

# **A Model for Enterprise Sourcing Strategy Evaluation**

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<p>Enterprise sourcing strategies are becoming important with respect to the globalized world and the constantly changing international market. As short-term strategies, most of the enterprises are trying to outsource non-core business functions, which may also require expert knowledge. However, a difficulty to determine non-core business exists. The purpose of this study is to propose and develop a new business sourcing model in an established firm. Companies are searching for complex channels to maximize their profitability. While the profitability chain tends to become longer, as well as more complicated, the sourcing strategies are becoming difficult to create and manage. By using weight analysis method, this study also focuses on the process of developing sourcing, as well as influence and consequences of the implementing of enterprise sourcing strategies. Analysis results indicate that insourcing may be beneficial in a long term compared with outsourcing. Finally the study concluded that comprehensive sourcing can be a new approach for enterprise sourcing strategy.</p>	
<b>Keywords</b> Outsource, Insource, Enterprise Strategy, Sourcing Method, Comprehensive Sourcing	

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## **Definitions and Abbreviations**

### **Comprehensive Sourcing**

A comprehensive method for doing outsourcing and insourcing.

### **Element Weight**

The importance of each sourcing element in general.

### **Insourcing**

A business decision that is often made to gain control of critical production or competencies, by bringing a third party outsource to work inside a company.

### **Outsourcing**

Obtain goods or services from an outside or foreign supplier, especially in place of an internal source.

### **Pentagon Analysis**

Method of sourcing analysis by giving input of 5 elements in a radar chart.

### **RFQ**

A request for quotation (RFQ) is a standard business process whose purpose is to invite suppliers into a bidding process to bid on specific products or services.

### **RFP**

A request for proposal (RFP) is a solicitation made, often through a bidding process, by an agency or company interested in procurement of a commodity, service or valuable asset, to potential suppliers to submit business proposals.

### **RFI**

A request for information (RFI) is a standard business process whose purpose is to collect written information about the capabilities of various suppliers. Normally it follows a format that can be used for comparative purposes.

### **Sourcing**

Refers to a number of procurement practices, aimed at finding, evaluating and engaging suppliers of goods and services.

### **Sourcing Strategy**

A plan of action or policy designed to achieve successful sourcing.

### **Sourcing Element**

A part or aspect of sourcing functions, especially one that is essential to business strategy.

# 1 Introduction

## 1.1 Rationale

Global companies are now striving to develop a sourcing strategy to support a new business model that suits operation chains, which are scattered around the world (Chung, Yam, and Chan, 2004). Manufacturing enterprises are changing the way they behave in the market to face the increasing complexity of the economic, social, political and technology dynamics (Tolio, Ceglarekc, Newmani and Vanczaj, 2010). One of the important conclusions is that strategies should consider the relationship between the partitioning of the client, service provider and aggregation of various capabilities in the final assembly (Gaddea and Jellbo, 2002).

Services oriented enterprise, for instance, containing products, processes, production systems and services package more importantly result in being challenged by involving external drivers, including the introduction of new regulations, new materials, technologies, services and methods of communications (Tolio, Ceglarekc, ElMaraghye and Vanczaj, 2010). Finally, yet importantly, the enterprise sourcing strategies should also take costs and sustainability into consideration.

Nevertheless, the studies of Steinlea and Schiele (2007) illustrate that, contrary to common expectations, a high global sourcing quota does not necessary improve a firm's competitiveness. Besides, the international organization might be limited to global sourcing, if the company is unable to become a preferred customer of its own strategic suppliers (Artisa and Okubo, 2009).

The interrelationships are important between international sourcing decisions, sourcing strategies, and supplier performance (Bozarth, Handfieldb, and Das, 1998). Interactions and network effects between supply network actors (Hultmana, Johnsenb, Johnsenb, and Hertz, 2012) influence the global sourcing process. Global competition is the need for a firm to seek international suppliers (Artisa and Okubo, 2009). Bozarth, Handfieldb, and Das (1998) present a number of taxonomies that describe the evolution of global supply based development.

Global sourcing strategy decisions need to be understood and coordinated across global supply networks. Hultmana et al. (2012) indicate the importance of inter-action amongst supply network actors, showing how the global sourcing strategy of one actor may significantly influence the sourcing strategies of other ones.

## **1.2 Aim and Objectives**

Currently in most of the firms, the management team develops the sourcing strategy. However, as the work environment is evolving, a systematic approach is appreciated to deal with the complexity. System sourcing is receiving increasing attention in purchasing (Gaddea and Jellbo, 2002).

The benefits of global sourcing as part of a firm's purchasing strategy have been widely discussed in academic literature. However, there are few models that provide a comprehensive risk and cost assessment to guide management and decision making (Holwega, Reichharta, and Hongb, 2011). Few models particularly, capture the dynamic nature of many cost drivers (Bozarth, Handfieldb, and Das, 1998), for instance energy consumption cost, transportation cost, labour cost inflation and how to calculate the total summary (Holwega, Reichharta, and Hongb, 2011).

This thesis can benefit companies, which are going to implement a sourcing strategy; and for the ones, which have already implemented outsourcing but have an urgency to change the strategy. The discussion can also be useful for economics decision makers as well. Systematic sourcing may be beneficial for large enterprises, as well as the long-term economic development.

## **1.3 Research Scope**

The topic is new and trendy, which gives an obstacle for implementation. Different parties need to be involved as the research proceeds. The company, which will act as a major research object, should provide essential information regarding the sourcing strategy process, as well as the influence of post sourcing. Meanwhile, data is needed



from the state economics as well, which gives the statistics of both positive and negative consequences of sourcing.

Research activities will focus mainly on the following four parts: theory, methodology, scenarios, and models. The thesis topic will focus on the influence for the post sourcing enterprises, the discussion will cover the strategies making process as well as the change effect on employee and lower management team. The influence of sourcing for the society will be included in the thesis, which may cover the topics of employment market, and long-term influence for the domestic economics.

Systematic way of thinking and implementation is to explore the inherent complexity of sourcing. Enterprise systematic sourcing is analysed with regard to the system definition, applied to the division of labour in development and production related tasks. Finally, the capabilities of the customer and potential suppliers should be included in the scope.

#### **1.4 Research Method**

Enterprise sourcing is a highly complex structure which consists of numerous activities and management dilemmas (Perunovic, 2007). Data gathering methods in this thesis consist of at least the following: qualitative and quantitative. From the previous studies, many theories are discussed in the academy field; they have also been used to understand the outsourcing activities. At least the following theories will be involved in this thesis:

- Evolutionary economics
- Relational view
- Knowledge-based view
- Core competences
- Radar Chart Analysis
- Sourcing Modelling
- Weight comparison
- Resource-based management method
- Negative curvilinear model by Groat (2012) (adjust outsource on x and y axis)

## **1.5 Guide of the Chapters**

This section describes the abstracts of each chapter other than this introduction chapter itself. Chapter two describes the background of the thesis and related work in the fields of enterprise sourcing. However, not all the previous research has introduced comprehensive sourcing as a concept. Part of the previous research describes the importance of outsourcing, others illustrate insourcing as an important strategy. Third chapter introduces the methodology for systematic sourcing. Furthermore, this chapter introduces a new concept called sourcing element. Chapter four discusses different scenarios for sourcing, meanwhile, it concludes that besides outsourcing and insourcing, there is another option, which is defined as comprehensive sourcing. Fifth chapter concludes the thesis and gives expectations for future research.

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## 2 State of Art

Global competition makes enterprises face increasing challenges; enterprises aim to have a high level service quality, and products have to adapt to new environments in order to survive. To achieve the survival and gain reputation in the modern world, companies need to adjust their supply chain (Yuan and Ashayeri, 2009). However, every enterprise has its own strength and weakness. Strength will be the advantages and weakness will be disadvantages for enterprises, who want to improve service quality and decrease labour cost (Gilley and Rasheed, 2000). Therefore, to overcome shortcomings and enhance core competencies (Friedman, 2005), companies need to consider outsourcing as a strategy.

Outsourcing has been defined as ‘the purchase of a good or service that was previously provided internally’ (Quinn and Hilmer, 1994). It is actually a new word for an old practice, which can be described partially as facility management. Therefore outsourcing can also be illustrated as an integrated multidisciplinary. Interdisciplinary field devotes to the coordination of space, infrastructure, people and organization, often associated with the administration of enterprises (Cotts, Roper, and Payant, 2010). Recently, outsourcing has expanded its concept from purchasing simple goods to complex services. Due to the complexity of the current outsourcing procedure, strategic outsourcing should be consider as cost efficient and managerially efficient (Hitt and Holcomb, 2007).

Outsourcing contains several steps. First step is to decide whether the enterprise has a need for outsourcing. If the decision maker decides to outsource, and then choosing vendors for the product and services to be outsourced can be second steps (Teng, Cheon, and Grover, 1995). The later steps would contain how many service issues and how much items need to be outsourced. Previous research focuses mainly on those three steps, however, there are other steps to study as well. Such as in-house cost, benefit, quality improvement, risk management, success ingredient and et cetera (Perunovic, 2007).

Previous research has studied outsourcing in various elements and fields. Gilley and Rasheed (2000) analysis sourcing advantages for enterprise performance, for instance increasing productivity, cost reduction, and etc. Kennedy and Clark (2006) described how enterprises balance risk and benefit when performing outsourcing to developing countries such as China. Business should be considered as first priority, but legal and social impacts come afterwards. Previous researchers for instance Dye, Change, and Teng (2006) analyzed the disadvantages of the traditional outsourcing model by adding cost of purchase and later benefit. However, this type of outsourcing model is not suitable for non-constant purchasing, and long-term investment. Thus, author of this article believes the modern outsourcing model needs to consider at least the following elements, which are described in following section 2.1, 2.2 and 2.3.

## **2.1 Cost Effectiveness**

Cost effectiveness is an economical term, which describes the goods or services received from money spent in purchasing. During sourcing process, cost effectiveness means using the best value at the lowest cost. Cost effectiveness is distinct from cost benefit, which only assigns a monetary value to the measure of effect (Bleichrodt and Quiggin, 1999).

Moore, Segal, and McCormally (2000) believe cost effectiveness also decides if products and services are designed in house or to contracted out to consulting firms or engineering companies. Certain percentage of services should be outsourced compared with all work done in house (Steinlea and Schiele, 2007). According to Griffis and Hyunchul (2011), several sourcing agencies are targeting an in house percentage of 60% to 90% as an ideal outsourcing percentage (Bozarth, Handfieldb, and Das, 1998). Too much insourcing or over outsourced services can either decrease the productivity or increase overall cost of such enterprises (Holwega, Reichharta, and Hongb, 2011).

In house costs and outsourcing costs are two major costs of sourcing, while cost effectiveness aims at maximizing the fringe benefit. To work with cost effectiveness, an enterprise would need to build a systematic model to compare in house costs and

outsourcing costs, and then compare them with the previous status of such costs. Fringe benefit is the final figure, which will give such sourcing model a usefulness judgement.

The changing business environment requires enterprises to be flexible. New technologies and online data storages have become available; certain companies are not able to keep their technologies aligned in a decent level (Moore, Segal, and McCormally, 2000). Outsourced procedures and services help a company to keep their original competence and release the burden to outsourced hosting services, which they could rely on in case of projects and applications (Cotts, Roper, and Payant, 2010). Enterprises can deploy core business without being inappropriately involved in current technologies. Thus, focusing on what to do instead of how to do it can increase productivity as well as creativity.

For an upcoming project, in house solution would be to estimate the upfront capital costs, for instance, yearly operational cost, hardware cost and employee cost (Friedman, 2005). An outsourcing solution can bring a simplification for the target project, since the costs can usually be estimated monthly or even weekly. Besides, outside hosting services can provide a hybrid solution for one service, which gives great flexibility to original enterprises.

Recently, outsourcing concept does not stop on only products and services, it also expand to tasks, functions, system programming, application development, network administration, end user support, technical support, application maintenance and even critical information archiving and other related supports (Teng, Cheon, and Grover, 1995).

## **2.2 Quality Improvement**

Enterprises can have other reasons than cost savings to turn to vendors looking for outsourcing opportunities. Quality improvement can be one crucial consideration. For instance, enterprises may lack special expertise in certain fields. If enterprises lack the requirements for delivering, companies may not be able to finalise the product and

service. Lacks of speciality in certain fields will directly reflect to final product quality.

In other cases, an enterprise can proceed with a certain requirement, but it is not sufficient to complete the design to satisfied level. To finish the design and production line, decision maker should look for an outside vendor for solution. The report from KPMG (2001) reveals that consultants are able to work on larger, more complex projects compared to in house design and an inspected production procedure. As a consulting firm, KPMG (2001) is overemphasising the power of external consulting, which sometimes may jeopardise a crucial project. The reason for project failure by vendor is always related to lack of communication and vendor reassessment.

However, Sayer (2011) gives an example of Nokia, which illustrate that outsourcing is not the key for successful quality improvement. Besides, it is not a final solution either for successful innovation. Nevertheless, sourcing is needed in order to manage the quality improvement and to calibrate innovation. A carefully selected sourcing strategy may lead to major innovation. Enterprises can tap ideas of the engineering community by designing competition. Robin and Riedel (1997) provide an interesting example of seeking identification of the contribution of design and innovation to produce competitiveness in different markets.

### **2.3 Risk Management**

Risk management is the forecasting and evaluation of financial, technical, system and manual risks together with the identification of procedures to avoid or minimize their impact (Hubbard, 2009). There are crucial things to consider for risk management, for instance, legal, business, technology transfer, intellectual property protection etc. Different percentage of outsourcing requires distinct considerations. For example, an enterprise who wants to outsource the whole production chain is in a very different situation from the one who only wants to do a partial outsourcing.

As we know, risks are linked with profit, which a consultancy company would like to take if they are interested in high fringe profit (Kennedy and Clark, 2006). During the process of outsourcing, certain tools can be used for risk management. For instance,

contract management can be a good tool for risk management. Moore, Segal, and McCormally (2000) suggest that certain risks can be handled by consultants in the contract, which can be used as a tool to tie outsourcing firms to the contract.

## **2.4 Successful Sourcing Elements**

Sourcing strategy is important for enterprises; however, the success of outsourcing is complex to put into concrete data (Hsiang and Lee, 2010). Nevertheless, success can be measured in many perspectives (Ullah, Niazi, and Ahmad, 2011). It is important not only to consider a single element for outsourcing activities. Outsourcing of simple strategy can be measured with financial and economic success, but outsourcing of core elements should be emphasised on strategic success.

Each element of outsourcing should be measured with an index, whether it fails or succeeds. Failure on outsourcing should not be estimated with one single unsuccessful element. Meanwhile, success of single element should also not represent the success of outsourcing (Benedikt and Teuteberg, 2009). A systematic approach is used to analyse sourcing, which includes outsourcing and insourcing.

Contract focus on strategic activities and foresee advantages can both categorised as strategic success. Different from short-term financial and technological success, strategically success ingredient emphasises on strategic activities derived from the overall satisfaction of outsourcing. Enterprises may need certain capital expenditure, when they decide to have outsourcing as a strategy, since, outsourcing benefits always come with risks. Certain outsourcing arrangement may need a big quantity of short-term cash flow and capital.

### **3 Methodology for Sourcing**

The method of systematic outsourcing requires a mathematical model. Hereby, we call such a model a sourcing model. A sourcing model is a description of a system using outsourcing and insourcing concepts and language. The sourcing model also uses mathematical modelling and engineering disciplines with computer science and artificial intelligence. As it is defined previously, a sourcing model contains both outsourcing and insourcing processes. Therefore, it is not limited to simple task distribution and project allocation etc. The concept itself already contains strategical perspective.

The model introduced in this chapter helps explain the process of sourcing, which includes outsourcing and insourcing. The model is not only limited to statistical methods and mathematical equations. Since the sourcing model also contains strategic decision making, game theory is also required for such model. More specifically, the sourcing model should include the mathematical models, plus conflicts and cooperation among decision makers who are rational as well as intelligent.

Since companies require decision making for pursuing business, which can be considered a conflicting and cooperative game of several players. During the process of sourcing, mathematical models, engineering disciplines, economics terms and so forth explain the rational part, game theory covers the ranges of behaviors relations, such as increasing company gains and avoiding occurrence of profit loss.

#### **3.1 Scenarios for outsourcing**

Modern industries contain several domains, which make sourcing complex. From a top down perspective, the author first analyzed the relationship between different clients and vendors. By separate single vendor and multiple vendor relationship, we gain an understanding of the advantages and disadvantages of different types of sourcing.



### 3.1.1 Single Vendor

Single vendor sourcing describes the sourcing model of an individual relationship with another company. This single vendor situation refers to a company outsourcing a simple business function to another company. The business model is simple and clear. We explain this method by taking the following examples. Figure 3.1 describes the single vendor relationship.



**Figure 3.1 Single Vendor Relationship**

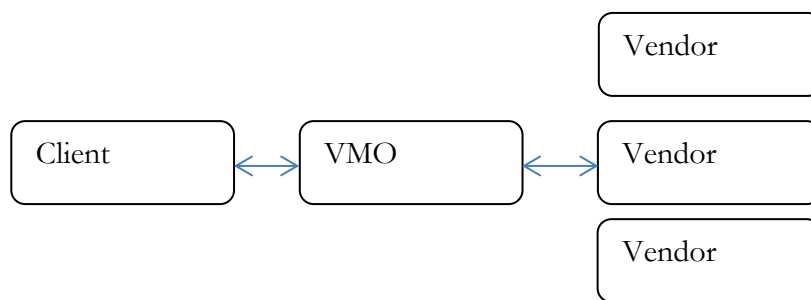
As we can see from figure 3.1, the client has a business relationship with one company. It is relatively easy to setup a vendor management process with a single vendor. The client only has to interact with one vendor, which makes communication less time consuming. When the client is trying to set up a general guideline and instructions for the vendor, it is also simple, since one vendor can interact with the client in a more swift fashion.

### 3.1.2 Multiple Vendor

Multiple vendor method describes the sourcing model of an individual enterprise that decides to have functions outsourced to different vendors. This type of a relationship refers to situations that company is searching for various vendors in modern market. The multiple vendor approach describes sourcing model of an individual enterprise contains several functions and distributed those functions to vendor groups.

A typical relationship for a client and multiple vendors is illustrated in Figure 3.2. In this relationship, the vendor management office actually has a more important function

compared to the single relationship vendor. If there is no special situation client will not get contacted by vendors directly, instead of vendor management office.



**Figure 3.2 Client VMO and Vendor Relationship**

As a common sourcing method, multiple vendor sourcing can be one method for small and middle size companies. Without taking an overload risk, a company can outsource simple functions to different vendors in market. This simple function may be seen as one single department. For instance, a city museum needs a system to maintain its collection. The museum director is not willing to hire an IT department, in this case, whole IT from system to data centre will be outsourced even museum has any IT expert.

From the museum director's perspective, IT as a whole department, or a single function can be outsourced to vendors. However, the whole department contains several subordinate units. In this case, the IT department itself actually requires several vendors. Vendor A is the provider of server hardware, vendor B delivers the management system, vendor C satisfies the requirement for cloud computing and etc. In this case, one example of the IT department is divided into several subordinates, and each subordinate has its own individual need for outsourcing. Therefore, in order to do

successful outsourcing, the museum director divides the different IT functions into different subordinates. Based on the subordinates' functions, director can look for vendors for each subordinate, which suits museum needs.

### 3.1.3 Multiple Functions with Multiple Vendors

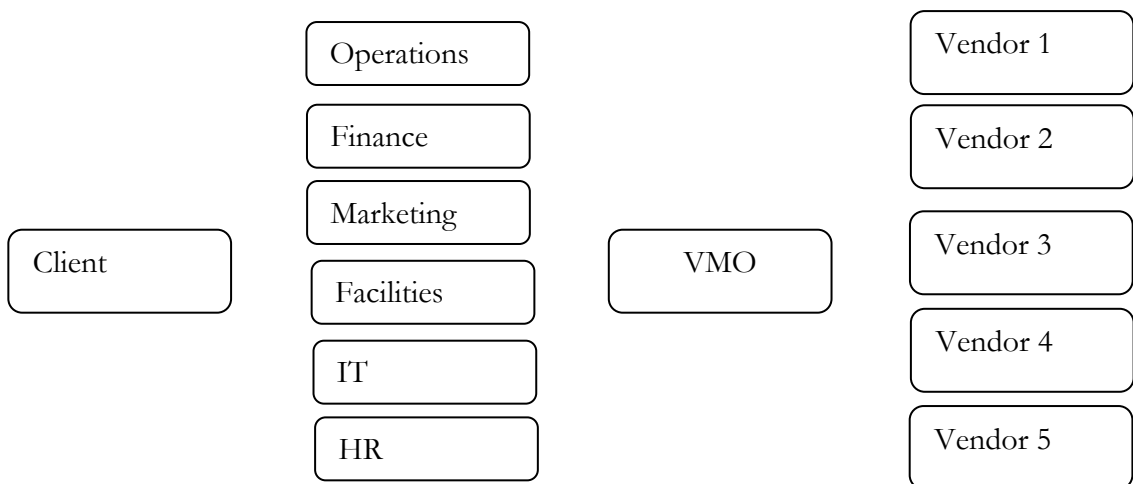


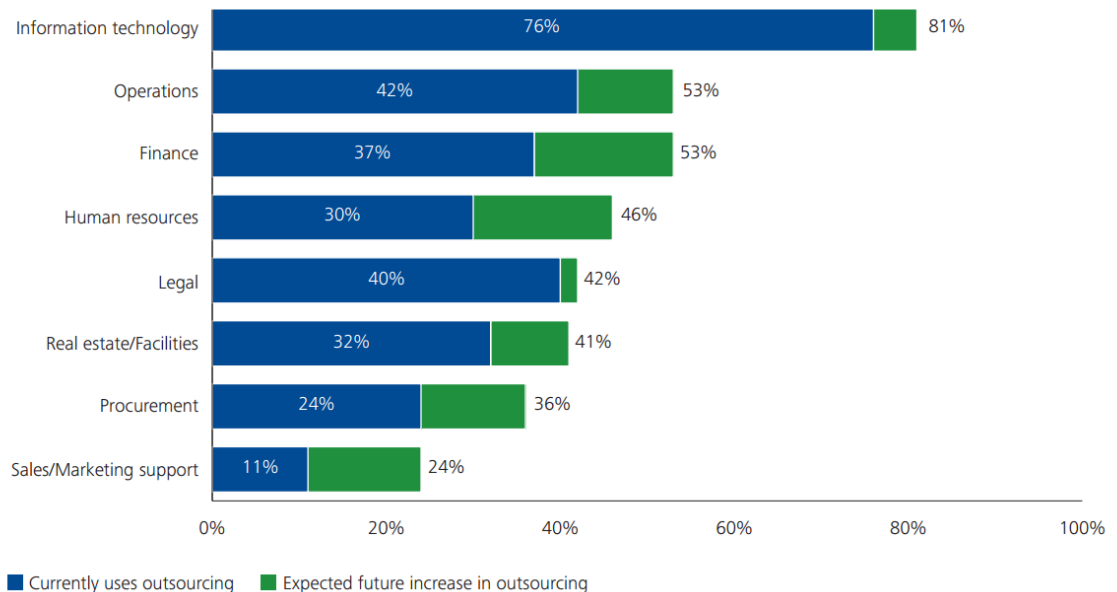
Figure 3.3 Client outsources different functions to different vendors

The process of outsourcing different functions is similar to a library loaning different books to customers. But the process concept is slightly different from library loaning books to normal customers. In this case, the enterprise wants to loan its function to a suitable vendor, meanwhile, keep the vendors from obtaining critical information if necessary. Enterprise may loan its functions to vendors and probably would like to take those functions back over time as the costs rise or the vendor becomes difficult to manage.

This particular sourcing model happens in an enterprise which has a matured sourcing strategy. Sourcing strategy can normally be implemented by the vendor management

office. Figure 3.3 lists six functions being sourced from the client to five different vendors. Operations, finance, marketing, facilities, IT and HR are the major functions for sourcing in figure 3.3. The benefit of this multiple function sourcing model is that it can reduce customer risk, enable positive vendor to customer relationships, provide critical feedback and facilitate access to opportunities.

Then why not outsource all IT to a single vendor in order to simplify management processes? This is a good question to ask, since it is actually true that one can outsource the IT to a single company. But a real case provides evidence of many companies satisfying the needs of the IT department for a short time. Vendors still need to outsource different functions to different enterprises. And the price and service quality of the middle vendor of course can be difficult to control. But as time goes by, things can change, since vendors can actually use the IT system realignment to control customers. Price, time, effort and efficiency will all decrease after a while. Therefore, to do reasonable outsourcing, a company needs to setup a vendor management office for the whole IT outsourcing department.

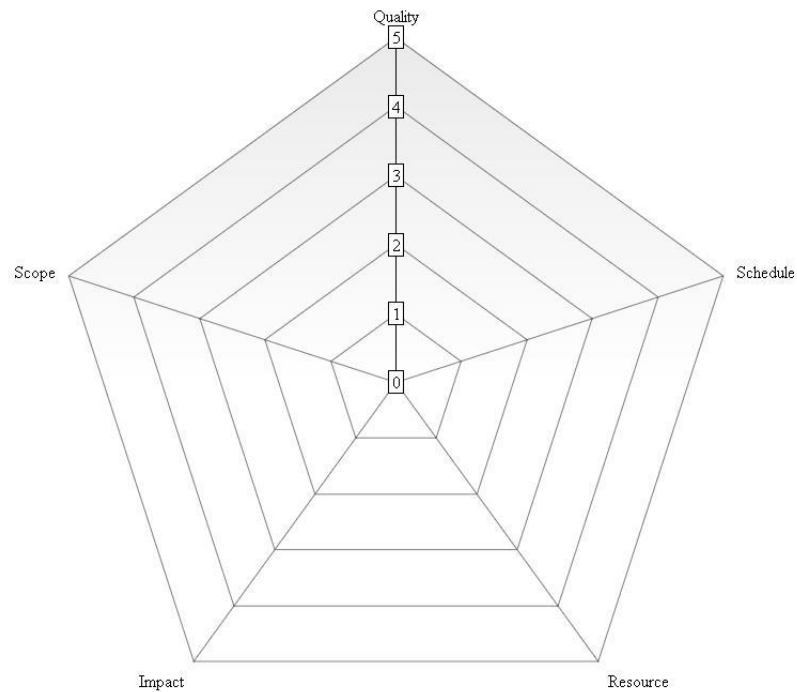


**Figure 3.4 Companies sourcing plan in global (Deloitte 2012)**

Above figure 3.4 describes eight functions of business sourcing statistics based on analysis from Deloitte consulting company. According to the statistics, the most common function to be outsourced is information technology, followed by operations. Moreover, finance and legal also have a high percentage of being outsourced. Among the eight different functions, facilities, procurement and sales/marketing support have the least percentage for outsourcing. While information technology is generally the most trendy outsourcing element, sales and marketing hit the bottom of the chart. The reason may be that outsourcing information technology is a widely universal trend and later business functions directly reflect on the annual profit of the company.

### **3.2 Analysis Method**

Radar chart analysis is a graphical method of displaying multiple variable data in a form of a two dimensional chart. Radar charts in this article represent the five dimensions for outsourcing analysis. Five dimensional radar chart is also called a pentagon chart. In this article the pentagon chart includes the following five measureables: quality, schedule, resource, impact and scope. With each detention, the scale is divided from zero to five, which represent a incremental importance of outsourcing functions.



**Figure 3.5 Pentagon Chart with five Measurables**

As the author mentioned above, there are five different measurable described in Figure 3.5. Each measurable has a range of zero to five and the measurable are generated from common program management targets (Benedikt and Teuteberg, 2009). This pentagon chart can be used for measuring the sourcing function's successfulness. Demonstration of the usage will be illustrated in the following sections.

### 3.2.1 Measurables

A commonly used model for project management is called project management rectangle. The rectangle normally contains 4 different parts, which are scope, cost, quality and schedule. Any part can not be changed without affecting the others, for instance, if scope changes, than cost and schedule as well as quality have changes as well finally. However, the method introduced in this article has a different approach for analysis. Quality, scope, schedule are original parts from project constraints.

However, according to project management body of knowledge (PMBOK Guide, 2013), the project management process include: activities, schedule management, estimation of resource, durations and development plan. Based on above mentioned sources, 5 different measurables are selected for constructing model in this article. Five different measurables are quality, scope, schedule, resource and impact. The importance of impact is described as below.

### **Quality**

The standard of product is measured in different ways, and quality is crucial to almost all important measurements. The degree of product quality directly reflect how good is the final product and services in other cases. By selecting different vendors, quality can be considered as a top criterial. Quality in this article does not mean the vendor's fame or market share, which can of course be referred for sourcing options. However, quality in this article gives an excellence scale of how vendor can server client. More specifically, how the selected vendor can help company to achieve the orginal settled goals and strategies.

### **Scope**

The extent of sourcing project which is relevant to functions, services, products and etc. Scope of sourcing defines which vendor can suitable for fulfill the requirement. Scope is also crucial while selecting a vendor. Since, different vendors have different opportunities and possibilities to do and deal with various scalabilities.

### **Schedule**

Schedule refers to sets of milestones, activities and deliverables, usually with intended start and finish dates. Those items often are related to resource allocation, cost analysis and project dependencies. Breakdown elements of schedule may be related to break down work list, work status and in some vendor cases contract requirements.

## Resource

Many issues can fall into and summarize into resource categories, for instance organizational process assets, enterprise environment factoring, activity list, resource availability, collection of experts and etc. Resource acts as anything can be drawn on by a person or organization in order to function sourcing activity effectively.

## Impact

Impact contains the changes that can be categorized as a particular intervention, such as influence on partially client strategy. And impact also help vendor understand what is the final target and how to make changes towards a better result.

### 3.2.2 Values of the dimensions

Values of dimensions are decided by evaluation of scale of following rules. The criterias can be used for giving different values for Scale bar of quality, scope, schedule, impact and finally resource. And the scale of 5 different dimensions criterias are listed below.

Measurable scale value	Criteria
1	Vendor has little understanding of client's status, in the vendor relationship gives profit as top priority. And Vendor does not have a long term plan for client for cooperation at all.
2	The vendor does not have a broad understanding of client's strategy, even vendor knows what client's basic need and can satisfy some of the client's requirement.
3	Vendor can cover some business functions and requirements for client, which have strong but not vital role based on client enterprise strategy.
4	The vendor covers a wide area of client's requirements, meanwhile, vendor has a vital understanding and implementation plan for fulfill client's business strategy.
5	The vendor has a good comprehension about client core values, vendor prepares for long term cooperation with client. Vendor has high familiarity with subject matter and should be able to related to client's enterprise strategy in most of the tasks during cooperation.



Sourcing strategy implementation can be measured by following elements. Quality is a distinguishing characteristic of the degree of excellence of sourcing, which can give a general level of successfulness. Scope is the sourcing opportunity or possibility, which also includes the extent of area of the relevant sourcing subject. Impact is the action of one sourcing element coming forcibly into contact with another. Resource describes the supply of money, material, staff and other assets during the sourcing, the condition regarding the supply of money, materials, staff and other assets that can be used by the client organization to implement the strategy effectively. Schedule defines a plan for implementing the sourcing process or procedure.

### **3.3 Sourcing Elements**

Companies need to make a strategy for sourcing. It is not only about profit and cost. Although vendors may have several inappropriate requests, it is still worth to considering to select vendors. In order to analyze vendor suitability, we introduction the concept of sourcing elements. A sourcing element is a single measurement for vendor factor, which may have several sourcing elements. By combining the analysis of several elements, the sourcing strategy can have a measurable scale.

The relationship between client and vendor is hard to measure. If the relationship between client and vendor becomes sour, decision makers from the client side begin to doubt the sourcing strategy. However, this can be simply avoided by choosing a different vendor. Vendors can provide high quality services, but to suit the need of the client, companies need to do research and analysis.

Sourcing elements can help the client to classify its vendor in measurable means. When outsourcing is implemented as a business process, sourcing managers need to be extremely careful when choosing a partner, as the relationship between client and vendor will have influence on the final product quality and services. Thus, single factor influence is not enough to choose a vendor. The client company can choose the vendor by combining various sourcing elements. By giving those elements different priorities,

the client can have a clear picture about what to source and how to source the related functions.

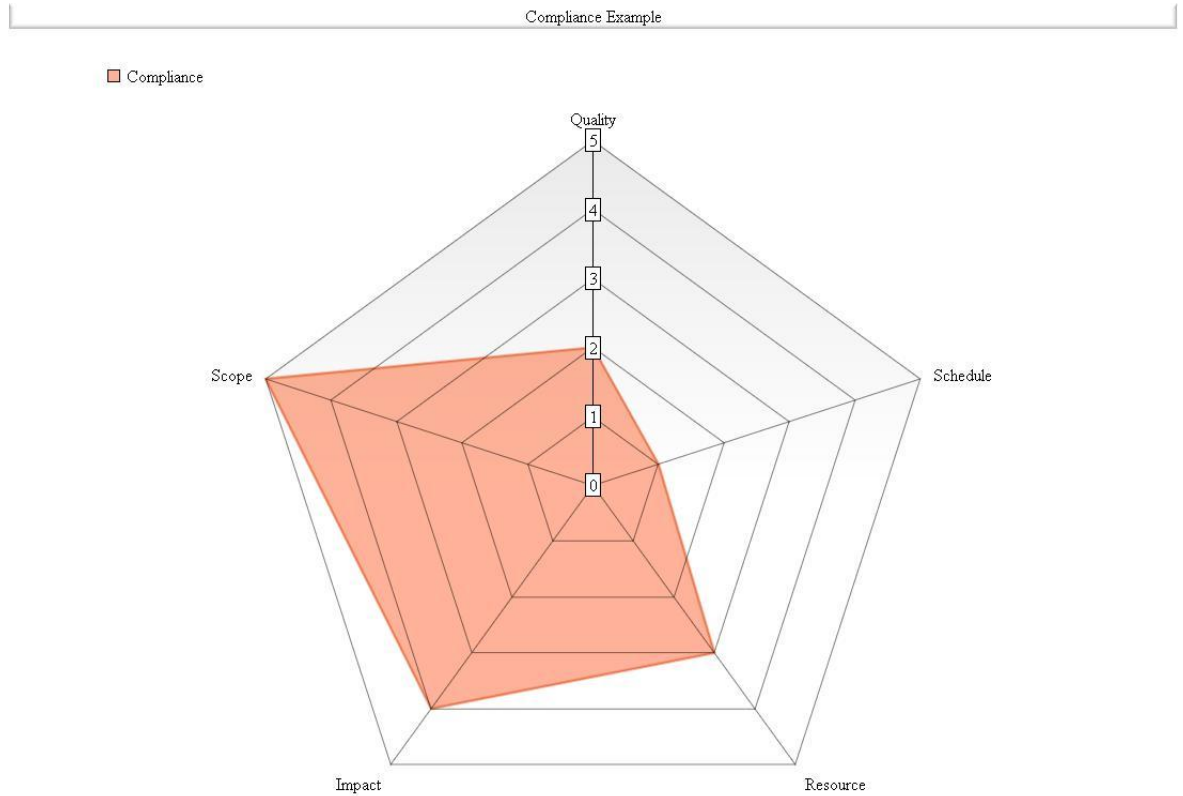
### 3.3.1 Compliance

In the current global market, several industries – especially the ones that are implementing an outsourcing strategy – require vendor integration and consolidation with their core business. Not only compliance and legal analytical factors should be consolidated, but also compliance requires operational experience for globalization. The compliance element is crucial for an outsourcing strategy, since it is the first step for outsourcing business.

Compliance quality is crucial to the final result, which directly how the vendor's solution can be integrated and later digested into client's own systems. Compliance scope describes the extent of sourcing project which is relevant to how vendor can choose different functions to suit the client's needs in different scale options. Compliance schedule is the time length of how long compliance is considered in implementation of the sourcing. Normally, compliance is considered through whole sourcing project lifecycle, which maybe the reason there are less requirement compared with other analysis measurable. Compliance resource directly reflect on the expertise level of people who is involved in assess enterprise environment, and integration solution between vendor and client systems. Compliance impact help the vendor to understand the final target of how implement and make changes towards a better result, which can also aligned with client's strategy.

Figure 3.6 gives an example of compliance measurements in a pentagon chart. The compliance example shows full score in scope, one in schedule and two in quality. The chart hits three in resource and four for impact. From this figure, we can also calculate the overall influence for compliance by summing the area covered by compliance. Figure 3.6 shows an area of 22.352 with the compliance example. The areas size is calculated by adding 5 area size of triangle together. For instance, area size between

quality and schedule, area size between schedule and resource, and etc. By summing the 5 triangle shapes, we can get the total area size of compliance element.



**Figure 3.6 Compliance Measurables in Pentagon Chart**

### 3.3.2 Pricing

As the main initiative for outsourcing, price is always listed as a primary concern. However, the motivation of outsourcing should also contain other elements besides short term costs in pricing. Occasionally, vendors may offer a low price just for a temporary purpose to obtain the sourcing contract. This type of contract should not be considered as optimal pricing, since the long term costs may rise to an unacceptable level.

Pricing is slightly different from cost. Normal pricing level usually can be decided by market factors, such as competition, raw materials and labour costs. If a single vendor

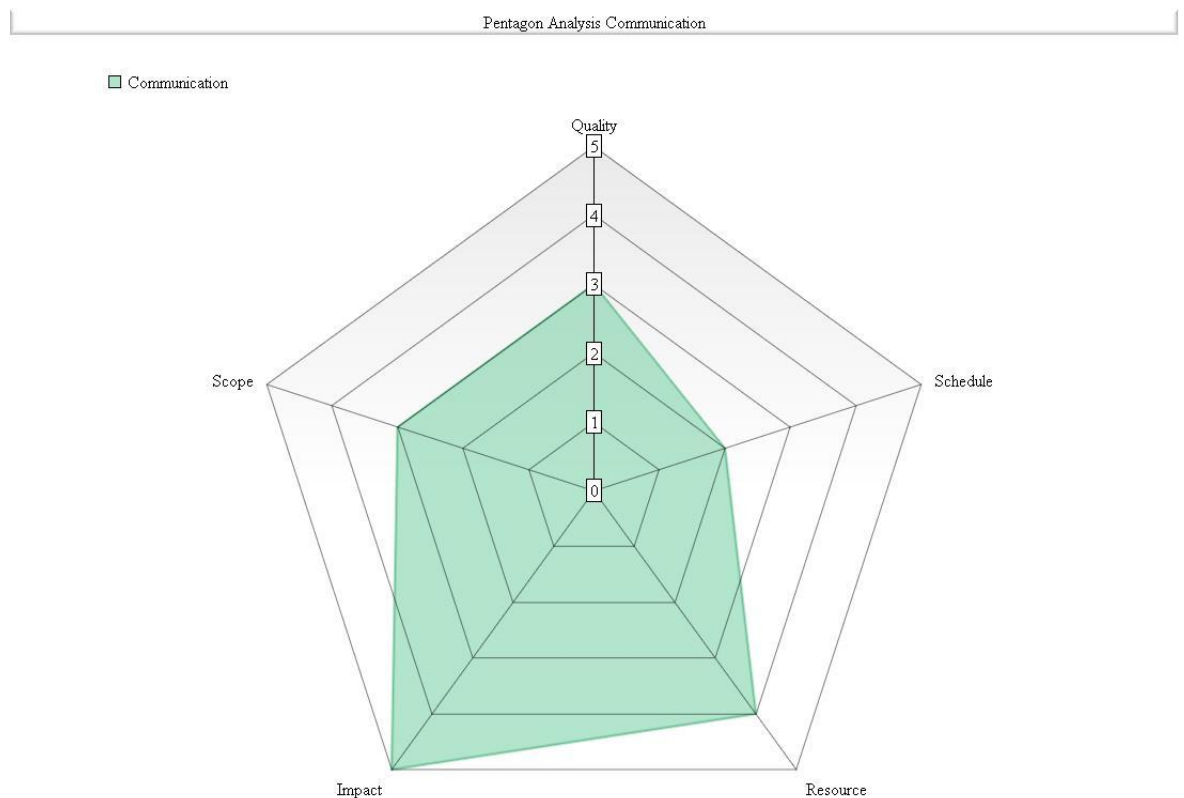
offers a critically low price, it may not be a good deal for outsourcing. As mentioned before, pricing should not be only a single deal of cost. Long term price and performance price ratio are important to consider as well. Figure 3.7 describes price measurables in a pentagon chart, which gives both scope and impact with value four, followed by quality with value three, resource with two and finally schedule with value one.



**Figure 3.7 Price Measurables in Pentagon Chart**

### 3.3.3 Communication

Communication directly represents the relationship between a client and a vendor. In order to perform well and provide qualified services to the client, the vendor needs to clearly understand what is the requirement from the client. Furthermore, the vendor should be able to actively promote queries to the client. The client and vendor relationship is sometimes directly linked with final product and service quality. Moreover, an active relationship can enhance communication and facilitate the decision making process.



**Figure 3.8 Communication Measureables in Pentagon Chart**

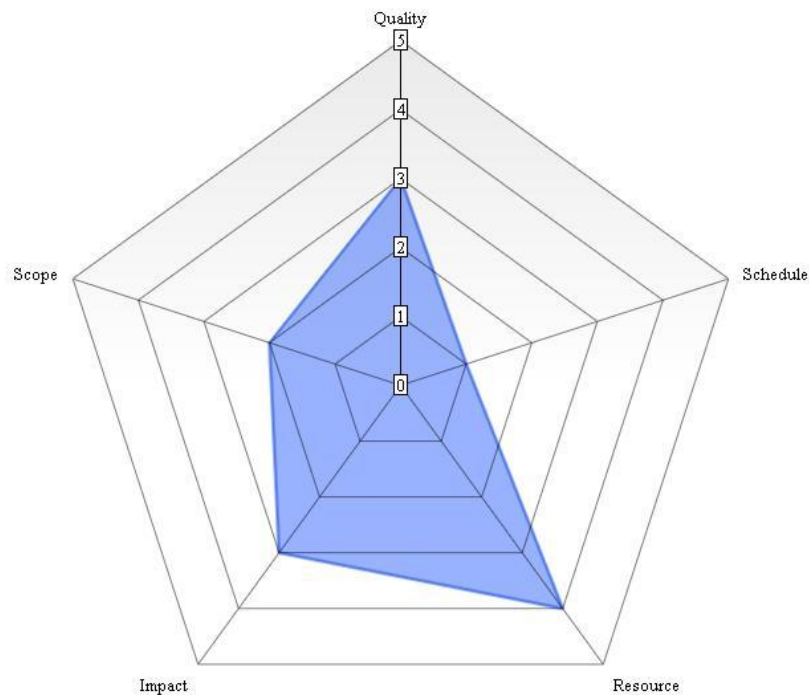
Communication measureables in figure 3.8 give different values compared to pricing and compliance. The communication has value five with impact measureables, gives resource with value four, followed with three in scope and quality. For the schedule, communication has the lowest value with only two. Although not specified for a fixed

company, figure 3.8 may represent the general status of the client and vendor relationship.

### **3.3.4 Flexibility**

A sourcing contract generally lasts for more than couple of years. During this time, technology, market and pricing can change into an unexpected status. New technology can increase efficiency and meanwhile decrease the prices. A new market can generate large quantities of new consumers and weaken traditional industries. In extreme cases, new technology and market can destroy traditional industries. A long lasting sourcing contract may need to be rediscussed after the situation changes. The client requires flexibility of contracting. Thus, the vendor needs to be flexible to understand the client requirements and consideration. Flexibility should not only exist on the contract level, but also in daily work and problem solving processes. Writing a contract can be a quick and easy deal, but maintenance is not as simple to realize.

■ Flexibility



**Figure 3.9 Flexibility Measurables in Pentagon Chart**

Measurables for flexibility are described in figure 3.9. Resource seems to have the most concern, which hits value of four. Followed by quality and impact, both of which hit value three. Flexibility has the measureable value two in scope, while shows the smallest value, one, in schedule. Flexibility measureables in figure 3.9 represent the general status for a sourcing project as well. If a company starts to use the the pentagon chart, it may modify the measurables to suit its own needs.

In addition to the above mentioned sourcing elements, there are other elements which should be also taken into account. For example, relationship, reliability and stability of the contract, the service level agreement as well as the vendor management team. Those elements can be added to suit the client's own needs, and the client can also create specified elements depending on the situation.

### **3.4 Mathematical modelling of Sourcing Elements**

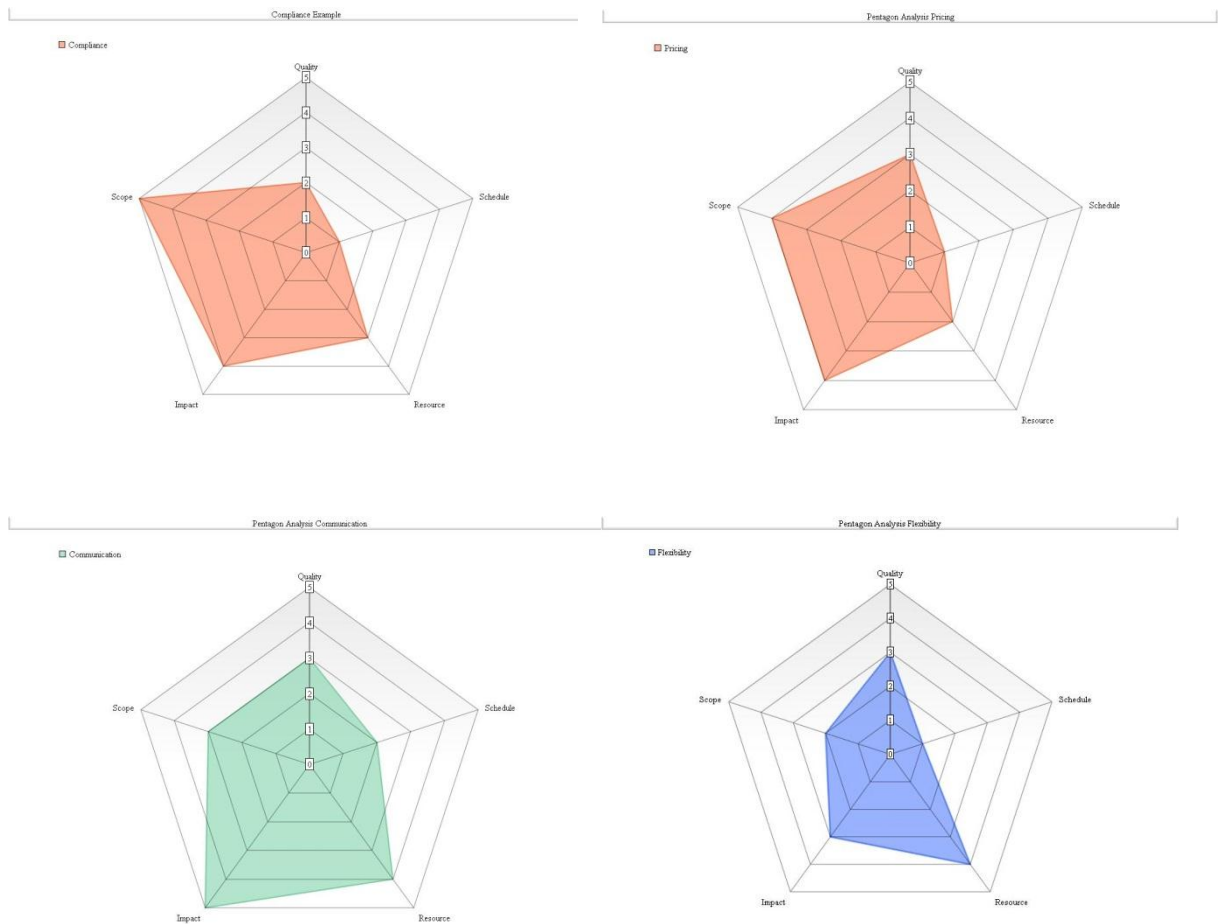
In order to give reasonable outputs of the sourcing index value, which can represent the suitability of outsourcing, we need to do mathematical modelling. This mathematical model for outsourcing needs to take every element into consideration. Since each element has a different priority for the client enterprise, we need to assign different weights for different elements. Thus, a weight function is introduced to allow certain elements more weight or influence on the result than other elements in the same calculation.

#### **3.4.1 Elements weight function**

Element weight function is used to calculate the final output of the suitability of outsourcing. As previous chapters mentioned, certain elements contribute more than others. As a result, certain elements should have more weight than others. The element weight plays an important role in giving elements different influence on the final result. In order to form a weight function, we need to assign weights to each element.

The following methods are used for calculating the weights for above mentioned elements. Let us take, for instance, pricing as an element. It has value four in scope, value four for impact, value two in resource, one for schedule, and three in quality in figure 3.7. As we see in figure 3.7, the pricing element forms an irregular area. The size of this area can represent the influence of the pricing element among other elements. The pricing element has an area of 14.726. In other words, when the element has a bigger size, it also has more weight; while element has smaller size, it has less weight.





**Figure 3.10 The four elements: Compliance, Pricing, Communication, Flexibility**

The compliance, pricing, communication and flexibility elements are illustrated together in figure 3.10. By calculating the area of the above elements, we get each element size of the compliance, pricing, communication and flexibility. Table 3.1 lists the area size of each element. Compliance has an area of 22.352, for pricing the area is 14.726, communication has an area of 27.57 and flexibility gets an area of 14.74.

Element	Compliance	Pricing	Communication	Flexibility
Area	22.352	14.726	27.57	14.74

**Table 3.1 Area Size of the Sourcing Elements**

### 3.4.2 Method of combination

The elements area indicates the degree of influence for each element, but to get the weight of each element we need to have a weight function to conjugate all the functions. Weight function in Figure 3.11 uses relative weight. Therefore, any weight can be expressed as summary to one. The summary function can be achieved by using convex combination. A convex combination is a linear combination where all coefficients are positive or zero and can be summarized to value one.

$$W_i = \frac{Area_i}{\sum_{k=1}^n Area_k}$$

**Figure 3.11 Weight function**

Element	Compliance	Pricing	Communication	Flexibility
Area	22.352	14.726	27.57	14.74
Weight Cal	22.352/79.388	14.726/79.388	27.57/79.388	15.74/79.388
Weight Value	0.281	0.185	0.347	0.198

**Table 3.2 Elements weight calculation and weight values**

The method for calculating the weight for each element is illustrates in table 3.2. It lists each area size in the first row, then by summing the area of the four elements, we get value 79.388 as total area. The weight calculation row illustrates each weight divided by the total area. Third row has the weight value of each element.

## 4 Business scenarios study

In this chapter, the author mainly explains different kinds of business scenarios, which will include outsourcing, insourcing and comprehensive sourcing. In a proper social and economic situation, sourcing is natural. Sourcing can lead to value, processes, services and transfer activities. Outsourcing will lead to out bound sourcing, and on the other hand insourcing will lead to inwards transferring.

AntTech (fictional company) is a modern market player in communication and information technology. As a multinational corporation, AntTech has a rather complicated operational structure, meanwhile, the expansion of this complexity seems to be growing each year. Current technology and way of communications are causing this complication.

The challenges for AntTech includes, the level of complexity is leading to uncontrolled costs and efficiency decline. Plus, there is very little initiatives to have a corporate wide purchasing policy, usage policy, support and contact arrangements. One solution for AntTech is to centralise its functions to internal staff, and using existing ICT related operations and support structures. However, there are several challenges and risks. For instance, expertise skills for internal resource may be missing. Besides, cost, availability and greater internal demand may not meet the requirement.

Another option for AntTech is to look for multinational enterprise for specialised vendor with a decent market reputation as well as record of success. This range of outsourcing certain functions to external vendors are widely accepted by management board. Sourcing strategy in AntTech will produce successful outcomes, especially cost cutting and simplification measure on AntTech's complexity problem.

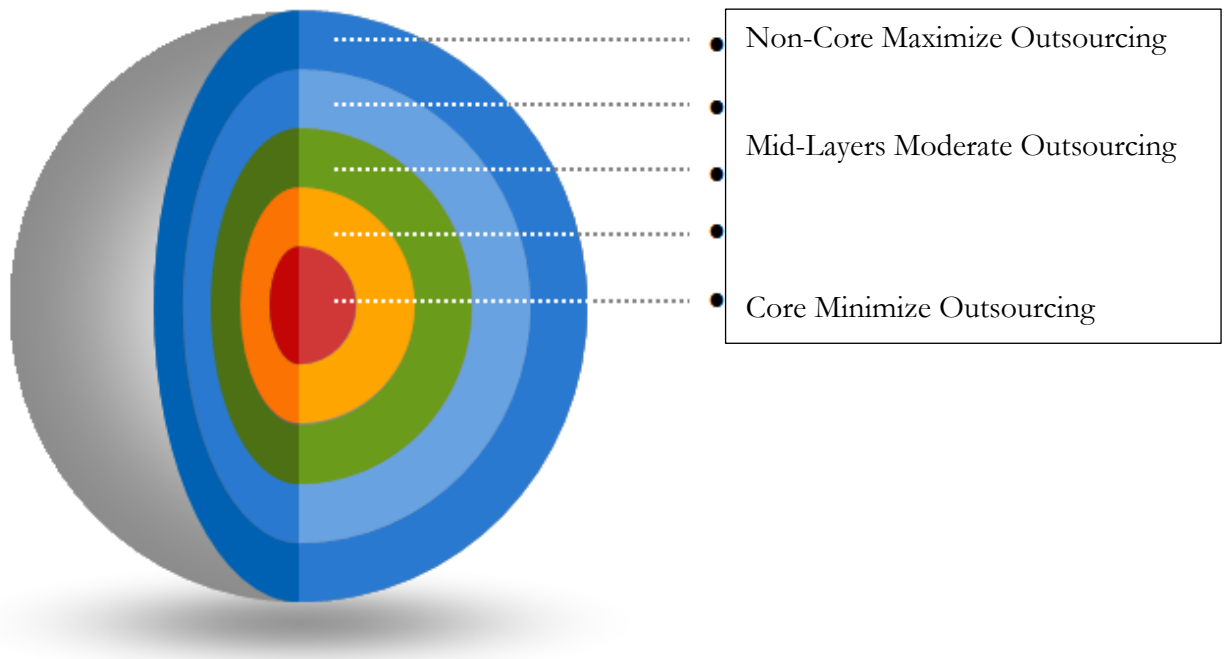
AntTech management board has made sourcing strategy as following: Vendor has to satisfy AntTech's corporate and financial stability. Meanwhile, vendor has to provide high server availability and full range of services capabilities. Plus, vendor has to demonstrate how the purchasing can reduce cost and complexity from current AntTech operations. For the future, AntTech and choosing vendor have to agree on a future

development roadmap. However, sourcing strategy is lacking implementation part, and the following example is comprehensive sourcing implementation of AntTech.

#### **4.1 Outsource Scenario**

AntTech, which is a premier products and service company, offers a wide range of products and services to its customers in the European market. AntTech's strategy drivers and general management team realized that its current service model needs to be transferred to a scalable, centralized, robust and most importantly cost efficient service model. The general management team has come to a conclusion that outsourcing can solve the current problems. The management team also believes that the service model can be more robust and that service costs will decrease after the implementation of the outsourcing strategy.

Moreover, AntTech would also like to have a comprehensive repository to achieve the following goals during the process of outsourcing. Figure 4.1 describes the basic model of the outsourcing structure, where core value activities are always being kept in the firm and outside of the concept of outsourcing. Non core value functions are categorized as maximum outsourcing activities in Figure 4.1. Between core and non core services, a selective approach is used for partial outsourcing. The extent of outsourcing grows from core, partial core to non core business functions. Core and non core business definitions differ between industries. For instance, a high tech company may refer to the software as its core business or a financial company may think investment and loan products are its core business. Those core business concepts are also decided by the general management team implementing sourcing strategy.



**Figure 4.1 Outsourcing Structure Basic Model**

#### **4.1.1 Outsource Expectations**

The advantages of outsourcing vary in a broad scale. Among them on the top of the list are reducing AntTech activities on non core functions and decreasing low value services. Figure 4.1 above described the basic model of the core business functions focusing for AntTech. Meanwhile, AntTech also wants to achieve cost reduction by improving business processes, utilizing edge cutting technology and optimizing the process. AntTech’s management team would like to reduce its management and operation costs in the same time as well.

Service quality is another concern for the AntTech management team, who hopes to meet the customers’ needs with a higher level of service quality. By improving the service quality, the AntTech management team could focus on building a more competitive business to support its position in the global market. With technology involving almost every corner of our life, AntTech wants to implement cutting edge

technology to support its current business processes. AntTech also wants to use the technology vendors to bring innovation to the existing products, by gaining access to recent technology.

As a long term goal of AntTech strategy, the cost structure may shift from paying internal employees fixed salary regardless of the productivity to outside cost model. Nevertheless, vendors can be paid according to the outcome of the work that AntTech request, in other words, productivity is associated with costs in a reasonable manner. Besides, outside experts may have a different way of solving the same problem compared to the AntTech's internal workers. Those outside experts can give valuable knowledge to enhance the AntTech's core competence as well. This may have a long term influence on corporate culture, since the internal productivity may fluctuate and face competition from the outside market.

#### **4.1.2 Analysis of Outsourcing Expectations**

Based on the above scenario of outsourcing, we can summarize its expectation into a few points. The list below describes the summarized points for the outsourcing scenario. Table 4.1 below use the outsourcing expectation as input and output the outsource expectation to analytical elements.

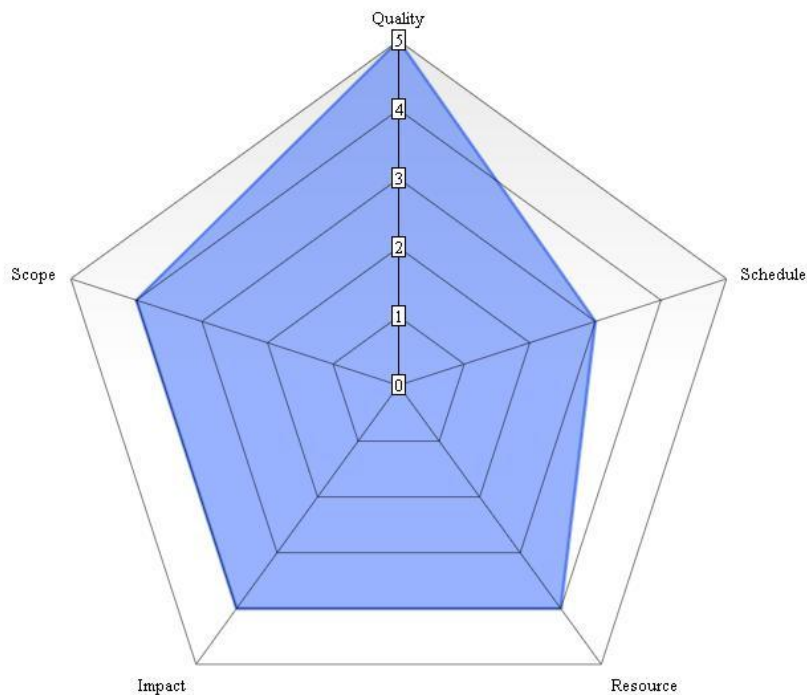
1. Achieving cost reduction
2. Improving service quality
3. Changing of fixed structure
4. Obtaining outside expertise
5. Focusing on companies' core business
6. Increasing customer satisfaction
7. Achieving internal flexibility
8. Gaining access to advanced technology

<b>Expectation</b>	<b>Elements</b>
Achieving cost reduction	Cost
Improving service quality	Service Quality
Changing of fixed structure	Flexibility
Obtaining outside expertise	Knowledge
Focusing on companies' core business	Core functions
Increasing customer satisfaction	Service Quality
Achieving internal flexibility	Flexibility
Gaining access to advanced technology	Knowledge

**Table 4.1 Outsource expectation and corresponding elements**

Globex (fictional company) is the major finance service provider in Nordic region. And Globex board decides to outsource some of its business functions to achieve cost reduction goals. The outsourcing expectations are compared with sourcing elements in table 4.1. Table 4.1 above is slightly different from what author has described in chapter 3. This is due to the practical step down from a theoretical model to a relative real case which can be applied to an actual company. To get analytical elements, Globex needs to summarize the expectations into individual elements, for instance expectation achieving cost reduction can be in cost elements, improving service quality and increasing customer satisfaction can be both summarized as service quality. Achieving internal flexibility and changing of fixed structure are related to the flexibility element. Obtaining outside expertise and gaining access to advanced technology can be knowledge related.

■ Core Function Analysis

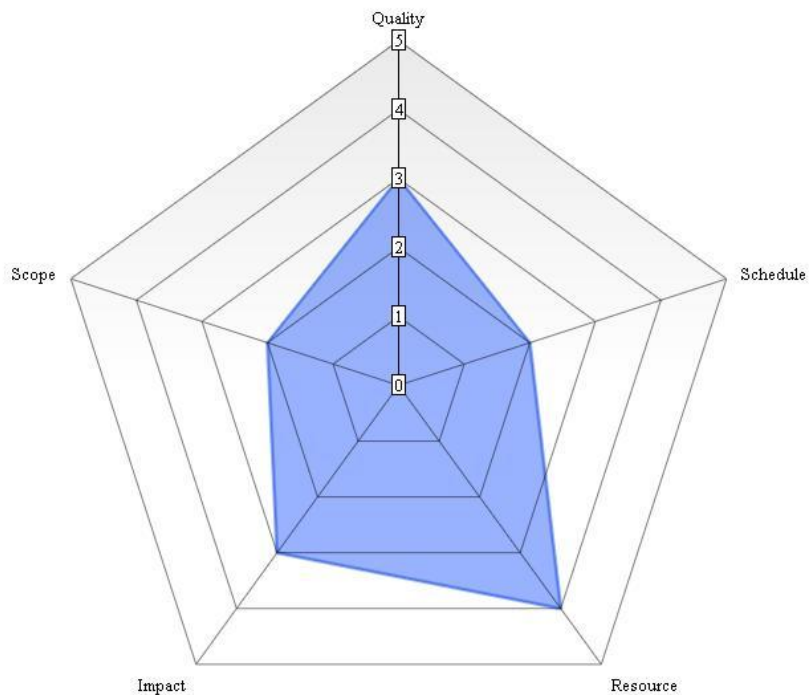


**Figure 4.2 Outsource Core Function Focusing Analysis**

Core Function focusing analysis in Globex is illustrated above in figure 4.2. As we see in figure 4.2, core functions have great value in most parts of the scale. It gains value 5 in quality, meanwhile core function have value 4 in scope, impact and resource. For the schedule core functions focusing gets value 3, which is the smallest value compared with other scales. Generally speaking, core functions focusing gains a large shape in the pentagon area, thus it may give relatively more weight compared to other sourcing elements. By calculating the size of the core functions focusing, the shape has an area size of 37,56 units. Using the weight calculation method introduced in chapter 3, core functions focusing gets a relative weight of 0,301.



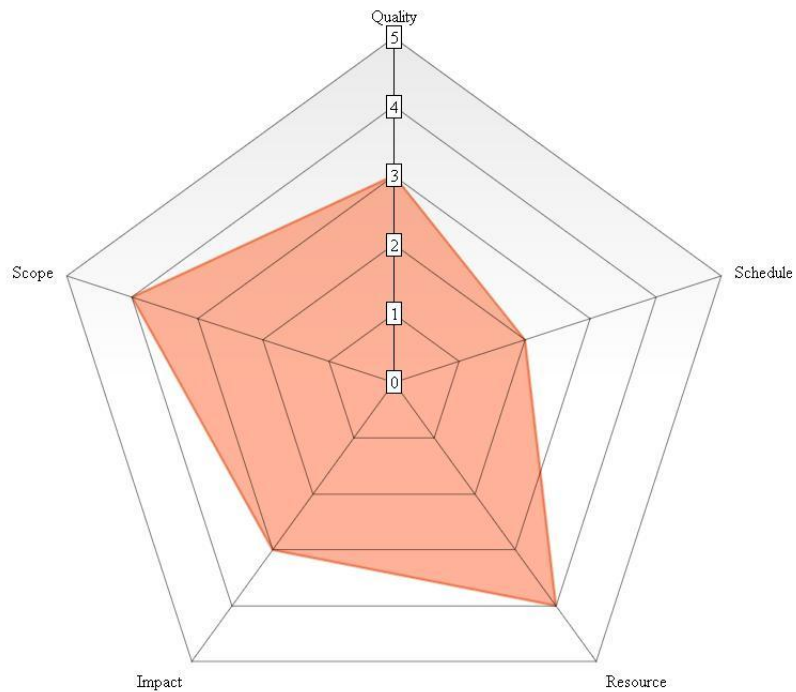
■ Internal Flexibility



**Figure 4.3 Outsource Internal Flexibility Analysis**

The elements of internal flexibility are described in above figure 4.3. From the overall picture in Figure 4.3 we can see that the internal flexibility covers less area compared with core functions focusing. The maximum value is given by resource with value 4, following by quality and impact both with value 3. Internal flexibility give value 2 for scope and schedule in above figure. Internal flexibility although not as importance as cost reduction, still has a shape which gains an area of 18,06 whose relatively weight value is 0,145.

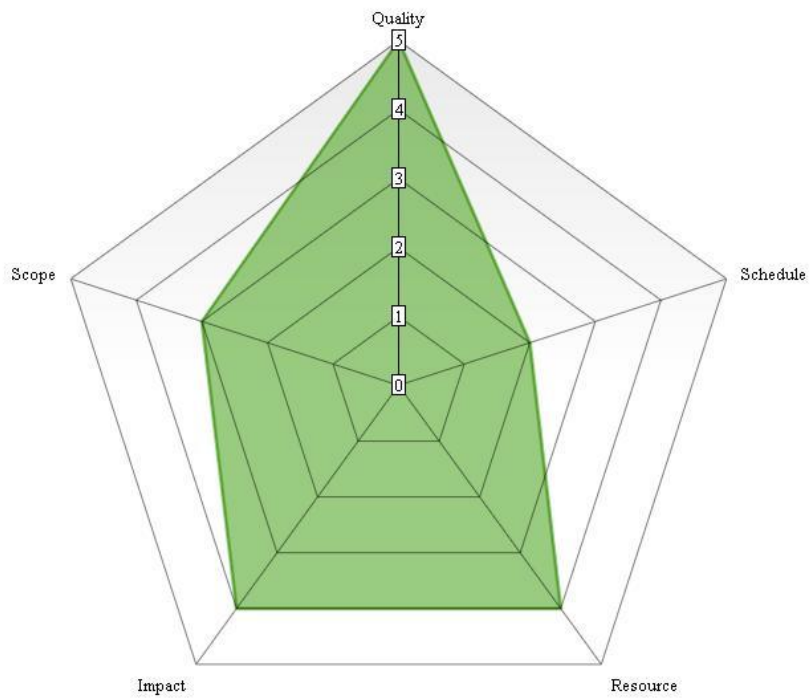
■ Competence



**Figure 4.4 Outsource Competence Analysis**

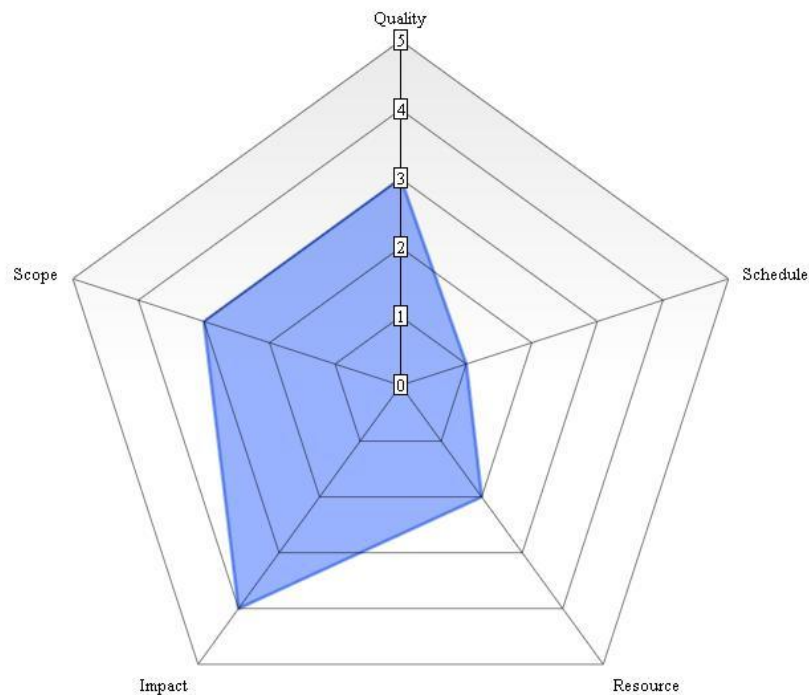
Element competence is analyzed in figure 4.4 above. Competence gains relatively high value 4 in both scope and resource. It gets value 3 for impact as well as quality. For the schedule, competence gains relatively low value 2, but competence still gets a medium area coverage of the whole pentagon. Competence analysis indicates that it gets an area of 23,78 unit. For the weight of competence element, it gets an relative weight of 0,191.

■ Service Quality



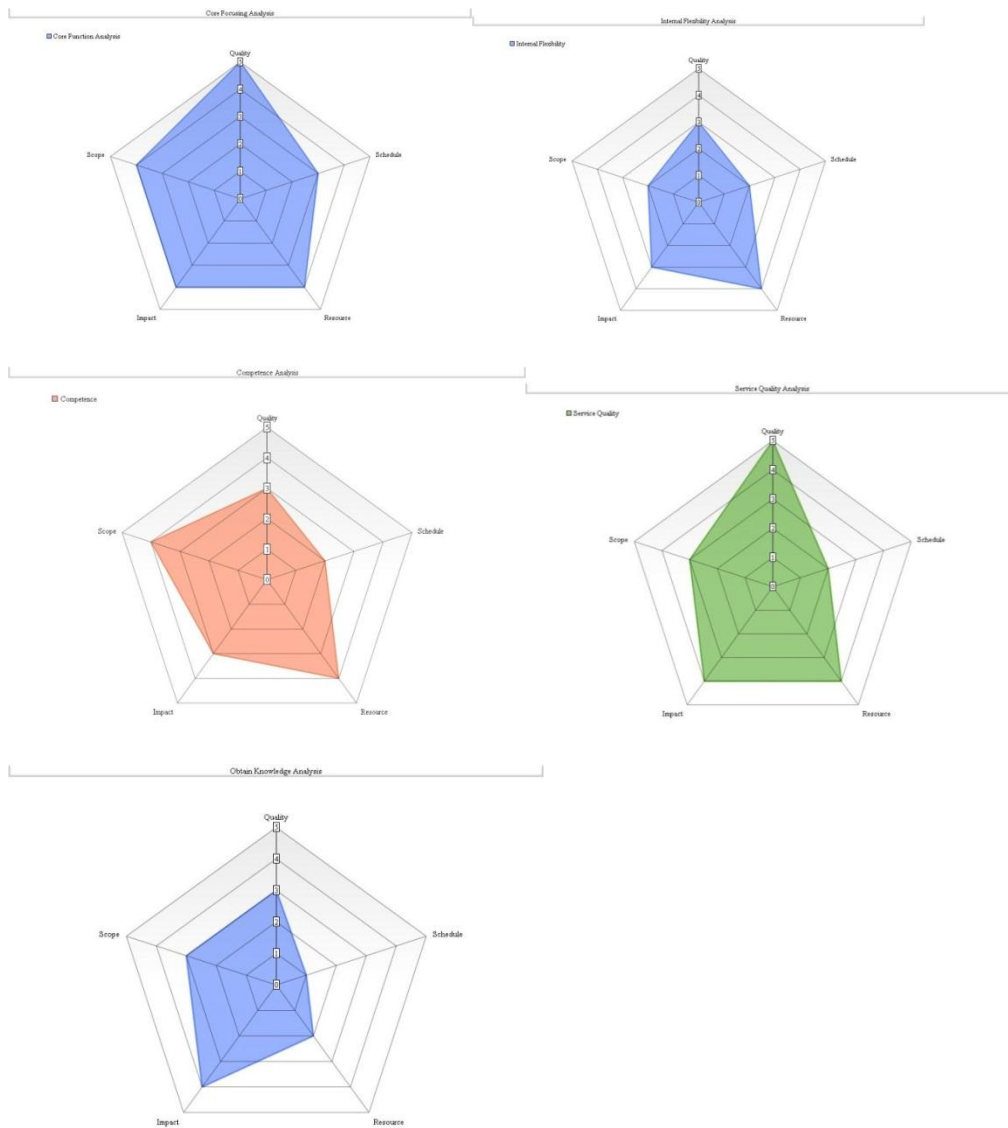
**Figure 4.5 Outsource Service Quality Analysis**

As another important element, service quality is analysed in above Figure 4.5. Service quality of course hit the quality scale with value 5. It gains value 4 in both impact and resource in Figure 4.5. For scope, service quality gets value 3, schedule has relatively low value with only 2 for service quality. Above figure illustrate that service quality gains an area of 29,01 unit. And service quality element gets an relative weight of 0,233.



**Figure 4.6 Knowledge Analysis**

Obtaining knowledge analysis is illustrated above in figure 4.6. As we see from figure 4.6, knowledge has relatively low value in most of the scale except impact. It gains value 4 in impact, meanwhile obtaining knowledge has value 3 in scope and quality respectively. For the schedule, the knowledge element gets value 1, the least value compared with other scales. Generally speaking, obtaining knowledge gains a small shape in pentagon area, thus it may give relatively less weight compared with other sourcing elements. By calculating the size of the knowledge, the shape has an area size of 16.17 unit. After calculation knowledge sourcing elements, it gains an area of 16,17 unit, whose relatively weight is 0,129.



**Figure 4.7 List compiled elements for Outsource**

The compiled elements for outsourcing are listed above in figure 4.7. The top left element describes the analysis for core functions, while the top right illustrates the flexibility. In the middle left is the compliance analysis, and in middle right is service quality analysis. The obtaining knowledge element is listed in the lowest position. Table 4.2 lists the areas of different elements and their corresponding weight values.

Element	Area	Weight
Core Function	37.56	0.301
Flexibility	18.06	0.145
Competence	23.78	0.191
Service Quality	29.01	0.233
Knowledge	16.17	0.129

**Table 4.2 Outsource Element Area and Weight**

There are five elements listed in Table 4.2. Core function gains area of 37.56, flexibility has area of 18.06, competence gets area of 23.78, service quality has weight 29.01 and knowledge gets area of 16.17. All of the elements area are described in Figure 4.7. By using weight function in Figure 3.13, weight can be calculated for each elements.

#### **4.2 Insource Scenario**

Managers, strategy makers and organizations can use outsourcing as an effective tool for productive and effective progress, but it is not always a suitable choice for every organization and function. Different from outsourcing, insourcing can compensate for the disadvantages of partial outsourcing. Insourcing can be defined as a company of contracting a business functions and the commencement of performing it internally (Amiti and Wei, 2004).

The insourcing scenario gives an example of our client, where its strategy makers start to consider insourcing after several years of outsourcing. The general management team in AntTech has realized that simple outsourcing can not meet previous outsource expectations. Price is on the top of the list during the outsourcing process, however, service quality did not gain enough attention when making the contract with vendors. This results in reduction of service quality for AntTech, which leads to further weaken the final product competitiveness.

AntTech's general management team also finds that the outsourcing objectives were unrealistic. Proper commitment from vendors is missing, except for cost reduction, and

no obvious goals are properly set in the outsource contract. AntTech also simplified the outsourcing contract process, which was treated same as purchasing a product. The singular and simple way of management has impact the service provider's motivation as well. Cost reduction requires the service provider minimizes the cost to make profit. Meanwhile, the service level agreement does not provide enough details on the relationship between the vendors and AntTech.

The reason for insourcing can be summarized into the following points. Stated cost reduction is not achieved and service quality decreased after outsourcing. The service level agreement has not been followed and the result is not satisfactory. Additionally, management has been poor in both outsourcing partners. The outsourcing partner and service provider has been deterred because of unclear objectives and poor management.

#### **4.2.1 Insource Expectations**

Customer service quality is considered as the first driver for insourcing. The service quality decreases for both internal and external customers, when particular functions in AntTech are moved to outsourcing vendors. For instance, when development tasks are shifted to offshore, internal projects received a lower satisfaction level compared with before. Meanwhile, when call centres from AntTech moved to foreign bases, the outside customer satisfaction rate decreased due to the lack of contextual and background knowledge.

Cost reduction can be the main driver for outsourcing. However, outsourcing can fail to the state the cost reduction objectives. Cost can be mentioned as a driver for insourcing as well. Therefore, if the financial gains are not achieved by outsourced work, AntTech's management team decides to bring some of the previous outsourced work back to in house. Besides, the human resources department is also complaining of the inflexible resource model with the outsourcing partner. Thus, by insourcing part of the functions, AntTech strategy makers also want to access an adaptive and flexible human resource model. Insourcing will also give AntTech the opportunity to measure and evaluate business related actions in a consistent way. Therefore, the functional integrity is also improved gradually.

New technologies can be a driver for insourcing as well. By insourcing functions which were previously outsourced to vendors, AntTech can acquire new technologies, and AntTech can use the technologies internally with experts and experienced specialists. The general management team believes outsourcing is the first step to expose AntTech to new technologies. Insourcing can be the step where AntTech can take the absorbed technologies and efficiently use it internally. Expertise on the new technologies can also help AntTech to gain a decent position in the market, and afterwards establish a relative advantage compared with competitors.

Based on the above scenario of insourcing, the author summarizes insourcing expectations into the following points. The list below describes the summarized points of the insourcing scenario. Table 4.2 below summarizes the insourcing expectations to analytical elements.

1. Improved service quality
2. Customer satisfaction
3. Cost reduction
4. Human resource flexibility
5. Functional integrity
6. Absorb new technology

<b>Expectation</b>	<b>Elements</b>
Improved service quality	Service Quality
Customer satisfaction	Service Quality
Cost reduction	Cost
Human resource flexibility	Flexibility
Functional integrity	Flexibility
Absorbing new technology	Knowledge

**Table 4.3 Insourcing expectation and corresponding elements**



Insourcing expectations with sourcing elements are compared in table 4.3. To get analytical elements, we need to summarize expectations into individual elements. For instance, client's expectation of improved service quality and customer satisfaction can be both summarized as service quality, whereas achieving cost reduction can be cost elements. Gaining human resource flexibility and functional flexibility are related to the flexibility element. Acquiring new technology can be knowledge related. The following section will analyze insourcing elements by using methods similar to the previous outsourcing analysis.

Service Quality Analysis

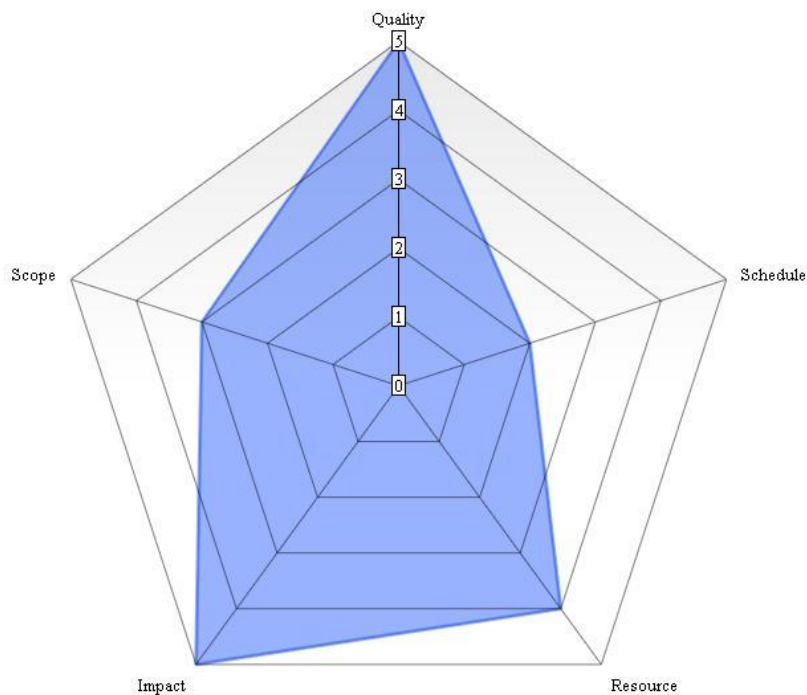
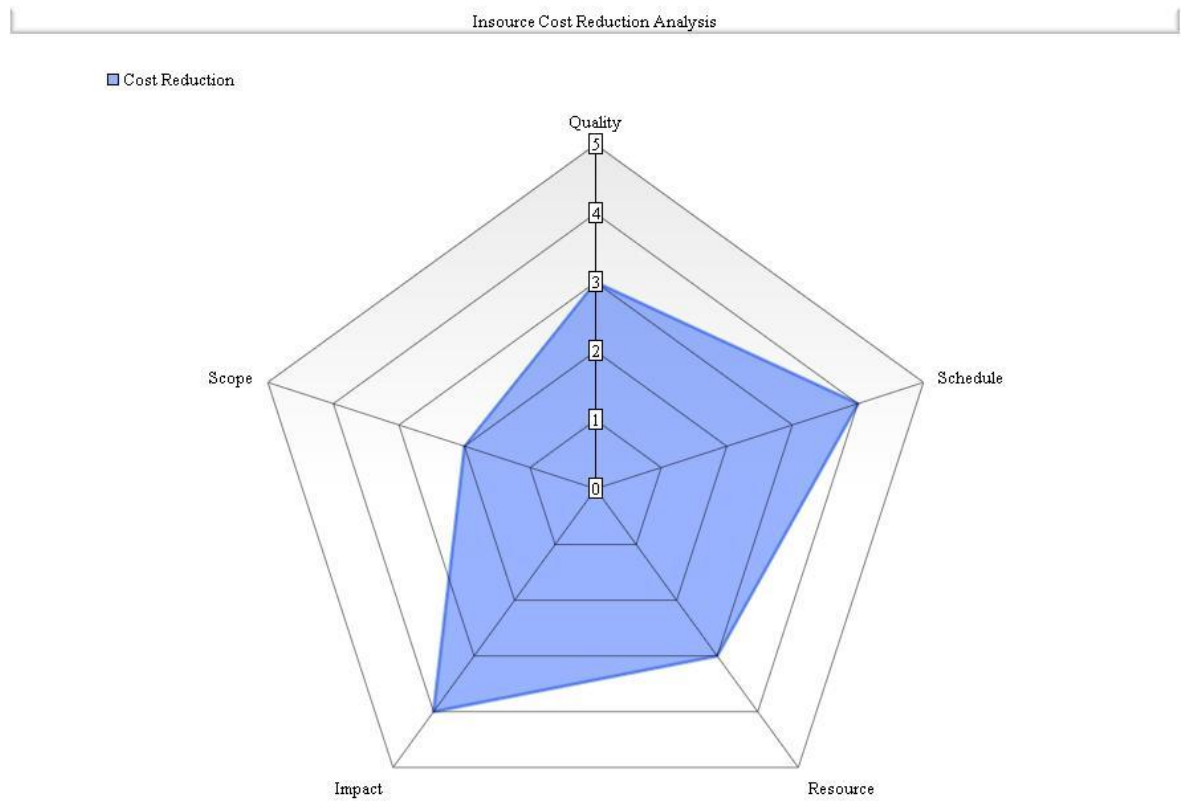


Figure 4.8 Insource Service Quality Analysis

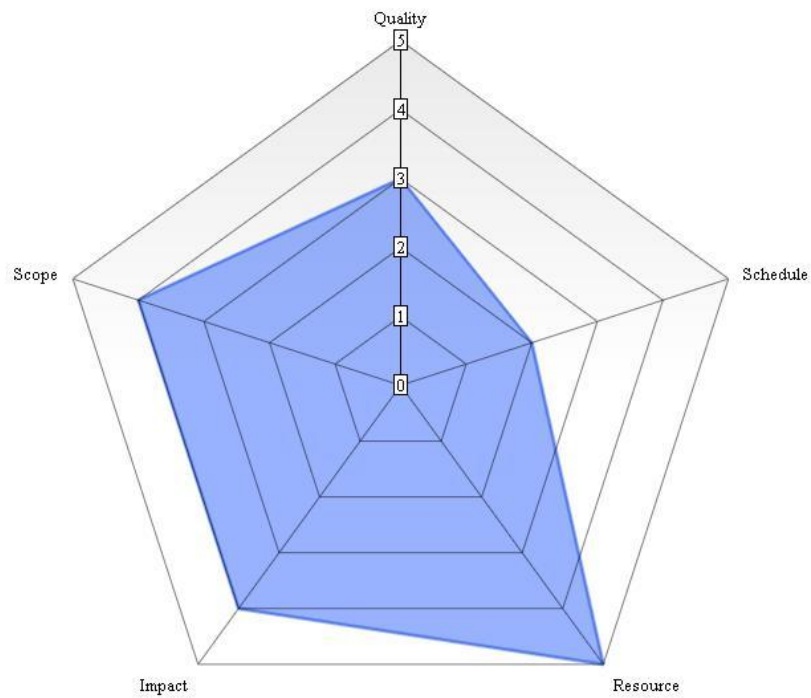
Insourcing service quality analysis is illustrated above in figure 4.8. Insource service quality has a relatively high value in both impact and quality scale. It gains value 5 in impact, meanwhile service quality has value 5 in quality as well. For the scale of resource, service quality element gets value 4, followed by scope with value 3. It gains least value 2 in schedule scale. Generally speaking, service quality gains a relatively large

shape in pentagon area, thus it may give relatively greater weight compared with other insourcing elements. Insource service quality analysis indicates the area of the sourcing element is 32,33 unit which has a relative weight of 0,301.



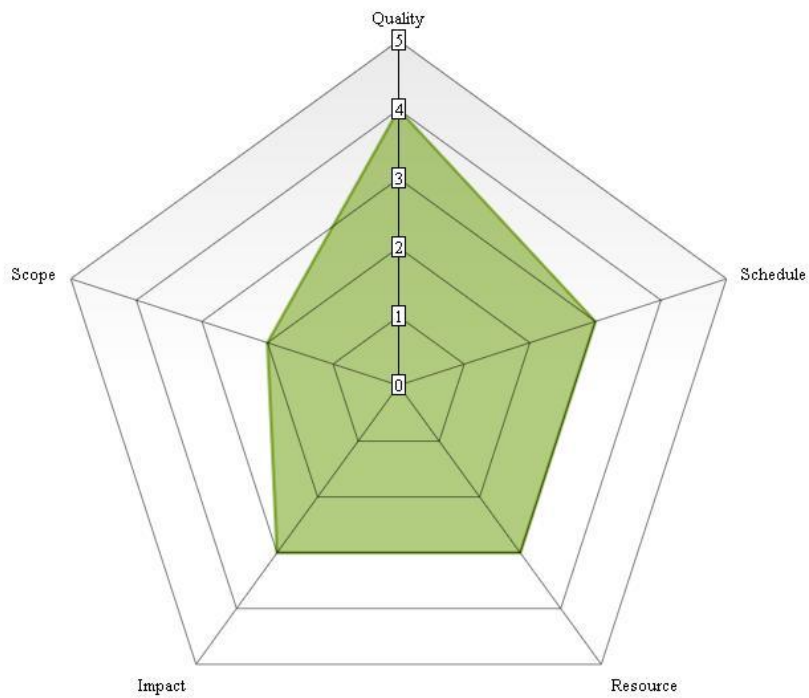
**Figure 4.9 Insource Cost Reduction Analysis**

The insourcing element cost reduction is illustrated above in figure 4.9. Cost reduction for insourcing has relatively medium value in both schedule and impact scale. It gains value 4 in both schedule and impact. For the scale of quality and resource, cost reduction element gets value 3, followed by scope with value 2. In overall scale, cost reduction gains a medium shape in pentagon area, thus it gives medium weight for insource analysis process. After calculation, the area of insource cost reduction has an area size of 23,78 units, whose corresponding weight is 0,221.



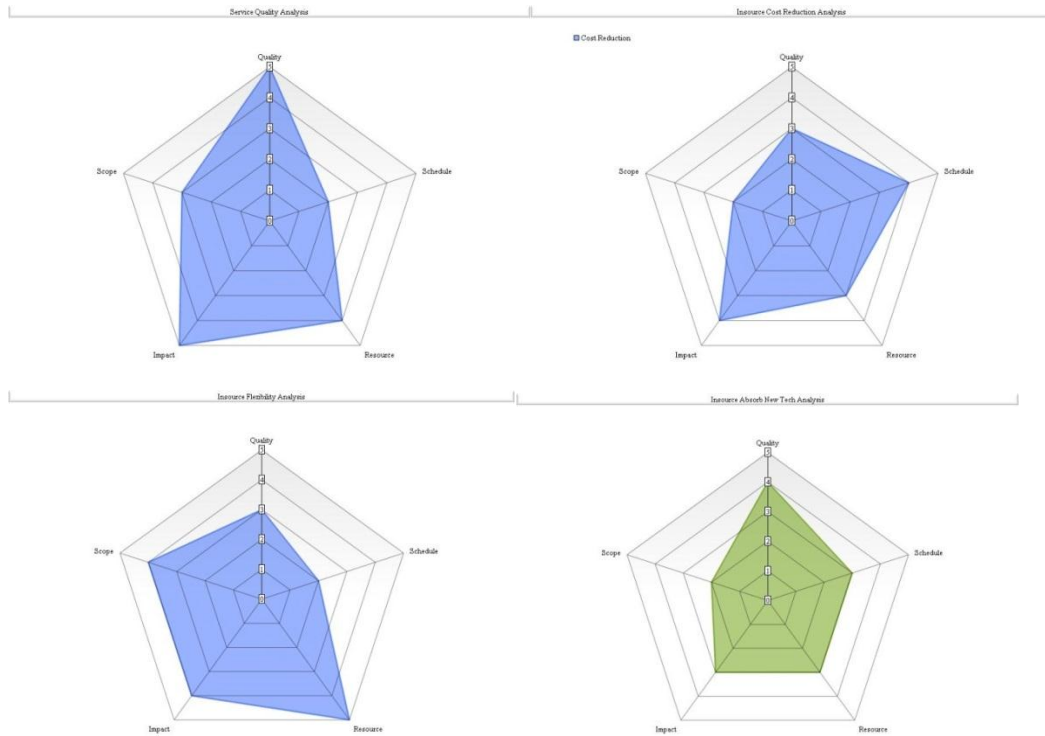
**Figure 4.10 Insource Flexibility Analysis**

For the flexibility analysis, figure 4.10 describes its shape in the pentagon chart above. Insourcing flexibility element has relatively high value in general scale. It gains value 5 in resource, followed by value 4 in both scope and impact. Flexibility has value 3 in quality, while it gains least value 2 in schedule. Looking in the whole scale, flexibility gains a relatively large shape in pentagon area, thus it can give comparatively more weight compared with other insourcing elements. The shape of insourcing flexibility has an area size of 30,44 units, and it has a corresponding weight of 0,283.



**Figure 4.11 Absorb new technology Analysis**

Obtaining new technology analysis is illustrated above in figure 4.11. Absorb new technology has relatively average value in most of the scale, expect scope. It gains value 3 in schedule, impact as well as resource. For the scale of scope, absorb new technology only gets value 2. But the element seems to have a greater contribution for quality, as it gains value 4 in scale of quality. Absorb new technology gains a relatively small shape in pentagon area, thus the weight contribution for new technology is also quite limited. The shape of absorb new technology analysis has an area size of 20,92 units. And the weight of absorb new technology gains a relative weight of 0,194.



**Figure 4.12 Insource Elements List**

Compiled elements for insourcing are listed above in Figure 4.12. Top right illustrates service quality analysis, top left explains the cost reduction related figure, down left describes flexibility related analysis, and finally absorb new technology element is listed below on the right bottom of Figure 4.12. Meanwhile, Table 4.4 lists the areas of different elements and their corresponding weight values.

Element	Area	Weight
Service Quality	32,33	0,301
Cost Reduction	23,78	0,221
Flexibility	30,44	0,283
Absorb New Tech	20,92	0,194

**Table 4.4 Insourcing Element Area and Weight**

There are four elements listed in Table 4.4. Service quality has area of 32,33, cost reduction has area of 23,78, flexibility gets area of 30,44, absorb new technology has an area of 20,92. All of the elements area are described in Figure 4.12. By using weight function in Figure 3.13, weight can be calculated for each elements. Service quality gains weight 0,301, cost reduction has weight value of 0,221, flexibility contains weight of 0,283 and absorb new technology has least weight value 0,194. After comparing the weight in different tables from outsource to insource, we can see that certain elements is suitable to insource and others are more suitable to outsource. By giving this comparison, the outsourcing strategy makers know what to keep in house, thus more reason outsource decision can be made from the beginning.

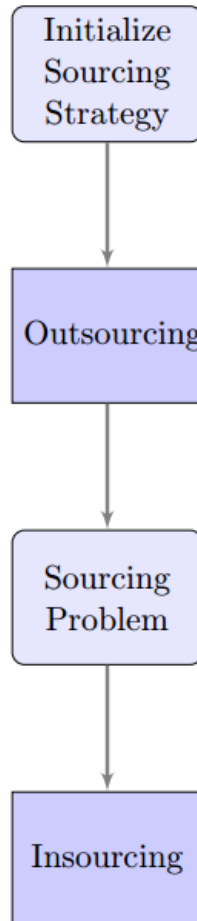
### **4.3 Comprehensive Sourcing Scenario**

Success of the business depends on innovation; production sourcing strategy lays the same principles. In previous examples, we listed outsourcing and insourcing scenarios. However, there is a third method for sourcing, which is called comprehensive sourcing. Comprehensive sourcing can be defined as a sourcing strategy, which may be placed between outsourcing and insourcing. It is a different insourcing arrangement and meanwhile combines the use of outside resources.

Comprehensive sourcing has several advantages compared with simple outsourcing and insourcing. However, those three different types of sourcing all have one common goal: reducing costs. Straightforwardly, the aim of cost reduction is to save money and minimize spending. Traditional sourcing managers believe outsourcing to be a direct way to achieve cost reduction. Later, insourcing is targeting for the same purpose. However, managers also believe that insourcing can lead towards organizational integrity and cost reduction in the meanwhile.

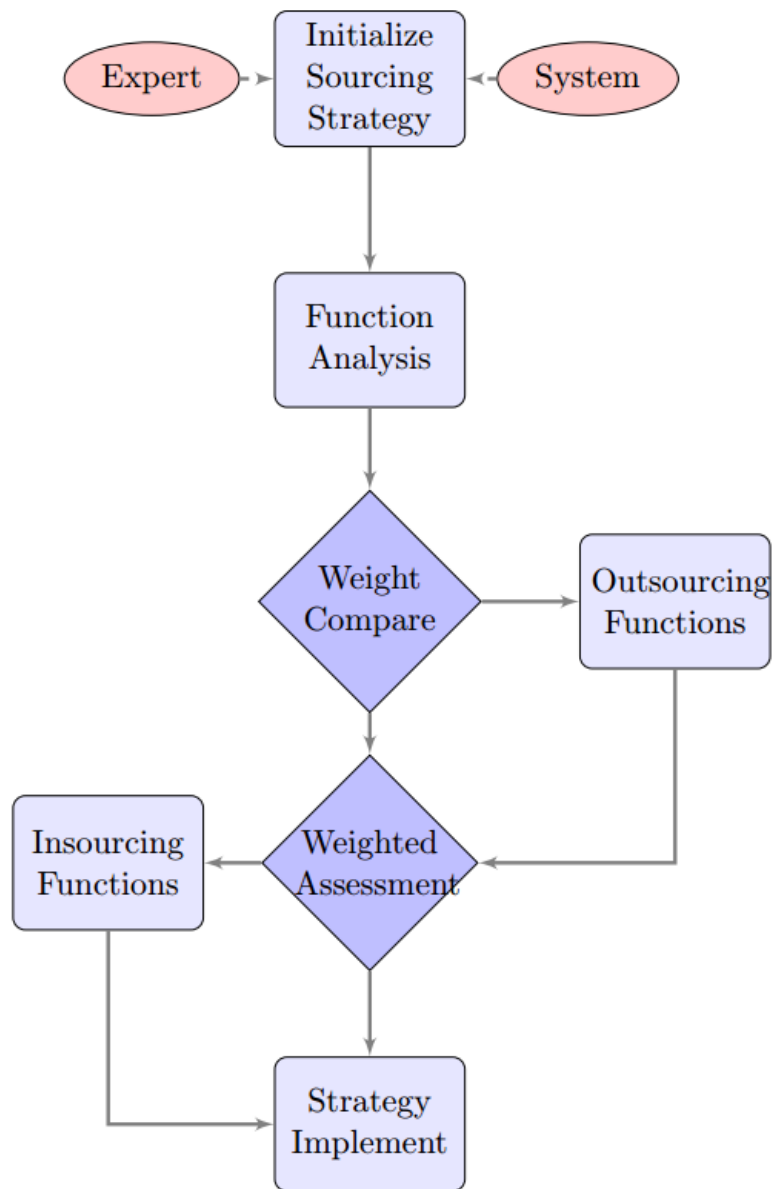
Besides simple cost reduction, there are also other values that comprehensive sourcing takes into account. Traditional insourcing values the decrease of total house spending, but there are other factors that need to be considered as well. For example, company brand, business and technology expertise, experiences as well as client relationship.

Comprehensive sourcing is not only presenting the idea that cost reduction is important for the enterprise, but this sourcing method also suggests a wider perspective from the starting point of sourcing strategy implementation.



**Figure 4.13 Single Outsource and Insource Flow Chart**

To explain the difference of comprehensive sourcing compared to outsourcing and insourcing processes, we need to clarify the sourcing process first. Figure 4.13 illustrates the normal process for normal sourcing. When strategy makers consider sourcing, outsourcing is usually the first choice. After years of outsourcing, a company management team starts to realize that the original contract did have many issues. However, after the contract has been signed, there are limited possibilities for modifications and updates. In addition, the fixed contract actually caused many problems. Therefore, after realizing the failure of outsourcing, the strategy makers start to insource previously outsourced business functions.



**Figure 4.14 Comprehensive Sourcing Flow Chart**

The comprehensive sourcing method is illustrated in Figure 4.14, which is different from the normal sourcing process. Strategy makers consider sourcing for the company, then different business functions are analysed and weights are assigned to the corresponding functions. In order to decide which functions suit outsourcing and insourcing, weights are compared and assessed in Figure 4.14. If certain business functions are not suitable for outsourcing, then those functions can be categorized as core business functions. After outsourcing and insourcing functions have been classified, the company can start to implement their comprehensive sourcing strategy as Figure 4.14 illustrates above.



### **4.3.1 Comprehensive Sourcing Advantages**

The advantages of comprehensive sourcing are obvious: it can take advantage of both outsourcing and insourcing. Figure 4.14 demonstrates that comprehensive sourcing uses outsourcing and insourcing at the same time. Therefore, it can achieve many goals, for example increasing profits, improving operations and avoiding complexity of understanding new technologies by using outside expertise. Meanwhile, comprehensive sourcing can minimize the negative impact on employees, by preventing them from becoming outsiders of the original company.

Comprehensive sourcing can also minimize the negative impact on customers, by doing less disruption operations during the transition of the outsourced activity from AntTech to the outsourcing provider. In addition, comprehensive sourcing can also decrease the difficulties of managing the vendor relationship. Since design changes in services and products can be difficult with a distant partner, sharing knowledge with an outsourcing vendor who may later work with a competitor is also another challenge. By doing comprehensive sourcing, AntTech can avoid the failure of an outsourcing vendor resulting in the failure of the company.

### **4.3.2 Comprehensive Sourcing Implementation**

Comprehensive sourcing is a result of planning efforts and experience of outsourcing and insourcing. This sourcing strategy requires all the sourcing related issues, tasks and operations, detailed with tactics such as Resource Financing Query (RFQ), Resource Financing Power (RFP) and Resource Financing Illumination (RFI) to be managed by central office and one sourcing team. The sourcing team is responsible for controlling and managing the whole sourcing related programs, for instance sourcing time schedule, vendor negotiations, quality assessment etc.

Through all the sourcing events, optimization methods are used based on mathematical theories and computer algorithms to solve business related decision problems. By doing analysis and simulation, all the possible outcomes of the sourcing decision will be studied. Therefore, suitable sourcing strategies will be selected afterwards. The sourcing

is simulated and evaluated not only in the beginning - when applying the sourcing method to different vendors - but also the methods are being analysed through the completely comprehensive sourcing process. This is because technologies evolve and outside environments change continuously. Internal factors are being considered as well during the optimization, when vendors change their service models, client changes company structure, human resources are relocated or in case of other, internal factors changes.

The comprehensive sourcing flow chart in Figure 4.14 briefly explains the process of comprehensive sourcing. To summarise the sourcing process in a practical manner, the company needs to do the following steps. First step is to assess the current situation of the company, for instance cost budget, human resource, company management structure etc. By collecting data and performing assessment, the company management board gains a general view on the status of the company. Therefore, the second step will be to start to understand the outside market by doing studies on similar product providers and analyze which vendors those product providers use at the moment. After identifying the suppliers in the market, the next step is to analyse the suppliers. Not only the price, but also the suitability and long-term focus should be emphasized on supplier identification and analysis.

Sourcing strategy can be developed after the supplier identification; meanwhile, the company should start the RFI, RFQ, and RFP to specified vendors. The purpose for comprehensive sourcing is not to get rid of one of the low profitable functions of the company, but to allocate functions to different positions in the supply chain. The management team in the company starts to implement the sourcing strategy and form a new supply structure. Concurrently, the sourcing team starts to prepare for the new supply structure analysis and result assessment in a new round. This assessment and analysis will continuously provide new information for the company's management team, which may be used in the next round of sourcing strategy making and implementation.

Comprehensive sourcing emphasizes a continuous cycle, instead of a normal sourcing contract, which gives a onetime chance to determine the outsourcing and insourcing

strategy. Moreover, an iterative approach should also be included in sourcing optimization; besides, the contract should be done in a continuous style. The contract should be designed to be renewable if necessary - not a fixed deal - to provide continuous improvement and iterative implementation. In comprehensive sourcing, the management team should also notice that sourcing strategy is an iterative decision making process, which gives enough space for error correction. This process makes sure that the strategy contains dynamic characteristics, which suits long term planning.

## **5 Discussion**

Motivation of this study originates from a recent outsourcing phenomenon in Europe. After several years of outsourcing fever, companies are starting to realize that outsourcing is not the permanent solution for cost reduction. Each coin has two sides; there are disadvantages to outsourcing even though the results are satisfactory most of the time. This article explains the alternative when outsourcing and insourcing is not the most effective choice.

Insourcing can occur when outsourcing is not able to achieve the desired goals of company. When a company fails to outsource certain functions, it will turn to insourcing afterwards. However, there are always neutral ways to avoid the failures from the very beginning. The author introduces the concept of comprehensive sourcing, which lies between outsourcing and insourcing. Therefore, outsourcing and insourcing share common goals, and the comprehensive sourcing model is introduced after outsource and insource scenarios.

### **5.1 Major Findings of Study**

The major finding of the study is a systematic model for enterprise sourcing. The study introduces a sourcing model for enterprises; companies can use the model for the evaluation of the suitability of outsourcing and insourcing. Vendors of course have different expertise. By using the sourcing model for vendor evaluation, enterprises can have a comprehensive way to make their sourcing strategy. On the other hand, insourcing also provides possibilities for a company to achieve similar goals while doing outsourcing.

The article also points out the importance of considering insourcing while doing outsourcing. In the current trend of the outsourcing era, cost reduction has outlined other elements in outsourcing, which creates an unsuitable strategy-making phenomenon. Decision makers desperately want to move non-core business functions

to vendors, which contribute to cost reduction. This article illustrates that the outsourcing strategy of a company should also concurrently consider insourcing.

The thesis also points out that after the fever of outsourcing, there is a different insourcing phenomenon to take IT services and other previously outsourced operations in house. Companies find out after outsourcing functions in IT for several years, that they actually lose control of the information department and meanwhile the business service quality decreases as well.

Recently, sourcing strategies are made based on management ideology, with emotional sense and less rational reasons. This article explains a systematic way to carry out sourcing. Proper outsourcing strategies contain insourcing as well. To define the extent of outsourcing and insourcing, this article gives different method for analysis. Methods introduced in this article include pentagon chart function analysis, weight function and etc. The method requires the client to realize intentions and missions to concrete goals and objectives. Those concrete goals and objectives then give input to the analysis model. The output of the model provides guidance for the company sourcing strategy.

This article introduces a model which can be used for outsourcing, insourcing and comprehensive sourcing. Outsourcing client would like to reduce company activities on non-core functions, thus decreasing low value adding services. AntTech hopes that by outsourcing those functions it can achieve cost reduction, improve service quality, obtain outside expertise and increase customer satisfaction. On the other hand, a company that insources expects to achieve similar goals, including improve service quality, increase customer satisfaction as well as cost reduction where they found that outsourcing does not actually reduce the long term costs.

Of course, the method has not been tested with a real case, but the findings of this article offer a new concept to solve complex sourcing vendor structure. Such a complication usually exists in enterprises, and with such functions for each unit and department, definitions as well as standards are needed. By allying those principles, each unit can have a standard to rely on. This article also proposes a process of standardization for sourcing as well.

The methods introduced in this thesis is applicable not only for evaluating enterprise sourcing strategies, but also for judging company competence. Since each functional unit can make this happen, a small or middle size company can also use this for dealing with customers. Enterprise, company, department, unit or even function can use this method for designing sourcing implementation. The method can be used for many purposes, not only for the sourcing but also for decision making, which is important in fields of business.

## **5.2 Study Limitations**

The study has couple of fictional companies as exmaples, instead of real company cases. Due to time limitations, the sourcing model has not been verified on real company outsourcing cases. Because there is no funding for this study, statistical way of gathering the interviews data could make a difference for the findings. The data used in the modelling may not be accurate enough, because some of the data are made up with hypothesis.

The author had limited time to conduct the research. For instance, during the interviewing phase, the author managed to interview 5 to 10 people in different positions, but no interviews were conducted towards top management due to the working schedule. Furthermore, the scale of the data analysis is also limited by time. Data collection is limited as well by time and schedule; therefore, scalability of the data gives restriction to later data analysis.

The sourcing model introduced in this article is on a general level, which may give overall guidance on strategic level. However, the model is not able to give enough details on the implementation of sourcing. With the standard for sourcing, a company can use the model to decide what to outsource and insource, but how to do the implementation is another issue. Different industries and companies have distinct characteristic and initiatives, and the implementation of sourcing strategy does not share common logics. Due to the analysis model relative restrictions, 2 different cases cannot

be compared directly. And straight comparison of area size also does not give valuable answer as well.

In this article, data input does not cover a general industry level, thus, the output model can also be counted as limited inside a certain industry. Based on limited data analysis, the model extracts several sourcing elements; because of the data quantity and quality, those elements may not be used in a general level, which is not suitable for most of the companies. However, the author also introduced a mathematical model for the comparison of elements, which is named as pentagon chart analysis. This can be used as a general model for element weighing, which gives a standard method for comparing the importance of different sourcing elements.

### **5.3 Suggestions for future research**

Future research can be made with deeper analysis of the enterprise elements. Currently there are only five elements that are accountable in this phase. A practical approach is needed for this method verification; meanwhile case verification is needed for a demonstration project. Simply speaking, the model introduced in this article need to be tested with real cases.

The model introduced in this article can significantly enhances sourcing strategy making process. And it gives a standard for different parties to follow. The sourcing model in this article is not only aiming for decision making - it also cannot replace the judgement of the management, but the model bridged the gaps between data, judgement, decision and strategy.

The enterprise comprehensive sourcing model provides the company management team a viewpoint of different elements, which has influence on outsourcing. The model also gives a company a long-term view focus, which can be taken into consideration for vendor management. Different industries have their unique ways of implementing sourcing strategy: for instance, manufacturing and software industry may have completely different sourcing elements. Therefore, future research can focus on wider elements in different industries.

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