

CHAPTER 3

MIS PROJECTS

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MIS PROJECTS

PREAMBLE :

In this third chapter we present two typical MIS projects designed and implemented by the author which have provided insight in arriving at the various attributes explained in 3-D Interface in chapter-1.

The first project depicts that how MIS emerges from an application area. A typical production and sales accounting system is extended to compare the performance against the targets set by the management and generate MIS giving variance projections. Similarly, sales analysis generates related information for the management which helps management in drawing out the cash-flow and helps in fund-flow management.

The second project is based on the technical application in the areas of Oil Exploration and Development. The project explains about how the input is received and used for the Interpretation. The Interpretation of the Seismic Data and the related data which helps in terms of identification of various hydrocarbon structures, volume of reserves etc. This application is preferred here to represent a typical MIS project which helps management in their decision making and the process of deriving various conclusions.

MIS PROJECT

3.1.0 MIS Systems for Production/Sales Performance

Introduction :

For a large chemical industry with wide range of products the first hand MIS is to have appropriate systems to monitor and control the production/sales performance on regular basis. Under this chapter one such MIS project is covered which was designed and implemented for an industry producing around 450 colours used mainly for the textile industry.

The application covers the concept of production and sales target on quarterly and yearly basis and compares the actual production and sales performance against the target and works out variances. The systems also gives the status of customer orders vs. delivery and gives the outstanding order status. While the customer order is materialised into delivery order and invoices, the system provides the statistics of sales in terms of cash sales vs. credit sales and gives the analysis of credit sales.

This integrated information is generated on daily basis which is very essential and useful to the management to have performance projection at a glance.

Concepts : Important concepts are :-

1. Production variance gives production performance in an ongoing way.
2. Sales variance gives sales performance and serves as an important feed back which may be

- useful to update planned production schedules.
3. Analysis of sales in terms of various credit limit and cash sales gives projection about cash-in and helps the cash management.
 4. Day to day outstanding customer order status helps management in maintaining both production schedule as well as despatches and thereby improves inventory control.

Input Details

The system gets the basic input in the form of production batch sheet giving day to day production data. Similarly, the delivery challan and customer orders are received on daily basis. While the production target data is available on quarterly basis and sales target is available for the year. However, both production and sales target are updated whenever the same is reviewed by the management from time to time.

Systems Design :

The system design is not very complex however, the integration adds complexity for its implementation. The system has multiple pass of the processing before it - generates the main MIS reports. The major steps resulting into MIS are as follows :

1. Basic validation of Production Data Sheets.
2. Basic validation of Customer Order and Despatch data.
3. Creation and updation of sales and production target Master Data files.

4. Processing of Customer Despatches and generating Delivery Order / Invoices.
5. Files creation of production data matched with production target.
6. File creation of Sales Data match with Sales target.
7. Integrating production and sales data along with variances. It also includes and generates customer invoice analysis in terms of credit period. The analysis also gives the break up of credit sales in terms of number of days which helps in knowing the cash flows and also maintains the Inventory Control of finished product.

The software is developed to take care of internal controls. Since the system is designed to take care of daily production and sales input, the cumulative status is updated - concurrently and necessary controls are maintained and displayed as a counter check for the systems persons.

Modular Concept in design :

The system design is in a modular way and accepts the partial input. That means even if production data is not there, sales data is processed and necessary reports are generated with updated sales data and vice versa if sales data is not there the production data is accepted and report is generated with updated production data.

These modularity is built-in to take care of the following situations :

- a. Plant shut down for preventive maintenance.
- b. Plant break down where production is held up.
- c. Closing of the sales because of pre-budgeted stock taking as per government's statutory regulations.
- d. Closing of the sales due to the market condition or non-availability of transport for any reason.

The modularity gives the elasticity to the system where generation of updated information is not data dependent on completeness of the input but it is also possible to generate the output with the available input and update the status.

Systems Implementation :

Systems implementation was done in the phases. Initially, it was planned to implement in two phases like :-

1. Production Data Accounting and working out production variance against target.
2. Customer Order processing, generation of Delivery Challan / Invoices and arriving at sales variance against sales forecast.

But later on as the implementation started, the demarcation of the phases lost the significance and there were many stages of progress with back and forth movements of activities. This was experienced because of both, change in the users specifications and gaps in the originally conceived design. Both the originally planned phases were implemented almost parallel; one side production data and targets and on other side customer order processing and generation of

documents. Finally, the integration was done to arrive at MIS report consisting production and sales variance and analysis of sales.

The successful implementation was achieved by taking care of the following aspects :-

- (1) Proper input form design for the completeness and accuracy.
- (2) Meaningful codification of product, customer and related attributes.
- (3) Continuous coordination at all stages from timely data feeding to the use of MIS reports for planning and control.
- (4) User interface was taken care by creating Win-Win situation at intra-department and inter-department levels. Due consideration was given to the behavioural profile of the dealing personnel and appropriate approaches were worked out at every stage to have smooth acceptance of the new system.
- (5) The floating controls at every stages were so designed that it gave enough confidence level to both users and systems personnel.
- (6) General purpose limited query module.

Output-Display and MIS Reports :

General purpose query module gave the facility to look at selected customer or product information on the terminal whereas the systems generates the MIS reports formats of

which are given at the end. Besides the production and sales variance against the corresponding targets, the system is also generating sales analysis in terms of cash and credit sales. It gives the break up of credit sales which can help in arriving at the projected cash-in flow. It also gives the status of outstanding customer order which can help in production scheduling and monitoring the finished product inventory.

Conclusion on this project :

The system was designed for a large organisation and implemented in a less than a year time from the start-up date. Since there was no manual system equivalent to the new system, virtually there was no parallel run and therefore each stage of implementation was gradual. The system was very sensitive because of its coverage and the scope. The system is fully operational and now it is transferred to different hardware / software platform, however, the input, procedures and the basic design have remained the same till date. The system catered to the area which was not covered earlier by the manual system.

PRODUCTION /SALES VARIANCE REPORT

FOR THE PERIOD _____

SR. PRODUCT PROD. ACTUAL VARIANCE SALES ACTUAL VARIANCE
NO. DESCR. TARGET PROD. % TARGET SALES %

TOTAL SALES QTY. _____

CREDIT SALES ANALYSIS :

CREDIT SALES RS. _____

CREDIT SALES > 45 DAYS RS. _____

CASH SALES RS. _____

CREDIT SALES > 30 DAYS RS. _____

TOTAL SALES RS. _____

CREDIT SALES ≥ 15 DAYS RS. _____

CREDIT SALES < 15 DAYS RS. _____

MIS PROJECT

3.2.0 MIS IN OIL EXPLORATION

INTRODUCTION

For an Oil Exploration Industry, support of computer application in the decision making process, is far greater than many other industry. Oil Exploration is high risk industry and exploration science largely depends on various data corelations and inferences on historical data for the given geographical block.

Seismic Interpretation is one of the major applications where the computer is used as a tool. A study of the world wide figures indicates that one out of every seven exploration well finds commercial discovery of hydrocarbon. Five out of six unsuccessful wells are due to the interpretational errors or due to the unclear subsurface picture.

This scenario can not be accepted any longer by the explorationist who needs desperately the Computer Aided Exploration (CAEX) tools which promise improved subsurface images for a better and less ambiguous interpretation of the subsurface in the areas of exploration.

PROCESS

Before we discuss the Interpretation as MIS let us try to understand the sequence of the process involved in computer based Seismic Interpretation.

For getting the subsurface data, the first stage of activity is seismic data acquisition. In seismic data acquisition, the source of energy being either the explosive (dynamite) or non explosives (like vibrators). The sound waves generated from the point of source (either on surface or predecided depth below the surface) propagate down below the earth and reflects back to the surface. These reflections are recorded with the help of geophones. These are basic data which goes for the processing. There are standard software packages available for the data processing. These packages filters the raw basic data as per the parameter suggested by the geoscientist and creates an output data file in a standard format which can be read by any Interpretation Software packages.

Processed data tape is used as input by the Interpretation Software.

SYSTEMS & ADVANTAGE

The Seismic Interpretation software enables projecting 2D and 3D seismic data to be projected on the screen and traversing line by line. It also enables synthetic seismogram to be generated and contouring working. Because of the high volume of data, and enormous computing with graphical representation, if the manual interpretation is performed, either it is not possible to perform few functions or it

takes days or many man-months efforts which by the help of computer the same is performed in few minutes.

In computer aided seismic interpretation, there will be no human bias in preparing the contour maps. The seismic attributes like frequency analysis and amplitude analysis will be more helpful in drawing conclusions.

The major advantages are as under :

- a. It significantly reduces the time to evaluate a prospect.
- b. Improves the interpretation quality by integrating all the exploration data on one system.
- c. Allows access to advanced exploration computer technology with simple easy to use software.
- d. Reduces the cost of exploration by accurate inference

MIS COVERAGE

In a project where Seismic Interpretation was used as an MIS for arriving at the probable hydrocarbon structure. The later on Reservoir Modelling Software was used to arrive at the volume of the structure and hydrocarbon reserve.

Based on the estimated reserve MIS was also developed to work out the economic model to know the feasibility of the project. This model considered the cost of production and all the applicable taxation including the government share of

profit and works out the rate of return which gives the clarity whether a particular exploration or development project is economically viable or not.

CONCLUSIONS ON THIS PROJECT

Computer Aided Interpretation is a true MIS where a management decides whether to proceed from exploration to drilling and then to field development or to stop the project. Even the system gives commercial viability of the project. This is the application where there is no manual alternative system exists which can be equally precise and efficient.

CONCLUSION OF MIS PROJECTS :

Finally our contribution through this chapter is as follows :

We have reflected two implemented projects on two different cases and the both of them have provided rich experience and direction to the author in arriving at the recommendation on implementation methodology of MIS that are described in the previous chapter. These projects would serve as good reference projects.