

INDUSTRIAL DATA PROCESSING APPLICATIONS REPORT

Applications Inventory Control, Sales Analysis
Type of Industry Footwear Manufacturer
Name of User Thom McAn Co.
Worcester, Mass.

Equipment Used IBM System/360 Model 50 Data Processing System
IBM System/360 Model 30 Data Processing System
IBM 1287 Optical Character Reader
IBM 1418 Mark Sense Scanner

Synopsis

Thom McAn is using an IBM 1287 optical character reader to process input from nearly 900 retail outlets across the nation. The system enables the company to determine trends, replace stock inventories and get statistical reports in a minimum of time with a maximum amount of efficiency.

Over the years, new manufacturing processes, administrative techniques and hard work have enabled Thom McAn to achieve a dominant position in the retail shoe industry.

The growth of Thom McAn over the years brought with it a data collection problem. Sales information collection, used by Thom McAn executives for inventory control and forecasting, was collected manually for many years. By the time it reached the executive decision-makers it was well summarized -- so well summarized, in fact, that the required level of detail needed to make important judgments was missing.

The system was also slow. Fast and accurate reporting is necessary to forecast the inventory requirements of more than 800 outlets, each carrying some 1,000 stock numbers with an average of 12 sizes and two widths for each number. This adds up to 24,000 unique items eligible for sales reporting and inventory control in each store.

The stores are basically sales directed, and because of the breadth of Thom McAn's operations, it is impractical to hire a bookkeeper or stock clerk for each retail outlet. The cost would be prohibitive. Instead, the job of reporting inventory and sales figures is handled by the sales personnel in each store.

In the search for a good sales reporting system, Thom McAn tried and rejected a number of different approaches. The company placed four major criteria on an optimum sales reporting system:

- Comprehensive enough to provide all required detail,
- Accurate enough to provide good inventory control,
- Simple enough to be easily understood and used in all stores,
- Inexpensive enough to allow potential benefits to far surpass operating costs.

The eventual answer to Thom McAn's sales reporting problem was an IBM 1418 Mark Sense Reader. The 1418 reads vertical pen and pencil slashes on a specially designed sales check enabling the user to by-pass unit record input. With the system, Thom McAn was able to use input directly from the stores to prepare inventory status reports on exactly what was sold, where and by whom.

The firm is currently phasing out the 1418 in favor of an IBM 1287 Optical Character Reader which reads hand-printed numerals. The switch has enabled Thom McAn to greatly simplify its form, thus speeding up point of sales reporting.

Thom McAn is the principle marketing arm of the nation's largest integrated shoe manufacturing and retailing company--the Melville Shoe Corp. The company was founded in the post World War I depression year of 1922. It was a prosperous operation from the beginning.

For 25 years Thom McAn showed increasing profitability selling a budget product to men and boys. Thom McAn stores are traditionally located on Main Street USA. Since World War II, though, the company has reflected the demographic changes that have taken place in the United States, and today virtually all of the company's newer stores are family stores (with products for women and girls as well as men and boys) located in suburbia.

The Thom McAn empire stretches from coast to coast and encompasses 870 stores in the United States and Puerto Rico.

Annual earnings for the parent Melville Shoe Corp. are above \$14 million. Manufacturing facilities are located around the world from New England to Spain--13 factories in all. Melville employs some 10,000 persons.

HARDWARE

Thom McAn's computer center in Worcester, Mass., the company's headquarters, contains two computers, an IBM System/360 Model 50 and a Model 30. The two systems share 10 tape drives. Additional storage is maintained on six disc drives interfaced with the Model 50. Two IBM 1403 printers -- one for each mainframe -- produce output for the system. The Model 50 has a core storage capacity of 128,000 characters, the Mod 30 half of that. The IBM 1287 optical character reader -- which provides input to the sales reporting and inventory control system -- reads 300 documents a minute, and can handle up to 100,000 a day for Thom McAn.

THE SYSTEM

Thom McAn's system begins at point of purchase. The company has designed a three-part receipt that doubles as input to the sales reporting system. Part one is the input document which is forwarded to the home office. The second part is the store copy, and the third part serves as the customer's receipt.

FOOTWEAR & HANDBAGS				
STOCK NO.	W	SIZE	1/2	AMOUNT
23645	2	5	X	297
34663	2	5		297
HOSIERY & FINDINGS				
STOCK NO.	QTY			AMOUNT
198985077				594
				24
7	20	9		618
MONTH	DAY	SOLD BY		TOTAL

HOME OFFICE COPY

BASIC DOCUMENT IN THE SYSTEM IS THE MACHINE-SCANNABLE SALES TICKET. NUMBERS WRITTEN IN PROPER AREAS BY SALES CLERKS ARE READ BY OPTICAL SCANNER AND FED INTO THE COMPUTER SYSTEM. THIS INFORMATION IS USED FOR INVENTORY UPDATING, STORE REPLENISHMENT AND SALES ANALYSES.

The form is compact (approximately 4 x 6 in.) and easy to use by the sales personnel. When a sale is made, the salesman simply writes in the stock number of the item, a numerical code denoting the width of the shoe sold, and the purchase price. An "X" in the appropriate box denotes whether or not the shoe is a half size. In the bottom left hand corner of the form, the salesman fills in the date and his sales number in the store. The sales totals, along with tax, are extended in the left hand corner of the document.

At the end of the day the store manager mails the completed form to Worcester. When the completed forms arrive at the mail room in Worcester they are batched by date of sale by the mail clerks, placed in trays, and forwarded to the data processing department for scanning.

The data contained on the sales report slips is pulled from the document, through core, and stored on magnetic tape. The reject rate on the 1287 is only five percent according to Thom McAn. The figure is impressive when one considers that some 5,000 sales people in the field are preparing input.

The computer handles rejects by printing out a correction document which includes the store and serial number of the rejected document. At the end of the input run, clerks pull the invalid documents, match them to the correction document and enter the corrected characters. The correction documents are then run through the 1287. Correcting rejects takes very little time, according to company management.

The input gathered by the 1287 is merged with inventory tapes and, in subsequent runs used to produce a number of management reports.

- Weekly Store Sales Report
- Six Month Record of Store Sales and Allotments
- District Manager's Report
- Men's and Boys' Shoe Order
- Stock Sales by Area
- Women's and Girls' Sales Merchandise Report

The weekly store sales report is geared to the store manager. It's a wrap-up of the previous week's activity -- sales, returns and special transactions shown by stock number. The manager uses the information to review the prior week's activity by merchandising department and adjusts his merchandising strategy accordingly. For example, he may elect to re-arrange the window display to highlight special numbers, or he may request additional merchandise to support selling trends in his area.

The six-month record of store sales and allotments is a merchandising report of sales by week for a six-month period along with the current allotment. It's used to review a store's performance, particularly in relation to the number of pairs allowed. It enables the merchandiser to raise or lower store allocations accordingly. The report shows all the styles in a particular store in stock number sequence, giving a recap of what the store has sold each week in a particular style. The report is useful in realigning store inventories and provides a means for a periodic and extensive review of both allotted and nonallotted merchandise.

The District Sales Managers' Report is an action report pointing to what must be done as well as what's already happened. It shows the current week's sales of the 10 best selling stock numbers in each merchandising department ranked by store and district. The information enables the district sales manager to compare individual store performance against the district. Variations between stores become evident and district managers can often tell when good selling items in his district are not being displayed properly in his stores. Similarly, exceptionally high performance in one store may point to a source of display or selling techniques that can be profitably implemented in other stores.

The Men and Boys' Shoe Order is used in the warehouse to pick the shoes for shipment to each store. The order represents net sales to be replaced under the inventory system. Net sales are computed for each store based on the optically read sales-check and other related transactions. The order provides automatic replenishment of each store's basic stock.

DISTRICT ERIE					DISTRICT SALES ANALYSIS										FOR THE WEEK ENDING APRIL 10							
		1		2		3		4		5		1		2		3		4		5		
STORE NO.	DEPT	STOCK NO.	PAIRS	STOCK NO.	PAIRS	STOCK NO.	PAIRS	STOCK NO.	PAIRS	STOCK NO.	PAIRS	DEPT	STOCK NO.	PAIRS	STOCK NO.	PAIRS	STOCK NO.	PAIRS	STOCK NO.	PAIRS	STOCK NO.	PAIRS
1037	NDRESS	03150	62	03191	39	03646	23	03663	19	03017	16	NDRESS	02408	14	07100	12	06991	12	03509	11	07004	9
	BOYS	10260	23	11260	22	11735	16	12256	15	12100	13	LEISRE	15430	2	14103	2	15532	1	15433	1	15140	1
	SLIPPR	17103	2	17960	1	17740	1	17140	1			RBCSNK	18226	5	18216	5	18606	3	18600	3	18936	2
1118	NDRESS	03646	24	03563	19	07100	14	03150	8	03551	7	NDRESS	03017	7	07405	6	06646	5	07550	4	08012	3
	BOYS	10260	12	11260	11	12256	10	11735	9	12726	7	LEISRE	15542	1	13110	1						
	SLIPPR	17103	2	17503	1							RBCSNK	18216	9	18226	7	18276	5	18246	4	18106	4
1852	NDRESS	03150	30	03646	14	03643	13	03551	9	07044	8	NDRESS	07045	7	03017	7	03384	4	03151	6	02408	6
	BOYS	11290	21	12743	10	11735	10	11260	10	12256	8	LEISRE	13110	2	15433	1	13112	1				
	SLIPPR	17870	1	17740	1	17735	1					RBCSNK	18226	6	18016	4	18600	3	18276	3	18216	3
1913	NDRESS	02408	19	07100	9	03643	9	03563	9	03017	9	NDRESS	03646	8	03551	7	07044	6	07005	6	06646	6
	BOYS	10260	14	11260	14	11735	14															
	SLIPPR	17874	1																			
1959	NDRESS	03150	28	031	031																	
	BOYS	11260	27	101	101																	
	SLIPPR	17103	3	17	17																	
1979	NDRESS	03646	13	07	07																	
	BOYS	11260	6	11	11																	
	SLIPPR	17503	1																			
4003	NDRESS	03643	24	031	031																	
	BOYS	11260	26	101	101																	
	SLIPPR																					
4004	NDRESS	03551	12	071	071																	
	BOYS	11735	13	101	101																	
	SLIPPR	17870	1	17	17																	
4121	NDRESS	03646	28	031	031																	
	BOYS	11260	17	101	101																	
	SLIPPR	17735	2	171	171																	
5116	NDRESS	03151	11	031	031																	
	BOYS	12207	4	122	122																	
	SLIPPR	17740	1	171	171																	
5187	NDRESS	03551	8	031	031																	
	BOYS	11860	8	121	121																	
	SLIPPR	17119	3	171	171																	
5270	NDRESS	03643	14	031	031																	
	BOYS	11207	13	121	121																	
	SLIPPR	17400	1	171	171																	
5240	NDRESS	03150	14	031	031																	
	BOYS	12296	6	111	111																	
	SLIPPR	17735	3	171	171																	
5348	NDRESS	03646	15	031	031																	
	BOYS	12100	5	101	101																	
	SLIPPR	17735	1																			

STORE		DEPT.		WRK/NDRES		THOM McAN SHOE ORDER														PULL DAY 5 0196		
						HYPOCAL														PREP 3/08/6-		
STOCK #	W	DATE SHIPPED														DAYS SALES PRIOR WK		DAYS SALES CURR WK		6	PG#	
		5	5K	6	6K	7	7K	8	8K	9	9K	10	10K	11	11K	12	12K	13	13K	14		
07186	4																					
07186	5						1				1		1									
07245	4											1		1								
07464	4								1		1	2			1							
07486	2																					
07486	4										1											
07486	7																					
07487	3																					
07487	4																					
07534	4																					
07543	2																					
07547	4																					
07547	5																					
07547	7																					
07549	4																					
07550	2																					
07550	3																					
07550	4																					
07550	5																					
07553	4																					
07564	4																					
07674	4																					
07676	4																					
07697	4																					
07834	4																					
08011	4																					

DISTRICT SALES MANAGER'S REPORT SHOWS BEST-SELLING STOCK NUMBERS IN EACH MERCHANDISING DEPARTMENT BY STORE AND BY DISTRICT. MEN'S AND BOYS' SHOE ORDER IS USED IN THE WAREHOUSE TO PICK SHOES FOR SHIPMENT TO EACH STORE. THERE IS ONE FORM FOR EACH STORE.

The District Report of Sales by Stock Number is used by merchandisers and is a 26-week review of the activity in each marketing area. It provides an overview of the entire Thom McAn marketing operation on a chain-wide and area-wide basis by stock number. It enables management to spot sales trends for each stock number and facilitates stock transfers and consolidations between stores and areas. Thom McAn's merchandisers also use the report to determine closeout sales.

The Women's and Girls' Sales Merchandise Report is geared to the fashion-oriented seasonal characteristics of this aspect of the company's business. It contains the last four

weeks' sales for each active stock number and width, plus a total of all sales of inactive merchandise within a category. Categories are defined at three levels -- heel height, material and color.

The report is used in conjunction with the on-hand inventory of active stock numbers. The merchandisers review sales and inventory for each store and activate a shipping order.

DISTRICT REPORT OF SALES BY STOCK#																										PREP 01/21/6-		PROG# SLS 75		Thom McAn						
DIST	STOCK NO	STORE NO	WEEK																		TOTAL	LAST WEEK	STORE NO													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26								
05	18288	1133	10	8	9	6	12	8	7	10	11	17	15	6	7	8	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	429		1133
		1168	13	11	23	16	7	12	15	19	18	53	28	22	25	12	12	7	9	8	16	10	13	16	11	17	26	10							1168	
		1178	32	13	15	13	19	21	4	4	3	27	25	19	17	14	13	11	13	1	2	1	1	3	2	1	1	2	1	2	1			52		1178
		1187	3	3	6	1	2	2	3	3	5	2	2	1	1	4	1	1	1	3																1187
		1196	14	23	15	16	18	21	14	16	28	40	25	11	12	15	7	7	5	9	6	10	3	8	16	24	22						390		1196	
		1227	1	3	6	1	2	2	3	3	5	2	2	1	1	4	1	1	1	3														47		1227
		1256	14	23	15	16	18	21	14	16	28	40	25	11	12	15	7	7	5	9	6	10	3	8	16	24	22						390		1256	
		1818	15	13	12	19	15	17	11	12	23	14	29	22	13	8	10	7	9	19																1818
		4161	15	13	12	19	15	17	11	12	23	14	29	22	13	8	10	7	9	19																4161
05	18288	DIST	161	143	147				187	245	259	134	100	93						97	123	108	268										3989			
		TOTAL	160	142	156				189	300	364	127	89	90						100	123	108	268													
06	18288	0702	2	10	6	2	9	6	2	8	21	9	5	4	7	2	5	5	5	3	5	3	6	4	1	6	2						143	52	0702	
		1075	5	10	11	4	5	4	5	12	19	48	6	7	6	4	3	4	4	2	3	3	6	3	3	3	3	4						149		1075
		1084	8	10	3	4	2	6	5	10	7	6	5	2	1	3	6	2	2	5	3	2	4	1	3	6	3							109		1084
		1116	3	6	1	1	1	1	4	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1							27		1116
		1166	3	1	4	2	3	3	3	6	9	3	4	5	4	3	1	4	4	5	3	5	1	4	1	2	3	3						89		1166
		1200	3	2	5	3	1	2	2	2	4	4	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1							88		1200
		1683	6	13	6	2	6	6	9	13	11	9	5	5	3	4	2	3	2	4	1	1	4	3	1	3	3							132		1683
		1970	3	3	2	2	1	1	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							25		1970
		4014	2	3	2	3	3	1	3	7	4	3	4	2	4	1	2	1	2	1	3	2	3	1	1	3	3							62		4014
		4072	4	3	2	1	5	2	4	4	5	3	3	5	4	3	4	1	1	1	3	4	3	3	4	2	1							79		4072
		5709	3	2					1	1	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1									5709
		5712	1	3					1	1	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1									5712
		6504	5	3																																6504

STORE		DEPT.		FRI		LAST DAY		MSG		SAT		W & G SALES DATA		PREP		FULL DAY		DEPT. TOTALS														
STOCK	W	4	3	2	1	STOCK	W	4	3	2	1	STOCK	W	4	3	2	1	STOCK	W	4	3	2	1									
40028	0	2				41263	2	9	9	6	3	44276	2					60030	2	1	2			64021	2	2	1					
40026	2	9	3	4	4	41386	2	5	3	1	3	44386	2	1	1	1	1	60032	2	1	1			64025	0	1	1	1				
40032	2					41610	0					44610	2					60033	2	4	3	1		64025	2	4	8	8				
40034	2		1	1	2	41610	2	2	3	4	1	44640	2	1	1	2	1	60048	2	4	1	3	2	64030	0	1						
40220	2	2	1	1	5	41705	2	1				44641	2	3	1		4/8	BLACK	1	64030	2	3		64032	2	3		1				
40226	0	1			1	41706	2	1	1			44707	2	1				61267	0					64032	0	1						
40226	2	3	2		2	41724	2					44723	0	2				61267	2	1	1	2	4	64032	2	2	2	5				
40230	0					41730	2	2				44723	2	2	1	1		62024	2					64033	2							
40230	2	2	1	3		41737	2	2	2			44738	2	1				62025	2	2				64036	0		1					
40232	2	1	1			MISC BK SUEO					3	MISC PRIX	1					63001	2	1				64036	2	1	1	3	2			
40276	2	1			1	42201	2	1				46717	2	1				63022	0	1	1			64040	2	4	2					
4/8 SH BLACK					2	42720	2	2				MISC BLUE	1					63022	2	3	2	1		64043	2	1						
40707	0	1			1	43201	2					48028	2	1				63024	2	3				64048	0							
40707	2	3	2	1	1	43382	2					48201	2					63032	0					64048	2	2	4	1				
40717	2	2	3	2	1	43386	2	2	2	2		48205	2	1	1	1		63032	2	3	1	2	2	64057	2	7	5	12				
40720	2					43717	2	1	2	1	1	48263	2					63036	0					64267	2	4	4	2	1			
40723	2	4	5	2	4	43723	2	1	1	3		48277	2					63036	2	7	3			64435	2							
40738	0	1				43737	0					48705	2					63048	0					64436	2							
40738	2	1	3	5	1	43737	2	1	3	1		49201	2					63048	2					65274	2	2	1	3				
40739	2					44028	2	1	2	1		49705	2	1			1	4/8	BEIGE	1	4/8	WHITE		64057	1	1	1					
40761	2					44201	2					52201	2					64005	2	1	1			65920	2	1	1	1				
MISC SM BLK					6	44205	0	1	2			60005	2	2				64020	0	1				68024	2							
41201	2					44205	2	5	2	4	2	60024	2	1	4	2	1	64020	2	1	3	4	4	68267	2	1						
41205	0	1			2	44206	2					60025	0	1	1			64021	0					A/O LEV3 TOT	16							
41205	2	6	11	10	3	44263	2	3	7	1	2	60025	2	2	1	6																

DISTRICT SALES MANAGER'S REPORT FOR WOMEN'S AND GIRLS' MERCHANDISE.

RETAIL STOCK REPLENISHMENT

All stock replenishment to the 870 Thom McAn stores is made from the two warehouses located in Worcester, Mass. Each store is replenished once a week.

The cycle begins with the Buyer placing an order with a factory. The buyer's primary tool in placing an order is the Buying Plan. This report gives the buyer the complete status of each stock number with such information as: the last four-weeks' sales, sales season-to-date, on-hand inventory, current receipts, receipts season-to-date and open orders by period. From the Buying Plan and other information available to the buyer, he makes the decision to buy and place the purchase order.

The Purchase Order is then keypunched and used to update the Open Order File and a Case Card is produced for each case of shoes ordered on the purchase order. The Purchase Order and the related Case Cards are then forwarded to the factory.

11735										4030					02209					07 01 68 M187					02209														
STOCK NO.										SIZE					ORDER NO.					DELIVERY DATE					FACT. NO.														
SIZES THIS CASE																																							
1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6	6 1/2	7	7 1/2	8	8 1/2	9	9 1/2	10	10 1/2	11	11 1/2	12	12 1/2	13	13 1/2	14													
CASE CARD FED. 1962										WIDTH					TOTAL PAIRS IN CASE					STOCK NO. CASE NO.																			
										4					12					T 3061																			
ORDER DATE					FACT. NO.					ORDER NO.					DELIVERY DATE					STOCK NO.					SIZE					PAIRS					CASE NO.				

CASE CARDS ARE PUNCHED AS PART OF THE STOCK REPLENISHMENT CYCLE INITIATED BY A BUYER. CARDS ACCOMPANY SHIPMENT TO COMPANY WAREHOUSE WHERE THEY ARE DETACHED AND USED AS INPUT TO UPDATE OPEN ORDER AND INVENTORY FILES.

When the shoes have been manufactured and are ready to be shipped to the Thom McAn warehouse, the proper Case Card is affixed to each case being shipped. Receipt of the cases at the Thom McAn warehouse is then a simple matter of extracting the cards from each case and verifying the count to the Bill of Lading. The Case Cards are then used to update both an Open Order File and the Warehouse Inventory File.

Outside of high fashion styles, Thom McAn's merchandise replenishment system is computer triggered.

The optical sales and return tickets are read by the 1287 Optical Scanner daily (500,000 per week) and automatically update the stores' inventory position for each stock number down to a width and size level. As a function of the updating, a store's inventory position for each stock number is compared to an inventory model (allotment) and a Shoe Order representing the difference between the store's inventory and the model is prepared. The Shoe Order is then routed to the warehouse for picking and shipping to the stores. The stores' orders are shipped weekly with 20% shipped on any given day. The billing to the stores is done manually at the warehouse; however, prebilling of store shipments is included in the company's future plans.

The system hasn't eliminated the physical count in the store, although it has considerably lessened the number of times it is necessary to physically count stock.

Because a certain amount of erosion occurs, even with the system, physical inventory counts are taken in the stores three times a year. This enables merchandisers to re-size the stores and fill any gaps in inventory. Additionally, the physical counts enable Thom McAn to check the effectiveness of its system and determine the reporting accuracy of each store. At present the system is 90 percent correct when physical inventories are compared with the totals stored in the computer. The counts are taken between peak periods in the stores.

RESULTS AND FUTURE PLANS

Simplicity and accuracy are the key factors when weighing the major benefits of Thom McAn's system. It provides accurate input with which to develop marketing information, but is easy to use for sales personnel in the stores.

It enables Thom McAn to replenish store stock without excessive inventories. Store, district, regional and corporate management have more accurate and timely information for decision making.

Individual store performance can be better measured, freeing the district manager from tedious information analysis and giving him more time to implement improvements.

Among Thom McAn's plans for the future are a computer-triggered store replenishment system for high fashion styles, as well as computer-generated prebilling of store shipments from the warehouse.