

**T.C.
MARMARA UNIVERSITY
INSTITUTE FOR GRADUATE STUDIES IN
PURE AND APPLIED SCIENCES**

**DEVELOPMENT OF A PROCUREMENT MODEL TO ENHANCE
SUPPLY CHAIN MANAGEMENT FOR MANUFACTURING AND NON-
MANUFACTURING FIRMS PURCHASING FROM CHINA**

**MUSTAFA HACISALİHOĞLU
(Electronics and Communication Engineering)**

**THESIS
FOR THE DEGREE OF MASTER OF SCIENCE
IN
ENGINEERING MANAGEMENT PROGRAMME**

**SUPERVISOR
Asst. Prof. Dr. Arzu BALOĞLU
Asst. Prof. Dr. Serol BULKAN**

İSTANBUL 2006

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June, 2006

Mustafa HACISALIHOđLU

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ÖZET

ÇİN'DEN SATINALMA YAPAN ÜRETİCİ VE ÜRETİCİ OLMAYAN FİRMALARIN TEDARİK ZİNCİRİ YÖNETİMİNİ İYİLEŞTİRMEK İÇİN BİR SATINALMA MODELİNİN GELİŞTİRİLMESİ

Teknolojik gelişmeler ve küreselleşme neticesinde küçülen dünyada kaynak ve alıcı firmalar arasındaki ağ sayıları hızla artmaktadır. Firmalar piyasa koşullarına uygun maliyetleri tutturarak rekabet gücünü sağlamak için yapmaları gereken satınalmaları çok çeşitli yerlerde bulunan çok sayıda farklı kaynaklardan gerçekleştirmektedir.

Özellikle Çinli firmalar sundukları çok ucuz maliyetler, artan kalite ve teslimat performansları ile tüm dünyadaki firmalar tarafından yapılan satınalmalarda odak noktasını oluşturmaya başlamaktadır. Bu nedenlerden dolayı, firmalar Çin'den yaptıkları satınalmalarda süreçlerini gözden geçirerek düzenlemeleri gerçekleştirmek ve böylece tedarik zinciri yönetimini daha iyi uygulayarak küresel rekabet şartlarına kendilerini hazırlamak gerekliliği duymuşlardır. Çinli kaynak firmaların ve Çin çevresel faktörlerinin satınalma süreçlerine yaptıkları kendilerine özgü etkilerin incelenmesi ve bu etkilerin değerlendirilmesiyle süreçlerin daha iyi kontrol edilmeye çalışılması firmalara yarar sağlayacak hale gelmiştir.

Tez çalışmasının birinci kısmında, uygulanmakta olan tedarik zinciri yönetimi yaklaşımları, satınalma süreçleri ve özellikle yurtdışından yapılan satınalma uygulamaları incelenerek tez çalışmasının yönü belirlenmiştir. Bu çerçevede tedarik zinciri yönetimi içerisinde yurtdışından satınalma uygulamaları, nedenleri, zorlukları, kaynak firma yönetimi ve satınalma performans yönetim sistemleri incelenmiştir.

İkinci kısımda, tez çalışmasının konusunu oluşturan Çin'den yapılan satınalmalar üzerindeki Çin çevresel faktörlerinin etkileri incelenmiştir. Çin çevresel faktörleri; sosyo-kültürel etkiler, ekonomik etkiler, politik ve yasal etkiler ve teknolojik etkiler başlıkları altında irdelenmiştir.

Son kısımda, elde edilen bilgilerin ışığında bir satınalma modeli sunularak Çin'den yapılan satınalmaların kapalı bir süreç içerisinde adım adım nasıl ilerlemesi gerektiği tanımlanmıştır. Teklif edilen bu model sayesinde Çin'den satınalma yapan firmaların karşılaştıkları sorunları azaltarak süreçlerini geliştirecekleri, kaynak firmalarını daha etkili şekilde yönetecekleri ve böylece toplamda tedarik zinciri yönetimlerini iyileştirecekleri öngörülmektedir.

Haziran, 2006

Mustafa HACISALİHOĞLU

ABSTRACT

DEVELOPMENT OF A PROCUREMENT MODEL TO ENHANCE SUPPLY CHAIN MANAGEMENT FOR MANUFACTURING AND NON-MANUFACTURING FIRMS PURCHASING FROM CHINA

The number of networks between supplier and buyer firms is increasing rapidly as a result of technological developments and globalization. In order to have the competition power by attaining market costs, firms are purchasing from numerous suppliers from many different locations.

Especially Chinese firms are focal point of purchasing firms around the world with their offerings of very low costs, increasing quality and delivery performances. Because of these reasons, firms found it necessary to realize the arrangements by reviewing their processes of purchasing from China and thus, they would prepare themselves to global competition by implementing a better supply chain management. It would be beneficial for companies to control their processes by studying and evaluating the particular effects of Chinese firms and China environmental factors to purchasing processes.

In the first part of the thesis study, the direction of the thesis study is determined by inspecting the currently used supply chain management approaches, purchasing processes and especially implementations of overseas buying. In this context, purchasing from overseas, its reasons, difficulties, supplier management and purchasing performance management systems are investigated.

In the second part, the subject of the thesis; effects of Chinese environmental factors on purchasings made from China are studied. Chinese environmental factors are

examined under four topics; socio-cultural forces, economic forces, political and legal forces, and technological forces.

In the last part, development of the purchasing from China is defined step by step with a closed loop process by offering a purchasing model in the light of information obtained. It is assumed that, with the help of the model offered firms purchasing from China are going to improve their processes by solving the problems they faced, manage their suppliers more effective and thus, improve their supply chain management.

June, 2006

Mustafa HACISALİHOĞLU

CLAIM OF ORIGINALITY

DEVELOPMENT OF A PROCUREMENT MODEL TO ENHANCE SUPPLY CHAIN MANAGEMENT FOR MANUFACTURING AND NON-MANUFACTURING FIRMS PURCHASING FROM CHINA

Supply chain management is one of the most strategic aspects of companies which are targeting customer satisfaction. With the development of Chinese suppliers in terms of quality and delivery performances, their low prices are becoming more attractive for buyers all around the world. By investigating the reasons, advantages, difficulties, concerns and environmental effects on purchasing from China, this thesis study constitutes a model application for companies buying from China. Currently used supply chain management approaches, procurement procedures and overseas buying methods are studied and the information gathered is blended with the environmental factors in order to specify and define the processes that companies should follow when purchasing from China. Result of the study is expected to improve the control of buyers on their suppliers. Thus, supplier selection, supplier management and purchasing performance evaluations is expected to be improved and customer satisfaction to be enhanced. This academic research is projected to offer a purchasing model to be implemented by the companies purchasing from China.

June, 2006 **Asst. Prof.Dr. Arzu BALOĞLU**
Asst. Prof.Dr. Serol BULKAN

Mustafa HACISALIHOĞLU

ABBREVIATIONS

ABC	: Activity Based Costing
CCP	: Chinese Communist Party
ERP	: Enterprise Resource Planning
IMP	: International Marketing and Purchasing Group
IT	: Information Technologies
JIT	: Just-in-time
LT	: Lead Time
MOQ	: Minimum Order Quantity
MRP	: Materials Requirement Planning
OM	: Operations Management
OR	: Operations Research
PO	: Purchase Order
ROA	: Return on Assets
SCM	: Supply Chain Management
SGS	: Société Générale de Surveillance
SMS	: Supplier Management System
SOE	: State Owned Enterprises
SSMS	: Supplier Selection and Management System
SSS	: Supplier Selection System
SWOT	: Strengths, Weaknesses, Opportunities, and Threats
WTO	: World Trade Organization

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PART I

INTRODUCTION AND OBJECTIVES

I.1. DESCRIPTION OF THE STUDY

This research investigates the development of a procurement model for both manufacturing and non-manufacturing companies purchasing from China. Based on the studies made on previous researches on supply chain management (SCM) and China environmental factors, the thesis study attempts to provide a well-arranged procurement model for companies purchasing from China.

I.2. INTRODUCTION

The emerging developments in manufacturing technologies and everyday improving information technologies (IT) leads companies to more automated and easily controlled processes. This is being accomplished by providing better quality and faster mass production with powerful information flow between different units. The flow of information is between many different units of suppliers, buyers, manufacturers, wholesalers, resellers, government offices, agencies etc. The companies that can evaluate and comment this information accurately have the competency power in the market.

Supply chain management is the practice of managing the flow of goods, services and information along a supply chain from suppliers, manufacturers, wholesalers, distributors, stores on down to consumers and end users. China with its big cities and regions of factories has one of the busiest supply chain networks in the world.

Today, China is called to be as the most rapidly growing economy of the world and has the ability to be the supplier for nearly all of the manufacturing and non-manufacturing companies in the world. Being ‘the factory of the world’ brings many development opportunities to both Chinese manufacturers and foreigner buyers, when things are organized well. SCM is one of the areas that should be managed for sustainable growth. However, along with opportunities come some difficulties to be managed well in order to cope with competition and survive. Consequently, the focus of companies purchasing from China is to enhance their SCM processes to have optimized control and visibility. Procurement is a one very strategic and vital process to be considered for that purpose.

Low price supported with highly mass production which already achieved economies of scale, increasing quality, developing technology and its infrastructure in China, numerous suppliers choice for many products, closeness of different items suppliers’ locations to each other, flexibility of Chinese manufacturers on pushing harder work times and lead times, improving adaptation of Chinese suppliers to the global world are some advantages offered from China to world-wide buyers. On the other hand, bad quality, cultural differences, environmental inattentiveness, lack of global conformance certifications, wrong purchase orders from buyers, not followed lead times, products and services that do not match specifications ordered, incapable employees, insufficient technology and capacity, communication problems, difficulties in following countless purchase orders, political and legal regulations, differences in currency exchange rates are some problems faced in supply chains managed in China.

Studies in research areas such as operations management (OM), operations research (OR) and SCM keeps improving each step of procurement process and provide deeper understanding of this strategic activity. Many researchers defined procurement and purchasing processes by dividing into steps and all came into a consensus to form a general process definition. Academicians not only interested with the purchasing process itself, they also worked on closing the loop with activities such as supplier relationship management, purchasing performance measurement, information collection and feedback, supplier development.

The first part of this thesis involves the research of previous studies in order to make a general definition of SCM and its components, procurement, buying from abroad and performance measurement. The historical background of the procurement model is tried to be defined. In order to define a model working in closed loop procurement activity is studied from the beginning with the awareness of a purchasing need to the end with the evaluation of purchasing performance data and supplier development.

The second part of the study is totally related to the societal environment of the model, China. In this chapter, background information including some figures is given about China and the environmental factors are tried to be defined under four subjects; socio-cultural forces, economic forces, political and legal factors and technological forces.

Finally, the model of procurement from China and purchasing process is designed and offered in the last part. The information emphasized in previous parts are got related to the Chinese environmental factors and a strengths, weaknesses, opportunities and threats (SWOT) analysis is done before the model of procurement from China is presented. Here challenges and opportunities of purchasing from China are listed and model is designed in order to control challenges and to make use of opportunities. The model included a supplier selection and management system and several supporting sub-systems defined with process maps.

I.3. OBJECTIVES

The aim of this thesis study is to answer these questions:

- Where can the procurement be put in supply chain management?
- What are the background items of a procurement model?
- Why do companies need to purchase from China?
- Why there should be designed a procurement model for buyers purchasing from China?
- What kinds of systems and processes should a procurement model include?

With the help of these questions this thesis study aims to put a well designed model for both manufacturing and non-manufacturing companies purchasing from

China. This study targets to provide the basis for a controllable and measurable procurement which can be monitored and developed with the help of information collected during the purchasing activities. By this way companies can optimize their cost, increase the customer satisfaction with better quality and enhance their competition power.

PART II

LITERATURE REVIEW

As Handfield and Nichols defined, the supply chain encompasses all activities associated with the flow and transformation of goods from the raw materials stage (extraction), through to the end user, as well as the associated information flows. Material and information flow both up and down the supply chain. Supply chain management (SCM) is the integration of these activities through improved supply chain relationships, to achieve a sustainable competitive advantage [1]. It is important to note that from the focal firm's perspective, the supply chain includes the internal functions, upstream suppliers, and downstream customers [1].

According to Handfield and Nichols, three major developments in global markets and technologies have brought supply chain management to the forefront of management's attention:

1. The information revolution.
2. Customer demands in areas of product and service cost, quality, delivery, technology, and cycle time brought about by increased global competition.
3. The emergence of new forms of inter-organizational relationships.

Each of these developments has fostered the emergence of an integrated supply chain approach. Handfield and Nichols illustrated that nature of supply chain management by integrating all three developments in the Figure II.1 [1].

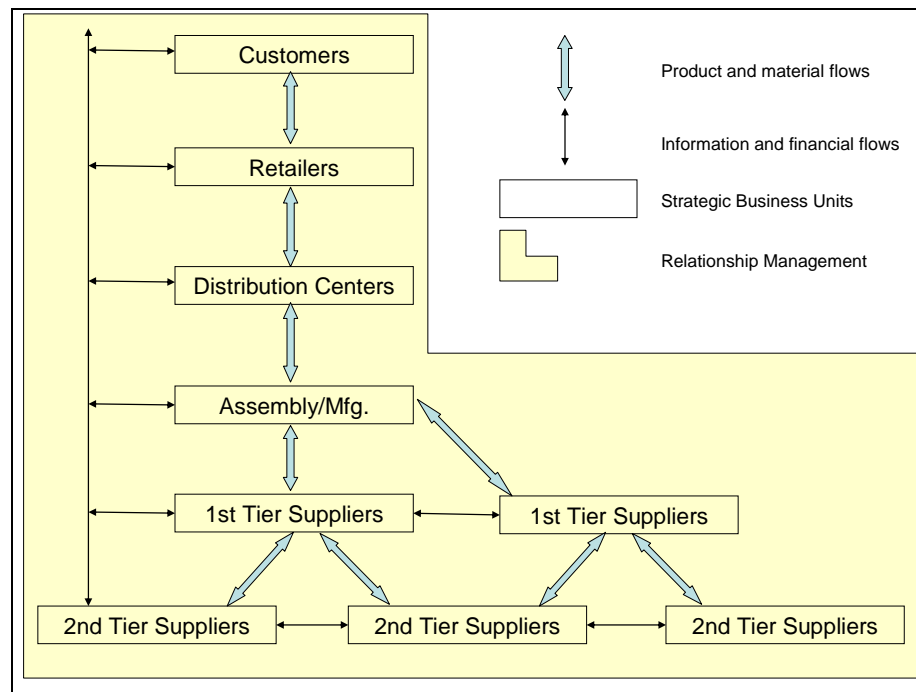


Figure II.1 Integrated Supply Chain Model [1]

As Handfield and Nichols stated, relationship management is perhaps the most fragile and tenuous, and is therefore the most susceptible to breaking down. A poor relationship with any link in the supply chain can have disastrous consequences for all other supply chain members. To provide this relationship in a smooth way, communication links must be established between suppliers and purchasing organizations [1].

A key element of improved supplier relationships is the presence of an objective performance measurement system, which is used to ensure that both parties are operating according to expectations and are meeting stated objectives. This kind of an effective performance measurement system (1) provides the basis to understand the system, (2) influences behavior throughout the system, and (3) provides information regarding the results of system efforts to supply chain members and outside stakeholders [1].

The model developed by J.M. Schmits, R. Frankel, and D.J. Frayer states that the path organizations typically establish and develop supply chain alliances follow four

levels. Level One-alliance conceptualization, Level Two- alliance pursuance, Level Three- alliance confirmation, Level Four-alliance implementation/continuity.

Similar to that model mentioned above, Stock and Lambert also developed a model for supplier selection and evaluation in following 12 steps: identify needs, establish specifications, search for alternatives, establish contact, set purchase and usage criteria, evaluate alternative buying actions, determine budget availability, evaluate specific alternatives, negotiate with suppliers, buy, use, and conduct post-purchase evaluation. They also studied procurement subject under eight topics; Purchasing Activities, Just-in-Time Purchasing, Purchasing Research and Planning, Purchasing Cost Management, Measurement and Evaluation of Purchasing Performance, Strategic Sourcing, E-Procurement, Managing Supplier Relationships [2].

Overseas purchasing activity is studied under two topics in the researches of Trent and Monczka similar to Birou and Fawcett. These academicians distinguish between international sourcing and strategic global sourcing [3, 4]. The survey completed by Lai and Wong found out that firms' global information systems strategy is effected by local environment [5]. That research revealed that locally responsive information systems strategy provides companies effective management. The advantages of large firms to smaller firms are considered as their managerial knowledge, capital resources, and ability to capitalize world's best suppliers by Rexta and Miaymoto [6]. Carter and Narasimhan identify the motives for buying from overseas under the help of two main subjects: Factors related to the changes in the business environment and factors related to the needs or competitiveness of the particular enterprise [7].

Stock and Lambert defines that purchasing activities includes; supplier selection and evaluation (sourcing), quality control and forward buying. Here sourcing means, evaluation and selection of the suppliers according to the requirements and their study provided many items to use in making comparisons and decisions. Quality leads the managers' perception of purchasing price from initial item price to the total life-cycle ownership. Forward buying is applicable for organizations that can purchases items in advance in order to lower inventory carrying costs and to have price protections [2].

Stock and Lambert defined that purchasing cost management can be done by the help of cost reduction programs, price change management, volume contracts, and

systems contracts and stockless purchasing. Their research has also brought up the items to evaluate and measure the performance of the purchasing. Another important point stated in their study is how to manage the supplier relationships. In their whole study, they mentioned about the emerging strategic importance of procurement for organizations in order to reach sustainable growth with acceptable profit [2].

Anderson and Katz mentioned in their research that procurement has become more strategic and managers start to consider their procurement processes more carefully in order to attain sustainable and profitable growth. Anderson and Katz stated that there are 4 strategic pathways for companies to choose to achieve incremental and overall cost savings. Three of them are simple but powerful; buy for less; buy better; and consume better. The fourth pathway to growth is “sell better” and is an emerging approach in which procurement plays an important role. Additionally, Anderson and Katz develop a sourcing value chain which is a set of processes creating value for the organization [8].

The model offered by Lee, Ha and Kim for supplier selection and management system (SSMS) offers a framework for the purchasing companies to manage their procurement process with a system [9]. The supply base optimization methodology designed by Talluri and Narasimhan can be used a supplementary tool for optimizing the database of supplier included in the SSMS [10].

II.1. SUPPLY CHAIN MANAGEMENT

The supply chain encompasses all activities associated with the flow and transformation of goods from the raw materials stage (extraction), through to the end user, as well as the associated information flows. Material and information flow both up and down the supply chain. Supply chain management (SCM) is the integration of these activities through improved supply chain relationships, to achieve a sustainable competitive advantage [1]. It is important to note that from the focal firm’s perspective, the supply chain includes the internal functions, upstream suppliers, and downstream customers.

A firm's internal functions include the different processes used in transforming the inputs provided by the supplier network. Order processing and production scheduling are important internal functions. Order processing may also involve extensive customer interaction, including quoting prices, possible delivery dates, delivery arrangements, and after-market service. Another important internal function is production scheduling, which translates orders into actual production tasks. This may involve working with materials requirements planning (MRP) systems, scheduling work centers, employees, and maintenance on machines [1]. The second major part of supply chain management involves the management of upstream external supply chain members. In order to manage the flow of materials between all of the upstream organizations in a supply chain, firms employ an array of managers who ensure that the right materials arrive at the right locations, at the right time. Purchasing managers are responsible for ensuring that (1) the right suppliers are selected, (2) they are meeting performance expectations, (3) appropriate contractual mechanisms are employed, and (4) a good relationship is maintained with these suppliers. They may also be responsible for driving improvement in the supply base and acting as a liaison between suppliers and other internal members (engineering, accounting etc.) Materials managers are responsible for planning, forecasting, and scheduling material flows between suppliers in the chain [1].

Finally, a firm's external downstream supply chain encompasses all of the downstream distribution channels, processes, and functions that the product passes through on its way to the end customer. Within the downstream portion of the supply chain, logistics managers are responsible for the actual movement of materials between locations. One major part of logistics is transportation management, involving the selection and management of external carriers (trucking companies, airlines, railroads, shipping companies) or internal private fleets of carriers. Distribution management involves the management of packaging, storing, and handling of materials at receiving docks, warehouses, and retail outlets. New trend in the supply chain management is "close the loop" approach. Organizations are seeking to transform used products into new products and/or materials that can be returned to the earth without harming the environment [1].

Without a foundation of effective supply chain organizational relationships, any efforts to manage the flow of information or materials across the supply chain are likely to be unsuccessful. Relationship management is perhaps the most fragile and tenuous, and is therefore the most susceptible to breaking down. A poor relationship with any link in the supply chain can have disastrous consequences for all other supply chain members. An undependable source of parts can virtually cripple a plant, leading to inflated lead times and resulting in problems across the chain, all the way to the final customer [1]. To avoid such problems, organizations must develop a better understanding of their processes, as well as their supplier's quality and delivery performance, in order to find better ways to serve their customers. To ensure that this occurs, communication links with customers and suppliers must be established and utilized on a regular basis. In short, supply chain relationships are probably one of the most important management interfaces within the entire supply chain [1].

Nevertheless, many organizations continue to view suppliers as adversaries who are not to be trusted and with whom long-term relationships should be avoided. This model is reflected in the typical procurement and logistics function found in many organizations. These departments often have no strategic role and are viewed as merely "buying" or "shipping" functions. Performance measures are very often "efficiency-based" and rely on metrics such as "purchase orders processed per buyer" or "\$ purchased per buyer" rather than time-based or cost-based measures of overall supply chain effectiveness. Finally, most purchasing and logistics departments have a manufacturing and supply orientation, with almost no input into critical new-product design, pipeline inventory reduction, quality improvement, information systems, or process reengineering initiatives. Buyers and distribution managers in many purchasing organizations choose suppliers and carriers on the basis of one criterion only-price. As such, suppliers are often played off against one another, are dropped on a moment's notice, and are chosen from a large pool on an order-by-order basis [1].

In order to achieve improved supplier relationships, the presence of an objective performance measurement system is very important, which is used to ensure that both parties are operating according to expectations and are meeting stated objectives. In addition, parties must emphasize clear objectives, expectations, and potential sources of

conflict up front in order to facilitate communication and joint problem solving. As a result of this communication, trust between buyers and suppliers begins to grow, leading to further improvements [1].

In the case of high-tech firms, many components may be sole-sourced to overseas suppliers who are proprietary owners of the required technology. In these environments, it becomes more important to choose a few select suppliers with whom to work, thereby paving the way for informal interaction and information sharing that can foster time-based improvements [1].

The process of implementing an integrated supply chain has been shown to be very difficult. In many cases, problems occur in the implementation of information systems, such that the appropriate information is not available to the people who need it. In other cases, the information is available, but supply chain members are reluctant to share it, due to a lack of trust and a fear that the information will be revealed to competitors [1].

Inventory management is no less difficult. Although inventory systems are continuously improving, the need for expediting late shipments never seems to disappear entirely. There are always delays in shipments for a variety of reason: Slowdowns resulting from customs crossing international borders, adverse weather patterns, poor communication, and, of course, simple human error, are inevitable [1].

An effective performance measurement system (1) provides the basis to understand the system, (2) influences behavior throughout the system, and (3) provides information regarding the results of system efforts to supply chain members and outside stakeholders [1].

It is often assumed that managing the personal relationships is not going to be that important after the inventory and information systems are established. However, the management of interpersonal relationships between different people in the organizations is often the most difficult part of the SCM initiative [1].

Alliance Development

The path that organizations typically establish and develop supply chain alliances follows four levels. Level One-alliance conceptualization, Level Two- alliance

pursuance, Level Three-alliance confirmation, Level Four-alliance implementation/continuity. The formation of that alliance development can be seen in Figure II.1. [1, 11].

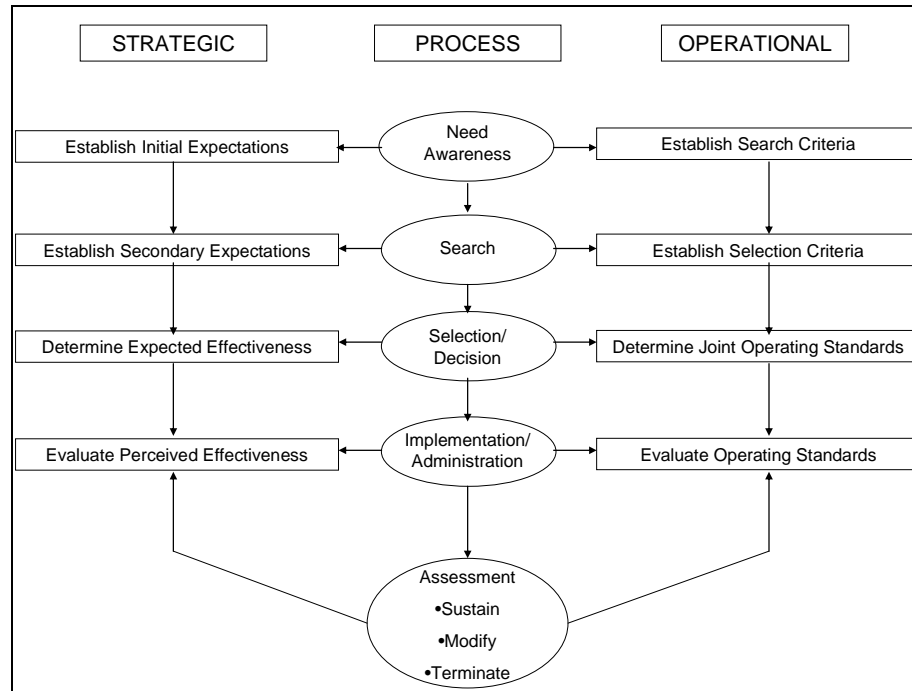


Figure II.1 General Alliance Development Model [11]

II.1.1. Alliance Conceptualization

In this stage organizations realize their needs and begin to consider forming an alliance. The types of opportunities that initiating firms expect to receive in forming alliance often vary based on the type of channel relationship involved. The types of channel relationships are one of three types: Manufacturer/Material Supplier alliances, Manufacturer/Distributor alliances, and Manufacturer/Service Supplier alliances.

II.1.2. Alliance Pursuance

In this level, initiating firms will clarify and define their new strategies and finalize the decision to pursue and alliance. This frequently involves a search for detailed information concerning the intended change as well as a detailed evaluation of a

potential partner. Some of the different criteria that a company may use to assess the potential for integrating a partner into a supply chain include, but are not limited to, the following [1].

- Company profile information
- Management capability
- Personnel capabilities
- Cost structure
- Total quality management philosophy and programs
- Process and technological capability
- Environmental regulation compliance
- Financial capability/stability
- Production scheduling and control systems
- Information systems capability
- Supplier sourcing strategies, policies, and techniques
- Long-term relationship potential

In a buyer-supplier alliance, the buyer is purchasing not only the supplier's products and service but its capabilities as well. In order to understand the general background information for the potential partner company, company profile of that company should be developed and studied [1].

Company Profile Information The company profile should include, but it is not limited to, the following:

- Company history
- Sales volumes
- Product lines
- Market share by product line
- Number of employees
- Organizational ownership
- Major customers
- Major supplies

II.1.3. Alliance Confirmation

After the evaluation of potential partners using the selection criteria described above, the initiating firm can narrow down the small group of finalists to a single finalist who is most closely aligned with the initiating firm, and who has the most promise in terms of potential alliance success. The commitment between initiating firm and the partner can be communicated through verbal agreement or with a formal written contract. When used, written contracts may vary substantially in terms of length of time over which the relationship will take place, content and level of detail.

II.1.4. Alliance Implementation/Continuity

Once the initial agreement occurs with all parties concurring on the terms, resources are committed, and the alliance between the parties is started. Each party begins to commit the promised resources and hopefully begins to open up communications.

After a certain period of time, the parties either meet or fail to meet performance expectations. In cases where results meet or exceed expectations, everyone is satisfied. The secret to successfully developing the integrated supply chain is through joint problem solving. Through a process of examination of the problem, realignment of priorities, and continuous measurement of performance and activities over time, the relationship will continue and the integrated supply chain will grow and provide benefits. To avoid possibility of an alliance breakup, successful partners uses a feedback mechanism to ensure that the ongoing relationship was successful. With the help of this feedback an ongoing evaluation is performed and if the companies reflect a positive evaluation of strategic and operational dimensions, it is likely the alliance was sustained in its current form. If there arises a negative or neutral evaluation results, it is likely the alliance will be modified. If evaluation results are extremely negative, it is likely that the partners will terminate the alliance jointly agreeing to end the collaborative relationship [1].

Cross functional orientation positively affects customer satisfaction and supply chain responsiveness [12]. Literature on new product development has also documented

positive performance implications of interdepartmental collaboration and/or cross-functional interaction using cross-functional teams (e.g., Denison, Hart and Kahn 1996; Griffin and Hauser 1996) [13, 14]. Additionally, positive effect of knowledge sharing between buyer and supplier on customer satisfaction is supported with the research of Wagner and Buko [15]. Knowledge sharing and cross-functional orientation between buyer and supplier companies are found to have positive effects in the literature of Supply Chain Management [13, 14, 15]. According to this outcome, which is determined on global conditions, organizations purchasing from China also need to provide cross-functional orientation in supply chain management in order to enhance their supply chain responsiveness and increase customer satisfaction. At this point, generally accepted common departments of buyer and supplier companies needed to be analyzed between the buyer and supplier.

II.2. PROCUREMENT AND BUYING FROM OVERSEAS

The terms purchasing and procurement are often used interchangeably, although they do differ in scope. Purchasing generally refers to the actual buying of materials and those activities associated with the buying process.

Buying from overseas is distinguished between two main topics. International sourcing, multinational sourcing and foreign sourcing are accepted as one topic and strategic global sourcing is accepted as the other. Here first topic generally named as international purchasing is a commercial transaction between a buyer and a seller located in different countries. Strategic global purchasing involves positively integrating and coordinating common items and materials, processes, designs, technologies and suppliers across worldwide purchasing, engineering and operating locations [3]. In general, smaller firms are restricted in their capacity to search for and secure overseas suppliers by their lack of managerial knowledge and capital resources so that any supplier found among a small pool of qualified overseas suppliers is a potential candidate so long as it can meet their procurement requirements. In contrast, a depth of resource capacity allows large firms to aggressively pursue the full potential of international sourcing by capitalizing on the world's best suppliers [6].

II.2.1. Goals of the Purchasing and Reasons for Overseas Purchasing

The goals of the purchasing are to:

1. Provide an uninterrupted flow of materials, supplies, and services required to operate the organization.
2. Keep inventory investment and loss at a minimum
3. Maintain and improve quality.
4. Find or develop competent suppliers.
5. Standardize, where possible, the items bought.
6. Purchase required items and services at the lowest total cost.
7. Improve the organization's competitive position.
8. Achieve harmonious, productive working relationships with other functional areas within the organization.
9. Accomplish the purchasing objectives at the lowest possible level of administrative costs [2].

Reasons for international purchasing are divided under two subjects: Changes in the business environment and factors related to the needs or competitiveness of the particular enterprise. However, to obtain some form of competitive advantage is the primary reason for buying overseas [7].

Factors related to the changes in the business environment:

- Intense international competition
- Pressure to reduce costs
- The need for manufacturing flexibility
- The need for shorter product development cycles
- Stringent quality standards
- Ever-changing technology

Factors related to the needs or competitiveness of the particular enterprise:

- Domestic non-availability of, for example, commodities such as rubber, cotton or copper

- Insufficient domestic capacity to meet the demand
- Insurance reasons, such as buying abroad to maintain continuity of supplies when domestic sources are threatened by shortages or strikes
- Competitiveness of overseas sources, including lower prices, improved delivery and better quality
- Reciprocal trading and counter-trade resulting from policy reasons or government pressure due to balance of payments considerations
- Access to worldwide technology
- To obtain penetration of a growth market by increasing local components

Two of the most prevalent reasons for firms sourcing internationally were found to be the lower prices available from foreign sources (74% of firms surveyed) and availability of foreign products not obtainable domestically (49% of respondents) [4]. The survey (ranked on a seven-point Likert scale) conducted by Birou and Fawcett in 1993 states that the benefits from the international sourcing can be listed as in the Table II.1.

Table II.1 Benefits of International Sourcing [4]

Rank	Benefits from international sourcing	Rating
1	Access to lower-priced goods	5.56
2	Enhanced competitive position	5.29
3	Access to higher-quality goods	4.89
4	Access to worldwide technology	4.49
5	Better delivery performance	3.48
6	Better customer service	3.38
7	Increased number of suppliers	2.76
8	Helps meet countertrade obligations	2.60

According to the same survey conducted by Birou and Fawcett, factors for successful overseas buying are listed as in the Table II.2.

Table II.2 Factors Influencing Success in International Sourcing [4]

Rank	Factor	Rating
1	Top management support	5.68
2	Developing communication skills	5.67
3	Establishing long term relationships	5.65
4	Developing global sourcing skills	5.62
5	Understanding global opportunities	5.13
6	Knowledge of foreign business practices	5.09
7	Foreign supplier certification and qualifications	5.02
8	Planning for global sourcing	5.02
9	Obtaining expert assistance	4.79
10	Knowledge of exchange rates	4.53
11	Use of third-party logistics services	4.12

II.2.2. Difficulties When Buying from Overseas

Many buyers are reluctant buy from overseas because they have not encountered difficulties when buying from home suppliers. Above mentioned survey lists challenges to international sourcing as below [4].

Table II.3 Challenges to International Sourcing [4]

Rank	Challenges to international sourcing	Rating
1	JIT sourcing requirements	5.14
2	Finding qualified foreign sources	4.92
3	Logistics support for longer supply links	4.91
4	Culture and language differences	4.61
5	Duty and customs regulations	4.41
6	Fluctuations in currency exchange rates	4.39
7	Knowledge of foreign business practices	4.32
8	Nationalistic attitudes and behaviour	3.86
9	Understanding the political environment	3.82

In the table above, items numbered 4, 7, 8 and 9 fall under the cultural factors heading. Items 1, 3 and 6 fall under the heading of risk factors. Terminology for difficulties of overseas purchasing includes; cultural, political and ethical challenges, and communication, quality, foreign exchange and legal difficulties [16]. Those mentioned difficulties are going to be studied under Part III: The Societal Environment-China.

II.2.3. Overseas Purchasing Structure and Design

Business environmental factors influence both organization and purchasing structures. Five such factors influencing business structures are downsizing, e-commerce, global sourcing, partnering and outsourcing. As organizations' structure is shaped by environmental factors, each organization adopts an appropriate structure for itself. Those organizations are defined regarding to how vertical or horizontal and how centralized or decentralized they are [16].

In vertical organizations there is functional departmentalism. Purchasing job is divided into functions, then departments, then tasks and chain of command goes up the functional ladder. Horizontal organizations are not completely flat, but they have fewer layers than their vertical counterparts. The use of cross functional and cross organizational teams may effect the verticality and horizontality of the organization's structure. In general, vertical organization depends on individuals and their expertise and horizontal organizations depends on teams and total expertise of its members. Each company must seek its own unique balance between the vertical and horizontal features needed to deliver performance [16].

Centralized purchasing implies that purchases are made either from company headquarters or some regional or divisional level. The advantages of centralized purchasing in a strong central department in the organization relate to economies of scale and the coordination and control of procurement activities. Decentralization referred to purchasing done by plants or divisions. Increasingly, purchasing is delegated to actual users of the purchased material by decentralizing [16].

Purchasing is not a homogenous activity and with factors as status, responsibilities, organization, policies and procedures, it differs widely from one enterprise to another. Consequently, each organization needs to find its own purchasing structure according to its environmental factors [16].

II.2.4. Purchasing Activities

Primary purchasing activities that influence the ability of the firm to achieve its objectives are supplier selection and evaluation (sourcing), quality control and forward buying.

Purchasing has strategic effects on overall objectives of the organizations. These can be summarized as access to external markets, supplier development and relationship management and relationship to other functions. Access to external markets means purchasing can gain important information from the external environment by its contacts and search power. New technologies, market trends, potential new materials and services, new sources of supplies can be found and this information can be used to drive the organization's strategy. With the supplier development and relationship management ability of the purchasing, organization can use the knowledge of suppliers in the early steps of the new product development and service improvements. This can help organization to improve its quality, decrease its cost and shorten the lead-times. The relationship of purchasing with other functions of the organization helps those functions to be aware of the improvements and enhance their participation and recognition.

II.2.4.1. Recognition of Need and Specifications Development

The need of a purchasing activity is often triggered by the actions of global competitors, change in business environment including major technological changes, change in companies' strategies and managerial goals, and companies' competency and resources, [1, 17]. Here notification of the need to purchase by either:

- a requisition issues by the stores, stock control or a potential user
- a bill of materials issued by the drawing office, production control or equivalent department [16].

After the recognition of the need comes the specification [18]. Here the purchaser identifies the requirements of the item that is going to be purchased.

A specification has been defined as:

- A statement of the attributes of a product or service.
- A statement of requirements.

- A statement of needs to be satisfied by the procurement of external resources [16].

Specifications aim to:

- indicate fitness for the quality which is linked to product satisfaction and dissatisfaction
- communicate the requirements of a user or purchaser to the supplier
- compare what is actually supplied with the stated in the specifications
- provide evidence in the event of a dispute, of what purchaser required and what the supplier agreed to provide.

The content of a specification that should be used in purchasing activities is defined in Part IV- The Model.

II.2.4.2. Supplier Search and Selection

Before firms can go for overseas purchasing, they must obtain information on potential suppliers. A survey states the 5 most popular information sources be used to find suppliers as below [19]:

- Professional contacts – 48%
- Trade journals – 43.7%
- Directories – 31.1%
- Trading companies – 30.4%
- Import brokers – 24.2

The model developed by Stock and Lambert states that, supplier selection and evaluation is completed in following 12 steps: identify needs, establish specifications, search for alternatives, establish contact, set purchase and usage criteria, evaluate alternative buying actions, determine budget availability, evaluate specific alternatives, negotiate with suppliers, buy, use, and conduct post-purchase evaluation [2].

Stock and Lambert stated the variables used when making the purchasing decision as below:

- Lead-time
- Lead-time variability
- Percentage of on-time deliveries

- Percentage in-stock availability
- Convenience in ordering/communication
- Ability to expedite
- Downtime caused by vendor errors, partial shipments, and/or late deliveries
- Product reliability
- Ease of maintenance or operation
- Product failures caused by faulty parts or materials
- Quality rejects
- Technical specifications
- Technical/training services offered
- Competitiveness of price
- Confidence in the sales representative
- Past experience with vendor
- Overall reputation of the vendor
- Financing terms
- Post-purchase sales service
- Vendor's flexibility in adjusting to the buying company's needs
- Engineering/design capabilities

Above items can be thought as the some or all of the attributes that purchasing managers consider when making the purchasing decision. These items can be used to form a comparative evaluation card for the purpose of supplier evaluation and selection [2].

Additionally, supplier selection is more difficult for organizations that are purchasing from international markets [2]. Those organizations should consider there may be some hidden costs. Below are the recommended items to be checked when purchasing offshore [2, 20].

- Price in U.S. dollars (if quoted in another currency)
- Commissions to customs brokers
- Terms of payment costs and finance charges: letter of credit fee, translation costs, exchange rate differentials.
- Foreign taxes imposed

- Extra inventory and the associated inventory carrying costs
- Extra labor, documentation
- Obsolescence, deterioration, spoilage, taxes, losses to damage or theft, longer delivery time frames, administrative costs, business travel
- Packing, marking, and container costs
- Fees for consultants or inspectors
- Marine insurance premium
- Customs documentation charges
- Import tariffs
- Transportation costs, including: from manufacturer to port, ocean freight, from port to company plant, freight forwarder's charges, port handling charges, warehouse costs

The supplier selection and management system offered by Lee, Ha, and Kim, offers an automated solution for supplier selection and management by defining the use of evaluation and selection criteria for ranking suppliers [9]. Here, the database of suppliers can be formed by a supply base optimization system, which uses a similar selection method to select the potential suppliers [10].

II.2.4.3. Methods of Payment

Overseas suppliers may be unwilling to start mass production before getting some payment commitments from the buyers. Conversely, buyers may be unwilling to make the payment before the goods are delivered. There are 4 different methods of payment to be used in procurement transactions: Open account, Bills for collection, Letters of credit and payment in advance [16].

3.a. Open Account

Goods are shipped and documents remitted to the buyer with an invoice for payment on previously agreed terms, such as 'net 30 days'.

3.b. *Bills for Collection*

Under this system, the shipping documents are sent to the buyer’s bank rather than direct to the buyer. These documents will be handed to the importer only when payment has been made.

3.c. *Letters of Credit*

Letter of credit is a legal instrument constituting a cash guarantee, obligating the bank to make a payment to a named beneficiary, such as an exporter, within a specified time against the presentation of required documents. The risk of non-payment by the buyer is therefore transferred to the issuing bank.

3.d. *Payment in Advance*

This is the least secure and most secure method of payment from the standpoint of buyers and sellers respectively. In this method, buyers pay whole or some percentage of the total payment in advance before the production or service is performed.

3.e. *What method of payment to use?*

Following factors should be considered when deciding a payment method to use:

- company policy
- cash flow considerations
- relationship with overseas supplier
- the market conditions under which the overseas supplier operates
- the buyer’s feeling

Below figure briefly describes the risk of each payment method. Buyers must evaluate the supplier and the transaction risk carefully, before deciding the payment method [16].

Exporter	Least secure →	Less secure →	More secure →	Most secure →
	Open account	Bills for collection	Documentary credits	Advance payment
Importer	← Most secure	← More secure	← Less secure	← Least secure

Figure II.2 The Payment Risk Ladder for Exporters and Importers [16]

II.2.4.4. Incoterms and Methods of Transportation

4.a. Incoterms

Incoterms refer to the set of international rules for the interpretation of the chief terms used in foreign trade contracts first published by the International Chamber of Trade in 1936 (now International Chamber of Commerce) and amended in 1953, 1967, 1976, 1980, 1990 and 2000. Each Incoterm is referred to by a three-letter abbreviation. Incoterms are grouped into four categories, each denoted by the first letter of the three-letter abbreviation [16]:

- under the “E” term (EXW; ex-works to named place), the seller only makes the goods available to the buyer at the seller’s own premises- there is only one Incoterm in this category
- under the “F” term (FCA; Free carrier to named place, FAS; Free alongside ship to named port of shipment and FOB; Free on board to named port of shipment), the seller is to deliver the goods to a carrier appointed by the buyer
- under the “C” term (CFR; Cost and freight to named port of destination, CIF; Cost, insurance and freight to named port of destination, CPT; Carriage paid to named port of destination and CIP; Carriage and insurance paid to named port of destination), the seller has to contract for carriage, but without assuming the risk of loss of or damage to goods or additional costs due to events occurring after shipment or dispatch
- under the “D” term (DAF; Delivered at frontier to named place, DES; Delivered ex ship to named port of destination, DEQ; Delivered ex quay to named port of destination, DDU; Delivered duty unpaid to named place of destination and DDP; Delivered duty paid to named place of destination), the seller has to bear all costs and risks needed to bring the goods to the place of destination

The most used Incoterms are probably FOB, CIF and CFR. Incoterms suitable for any mode of transport, including inter- or multimodal, are EXW, FCA, CPT, CIP, DES and DEQ. Those shown as (S) are used for sea and inland waterways [16].

4.b. Methods of Transportation

There are five main modes of transportation: Road, Rail, Air, Water and Pipelines. The most appropriate mode is selected by purchasing companies according to their needs.

II.2.4.5. Total Quality Management

The initial purchase price of an item is only one element of the total cost [2]. Some items work easier with other items with less problems, some items have longer life-span or more durable than others, some raw materials needs less fabrication, some materials decreases the total return rate of the finished product. Thus, some items purchased decreases the total cost in terms of production, after sales, stock, engineering etc. costs. Purchasing must find a balance between quality and initial price to lower the total cost of the organization.

The balance between initial price and quality can be achieved by determining the quality level and specifications of the item to be purchased at an early stage. This information should be shared with the suppliers and the offer meeting the best cost-quality combination should be selected. However, the purchasing should consider the requested quality level and specifications carefully in order not to make the firm pay higher prices to obtain materials with quality levels higher than expected or specifications over than requested. Another aspect of quality cost is the incoming materials inspection costs. Those inspections are time and money consuming. Space, human resources, equipment and time is needed to perform those inspections. For those reasons, purchasing managers can use supplier certification processes. In that process, suppliers' quality levels and processes can be evaluated very closely by the members of the buyer organization. After that evaluation, the supplier passes and gets the certification if quality level is found enough and buyer no longer inspects the materials coming from its certified supplier [2].

The issues to be checked to sustain quality management can be summarized in the following order [16]:

1. specification writing
2. supplier appraisal

3. quality assurance and quality control
4. international standardization
5. the submission and approval of samples before giving the go-ahead to mass production
6. on-site inspection (where appropriate), either by means of personal visits or third-party agents
7. pre-shipment inspection by a third party, such as agents, Lloyd's of London and Société Générale de Surveillance (SGS)

II.2.4.6. Forward Buying

Forward buying refers to the purchase of materials in quantities exceeding current requirements, well in advance of their need or use. First, forward buying minimizes the effects of rising material cost. Second, forward buying provides protection against future availability problems. However, forward buying is more applicable in industries where availability uncertainties are more commonplace and not applicable for some industries where price has always the tendency of going down. There is always the risk of buying materials with higher prices than necessary if prices have decrease possibility. In addition, forward buying brings disadvantage of holding excess inventory with increased inventory carrying cost. To make the forward buying an advantage for the organization, the savings realized from forward buying must exceed the extra inventory carrying costs [2].

II.2.5. Just in Time Purchasing

Just in Time (JIT) manufacturing is the identification and elimination of waste wherever it is found in the manufacturing system. It requires matching the production to known demand, which requires full focus on each process and needs high level of cooperation from suppliers [2]. However, because of location, lead-time and generalization issues, JIT cannot be suggested for all organizations. So, it is not going to be studied under this research.

II.2.6. Purchasing Cost Management

Purchasing departments target managing and reducing costs in different ways. However, generally used methods for cost management are purchase cost reduction programs, price change management programs, volume (time and/or quantity) contracts, and systems contracts and stockless purchasing [2].

It is important that costs and risks should be evaluated before deciding to source abroad. First of all, companies should clearly state their items of costs to manage them smoothly. Table II.4 summarizes the cost items of a procurement activity [16].

Table II.4 Comparisons of Costs of Overseas Suppliers [16]

Expense category	Costs: areas of expenditure	Cost Value
Basic Price	Supplier's quoted price per item	
	Packaging	
	Sea/air freight	
	Marine insurance	
	Supplier's final price	
	CIF/destination	
Handling/transportation charges	Handling charges (port of entry)	
	Storage	
	Port costs	
	Internal transport to buyer	
	Freight forwarding fees	
	Insurance	
Customs and associated charges	Customs duties	
	Customs clearance fees	
International financing	Costs of documentation	
	Currency conversion rates	
	Exchange rate fluctuations	
	Bank fees	
Inventory costs	Holding costs of higher inventory	
	Levels at x per cent per annum	
Sourcing costs	Costs of visit to overseas supplier	
	Estimated communication costs	
	Costs of inspection by overseas agent	
	Special fees, such as translation, legal	
Total actual or estimated costs		

Filling in the above table can help companies to see and control their purchasing activity cost item by item.

II.2.6.1. Cost Reduction Programs

In many firms cost reduction is defined as a decrease in prior purchase price, and cost avoidance is defined as the amount that would have been paid minus the amount actually paid. For an effective cost management program, top management support should be provided. It also requires, definition of cost reduction or avoidance, effective goal setting, review and approval of cost reductions or avoidance, measurement of reduction to a specific goal, reporting and making achievement in individual cost reduction or avoidance part of the performance appraisal process. In addition, it is beneficial for organization that management establishes programs with buyers based on the opportunities for price reduction [2].

Cost reduction and avoidance programs may include some or all of the following:

- Supplier development
- Development of competition
- Requirement of supplier cost reduction
- Early supplier involvement in new-product design and design changes
- Substitution of materials
- Standardization
- Make-or-buy analysis
- Value analysis, including supplier involvement
- The reduction of scrap
- A change in tolerances
- Improvement of payment terms and conditions
- Volume buying
- Process changes

II.2.6.2. Price Change Management

Purchasing managers should always consider about possible price increases from the suppliers side. It is important to handle price changes and restrict them by working with suppliers and making price changes in a reasonable level. To do this, purchasing

should establish a systematic method of managing price changes. This kind of a system requires the purchasing to provide following information:

- Determine the reason for the price change request
- Specify the total dollar-value impact on the firm
- Ask suppliers to justify the price change
- Have management review the price change
- Set strategies to deal with price increases

One tool to restrict price changes can be requesting price protection clauses and advance notification of price increases. Additionally, purchasing should calculate the impact of engineering changes because of the price changes in order to determine whether engineering changes should be made [2].

II.2.6.3. Volume Contracts

Volume contracts allow purchasing to leverage purchase requirements over time, between various business units or locations in the company, or on different line-item requirements. Cumulative discounts can be taken by combining purchasing for bigger volumes or non-cumulative discounts can be taken according to the amount of each order. That discounts are based on the willingness of the supplier to lower its per-unit margin on higher volume of businesses [2].

II.2.6.4. Systems Contracts and Stockless Purchasing

Systems contracts and stockless purchasing are generally suited for the purchase of items that have below one dollar value and have important per-item administrative cost compared to the item price. Systems contract helps organization to reduce materials-related costs such as unit purchase price, transportation, inventory, and administration. These contracts are arranged for a given volume of purchases over a specified time period. Usually, the length of the contract varies from one to three years and includes price protection clauses. Additionally, the purchaser should have the right to test the item price in the market and ask for reductions. On the other hand, these contracts may have not any legally binding items in them, but provide sufficient enough assurance for supplier to seek volume purchases from its suppliers. These volume

purchases helps buyer to have reduced item price and to fix the price over the contract period [21].

The objectives of systems purchasing can be summarized as [2]:

- Lower inventory levels
- Reduce the number of suppliers
- Reduce administrative cost ad paperwork
- Reduce the number of purchases of small dollar value and requisitions that purchases have to handle (and thereby increase the amount of time available for other activities).
- Provide the opportunity for larger dollar volumes of business to suppliers
- Provide for timely delivery of material directly to the user
- Standardize purchase items where possible

II.2.6.5. Transportation Costs

In addition to the products core cost, some transportation related cost items are added to the total cost of the procurement.

5.a. Customs and Excise

All goods imported into the countries from foreign countries are subject to customs duty (import duty or import tax) and value added tax (VAT) according to their value and import tax classification. The importer is legally liable for import and VAT. In addition, a customs clearance fee will be charged by the courier, carrier, freight forwarder or import agent for clearing the product through customs. There can be further charges for storage if the goods are held up in customs or due to late payment [16].

5.b. Total distribution costs

As mentioned in below sections; there are five main modes of transportation: Road, Rail, Air, Water and Pipelines. Purchasing companies select the most appropriate mode for themselves according to their needs.

Total distribution cost can be defined as the sum total of all the costs incurred in the distribution of the goods. In general, total cost of distribution will include such items as transportation charges, inventory carrying costs, service factors, packaging, insurance and miscellaneous costs.

II.2.7. Measurement and Evaluation of Purchasing Performance

Purchasing performance evaluation may be defined as the quantitative or qualitative assessment over a given time towards the achievement of corporate or operational goals and objectives relating to purchasing economies, efficiency and effectiveness [16].

The significant words in this definition are the following.

- *Quantitative or qualitative:* Quantitative assessments are objective and measurable, using such measures as numbers of orders placed, reduction in lead times, price savings and reduced administrative costs and will tend to be used where purchasing is regarded as a mainly clerical or transactional activity. A qualitative assessment uses judgmental impressions regarding the contribution of purchasing to suppliers' goodwill, partnership sourcing, value analysis and internal customer satisfaction and is applicable when procurement is regarded as a strategic function.
- *Evaluation:* Performance evaluation frequently uses subjective, qualitative assessment approaches.
- *Progress over a given time:* Progresses can only be measured by reference to what was achieved in a past period and targets set for a future period. For this purpose, evaluations should always relate to specific time intervals.
- *Corporate or operational objectives:* Goals or objectives are basic to performance evaluation. Corporate objectives will usually be set at board level. Such goals are relatively permanent, expressed in broad terms and derive from the mission statement of an organization. Corporate objectives must be turned into specifics for operational purposes and should be specific, measurable, attainable, results-oriented and time-based.

- *Economies, efficiency and effectiveness:* Economies means minimizing the cost of resources acquired without loss of quality, which is achieved by spending less. Efficiency covers the relationship between the output of goods or services and the resources used to produce them, which means spending well. Effectiveness covers the relationship between the intended and the actual results of projects and programs, which is spending wisely.

A major problem when evaluating purchasing performance is the heterogeneous nature of the purchasing activity. However, measurement of purchasing performance is important for all organizations as:

- If an activity cannot be measured, it cannot be effectively managed, nor can continuous and sustainable improvements be made
- Measurement is critical for maintaining the competitive edge of companies in an increasingly crowded global marketplace.

Management needs to identify the information that is needed to perform purchasing activities and to measure and evaluate purchasing performance of the organization. The list of the data that needed to be included in the system that will measure and evaluate the purchasing performance is as the following [2]:

- Purchase item number and description
- Quantity required
- Date on which item is required
- Date on which purchase requisition is received or authorized
- Purchase requisition or authorization number
- Supplier(s) quoted
- Date on which supplier(s) is quoted
- Date on which quotes are required from supplier(s)
- Supplier quote(s)
- Supplier price discount schedule
- Purchase order number
- Date on which purchase order is placed
- Purchase price per unit
- Quantity or percentage of annual requirements purchased

- Planned purchase price per unit
- Supplier name
- Supplier address
- Supplier's promised ship date
- Supplier's lead time (days or weeks for purchase item)
- Date on which purchase item is received
- Quantity received
- Purchase item accepted or rejected (unit/lot)
- Storage location
- Buyer
- Work unit
- Requested price change
- Effective date of requested price change
- Date on which price change is approved
- Ship-to location

There are different levels and types of managers in an organization who need those data. Each of them considers different parts of this data to evaluate the performance of purchasing. For instance, top managers can compare the data with a rival company's data; functional managers can check the functional review, policy and procedure audits. Purchasing manager may want to have a series of regularly report of indicators in order to monitor the whole processes and take corrective action when necessary [2].

II.2.7.1. Approaches to Performance Measurement

These may be grouped under four main headings:

- Accounting approaches:
 - Profit centers
 - Activity-based costing
 - Standard costing and budgetary control
- The purchasing management audit approach
- Benchmarking and ratios

- Management by objectives (MBO)

1.a. Accounting Approaches

1.a.a. The Profit Center Approach

In this approach, the purchasing function or activity is regarded as the part of the company that controls assets and is responsible not only for expenditure but also income. The aim of this approach is to demonstrate that the purchasing function is a profit rather than a cost centre [16].

The profitability of this centralized purchasing function is generated by an internal accounting transfer of items and services procured by purchasing to other functions at a price above their actual direct cost. In effect, purchasing sells to other functions at what is termed a transfer price. The table to implement profit center approach to a purchasing organization can be summarized as below:

Table II.5 Profit Center Approach Calculation Table

Value of assets controlled the supplies manager	A
Inventory	x
Purchasing function's floor space and equipment	y
Stores' floor space and equipment	z
	$A=x+y+z$
Annual rate of return required by the company on assets employed	$ROA_1 = k\%$
Annual return required by the company on assets employed	$B = \frac{k \times A}{100}$
Estimated annual operating expenses	
Purchasing	C
Stores	D
Total expenses and return (a)	$(a) = A + C + D$
Total purchasing turnover (b)	(b)
Total purchasing expenses	(a)+(b)
Transfer cost of supplies to user function	$= \frac{(a) \times 100}{(b)}$
Supplies Profit	m%
Profit on turnover	$P = \frac{m \times 100}{(b)}$
Return on assets controlled by supplies	$ROA_2 = \frac{P \times 100}{A}$

The aim of the Table II.5 is to compare the actual targeted return on asset rate (ROA₁) of the company with the calculated ROA₂. To reach the expected ROA rate, other than increasing the profit, the supplies function will have either have to reduce the investment in inventory or operating expenses [16].

1.a.b. Activity Based Costing (ABC)

Activity based costing is a cost attribution to cost units on the basis of benefit received from indirect activities such as ordering, setting up, assuring quality. For purchasing departments, the following measures indicate the opportunities for cost savings by simplifying supplier-driven activities [16].

$$\text{Number of suppliers per product} = \frac{\text{Number of suppliers}}{\text{Number of products}} \quad \text{(II.1)}$$

$$\text{Number of orders per product} = \frac{\text{Purchase orders}}{\text{Number of products}} \quad \text{(II.2)}$$

From those equations above, cost savings to be made can be found as;

- reducing the complexities of bought-out items by means of standardization
- reducing the amount of negotiation and number of suppliers by the introduction of single sourcing or an approved suppliers list
- improved design using standard, simplified or fewer parts
- elimination of unprofitable products.

1.a.c. Standard Costing and Budgetary Control

Standard costing is a control technique which compares costs and revenues with actual results to obtain variances which are used to stimulate improved performance. Standard costing can monitor performance by variance analysis [16].

First control variance is the direct materials price variance. It is the difference between the standard price and actual purchase price for the actual quantity of material.

$$\text{direct materials price variance} = (\text{actual purchase quantity} \times \text{actual price}) - (\text{actual purchase quantity} \times \text{standard price})$$

(II.3)

Second control variance is the direct materials usage variance. It is the difference between the standard quantity specified for the actual production and the actual quantity used.

$$\text{direct materials usage variance} = (\text{actual quantity used for actual production} \times \text{standard price}) - (\text{standard quantity used for actual production} \times \text{standard price})$$

(II.4)

Third control variance is direct materials total variance. It is the sum of usage and price variances.

$$\text{direct materials total variance} = (\text{direct materials price variance}) + (\text{direct materials usage variance})$$

(II.5)

Budgetary control is the establishment of budgets relating the responsibilities of executives to the requirements of a policy, and the continuous comparison of actual with budgeted results, either to secure by individual action the objective of that policy or to provide a basis for its revision.

There are two budgets needed to be controlled by purchasing; material budget and purchasing department's operational budget. Budgetary control assists performance measured by;

- defining the results to be achieved by functions and their staff for the purpose of realizing overall objectives

- indicating the extent to which actual results have exceeded or fallen below those budgeted.

1.b. The Purchasing Management Audit Approach

The purchasing management audit has been defined as: A comprehensive, systematic, independent and periodic examination of a company's purchasing environment, objectives and tactics to identify problems and opportunities and facilitate the development of appropriate action plans [16].

Purchasing audit can be performed by; external auditors, internal auditors, a central purchasing function, a purchasing research function, external management consultants. There are two principles to be considered;

- The auditors should be external to the function or department that is the subject of the audit.
- The auditors should have an in-depth knowledge of the purchasing function.

During the purchasing audit, following functions can be audited;

- Purchasing perspectives, problems and opportunities
- Purchasing organization
- Purchasing personnel
- Purchasing policies
- Purchasing procedures
- Purchasing reports
- Purchases, suppliers and prices
- Inventory

1.c. Benchmarking and Ratios

Benchmark is defined as a measured 'best in class' achievement, a reference or measurement standard for comparison that is recognized as the standard of excellence for a specific business process. Below steps should be followed to perform different forms of benchmarking [16];

Step 1: Form a benchmarking team

Step 2: Decide key activities to benchmark

Step 3: Establish performance measures for the key activities identified in step 2.

Step 4: Identify those organizations that achieve world or best in class performance in the areas selected for benchmarking

Step 5: Obtain information on the performance of the organizations selected in step 4.

Step 6: Identify the lessons to be learned from world class or ‘best in class’ organizations

Step 7: Review and monitor

1.d. Management by Objectives (MBO)

Management by objectives (MBO) is to identify the objectives of a manager or function should be expected to achieve within a given time, at the end of which the actual performance will be compared with the desired results. The objectives will be agreed by the head of the function in consultation with his or her superior. By the help of the MBO, overall objectives are cascaded down through the organization as shown in figure below [16].

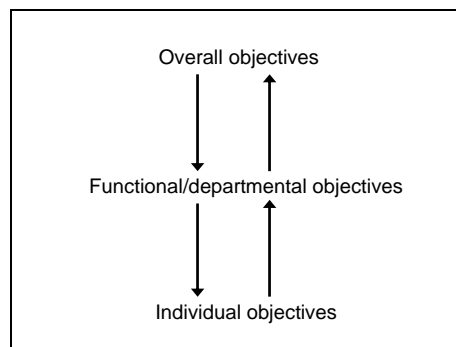


Figure II.3 Objectives Transferred Down Organization [16]

As functions and individuals participate in the setting of their objectives, MBO also works from the bottom up as well as from the top down.

There are three types of objectives to be defined: improvement objectives, maintenance objectives, and personal development objectives.

- Improvement objectives seek to improve performance in specific ways in relation to specified factors.
- Maintenance objectives formally express intentions to maintain performance at its current level.

- Personal development objectives relate to personal growth objectives or the acquisition of expanded job knowledge, skills and experience.

Difficult objectives produce stronger motivation and better individual performances than do easy objectives. On the other hand, feedback should be fair, distinguishable between controllable and uncontrollable reasons, constructive and include performance-based awards, if objectives have been achieved.

A number of key performance measures are used for purchasing control of organizations. Those include: price effectiveness; cost savings; workload; administration and control; efficiency; vendor quality and delivery; material flow control; regulatory; societal and environmental measures; procurement planning and research; competition; inventory; and transportation [2, 22].

II.2.8. Strategic Sourcing

Procurement can bring a value-added role to the business of some organizations in many industries. As this role is being recognized by managers, they define the role of procurement in their companies with all details in order to understand the level of procurement and their organization's procurement ability. In order to attain a profitable growth, they want to gain the full-value added potential of the procurement by redefining the procurement as a key process within the scope of the strategic sourcing [2, 8].

Executives do not only focus on purchase price, instead they take a total view of cost. In this way, they can consider several factors that may be the source of innovative and sustainable cost reductions for both suppliers and buyers. Here there is a general trade-off between following a competitive economics perspective and life-cycle ownership standpoint. In competitive economics, it may be more effective for a buyer to rationalize its supply base to enable higher supplier capacity utilization and, in turn, lower acquisition prices while preserving acceptable margins for the surviving suppliers. In life-cycle ownership, it is better to buy the items with high-quality and high prices, since initial purchase price can be offset by fewer defects, lower inventory requirements, and lower administrative costs [2, 8].

Today purchasing strategies evolved from buy for less, buy better, and consume better to sell better. This also means that sales shapes the purchasing strategies and procurement is very important instrument of organizations to be competitive with sustainable growth and acceptable profit. Anderson and Katz developed a strategic sourcing value chain, which is the set of processes through that strategic decisions are made and value is created for the organization. This chain starts with the creation of an annual plan by the leaders in procurement. This creation is followed by development of requirements, development of sourcing strategy, evaluation and selection of suppliers, procurement of materials and services, and management of supplier relationships [2, 8]. The chain can be displayed as in the Figure II.4.

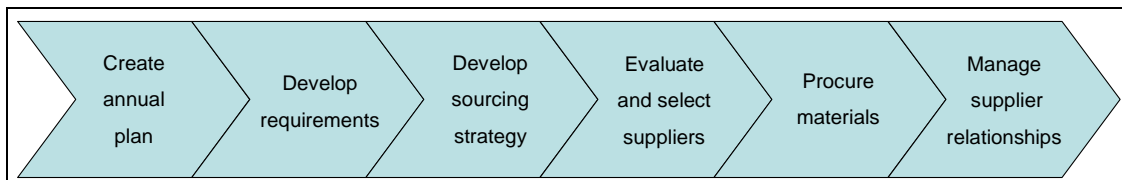


Figure II.4 Sourcing Value Chain [8]

II.2.9. Managing Supplier Relationships

A relationship is defined as a connection or association. Relationship purchasing aims to achieve strong, lasting relationships with suppliers with a view to securing mutual benefits and added value of competitive advantages for both parties. The most successful relationships are those where customers and suppliers develop trust and understanding of their respective requirements and interests, accompanied by a concern for both learning from and providing assistance to each other. Such relationships are the basis of networks and provide competitive advantages for both parties.

II.2.9.1. Relationship Formation

There are different kinds of interactions between two or more enterprises and they start from low level interactions going into the partnership relations which are built up on preceding ones. There are 5 hierarchical levels; actions, episodes, sequences,

relationships, and partner base. Each level follows a process and produces an outcome which is useful for the successor level. Those levels can be seen in the Figure II.5.

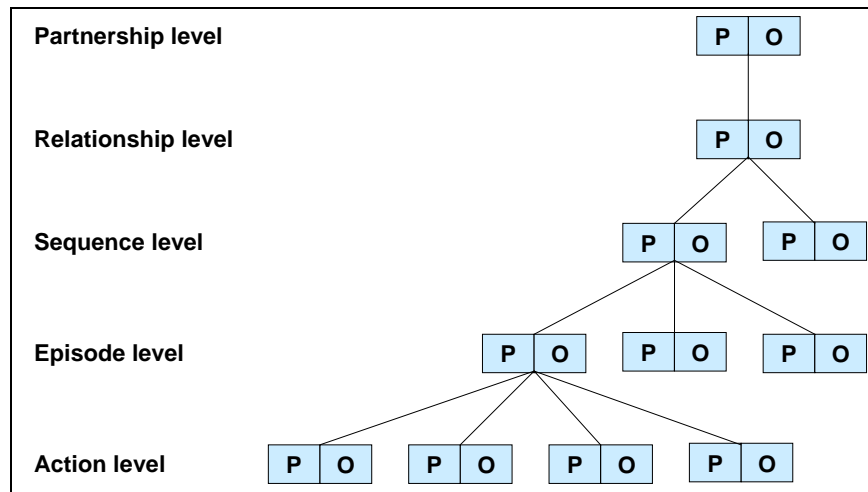


Figure II.5 Processes and Outcomes on Different Interaction Levels [16]

Every level has its own characteristic and the interactions may happen within those levels are described as below:

- Actions include individual initiatives by the focal enterprise, such as telephone call or plant visit that may relate to products, information, money or social contacts.
- Episodes include groups of interrelated actions, such as negotiation.
- Sequences include larger and more extensive entities of interactions such as contract, product, campaign, and project.
- Relationships are comprised of all the sequences, which in turn, are comprised of all related episodes and actions in one particular relationship between two firms.
- Partner base is the relationship portfolio of a particular enterprise.

There are several classifications for the supplier relationship definitions.

II.2.9.2. The Cox Model

Cox presents a stepladder of external and internal relationships, as shown in the Figure II.6 [23].

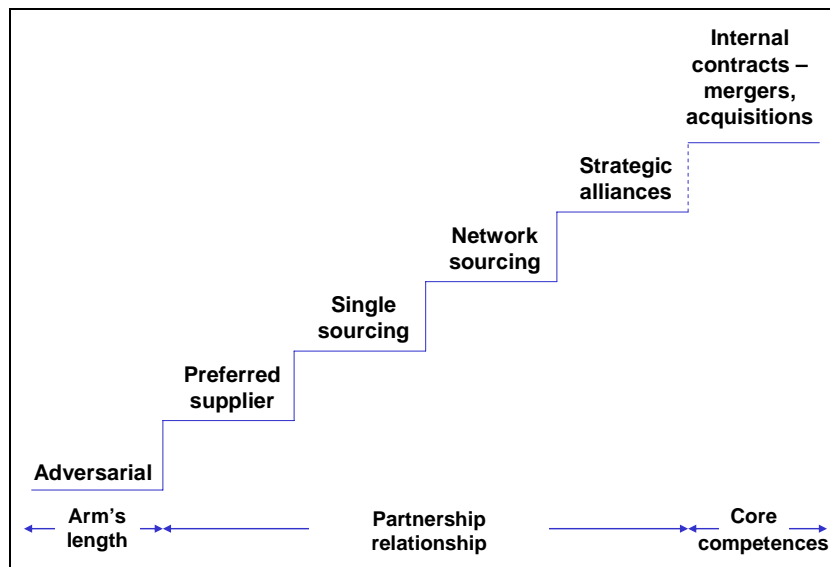


Figure II.6 Cox Model for Supplier Relationships [23]

Each of the five steps in the ladder of contractual relationships shown in figure above represents a higher level of asset specificity and strategic importance to the firm [23].

- Adversarial: This step of relationships includes multi-sourcing, short-term contracts, maintaining secrecy, making no improvement suggestions.
- Preferred suppliers: In this step, suppliers who have strategic importance or provide complimentary goods/services are placed on a restricted list by purchaser after a process of rating and accreditation.
- Single sourcing: In order to reduce the transaction cost and economize, purchase is made from a single supplier that provides complimentary goods or services of high strategic importance.
- Network sourcing and partnerships: A network structure is a series of strategic alliances that an organization forms with suppliers, manufacturers and distributors to produce and market a product. Cox's model offered that, network sourcing provides the companies to create a virtual company at all levels of the supply chain by engineering multiple partnerships at each stage, but without moving to vertical integration.
- Strategic supplier alliances: Cox defined those relationships as negotiated single-sourced relationships with the supplier of a complementary product or service.

Such relationships form a completely new and independent legal entity called joint ventures.

II.2.9.3. The Industrial Marketing and Purchasing Group (IMP) Model

This model was developed by Hakansson and the Industrial Marketing and Purchasing Group (IMP). In the IMP model, the marketing and purchasing of industrial goods is seen as an interaction process between two parties within a specific environment. The model analyses industrial marketing and purchasing in terms of four basic elements, each of which is subdivided. The model can be illustrated as in the figure below [24].

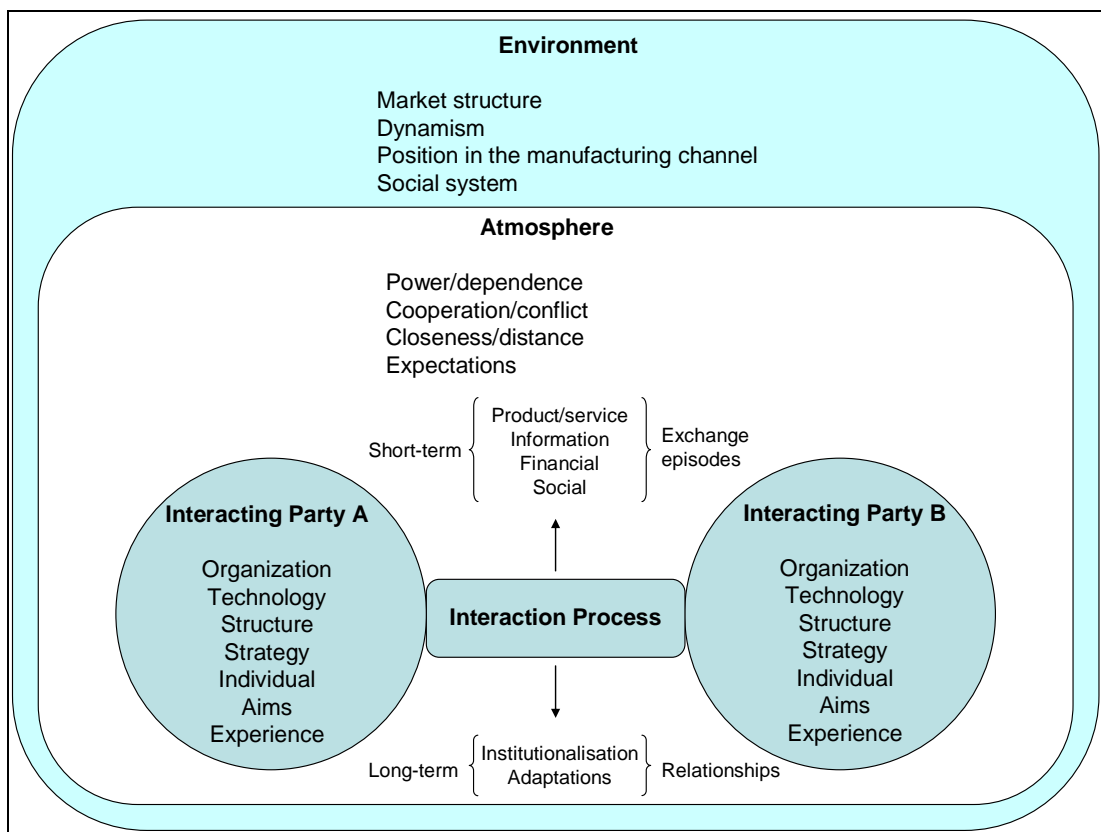


Figure II.7 An Illustration of the IMP Interaction Model [24]

First is the interaction process. This involves analysis of two factors: episodes and relationships. Types of those interactions can change for short-term and long-term relationships.

The second element is the interacting parties. In addition to episodes and relationships, the process of interactions will be influenced by the characteristics of both the organizations themselves and the people who present them. Those characteristics can be summarized as: organization, technology, structure, strategy, individual, aims and experience.

The third element is the interaction environment. It depends on the market structure, the degree of dynamics within the market and relationship, internationalism, the position of the relationship in the supply chain, and the wider social system. Interaction environment of this research is China and it is studied in detail in the Part III: The Societal Environment – China.

The fourth element is the atmosphere exists between suppliers and purchasers. Variables of the atmosphere are; conflict, cooperation, closeness or distance, and the mutual expectations between parties.

II.2.9.4. The Practical Usefulness of Supplier Relationship Models

Models of supplier relationships may appear academic and far from the realities of day-to-day purchasing. However, there are several reasons for purchasing students and practitioners to study such models:

- increase awareness of the large number of variables that impact supplier relationships
- provides deeper understanding of purchasing relationships in general
- provide deeper understanding of the importance of a supplier and risks, benefits, opportunities of such relationships
- assist in developing appropriate purchasing strategies (single/multiple sourcing, making or buying)
- enable to find a balance between internal resources of their firm and external resources of suppliers

- enable to clarify what purchasers want from their suppliers and suppliers' ability to design or assist
- indicate the factors contributing to both successful and unsuccessful relationships

PART III

THE SOCIETAL ENVIRONMENT – CHINA

Background

The People's Republic of China was founded in 1949 by the Chinese Communist Party (CCP). The first CCP chairman, Mao Zedong, then led the country for nearly three decades. After gaining power in 1978, two years after Mao's death, Deng Xiaoping introduced economic reforms. From 1989 to 2002 Jiang Zemin presided over a more collective leadership. The CCP is now led by Hu Jintao [25].

Some general figures on China can be seen in the table below.

Table III.1 China Facts [25]

Annual data	2005	Historical averages (%)	2001-2005
Population	1,307.4	Population growth	0.6
GDP (US\$ bn;market exchange rate)	1,911.7	Real GDP growth	8.7
GDP (US\$ bn;purchasing power parity)	8,116.1	Real domestic demand growth	9.7
GDP per head (US\$ bn;market exchange rate)	1,462	Inflation	1.3
GDP per head (US\$ bn;purchasing power parity)	6,208	Current-account balance (% of GDP)	3.6
Echange rate (av) RMB: US\$	8.2	FDI inflows (% of GDP)	3.4

As seen from the Table III.1, China is the biggest country of the world in terms of its population. China's GDP per head is around is 1,462 USD in the year 2005. However, GDP per head is expected to increase by the help of the GDP growth rate counting around 9% for the last 5 years [25].

In 2004, merchandise exports were worth US\$ 593.3 billion and imports stood at US\$ 560.8 billion, resulting in a surplus of US\$ 32.5 billion. Below tables summarizes the distribution of items imported and exported and leading Chinese suppliers and markets [25].

Table III.2 Major Chinese Export and Import Items [25]

Major Exports 2004	% of total	Major Imports 2004	% of total
Office machines&data-processing equipment	14.7	Electrical machinery	19.7
Telecommunications products	11.5	Crude oil&fuels	7.9
Apparel&clothing	10.4	Office machines&data-processing equipment	5.3
Electrical machinery	10.0	Machinery for particular industries	4.7

Table III.3 Major Chinese Markets and Suppliers [25]

Leading Markets 2004	% of total	Leading Suppliers 2004	% of total
US	14.7	Japan	19.7
EU	11.5	EU	7.9
Hong Kong	10.4	Taiwan	5.3
Japan	10.0	Association of South-East Asian Nations (ASEAN)	4.7

Frequently used expression of nowadays -the rise of China- is a wrong statement. China has always been a main power in Asia-Pacific territory. Between 500 and 1500 China was one of the world leaders both in terms of technologically and economically. However, in the last 500 years Europe and United States of America surpassed China. Asian Development Bank researches reveal that Asia was providing the 58% of the goods and services produced all around the world in the year of 1820. That percentage has decreased to 19% in 1940, although 60% of world population inhabited in Asia.

However, with a rapid economic development that percentage increased up to 37% in 1997 and is forecasted to be around 57% in 2025 [26].

In 2004, three years after its entry into the World Trade Organization (WTO), and a quarter-century after China began welcoming foreign investment. China's trade volume hit \$ 1.2 trillion, displacing Japan as the world's third largest trading nation, behind the United States and Germany. This milestone is all the more staggering in light of the fact that China's two-way trade, barely \$20 billion in 1978, has increased 60 times [27]. WTO membership is expected to bring a more stable international trading environment to China. With this membership, China has become more attractive to foreign investors who will bring capital, market information, technological know-how, management techniques, and worldwide production and distribution networks. Moreover, WTO obligations will put pressure on Chinese government to place regulatory and institutional reforms [28].

In China, private sector provides two thirds of the gross national product, uses 80% of the man power and makes the booming exportation of the country. On the other hand, productivity in the state sector is too low and closing down the factories making loss is too difficult, since it could cause 25 millions of unemployed people [29].

As Perkins indicated, in 1978 China was poorer than Korea and Taiwan's condition in 1960 in terms of per capita income. However, China's economic history in last years is written with 8-9% growth rates. Those growth rates also provided 300% growth in per capita income [30].

Some economists believe that China's economy is going to be bigger than US economy in 10 years. Perkins pointed out that, if China maintain 6% growth rate in the next 30 years, per capita income will increase up to USD 10,000, which is the half of the current figure of US. Again, if this 6% growth rate can be maintained for 30 years, China's economy doubles US economy [30].

III.1.SOCIO-CULTURAL FORCES

Culture is the system of shared beliefs, values, behaviors and artifacts that members of a particular society use to cope with their world and one another. Culture differs with nationality and an understanding of such differences is essential when buying from or negotiating with overseas suppliers. In international purchasing, important cultural aspects are; the pace of negotiation, relationships, language, time orientation, information sharing and decision making, and values [16].

Graham and Lam's studies shed light on Chinese Culture's effects on the business between Chinese and Westerners. According to their research, there are many communication breakdowns between western and Chinese business people. The root cause is the western side's failure to understand the much broader context of Chinese culture and values. Western business people generally see Chinese negotiators as inefficient, indirect, and even dishonest, while the Chinese see western negotiators as aggressive, impersonal, and excitable [31]. In their research, Graham and Lam used Americans as their primary examples of Western negotiators, since Americans exhibit individualism and assertiveness more strongly than other Westerners do.

In addition to those cultural factors, other factors that may effect the communication with Chinese suppliers are differences in time zones and working days [16]. In China, working days are from Monday to Friday and weekends are Saturday and Sunday. China has official vacations, one week in the Chinese New Year according to the lunar calendar, one week for the Labor Day in the first week of May. Additionally, there is shortage of experienced supply chain people in Asia and this definition is also valid for China [32]. On the other hand, Chinese workers are very open to learning and disciplined which allow suppliers to push hard on tight lead times.

III.1.1. Chinese Cultural Values and Effects on Business

Graham and Lam found in their research that American and Chinese have some differences in terms of basic cultural values and way of thinking and how they approach the negotiation process [31].

Table III.4 The View from Both Sides [31]

American	Chinese
THEIR BASIC CULTURAL VALUES AND WAYS OF THINKING	
individualist	collectivist
egalitarian	hierarchical
information oriented	relationship oriented
reductionist	holistic
sequential	circular
seeks the truth	seeks the way
the argument culture	the haggling culture
HOW THEY APPROACH THE NEGOTIATION PROCESS	
Non-task Sounding	
quick meetings	long courting process
informal	formal
make cold calls	draw on intermediaries
Information Exchange	
full authority	limited authority
direct	indirect
proposal first	explanations first
Means of Persuasion	
aggressive	questioning
impatient	enduring
Terms of Agreement	
forging a good deal	forging a long-term relationship

Cultural values have bound Chinese people for some 5,000 years and those values show through in Chinese business negotiations. Four cultural basis of Chinese culture are agrarianism, morality, the Chinese pictographic language, and wariness of strangers. Most western businesspeople often find those elements mysterious and confusing. However, if those elements are ignored during the negotiation process, the deal can easily fail [31].

Two-thirds of the Chinese people live in rural areas, laboring primarily in rice or wheat cultivation. This is forms the first element of Chinese culture; agrarianism. It is communal, not individualistic; survival depends on group cooperation and harmony [31].

The second element is morality. For some 2,000 years, the writings of Confucius served as the foundation of Chinese education. Confucius maintained that a society organized under a benevolent moral code would be prosperous and politically stable. Confucius defined relationships in the society which are strictly hierarchical except for

the relationship between friends. Another thought was Taoism that was inspired by Lao Tsu who is roughly contemporary with Confucius. Both Lao Tsu and Confucius were less concerned about finding the truth and more concerned about finding the way. These moral values are expressed inside the Chinese negotiating style. Chinese negotiators are more concerned with the means than the end, with the process more than the goal. That is why during the negotiations Chinese business people like to start with high prices and spend long time until the final negotiation [31].

The third element is Chinese pictographic language. When they are children, Chinese people learn to memorize thousands of pictorial characters. Consequently, Chinese children are better at seeing the big picture, while American children have an easier time focusing on the details.

The fourth element is the Chinese people's wariness of foreigners. This has been learned from the country's long and violent history of attacks from all points of compass. It can be said that the Chinese trust in only two things: their families and their bank accounts.

III.1.2. Relationships Management and the Chinese Negotiation Style

In their research, Graham and Lam clearly defined the 8 items forming the Chinese negotiation style. These are;

1. Personal Connections (Guanxi)
2. The Intermediary (Zhongjian Ren)
3. Social Status (Shehui Dengji)
4. Interpersonal Harmony (Renji Hexie)
5. Holistic Thinking (Zhengti Guannian)
6. Thrift (Jiejian)
7. Face or Social Capital (Mianzi)
8. Endurance, Relentlessness, or Eating Bitterness and Enduring Labor (Chiku Nailao)

Personal Connections: Chinese businessmen place a premium on individuals' social capital within their group of friends, relatives, and close associates, while Americans put a premium on networking, information and institutions.

The Intermediary: In China, suspicion and distrust characterize all meetings with strangers. In business, trust cannot be earned from business relationships and business relationships cannot be formed without trust. Here, trust must be passed through personal connections. That is, a trusted business associate of both parties must be the intermediary person for business relationship. Often, the two parties can say frankly to the intermediary what they cannot say to each other.

Social Status: In China, negotiations may require a meeting of equals in the hopes of stimulating more cooperation. China is a country where Confucian values of obedience and deference to one's superiors remain strong.

Interpersonal Harmony: In China, friendships and positive feelings hold relationships of equal together, while respect and responsibility are the glue that binds hierarchical relationships. Chinese businessmen find any attempt to do business is rude without having established sufficient interpersonal trust and harmony.

Holistic Thinking: Chinese businessmen tend to talk about all business issues at once, skipping among them, in contrast to the Westerners who think sequentially and individualistically, breaking up complex negotiation tasks into a series of smaller issues: price, quantity, warranty, delivery, and so forth.

Thrift: Mainland Chinese save nearly four times as much of their household income as Americans do, stated by the market research firm Euromonitor International. Chinese negotiator put more maneuvering margins on their offers than Americans do and it generally takes long discussions to come to a consensus.

Social Capital: If Westerners cause the Chinese embarrassment or loss of composure, it can be disastrous for business negotiations. In Chinese business culture, a person's reputation and social standing depends on social capital. It is closely associated with Western concepts of dignity and prestige.

Endurance, Relentlessness, or Eating Bitterness and Enduring Labor: The Chinese are famous for their work ethic. Hard work, even in the worst conditions, is the ideal for Chinese. Thus, Chinese will have worked harder in preparing for the negotiations than the Westerners and they will expect long bargaining sessions. Westerners need to ask more questions for details, show endurance and show patience to demonstrate their own endurance and manage negotiations with Chinese [31].

III.2.ECONOMIC FORCES

Economics factors can shape the capabilities of a country and companies in it by several ways. In China, first of these factors is the low labor cost offered to the rest of the world. China is still one of the lowest labor-cost countries in the world, although minimum wages increased over the last years [33]. Low labor cost provides Chinese suppliers to have competitive prices.

Another factor is the transportation infrastructure. China stands out as the country most affected by its diversified transportation infrastructure. China's infrastructure is ranked as the last of the highly industrialized countries. Moreover, compared to western countries, there are too less established logistics firms in China. That is why Chinese suppliers cannot easily outsource their logistics operations to third parties. At present, no logistics company has more than a 2 percent share of the China market and this is an evident for China's fragmented logistics infrastructure [32].

Supply chain is going to be complete with the move of foreigner manufacturers into China [33]. Support of Chinese government and encouragement activities attracts manufacturers who bring their own products, technology, know-how and distribution channels. Increasing variety of components and products makes it possible to run the whole supply chain within China. Consequently, this trend improves the supply chain infrastructure of China.

Additionally, there is always a risk of foreign exchange rate when buying from overseas. This is the risk that a purchaser will be required to pay more (or less) than expected as a result of fluctuations in the exchange rate between the purchaser's currency and that of the supplier's currency in which payment may be made [16]. According to a survey done for Chinese construction industry, quality, price certainty and risk are chosen as most important factors influencing the choice of procurement method [34].

In China, CCP controls the value of Chinese Yuan against other currencies. However, different companies may buy with different currencies from Chinese suppliers. Companies buying from China can minimize foreign exchange risk in several ways, including the following.

- Arranging to buy in the currency of the buyer
- Reduce the uncertainty by fixing with forward contracts for a period no longer than six months
- Buy currency options
- Buy the overseas currency at the spot price on the day on which the overseas purchase is made
- Negotiate currency adjustment clauses

As going to be mentioned under the subject of Political and Legal Forces, Chinese government uses different taxation policies in different provinces. So, companies purchasing from China should also consider each province's advantage and disadvantages for the business.

III.3.POLITICAL AND LEGAL FORCES

Political and legal forces are the forces run by the governments that directly affect the businesses of the companies purchasing from overseas. Political events can destabilize trading conditions.

III.3.1. Political and Ethical Factors

Political events can destabilize trading conditions. Several agencies – the Political Risk Services, Risk Intelligence and the Economic Intelligence Unit – exist to evaluate country risk. Ethical issues include those of buying from overseas suppliers that operate sweatshops, employing child labor, and offering barely subsistence-level pay [16].

The CCP dominates the government. Although the National People’s Congress does not have the any political power, it is the legislature of China. The Chinese People’s Political Consultative Conference groups political, social and religious constituencies within a powerless institution. There is no formal political opposition to the CCP, and dissent is firmly suppressed [25].

Most of the incidents go unreported in China, where the government still maintains tight control of the news media. But there are tens of thousands of spontaneous uprisings every year against corrupt officials and abusive police, according to the official statistics [27]. China is quite decentralized, and local and provincial leaders have enormous power. In some heavily industrialized cities, including Shenzhen, worker unrest is apparent. Workers in China are barred from organizing, and those who do risk being fired, beaten, or imprisoned. Labor protests are proliferating, triggered by unpaid wages, pensions, sudden and massive job terminations, and an end to most of the socialist benefits that had been guaranteed since the earliest days of the Communist regime in the 1950s [27].

China’s leaders want continuing economic liberalization and sustainable growth alongside enduring political control. The economy is opening up now that China has joined the World Trade Organization and is pursuing further liberalization. A private sector made up of domestic and foreign-funded interests is now fully encouraged to

expand and complement the state sector. Tax breaks are offered for investment in the west and north-east of the country and in high-technology industries. Especially for the foreign-invested enterprises there are policies to reduce the tax paid. However, those policies are going to be phased out and a uniform tax rate for both domestic and foreign enterprises is to be applied. Thus, buyer companies should consider the individual advantages and disadvantages of each province of China [25].

III.3.2. Legal Factors

According to the same survey mentioned above for Chinese construction industry, dispute and arbitration is chosen as one of the most important factors influencing the choice of procurement method [34]. Companies purchasing from China should consider and determine the following [16]:

- which government law shall govern the business transaction
- arrangements for the arbitration
- terms and conditions applicable to cancellation, deliveries and delays and the passing of property
- protection of the buyer against infringements of patents
- protection of the buyer against product liability
- redress of complaints and recovery of damages
- transportation terms, including the terms of delivery
- import duties and insurance (see the section on Incoterms and Methods of Transportation)
- documentation that are necessary for international trading
- the basis on which price rises due to increased costs will be computed and allowed
- specifications, especially where there are differences in units of measurement.

The biggest of all problems in China is intellectual property. By any measure, China is the runaway leader when it comes to counterfeiting and piracies, accounting for nearly two-thirds of such goods worldwide are produced in China. Although China made some progress in fighting with the problem, inadequate penalties, uncoordinated enforcement among local, provincial, and national authorities, and the lack of

transparency in China's administrative and criminal enforcement system helps to maintain illegal business [27].

III.4. TECHNOLOGICAL FORCES

All the nine members of China's elite Politburo Standing Committee are engineers. Although the country's push toward science and technology development began well before the current group came to power, it's safe to say the Politburo will continue down the same road [27].

Chinese companies are moving funds in other directions to increase their competition power. For instance, when a relatively unknown Chinese TV maker called TCL bought the TV division of France's Thomson SA in 2004, it instantly became the largest TV maker in the world. Similarly, when Chinese computer maker Lenovo Group Ltd. Picked up IBM Corp.'s PC division for an estimated \$ 1.75 billion, the symbolism was; China had taken the possession of the brand that was once synonymous with computers [27]. On the other hand, many Chinese companies have not reengineered their logistics operations and are only starting to implement enterprise resource planning (ERP) solutions [32].

Donald Straszheim, an institutional investment consultant in Los Angeles and former chief economist for Merrill Lynch & Co., said that "Any company that is not involved in China or doesn't have well-developed plans in that direction is totally asleep" [27].

Increasing investments from foreigner companies and efforts of Chinese government improves the technology level of the whole country. Every year Chinese universities provide many well educated graduates and research personnel to the market. Salary level for technical employees is attractive compared to another countries and this situation produces enough technical employees for suppliers [33].

Integrated circuit (IC) industry is one of the industries that have effect on nearly all of the electronics producing industries. Taiwan is known as the country controlling the IC business for a long time with its huge production facilities and know-how. However, with the help of Taiwanese engineers' knowledge and Taiwanese companies'

investment strategies, China now has the factory facilities built and operated by Taiwan-based companies [35].

Today, China's semiconductor industry is immature. However, with the skyrocketing electronics industry, China's semiconductor industry will grow slowly. That's because many of the ICs sold come from fabless semiconductor companies, which design ICs and sell them into the electronics market, relying on the foundries to build them. The situation may change later with the emergence of Chinese fabless IC design companies. At the moment there are some in the market, but they are not experienced enough to survive [35].

PART IV

THE MODEL

The model offered here in this chapter is the result of the studies on researches made in supply chain management plus studies on the environmental effects of China to the purchasing process. It is known that designing information systems according to local cultural differences, regulations and competition provides companies a better management of businesses [5]. The information flow in organizations provides data to top managers to develop an organization strategy which also includes purchasing strategy. In this context, the more detailed information shared between supplier and buyer provides the lower total cost, the shorter lead times and the higher order fulfillment rate [36].

IV.1. CURRENT STATEMENT OF THE SYSTEM

This thesis study takes the supplier selection and management system (SSMS) offered by E.K. Lee, S. Ha and S.K. Kim [9], adds purchasing activity sub-processes to complete the loop and shapes the model with China environmental factors. The actual SSMS was offered for manufacturing firms, where components and parts are the important actors of the purchasing process. However, the model offered in this thesis study aims to be a more general model to cover both manufacturing and non-manufacturing firms' purchasing processes. Here some modifications done to the

original SSMS in order to adapt it to the China environment and all possible purchasing activities.

After all the researches made through this thesis study, a SWOT analysis can be done in order to analyze better the current practices on purchasing from China. In this context, **strengths** of purchasing from China can be summarized as below:

- Low cost
- Increasing quality
- Developing technological infrastructure
- Numerous choice of suppliers for many products
- Closeness of different items suppliers' locations to each other
- Flexibility of Chinese manufacturers on pushing harder work times and lead times
- Improving adaptation of Chinese suppliers to the global world
- Support and encouragement of Chinese government to foreign buyers and investors
- Large market in China

Opportunities of purchasing from China can be summarized as below:

- Attaining the competitive advantage with the help of very low Chinese production costs also including low labor costs
- Enhancing the customer satisfaction and lowering return rates by increasing quality of Chinese suppliers
- Ability to adapt latest technological developments in supply chain management and follow technological products provided by improving technological infrastructure in China
- Low dependence on suppliers and lower bargaining power of suppliers provided by high competition of numerous suppliers in China
- Decreasing cost of logistics and shorter lead times for projects that requires assemble of different components
- Shortening lead times with the help of flexibility of Chinese suppliers and disciplined Chinese work force

- Easy adaptation with western companies' processes and enhanced control supported with Chinese manufacturers desire to adapt with global practices
- Better business conditions, lower taxes, higher encouragements provided by Chinese government actions
- Large market attracts world-wide investors and manufacturers. With the entrance of foreign investors into the China, supply chain is going to be a closed loop and country's supply chain infrastructure is improved

Weaknesses of purchasing from China can be summarized as below:

- Low quality
- Environmental inattentiveness
- Differences in currency exchange rates
- Political and legal regulations
- Diversified transportation infrastructure and high cost of air transportation
- Shortage of skilled people and experienced supply chain professionals
- Insufficient use of technology
- Lack of third party logistics to outsource transportation operations
- Very low internet penetration in China
- The domination of state owned enterprises (SOE)
- Cultural differences
- Lack of a procurement model customized for China

Threats of purchasing from China can be summarized as below:

- Low quality of some suppliers and their products may cause high return rate and loss of image, thus loss of money in total
- Chinese manufacturers' approach on environmental issues may cause problems with environmental regulations
- Currency rates in China is controlled by CCP and is open to any political effects, thus exchange rate risk is high
- Complicated and excessive regulatory controls make business practices more difficult
- Limitations of logistics capability of each region and city caused by diversified transportation infrastructure

- Difficulties of working with incapable human resources because of skilled people and experienced supply chain professionals shortage
- Improper stock control, lower understanding of customer and consumer needs, and lower use of performance measures triggered by insufficient use of technology to support supply chain management
- High logistics cost and complexity caused by lack of third party logistics to outsource transportation operations
- Lack of communication and systems integration affected by very low internet penetration in China
- The domination of state owned enterprises (SOE) decreases transparency of information and performance measures, and requires good relationships with government in some cases
- The need of behavioral adaptations between westerns and Chinese brought by cultural differences
- Local differences, their effects and opportunities China provides can be missed as a result of the lack of a procurement model customized for China

SSMS, shown in Figure IV.1, is designed to provide purchasing companies to make use of strengths and opportunities China offers and to control weaknesses and threats that may affect companies' procurement activities. SSMS is formed by three sub-systems,

1. purchasing strategy system;
2. supplier relationship management system;
3. supplier selection system [9].

Purchasing strategy system includes four criteria of cost, quality, delivery and service. Those criteria are considered as the four most important factors in supplier evaluation decisions [9, 10]. The strategy developed in that system shapes the comparison and selection criteria used in other 2 systems. The role of the purchasing strategy system is to select the critical items among the all purchased items, to define the selection alternative suppliers, and to identify the criteria of supplier selection for each critical item based on the purchasing strategy. Both the supplier selection system and supplier management system deal with the critical items selected by the purchasing

strategy system and uses the criteria defined or shaped by the purchasing strategy system. The role of the supplier selection system is to calculate the weights of each criteria of supplier selection and rank the alternative suppliers according to the weighted criteria and select the best suppliers among them. The supplier database in this system is formed by the supply base optimization system. The supply base optimization system evaluates all the suppliers according to the criteria selected by the buyer. The role of the supplier management system is to identify managerial criteria based on the information obtained from the supplier selection process and monitor suppliers' performance based on those criteria. The procedure of SSMS, shown in Figure IV.1, is explained in following sections.

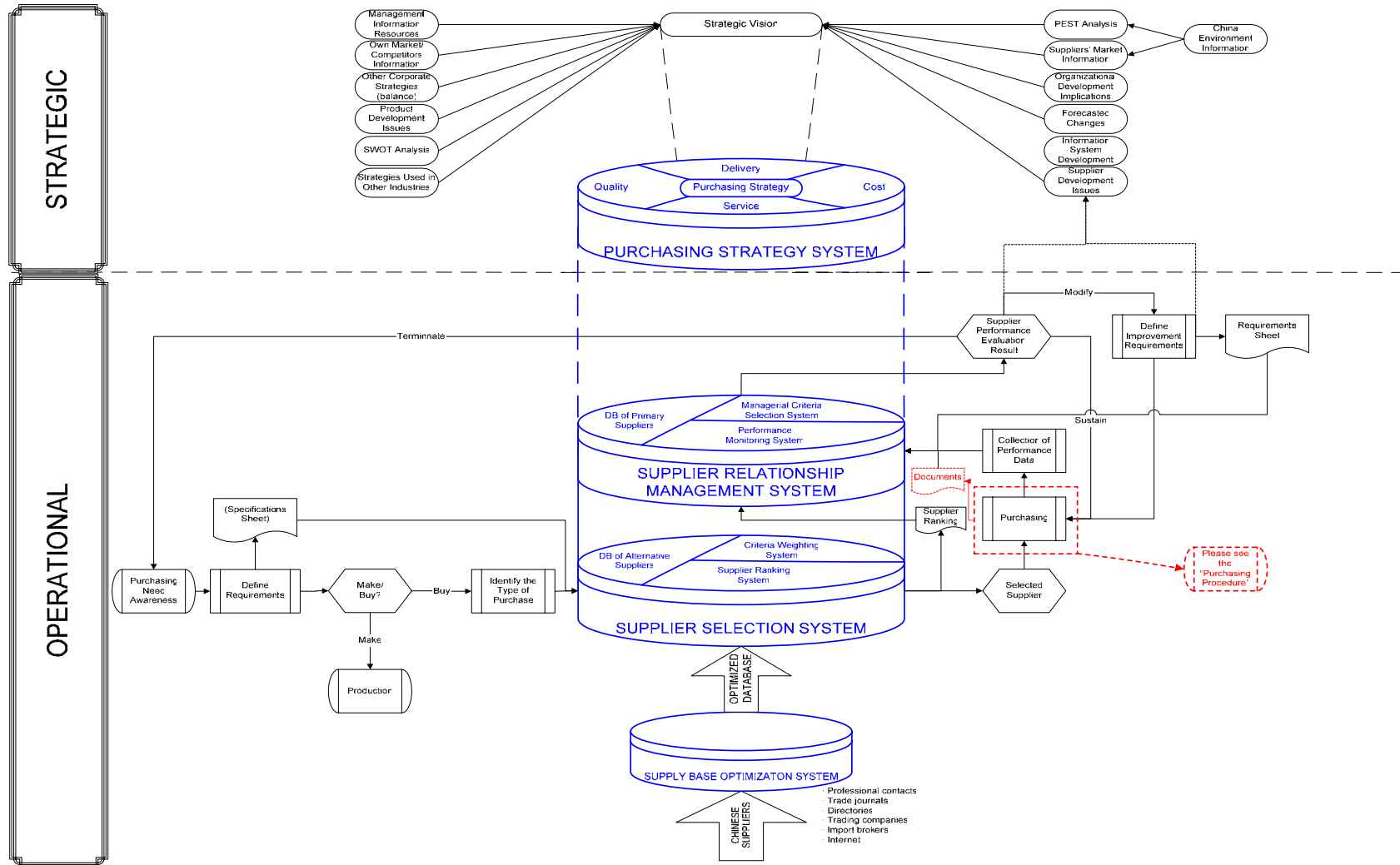


Figure IV.1 The Procurement Model for Companies Purchasing from China

IV.2. NEW SYSTEM DEVELOPMENT

After studying and analyzing the current procurement activities in China, a new system design and development need is realized. In this section, the model developed in Figure IV.1 is described in detail. Statement of the new model starts from the need identification and goes on within a closed loop of activities. The processes followed in this model are described below.

IV.2.1. Need Identification

As stated earlier, the need of a purchasing activity can be triggered by the actions of external factors such as global competitors, change in business environment including major technological changes and internal factors such as changes in companies' strategies and managerial goals, and companies' competency and resources [1, 17]. Notification of the need to purchase by either:

- a requisition issues by the stores, stock control or a potential user
- a bill of materials issued by the drawing office, production control or equivalent department [16].

IV.2.1.1. Requirements and Specifications Development

A specifications sheet must be formed after the recognition of the need [18]. Here the purchaser identifies the requirements of the item that is going to be purchased. The contents of a specification will vary according to whether the specification is written from the standpoint of the user, designer, manufacturer or seller [16].

The following order can be used for a specification relating to a product, process or service [16]:

1. *identification*: title, designation, number, authority
2. *issue number*: publication history and state of issue, earlier related specifications
3. *contents list*: guide to layout
4. *foreword*: the reason for writing the specification

5. *introduction*: description of the content in general and technical aspects of objectives
6. *scope*: range of objectives/content
7. *definitions*: terms used with meanings special to the text
8. *requirement/guidance/methods/elements*: the main body of the specification
9. *index*: cross-references
10. *references*: to national, European or international standards or other international company specifications.

Below table may be a model to a specifications sheet to be used in a purchasing activity.

Table IV.1 The Specifications Sheet

ID		
Number		
Contents		
Foreword		
Introduction		
Scope		
Definitions		
Requirements/Guidance/Methods/Elements	Conditions of Use	
	Characteristics	Dimensions
		Weight
		Appearance
		Materials
		Safety Indications
		Method of Marking
	Performance	Working Conditions
		Test Procedures
		Acceptance Conditions
		Certifications Required
	Life	
	Reliability	Control Procedures
	Control of Quality Checking	Quality Control Procedures
		Instructions
Packing and Protection	Compliance Certifications	
	Packing Specifications	
	Supply Conditions	
	Period of Storage	
Information from Supplier	Marking of Packaging	
	Instructions (Installation, Operation, Maintenance)	
Index		
References		

IV.2.1.2. Identification of Purchase Type

The three types of purchases – from least amount of time and complexity to most amount of time and complexity – are:

1. straight rebuy or routine purchase
2. a modified rebuy, which requires a change to an existing supplier or input
3. a new buy, which results from a new user end [16].

IV.2.2. Supplier Search

Before the identification of possible suppliers, a database should be established in order to have as many appropriate suppliers as possible in comparing them and matching with specifications. A supply base optimization system is run in the beginning as a filter in order to eliminate irrelevant suppliers and avoid heavy data load. As mentioned before, 5 most used information sources found to be [16, 19]:

- Professional contacts – 48%
- Trade journals – 43.7%
- Directories – 31.1%
- Trading companies – 30.4%
- Import brokers – 24.2

The internet can be a good resource for suppliers, although there is always the possibility that you will be swamped with information if you are not highly selective. For instance; www.asiansources.com and www.alibaba.com are some of the most popular internet pages used to find Chinese suppliers.

Other sources of information include:

- Government departments of foreign nations
- Shipping and forwarding agents
- Banks
- Chambers of commerce
- Specialist enquiry agents
- Trade fairs and exhibitions

Additionally, that should be kept in mind that each company may have its own contacts and unique supplier searching methods.

All the suppliers can enter to the supply base optimization system. However, only relevant suppliers may pass to the database in the supplier selection system.

IV.2.3. Purchasing Strategy System

As mentioned above, the role of the purchasing strategy system is to select critical purchasing items of the organization, identify alternative suppliers to be included in the analysis, identify supplier selection criteria.

IV.2.3.1. Selection of Critical Parts

Organizations with limited resources want to spend as much time and effort as possible in managing critical purchasing items that are relatively more important [9]. The critical parts are selected out of all purchased item in this step.

Organizations can use two different methods to select the critical items. One method is “purchasing portfolio analysis,” high risk items and high volume purchases are distinguished from other that have relatively low risk and volume. The other is by a “Pareto analysis” which is used to identify high-value-added strategic items.

IV.2.3.2. Identification of the Alternative Suppliers

The information in the database is used in this step to select the alternative suppliers to be included in the analysis. Based on such information, both the current suppliers and the supplier candidates are included in this analysis as the alternatives [9]. There should be a standard for suppliers’ information included in the database in order to make reliable comparisons.

To obtain information for a standard supplier database may be done by means of a suitable questionnaire, supplemented where appropriate by a visit to the potential suppliers [16]. The company profile used for this purpose should include, but is not limited to, items in the Table IV.2.

Table IV.2 The Company Profile

Company Name		
Company Address		
Contact Person		
Items that Can Be Purchased		
Item Price		
Company History		
Total Sales	Value	
	Volume	
Product Lines		
Market Share by Product Line		
Number of Employees	Blue	
	White	
Organizational Ownership		
Major Customers		
Major Supplies		
Minimum Order Quantity		
Lead Time		
Acceptable Payment Methods		

The information in above table is easier to get from even the companies that have been meet recently. However, to evaluate some suppliers that have been meet before purchasers need more information. That information can be listed, but not limited to, as in the Table IV.3

Table IV.3 The Extended Company Profile

Company Name		
Company Address		
Province Name (China)		
Contact Person		
Items that can be purchased		
Item Price		
Company History		
Total Sales	Value	
	Volume	
Product Lines		
Market Share by Product Line		
Number of Employees	Blue	
	White	
Organizational Ownership		
Major Customers		
Major Supplies		
Minimum Order Quantity		
Lead Time		
Acceptable Payment Methods		
Delivery History	Percentage of on-time Deliveries	
	Percentage of in-stock Availability	
	Convenience in Communication	
	Ability to Expedite	
	Confidence in the Sales Rep.	
Quality Records	Quality Rejects	
Cost Structure	Labor Cost	
	Material Cost	
	Manufacturing Cost	
	Overhead Cost	
	Administrative Cost	
Management Capability		
Personnel Capability		
Technological Capability		
Environmental Regulation Compliance		
Financial Capability/Stability		
Production Capability		
Information Systems Capability		
Supplier Sourcing Strategies		
Long-Term Relationship Potential		
Acceptable Payment Methods		

After the recognition of purchase need, specifications comes to the SSMS and purchasing strategy system identifies the alternative suppliers to be identified by matching the requirements with the information in the database according to the company profile information.

IV.2.3.3. Identification of the Supplier Selection Criteria

Supplier selection criteria may vary from one company to another. Those criteria are decided by the strategic vision of the company. Both internal and external factors have effect on shaping purchasing strategy, thus selection criteria. Those criteria should include not only the traditional criteria such as quality and delivery, but also cultural compatibility, long-term plan, financial stability, technology and design capability, the compatibility of top management, location of production facilities, etc. [9].

IV.2.4. Supplier Selection System

This sub-system includes the database of alternative suppliers, criteria weighting system and supplier ranking system. The purchasing requirement comes with a specifications sheet and into this system along with the type of purchase information and alternative suppliers in the database are listed and ranked automatically according to the selected criteria.

IV.2.4.1. Calculation of the Weights of the Criteria

Weights of the criteria may be decided in order to reflect the ranking of the alternatives and also to determine the degree of importance of them. There can be many different ways to calculate the weights of the criteria and selection of those may differ form industry to industry and company to company. This thesis study does not point a single method of calculation and leave this subject to another research.

After a use of any weighting method the Table IV.4 is formed.

Table IV.4 The Criteria Weighting Table

Criterion Name	Criterion Weight
Criterion 1	c_1
Criterion 2	c_2
Criterion 3	c_3
...	...
Criterion y	c_n
TOTAL	$\sum_{i=1}^n c_i = 100$

IV.2.4.2. Identification of the Key Criteria

Identification of the key criteria may differ according to the organizations' selection. One way is to use the Pareto analysis. Traditionally, manufacturers identify the top 20% of the parts as the critical parts that account for approximately 80% of the total purchase cost using the Pareto curve [9]. In this thesis study, weights of the criteria are introduced instead of cost. Therefore, the criteria that account for approximately 70% to 80% of the total sum of the weights in the Pareto curve are identified as the "key criteria".

IV.2.4.3. Computation of the Overall Score

The rating levels are established and the rating score of each level is determined for each supplier selection criterion. These levels may be named as "outstanding," "above average," "average," "below average," and "unsatisfactory." For each criterion, pairwise comparisons between the five rating levels are required to develop the relationship between rating levels and rating scores [9]. The rating levels of each supplier for each criterion can be determined based on experts' judgments. Point allocations can also be used instead of naming the rating levels with "outstanding," "above average" etc. The overall score of each supplier is created by multiplying the weight of each criterion by the supplier's rating scores on each criterion. This calculation can be formulized as in the equation IV.1.

$$S_x = \frac{\sum_{i=1}^n c_i \cdot r_{ix}}{100}$$

- S_x : overall evaluation score of supplier x
 i : the number of supplier selection criterion
 c_i : the weight of criterion i
 r_{ix} : the rating score of supplier x over criterion i

(IV.1)

Visual explanation of this computation can be found in the Table IV.5.

Table IV.5 The Computation of Overall Score

Criterion Name	Criterion Weight	Supplier 1 Rating Scores	Supplier 2 Rating Scores	...	Supplier x Rating Scores
Criterion 1	c_1	r_{11}	r_{12}	...	r_{1x}
Criterion 2	c_2	r_{21}	r_{22}	...	r_{2x}
Criterion 3	c_3	r_{31}	r_{32}	...	r_{3x}
...
Criterion n	c_n	r_{n1}	r_{n2}	...	r_{nx}
TOTAL	$\sum_{i=1}^n c_i = 100$	$S_1 = \frac{\sum_{i=1}^n c_i \cdot r_{i1}}{100}$	$S_2 = \frac{\sum_{i=1}^n c_i \cdot r_{i2}}{100}$...	$S_x = \frac{\sum_{i=1}^n c_i \cdot r_{ix}}{100}$

IV.2.4.4. Selection of the Primary Supplier

Primary suppliers are the suppliers that are ranked first when sorted by their scores after the computation of the overall score. They are potential partners for successful buyer-seller relationships. These suppliers form a good supplier pool and if a supplier cannot fulfill the requirements of the buyer, other suppliers ranked after the first one can be selected.

IV.2.5. Supplier Management System

Supplier management system includes database of primary suppliers, managerial criteria selection system and performance monitoring system. The role of the supplier management system is to identify managerial criteria, and to monitor suppliers' performance after providing support based on the managerial criteria.

IV.2.5.1. Identification of the Weak Criteria of the Primary Supplier

Not all of the primary suppliers' criteria have higher rating scores over other suppliers. When compared with other suppliers, those criteria rating scores of the primary supplier, which are lower than others', are the weak criteria of the primary supplier.

IV.2.5.2. Identification of the Managerial Criteria

The managerial criteria are formed by the key criteria and the weak criteria. Putting pressure on the key criteria will improve the quality of the items purchased and improving the weak criteria will eliminate the suppliers' shortcomings in purchasing activity.

The weights of the managerial criteria are determined by using the weights of criteria obtained in Section IV.2.3.3. Those weights are calculated by normalizing the weight of managerial criteria, which is already determined in the table in Section IV.2.4.1.

IV.2.5.3. Monitoring of the Managerial Criteria

The ideal supplier can be defined as the supplier that has the highest rating scores among all the criteria. Purchasers evaluate the primary suppliers' performance whether suppliers have achieved the level of ideal supplier regarding all the managerial criteria or not. Therefore, for effective suppliers' improvement purchaser should pay more attention to its suppliers' performance regarding its managerial criteria rating scores.

IV.2.6. Business Terms Negotiations

In the procurement; purchasing activity starts after the selection of a primary supplier. The purchasing need comes into shape with the requirements and specifications sheet and system brings out a ranking list of alternative suppliers, where the first ranked one is named as primary supplier.

Although the primary supplier is selected after the evaluation of many criteria, some suppliers may not be able to fulfill the requirements which they declared to provide previously. In that situation, another supplier ranked as 2nd in the list may be considered as the primary supplier.

Business terms including methods of payment, incoterms and transportation method may be included in the supplier selection step of the procurement. Those terms can be used as selection criteria in previous sections. However, those are generally accepted as discussion subjects between the supplier and the buyer and may be changed after some bargaining.

In purchasing negotiations, terms under three typical groupings are discussed; price, contractual and delivery issues. Some of those negotiation issues include, but are not limited to, the following issues in below tables [16].

Table IV.6 Some Price Negotiation Issues

Some Price Negotiation Issues	
Terms of payment	Open account
	Bills for collection
	Letters of credit
	Payment in advance
Incoterms	FOB, CIF, EXW,...etc
Amendment to existing price	
Quantity discounts	
Trade and cash discounts	
Carriage	
Packaging	
Insurance	
Storage costs	
Penalties for stockouts	
Disposal of obsolete or unsold products	
Rebates	
Incentive payments	
Price review mechanisms	
Type of pricing agreement	
Price analysis and cost breakdown	
Material costs	
Labor costs	
Overhead costs, including distribution and marketing	
Reasonable profit	
Labor costs	
Allowances for buyer contributions and basis of shared costs	

Table IV.7 Some Contractual Negotiation Issues

Some Contractual Negotiation Issues	
Type of contract	fixed price or lump sum
	cost reimbursable
	unit price
Legal charges	
Resolution of dispute	
Cancellation rights	
Right of audit and open book agreements	
Force majeure	
Conditions, warranties and guarantees	
Non-compensatable delays	
Inspection rights	
Environmental issues	
Health and safety issues	
Use of subcontractors	
Charges for use of patents needed by supplier/purchaser	
Sharings of savings due to improved design /production	
Payments in advance	
Milestone payments	
Changes to specifications and designs	

Table IV.8 Some Delivery Negotiation Issues

Some Delivery Negotiation Issues
Delivery/completion times
Performance management issues
Passing of property
Palletisation
Transportation
Damages/compensation for failure to deliver on time
Carrying of stock by supplier
Lead time reductions
Materials requirements planning (MRP)
Liaison with other supply chain customers
Just-in-time requirements

IV.2.7. China Environmental Factors

This section is related to the Chinese environmental factors that may affect the purchasing activities of companies buying from China. Those issues found to be important in this section may be considered as supplier selection criteria for the SSMS, or may be used to view suppliers' characteristics just for purchaser's information.

IV.2.7.1. Socio-cultural Factors

Chinese culture has many effects on Chinese business and their negotiation styles. Below instruction Table IV.9 is prepared by studying Graham and Lam's research findings [31]. Those instructions may be followed as a check-list when negotiating with Chinese suppliers.

Table IV.9 Some Issues to be Considered When Negotiating with Chinese Suppliers

Some Issues to be Considered When Negotiating with Chinese Suppliers		Check
1	Try to find personal connections. Chinese value relationships such as friends, relatives and close associates.	
2	Try to find an intermediary that can provide personal trust for both supplier and purchaser. At least try to be one.	
3	Use same level of employee during meeting with Chinese. They value titles and hierarchy and want to meet with their equals.	
4	Value friendly and personal approaches of Chinese suppliers and try to sincerely reply as much as possible.	
5	Consider Chinese style discussion and be prepared to discuss all business terms at once.	
6	Consider high maneuvering margins Chinese suppliers put, get ready for long business sessions to come to a consensus and learn the market terms in advance.	
7	Do not cause any embarrassment or loss of composure to Chinese suppliers. It may be disastrous for business negotiations.	
8	Show endurance and patience, and ask more questions for details. Chinese expect long bargaining sessions.	

IV.2.7.2. Economic Factors

Chinese Yuan exchange rate should be considered when buying from China. One of the below conditions can be put into the business contract in order not to be affected from any rate changes.

Table IV.10 Some Actions to Control RMB Exchange Rate Risks

Actions to Control RMB Exchange Rate Risks
Arrange to buy in RMB
Arrange to buy in another currency
Fix purchasing with forward contracts for a period no longer than six months
Buy currency options
Buy the RMB at the spot price on the day on which the China purchase is made
Negotiate RMB exchange rate adjustment clauses

IV.2.7.3. Political and Legal Factors

Political events and legal conditions can destabilize trading conditions. Issues in below table should be considered when purchasing from China.

Table IV.11 Political and Legal Issues to be Considered When Purchasing from China

Political and Legal Issues to be Considered When Purchasing from China
Evaluate Chinese country risk through reports from independent agencies
Investigate suppliers approach to ethical issues such as sweatshops and child labor employment
Investigate political risk factors of supplier's province
Study the effects of global activities to supplier's position (ex: entrance to WTO)
Investigate taxation structure and opportunities for supplier's province
Prepare a contract to cover all legal issues including those mentioned in tables under section-IV.II.6 Business Terms Negotiations
Determine the documentation that are necessary for trading from China

IV.2.7.4. Technological Factors

Technological developments in the world bring new business opportunities or improve current business activities by enhancing the processes. As stated before, Chinese companies are moving funds in order to increase their competition power. With the help of all engineer government cabinet, China is eager to adopt technological

developments and improve by itself. On the other hand, Chinese companies are acting too slowly on adopting and implementing technology to their SCM operations. If the purchaser wants to integrate the supplier into its own SCM systems, suppliers' capability and technological infrastructure should be investigated. Purchaser buying from China should always keep an eye on global technological developments and their possible effects to Chinese manufacturers.

IV.2.8. Purchasing Process

The purpose of this section is to describe in detail the purchasing process, which is shown as a single procedure in Appendix-1 and Appendix-2. After the primary supplier decision came out of the system, purchaser needs to perform the purchasing activity.

Purchasing activity includes processes to be done by buyer side and supplier side. Additionally, some processes such as business negotiation and inspection are needed to be performed by both parties.

Processes included in the purchasing activity for buyer side are business negotiations, request of evaluation sample, testing the evaluation sample, defining requirements for improvement, preparing importation requirements, applying for importation approvals, determining transportation and packaging methods, preparing and sending purchase order, getting the inspection done, confirmation of the inspection, request of new production/rework, controlling the shipment and clearance of goods form customs, and evaluation of performance of purchased products.

Processes included in the purchasing activity for supplier side are business negotiations, preparing and sending the evaluation sample, evaluation and fulfillment of improvement requirements, preparing and sending requested documents, production, getting the inspection done, performing the new production/rework, and making the shipment.

Those processes mentioned above can be seen clearly in the process maps visualized in Appendix-1 and Appendix-2.

PART V

CONCLUSION

This research investigated the SCM, procurement in SCM and China environmental factors related to purchasing from China. SCM is the integration and control of activities that brings the product from raw material stage to the end user. It includes material and information flow both upwards and downwards in the supply chain. Procurement is one of the most important set of activities in the SCM and needs to be managed strategically in order to get competition power. SCM and procurement is becoming more important for companies purchasing from China, since this country is called as “the factory of the world”. It is found that a customized procurement model for companies purchasing from China will provide those companies to enhance their existing SCM and procurement activities.

In the literature review part of this thesis study, an extensive research is carried on to make a general definition of SCM and its components, procurement, buying from abroad and performance measurement. The information gathered in this part formed the framework of the model offered.

The next step in the thesis study was to find out the environmental factors that China brings to the procurement process. China environmental factors are studied under four topics to complete political and legal, economical, societal and technological (PEST) analysis. The data from resources is tried to be collected under these four topics.

In the last part of the study, the model is formed and presented with process drawings. The information gathered in first and second parts are related to each other in order to offer a procurement model for purchasing from China. The model presented finally targeted to provide a solution for both manufacturing and non-manufacturing companies to control their procurement processes in China. In the model, all the steps are tried to be determined in order to control and make use of threats and opportunities of purchasing from China. The model included subsystems of supply base optimization, supplier selection, supplier management and purchasing strategy system. Each subsystem automatically performs different types of activities to provide data for the good of procurement and SCM of the purchasing company.

Consequently, with this thesis study the place of procurement activity in SCM is well studied and background items of a procurement model are determined. The reasons why do companies purchase from Chinese suppliers are researched. Factors underneath the need of a customized procurement model for China are investigated. Finally, systems and subsystems included in a procurement model are researched and located in the model offered.

The contributions of this thesis study have been automating some steps of procurement activities, providing useful data to purchasers on managerial decisions, evaluating and monitoring the performance of suppliers and eliminating the problems occurring in current procurement activities performed in China. The model offered can ease the job of purchasing manager and contribute to the performance of both suppliers and purchasers. Thus, improved quality, delivery, service and price will enhance the customer satisfaction.

PART VI

DISCUSSIONS AND EVALUATIONS

The model offered with this research aimed to provide a better control of procurement processes to buyers and lower total cost provided with shorter lead times and higher order fulfillment for purchases made from China. Every detail of the model is tried to be defined clearly for purchasing to implement easily. However, it is not possible to cover all issues in one single research and this model needs some modifications in some cases. Those modifications may vary according to the related industry and purchasing company's own characteristics.

As stated above, the aim of this model is to bring some advantages to purchasing companies. The model;

- provides an insight to purchasing companies about how to get information about China, procurement from China and Chinese suppliers
- clearly draws processes to be followed during the procurement from a Chinese supplier and gives process monitoring capability to the purchaser
- establishes the steps to determine the supplier selection and evaluation criteria, demonstrates the criteria weighting system and how to rank the suppliers
- establishes the steps to determine the supplier relationship management criteria, demonstrates the criteria weighting system and how to evaluate suppliers' performance

- brings a tangible supplier relationship management system based on supplier performance evaluation results
- defines the data and type of documents to be used during the procurement process
- mentions possible effects of China environmental factors and indicates methods to control those effects.

On the other hand, there may be some disadvantages of using such a procurement model when buying from China. The model,

- may limit purchasers to control exceptional situations
- may need an initial investment and feasibility should be investigated before such investment is done
- can be too detailed for some simple repeated order purchases
- requires a database and flexible software development which may not be possible for some purchasing companies.

A few limitations of this research should be addressed. The first shortcoming is that the model offered is not applied to a real case to see the results and possible implications. The second shortcoming is the lack of a questionnaire to be implemented among companies purchasing from China. Some more items could be added to the model with the help of a survey.

Several interesting issues remain for future research. A questionnaire can be further prepared to measure the challenges and opportunities China offers to purchasers. The selection and evaluation criteria mentioned in the SSMS can be defined in detail. Most importantly, a software can be developed to realize the model offered in this thesis study. Finally, a prototype system can be developed and applied to several real cases with real data in China, and the system can be improved if necessary.

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APPENDICES

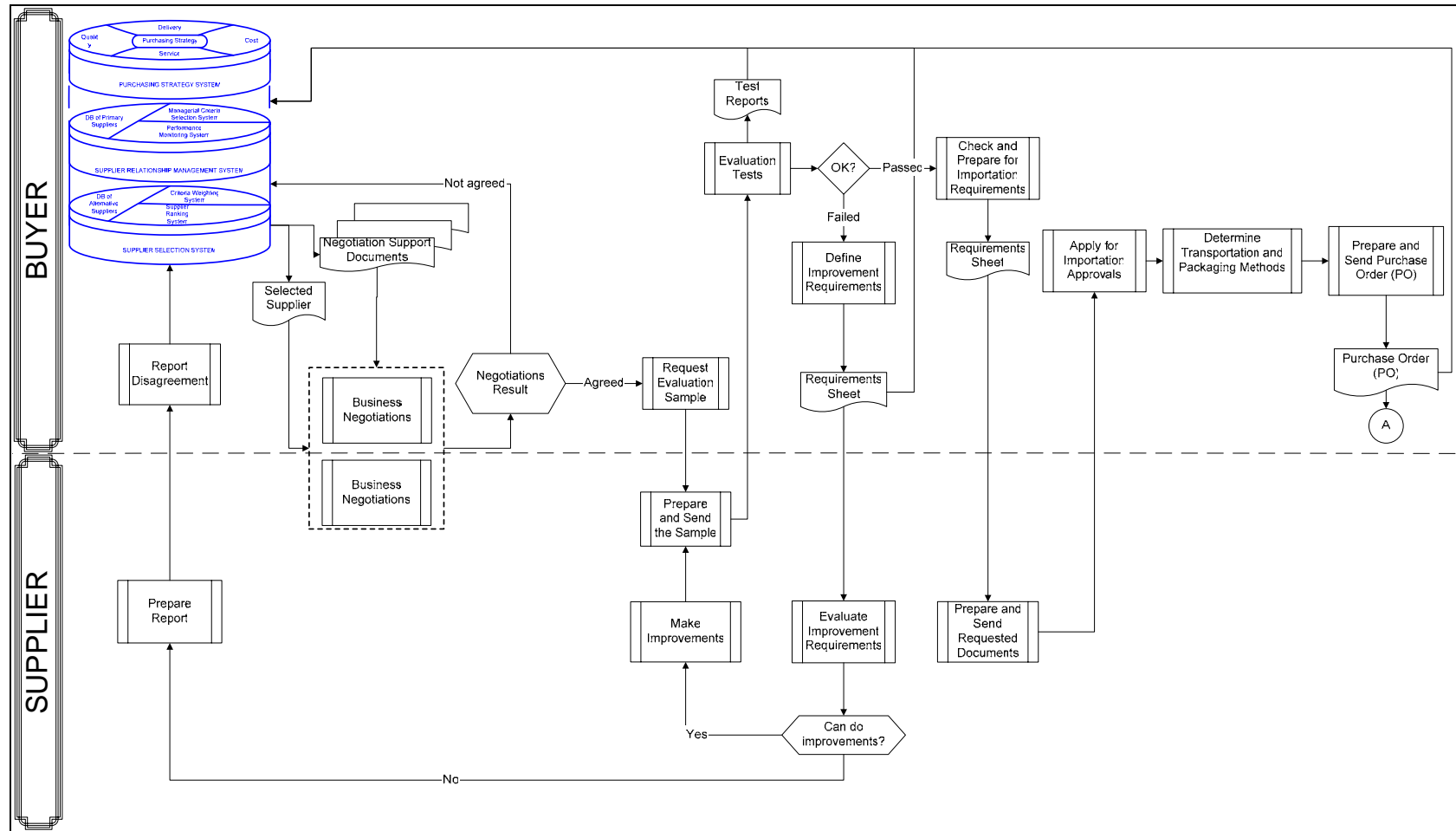
APPENDIX-1 THE PURCHASING PROCEDURE FOR COMPANIES
PURCHASING FROM CHINA (PART-1)

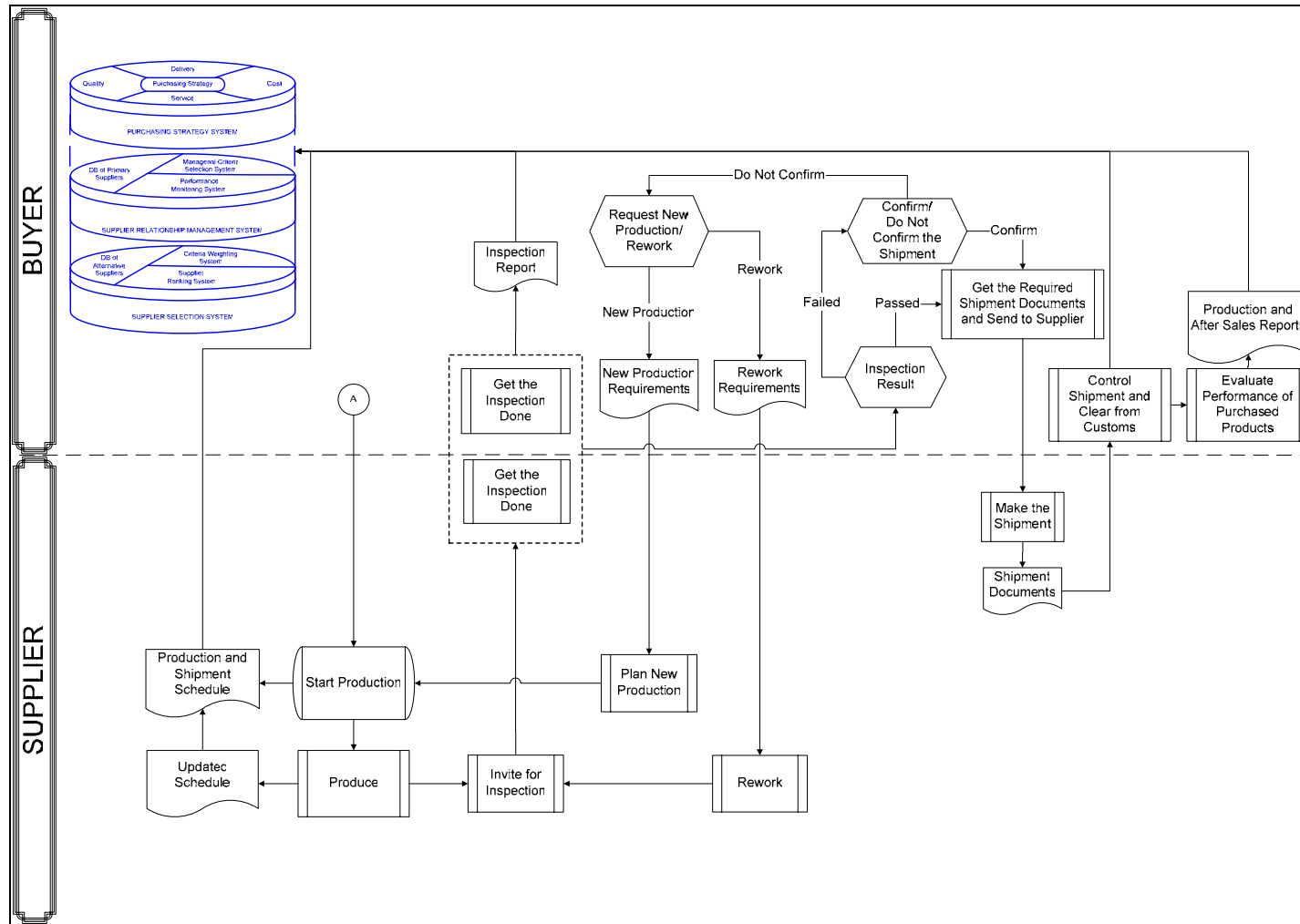
APPENDIX-2 THE PURCHASING PROCEDURE FOR COMPANIES
PURCHASING FROM CHINA (PART-2)

APPENDIX-1

THE PURCHASING PROCEDURE FOR COMPANIES PURCHASING FROM CHINA (PART-1)

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MARMARA UNIVERSITY
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GRADUATE STUDIES IN PURE AND APPLIED SCIENCES

ACCEPTANCE AND APPROVAL DOCUMENT

**DEVELOPMENT OF A PROCUREMENT MODEL TO ENHANCE
SUPPLY CHAIN MANAGEMENT FOR MANUFACTURING AND
NON-MANUFACTURING FIRMS PURCHASING FROM CHINA**

Established committee listed below, on 27.06.2006 and 2006/16-2 by the *INSTITUTE FOR GRADUATE STUDIES IN PURE AND APPLIED SCIENCES'* Executive Committee, have accepted Mr. MUSTAFA HACISALİHOĞLU's Master of Science thesis, titled as "DEVELOPMENT OF A PROCUREMENT MODEL TO ENHANCE SUPPLY CHAIN MANAGEMENT FOR MANUFACTURING AND NON-MANUFACTURING FIRMS PURCHASING FROM CHINA" in Engineering Management.....

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APPROVAL

Mr. / Mrs. / Miss: Mustafa Hacisalihoglu..... has satisfactorily completed the requirements for the degree of ~~Doctor of Philosophy~~ / Master of Science in Engineering Management..... at Marmara University.
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Istanbul

