

# INDUSTRIAL DATA PROCESSING APPLICATIONS REPORT

**Applications** Inventory and Production Control, Sales Analysis  
**Type of Industry** Home Appliance Manufacturer  
**Name of User** The Tappan Co.  
Mansfield, Ohio

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**Equipment Used** IBM 1440 Data Processing System  
IBM Unit Record Equipment

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## Synopsis

Converting from long-established manual/mechanical methods directly to high-speed computer processing can be a major undertaking for an expanding firm. Yet, at Tappan Co., Mansfield, Ohio, a carefully planned gradual changeover phased over a two-year period has permitted the installation of an IBM 1440 data processing system to be made with sufficient ease to make the benefits of computer handling almost immediately felt.

Two years before the 1440's installation, Tappan still relied on a manual/mechanical system which could no longer fully meet the requirements of a growing paperwork load. The company's first step was to install unit record equipment to improve production control. Cards thus produced were run on a service bureau IBM 1401 computer. Tappan's data processing efforts were then expanded through the installation of a comprehensive IBM series 50 tab installation. Use of this basic, low cost equipment permitted the company to discontinue the use of posting machines while putting new applications on the air. Further capacity was obtained by renting 1401 time in a nearby town. Meanwhile, the firm had selected and ordered an IBM 1440 system with 8,000 positions of memory and two 1311 random access disc drives. This was Tappan's first computer but when it was installed, the company already possessed EDP capacity and skilled personnel trained on the job through Tappan's carefully planned approach to data processing.

The when and how of conversion to EDP may be among the most basic challenges facing a growing company on its way to further expansion. For such a firm, the changeover from long-established, necessarily slow manual/mechanical methods directly to computer processing is a major undertaking. Yet, the smoothness with which this change can be accomplished through careful planning is brought out by the experience of The Tappan Co., Mansfield, Ohio. At least two years before the installation of its present IBM 1440 system, Tappan initiated a gradual conversion of its record-keeping operations to punched card procedures involving a growing number of company activities. Today, Tappan management claims that, largely thanks to the methodical manner in which this conversion was made, the extent of ultimate payoff is already evident.

### Background to EDP

Tappan did not approach EDP on a crash basis, nor did it consider it primarily as a means of cutting personnel. The firm was naturally interested in obtaining information economically, but it was even more concerned with getting better data faster.

Automation's inevitability had been inherent in Tappan's operations for some time. During the 1950's, the company, which rings up sales of \$70 million a year, had gone from only one or two product lines to a total of 10 manufactured in eight factories. These product lines include the traditional free standing gas and electric kitchen ranges, plus dishwashers, disposers, refrigerators, sinks, hoods, ice-makers, built-in ovens and top burners, commercial and domestic electronic cooking equipment and a new plumbing concept called Ultraflo. Through it, water is obtained instantly at the press of a button; all faucets are eliminated.

Tappan's merchandising approach is thus now strongly oriented toward packaged kitchens, not just cooking units. To implement this approach, the firm maintains 12 district sales offices, backing them up with 51 warehouses located throughout the country; 250 distributors and over 5,000 dealers complete the Tappan marketing group. The accounting for this massive merchandising effort could not be handled efficiently on a manual basis. It was this need that led to the installation of an IBM 1440 data processing system equipped with two IBM 1311 disc pack drives. The interchangeable disc packs mounted on these drives can each store up to two million characters of randomly accessible information.

### Conversion to EDP

As late as two years before the installation of its IBM 1440 system (Fig. 1), Tappan still relied on a manual mechanical system. Before it could be dispensed with, the firm was faced with the problem of devising an orderly, yet reasonably rapid approach to EDP.

The first step was taken in the manufacturing area: attacking the problem of determining gross parts requirements for the production department on an automated basis. This step was taken early with the installation of a card punch and a verifier in the department.

Specifically, the problem was that too much time was needed to process schedule changes and determine exact parts needs using a posting machine-ledger card method. Master punched cards covering parts requirements were prepared in the production department. This information was taken daily to a service bureau in Cleveland for processing on an IBM 1401 system into gross parts requirements.

The first step into computer processing had thus been taken by Tappan, and it proved successful. Six to eight days were saved in determining parts requirements, and new efficiency was injected into production activities.



**Fig. 1. IBM 1440 DATA PROCESSING SYSTEM** covers for Tappan such important areas as production and inventory control and sales analysis.

Data processing efforts were then expanded by installing IBM Series 50 tab equipment. This basic punched card system (Fig. 2) was first used to fully mechanize purchased parts inventory control. Soon, other applications such as sales analysis, production of commission statements and additional jobs in the manufacturing category were being processed. At that point, the use of posting machines was discontinued because all purchased parts inventories could easily be kept in punched cards. The cards contained current inventory, which could be updated as to receipts, scrap or any usages, as desired.

Production schedule or sales estimates could also be applied to the inventory within a 24-hour period due to the creation of a current history file by parts, in an easily processable form. When this stage of progress was reached, the data processing activity was moved from the production department and made into a separate department, with Charles C. Wilson, Jr., as manager. Equipment to upgrade the installation was added, and the department proceeded to handle warehouse inventory control.

With 51 warehouses, this was an ambitious undertaking, made even more complicated because the warehouses varied considerably, depending on location, items carried and volume.





## Results and Future Plans

Taken in broad categories, programs now regularly processed on the 1440 cover such critical areas as production control for the Mansfield plant, warehouse inventory control and sales analysis. Fabricated and purchased parts inventory control, bills of materials explosions and the like fall under the production category; commission statements under sales analysis.

As an indication of the greater processing speed made possible by the new system, sales analyses are now produced in two days. This represents one month's pick up. Much greater flexibility is also evident. For instance, in the case of bills of material explosions, if a schedule is changed, it can be processed immediately and the interested department is promptly advised.

EDP coverage is being expanded as rapidly as possible and a Tappan plant at Murray, Ky., has been phased into the program. First jobs undertaken for the Murray plant are of the production control variety and include purchased parts requirements, gross weekly requirements and estimating. Also to be included are parts explosions and bills of material as well as some payroll and engineering work.

It is planned to tie in the Murray plant even closer with the data processing operation through the use of IBM 1050 data transmission units in conjunction with telephone company lines and equipment. These units installed at Murray and in the headquarters center will eventually handle the Kentucky plant's data processing needs on a fast, highly integrated basis.

Two other important programs being implemented are order entry and billing, and repair parts billing and inventory for the Mansfield plant. The latter is a rather tricky problem as an ample stock of repair parts must be carried for every product Tappan made and marketed during the previous 10 years.

Warehouse inventory control handling is also scheduled for further simplification. Pre-punched tags containing the serial number and all pertinent information about each product unit will be attached to Tappan appliances as they leave the factories. As turnaround documents, the tags will provide direct computer input from the warehouses. They will serve to indicate the exact number and models of units sold, thus greatly simplifying billing procedures and reducing information feed time by several days.

Tappan's aim is to implement the eventual use of the 1440 as a merchandising tool. Management feels that it will bring maximum returns when the firm succeeds in applying it fully to the control of distribution.

Even more than economy, the firm, in its EDP activities, has better, more readily available information as a goal. This goal is already being approached -- the time pick up on sales analysis, for example -- and many more reports in depth than were previously available are now promptly being produced by the 1440 system.

All information coming from the system is much more current than before. Through it, Tappan is achieving much tighter management control and is provided with substantially expanded capacities in most areas of operation. The transition from manual methods to computer processing has thus provided Tappan with new benefits in a transition smoothly executed despite the magnitude of the physical and conceptual change.