

INFORMATION TECHNOLOGY AND RETAIL CHANGE

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ABSTRACT

Certain forms of "shopless shopping" such as tele-shopping may prove to have dramatic effects on the future pattern of shopping. At the same time, however, existing retail units are themselves turning to new technologies of various sorts. This paper addresses itself to the prospect of such innovations as EPOS proving to have a role in retail change. The uses and expected benefits from EPOS are discussed - with particular reference to laser scanning. Results of previous studies and information from Havant, Hampshire, England, serve to show that scanning does not have a high profile as an element of retail change.

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INTRODUCTION

Many social and economic factors have combined to bring about the post-war revolution in retailing and have contributed to changed locational patterns. A current concern lies with applications of information technology and the new challenges posed. Probably the most interesting developments lie in the field of "shopping without shops". However, we should not ignore the possibility that information technology may confer advantages on stores that already exist. If "advantages" conferred by information technology are perceived by the customer as a major reason for choosing a particular store then clearly this is in itself an element of change. This paper addresses itself to issues related to laser scanning of products as an application of new technology to retailing. Specifically, it concerns itself with the type of flat-bed scanner typically in use in grocery stores, though many of the points relate equally well to systems such as light pens or hand-held scanners. Data relating to a specific store, Havant Hypermarket in Hampshire, England, are produced to illustrate the issues.

One must emphasise that this paper concerns itself solely with flat-bed scanning as an EPOS system - many other systems exist and there are many useful summaries of these. A recent article by Chartier is of use as it outlines the systems in use and permits a comparison of Britain and France as in tables 1 and 2. Chartier (1986 p.10) emphasises that table 2 "is only partial; there were 910 scanning stores in France by December 1 1985 - about twice the number in the UK".

Retailer	No of stores using scanners	Stores with:			
		Flat-bed scanners	Light pens	Hand-held scanners	Fixed head scanners
EAN bar codes					
Shoppers Paradise	143	143			
Fads	100†		100+		
Victor Value	43	43			
B & Q	24		24		
Coles Menswear/ Lady Cole	16		16		
Sainsbury	15	15			
Asda	11	11			
Tesco	9	9			
W H Smith	7		7		
Penguin Books	6		6		
Torlink	6		6		
Scotland Co-op	5	5			
Selfridges	1		1		
Other multiples	23	20	3		
Independents	73*	68	7	1	
Co-operatives	16	14	2		
Superstores	4	4			
Sub-total	502	332	172	1	
Other bar codes					
Austin Reed	50		50		
Other multiples	1				1
Sub-total	51		50		1
Total	553	332	222	1	1

† The precise number of Fads stores currently scanning was not available as we went to press
* Three independents have mixed installations of flat-bed scanners and light pens

Source: RMDP, January 1986.

Retailer	No of stores using scanners	Stores with:			
		Flat-bed scanners	Light pens	Hand-held scanners	Mixture of scanners*
Codec	132	21	114	14	17
Unico	120	34	75	19	8
Leclerc	75	25	51	4	5
SES	64	64	—	—	—
Intermarche	38	25	10	8	5
Total	31	—	31	—	—
Co-op	30	13	19	—	2
Casino	27	27	1	12	13
Promodes	24	14	5	7	2
Groupe 20	23	10	3	11	4
Carrefour	20	12	2	6	—
Disco	18	1	14	3	—
Phox	15	—	15	—	—
Sodice	14	5	7	4	2
Baud	13	11	2	2	2
Reverbel	13	—	13	—	—
BHV-Bricolage	12	—	12	—	—
Total	669	262	374	90	60

Some retailers have been omitted, because the details of the types of scanner were not available
* Where there is a mixture of scanners, the stores are listed under the individual categories

Source: 'Points de Vente', December 1985

A Major point of Chartier's paper is the problem faced by retailers through poor quality bar-code symbols. As we shall see, this filters through as customer complaints over "repeat scanning".

BACKGROUND

Existing literature on EPOS (Electronic Point of Sale) developments has tended to concentrate upon the viewpoint of, and advantages for, the retail management involved with EPOS installations. An adjunct to the prime purpose of customer evaluation should, then, be a consideration of precisely what advantages EPOS is expected to confer. For example Davies & Reynolds (1986 p. 3) note that the advantages perceived by the retail trade include "stock control, inter-company communications and delivery scheduling". They later point out, with reference to EFTPOS (Electronic Fund Transfer at Point of Sale) (1986 p.22) "whilst EFTPOS is an inevitable development they can see little or no consumer demand for it." Guy (1986 p.1) notes "EPOS, EFTPOS, private view data systems and remote shopping" as the main uses of IT in retailing and goes on to note that the overall impact of IT has been "disappointing" stating (pp.1-2) "For example, EPOS systems involving scanners or laser wands are still exceptional among British grocery retailers, despite a history of experiments stretching well back into the 1970's" though recent developments involving Sainsburys and Victoria Wine have recently received attention. Guy also stresses the significance of "improving stock control within the store. but increasingly their linking to-

gether".

The present position regarding EPOS installations in Britain seems to be that most of the major multiples are in the process of installing one or more of the systems for reading bar codes. Some, such as Shoppers Paradise have, as will be seen later, installed a system in all stores and, as with many food retailers, Shoppers Paradise are utilising a scanning system. IBM systems have been chosen by Tesco, Next, Mothercare and William Low. Thorn/EMI are supplying Victoria Wine and the popular Datachecker/DTS system is being used by Shoppers Paradise and W H Smith. W H Smith began experimenting for the first time in 1983 at their Portsmouth outlet and plan to have all stores fitted with the system by 1989. In this case, light pens are used. Retail and Distribution Management constantly monitors EPOS developments and offers further confirmation of the growing numbers of new installations (Retail and Distribution Management 1984 a,b,c, 1985, 1986). Marks and Spencer are currently experimenting with PSION hand-held point-of-sale machines as a way to ensure correct sale prices and avoid individual pricing of textile items. Operatives key a 4 digit garment code and a 2 digit department code to indicate the current correct product price. The price is communicated to the consumer via large label-cards above the racks of goods. Selected Marks and Spencer stores are experimenting with stand-alone POS systems with a 7 digit 'unique product code'.

EPOS IN PRACTISE

Consideration of the information available from users of EPOS systems suggests that whilst one can speculate, as above, on an overall range of possible advantages the motives offered by each individual user do vary widely.

The growth in interest in scanning and the extent of EPOS applications in general may be measured by the wide range of topics offered at, for example, the EPOS conferences organised by RMDP. EPOS '85 proceedings contain numerous papers outlining the varying experiences of retailers. The country of trading and the product-mix sold appear to be two key dimensions. Dobbin (EPOS 1985) for example, demonstrates that for Food Giant, based in Maryland and a pioneer in 1975 of scanning in the USA, the removal of the price label from individual items was a major consumer rights battle that took 6 years to resolve and involved the Maryland State legislature. The group became involved with shelf-edge labelling problems and pioneered more informative self-edge data. The cost of adding scanning to over 100 stores was put at \$25M. Approximately 50 times a week the shelf-edge label offers a different price than that held in the computer. More accurately, perhaps, a customer spots this difference and claims the item free! This practise of offering the item free is not uncommon, being noted, for example, by Ahlin (EPOS 1985).

It is more common to find retailers explaining their own benefits and problems rather than those of the consumer, except, of course, where the two coincide. Fleury (EPOS '85) describing a scanning operation at Rond Point, La Rochelle, which was fitted with a Datachecker system pointed to the advantages of checkout speeds averaging 21 items per minute and the attendant need for fewer checkouts - and presumably fewer operators. There were said to be no bad consumer reactions. For Shoppers Paradise, described by Soloway (EPOS '85) as "the largest and leading users of scanning equipment in the UK food retailing industry" the attractions of scanning were seen as checkout speed and the chance to increase range. Shoppers Paradise had placed scanning in 150 stores in just 15 months and range had been increased 650 to a maximum of 1500 lines. The datachecker system operating through 500 scanning lanes was not envisaged for stock control and it is interesting that many enthusiastic scanning users also operate outlets with a limited range of individual lines. The DIY trade is an example of this: Foster (EPOS '85) claims B & Q as Britain's largest EPOS operator with 5 million square feet of selling space in more than 170 stores and 1984 turnover of £300m. Like W H Smith, B & Q pioneered scanning in the Portsmouth area, in fact at their Fareham outlet in 1982, and took a final decision to use EPOS in 1984. At that time their first store had implemented automatic stock replenishment, all stores achieving this early in 1986. A new pricing system came in 1985 but the emphasis is on stockholding where availability has risen from 92% to 98% and stockholding is down to 1 to 2 weeks. It is

evident that such an emphasis would be made by a group stocking bulky items; this is quite a different prospect from a grocery superstore with many more lines, moving at different rates and serviced from many sources. There seems to be little mention made of the more 'exotic' uses of EPOS such as moving items around the store until the sales performance - as monitored by the store computer - is maximised.

EPOS at HAVANT HYPERMARKET

From the above it is clear that one should identify the particular aims of Havant hypermarket in introducing scanning. There are three sources of information available on this store and its attitude to scanning. Graham Bennett, then the store director, presented a paper on the subject to the EPOS '82 conference. A "scanning report" was produced for the store manager in 1985 and, for this paper, the Data Processing Manager (DPM) was interviewed as to the current position.

Bennett (1982) made the point that scanning was not possible for Havant hypermarket when it commenced trading in 1980 for "at that stage our investigations revealed that only 30% of the volume of grocery items carried a bar code." (Bennett 1982 p.2). A figure of 70% of items coded was seen as the viable minimum and EPOS was targeted for late 1983. The hardware chosen was an NCR sale terminal driven by an 8355 processor. A review of progress in mid-1981, especially the development of systems that could handle the possib-

ility of more than 22 lanes scanning the same item at the same time, brought the EPOS data forward to Autumn 1982 and indeed scanning began in August 1982. The system keeps the 1700 fastest moving items in 128k of memory with other items on hard disk. Bennett (1982, p.8) outlined possible consumer-related problems as:

- 1) Adverse reaction to the term "laser".
- 2) Lack of individual item pricing.
- 3) Poor-shelf-edge labelling.

The response was to promote positive advantages such as better till receipts and use of an acronym "SMILES"; Scanning Means Itemised Lists and Efficient Service. Systems for shelf-edge labelling had been thoroughly studied and a system devised by SITOUR, France, was initially chosen. The 1985 Scanning Report also tended to place emphasis on consumer-related issues thus:

- 1) Accuracy is improved because the use of a machine-readable coding system offers no opportunity for the wrong price to be entered. The possibility of human error is minimized.
- 2) Through-put at the check-outs is faster because there is less manual keying to be done. The scanning operation is quick and efficient and so the individual customer spends less time at the check-out, which represents a bottle neck situation in most large stores.
- 3) The central computer records stock levels and automatically reorders where levels are detected to be low.

- 4) the itemized till receipt gives the customer the opportunity to check each item against the price charged, reducing the chances of mis-interpretation.

Accordingly, at interview, the DPM was asked to stress the perceived advantages to the store which had, in 1982, become the largest store (in terms of number of checkouts) to attempt to operate scanning. It had been initially thought that a key element would be the possible savings on product price labelling. It was hypothesised that, for example, two cans could be placed on a display shelf in the same time that, previously, one can might be labelled and stacked. The prevalent assumption that the key benefit would be stock control was not at the time uppermost and has not yet come to prominence. At interview, the DPM noted that a number of features have emerged in the present experience of scanning. One is that the speed of the laser scan is such that the till operatives are processing purchases far more quickly than the customer can pack them. Delay therefore now exists in clearing the conveyor belts so that the next customer may pass through. The current experience is also concentrating on product pricing - in two ways. One is that special "variable price" tills are in use for fresh vegetables, fruit and fish; indeed, all products freshly cut and/or weighed. These sales produce an instant machine-readable bar code enabling a greater percentage of products to be processed at the tills. Until 1985, these items had to be keyed-in separately by the checkout assistants. Since price coding is obviously a success the group has introduced scanning to its other superstore - a former "International" outlet at Gosport.

Pricing for both operations will be controlled from Havant Hypermarket. Price control will be extended to the other 67 grocery stores in the local co-operative chain in due course.

What, then, of stock control? Is automatic re-ordering of goods possible? Three factors mitigate against this. One is that products are ordered from several sources. A regional distribution centre, and direct from suppliers being the main two. Secondly, there is the need to allow for the accounting function, thirdly, the size range of the stores to be served once the whole group is on stream. It also seems likely that the group is paying a penalty for its innovative attitudes. Both hardware and software have moved on since the system was introduced. Often, software "patches" are needed to modify programs to suit particular demands. With hindsight, the ideal would have been to have totally custom-built software with greatly expandable hardware. It is, of course, not always possible to foresee the trading circumstances for which software should be designed.

Attention should be paid to the question of how the pricing savings - a key stimulus for scanning - evolved. In fact, it was decided to use the time saved to improve stock presentation on shelves. Instead of being stacked in a more or less random fashion, under pressure of time, products are stacked attractively and improvements in customer satisfaction and increased sales, were noted. Furthermore, the contentious issue of shelf-edge labelling has been readdressed. The present system is based upon a printed label that is automatically

printed whenever a product price changes. I.e it is product-specific and constantly updated and this reduces the likelihood of the wrong price appearing with a produce. Previously, a shelf-edge tag with an indicated price had been used - the SITOUR system.

Mention has already been made of the penalties of pioneering. The fact that an Apricot PC is used to control variable-price tills is indicative of the improvements made in hardware even since the present system was installed. It is clear, too, that more store-specific software would have been a bonus for real-time information is now seen as the target with instant access to key data. At present, simple restrictions on memory prevent analysis of key performance indicators through time. Data older than one year have to be dumped to hard copy - negating the benefits of information technology. However, there is no doubt that, in the shorter term, product performance can be monitored effectively. A trend of known sales levels may be compared with changes resultant from 2 or 4 week "promotion" cycles, or a shift in store position.

Long-term prospects involve serious consideration of the cost-effectiveness not of the practise of scanning - seen to have proven benefits - but of the hardware and software in use. It seems likely that, in a few years, one will see the development of hardware and software that suit needs more closely and have the capacity to handle all possible areas of change. The experience since 1982 suggests that the management of Havant Hypermarket will be well placed to evaluate, and, indeed, articulate demands for, scanning systems to

cover all the future operations. It is worthy of note that the store is poised to move on EFTPOS - probably through the petrol sales initially. The most immediate prospect for scanning-induced change is the introduction of assistants to speed packing and thus remove the bottleneck caused by too-fast processing of purchases. Finally, some items still do not carry a bar code. These are coded in store with a price look-up reference number which is manually keyed by the checkout operative. These should reduce in number as coding becomes universal. What is clear is that Havant Hypermarket, like Shopper's Paradise, did not see automated stock re-ordering as a key priority.

SCANNING AND THE CONSUMER

RMDP produced a survey of laser scanning in September 1981 which they believed to be the first to cover this topic. Their results were obtained from 5 of the 6 grocery stores to have adopted scanning at that date. Three of the outlets were Keymarket stores - now part of the Dee Corporation. A total of 991 customers responded at the five stores. The approach chosen was to ask general questions about shopping at the stores before turning specifically to scanning. This seems to be a good system for placing the topic into an overall perspective and will be repeated in the present case-study.

As table 3 shows, scanning was not prominent on the list of consumer preferences.

Table 3 Source: RMDP 1981

Reasons given for shopping at scanning stores

	Asda Rochdale	Key Markets Romford	Super Key Spalding	Key Markets Penge	International Folkestone	TOTAL SAMPLE
Reduction in queues/faster checkout	—	7 (4%)	6 (3%)	2 (1%)	—	15 (2%)
Cheaper goods	77 (38%)	24 (12%)	26 (13%)	18 (9%)	15 (8%)	160 (16%)
Convenient/one-stop shopping	59 (29%)	89 (45%)	86 (44%)	55 (28%)	18 (9%)	307 (31%)
Near work/home	46 (23%)	71 (36%)	29 (15%)	35 (18%)	21 (11%)	202 (20%)
Like range of goods stocked	28 (14%)	43 (22%)	23 (12%)	73 (37%)	26 (13%)	193 (19%)
Like layout of store	21 (10%)	6 (3%)	13 (7%)	6 (3%)	—	46 (5%)
Good service	15 (7%)	19 (9%)	16 (8%)	18 (9%)	3 (1%)	71 (7%)
Habit to visit store	15 (7%)	—	—	—	—	15 (2%)
Parking facilities	9 (4%)	39 (20%)	59 (30%)	6 (3%)	41 (21%)	154 (16%)
Makes a change	7 (3%)	—	9 (5%)	—	—	16 (2%)
Best/only store in area	6 (3%)	6 (3%)	—	19 (10%)	—	31 (3%)
Loyal to company	6 (3%)	—	—	—	—	6 (1%)
Cheap petrol station adjacent to store	—	—	26 (13%)	—	—	26 (3%)
Opening hours convenient	—	—	6 (3%)	4 (2%)	6 (3%)	16 (2%)
Curiosity (new store)	—	—	—	6 (3%)	—	6 (1%)
Clean store	—	—	—	4 (2%)	—	4 (0.5%)

When scanning-related topics were concentrated upon, certain features were praised. The checkouts were generally perceived as both faster and more accurate and the till receipts seen as more accurate. On the negative side, the factor most disliked was the absence of a price on each item - the very source of Food Giant's greatest opposition. RMDP noted (1981 p.10) "the lack of price marking on individual items is seen as the major disadvantage of laser checkouts. Fifty four percent of shoppers cited this as being a problem, without prompting". It is clear that this brings several worries, the most immediate being the lack of an immediate check that the price charged is the same as that indicated on the shelf-edge label. In the longer run, some have argued, the lack of item pricing erodes the ability to check that prices have not risen at the store since the last purchase of the same item. In fact, the survey went on to show that only some 8 percent of respondents used the receipt to compare past prices. On the other hand 83 percent used it to check off purchases just bought. Shoppers worried that items with a poor bar

code and which had to be swiped across the reader several times might also be recorded several times. Others felt that the checkouts had become too fast and that they were pressured to move along. A key point of this survey is that only a weak link is drawn in the mind of the consumer between the scanning and shelf-edge labelling. A high percentage of respondents had negative comments to make about the shelf-edge labelling - Table 4.

Table 4

Reasons given for finding shelf-edge marking unsatisfactory											
STORE	Difficult to find label	Label missing altogether	Badly placed on shelf	Label should be larger	Not clear enough	Confusing	Discrepancy between shelf label & bar code	Worst part of system	Frozen food dupli. bad	Labels obscured by stock	Other comments
Asda, Rochdale	28 (14%)	39 (19%)	49 (24%)	33 (16%)	13 (6%)	8 (4%)	—	2 (1%)	3 (1%)	18 (9%)	2 (1%)
Key Markets, Romford	—	14 (7%)	30 (15%)	21 (11%)	21 (11%)	18 (9%)	1 (0.5%)	2 (1%)	8 (4%)	—	2 (1%)
Key Markets, Spalding	—	—	45 (23%)	82 (42%)	—	14 (7%)	8 (4%)	—	—	—	2 (1%)
Key Markets, Penge	—	6 (3%)	11 (6%)	8 (4%)	21 (11%)	1 (1%)	—	—	1 (0.5%)	—	2 (1%)
International, Folkestone	15 (8%)	21 (11%)	14 (7%)	2 (1%)	24 (12%)	3 (1%)	3 (1%)	2 (1%)	2 (1%)	—	3 (1%)
TOTAL SAMPLE	43 (4%)	80 (8%)	149 (15%)	146 (15%)	79 (8%)	45 (4%)	12 (1%)	6 (0.5%)	14 (1%)	18 (2%)	11 (1%)

The RMDP survey would appear to cover most of the scanning related issues found in the literature. In 1983 RMDP returned to the topic with a survey on smaller units using scanning, for, at that time, 57 outlets now were scanning and 5 smaller units where the maximum number of lanes was six, were surveyed. All but one outlet was using a Datachecker/DTS system. By the time of this survey, shelf-

edge labelling had become less of an issue but repeat-scanning remained a worry. RMDP concluded that shoppers had become more attuned to scanning; though the difference in store sizes must be allowed for.

However, the RMDP surveys provide an excellent base for further empirical investigation and attention may now be turned to the example of Havant Hypermarket. The object is to measure if the customer reactions accord with those discovered by RMDP. Also, since Havant Hypermarket has not always used scanning a "before and after" approach was possible. The "before scanning" position is summarised in table 5 with a comprehensive list of "likes and dislikes" of the store freely-elicited as part of a wider survey of 1312 respondents interviewed at the store (Hallsworth 1981).

The "after" element is taken from a much more limited sample of 200 individuals interviewed by Wilson (1986) and shown in Table 6.

Certain features, such as free shopper buses were not available in 1981 and whilst there is an amount of agreement with the more comprehensive 1981 survey there is almost no evidence that scanning has become a major attraction. Only on three occasions is some aspect of scanning mentioned and in two of these the aspect is negative. Even the factor of "speed at checkouts" has not risen greatly on the list - possibly because of the problems of packing.

TABLE 5

HAVANT HYPERMARKET : "LIKES AND DISLIKES" (1981)

LIKED						DISLIKED						
TOT	6	5	4	3	2	1	SUBJECT	1	2	3	4	TOT
570		3	8	54	153	352	Internal layout	37	5	3		45
459		1	4	40	108	306	All under one roof	1	1			2
277			8	48	133	88	Range or choice	43	14	6		63
262	1	1	7	42	101	110	Prices	31	1		1	33
242		3	6	56	97	83	Easy parking	4				4
213	1		10	51	83	65	Staff helpful	8	6			14
201		5	5	23	55	118	Conveniently located	8	2			10
151	1	1	6	30	58	55	Cleanliness/Hygiene					
133		2	6	41	41	43	Restaurant	7	4	2		13
90			4	20	21	45	Size	13				13
75			5	20	41	9	Goods easy to find	17	4	1		22
57			6	12	19	20	Free parking					
46		1	2	14	17	12	Quality items	11	3			14
28		4	1	6	4	12	Opening hours	2				2
28		1	2	6	8	11	Speed at checkouts	17	3			20
14	1		1	4	3	6	Cheque facilities	4	1	1		6
13		5		4	2	2	Off licence	4				4
10				1	3	6	Fish counter	5	1			6
9		1	1	4		3	Security	8	1			9
6			2	1		3	Petrol on sale					
6					2	4	Atmosphere	4				4
4			1		2	1	Trolleys (Wet or too big)	58	6	1		65
4			1		2	1	Bakery					
2					2		Heat	11	2			13
1						1	Level of congestion	9				9
1						1	Lighting system	2		1		3
							No bags in store	3	1	1		5
							No milk checks	4				4
							No "One way" system	3	1			4
							No seats provided	4				4

Table 6

Havant Hypermarket - Likes and Dislikes (1986)

<u>Likes</u>		<u>Dislikes</u>	
	<u>Total</u>		<u>Total</u>
All under one roof/ convenience	122	Internal lay-out/can't find goods easily	16
Parking	76	Queues at in-store departments	16
Spaciousness	48	Prices	13
Restaurant	38	Scale of Store - too big	9
Range of goods	34	Changing brands too often	7
Staff helpful	25	Too large range of goods	7
Internal lay-out/goods easy to find	22	Queues at check-outs	6
Prices	20	Slow re-stocking	6
In-store departments	19	Changing the location of goods	6
Cheque facilities	17	Trolleys outside	4
Opening hours	8	Not spacious enough	2
Cleanliness	7	No baskets	2
Quick at check-outs	7	Staff un-helpful	1
Conveniently located	6	Bag collection system	1
Quality items	4	No prices on items	1
Petrol facilities	3	Scanning system not working	1
Number of check-outs	3		
Off licence	2		
Shopper Buses	2		
Scanning at check-outs	1		
Wheelchair trolleys	1		

Source Wilson 1986

It was felt necessary, therefore, as in the RMDP surveys, to delve more directly and more deeply into scanning. Firstly, respondents were asked if they had any strong "likes or dislikes" concerning scanning specifically. Results are shown in tables 7 and 8.

Table 7

'Likes' of the Scanning System

<u>Rank</u>	<u>Facet of System</u>	<u>Percentage of shopper sample</u>
1	Speed of check-out	54
2	Itemized till receipt	36
3	Efficiency/reliability	29
4	Accuracy	8
5	Better than conventional check-outs	4
6	Easier) for operators) for management	3
	Good idea/like whole system	24

Table 8

'Dislikes' of the Scanning System

<u>Rank</u>	<u>Facet of system</u>	<u>Percentage of shopper sample</u>
1	Scanner doesn't always work	33
2	No prices marked on individual items	22
3	Distrust of accuracy	9.5
4	No quicker at check-outs	8
5	Shelf-edge labels	4
6	Price in computer may be different from shelf-edge price	0.5

Source Wilson (1986)

Checkout speed now comes to prominence as does the provision of an itemised till receipt. On the negative side, it is worthy of note that the issue of shelf-edge marking has subsided and the results seem to accord more closely with the RMDP survey of 1983 than that of 1981. In some ways it is unfortunate that the RMDP surveys were not simply a follow-up exercise. The feeling is that Havant Hypermarket has good customer loyalty and dislike of the failure to

provide individually - priced items has simply subsided with time.

In an attempt to further clarify the issue, respondents were presented with a set of questions and asked to agree or disagree with them in the manner of a semantic differential. The questions and the responses - broadly dichotomised as "agree" or "disagree" are presented in Table 9.

Table 9

Scanning-related statements	Percentages	
	agree	disagree
SCANNING speeds things up at the checkout.	88	6
SCANNING is better because you get a more detailed till receipt.	88	3
SCANNING is better because the cashier cannot ring up the wrong price.	71	6
SCANNING shelf-edge labels are clear and easy to read.	34	48
It does not matter to me that the items are no longer individually priced.	24	64
Overall, SCANNING gives a higher level of checkout service.	83	3
It is good that a store with SCANNING can carry a larger stock of goods.	63	5
It is unusual to find items that do not scan first time through.	24	66

In view of the many negative comments on scanning the questions were deliberately set so as to create a "positive" view of scanning. Despite this, customers undeniably continue to dislike the failure of some items to scan first time. Within the retail trade much attention has been paid to inadequate bar-coding and this clearly surfaces as customer dissatisfaction. Lack of individual pricing, when drawn to the attention of the consumer, surfaces as a dislike. That said, the checkout service and the itemised receipts are seen as positive aspects. Nevertheless, shelf-edge labelling - not always associated with the scanning tills - is still a source of some concern.

Conclusions

It is clear that a growing number of retailers see scanning as a beneficial process but their motives for its adoption remain mixed. On the consumer side, certain benefits are perceived but it is by no means clear that these outweigh the dislike of aspects such as shelf-edge labelling and lack of unit prices. The idea of offering free any mis-priced item might be seen as a useful ploy in this respect. When, however, customers offer their reasons for shopping at a store scanning is rarely far up the list. It would seem that stores cannot see scanning as a major plus factor from which to gain further advantage. Scanning seems unlikely to be major factor in the promotion of retail change through direct attractiveness to customers. Some stores, however, may find their overheads thus reduced and gain a more indirect benefit from EPOS.

BIBLIOGRAPHY

- Ahlin J (1985) "Scandinavian experience of scanning", Proceedings, EPOS '85. The sixth European congress on Automation in Retailing
- Bennett G (1982) "Scanning at Havant Hypermarket", Proceedings, EPOS '82. The third European congress on Automation in Retailing, London.
- Chartier P (1986) "Retail scanning - maximising the options", Retail Automation Jan/Feb 1986 pp. 9-11.
- Davies R L and Reynolds J (1986) "Technological change in retailing: the long-term implications", paper presented to Annual Conference, Institute of British Geographers, Reading.
- Dawson J A (1983) "IT and its effects on the distributive trades", University of Stirling, Department of Business Studies, Working Paper.
- Distributive Trades Economic Development Council, 1982, "Technology: The issues for the distributive trades", London. HMSO
- Dobbin A (1985) "100% scanning and the step towards item price removal", Proceedings, EPOS '85. The sixth European congress on Automation in Retailing, London.
- Fleury F (1985) "Scanning in a French Cooperative", Proceedings, EPOS '85. The sixth European congress on Automation in Retailing, London.
- Foster A (1985) "The role of EPOS - B & Q's success", Proceedings, EPOS '85. The sixth European congress on Automation in Retailing, London.
- Guy C M (1985), "Some speculations on the retailing and planning implications of "push-button shopping" in Britain, "Environment and Planning B: Planning and Design, 12, 193-208.
- Guy C (1986) "Information technology and retailing: the implications for analysis and forecasting". Paper presented to ESRC workshop on Methods of Retail Analysis and forecasting, University of Bristol, February 1986.
- Hallsworth A G (1981) "Trading Patterns of a Freestanding Hypermarket". Portsmouth Polytechnic, Department of Geography.
- Howard E B (1985) "Teleshopping in North America", Environment and Planning B: Planning and Design, 12, 141-150.
- Jones G and Walman B (1979) "The impact of mini- and microcomputers in retailing", Retail and Distribution Management, July/August, 19-23.

- Kirby D A (1982) "Retailing in the age of the chip", Service Industries Review, 2, 9-21.
- Noyere J B (1982) "Using the EAN code for capturing roles in department stores - Bazar de l'Hotel de Ville BHV", Proceedings, EPOS '82, the third European congress on Automation in retailing, London.
- Piercy N (1984) "Managing new information technology in distribution", Retail and Distribution Management, March/April pp. 69-72
- Retail and Distribution Management (1984a) "Using EPOS in a small photographic chain", Retail and Distribution Management, Jan/Feb 1984 pp. 69-72
- Retail and Distribution Management (1984b) "Victoria Wine Company completes Thorn/EMI installation", Retail and Distribution Management, 12, May/June, 33-45.
- Retail and Distribution Management (1984c) "Coop installs UK's first EFTPOS system", Retail and Distribution Management, July/August 1984 p. 60.
- Retail and Distribution Management (1985a) "Scanning - more in-store systems on the way", Retail and Distribution Management, Sept/Oct pp. 13-14.
- Retail and Distribution Management (1985b) "Compu-U-Card's home shopping service", Retail and Distribution Management, 13, Nov/Dec, p. 47.
- Retail Business (1985a) "Attitudes to technology in the retail trade", Retail Business, No. 331, 15-18.
- Retail Business, (1985b) "Distribution technology", Retail Business, No.334, 17-18.
- Retail Management Development Programme (1981) "Scanning: customers' reactions". Retail Automation, volume 1, number 1 pp. 9-12.
- Retail Management Development Programme (1983) "Scanning: customer acceptance survey". Retail Automation, volume 3, number 5 pp. 4-7.
- Rogers D (1985) "Research tools for better merchandising", Retail and Distribution Management, 13, Nov/Dec. 42-44.
- Rosenberg L J, Hirschman E C, (1980) "Retailing without stores", Harvard Business Review, 58, 103-112.
- Sawers L (1984) "Microcomputers in retailing: a case study", in Piercy N (ed.), The Management implications of new information technology, Croom Helm, Beckenham.

- Scanning Report (1985) Supermarket Scanning: the Havant Hypermarket.
Havant Hypermarket, Bedhampton.
- Soloway S (1985) "The step towards 100% scanning and the benefits achieved", Proceedings, EPOS '85. The sixth European Congress on Automation in retailing, London.
- Strauss L (1983), "Electronic Marketing: Emerging TV and Computer Channels for Interactive Home Shopping", Knowledge Industry Publications, White Plains, N.Y.
- Taylor A (1984) "The planning implications of new technology in retailing and distribution", Town Planning Review, 55, 161-176.
- Walman B (1986) "What future for electronic payment systems?", Retail and Distribution Management, Jan/Feb, pp. 6-8.
- Wilson J (1986) "Scanning at Havant hypermarket", unpublished dissertation, Portsmouth Polytechnic.
- Wilson R (1984) "Scanning at St Helen's Coop", Retail and Distribution Management, Jan/Feb 1984, pp. 31-35.