The Optical Scanner - Friend or Foe?

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Examines pros and cons of the optical scanner for various institutions in the distribution channel. Concludes it's good.

Perhaps no innovation will have a greater impact on the supermarket industry than the optical scanner -- computerized checkout system. Once the system has been widely implemented all facets of the industry are sure to feel the impact. There are several of these systems now being considered for adoption, each with many benefits and each with some drawbacks. It is the purpose of this paper to examine the state of technology today and to ascertain whether the innovation might correctly be labeled a friend or foe for the segments that comprise the supermarket industry, including the consumer.

There have been several articles written explaining the attributes of each system and extolling computerized checkout systems in general. (1) These articles stress the savings achieved through use of the systems, along with such other advantages as instant inventory count and determination of high pilferage items. What is not clear, however, is the impact on the consumer, and what changes might occur in the store/customer relationship, because of a system's implementation. There are two very important reasons for careful consideration of all possible implications that these systems might produce.

First, there is an evergrowing number of consumers in the United States who are becoming increasingly militant towards changes in products and services they feel are pushed on them, not for their benefit but only for increased profit for the retailer or manufacturer. It must be demonstrated that use of one of these systems will not only benefit the retailer but also be of some value to them, or at the very least be not detrimental. For, no matter how great the savings achieved through use of automated checkouts, if customers dislike it enough to go elsewhere, it will prove no boon to the retailer. This was a fact before anyone ever heard of Ralph Nader.

The second reason for being careful and considering all of the possible ramifications of each system, is the fact that they are essentially incompatible. Each optical scanner reads a different type of symbol, and cannot interpret any of the others. Unless there is standardization confusion will prevail, and handling and inventory costs by the manufacturer will increase. Many of the benefits of the innovation will be lost if the retailer or wholesaler has the responsibility for coding each item with the symbols that are read by the system they use.

That customer acceptance of a computerized checkout system may not be automatic is shown by a study conducted by *Progressive Grocer.* Even through 78 percent of those contacted felt that checkouts in supermarkets took too long, only 35 percent showed "weak agreement" to using an automated approach to solving this problem. (2) This negativism to automation solving a problem that has plagued supermarkets for many years shows the consumers' wariness of computers and increased impersonal service.

The preceding considerations don't mean that the retailer and consumer must necessarily be at odds over installation of automated checkouts, or that the retailer must "trick" the consumer into accepting them. Indeed, many of the advantages to the retailer can be utilized to lessen consumer resistance and be quite beneficial to the consumer. Some of these advantages along with some of their probable customer applications will now be discussed.

Inventory Control

One of the biggest advantages to tying checkouts to a computer is the constant inventory control. A record of the number of each item on hand can be continually kept. In addition, when inventories reach a predetermined point, the computer can print out a reorder automatically. This can eliminate the need for backroom storage, overstocking that causes price-cut sales, and extra delivery charges. (3) All of these services mean savings to the retailer.

Better inventory control can mean advantages to the consumer as well. Less stock-outs and a product selection based more on demand and less on a retailer's whim could easily be accomplished. That the store's inventory is important to the consumer was shown in a study conducted in Columbus, Ohio. Of 87 factors evaluated, selection, well-stocked shelves, and variety were three of the top fifteen in determining a customer's choice of supermarkets. (4)

At present, nearly one out of four supermarket shoppers has some portion of her wants unsatisfied. (5) Depending on the product not available, up to eighty percent of those shopping for a brand will go to another store rather than choose a substitute. Such common items

as mayonnaise, deodorant, shampoo, dog food, and cigarettes, can all induce between 50 and 75 percent of those searching to frequent another store when there is a stock out. (6)

Stock outs and poor variety play an important part in the lack of store loyalty among supermarkets. Less than 10 percent of customers shop at only one supermarket, and 74 percent shop at more than two. (7) It is easy to see then, how better inventory control can both aid store management and please customers also.

Front End Savings

It has been estimated that computerized checkouts can reduce up to 100 man hours per week from supermarket time clocks. (8) This can be accomplished in several ways. First, use of an optical scanner and computer arrangement speeds actual checkouts 18–19 percent. (9) Secondly, because concentration is not required with a scanner, it should be possible to simultaneously bag items while scanning them. Lastly, more accurate customer flow data will enable management to utilize store personnel more effectively.

In addition to savings achieved through normal front end operations, simplified manipulation of the scanner means reduced training cost. Depending on the training program employed, between 29 and 37 percent training time can be saved. For a supermarket of $4 million annual sales and a normal sales force, this savings is approximately $700. (10)

The preceding savings could be converted directly into reduced costs and a greater profit margin for the retailer or consider taking some of them to increase customer services. Personnel freed from marking stock or front end duty could be used to help customers locate items, reduce store bottlenecks, or help reduce checkout queries. Aiding the customer to reduce her non-productive shopping time can do much to improve customer relations. Many customers are dissatisfied with the time necessary to shop at a supermarket. A recent study showed 48 percent of supermarket shoppers felt the whole supermarket trip took too long and 78 percent felt checkout lines were too lengthy. (11)

Helpful clerks, fast checkouts, clear aisles, etc. all contribute to "a pleasant shopping experience by the customer." This, in turn, is the most important consideration in store choice according to the findings of an indepth study of 300 consumers regarding supermarket selection motives. (12)

Accuracy

It is estimated that checkout errors caused by underrings, missed items, and all types of miscalculations, cost the average supermarket anywhere from .4% (13) to 1.4% of sales, with most estimates around .7%. (14) When it is realized that the food chain industry average before tax profit in 1970 was only 1.8% of sales, this accuracy loss is very significant.

Again, benefit to the retailer in this area can prove quite helpful to the consumer as well. Accuracy is a very important factor in choosing a supermarket (15) and correctness at the checkout can be very significant in improving the store image.

An automated checkout can help reduce checkout errors to near zero. It will always correctly compute special prices, multiple prices, sales tax, handle coupons, and can calculate the correct number of trading stamps. All these features can help gain a customer's confidence and thus give earlier innovators a real competitive advantage in building store loyalty.

Reduced Pilferage

Pilferage of some supermarket items is an extremely serious problem. Overall, it is estimated by industry sources that goods, valued from 1.5 to 2.0 percent of sales, are stolen each year. (16) This is just about equal to average profit before taxes of supermarkets. How can a computerized checkout system aid in controlling pilferage? At present, only the amount of pilferage is known -- not the specific items stolen. Some pretty good guesses can be made as to some of the products, but the fact that so much is stolen each year shows that many items go undetected. A computerized checkout system can tell exactly how many of each specific item was stolen. Stricter control can then be placed on high pilferage items, or if that fails, they can be dropped from the store's inventory completely. In either case, management will know exactly what items with which to be especially careful and will have the information to help correct the situation.

An obvious consequence of pilferage is that the consumer in the end must pay more for items purchased. Thus, reduced losses through pilferage would allow for an overall reduction in prices. Also, there might be slightly fewer stockouts of high pilferage items because of improved control.

Manufacturer–Market Goods

Use of computerized checkouts will enable shelf goods to be marked with universal codes by the manufacturer. The only thing the individual supermarket would have to do is punch their own price information into the computer. This feature promises great savings for the supermarket. Goods can be placed directly on the shelf without the time consuming job of marking each one. It also allows for instantaneous price changes without individual remarking of each item.

For maximum savings, both time and money, the logical place to affix a code identifying the product, is at the manufacturer's plant. Even though one of the biggest problems, that of agreement on a universal code system has been solved, there still remains the problem of incompatibility among optical scanners in the checkout systems. The typical scanner will "read" some sort of white and black sequence, either in a line or some sort of circular pattern. Each of the checkout systems now proposed uses a different sort of pattern and identification method. If there is a proliferation of systems at the retail level, it would mean marking would have to take place at the distributor or retail level, or could be used for only the store brand items. This would take some of the advantage away from pre-marking goods.

From the consumer standpoint, this particular

feature of the automated checkout may be the most difficult to gain acceptance. Most efficient use of scanner codes would mean that the price would not be on any of the store's items. The customers would have to trust the shelf price, or some other method of price determination be found. Since the majority of stores have not maintained accurate shelf prices in the past, it may be rather difficult to overcome customer resistance to this feature. There are some possibilities for making initiation of codes somehat easier.

First, supermarket management could make a conscious effort to be very exact in shelf prices for a period of time prior to installation of the new checkout system. The customer would then have an opportunity to develop a trust in shelf prices, thus making the transition easier.

A dual pricing system could be used with both code and prices placed on goods, until the customer comes to depend on shelf pricing. The price would be attached at the retail level by hand. This would be very expensive but may be necessary.

Scanners could be located throughout the store allowing the customer to check prices herself. These may or may not have to be permanent fixtures in the store, depending on store maintenance of shelf prices and customer acceptance of them.

Lastly, utilization of the computerized checkout system will allow for identification of items purchased on the register tape. This identification can range from the name of the product printed out to the code number of the product, depending on the system employed. In any case, it would be possible to match product and price with greater ease than with the register tape currently in use.

Whatever method utilized, the retailer will have to be very careful to maintain the customer's trust in his pricing technique. Careful thought must proceed adoption of any automated system.

Credit Cards

In addition to the advantages mentioned, there are some that are not so obvious or that still lie in the future. One of the most significant of the latter is the opportunity for "credit card" grocery shopping. Since the checkouts will be tied to a computer, it would be a simple matter to program it to accept and authenticate a person's credit card. These credit cards could be either the supermarket's own or one or more of the national bank cards.

A study done by *Progressive Grocer* showed that one-third of the housewives under twenty-five years old felt that supermarkets should accept credit cards. (17) Not only is this a significant percentage, but it comes from a market segment that will be the biggest shoppers for years to come. As use of credit cards continues to increase, this percentage undoubtedly will also grow.

Carrying credit card usage one step further, it is conceivable that the computerized checkouts would make it very easy for supermarkets to adapt to a "cashless society." Here, use of a credit card would transfer money from the customer's account to the supermarket's, without any actual exchanging of money. Experiments in the feasibility of this and problems of acceptance are being conducted currently. Favorable results could provide a real impetus to automated checkouts.

Additional Benefits

Other potential benefits to the supermarket include immediate audits of unit and dollar sales by item. This will enable better positioning within the store. Accurate current data on customer count, coupons handled, tax collections, and stamp disbursement will for the first time be available. This will relieve management from routine to handle decisions caused by changing merchandising situations. (18) The list could go on and on with advantages to the retailer.

Manufacturers will also achieve many advantages through use of automated checkouts. First, there will be better measurements of what happens during any type of promotional effort. Volume of sale items, response to newspaper ads, number of coupons used, and much other information can be more quickly and accurately gathered by use of computerized checkouts.

With better stock control, the incidents of stockouts should decrease. This not only is an advantage to the retailer, but is even more so to the manufacturer. He makes no profit at all if substitute brands are purchased. Thus, it is extremely important to him that well-stocked shelves are maintained.

Lastly, there will be much faster evaluation of new items. This again comes from more accurate front end data. Savings can be had not only because better feedback will enable a manufacturer to pull product failures faster, but also more accurate data will enable fast moving items to receive shelf space based more on sales.

Friend or Foe

In summary, the optical scanner -- computerized checkout system, has potential to provide great benefits to the manufacturer, the wholesaler, the retailer, and finally, the consumer. These benefits will only occur with careful planning and perhaps an educational program with the consumer to develop the trust and understanding necessary for wide consumer acceptance. Without such a well-planned program the optical scanner could be a foe rather than friend to the early innovator.

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