An Analysis of Wholesaler-Host Computer Service

for Independent Food Retailers*

by

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Introduction

The percentage of supermarkets using scanning systems is increasing, but the growth rate is declining (Fletcher et al 1986). This finding implies that growth in scanning may be leveling off and that there is a saturation level, which in fact is not true. Instead, the vast majority of scanning installations are chains or independents with at least $100,000 in weekly sales. The conventional wisdom of the industry was that a retailer needed at least $100,000 in weekly volume to justify scanning. This group of retailers may be reaching a saturation level. The retailers with less than $100,000 in weekly volume, however, is a growth area. 1990 data show that only 43 percent of the independents and 37 percent of the chains in the two to four million dollar annual sales volume range are scanning (*Progressive Grocer*). Yet 96 percent of the independents and 98 percent of the chains in the twelve and over million dollar annual sales range are scanning.

Fletcher et al (1984) concluded in their study that, based on the economic-payback evaluation procedure, a mid- to low-sales volume supermarket could recover the initial investment cost in less than four years without consideration of soft benefits. Since that study, equipment manufacturers began to place emphasis on producing scanning equipment intended for the mid to low sales volume supermarkets. However, the 1990 data indicate that the low to mid range supermarkets are still lagging behind the large supermarkets in scanning. Furthermore, when one compares the 1990 data to 1989 data for the two to four million dollar annual sales supermarkets, scanning independents increased by only two percentage points while the scanning chains increased by 13 percentage points. This disparity supports one of the arguments of Fletcher et al (1984), which is that wholesaler support, or in particular, hosting, is an impediment to scanning being adopted by the mid to low sales volume independent supermarkets. A wholesaler-host computer service involves linking the wholesaler's computer with a food retailer's scanner installation and downloading from the retailer to the wholesaler scanner data for analysis. Chains automatically provide such a service when they convert a store to scanning.

Several articles have addressed the issue of scanner-generated data and the benefits to managerial decision making (e.g., Capps, 1986 and 1989; and Thomas, et al., 1987). The general conclusion of these articles was that there has been little use of scanner-derived data. Furthermore, a consensus of the studies is that there exists a large potential of generating additional bottom line dollars through soft benefits of the scanner-generated data. However, an organized management information system must be in place to generate the benefits. The mid to low sales volume independents will probably not have the human or capital resources. Thus, such independents may delay converting their stores to scanning as evident in the *Progressive Grocer* data. Once again, this is where a wholesaler can aid the independent retailer. Given these points, this paper examines the hosting issue.

The following section deals with what is meant by hosting and, in particular, possible host configurations. Then, the results of a food wholesaler survey are presented. Following this, information gained from on-site visits is discussed. Finally, conclusions of the study are drawn.

Host Configurations

A wholesaler-host support requires some type of communication link between the wholesaler's computer and the retailer's scanner computer. The most common configuration is a direct link by means of the telephone line between the wholesaler and the retailer. That is, a retailer has a modem with auto-answer capability connected to his scanning system controller (i.e., computer). The telephone line should be a dedicated line and not used for other purposes in the business. The wholesaler will also have a modem connected to his mainframe or minicomputer. When the wholesaler is ready to receive a retailer's scanner data, he will dial the retailer's scanning system controller and download the data to his computer. The wholesaler will process the data and send reports to the retailer.

There are two other possible configurations. One involves a service bureau. A retailer is linked to a service bureau's mainframe computer and the retailer's wholesaler is also linked to the

service bureau. The auto-answer modem and dedicated phone lines are still required in this configuration. The difference is that a wholesaler may not have the necessary computer hardware to host a retailer. Thus, a service bureau provides the necessary computer hardware and software. A retailer downloads his scanner data to the service bureau where the processing is done. Reports are generated and distributed to the wholesaler and retailer. The wholesaler is linked to the service bureau so that needed data from the wholesaler is obtained in order to process certain reports like price changes, exceptions and backups.

The other alternative configuration involves regional scanning/computer centers. The concept is similar to the service bureau except that a group of wholesalers (typically noncompeting wholesalers) combine resources to build a regional center. Such a center was developed in 1985 by a group of retailer-owned cooperatives called Retailer Owned Research Corporation (RORC).

All of these configurations have a common theme. The operations (i.e., scanning) are done at the store level (i.e., by the retailer). The communications and processing are done at the wholesaler level. In other words, the wholesaler can be viewed as the data supply center. This common thread is changing with the introduction of new computer technology. For example, the operations, communication and processing will be done at the store level. That is, the scanning system controller will be connected to the store level mini/microcomputer. This mini/microcomputer will then be linked to the wholesaler (or service bureau or regional center) mainframe and/or minicomputer. Thus, the wholesaler becomes a data selection center. In other words, the wholesaler will be shifting away from a data supply to data selection. To illustrate this scenario, NCR Corporation (a major scanning vendor) has the NCR TOWER minicomputer. This machine is compact and powerful with the capability to allow a retailer to do multi-task communications and applications. Furthermore, with the introduction of the i486 microcomputer, the delineation between minicomputers and microcomputers becomes blurred to the point where microcomputers can do the jobs that minicomputers did a few years ago.

Food Wholesalers Survey

In cooperation with the North-American Wholesale Grocers' Association (NAWGA), the author developed a survey instrument. The survey addressed two key areas: (1) How popular is scanning with the retailers that the wholesaler services? and (2) What support does the wholesaler provide to his scanning retailers? The survey was mailed to NAWGA's membership. Thirty one surveys were returned. However, seven of them were from food service firms which were deleted from the analysis. While a sample of 24 food wholesalers may seem small, this is a good response when compared to other surveys in the food industry. Quite frequently the sample size is less than 20 for other surveys.

The analysis was delineated based on a food wholesaler's total sales revenue from supermarkets. A supermarket is defined as a retail store with at least two million dollars in sales annually. Food wholesalers were divided into two classes: Class I - less than 150 million dollars in sales revenue from supermarkets, and Class II - greater than or equal to 150 million dollars in annual sales revenue. The 150 million dollars was used to differentiate the low to mid size food wholesalers from the large size ones based on conversations with NAWGA. Based on this classification, 45.8 percent of the sampled food wholesalers were in Class I and 54.2 percent were in Class II (Table 1). Thus, there were enough observations in each group for analysis.

Some general information on scanning supermarkets served by the sampled food wholesalers is provided in Table 2. Examination of Table 2 reveals distinct differences between the two groups of wholesalers. While the total sample averaged about 98 supermarkets served per wholesaler, Class II wholesalers served on average a little over twice what the Class I wholesalers served. When one looks at the numbers for scanning supermarkets served, the magnitude difference is closer to four times. However, the percentage of supermarkets served that are scanning is low: 14 percent for Class I and 26 percent for Class II. Yet, if one looks at dollar volume, the percentages are higher, especially for the Class II wholesaler (45.5% compared to 17% for Class I).

Table 1. Total Sales Revenue to Supermarkets by Food Wholesalers

Group[a]	Number	Frequency
Class I	11	45.8
Class II	13	54.2

[a]Class I wholesaler with total sales revenue less than $150 million. Class II wholesalers with total sales revenue equal to or greater than $150 million.

SOURCE: University of Georgia 1985 Food Wholesaler Survey.

After looking at the volume range breakdown for scanning supermarkets, one sees that over 80 percent of the scanning stores have weekly sales volume in excess of 100,000 dollars per week. This supports the conclusions of Fletcher et al's studies on the feasibility of scanning. The breakdown of scanning supermarkets by scanner equipment differs some from the Food Marketing Institute's national numbers (as of December, 1985, for comparison purposes). For the total sample, Datachecker was in 38 percent of the stores, while NCR was in 34 percent and IBM was in 15 percent. The national numbers were NCR, 41 percent; Datachecker, 29 percent; and IBM, 21 percent. This difference is understandable given that NCR and IBM are used more frequently in the large chains and not in the smaller supermarkets.

The scanning support that the sampled food wholesalers provide is shown in Table 3. Scanning information is provided by practically all wholesalers independent of size breakdown. Beyond that service, more of the support is provided by the larger wholesalers. For example, buying service for scanner equipment, installation support, building file and technical expertise is more likely to be covered by the larger wholesalers than the smaller ones as indicated in Table 3. The same scenario holds true for communication service in terms of downloading price files and collecting movement data. In terms of reports provided to the retailer, neither group of whole-

Table 2. General Information on Scanning Supermarkets Served by Food Wholesalers

Categories	Total sample	Class I[a]	Class II[a]
	- - - - - means/food wholesaler - - - - -		
Supermarkets served	97.652	59.900	126.692
Scanning supermarkets	21.792	8.636	32.923
By sales volume range/week:			
≤ $30,000	.125	.182	.077
$30,001- 50,000	.333	.182	.462
$50,001- 60,000	.500	.273	.692
$60,001- 70,000	.500	.364	.615
$70,001- 80,000	.667	.364	.923
$80,001-100,000	1.083	.182	1.846
> $100,000	18.583	7.091	28.308
By scanner equipment:			
NCR	7.368	0.833	10.385
IBM	3.273	1.222	4.692
Datachecker	8.263	2.143	11.833
Sweda	2.300	0.750	3.333
TEC	0.095	0.000	0.154
Berkel	0.682	0.000	1.154
Other	0.000	0.000	0.000
	- - - - - percent - - - - - - - -		
Dollar volume by scanning supermarkets	33.526	17.000	45.545

[a]Class I wholesaler with total sales revenue less than $150 million. Class II wholesalers with total sales revenue equal to or greater than $150 million.
Source: University of Georgia 1985 Food Wholesaler Survey.

Table 3. Scanning Support a Food Wholesaler Distribution Center
Provides

Type of support	Total sample	Class I[a]	Class II[a]
	- - - - - - - number - - - - - - - - -		
Scanning information	20	7	13
Buying service for			
scanning equipment	17	6	11
Installation support	17	5	12
Building file	17	4	13
Technical expertise	17	4	13
Repair & maintenance	5	1	4
Communication:			
Download price file	14	3	11
Collect movement	11	3	8
Reports provided:			
Cashier performance	1	0	1
Item movement	1	0	1
Price verification	1	0	1
Productivity	1	0	1
Front end scheduling	1	1	0
Direct store delivery	1	1	0
Sample size	24	11	13

[a]Class I wholesaler with total sales revenue less than $150 million.
Class II wholesalers with total sales revenue equal to or greater
than $150 million.
Source: University of Georgia 1985 Food Wholesaler Survey.

Table 4. Average Number of Stores by Retail Volume Supported with Communications Per Food Wholesaler

Retail volume/week	Total sample	Class I[a]	Class II[a]
	- - - - means/wholesaler - - - -		
≤ $30,000	.053	0.000	.091
$30,001- 50,000	.158	0.000	.273
$50,001- 60,000	.158	0.000	.273
$60,001- 70,000	.105	0.000	.182
$70,001- 80,000	.211	.125	.273
$80,001-100,000	.211	.125	.273
> $100,000	11.056	2.000	18.300

[a]Class I wholesaler with total sales revenue less than $150 million. Class II wholesalers with total sales revenue equal to or greater than $150 million.
Source: University of Georgia 1985 Food Wholesaler Survey.

Table 5. Statistics on Volume and Number of Stores to Justify Hosting by Food Wholesalers

Categories	Sample	Class I[a]	Class II[a]
Minimum retail volume per store to justify hosting:			
Mean	$63,333	$81,666	$54,166
Range	$40-100,000	$50-100,000	$40-80,000
Minimum number of stores to justify hosting:			
Mean	17.22	16.50	17.43
Range	5-40	5-28	6-40

[a]Class I wholesaler with total sales revenue less than $150 million. Class II wholesalers with total sales revenue equal to or greater than $150 million.
Source: University of Georgia 1985 Food Wholesaler Survey.

salers are providing much in the way of reports generated from scanner data. In other words, capturing the vast potential of soft benefits derived from scanner data is minimal, which supports Fletcher's and Capps' findings. The reports that they did provide were as follows: cashier performance, item movement, price verification, productivity, front-end scheduling and direct store delivery.

The sampled wholesalers provided the sales volume range of their retailers being supported by communications. This information is shown in Table 4 based on average number per wholesaler. One quickly sees that the support is basically provided for the large retailers, with very little communication support for the smaller retailer. However, one should be made aware that this does not mean that the wholesaler will not provide communication support for the smaller retailer. Instead, the smaller retailer decided not to receive it for whatever reason. Cost may be the principal factor in the decision.

Information on weekly volume per retail store and number of stores required to justify hosting, based on whether the wholesaler would break even after the cost of providing the service, was collected from the food wholesalers (Table 5). The mean minimum retail volume per store to justify hosting was almost 60 percent higher for the Class I food wholesalers than for the Class II food wholesalers. The mean minimum number of stores to justify hosting was not significantly different between the classes of wholesalers. Class I wholesalers reported an average of 16.5 retailers needed for a wholesaler to justify hosting, while Class II wholesalers reported about 17.5 retailers needed. Given these mean values, Class I wholesalers will need to double their average number of scanning supermarkets as reported in Table 2 before they will, on average, have enough stores to justify hosting. While the average number to justify hosting may seem high for a Class I wholesaler, the range reported by individual wholesalers was between five and 28 retailers. Thus, some Class I food wholesalers felt that they could justify hosting to a lower number of retailers. In contrast, while Class II wholesalers had a lower mean minimum retail volume per store to justify hosting, their mean and range for minimum

number of stores to justify hosting were higher than Class I wholesalers' values. This may imply that Class II wholesalers offset the lower retail volume with more stores needed to host. This way they can spread the cost over more retailers, thus reducing the cost per retailer.

The wholesalers' cost estimates to upgrade for hosting are reported in Table 6. The hardware cost estimates ranged from 10,000 dollars to 100,000 dollars. Software ranged from 20,000 dollars to 100,000 dollars. The number of people added ranged from one to two. One can see that it can be expensive to upgrade. These costs fall in line with the industry's perception that it will cost approximately 100,000 dollars to upgrade a wholesaler's capability to host. The fees that each wholesaler charged for their various hosting services varied a great deal. There was no consistent pattern. For example, reports ranged between 25 dollars per report and 60 dollars to 250 dollars per week for a group of reports. The fees seemed to be based on what the competitors were charging and how much the wholesaler felt he could charge the retailer without losing his business to a competitor. Several surveyed wholesalers commented that they do not plan on breaking even, but need to host in order to stay competitive.

Table 6. Survey's Cost Estimates to Upgrade for Hosting

Category	Cost estimates
Hardware	$10,000 - $100,000
Software	$20,000 - $100,000
Number of people	1 - 2

SOURCE: University of Georgia 1985 Food Wholesaler Survey.

On-Site Visits

After the survey, a selected group of wholesalers were visited. The wholesalers were selected based on whether they were hosting or not, in order to obtain a perspective on the hosting issue. One of the firms was an innovator in providing hosting services. Information and data were collected during the visits.

One of the wholesalers was not planning to host in the near future. This firm was in the mid-size category. They provided information as to why they were not considering hosting. One of their reasons for not hosting is the lack of scanning by the retailers that they service. This condition supports the finding by Fletcher et al (1986), as well as the results of the food wholesaler survey. Another reason is that they anticipate a higher return on their investment by developing an in-store microcomputer program. The initial investment cost is lower, and a retailer is typically able to pay back the investment in less than one year. This wholesaler felt this approach would help increase the computer literacy of the retailer much more easily before moving into host scanning support.

Based on technical information provided by some of the hosting wholesalers, a host file record typically needs to be at least 200 bytes per record. However, with additional information being requested for management decision making, this size may be conservative. Assuming a mid to low size retail store has a minimum of 10,000 to 15,000 items, a wholesaler will need to have, on average, approximately three megabytes of storage space per hosted store. Thus, if a wholesaler hosts 20 stores, they will need a minimum of 60 megabytes of disk storage.

Communication between wholesalers and retailers takes place over a telephone line using bysinc communication at either a 2400 or 4800 BAUD rate. Any higher baud rate would introduce too much error in the data transmission. The retailer needs a modem and a dial up telephone line with an auto-answer for the scanning system controller. One wholesaler communicated with a retailer approximately three times per week for their basic hosting function. The basic hosting program provided the retailer the following information reports generated from scanner data: weekly sales, price changes and exceptions, direct store delivery authorization, backup of scanning file, quarterly movement, and zero movement of items. This basic program cost the retailer approximately 150 dollars per week (which translates into 7,800 dollars per year). The wholesaler is able to provide additional reports at a cost of eight to fifteen dollars per report. These reports could be gross margin exception, multi-store comparison, Hi/Lo gross profit and Hi/Lo movement. They were in the process of developing reports for ad mark downs and automatic reordering.

The visited wholesalers reported that the cost of the software for the mainframe computer would be approximately 30,000 dollars for one scanner vendor with incremental increases for each additional scanner vendor. This value was in the range reported in Food Wholesaler Survey. One of the wholesalers also felt they needed about 11 stores to host before they could cost justify. While this number was below the average reported in the survey, it did fall in the reported range.

Another wholesaler visited had just started hosting. They reported that they knew that they were not going to break even, but rather they took the view that they had to host in order to help their retailers be more competitive. They set their pricing schedule based on what their competitors were charging. These two points were consistent with the findings of the survey. Depending on the reports that a retailer requested, their hosting charge ranged from 50 dollars to 125 dollars per week.

In discussions with food wholesalers, a list of firms selling hosting software was developed. However, the cost of the software could not be pinned down. The number of software purchases and the number of scanner vendors to support all figured into the price. The survey results on the cost of software seemed to provide a fairly good estimate range. The firms selling software were ISD, FDSSG, Certified Grocers, Fleming, OMNI International and AIMS. While this list is not exhaustive, it does show that a large number of firms do sell the software. One must note that a

firm does not need to purchase the software but may instead develop their own.

Conclusions

As evident in the host configuration section, the technology is dynamic and ever changing. Quite frequently at national trade association meetings, sessions are held addressing the issues and concerns of managing the scanning functions for today's and tomorrow's technology. But, based on the wholesaler survey, wholesaler host support was minimal, especially among the smaller wholesalers. However, a relevant question is, "why host?" As one wholesaler described their position, the firm felt that they could better serve their retailers by addressing the other technology issues. Furthermore, the cost for implementing the other technologies such as microcomputers and associated software was considerably less than the hosting cost. Plus, the retailers will be able to realize a return on their investment more immediately. Thus, one can see that a wholesaler is faced with an ever demanding challenge in juggling the adoption of the various technologies.

There is one facet of the hosting issue that a wholesaler as well as a retailer needs to consider. Wholesalers and retailers could find themselves playing catch-up in a merchandising game they thought they knew. Today, it is a new ball game, with computer/scanning systems providing information to chain executives. This information will enable them to analyze the purchase patterns of an individual store's customers. Consequently, product selection, prices and promotional programs as well as new store location and development decisions can be tailored to customer needs for an individual store and its market rather than standardized on a regional or area basis.

Every wholesaler possesses a unique set of characteristics which must be considered before making the final decision as to whether to host. A wholesaler should organize a planning project team. This team should represent the overall interest of the wholesaler's operations. A wholesaler should also include some of his retailers on the team in order to have their views on the possible linkages between the wholesaler and retailer. The team can be charged with determining "where

we are today" and "where we are going." This will help a wholesaler to sort out the maze of technology issues. To guarantee that all operational aspects of planning are considered, a list of activities to be performed by the team should be drawn up. The culmination of this phase of the process is the decision whether to host. If the wholesaler decides to host, an implementation team will then be organized. The point should be made that the planning project team and the implementation team do not necessarily need to be the same. In the planning and/or implementation, outside help is available. This help can come from other wholesalers, the university, consultants, service bureaus and trade associations.

In summary, host support is a viable alternative for wholesalers. However, a wholesaler does need a minimum number of retailers to support. The survey results provide a wholesaler with some numbers to aim for. Information in the on-site visit section as well as the survey section concerning charges for services provides a fee structure basis for other wholesalers. For example, assuming that a retailer could generate a one-half percent savings rate (based on total sales) in his retail operations based on information contained in the hosting reports, a 50,000 dollars per week retailer would break even in approximately six months if the charges were 150 dollars per week. This savings rate is not out of line given the industry perception that the savings rate for soft benefits should exceed the hard benefits savings rate.

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