PA CTU and its overseas offices may cause almost the same problems listed above. From the customer's point of view, the inaccurate booking order, uncompleted documentation and unclear fax have caused freight delivery problems as well. Moreover, there is not enough space to store so many paper documents. It is also difficult to find former documents among hundreds and millions of documents. This situation presents an enormous opportunity of improvement by implementing engineering theories, tools and techniques.

1.4. Research Methods

Basically, this thesis focuses on analyzing and optimizing the order process of Panalpina CTU. Qualitative study method is the main research method in this thesis due to the nature of order process. A survey including nine questions will be used to get opinions of current order process from internal employees, agents and customers.

The theory part of this thesis was mainly conducted by using the information of some professional literatures dealing with logistics management, business process management, and information systems management. Some lectures in class were also important resources for the theory part, especially the part concerning analyzing tools. Besides, some reliable internet information was also used to complete the whole theory part.

The description and information about the operation and order process of Panalpina CTU was based on the practical training experience and the information from

employees of operations department. In addition, the internal literature, rules and presentations of Panalpina also played a supplementary role in providing the information of the business situation inside Panalpina.

The following text is divided into six parts. Chapter 2 gives theoretical basis about order process, order process system and information systems. In chapter 3, activities and problems existing in the current order process are described. Chapter 4 and chapter 5 deal with the analysis of the order process and information flow. Chapter 6 lists the results of the survey. Finally, some suggestions and recommendation are proposed to optimize the current order process.

1.5. Company Introduction

1.5.1 The Panalpina World Transport

The Panalpina group is one of the world's leading logistics service providers, focusing on integrated intercontinental air freight and ocean freight and associated supply chain management services. It operates a worldwide network with around 500 branches and partner companies in more than 80 countries. Thanks to the integrated tailor-made IT system and professional industry knowledge, Panalpina is able to provide integrated door-to-door service globally based on its customers' requirements. (Panalpina Annual Report 2008, 14.)

The group has particular experience in key industries of telecom, hi-tech, automotive, healthcare, chemical as well as retail and fashion. It has been the global market leader providing logistics service in the industries of oil and gas. Historically, Panalpina has a strong presence in major Asia-Europe-Asia and transatlantic trade lanes. (Op. cit. p. 14.) The following table shows some key figures of Panalpina in 2008.

TABLE 1. Changes in revenues and gross profit in 2008 (Panalpina annual report 2008, 21)

in million CHF	2008	2007	Change vs. previous year in %
Net forwarding revenues	8,878	8,641	2.7
Gross profit	1,742	1,803	-3.4
As percentage of net forwarding revenues	19.60%	20.90%	130 basis points

1.5.2. The Panalpina Chengdu Branch

With headquarter located in Shanghai, Panalpina China operates in three districts and two business unit clusters: Yangtze River district, Bohai Bay district, Pearl River Delta district, Taiwan and China West. Located in the south-west of China, Chengdu is the capital of the Sichuan province. Panalpina Chengdu branch was a representative office, but was changed into a branch company in 2007. Both Panalpina Chengdu branch and Chongqing branch operate in the same business unit owned by Panalpina China West.

The main services provided by the Chengdu branch are air freight and sea freight combined with road and rail services. The major customers are mainly from the field of electronic components, garments and motorcycles in Sichuan and Chongqing. Molex Interconnect (Chengdu) Co., Ltd. is the most profitable customer which has exported large volume of connectors from Chinese mainland to Hong Kong, Netherlands (Amsterdam), Taiwan, India and USA (Bolingbrook). As a whole, the export business accounts for most of the revenue compared with the import business in Panalpina Chengdu Branch.

Because of the operation limitations based on Chinese business regulations for wholly foreign-owned enterprises, Panalpina CTU has to choose local agents to help its business in Chengdu. SINOTRANS Air Transportation Development Co. Ltd, Southwest Branch Company, which is a domestic air freight forwarder, has been the agent for air freight service for a long time. At the same time, Panalpina CTU has a tight cooperation with Sichuan Minsheng International Freight Co. Ltd, Chengdu Branch, which has a particular experience in shipping industry for ocean freight services.

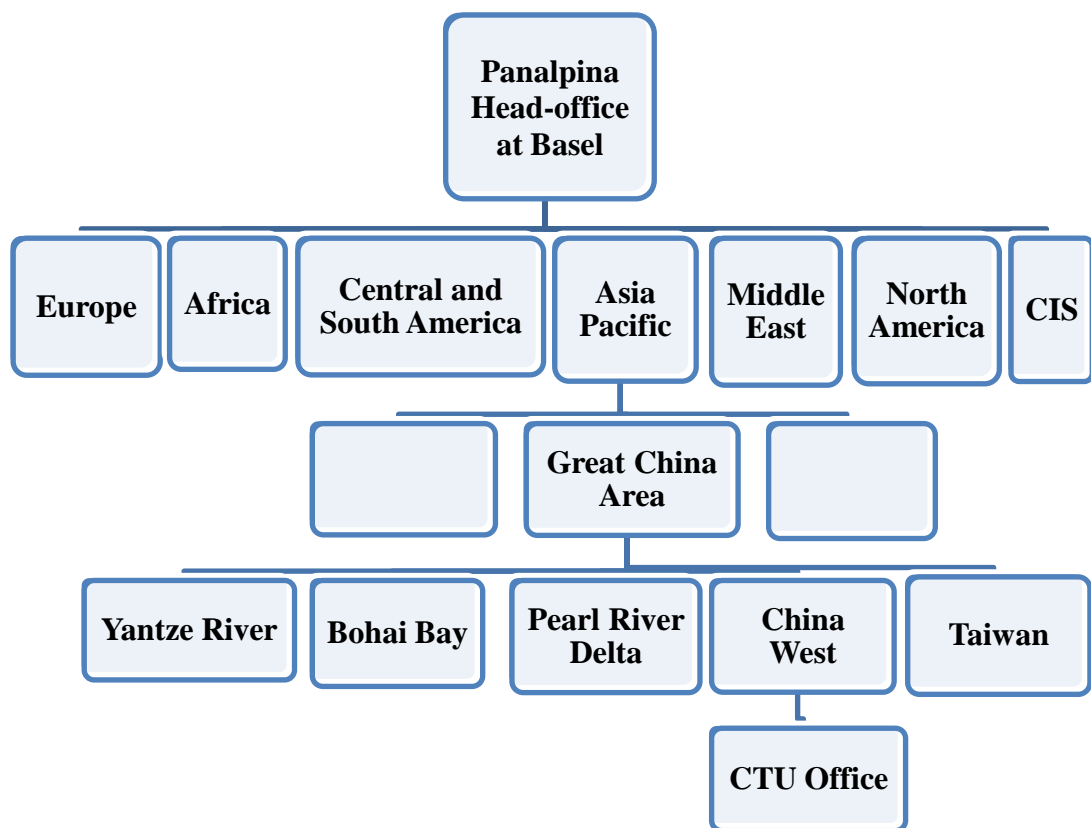


FIGURE 1. Relationship between PA head-office and PA CTU office

2. THEORETICAL BASIS

2.1. Order Process

2.1.1 Customer Order Cycle

According to Ballou (2004), order process in sale includes five steps: order preparation, order transmittal, order entry, order filling, and order status reporting. The time needed for each step depends on the type of order.

Order preparation:

Order preparation basically includes gathering products or service information and requesting to purchase. It may also involve choosing suppliers, communicating with sales persons, and filling order booking forms manually or electronically. The products or service information may contain quantity, volume, weight, delivery date, and delivery methods. Nowadays, this activity has benefited greatly from electronic technology, for example: bar code, EDI (Electronic Data Interchange) and RFID (Radio Frequency Identification).

Order Transmittal:

After preparing the order, order transmittal is the next activity of the order process. This step refers to transferring the prepared order to the place where the order can be handled. Traditionally, it is done by fax, mail or phone call but nowadays it is accomplished by the internet, EDI or even satellite communication. The modern technology has dramatically improved the degree of accuracy and reliability as well as decreased the cost and paper work.

Order Entry:

Order entry is represented by some checking tasks before actually filling an order.

These tasks include: (1) checking order accuracy, (2) checking requested goods' availability, (3) checking customer's credit status, and (4) billing. Order entry can be completed manually or fully automatically. This step can be said as benefiting the most from electronic technology in the whole order process due to the significantly reduced time.

Order Filling:

Order filling contains several physical activities: (1) acquiring products, (2) packaging, (3) scheduling delivery, and (4) preparing documentation. These activities may take place in parallel in order to reduce the processing time.

Order Status Reporting:

The last step of order processing is to report the order status, which includes two activities: tracing the order and contacting with the customer. This step does not affect the total time to process an order.

However, Grant et al. (2006) describe the length of customer order cycle as all the time from customer's order placement to the receipt of the product and even its placement into customer's inventory. A typical order cycle includes the following steps: (1) order preparation and transmittal, (2) order receipt and order entry, (3) order processing, (4) warehousing picking and packing, (5) order transportation, and (6) customer delivery and unloading. (Op. cit. p. 69.)

Comparing these two definitions of order cycle, it is easy to see that the inside meaning is almost same, but the last step is a little different. Ballou describes the last step as an "order status reporting" while Grant et al. describe it as an "order delivered to customer". From my point of view, Ballou considers it from the supplier's point of view while Grant et al. consider it from the customer's point of view. If the descriptions of last step from the two books are combined, the last step

can be described as customer placing the order into storage and supplier tracing and controlling it to provide better customer service.

2.1.2. Order Process System

There are a number of ways for customers to place an order. Historically, customers booked orders by hand and then sent, faxed, or mailed it to suppliers or a sales person. Nowadays, the orders are commonly booked through calling the suppliers' operations persons who are equipped with an internet network directly connected to their own data warehouse and order booking system. The advantage of this booking method is obvious: the suppliers' operations person can check the availability of the order products automatically and reduce the order preparation time. By using this method, the company is almost able to improve its customer service by reducing the order cycle time. (Grant et al. 2006, 72.)

In the modern world, electronic methods, such as electronic data interchange (EDI), are more and more commonly used by medium-sized and large-sized companies. By using this method, the company can minimize the order processing time, reduce inventory, increase customer service and improve order accuracy. On the other hand, the initial investment cost in the software and hardware of information system can be a large amount of money which troubles the manager.

Moreover, the basic function of the order processing system is to provide a communication network between customer and supplier. Another key function is to link the sales information to marketing forecast, to production planning and to logistics operations.

Generally, the manual methods are associated with a long waiting time and more communication errors while the electronic ways mean a more efficient and a more

accurate order process. According to Grant et al. (2006), the managers can evaluate the methods of order transmittal on the basis of speed, cost, consistency and accuracy. The following table shows the comparison of various order process systems.

TABLE 2. Characteristics of various order-processing systems (Grant et al. 2006, 73)

Level	Type of system	Speed	Cost to implement / maintain	Consistency	Accuracy
1	Manual	Slow	Low	Poor	Low
2	Phone in to customer service rep with a CRT	Intermediate	Intermediate	Good	Intermediate
3	Direct electronic linkage	Rapid	Investment high; operating cost low	Excellent	High

2.1.3. Factors Affecting the Order Process

Besides information systems, a number of other factors may affect order process, including processing priorities, order-filling accuracy and parallel or sequential processing. (Ballou 2005, 145-146.)

Some companies process customers' orders according to the receiving time while some others may prioritize their customers in order to satisfy the more profitable orders and customers. Although the first order processing method seems to be fair to all customers, it is not necessary to do it in that way considering the different customer service levels. (Op. cit. p. 145.)

The accuracy of order filling is another important factor. The fewer the errors occur, the more order processing time can be saved. The order accuracy can be a key and a focused indicator to assess and improve order processing performance.

In some cases, processing orders one by one or in parallel may greatly affect order processing efficiency, time, and customer service. The longest processing time may occur at the end of a process. So sometimes it is necessary to handle different orders or different steps of the processing order in parallel in order to compress order processing time.

2.2. Information Systems

According to Laudon and Laudon (2006), information system is defined as follows: “A set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making and control in an organization.”

To support decision making and control, an information system helps to analyze problems as well as simplify complex subjects and create new products. It may contain information about products, people, and internal and external issues around the organization. Input, processing and output in an information system are three activities which produce the information needed to help organization be in operation. (Op. cit. p. 14.)

Based on user groups, system requirements, different manager levels, functional areas and business processes, information systems can be divided into different types, for example: transaction-processing systems (TPS), management information systems (MIS), decision support (DSS) and executive support system (ESS). (Griffin

2008, 621-623.)

Among several benefits of using an information system, one is to improve the management process. With an information system, instantaneous information is accessible to the top managers. More importantly, it helps to identify bottlenecks and profitable actions.

2.2.1. Electronic Data Interchange (EDI)

Electronic data interchange transfers standard documents by computer-to-computer methods between organizations. It allows documents and information to be directly processed without a human at the receiving end. EDI also replaces some traditional ways of documents transmission, such as phone call, fax and mail. Currently, the documents transmitted by EDI include purchasing orders, invoices, status reports and some others. To make EDI function properly, two basic compatibilities are required. The first one is the same communication standards which refer to the same transmitted speed and equipment between users. Another one is the common message standard, which means the common format, codes, symbols and definition of words. (Grant et al. 2006, 75-76.)

Benefits of EDI

The most important benefit of EDI is that it increases the transmission speed and improves accuracy. In addition to speed and accuracy improvement, it reduces paperwork and human intervention while improving information availability. EDI is also a useful system to reduce costs related to the order process and inventory. Through the link with other systems, EDI is also helpful in improving department working efficiency and accuracy. (Laudon & Laudon 2006, 78.)

Potential problems of EDI

Though a company benefits much from EDI, there are still some potential problems of EDI. Since EDI uses a standard format, company may need to convert their own proprietary data format into an EDI standard format in order to send partners information. And then the company may also need to convert the received EDI information from partners into its own data format. Due to this point, EDI may increase the difficulty to acquire information. This system may need continuous improvement that may never come to an end. Besides, the setup cost, training time and cost, and maintenance may bring problems to consider.

2.2.2. Enterprise Resource Planning System (ERP)

Enterprise resource planning system is an operating system containing internal and external resources of an organization. As an integrated system, it supports planning core business actions such as finance, order management and purchasing in order to maximize profit with the optimized interconnected modules. With the guided usage of ERP, many organizations have changed the situation of their business operations. An ERP system helps to standard business practice with rules, integrate enterprise business process by focusing on the key business, and improve profitability, market and the speed of business response.

The initial ERP system is introduced as an expansion of MRP (Material Requirements Planning) and CIM (Computer Integrated Manufacturing) by the firm Gartner Group in 1990. Later, it was developed to cover a large whole of core business functions in an organization.

Benefits of ERP

As described by Gartner Group, company regards the benefits of ERP mainly in four areas: savings of IT cost, business process efficiency, process standardization and business innovation. Most companies focus on the first two areas. However, the

latter two have more significant affect on a company.

By integrating of different functions, ERP consolidates different departments and permits controlling of separated functions. More importantly, it reduces much manual work while increasing work efficiency and accuracy. Another benefit is the access to the real time information for the top managers which helps decision making. Moreover, it helps to shorten manufacturing and transportation time which partly improves customer service level.

Potential Problems of ERP

The potential problems of ERP are in the whole project process, including planning, preparation, and implementation. As a whole, the potential problems of ERP can be generalised as follows:

- ✧ Lack of planning or unreasonable planning
- ✧ Wrong choices of hardware or software
- ✧ Controlling is not strictly that the stage goal has not been reached
- ✧ The design process is lack of controlling
- ✧ Security problems due to poor design

2.3. Managing a Business Process Change

According to Griffin (2008), business process change, or reengineering is defined as “the radical redesign of all aspects of a business to achieve major gains in cost, service, or time.” Both external and internal forces deriving from organization environment and internal task may lead to business process change. Business process change is a complex phenomenon that needs logical and systematic management to succeed. To get to this point, the manager needs to have a better understanding in both approaches and resistances of business process change.

2.3.1. Resistances of a business process change

Uncertainty is perhaps the biggest reason for resistance when the employees face changes. They may think they are challenged and they may worry about their abilities to fulfil the job requirements. This worry is especially serious among employees who will retire soon or employees who have worked with the old process for a long time.

Many changes involve introduction of new technology or fresh concepts that need training for employees to accept and work with them. However, not everybody is willing to learn new things and the unfamiliarity at first may bring them many mistakes that make working not successfully and annoying.

A third reason that employee resist change may come from different opinions. Sometimes a manager makes a plan to change the existed process according to his or her own evaluation of current situation. However, others may resist this change due to the disagreement with the manager.

Many changes involve position and work altering that can disrupt social network. A manager may obtain more respect when he or she is in manager position, but lose it when becomes a low-level employee. Due to social network is very important, many people will resist changes if they may affect social network. (Griffin 2008, 349.)

2.3.2. Approaches of Business Process Change

According to Griffin (2008), the business process change which includes five steps is a redesign of some areas in an organization. The first step is to carry out the objectives and strategy. The top-level managers must know which new process are aimed and how will they achieve it. Next, top managers need to start and conduct

the changing process. Based on practice, a manager involved process change has a better chance to succeed. Besides, a sense of urgency needs to be created among the members involved. In addition, a new organization rather than the existing one should be the start to create new approaches. Finally, the process change requires both leadership and employee participation. In other words, a balance must be found to care the manager and employee involvement. (Op. cit. p. 355-356.) Figure 2 shows the approaches of business process change.

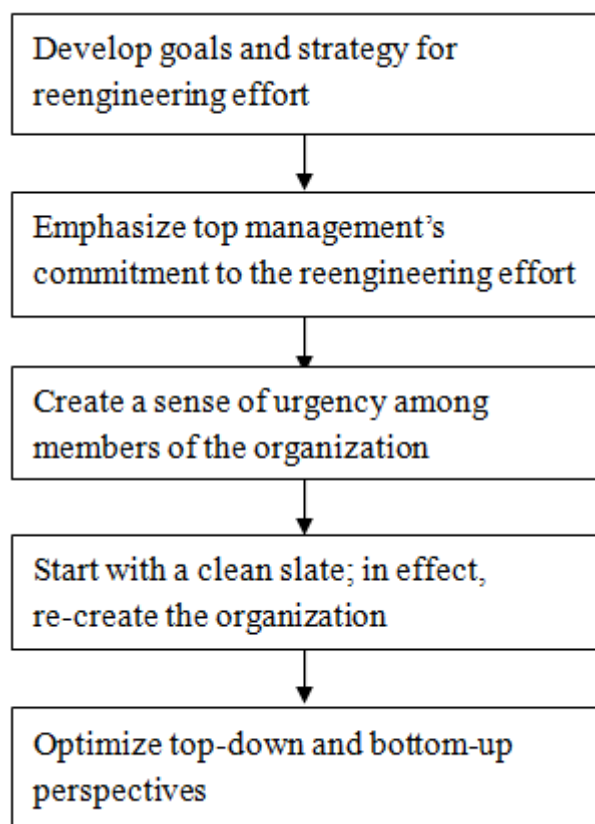


FIGURE 2. Approaches of business process change (Griffin 2008, 355)

3. CURRENT CUSTOMER ORDER CYCLE AT PA CTU

As a freight forwarder, PA CTU deals with lots of orders every month. A clear defined customer order cycle is necessary considering about operating business smoothly. In general, there are different steps of customer order cycle between

literature and practice but the main idea is the same. The following part describes details of the order process cycle at PA CTU step by step. Some problems are going to be pointed out after the description of each step.

3.1. Overall View

The overall order process can be divided into five parts, including the following steps: 1. reviewing and drafting quotations, 2. reviewing and receiving orders, 3. processing orders to third-party agents, 4. updating data, 5. sending status information. Compared with the customer order cycle described in theory bases, the first step can be said as “order preparation” and the second step belongs to “order transmittal” and “order entry”. The third and fourth steps represent “order filling” and the last step is “order status reporting”.

If it is a new customer, the whole order process begins from a new customer’s coming to the sales department. After several requests for quotation (RFQ) and discussions, the standard contracts will be drawn up as bases of the order processing. Then the sales person will transmit the order booking sheet to the order operator. Before accepting orders, a clearly defined verification procedure is needed to ensure every order fulfils requirements. An accurate and completed order will then be transmitted to PA CTU’s agents. The agents will be responsible to book an order from the air cargo companies or the ship companies and make customers clearance. After a successful order booking from air cargo companies or ship companies, the agent will fax PA CTU the master air waybill (MAWB) or the master sea waybill. According to the master waybill, the PA CTU operators will update the data in information system and make the house air waybill (HAWB) or the house sea waybill. The house air waybill or house sea waybill will be sent to the agents for customs clearance. The last step is sending pre-alert to Panalpina overseas offices which will be responsible for the rest of goods moving.

3.2. Reviewing and Drafting Quotations

Quotations are part of contractual relationship with the customer. Request for quotations (RFQ) are received in daily business in the case of standard contracts. In Panalpina, RFQ is required to be answered in one working day. If it cannot be answered within one working day, an exact date of final quotation should be given. In general, three departments are responsible for submitting quotations. Traffic department is responsible for existing customers while sales department is for new customers and large-scale business. Executive managers are for special contracts. (Fluri 2001, 61.) As for PA CTU, RFQ is submitted by the sales department for existing and new customers while the manager is in charge of special contracts. To minimize the likelihood of claims or complaints, initial preventive measures should be in the first drawn quotation. In Panalpina, these are done through two aspects: initial checking of quotation and verification of price calculation and availability of services.

Initial checking of quotation is a two-part process, including internal review and external review. With an emphasis on quality, the internal review is to make sure those in-house operations and agents fully operate according to the contract. External review is used to ensure the customer requirements are correctly understood and fully recorded. The terminology used should be carefully verified according to the reference. In general, quotations must include clear description to the follows:

- ✧ Forwarder's liability disclaimers
- ✧ Terms of payment
- ✧ Date of quotation's expiry
- ✧ The applicable trading conditions

(op. cit. p. 61-62.)

Problems in this step

New customer is always firstly contacted by sales department which is also responsible to reply customer's RFQ. Basically this step is done well by PA CTU's sales department.

3.3. Reviewing and Receiving Orders

To accept an order, a clear defined check procedure will be carried out to review the order details. Reviewing orders helps to eliminate misunderstanding before order transaction. Though customer has to be aware of quality standards of orders, it is Panalpina's responsibility to draw customer's attention on quality standards.

Inside Panalpina, the basic idea of reviewing order is to ensure order details are in accordance with quotation and person-to-person discussions. Payment terms and credit limit are very important factors to check in orders. Others such as quality requirements, transportation methods and insurance also need to be checked with. In addition, an effective cooperation and communication with PA CTU's agents should be ensured.

If an order passes these checking points, it will basically be accepted. According to the Panalpina rules, an order confirmation should be written as an evidence of order acceptance. This order confirmation is important in case of doubt and claim. On the other hand, if an order is rejected due to unrealistic specification, the customer is advised to modify the order according to the criteria and reality.

Problems in this step

Though there are clear instructions about checking orders at Panalpina, the PA CTU operators do not review orders so strictly. On one hand, most orders are nomination orders which come from routing customers. On the other hand, there are not enough

employees and time to check every order so carefully. The main idea of checking order is to ensure it matches quotation. The quotation is made between customer and sales department while reviewing order is done by operations department. These two departments nearly do not communicate so much on reviewing orders even though they are supposed to communicate more often. Lack of communication between these two departments may lead to inaccurate and incomplete orders.

3.4. Processing Orders to third – party Agents

Most orders delivered by PA CTU are nomination order which means PA CTU is assigned as the forwarder by the overseas consignee. Usually, the customer will email invoice, packing list and manifest together with the booking order to PA CTU for customs clearance. According to the internal material of Panalpina, the following customer information is required for order processing:

- ✧ Description of the goods and packing list
- ✧ Shipper and consignee address, fax and telephone number
- ✧ Shipping Instructions
- ✧ Value of insurance
- ✧ Origin of goods
- ✧ Customs clearance instructions
- ✧ Payment terms (Incoterms)
- ✧ Place of delivery

After checking and receiving an booking order from a routing customer, an employee from operations department will forwarder it to its agent firstly. Then he or she will type it out and choose one folder to hold it. On the cover of the folder, the following information will be written down: amount, weight, volume, shipper, consignee, and order booking date. After this, a period of time will be waited till the

agent faxes the MAWB. Based on the information given by MAWB, the same information will be inputted into PA's information system to make HAWB. After step, HAWB will be typed out together with MAWB, invoice, packing list and manifest and then be scanned to the email box and be emailed these documents to the agent.

Problems in this step:

The main problem of order booking between customer and the PA CTU is the order booking method. Since most orders are nomination orders, PA CTU uses the traditional methods such as email, fax or phone call rather than internet-based booking system. However, because no standard format of booking order, different customers send different formats of booking order which may be lack of needed information or inaccurate. There are also no clear rules that customers need to follow. No standard format and no rules have caused potential possibility of some order booking problems.

Another problem is about the unbalanced morning and afternoon work. In usual, the morning work is relatively relaxed while the afternoon work is intensive. The orders always come in morning time so the operator only needs to pass them to the agents. However, when the MAWB comes in afternoon, the operator needs to make out the HAWB intensively and contacts the agent as well as the customer.

The third problem comes from no priority of booking orders. The operator always deals with the orders according to the coming time. So the early orders are always processed earliest while the latter ones are waiting. Compared to the long waiting days of sea freights before setting out, air freights always leave in the order booking day or one to two days after. However, the more profitable customer such as Molex CTU should not be treated the same as other less profitable customers without any order priority.

3.5. Updating data

Data entry is a key step to ensure trouble-free movement of an order by accurate and complete data. After receiving an order, the usual procedure is to register it into information systems by opening a new job file. But the PA CTU operators prefer to update data after transmitting it to the third-party agents in order to save the order process time. At this stage, a six-digit serial number comes in to use after opening a new job file. The information of an order transmits through Pancom (Panalpina Communication) which is company's own communication system. By using Pancom, Panalpina can increase availability of data thus in turn ensure greater transparency of order processing cycle. The use of Pancom is not limited to in-house operations but can also be accessed by customers, agents and carriers.

Problems in this step

As a world freight forwarder, Panalpina owns several tailor-made information systems, such as COMPASS, PanTrace and Seawarder. However, based on the response of PA CTU's employees, too many information systems have complicated their work rather than lighten them. Actually the main reason of this feeling comes from being lack of training. Usually the training of Panalpina internal information system for a fresh employee is done through internet or phone call. But it is always difficult to find someone to ask questions about information system when PA CTU's employees meet problems. Because PA China's professional IT employees are all in Shanghai which is far away from Chengdu. Feeling of burden and lack of training on information systems have hindered the efficiency of order processing.

3.6. Sending Status Information

At Panalpina, status information is usually transmitted by PanTrace System and pre-alert. PanTrace is an internal tracing system which is available for customer to

trace order. A customer can input the reference number to trace and track an order at Panalpina's official website. At PA CTU, pre-alert is always sent from itself to Panalpina's overseas offices by email. In general, a pre-alert of air freight is sent one or two days earlier before the estimated arriving day to destination countries while it is about one week earlier for sea freight. Pre-alert contains basic information of an order, such as quantity, weight, volume, departure time, estimated arriving time, carrier and flight number, shipper and consignee.

Problems in this step

The most serious problem of this step comes from the format of pre-alert. Since pre-alert is sent through email, there is no standard format and system to control it. There are more possibilities to miss some details without standard format. In addition, the receiver may misunderstand the sender's self designed writing method and format.

Another problem is no communication with the receiving office after sending pre-alert. By doing in this way, PA CTU cannot know whether pre-alert is received or understood by the receiving office. It seems the order is out of control by PA CTU after sending pre-alert. Though PA CTU and PA overseas companies belong to the same Panalpina group, lack of person-to-person communication between each other always exists in this step.

4. ANALYZING AND IMPLEMENTATION TOOLS

By using some analysing tools, such as the Ishikawa cause-and-effect diagram, the flow diagram and the SWOT-analysis, it is easier to study the current information flow in PA CTU and point out the causes that lead to delivery problems. Together with a survey, the analysis was accomplished.

4.1. The Ishikawa cause-and-effect (fish-bone) diagram

The Ishikawa cause –and-effect diagram also named as fish-bone diagram was carried out by Dr. Kaoru Ishikawa, a world-renowned quality management guru. As described by Dr. Ishikawa, it illustrates the relationship between the results and causes of a process. It is useful in promoting process improvement concerning the aspects of human relations, including manpower, materials, machines, methods and measurements. Since this tool is easily understood by everyone, it is quite important in implementing quality control and improvement. (Ishikawa 1993, 229-230.)

Figure 3 represents the causes and effects analysis of order booking problems in Panalpina CTU from the operators’ points of view. The word at the right-hand end of the arrow means the characteristic and the words at the end of sub-branches and sub-sub-branches represent the causes and sub-causes. Basically, the causes listed in the upper half of the main arrow are from human beings, such as internal staff, customers and third-party agents while those in the lower part are non-human factors, such as methods, systems and measurements.

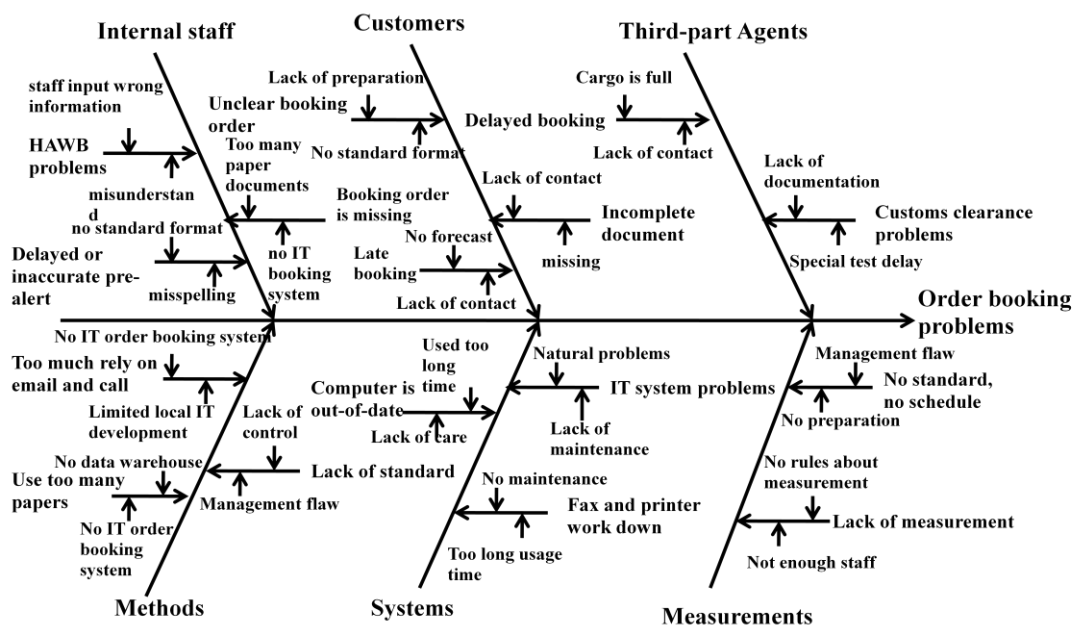


FIGURE 3. The cause-and-effect diagram of order booking problems at PA CTU

4.2. SWOT-analysis

SWOT-analysis is a strategic planning tool to audit an organization and its environment. SWOT is short for strength, weakness, opportunity and threat. Strength and weakness are internal factors while opportunity and threat are external factors. By using this tool, organization can specify its business objectives and internal and external factors that affect the objectives no matter whether the factors are positive or negative.

The following figure is the SWOT-analysis of current order process in PA CTU

	Positive	Negative
Internal factors	<p>Strength</p> <ul style="list-style-type: none"> >Low personal cost >Easy to handle >Good working atmosphere >Relatively less training needed 	<p>Weakness</p> <ul style="list-style-type: none"> >Relatively low accuracy >Unbalanced morning and afternoon work >No standard booking format >Lack of communication with air cargo companies >No forecast >Too much paper used
External factors	<p>Opportunity</p> <ul style="list-style-type: none"> >More opening Chinese market >Increased international flights from Chengdu >Expanded Chinese market 	<p>Threat</p> <ul style="list-style-type: none"> >Changes in local law and regulations >change customer booking methods >Information system security

FIGURE 4. SWOT-analysis of current order process in PA CTU

4.3. A Fresh Deming Cycle

As a famous quality management tool, “Deming Cycle” which refers to “plan-do-check-act (PDCA)” is often mentioned and used in quality improvement. However, according to Dr. Kaoru Ishikawa, the four-step Deming cycle was insufficient. Thus Dr. Ishikawa (1993) expanded the cycle into six steps as follows:

- | | | |
|--|---|-------|
| 1) Decide on an objective | } | Plan |
| 2) Decide on the methods to be used
for achieving the objective | | |
| 3) Carry out training and education | } | Do |
| 4) Do the work | | |
| 5) Check the results | } | Check |
| 6) Take corrective action | } | Act |

(Op. cit. p. 38)

As described by Dr. Ishikawa (1993), the major work of the first step is to carry out the objective and targets as a result of policy by various means such as survey, market research or internal data. The second step includes setting the standardization of technology and administrative techniques to achieve objectives. To make this approach more concrete, Dr. Ishikawa proposed the cause-and-effect diagram. The third step is to train the subordinates in order to make sure the standards are understood. After this, the next step is to implement the plan followed by checking the results. (Ishikawa 1993, 38-42.)

5. INFORMATION FLOW OF THE CUSTOMER ORDER CYCLE AT PA CTU

As described by Grant, et al. (2006), the customer order cycle is “at the heart of information systems”. At the same time, the information flow is a key element during the whole customer order cycle. Due to the importance of information flow, it is necessary to have a clear inside look at it. Both information flows through information systems and outside information systems when process an order at PA CTU will be described and analyzed in this chapter. A further modified information flow will be proposed to make customer order cycle more efficient in chapter 8. Since most orders got by PA CTU are nomination orders which are assigned by Panalpina overseas offices, the following analysis of information flow is based on this kind of orders.

Flow diagram is used to trace the flow of information, customer or material within a process. It has no precise format and can be drawn with boxes, arrows and lines. (Krajewski & Ritzman 2002, 119) Three flow diagrams are used to analyze current information flow inside and outside of the information systems as well as optimize the information flow.

5.1. Information flow through Information Systems

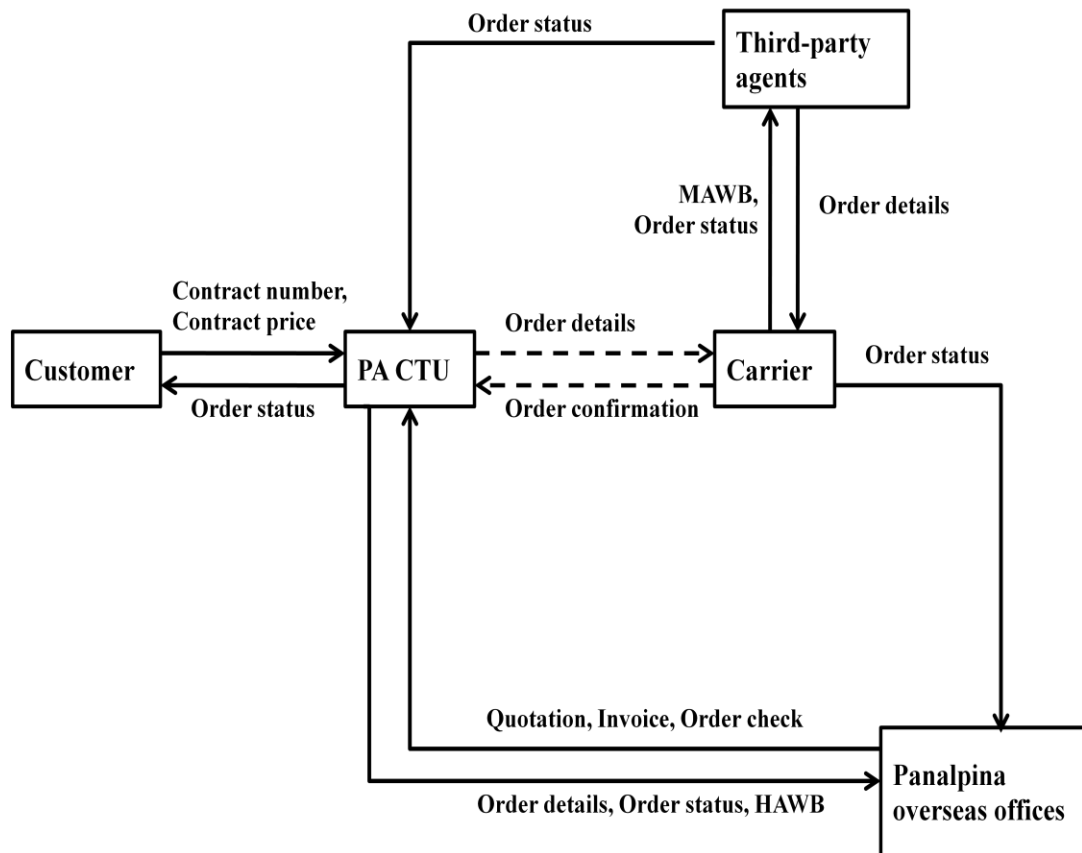


FIGURE 5. Information flow of customer order cycle through information systems at PA CTU

Figure 5 shows the information flow of customer order cycle through the information systems. Generally if there are contract number and price between Panalpina and its customer, the operator needs to check it firstly when an order comes. As shown by this figure, after passing orders to third-party agents, the agents will book order from carrier through the information systems. If the order is booked successfully, the carrier will give the agent MAWB and the agent will go on passing it to PA CTU. According to the MAWB, PA CTU operator will update the data by the internal information systems to make HAWB. The most commonly shared information by information systems is the order status. Not only the customer, but also the third-party agent and PA CTU can easily access carrier or PA's website to trace order status. Usually, the invoice and quotation are sent through the internal information system to PA CTU from overseas companies. The dashed line showed in

this figure means PA CTU may book order through the shared information system between itself and carrier if they have it, for example Seawarder is used between Panalpina and China Shipping as an order booking system.

5.2. Information Flow by Other Ways

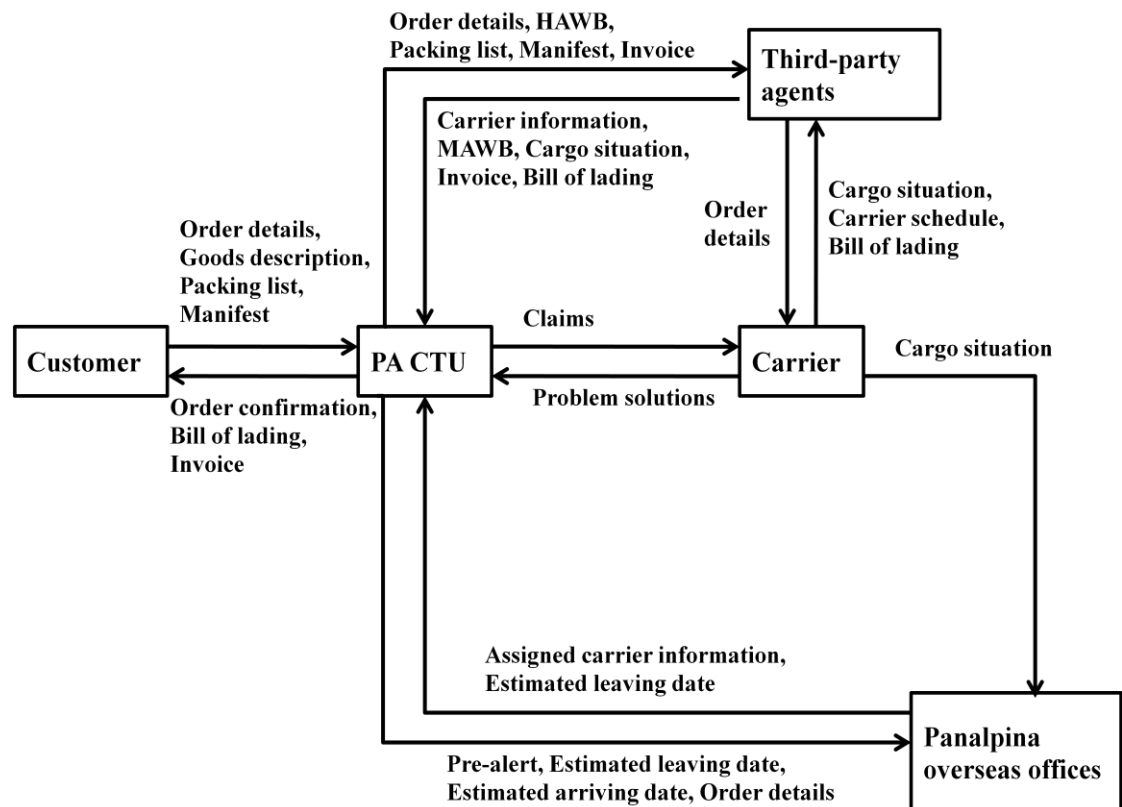


FIGURE 6. Information flow of customer order cycle by other ways at PA CTU

Figure 6 clearly shows information flow by other ways rather than the information systems. Compared with information transmitted by the information systems, a large amount of information is shared by other traditional means, such as fax, call and email. As a world leading freight forwarder, Panalpina owns a well integrated information system. However, due to limited development of information systems by other parties in Chengdu area, PA CTU still uses several old-fashioned information transmission methods. With rapid development of market and integration of different parties, it is sure that more information will flow through the

information systems in future.

In the whole customer order process, order details, including goods description, quantity, weight, volume, shipper, and consignee, are mostly transmitted by email or fax. Since original booking order is the origins of information flow, it is necessary to ensure the quality of information entry. Insufficient use of information system may lead to the loss of booking orders.

Another insufficient use of information system can be seen from the information flow of cargo situation. In general, cargo situation is told by phone call from carrier and third-party agents rather than through internet. If there is enough cargo space, whether told by phone or by internet does not matter. But if there is not enough cargo space, delayed phone call may disturb progress of order process.

Moreover, the pre-alert which includes estimated leaving dates and estimated arriving dates of cargo is transmitted also by emails between PA CTU and PA overseas companies. Though live email can be checked immediately, the information system can record every pre-alert systematically.

6. SURVEY OF THE ORDER PROCESS

This chapter is about a survey conducted by a questionnaire. The main idea of this survey is to find out the opinions of internal employees and customers who involve in the order process. Results analyses are shown clearly by bar charts and pie charts.

6.1. General Description of the Survey

In order to get opinions about ordering process from PA CTU's internal employees, its customers and its third-party agents, a questionnaire was designed to make a

research. Since the three groups of people listed above have the tightest relationship with the order process, it is reasonable and necessary to know their thoughts before proposing development suggestions.

This questionnaire was handed out to 30 persons, including 7 internal employees, 3 employees of agents, and 20 customers. Most customers chosen to do this survey were the frequent customers who booked most of the orders in PA CTU. 21 copies of questionnaires were returned back from all researched internal employees, 3 employees of agents and 11 customers. All the questionnaires returned were filled in a proper way which was clear and understandable. So no returned questionnaire was rejected to analyze the results. In general, this survey was distributed and got back by email and fax. The whole questionnaire consists eight multiple choices and one open questions. The aim of multiple choices was to find overall opinions from the researched persons while the open questions were used to get development suggestions from them. This questionnaire is made into two languages, Chinese and English. The Chinese one is made for most customers while the English one is used by the respondents who know English.

6.2. Results of the Survey

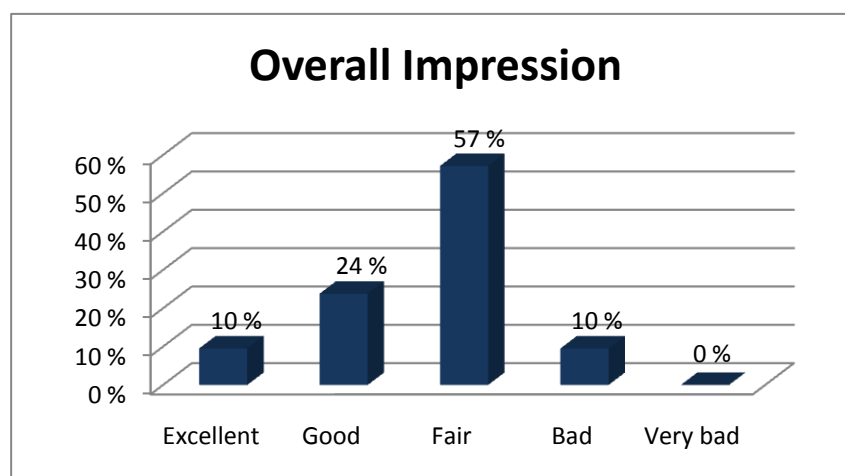


FIGURE 7. Overall impression of PA CTU's order booking process

Figure 7 was the result of the overall impression of PA CTU's order process generated by the third question of the questionnaire. According to the returned questionnaires, more than half of the respondents' overall impression of PA CTU's order process was fair while one third think it was excellent or good. Only 10% thought it was bad and nobody chose "very bad". It can be pleased to say that the overall impression was better than imagined. However, the relatively fair impression is a sign to remind us that something need to be done to improve the efficiency of order process.

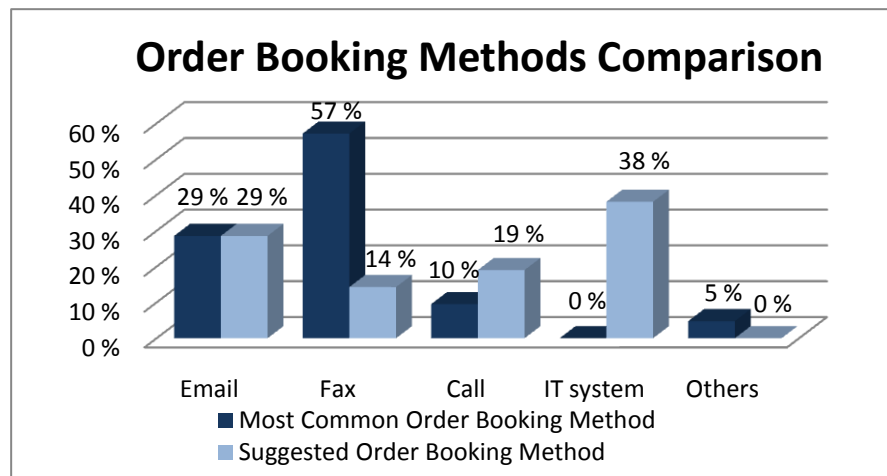


FIGURE 8. Order booking methods comparison

Figure 8, which is based on question four and question five of the questionnaire, compares the order booking methods used now and the expected methods from the respondents. Generally, most orders are booked through fax and email while a limited number of orders are booked by call. During the survey time, some respondents mentioned that they always book orders by fax and then call the operator to check if the fax was received. It is interesting to find out that Molex, which is the most profitable customer of PA CTU, always book orders through PA CTU's in-house operator who is assigned by PA CTU to work at Molex factory and to deal with Molex's freight forwarding. It is disappointed to figure out that most orders are booked manually through traditional order-processing systems and nearly

no orders were booked through information system except orders to cargo carrier China Shipping.

On the other hand, the expected order booking methods are totally different from the methods used now. Compared with other methods, information system has been chosen as the most expected order booking way by respondents. Followed by IT system, email is preferred by less than one third of respondents. Only several respondents chose fax and phone call as the expected method. By comparing the existing methods and expected methods, it is found out that most respondents hold the mind to change current order booking methods into more convenient and more efficient ones.

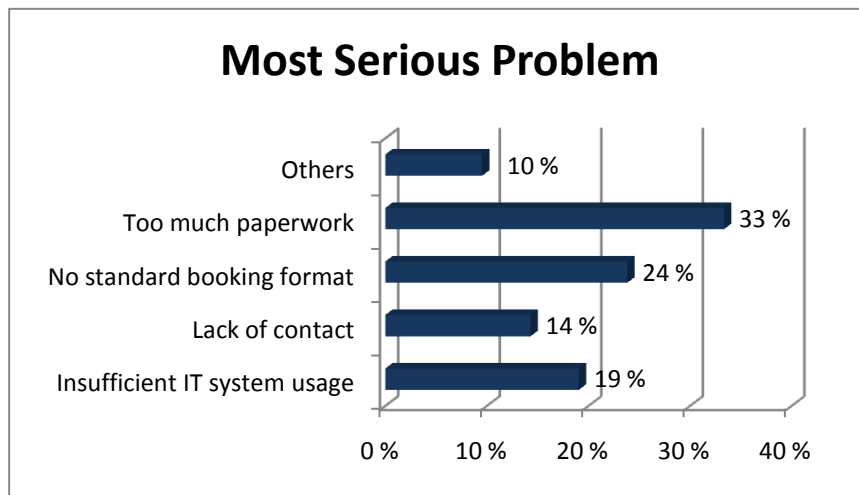


FIGURE 9. Most serious problems in order booking process

The above figure 9 shows the problem considered to be the most serious by respondents. Around one third of respondents chose too much paperwork as the most serious problem while only about 10% thought different parties are lack of contact. In total, nearly less than half of respondents thought no standard order booking format and insufficient use of IT system have caused problems. It is interesting to see that two respondents chose others problems such as too expensive and unbalanced work as the most serious problem. During the survey time, some

respondents also mentioned that they think several problems are serious enough and it is hard to figure out which one is the most serious.

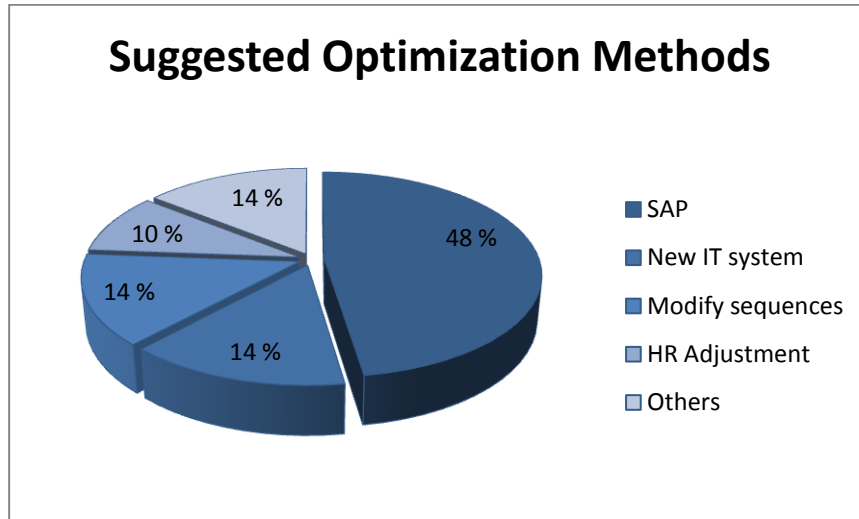


FIGURE 10. Suggested best optimization method

Based on the survey, most respondents suggested using existing SAP system to optimize current order process. Around the same percentage of respondents chose introducing new IT systems or modify current sequences in order process. Three respondents, mainly PA CTU's internal employees, suggested that PA CTU should build up more direct contact with the freight carriers, such as Air China and KLM, so PA CTU can book order directly from freight carrier. This is a very useful suggestion considering Chinese regulation about freight forwarder is opener and opener.

Additional information for process optimization

In the last question, the respondents were asked if they have any additional suggestion or opinion for optimizing order booking process. The additional ideas were listed as follows:

- ✧ More employee orientation, especially for new employees.
- ✧ Change the old-fashioned computer to newly updated ones.
- ✧ Hire one or two more operators considering PA CTU's business is expanding.

- ✧ Re-construct the documents area, since there is not enough space to hold all the paper documents.

6.3. Conclusion of the Survey

In general, the result of survey is better than imagined and it brought new ideas on process optimization. The overall opinion of PA CTU's ordering process is relatively fair and most respondents found out weak points in this process. The problems chosen by the respondents were not so much different from the expected answers. It is important to have each respondent's support in optimizing the whole order process, since negative attitudes against process change should be considered before the implementation. Most booking methods used now are traditional ones while some information system based ones are expected. Using existing SAP system has been chosen as the best method for process optimization. It can be said that the general optimization direction has been found. In addition, it can be seen that the information systems not only improve process efficiency, but also reduce paperwork which was thought to be the most serious one now.

7. SUMMARY OF MAIN PROBLEMS

According to the analysis of current order process by Ishikawa cause-and-effect diagram and SWOT analysis in Chapter 4, the analysis of information flow by flow diagrams in Chapter 5, and the results of survey in Chapter 6, the main problems of current order process can be clearly summarised as follows:

- ✧ Insufficient use of information existing information systems
- ✧ No standard order booking format
- ✧ Lack of contact between different parties involved in order process

- ✧ Lack of forecast and summary
- ✧ Unbalanced morning and afternoon work
- ✧ Too much rely on traditional communication approaches
- ✧ Insufficient orientation, especially for new employees
- ✧ Not enough numbers of operator to handle order bookings

8. DEVELOPMENT SUGGESTIONS

8.1. Proposed Future Information Flow

As a key element in order process, information flow is the base and the resource of each step. It is extremely necessary to reduce channels of information flow that add no value to the final service as well as build up new channels that add value. Figure 7 is a developed information flow for future. It is suggested that more information to flow through the information systems, such as ERP and EDI.

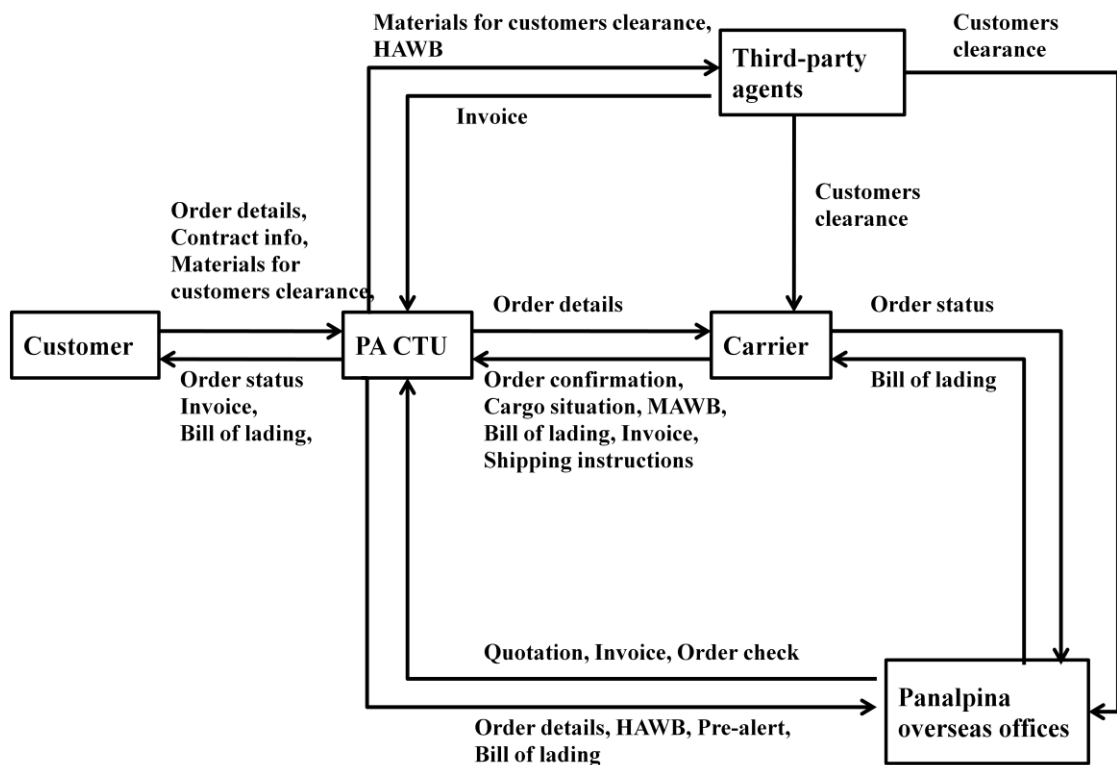


FIGURE 11. Proposed information flow of customer order cycle at PA CTU for

future

Rather than receive customer's booking order by fax and call, the operator can receive the order details by an electronic form. A standard booking format could be used. By using standard format, the operator saves time on trying to understand unclear information as well as time on inputting information again by hand.

Before, the order is passed to third-party agents before it gets to the carrier. In the new information flow, the order is sent to the carrier directly from PA CTU without involving the third-party agents. It is suggested to build up more integrated information systems between PA CTU and the most commonly used carriers, such as Air China, KLM and China Shipping. Rather than dash arrows, real arrows are used to show this kind of information systems between PA CTU and carrier in Figure 7. If there is well-built information systems and contracts between PA CTU and its carriers, PA CTU can avoid using third-party agents to book orders from carriers. By using a shared information system, the operator can check the flight schedule and flight situation before transmit booking order to carrier directly. In the new information flow, PA CTU processes only information and materials needed for customs clearance to its third-party agents. In other words, the third-party agents are responsible only for customs clearance rather than order booking.

One new path of information flow is added here between PA CTU's third-party agents and PA overseas offices. It is suggested that the agents transmit information about customs clearance directly to PA overseas offices through shared information system. By doing in this way, PA CTU's operator saves time and attention on taking care about customs clearance issues.

Another important change in new information flow is about the way to send pre-alert. Rather than send pre-alert by email, it is better to send order situation

automatically by the information system. After filling estimated arriving date and receiver's email address, the operator can press "send" button to send pre-alert.

Though most information is advised to transmit through information system, the bill of lading is still needed to be posted. Due to official regulations in forwarder business, the bill of lading is very important with a fresh stamp rather than an electronic form without it.

The expected outcome of changes on information flow is mainly in two aspects. The first aspect is to reduce parties involved in sharing the business cake which refers to the money got from customer. The development of direct information systems between PA CU and carrier without involvement of third-party agents is to achieve this goal. Another aspect is to increase transparency of information shared between different parties by circling the information flow cycle. The added channel of information flow between the third-party agents and Panalpina overseas offices is a reflection of this goal.

8.2. Proposed Standard Order Booking Sheet

To regularize order information from a customer, a standard order booking sheet is proposed to be used in every order booking. Appendix 3 shows the new order booking sheet in detail. This new booking sheet is designed based on MAWB from carriers. This sheet is recommended to put into Panalpina's website. Customers can fill it online and submit to PA CTU directly. If the customer prefers to use manual way, he or she can print it out, fill it by hand and fax to PA CTU. By using the standard order booking sheet, several problems can be solved.

8.3. Integrate Different Information Systems by SAP System

SAP is one of world leading software providers which helps service company run better business. SAP defines its software as comprised ERP system and related applications. After carrying a series of assessment, Panalpina has introduced SAP solutions into its business in 2007 considering multiple benefits of SAP. As a standardised industry solution, SAP's Transport Management System (TMS) has been used in freight forwarding in Panalpina. Besides transportation management, other business functions actually do not benefit so much from SAP system. At the same time, several existing information systems, such as COMBASS, Pantrace and Pancom are still in use.

Rather than existed SAP system, employees' work in PA CTU rely more on existed internal information systems. "The majority of our own customers and partners are already on SAP", said by Monika Ribar, the CEO of Panalpina. However, this is not true for PA CTU. On the contrary, only the major customers of PA CTU are on SAP.

As said by Günter Denk, head of IT in Panalpina, "It (SAP's TMS solution) can be integrated as a standard feature in other SAP modules – such as Customer Relationship Management (CRM) – and has a whole range of upgrade options." Based on the complex usage of different IT systems and the idea of Günter Denk, it is strongly recommended to integrate current information systems by SAP system.

There are several benefits of integration by SAP. At first, since Panalpina has owned existing SAP system, so it does not cost so much to integrate other systems than set up a new system. Secondly, Panalpina has already achieved benefits by using SAP's TMS, so it is reasonable to continue this trend. Thirdly, by integrating order booking system with SAP, the major customers can book an order through its SAP which can standardize business process and communication. Another benefit is as what Günter

Denk said “What’s more, once the development stage is complete, the system can be implemented very quickly. It supports the ongoing standardization of internal processes and will provide a stable, technical environment for at least the next 5-10 years”.

8.4. Suggested Developments in Operations

Based on the analysis of existing order process, results of the survey, and internship experience at PA CTU, some suggestions from the operational point of view are listed in this part. The main idea of the operational suggestions is to change the working behaviors of the employees and strengthen their working abilities. These suggestions are listed point by point with clarification as follows:

- 1) Arrange more detailed orientation for new employees, especially about the usage of IT system

An orientation provides new employees with a quick access to company’s business process, culture, and operations. Though Panalpina China arranges orientations for the new employees every year, many new employees have sent feedback saying it does not help so much, especially the part of IT system usage. Since Panalpina China’s offices are located in different cities, many new employees got orientation through a conference call which is less impressive compared to a face-to-face meeting. It will be better if Panalpina China let each new employee join face-to-face orientation in Shanghai every year. If Panalpina China thinks it is a waste of money in sending every new employee to Panalpina Shanghai office for orientation, it can assign one or two managers to every local office every year to give orientation to new employees.

- 2) Communicate more and enhance the relationship between different departments

Compared to other offices with dozens of employees, PA CTU’s office holds only

seven employees, the local manager included. It is even more important to build up a tight relationship between different employees in this compact working environment. The sales department and operations department are two departments which contact customers directly. It is quite necessary for the employees from these departments to share more ideas and information of the customer. On one hand, communicating helps sales department find more potential customers. On the other hand, it also helps the operations department process orders more smoothly. To improve the employees' relationship, it is suggested to arrange some get-togethers during lunch time and even during holidays.

3) Reassign operators' work to avoid work unbalance

Since PA CTU's orders are not so many as those in other Panalpina offices, both export orders by air and by sea are processed by the same operator while another operator handles import orders. As a benchmark, export orders by air, export orders by sea, import orders by air, and import orders by sea are handled by different operators. Though PA CTU does not need to copy Panalpina Shanghai's model completely, it can modify the operators' work partly. It is suggested that PA CTU should hire one more operator to deal with only export orders by sea while one of the existing operators handles export orders by air, and another existing operator who is the manager of the operations department handles the import orders. Since PA CTU has more export orders than import orders, the manager of operations department also needs to control and check the work of other operators besides her own work.

4) Do not type out booking sheets and related documents if they are sent by email

Besides fax, email is the most popular method to book an order by customers. If the booking sheets and documents for customs clearance are sent through email, the operators are recommended not to print them out since they can continue processing

the attached documents in an email to third-party agents and PA overseas offices. If it is possible, PA CTU can also encourage customers to book orders through email rather than fax by providing discounts to orders through email. By doing in this way, PA CTU can largely reduce its paperwork and save documents storing space.

- 5) Use the information system to search for an existing order rather than search paper-based documents

The operator may have a new question if they are asked not to print out the documents by email. How would they find an existing document if they need to review it? Usually if an operator wants to find an existed order, he or she always searches for the paper documents. Sometimes it is a waste of time and hard to find out one order. So now it is recommended to search the existing orders by inputting document series number into the information system.

8.5. Suggested Developments in Technology

As already known, Panalpina owns an integrated information system, but PA CTU does not use the information system efficiently due to the limitation of local business. Compared to changes in operations, developments in technology are needed much more since it can bring not only operations but also customer service to a higher level. Several suggestions of technological developments are listed in the following part with description.

- 1) Install a live messenger that employees can easily communicate not only with customers but also with agents.

Compared with other local Chinese forwarder, Panalpina does not use a live messenger, such as MSN and SKYPE, to contact agents and carrier. However, live

messenger has been a popular way in business communication in China. If Panalpina refuses to adapt to the local business behaviour, it will lose some approaches to do business. For an international company, sometimes it is necessary to adjust its business method to the local ones. The aim of this suggestion is to optimize communication methods.

- 2) Integrate several information systems into one system in order to lighten operator's work

Panalpina is proud of owning several information systems, even though they are separated. For an operator, facing several separated information systems really adds difficulties to daily work. In PA CTU, COMPASS, PANTRANCE, and FOS system are used for making HAWB, tracing order status, and making invoice, respectively. It will be better if these information systems can be integrated as one system. The goal of this recommendation is to simplify the operators' work as well as improve the efficiency in using the IT system.

- 3) Build up more order booking systems with commonly used carriers

As a special case, Panalpina owns the information system, Seawarder, which is used only to book orders between Panalpina and sea freight carrier China Shipping. If Panalpina could build up more similar systems as Seawarder with other commonly used carrier, such as Air China and Royal Dutch Airline, Panalpina could greatly improve the efficiency of the order booking process as well as bring its customer service to a higher level. Before implementing this suggestion, Panalpina needs to have a careful and detailed planning, since there exist potential risks. Only with the long-term and commonly used carrier should Panalpina build up order booking systems. The objective of this proposal is to reduce the usage of agents in order to reduce the order processing time.

4) Build up EDI platform between PA CTU and Molex

Molex, an US interconnector manufacturer, is the most profitable customer PA CTU owns. Around half of the orders processed by PA CTU come from Molex. As an international company, Molex itself also has the ability and enough funds to build up EDI platform. Panalpina has already had EDI platform, though PA CTU does not use it. By using the EDI platform, Molex may process large amounts of order bookings to PA CTU more quickly and more easily. Considering the set-up cost, it is suggested that the EDI platform is only shared between Panalpina and the most profitable customer. But along with the increase in the market share of PA CTU, EDI may be used with more and more customers. The aim of this suggestion is also to reduce the use of agents and take better care of the most profitable customers.

9. RESEARCH RESULTS

In general, the research results are from three aspects: process mapping, problem shooting and problems optimization. Clear steps of order booking process in Panalpina Chengdu branch were listed with detailed description which can be said as process mapping. By using Ishikawa cause-and-effect analysis and SWOT analysis, the problems existing in order booking process were critically pointed out. Through researching the opinions of order booking process among internal employees, agents, and customers by questionnaire, the former problem analysis was supported and new ideas were provided. This aspect is the so called problems shooting. The last research result was the approaches to optimize current order booking process. Basically, a fresh information flow was proposed to improve efficiency of order process and communication methods. Another improvement is a newly designed order booking sheet (Appendix 3) which is used to solve problems caused by lacking of standard format. The third suggestion, which is the most important, is to

integrate different information systems by SAP solutions. Besides these three main improvements, several other development considering both operations and technology were described.

10. CONCLUSION

As an international freight forwarder, Panalpina owns an integrated information system. However, not every branch company is sufficiently using these information systems. The limited development of information systems in local business is one of the basic reasons for insufficient use. This situation has provided potential possibilities to improve it, especially by integrating existing information systems and changing information flow.

It is necessary to map and understand existing order process before change it. Ishikawa cause-and-effect diagram and SWOT analysis can be used to determine the root causes in current order process. To model a renewed order process, the information flow in current order process must be analysed. Self-designed flow chart is a clear and easily understandable tool to map information flow. In addition, some survey and interview can also be used to understand current situation.

Integrating information systems should be carried out as a project considering the cost and impact on business. Future study on integrating information systems by ERP could be continued in a master's thesis. The integration of information systems must be performance driven as well as stakeholder based.

Most of the development suggestions are in connection with human beings since business change is all about people. The internal questionnaire was used to get the

opinions of people involved in the order process. The aim of proposing operational developments is to motivate employees and make their work easier and more efficient.

Most of the development suggestions in this thesis have not been implemented during the time of making this thesis. But the research results may improve PA CTU's attention on order process and provide background information when carry out some developments. With the changes of business environment, some other development ideas may be more suitable in future. It is very important to know that business change is a journey rather than a destination.

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APPENDICES

APPENDIX 1. Questionnaire in Chinese

关于泛亚班拿成都分公司订货流程的问卷调查

1. 在泛亚班拿成都分公司订货流程中您扮演什么角色? _____

- A. 顾客
- B. 泛亚班拿内部职工
- C. 第三方代理

2. 您对泛亚班拿成都分公司的订货流程熟悉吗? _____

- A. 是的, 熟悉
- B. 不熟悉
- C. 不确定

3. 您对泛亚班拿成都分公司的订货流的效率整体评价是什么? _____

- A. 非常出色
- B. 很好
- C. 一般
- D. 不好
- E. 很差

如果选择“不好”或者“很差”, 请您在此列出您不满意的原因:

4. 在泛亚班拿成都分公司最常用的订货方式是什么? _____

- A. 邮件
- B. 传真
- C. 电话
- D. 电子信息系统
- E. 其他

如果选择其他, 请您在此列出其方式: _____

5. 您认为最好的订货方式是什么? _____

- A. 邮件
- B. 传真
- C. 电话
- D. 电子信息系统
- E. 其他

如果选择其他, 请您在此列出其方式: _____

6. 您是否曾经遇见订货延迟情况? _____

- A. 是
- B. 不是

如果选择是, 请您在此列出订货延迟原因: _____

7. 您认为目前泛亚班拿成都分公司的订货流程中存在的最大问题是什么?

- _____
- A. 信息系统使用不够
 - B. 各方人员之间缺少沟通
 - C. 没有标准的订单
 - D. 过多
 - E. 其他

如果选择其他, 请您在此列出其最大问题:

8. 您认为优化目前订货流程的最佳方案是: _____

- A. 使用已有的 SAP 系统
- B. 引进新的信息系统
- C. 调整流程顺序
- D. 调整内部人员结构
- E. 保持原貌, 不用改变

9. 您是否有其他关于优化订货流程的意见或建议?

APPENDIX 2. Questionnaire in English

Questionnaire about Order Booking Process at Panalpina Chengdu Office

1. What's your position in ordering process at Panalpina Chengdu branch:

- A. Customer
- B. PA internal staff member
- C. Third-party Agent

2. Are you familiar with Panalpina Chengdu office's ordering process?

- A. Yes
- B. No
- C. Not sure

3. How would you evaluate the overall efficiency of ordering process at Panalpina Chengdu? _____

- A. Excellent
- B. Good
- C. Fair
- D. Bad
- E. Very bad

If you choose "bad" or "very bad", please list reasons for ***not*** satisfying here:

4. What's the most common way to book an order at Panalpina Chengdu?

- A. By email
- B. By fax
- C. By call
- D. By information system
- E. Others

If others, please list it here: _____

5. What do you consider to be the best method to book an order? _____

- A. By email
- B. By fax
- C. By call
- D. By information system
- E. Others

If others, please list it here: _____

6. Have you ever met any order booking delay? _____

A. Yes

B. No

If yes, please list the reasons for order booking delay here:

7. What do you consider to be the most serious problem in current ordering process?

A. Insufficient use of information system

B. Lack of contact between different parties

C. No standard order booking format

D. Too much paperwork

E. Others

If others, please list it here _____

8. What do you consider to be the best method to optimize current ordering process?

A. Use existing SAP system

B. Introduce new information systems

C. Modify sequences in order process

D. Adjust internal human resource structure

E. Keep it, no change.

If others, please specify: _____

9. Do you have any additional comments or ideas to improve current ordering process? _____

APPENDIX 3. Proposed Standard Order Booking Sheet**Order Booking Sheet**

Shipper's Name and Address				Issued by		
Consignee's Name and Address						
Issuing Carrier's Agents and City						
Agent's IATA Code		Account No.		Accounting Information		
Airport of Departure and Requested Routing						
To	By first carrier	To	By			
Airport of Destination		Date				
Handling Requirements						
Goods Description						
No. of Pieces	Gross Weight	kg lb	Chargeable Weight	Rate per Charge	Total	Nature and Quantity of Goods (Incl. Dimensions of Volume)