

THE BATTLE FOR THE CONSUMER'S FAVOR

Nowadays, managing a supermarket is very much like walking a tightrope. The consumer makes high demands and at the same time expects these to be met at a sharp price. It goes without saying that the store owner has to satisfy both conditions in order to win the battle for the consumer's favor. Operating successfully with such conflicting demands requires an effective and efficient use of labor. In order to ensure this, a company should have sufficient information on processes, work practices and the deployment of materials and machinery in relation to customer flows and shopping behavior.

JURJEN DE VRIES

The required data can be obtained by studying the operating processes of the store and how the workforce is organized. This is the specialty of Jurjen de Vries, a Dutch consultancy firm active in the organization and management of work. One of the problems they have tackled is waiting in line at the checkout desk in a supermarket, which scores high on the list of inconveniences to many consumers. The store manager needs to maintain an optimal balance between too many open checkouts, which means wasted labor, and too few open desks, which results in customer irritation. Most managers use visual lane monitoring to decide when to open or close checkout points. However, because this is a reaction to the observed situation, the damage has already been done: either customers are standing in line or employees are sitting idle.



Point-of-sale data. A store-specific database of historical information about number of items bought, payment methods, turnover, number of customers per day, etc.

- **Customer counts.** Using infrared detectors at the entrance, the system constantly monitors the number of customers entering the store. The system also keeps track of the number of shopping baskets and trolleys in use at a given moment, using sensors at the delivery points, and divides the customers in three types: shopping with a trolley, with a basket, or without either.
- **Duration of visit.** Over a period of weeks prior to the installation of a system, one collects information about the time spent by each type of customer between entry in the store and arrival at the checkout point and how many items are purchased. This results in data for each opening hour.
- **Checkout time.** Before installing a LineControl system, videotape recordings are made of all activities at the checkout desk. These tapes are analyzed to establish average handling times and the time a customer spends at the desk.

VIDEO TAPE ANALYSIS

To extract the benchmark figures from the video recordings, Jurjen de Vries uses a Video Tape Analysis System with The Observer software. All relevant activities and events are recorded, and the frequency and duration of each is calculated. These data provide a detailed picture of what happens at the checkout desk. Besides forming the input for the LineControl forecasts, this information also pinpoints operational bottlenecks which results in recommendations for alternative work practices, equipment or further research. Consultant Marieke van

Staalduinen explains the benefits of using The Observer: "First of all, it is immensely time-saving. In the past, we recorded all data on checksheets which then had to be transcribed into the computer. Furthermore, we can now record durations at single-frame (0.04 s) accuracy, which has resulted in better model predictions. The convenient searching through video material has also made our work more pleasant."

THIRD IN LINE? IT'S YOURS FOR FREE!

The implementation of LineControl has led to some stunning results. Not only can the system eliminate waiting lines, it also turns out to improve the interaction between employees and customers, as well as the team spirit among store personnel. This is because the system forces workers to pay more attention to customers and to help each other with urgent tasks. One Dutch supermarket chain has gained so much confidence in the LineControl system that it advertises that if customers find more than two shopping carts on any checkout line, their purchases are free! From its experience this has not happened more than twice a week. Since the installation, turnover in its various outlets has increased up to 10 percent. In the mean time, Jurjen de Vries has installed LineControl systems in the Netherlands, England, Germany and other European countries. Pilot projects in the U.S.A. are under way.

OTHER APPLICATIONS

LineControl is a good example of the use of The Observer for time and labor studies. Besides this application, Jurjen de Vries plans to use the software for several other projects, such as an analysis of time allocation by workers in a distribution center and a study on the effect of new packaging methods on shelf restocking efficiency.

CHECKOUT TIMES: *Data for full-time employees*

Description	Frequency	Time	Average
<i>Move items</i>			
Lift, scan, put item down	678	1400.00	2.06
Lift, strike, put item down	31	95.68	3.09
<i>Lift items</i>			
Lift, scan, put item down	36	79.28	2.20
<i>Put items on checkout</i>			
Lift, scan, put item down	10	37.88	3.79
Total	755	1612.84	2.14
<i>Payment, waiting, miscellaneous</i>			
Ring up subtotal	50	47.60	0.95
Wait for receipt	8	67.92	8.49
Scan and ring up packing receipt	8	33.20	4.15
Count and give saving stamps	32	91.12	2.85
Wait for money	46	516.44	11.23
Ring up total cash amount	46	99.20	2.16
Wait for change	2	17.28	8.64
Change money	45	396.12	8.80
Wait for check	2	67.20	33.60
Verify check	2	25.72	12.86
Ring up total of bank/giro	2	17.84	8.92
Wait for card	2	11.24	5.62
Ring up total PIN amount	2	22.60	11.30
Wait for receipt	2	54.72	27.36
Give receipt	46	87.44	1.90
Close drawer	50	56.48	1.13
Wait for previous customer	11	50.76	4.61
Wait for items after 'next customer bar'	1	9.80	9.80
Wait for next customer	1	3.00	3.00
Wait for items being removed	3	78.08	26.03
Look for item code/price	1	13.68	13.68
Failure during payment	1	34.92	34.92
Failure during scanning/ringing up	1	19.20	19.20
Beyond the scope of observation	12	810.44	67.54
Total	453	5857.68	12.93