

## **The Influence of the Headquarter Establishes on the Procurement Process to Supply Chain**

Yao Chin Lin and Ping Heng Tsai

Department of Information Management, Yuan-Ze University, Taiwan

imyclin@saturn.yzu.edu.tw

superf2t@gmail.com

Corresponding Author: superf2t@gmail.com

### **Abstract**

This paper describes the enterprise resources integration problems of the procurement process at the operational headquarter. Integrating internal enterprise resources are an important thing, especially the enterprise crosses the nations. The case company utilized information technology as a tool supporting their daily work, helping them to get more efficiency on their jobs. The operational headquarter approaches centralized procurement process to assist enterprise gathering the requisitions from each subsidiary, and negotiating prices with suppliers. Our study based on an electronic manufacturer in Taiwan using case study method to investigation. Finally, we found out that the case company through performed centralized purchase mechanism can immediately understand the raw material requirement from each subsidiary, and avoid the personal preferences. The operational headquarter directly faces suppliers to electing, negotiating prices, distributing materials to each subsidiary, and making information is transparency and easier integration.

*Keywords:* Operational Headquarter, procurement Process, Supplier Management

## **1. Introduction**

Every company has own subsidiaries, what if each subsidiary processes the different information system, runs the heterogeneous e-commerce or the enterprise resource planning (ERP) platform. That would make some problems in data or resources integration. Using the operational headquarter solves the data storage problems, and simply the system process to satisfy the daily work.

The purpose of this study is discovering the benefit of the simply process. We based on the influence of the subsidiary executes purchase process to return to centralized purchase. This study uses procurement process as our standing point. We aim on the procurement process, and list three problems to know about the change in the company.

1. What kinds of help to perform operational headquarter in enterprise resource?
2. Does operational headquarter can help company in the problem of resource allocation.
3. Does procurement mechanism affect the operational headquarter then help for enterprise to promote their competition in resource allocation?

## **2. Literature Review**

### **2.1 Integration Global Supply Chain**

Chung-Hua Institution for Economic Research published a report figuring out the supply chain management has four features in the supply chain process: (1) Collaboration: which are aimed at a cross interaction between suppliers and customers through the use of Internet technologies to fulfilling orders. (2) Core competition: this is capable of to face the challenge in the market place such as a key resource or technology. (3) Information sharing: which emphasized the data transparency, such, material, component, or delivery is a critical success factors. Because of sharing information with other participants do not have a direct business relationship but sharing information is able to help suppliers make production specifications, which add value to the resulting product, in real time, and reduce the time of production development. (4) Information Technology: This breaks down the barriers of time and space. Therefore, the company needs a corresponding strategy using real time service to satisfy customer demand.

### **2.2 Global logistics cooperation**

Lambert, D. M., Stock, J. R., & Ellram, L. M. (1998) said that logistics is starting from the planning, execution, and controlling to customers, and supporting related information such, product, service, and storage to fit in with the customer demand and part of supply chain process. Large business corporations can no longer limit themselves to local market needs. In response to the impact of global market competition, a new business operation format, global logistics management (GLM), has developed (Holland & Light, 1999).

The Global Logistics Management starts from customers' vision and process through

integration the global resources into company's strategy planning that help company to get some business benefits. Therefore, the GLM as an information system, via some interaction process between clients and company to earn the best business benefit and creates the more added values between each other. GLMS has three main objects. First is quickly a response to customer demand, second is making differentiation in service, and solving the problems to establish the internal knowledge (Lin Y.-C. & Tsai P.-H., 2009).

### **2.3 Global headquarter**

A company is going to face the globalization has two major reasons. First, through the global resources distributes in efficiency for competitive advantage. Second is processing the global convergence developing the market, bases on the product marketing to size of market, and conquers the regional market saturation.

Because of the global company who retains the competitive advantages needs promotion their product to the global market, and development a business model to support the market. But, however, before the company is going to the worldwide, the organization or the process should be integrated from design, purchasing, production, storage and sales, through connecting each part of works to create the add value.

### **2.4 Procurement processing**

The procurement which has some features, such user friendly and Internet-based purchasing system (Panayiotou, Gayialis, & Tatsiopoulos, 2004) refers to the use of integrated information technology systems for procurement functions, including sourcing, negotiation, ordering, receipt and post-purchase review (Simon & Alistair, 2007).

Firms, who allow the online payment mechanism for their purchases process, have five reasons for company needs to integrate with e-procurement system (i) cost cutting, (ii) real-time bidding and response, (iii) transparency of the process, (iv) reduced cycle time, and (v) increased geographical outreach (Yu, Yua, Holly, & Lina, 2008).

## **3. Methodology**

### **3.1 Case Company**

The case company is producing connectors, soft wires, and wire components. Their market focuses on the European, American, and Asia. They are facing the international competitions, and downstream companies are moving into China for reducing their cost. Therefore, the case company based on this trend, they located Taiwan as a research and design base, and gradually moved their production line into China (Dong Guan, and Shuzhou) to service their clients and reduce the cost, and sets distribution offices in American, Japan, Singapore, Malaysia and Indonesia.

The case company is keeping in stable and growth (table 1.). Especially from 2000 to 2002, the global market faced the recession and Internet bubble, and from the 2004 to 2006 they was trying to introduce the information system into their organization. Until to global

financial tsunami was inflicting heavy losses in global market, the Gross margin slightly narrowed to 25.34% but the operating margin and the pretax margin has significant decrease.

Table 1. Three keys profitability index. (Year)

Year	2008	2007	2006	2005	2004	2003	2002	2001
Gross margin	25.34%	25.66%	28.24%	27.67%	30.69%	32.34%	31.33%	27.54%
Operating margin	8.03%	12.24%	13.51%	11.80%	13.70%	16.07%	16.31%	5.80%
Pretax margin	21.58%	28.96%	23.15%	24.16%	17.49%	20.00%	23.39%	8.70%

Resource: Taiwan Economic Journal

The case company wants to be a major connector supplier in the material supply chain. They through established the global headquarter helping integration their procurement, manufacture, sales, and research and design. Because the operational headquarter which plays a key role in quick response and operating cost reduction is necessary.

The headquarter tries to through the e-business to fulfill the customer demand, and maximize their benefits. This study not only shows headquarter running e-business process, but also discusses the change in purchasing flow.

### 3.2 Research setting

We have been investigating the case company around two years. In this period, we performed group interview asking something about the function of the operational headquarter, and collected secondary data from the inside company to understand their performance or states.

Our research framework (Figure 1) is based on the company who established the operational headquarter uses the e-business into their procurement process. This study concerns about the influence between procurement process and the company’s strategy. Therefore, the research framework shows the relations among each part of systems. We aimed to the e-procurement process to discuss how e-business impacts case company’s daily work.

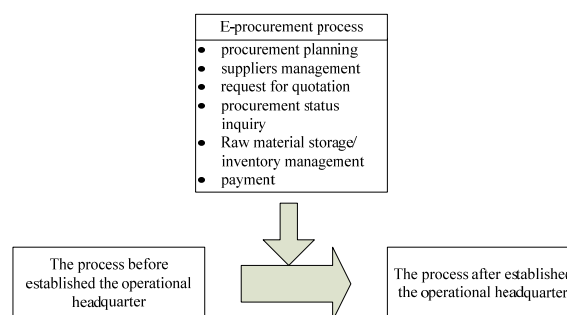


Figure 1. Research framework

Our study aims on the procurement process. There are six indicators have been chosen from procurement system. We listed as follow:

1. Procurement planning, which is collecting the requirement from each department, focused on the raw material such the standards, lots and time for requirement.

2. Supplier management. After the raw material has been confirm, the company is going to look for suitable suppliers and comparing each supplier's information to discuss and elect.
3. Request for quotation that is aiming at partners in order to get some informationlikes inquiry and negotiated price.
4. Purchase order progress enquiry happen to the purchase order issue and follow up. The purchase person has to trace supplier for processing to make sure the material can delivery on time.
5. Inventory management, which happens to when supplier advanced shipping notice, and purchase person prepared for receiving, notices quality control staff for inspection and acceptance.

#### 4. Research Finding

The figure 2 shows the system architecture from the case company. The red line covered area is our research scope. The figure shows the every business activity started from the customer demand. When the procurement system receives the purchase requisition, then enterprise is going to base on each subsidiary's requirement and collects requisition need from each subsidiary.

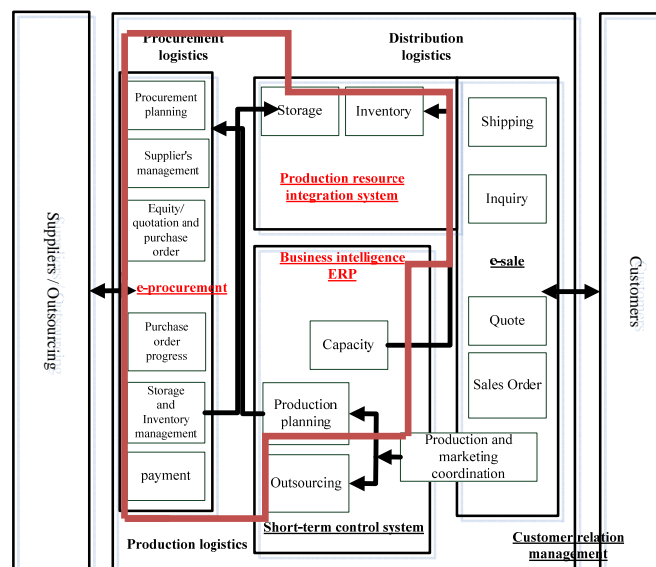


Figure 2. The e-business scope of the operation headquarter

First, the case company was using the subsidiary management return to centralized control by operational headquarter. Before the operational headquarter, the purchase department received the material requirement planning from production department then going to purchase raw material. After the operational headquarter, there are two purchase methods have been figure out, one is operational headquarter doing centralized purchase process, and other is following each subsidiary's requirement.

Table 2. The difference in procurement planning

Analysis item	The difference
Process change	From the subsidiary based on their requirement to perform the procurement return to the operational headquarter collects the each subsidiary's requirement to achieve centralized planning, and reduce the cost.
Information flow	1. Each subsidiary needs to upload the requirement information (material, lot, and time) to The operational headquarter. (Figure 3)
Requirement data	The raw material requirement or requisitions
Executives	From the purchase person in each factory changes to the operational headquarter ad hoc group
Influencing scope	From the subsidiary returns to the operational headquarter (Centralized planning)

The operational headquarter collects requisitions from each subsidiary to decide which method is the best way to purchase. Especially listed two kinds of raw materials, first is special terminal product which produced by Japan, or some materials that do not impact from product line such coppers, plastics, and packing materials. The case company is aiming to second material. There are two reasons, high popularity, and do not impact by product line.

The figure 3 shows the purchase process change and difference. The operational headquarter needs collecting the purchase information from each subsidiary, achieving centralized procurement, and reducing the cost. The rectangle shows the difference. Each subsidiary needs to upload the requisition information (material, lot, and time) to the operational headquarter.

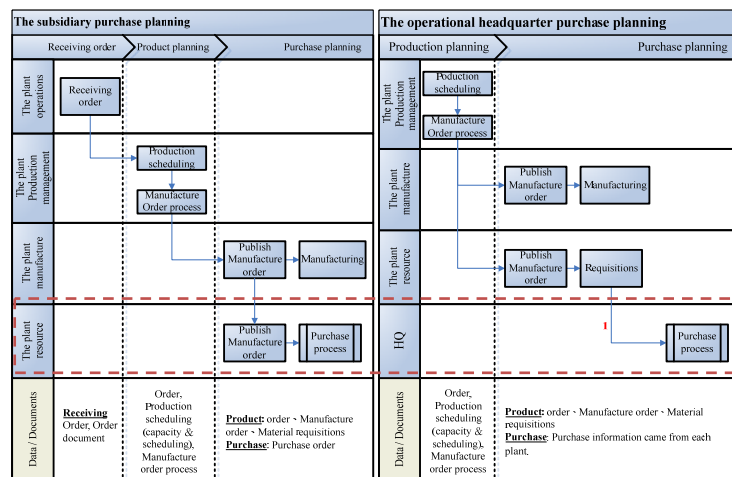


Figure 3. The difference in procurement planning

Second is supplier management (table 4). Under the centralized procurement, the operational headquarter gathered the supplier information from cooperated listing or searching new suppliers.

On the other hand, the subsidiary has own supplier management mechanism and evaluation methods. Through the system can immediately return the supplier's states to the operational headquarter. Therefore, the process has changed, the operational headquarter needs to discuss and elect suppliers.

Table 4. The difference in supplier's management

<b>Analysis item</b>	<b>The difference</b>
Process change	From each subsidiary manages their supplier's information returns to operational headquarter decides suppliers.
Information flow	2. Each subsidiary returns supplier's information to the operational headquarter who is going to elect the supplier. (Figure 4)
Requirement data	Supplier's information
Executives	From the subsidiary returns to the operational headquarter
Influencing scope	From the subsidiary returns to the operational headquarter (Centralized control, electing)

Third is equity, quotation and purchase order. In the centralized purchasing, the operational headquarter is in charge of suppliers for discussion, election, equity, and quotation. The operational headquarter will use list of two methods:

1. The supplier is able to ship between Taiwan and China, and the operational headquarter is going to collect the demand from each subsidiary. When the price and lot is decided then making order to the appointed supplier. (In this case, the operational headquarter just supported the demand for the supplier, but don't send the purchase order.) (Table 5)
2. The operational headquarter intricately evaluates the lot, and time to order the raw material to the supplier. (In this case, the operational headquarter directly send the purchase order for the supplier.)(Table 6)

Table 5. The difference in equity/quotation and purchase order  
(the operational headquarter negotiated prices, the subsidiary order)

<b>Analysis item</b>	<b>The difference</b>
Process change	The original process was executed by subsidiary returns to the operational headquarter collects the purchase demand from each subsidiary, and asks for quotation and enquiry, then informs to each subsidiary.
Information flow	3.1 The operational headquarter asks for quotations from supplier. (Figure 4) 4.1 The operational headquarter based on the supplier's price to tell each subsidiary. 5.1 The operational headquarter based on subsidiaries demand to order raw materials.
Requirement data	Understanding the raw material demand from each subsidiary
Executives	From the subsidiary returns to the operational headquarter collects demand and the subsidiary sends purchase order
Influencing scope	From the subsidiary returns to the operational headquarter (Centralized control)

Table 6. The difference in equity/quotation and purchase order  
(the operational headquarter negotiated prices, the operational headquarter order)

<b>Analysis item</b>	<b>The difference</b>
Process change	The original was executed by subsidiary returns to the operational headquarter collects the purchase demand from each subsidiary, and asks for quotation and enquiry then orders.
Information flow	3.2 The operational headquarter puts forward orders to suppliers (Figure 5)
Requirement data	Understanding the raw material demand from each subsidiary
Executives	Form the subsidiary returns to the operational headquarter sends the purchase order
Influencing scope	From the subsidiary returns to the operational headquarter (Centralized control)

Fourth, the purchase order usually followed and queried by requester. After the operational headquarter, the subsidiary proposes the requisition to the operational headquarter made the purchase orders. The process is changing to second way (the operational headquarter negotiated price, and the operational headquarter ordered).The the operational headquarter should monitor the supplier steps and support the related subsidiary information to the supplier.

In the storage process, whether the operational headquarter or the subsidiary made the purchase order, the subsidiary needs to inspect and accept by self. However, if the purchase orders was coming from the operational headquarter, and the operational headquarter should tell the supplier the place of the delivery and not just shipping to the operational headquarter. The process difference shows in the table 8. Figure 4 and figure 5 explain the all of the information flow process and different.

Finally, we used some critical indicators to evaluate the case company's operation performance (table 9). Especially, the capacity utilization from 40% upgrades to 70%, the case company through performs centralized purchase reducing the idle capacity increasing operation performance.

Table 7. The difference in Purchase order progress  
(the operational headquarter negotiated prices, the operational headquarter order)

<b>Analysis item</b>	<b>The difference</b>
Process change	The original was executed by subsidiary returns to the operational headquarter integrates requisitions from each subsidiary, and monitors purchase process.
Information flow	4.2 The operational headquarter is monitoring the purchase process and providing information to each subsidiary. (Figure 5)
Requirement data	Requisitions from each subsidiary
Executives	From the subsidiary returns to the operational headquarter purchase
Influencing scope	From each subsidiary, suppliers returns to the operational headquarter, each subsidiary and supplier (the operational headquarter providers monitor system)



Table 8. The difference in storage and inventory management  
(the operational headquarter negotiated prices, the operational headquarter order)

Analysis item	The difference
Process change	The operational headquarter appoints supplier to deliver the material to each subsidiary. The subsidiary executes the storage process.
Information flow	5.2 The operational headquarter provides distribution information to supplier, who delivers the goods to each subsidiary. (Figure 5)
Requirement data	Distribution information
Executives	From the subsidiary returns to the operational headquarter storage purchase, the subsidiary
Influencing scope	Form each subsidiary, suppliers returns to the operational headquarter, each subsidiary and the supplier.

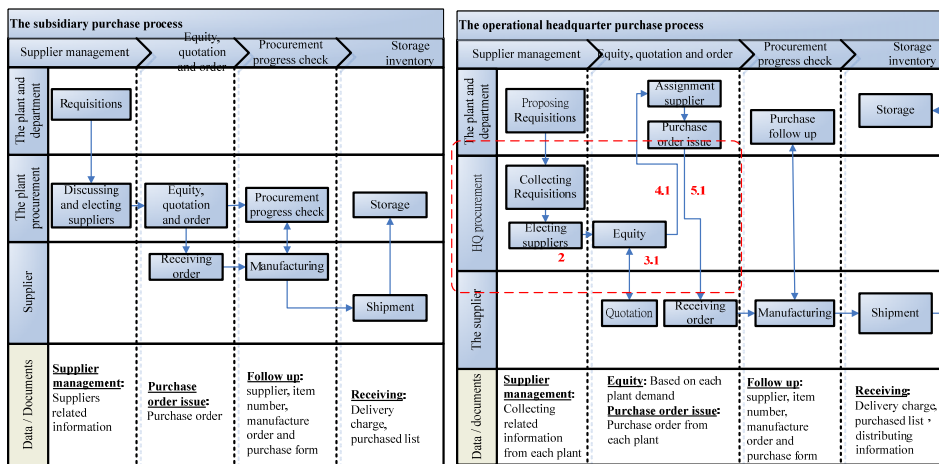


Figure 4. The difference in procurement process  
(The operational headquarter negotiated price and the subsidiary has order)

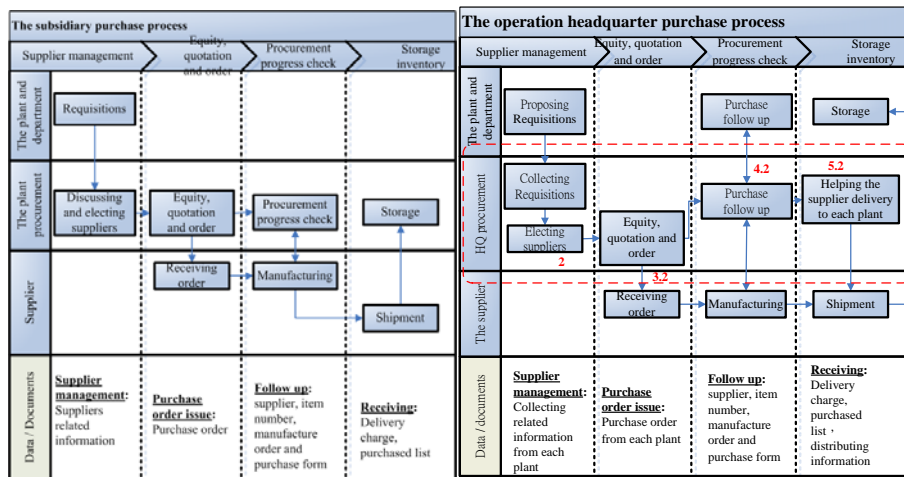


Figure 5. The difference in procurement process  
(The operational headquarter negotiated price and the operational headquarter has order)

Table 9. The difference in operational performance

Performance Item	As-is	To-be	Benefit
Order fill rate	85%	90%	Increase the rate of the delivery
Rate of the capacity achievement	90%	100%	Promoting the capacity to satisfy the customer demand
Capacity utilization	40%	70%	Reducing the idle capacity
Cost difference	15%	10%	Reducing the production cost to increase the gross income

The case company established the operational headquarter, and hoped to reduce the procurement process from subsidiary base becomes a group base to cover the whole procurement mechanism. Therefore, we based on our finding concluding the list of three things as follow:

1. Through the operational headquarter collects the manufacturing information is able to strengthen cooperation with suppliers, and mining the history business transactions to achieve the data integration and data transparency in coordinated planning for production and marketing.
2. The coordinated planning for production and marketing with cross subsidiary that still receives orders and rapidly production process. The operational headquarter is able to integrate the production line, simplify the procurement process, and distribute the capacity in time.
3. When the operational headquarter performs coordinated planning for production and marketing. The operational headquarter should understand some key indicators such order fill rate, rate of the capacity achievement and capacity utilization, which can help the domain experts or department managers making decisions.

## 5. Discussing

Finally, the operational headquarter performed the centralized purchasing mechanism needs to rely on the internal company and suppliers cooperation with each other. When the subsidiary proposed their requisitions and the operational headquarter is going to investigate the procurement demand from other subsidiary or company, and use lots to negotiated prices with their supplier. On the other hand, the operational headquarter needs keep watching the supplier whether the quality of products, prices, delivery, and the performance, and looks for the long terms partner to coordinate from each trade.

## References

- Holland, C., & Light, B. (1999). Global Enterprise Resource Planning Implementation. *proceeding of the 32nd Annual Hawaii International Conference on System Science*.
- Lambert, D. S. (1998). *Fundamentals of Logistics Management*. New York: McGraw-Hill/Irwin.
- Panayiotou, N. A., Gayialis, S. P., & Tatsiopoulou, I. P. (2004). An e-procurement system for

- governmental purchasing. *International Journal of Production Economics* , 90, pp. 79–102.
- Chung-Hua Institution for Economic Research. *The impact of the challenge to SMEs trends in supply chain*. Taipei: Ministry of Economic Affairs,R.O.C.
- Simon, C., & Alistair, B.-J. (2007). Impact of E-procurement: experiences from implementation in the UK public sector. *Journal of Purchasing & Supply Management* , 13, pp. 294–303.
- Lin, Y.-C., & Tsai, P.-H., (2009). The Impact on Global Logistics Integration System to Concurrent Collaborative Process. *Global Perspective for Competitive Enterprise, Economy and Ecology Proceedings of the 16th ISPE International Conference on Concurrent Engineering* (pp. 105-114). Taipei: Springer London.
- Yu, Y.-w., Yua, H.-C., Holly, I., & Lina, T.-R. (2008). Decision-making factors for effective industrial E-procurement. *Technology in Society* , 30, pp. 163–169.