

UNIVERSITY OF BOLTON

**SCHOOL OF BUSINESS AND CREATIVE
TECHNOLOGIES**

RAK CAMPUS

MSC LOGISTICS AND SUPPLY CHAIN MANAGEMENT

SEMESTER 2 EXAMINATION 2009/2010

PROCUREMENT AND OPERATIONS MANAGEMENT

MODULE NO: EBU4012

Date: Tuesday 1 June 2010

Time: 2.00 pm – 5.00 pm

INSTRUCTIONS TO CANDIDATES:

There are 2 case studies and questions.

Answer all questions.

Where appropriate, the inclusion of hand-drawn diagrams in your answers is encouraged.

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Case study 1

Organization Background

North West Enterprises Ltd is a leading distributor of petroleum products – unleaded petrol, super unleaded petrol, diesel and gas. They are head quartered in Lilongwe and have thirty branches spread all over Malawi. Apart from fuel, every branch sells grocery, magazines and news papers, tobacco, frozen foods, cool drinks, milk, sandwiches, flowers, sweets, photocopy services, tobacco, phone vouchers and automobile spares.

Current Procurement Process

1. In every branch, Purchases for the shop items are managed by the manager.
2. Every week the manager forecasts sales and raises purchase orders on the suppliers.
3. The PO's are approved by the Regional Manager who then faxes it to the supplier
4. A copy of the PO is sent to the head office
5. Supplier reviews the order and sends the goods
6. After verifying the invoice amount, branch manager approves the invoice and faxes it to the head office
7. A copy is sent to the Regional Manager as well
8. Head office completes the payment
9. However there are some exceptions
 - a. For magazines, news papers, sandwich and milk no purchase orders will be raised because the vendor manages the inventory
 - b. For these category items, payments will be made by using the delivery note

Issues with the current process

- Branches are spread across Malawi and each branch has got its own list of suppliers
- The group purchases the same goods from different supplier at different costs
- It makes around 400 payments a week to different suppliers by different mechanisms (Check, Cash, BACS – Bank Automated Credit System or e-Payments)
- The paper based system is error prone and some time double payments are made
- Due to paper based system, there is little room for analysis and forecasting is made purely by manager's experience (Their sales order system is not integrated with the traditional inventory system)
- When a manager leaves the job, it takes more than two months for the new manager to get the inventory right

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Case Study 1 questions

1. Discuss the drawbacks in current purchasing and reporting structure and how the new procurement structure might impact the operational areas of the business. **(15 Marks)**
2. Evaluate the applicability of e-Procurement solutions in improving efficiency and compliance by mapping the functionalities with the requirements of North West Enterprises (Assume if necessary). **(15 Marks)**
3. Draw an existing and 'to-be' process diagram of the procurement process. **(10 Marks)**
4. Identify a suite of KPIs you would recommend to provide the necessary control and performance reporting required by the new process. **(10 Marks)**

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Case Study 2

BBS Engineering

BBS Engineering is a leading designer and manufacturer of specialized industrial heat transfer equipments. Its customers operated in a number of industries such as steel, aluminium smelting, hydro electricity generation, pulp and paper, refining, and petrochemical. The company's primary products included transformer coolers, hydro generator coolers air cooled heat exchangers, and transformer oil coolers. BBS combination of fin-tube and time-proven heat exchanger designs had gained wide recognition both in the United Kingdom and internationally.

Sales revenues were £25M and BBS operated in a 125, 000 square –foot plant. BBS was owned by Willan Group, largely privately held corporation with more than 10,000 employees worldwide head quartered in Devon.

William James the Managing Director of BBS Engineering summarised the business strategy of BBS during the past ten years “We were willing to do anything for every customer with respect to their heat transfer requirements. We were willing to do trail and error on the shop floor and provide a customer with his or her own unique heat transfer products.” He added, “Our design and manufacturing people derived greatest satisfaction making new customized heat transfer products.

Designing and research capabilities gave us the edge in developing and manufacturing any kind of heat transfer product required by the customer. Ten years ago, we were one of the very few companies in our industry offering customized services in design and manufacturing and this strategy made business sense, as the customers were willing to pay a premium for customized products”.

Manufacturing Process

The customized nature of BBS product line was supported by a job shop manufacturing operation with several departments, each of which produced particular component parts, feeding a final assembly area. Each job moved from work centre to work centre, accompanied by a Bill of Material and engineering drawing. The first process involved fitting liner tube (in which the fluid to be cooled passed) into a base tube. This base tube, made of aluminium, was then pressure bonded to the inner liner tube through a rotary extrusion process that formed spiral fins on the base tube. The depth of the fins and the distance between them determined the amount of airflow across the tubes, and thus the cooling efficiency and power of the unit.

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After the tubes were formed, cabinet and end plate fabrication began. The tubes were welded to the cabinet and the end plates. Flanges were then welded to pairs of tubes on the other side of the end plates to create a looped system. The unit was then painted and fans and motors were installed. Finally, the unit was tested for leaks and performance, created and shipped to the job site for installation.

Materials Department

BBS buyers sourced all raw materials and components required by manufacturing and were responsible for planning, procurement, and management of inventories. Rick the materials manager managed the an in-house warehouse used for housing the raw material inventories, maintained adequate buffer inventories, and executed purchase contracts with vendors, ensuring specifications were met while achieving the best possible price. Rick's department included four buyers, a material control clerk, an expeditor, and two shippers / receivers.

It was common for BBS to have multiple vendors for a raw material supply, and the materials group used more than 350 vendors for its raw materials, with current lead times ranging from few days to six weeks. To ensure on-time supply, Rick always procured from two suppliers for critical items. Also, suppliers were kept at arms length so that the products can be procured at the best price. They were generating around 200 purchase orders every week and at some instances PO's were raised after receiving the invoice.

Rick noted that approximately 35 percent of BBS purchases were aluminium products, mainly tubes and sheets. On average, the plant had \$3.5 million worth of inventory, in the form of both raw and work in progress. Raw material inventory constituted approximately 40 percent of the total. Rick estimated that BBS had inventory turns of four times per year, which he believed was comparable to competition.

Manufacturing operations regularly complained about material shortages and stockouts and regular inventory audits indicated significant discrepancies with inventory records on the company's customer system. Furthermore, a significant amount of stock was written off each year due to obsolescence. Rick suspected that production staff regularly removed stock without proper documentation and that workers frequently deviated from established Bills of Materials. Also, two different systems were used for purchasing and warehouse control. These two systems do not talk to each and they were faced with data migration issues.

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New Business Strategy

Competition in the heat exchanger industry had increased dramatically over the past decade, with much of the new competition coming from Europe, USA and Korea. Korean firms, with their low cost base, competed primarily on price, while European firms focussed on standardising their product lines to a few high volume products and competed on delivery lead time and price. BBS competitors in Europe used assembly – line manufacturing processes, rather than batch or job shop operations.

Senior management viewed the competition from Europe and Korea as an imminent threat. Many of the BBS customers had recently developed aggressive attitudes towards pricing and delivery lead times and some key customers had decided to opt for standard product design, sacrificing custom design for lower cost and faster delivery.

The changing nature of the industry forced senior management to re-examine their business strategy. As a result, in January, a multidiscipline task force representing engineering, manufacturing and sales was formed with the mandate to formulate a new five year business strategy.

The new corporate strategy was finalised last month and reviewed with the management group on November 1st. The central theme of the new strategy was standardisation of all product lines, in terms of both design and manufacturing, reducing variety to three or four basic lines for each product category. The sales department would no longer accept orders for specialised designs. The aim of the new strategy was to reduce the delivery lead time from 14 weeks to 6 weeks and to lower production costs dramatically.

New challenges for material department

William James indicated that he expected the materials group to play a major role in support of the new corporate strategy and needed to know by next week the specifics of Rick's plan. The task force has set a number of ambitious targets. First, customer lead times for finished products were reduced to six weeks from the current average of 14 weeks. Second, the new objective for inventory turns was 20 times. Meanwhile, raw material stockouts were to be eliminated. Third, William believed that product standardisation also would provide opportunities to reduce costs for purchased goods. He expected that costs for raw materials and components could be cut by 10 percent over the next 12 months.

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Case Study 2 question

The case study would have described about the organisations existing and proposed business strategy. Assuming you are in-charge of the materials department, describe the changes you would implement to support organisational strategy. Also, discuss the issues you might face due to the introduced changes. You can conclude by recommending an action plan supporting the new business strategy.

(50 Marks)

Grading Criteria:

Strategy: 25

Issues: 20

Action Plan: 5

END OF QUESTIONS