Computing: A Field Job

The implementation phase forms a substantial part of the total computerization effort. We take a look at the computerization process of a sugar cane accounting system at a sugar mill in Yamuna Nagar, with special emphasis on implementation. The experience of this sugar mill shows that given good planning, it is possible to minimize the teething problems when undertaking computerization for the first time.

Kamble:The Smile of success

Launching into computerisation is always a daunting task for an organisation that is doing it for the first time. The task becomes even more challenging when it involves entering a new area of application. And naturally to develop something as complex as a sugarcane accounting system for a sugar mill, would bring in its wake a fair share of joys and sorrows, before the fruits of computerisation can be fully borne.

The Saraswati Industrial Syndicate Ltd., was to realize this before its tryst with technology got over. These are a group of factories with head office in Delhi. However the computer centre is at Yamuna Nagar, where two of its major factories are located. The computer set-up is headed by the systems manager who is assisted by programmers and data entry staff, while the sugar mill is headed by the general manager. The cane department, which is the user department in this case, looks after cane development, cane procurement and cane accounting function that was implemented on the computer.

The Sugarcane Accounting Package

"Out of about 40,000 farmers supplying sugarcane to the factory, about 14,000 deliver at the factory gate and the rest at the thirty six cane-collection centres at various locations around the factory," disclosed P.U. Kamble, manager systems, adding that, "A total of about 7,800 tonnes of sugarcane is crushed daily, out of which around 3,000 tonnes is received at the factory gate in over 1,000 consignments."

Obviously just keeping track of these numbers alone was a Herculean task. And it was keeping these figures in mind that a software package was evolved to maintain the accounts of the cane growers who supply sugarcane to the sugar mill.

The software also keeps track of growers' accounts for the cane supplied, payment made, loans and subsidies given and recoveries made during the cane-crushing season. Apart from the cane growers' ledger, the daily figures of cane purchased are also printed. These give a quality-wise listing and also an idea of the area-wise quantity. Besides, statutory and analysis reports are printed at the end of the season.

In addition to this, transporters' accounts are also maintained for the lorry contractors who transport the cane from various cane collection centres to the factory.

Constraints

"The task was however not without its constraints which cast grave apprehensions on the feasibility of computerizing cane accounting," says Kamble wryly. Hardly surprising, since the majority of the clerical staff had a very low level of education and most of the office work of the user department was carried out in Hindi. The user staff, particularly at lower levels, was not familiar with English language. Besides, since it was not known how the cane growers would respond to computerization, an adverse reaction just posed another possible difficulty that could not be ruled out.

With about forty thousand farmers supplying sugarcane to the factory, the volume of work was very high. "The sugar mill was to be introduced to computerization for the first time and the level of computer awareness among the users was very low, said Kamble recollecting the initial apprehensions.

Preparations For Computerization

Considering the high volumes of data, it was necessary to phase out the implementation. To ease operations, it was decided that in the first phase, the package will be implemented only for the 14,000 farmers supplying sugarcane at the factory gate. If all went well, expanding the program would hardly prove difficult.

A steering committee was formed with the deputy cane manager and cane officer representing the cane office, and the systems manager (Kamble) and a programmer representing the computer department.

The steering committee visited a sugarmill which had computerized the cane accounting system. This visit helped in convincing the user department that computerization of cane accounting system was feasible. It helped in removing, to a certain extent, the belief in the user staff that computerization of cane accounting was near impossible task because of the complexity of procedures.

"We conducted a procedure study which covered the method of cane procurement, cane weighing, issues of cane receipts to farmers, payments, and other related topics," says Kamble. Based on the study, a procedures document was made and was then discussed with the cane department to rule our mistakes that may have arisen due to omissions, miscommunications or misunderstanding. The computer department proposed certain output reports whose requirements and contents were also discussed with the user department.

The general manager and cane managers were informed in advance about the possibility of additional manpower temporarily required to prepare the master data and to carry out the parallel runs.

The coding structure and the input document layouts were proposed and finalized by the computer department in consultation with the users.

The system design and programming was then initiated. Throughout the planning process, care was taken to ensure that the new system and procedures did not adversely affect the cane growers.

The master files were created and code lists prepared, while the input documents were sent for printing.

"In order to introduce the proposed system to the entire staff of cane department," says Kamble, "I gave a talk in which I covered the scope of the computerized system and its boundaries." At the same time Kamble also included other clarifications on the need for coding, users' responsibility of providing correct input data, the need for accuracy and neatness in the input documents, the need for manual checking of data, and finally, the concept of "garbage in, garbage out."

"Since the staff was to be introduced to computerization for the first time, it was made clear to them that the computer was not a magic box and that it cannot perform miracles as is common belief," says Kamble, adding that, "They were warned that the work load will actually increase during the parallel runs which well might result in an initial dislike of and frustration with the computerized system." Kamble also clarified that there would also be a stage during the trial run when the users would like to discontinue computerization and revert back to the manual system. However, at the same time, the employees were requested to persevere and see through the initial time of difficulty.

Copies of code lists were distributed to the user staff well before the date of commencement of the trial run. Training was imparted to the concerned staff regarding the filling up of the new input documents, using the appropriate codes and checking the checklists. Three clerks from the user department were trained to do the data entry on the computer.

"Although some of the activities in this series of preparations seem trivial, their avoidance or violation can cause havoc with snowballing effect,"says Kamble,

defending the precautionary measures.

Though Hindi script was mainly used for official work in the user departments, English numerals were used in documents and reports. Hence the language did not pose a serious problem. However, only those persons who already had some familiarity with English language were engaged in checklist checking.

The Trial Runs

A separate cell called 'data input and output cell' was made in the cane office for checking computer data, checklists and reports. This cell was headed by the chief coordinator. A competition developed between this cell and the cell maintaining manual records. This cell used to take pride in pointing out errors in the manual records. A sense of responsibility developed in the coordinator and the cell, which took on itself, the onus of the success of computerization.

The two coordinators were encouraged to have regular interaction by personal contact and face-to-face discussions. In case of problems, the coordinators were responsible to personally discuss in detail and look for possible solutions.

The degree of independence and responsibility given to the coordinators worked as an incentive for them, feels Kamble. The involvement of the managers was restricted only to the extent of the strategic decision making aspects of implementation.

The procedure adopted proved very effective in educating the user department. The coordinator in the user department (who was most aware of the detailed procedures and whose interaction with the computer department was maximum) easily developed a high degree of computer awareness. The coordinator in the computer department was equally aware of the intricacies of the manual procedures. "The two coordinators were instrumental in sorting our most of the problems which would have otherwise been pushed higher up," feels Kamble.

There were ample problems in the initial stages like delays in respect of data, errors in the document, errors in data entry etc., which were overcome in close coordination between the two departments by striking at the root cause.

One problem, however, continued to persist. One input document (payment sheets) was not being sent by the user to the computer department in spite of repeated requests. The backlog of data was mounting day by day to alarming proportions. For some reason or the other, the cane department could not arrest this menace.

Round table talks to iron out the bugs

Kamble decided to approach the general manager with this problem. The general manager ordered a meeting and took stock of the position. He heard the problems of both the departments and set targets for clearing the data backlog which had developed. The details of how the targets were to be met were left to the two departments to be worked out. Not much time was spent on ascertaining the reasons for the delay or ascertaining which department was at fault. "The meeting between me and the General Manager proved very effective as the result was miraculous," laughs Kamble, "The targets were achieved and all back-log was cleared."

Certain records, of which the accuracy of computerized reports was established beyond doubts, were discontinued manually. This gave some respite to the user department from the manual work load. The effort which was saved was utilized for checking computer data and outputs.

Review and Implementation

After the end of the season, the computer department, in a meeting with the cane manager and his staff, reviewed the outcome of the trials. As a consequence, causes of errors were analyzed and possible solutions found out, and changes were carried out in the system wherever possible to sort out the problems. The cane department agreed to put more effort in checking the critical data. The review generated a measure of confidence and a conscious decision was taken to go live in the next cane-crushing season.

Kamble, along with the deputy cane manager, visited some factories which had computerized cane accounting. During the visit together, thorough discussions were held between the two, which served to convince the deputy cane manager about the necessity of accuracy of the source data. He decided, as an extra precaution, the staff which was earlier to be spared due to the discontinuation of manual ledgers, would now be engaged in checking the accuracy of the input documents, particularly the accuracy in the case of codes.

Key Factors of Success

"An analysis of the case reflects certain key factors which were responsible for the smooth and successful computerization," says Kamble who feels that one of the major reasons was that the general manager, the cane department and the computer department adopted a positive, problem solving approach. "The cane manager's courage to take risks and his urge to do something off-the-beaten-track was a positive factor in the smooth implementation," says Kamble adding wryly that, "Systems managers face an uphill task if the head of the user department has a "how-can-I-do-it" or "it-will-not-work-in-our-case" attitude.

Added to this was the fact that Kamble and the cane manager were given sufficient freedom. With the independence given to the coordinators, they worked with initiative and drive. Throughout the study and implementation, there was a close coordination between the computer and the user departments. Both departments were open to discussions and were willing to compromise if required.

Also, regular interaction between the coordinators enabled them to sort out routine problems and left the managers free to concentrate on the critical problems. Utmost importance was given to the accuracy of the input data. "one of the factors that emerged was that the computer department needs to get a lot of work done by the user staff but cannot exercise any direct authority," concludes Kamble. To get the work done, Kamble had to adopt a method of persuasion with the coordinator, the deputy cane manager and finally the cane manager. He approached the general manager only when all his efforts with the user department failed. The systems department thus made the user department aware of the trust reposed on it.

Emphasis was also put on the discontinuation of manual records at the earliest possible time. "A delay in discontinuing the manual records puts sustained pressure on the user department because of duplication of work," feels Kamble, "As a consequence input data and checklists are not checked properly resulting in errors in the computer outputs." These errors lead to more dependence on the manual records and more errors in computer outputs, which can finally lead to an outright rejection of the computerized system. It was found that the accuracy of the computerized outputs improved dramatically when the manual records were discontinued.

The acceptance of computerization as a challenge, by the user staff, (particularly the input-output data cell) was a critical factor in the success of the project. Besides, when here is full backing and little interference from the top management the probability of success is automatically that much higher.

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