Information System Development

System Analysis

A study into the problem that the organisation is facing must be carried out before any recommendation can be made. The problem must be clearly defined, causes identified, a solution recommended to meet the requirement of information.

In this case, Megasteel is a totally new company and the information requirement shall base on the sister company Amsteel as a reference.

The purchasing information in Megasteel shall be able to be analysed through the Amsteel system and vice versa. This is to allow a centralised purchasing environment as well as decentralised purchasing environment.

It was decided that the "common items" that are being used in both steel mills are to be handled through a centralised purchasing team. Therefore centralised system will be a pre-requisite.

Consignment stock inventory system will be widely implemented in Megasteel and Amsteel. Therefore the quantity of consignment stock items should be made assessable to the legal owner, the suppliers. The report of monthly inventory level should be able to be transmitted to the supplier for further action therefore a dummy terminal at the supplier's office will do the job.

Megasteel is currently (temporary) running on the Amsteel's system via Local Area Network with the help of a lease line and dummy terminals. The investment on hardware and software shall therefore depending on the options chosen by Megasteel.

Information Requirement

It was determined that the end-user of the system should be the purchasing department, material control department and the system must be able to be integrated into the other business function.

Purchasing department will require information on price of items, source of supply, material requirement plan and other relevant information to help in the decision making process. The system should provide the up-to-date information with the on-line facility.

Inventory control department shall require the system to provide information on the receiving activity, material-issuing activity. This is to facilitate the material requirement planning process.

The accounts payable will need information on the purchases made and the status of material received to keep to the terms and conditions set in the purchase contract.

Hardware architecture

Megasteel has an option to share the mainframe in Amsteel's IBM AS 400 model but this machine is already about ten years old and the maintenance cost is very high. Therefore it will not be economical by sharing the old machine in Amsteel both short term and in long term.

The type of hardware and its architecture shall depend on several factors, for example the number of terminal to support, number of printer in operation and of course the number of user and also the software must fit into the machine chosen. In Megasteel it was estimated that there will be about thirty terminals, twelve printers for the usage of approximately twenty-five users. A mainframe and LAN server will normally be required for a big scale operation like Megasteel.

The technical support and maintenance cost must be considered before choosing the type of machine that is suitable to use. The technical knowledge of Megasteel technical staff is important in the maintenance of the machine. Therefore training for technical staff must be carried out constantly and systematically..

The Megasteel and Amsteel system can be link up with the use of router network and the communication device (modem) via communication channel (a lease line by the telecommunication service provider).

Design Alternatives

Centralised or distributed

The centralised system shall have only one host centre processing unit regardless of the number of dummy terminal and its location. The dummy terminal is only allowed for information enquiry and data input functions only. If the host centre-processing unit shut down, the dummy terminal will not be able to proceed with any transaction.

The distributed system do not have a host centre-processing unit, the individual processing unit shall have its own data processing capability. The distributed processing unit can be link-up through telecommunication network. However, the distributed system may not be able to access to each other's database due to hardware or software constraint.

On-line or batch

The batch processing system requires the individual operating unit to deliver data (through hardcopy or softcopy) to the centralised processing unit on a timely basis. The database of centralised unit shall be updated on a fix time basis, e.g. every week or twice weekly. Therefore there will also be a time lag

between the preparation of data in operating unit and the point when the information is being reflected on the end product. An example of batch processing is the payment of telephone bill through post office, the payment will still be consider as outstanding by telecommunication service provider until the *batch processing* takes place and the end-user accounts being updated.

The *on-line system* will see the editing being done by the operating unit and the centralised database updated immediately. The up-to-date information is available immediately after the up-dating process. The benefit of on-line system is the up-to-the-minute information and the avoidance of redundancy of manual activities.

(Laudon & Laudon, 1996)

An evaluation on each design to check its suitability in meeting the user's requirement will be carries out. The user's requirement could be in terms of technical, organisational, financial, and time constraints.