SCAN newsletter

The management Newsletter for all industries involved with bar-code scanning and related technologies.

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Every January for the past 10 years....

....the staff of this Newsletter has visited the National Retail Merchants Association (NRMA) Business and Equipment Exposition at the New York Hilton. And each year, in our February issue, we have attempted to provide our readers with a reasonable perspective about what was happening in that business sector, relating particularly to front-end automation.

The NRMA is a trade organization representing department stores and mass merchandise retailers. We have kept close watch on this market segment because the original NRMA commitment to OCR-A for electronic point-of-sale check-out never made too much sense to us when it was selected in the mid 1970's. In view of the supermarket success with UPC, we have always felt certain that bar code scanning would also become the eventual method of choice for the NRMA. The organization's 1986 decision to switch to UPC -- based on the pressures exerted by many of its influential members -- bore out our analysis.

This year's show marked a major turning point in the interest levels of the exhibitors, visitors, seminar presenters and show sponsors. UPC has now risen into full view, and is accepted by almost everyone as the symbol for all retail scanning. This broad-based acceptance prompted us to go back to previous issues of SCAN to check our reports, in order to illustrate the length of time it can often take for a market to mature. Here are some selected excerpts:

Feb 1978 - "At the NRMA Convention, bar codes were almost non-existent."

Feb 1979 - "(NRMA) has not decreased its dedication to the promotion of OCR. Retailers are having their problems scanning....OCR (and)....it has been suggested that Codabar, Code 39, or some other bar code might have been a better answer."

Feb 1982 - "The separate paths taken by supermarkets and department stores toward machine-readable codes are beginning to merge. OCR scanning in department stores has not been a roaring success. The market (for bar code scanning) should open up even wider."

Feb 1985 - "The NRMA has been the last major hold-out against bar code scanning in the retail sector (but) this year UPC scanning was featured in every booth that was selling point-of-sale equipment."

Feb 1986 - "We expect the NRMA Exposition in January, 1987 to (have)...wall-to-wall bar code scanners."

Feb 1987 - "The UPC symbols were in almost every booth that had products related to check-out or merchandise marking. There should have been many more auto ID companies and products at the show."

This year, we were told by both exhibitors and visitors, UPC and bar coding were the main focus at the show. Although the supermarket experience validates the principle of bar code scanning as the best available method for retail, it must still be recognized that the department store environment presents special problems that will have to be reconciled by both the stores and the system vendors. Consider just a few of these differences:

	Supermarkets	Department Stores
Line Items/Store	Up to 15,000	Up to 1.5 million
Check-out Locations	Centralized	Scattered
Item Pricing	Fairly Stable	Volatile
Returns	None	Many
Source Marking	Mostly on Package	Mostly Hang Tags
Total Number of Vendors	Approx. 25,000	Approx. 200,000
Types of Scanners	Mostly Slot	Mostly Hand-Held
Items/Transaction	20-25	3-4

These differences are challenging the vendors to come up with products and systems designed to accommodate the special needs of the department stores, mass merchandisers and specialty shops.

Although most products at the NRMA show were not particularly innovative, there were a few of special note. Next month we will review details of products offered by a number of companies as well as some of the trends we discern in this very important marketplace.

When UPC bar code scanning....

....was first introduced in the 1970's, a number of manufacturers of nationally-branded merchandise (e.g. watches, jeans) thought this new technology might provide an answer to the problem of counterfeiting. Their idea was to print a unique machine-readable symbol on each item which would stymie the counterfeiters. It turned out, of course, that bar codes cannot be used as an identifier for this purpose because the bars and spaces are so easily duplicated by almost any printing method.

Despite this disappointment, efforts continued in search of an effective deterrent to counterfeiting. Now, York Tape & Label believes it may have found the solution in its newly designed bar coded label which utilizes the Advantage technology developed by scientists at Armstrong World Industry in Lancaster, PA. The Advantage method produces an optically variable image which reflects light to display two distinct colors: at one angle the image turns green; at a second angle, the Advantage printing becomes orange. According to Armstrong, this unique visual illusion resists duplication by printing, photography or color photocopying. The image can be seen, however, without the use of a viewing device and is easily recognized as a mark of authenticity.

York has combined this Armstrong product with its own printing capability to produce static or sequential bar codes. The bar coded label or document can now be scanned with automatic identification equipment and, at the same time, fraudulent reproduction can be detected by simple visual inspection.

According to York, applications include: documents (such as financial negotiables, vehicle documents, warranty cards, legal papers); equipment (fixed assets, office equipment, electronics, auto parts); and consumables (video cassettes, jewelry, compact discs, pharmaceuticals, fine arts). So far, the company has not had any success selling these special labels. According to a company spokeswoman, the marketing department has approached the government, and the automotive and pharmaceutical industries, and "the concept is currently under consideration by a number of potential customers."

Another new product from York is their UHT-650, a Kapton base, laminated, ultra-high-temperature-resistant bar code label, which has been specially fabricated for printed circuit board identification. The UHT-650 pressure sensitive labels are pre-printed, sequentially numbered, and, according to the company, they are resistant to both the high temperatures (550 degrees Fahrenheit), and the exposure to chemicals and wave solder that are normally encountered in board underside labeling.

York Tape & Label Company, Box 1309, York, PA 17405; 717/846-4840.

Bar coding is rapidly....

....growing into the hottest "crime-stopper" around these days. Not only is scanning a deterrent to counterfeiting (see the York article above), now it is also being considered as a method to stop shoplifting.

Using technology developed by Check Point Systems Inc. (Thorofare, NJ), Spectra Physics and Symbol Technologies may soon develop laser scanners that will read bar codes at the checkout counters, and simultaneously deactivate an anti-shoplifting electronic signal built into the printed bar coded label. Spectra Physics will incorporate this new Check-Point technology into its slot scanners; Symbol Technologies is developing a similar approach using hand-held laser guns.

The major attraction of this method is the elimination of the currently used electronic article surveillance devices -- the so-called alligator clips -- which are expensive to buy, costly to apply to merchandise, and time consuming to remove at time of sale. With this new method, the electronic surveillance is built into the bar code label and is automatically deactivated when scanned. The markets that have been specifically targeted as potential users of this new method are department stores, apparel specialty shops, discounters and drug chains. There is no immediate word as to when these devices will be ready for shipment to the retailers.

There seems to be....

....a more focused attitude and sense of direction at Computer Identics (C/I) these days. When Frank Wezniak took over as President/CEO last year (SCAN Mar 87, June 87), the company was struggling to emerge from a very difficult period.

In the early 1980's, C/I had been very successful in raising large amounts of money from venture capital sources, a public offering, funded research grants, and a partnership with N.V. Bekaert (Belgium). Then, in 1985-86, the company experienced a series of reverses that set it back and provoked an internal struggle for control of management. When the investors won out, there was a major shake-up at the executive level, with Wezniak brought in to try to put the company back on track.

We recently spent some time with Wezniak at C/I's modern headquarters and manufacturing facility in Canton, MA, where 130 employees turn out the company's line of scanning products -- hardware and software for industrial systems. Wezniak described the effort he has devoted this past year to clarifying, restructuring and streamlining Computer Identics' organization and mission.

- The company has defined three categories of potential customers:

  1. Those companies with an in-house systems group, whose needs are only for off-the-shelf hardware and software.
  2. Others with limited in-house systems capability, who can handle simple design requirements.
  3. Firms who need full system support to apply bar code scanning to their application.

- C/I has targeted two major market areas: factory floor, production-oriented, PC-based applications; and material handling, warehousing, shipping, distribution systems. The marketing philosophy and staff, as well as the product line, are concentrated on these industrial sectors.

- C/I Systems has been split off as a separate profit center. Headed by Ted Williams (engineering) and Frank Goodfinger (marketing and sales), this division's role is to take on any client projects which are defined as "custom systems;" i.e., more than 25% of the total purchase cost is for non-standard hardware/software components. Although, C/I Systems is theoretically free to integrate components from any source, indications are that Computer Identics products are emphasized. According to Wezniak, it is still too early to evaluate the success of the C/I Systems operation.

- Computer Identics will concentrate on the bread-and-butter, off-the-shelf, scanning hardware, software and peripheral components that had been the company's strength. C/I is now devoting much of its energies toward developing standard software packages for particular industries and applications.

- Internal cost reductions, including paring down of overhead and cleaning up the company's balance sheet (by taking all the necessary write-downs), have been accomplished.

According to Wezniak, "Computer Identics had a strong and profitable fourth quarter in 1987, and our goals for new orders and shipments are being met." Although he would not forecast 1988 results, he did expect a "profitable first quarter." "We will meet the general industry goal of a 30% increase in sales on a profitable basis," he predicted. Overseas sales are expected to contribute about 25% of the company's revenues and profits.

The overall impression of Computer Identics is of a company that has graduated from its start-up and development phases to a period of hard-nosed professional management. Although attention will still be devoted to the development of new products for this growing technology, the emphasis at C/I these days seems to be concentrated on using their available products and talent to establish a solid and profitable track record.

In what a few industry pundits....

....have characterized as the "dismemberment of the company," RJS Inc. has evolved into a different organization from what it was a year ago. When the current management group, headed by President Tee Migliori, completed its leveraged buy-out (LBO) from Illinois Tool Works in early 1987, RJS was a manufacturer and marketer of printers, verification devices and film masters.

In order to help pay down the debt incurred as a result of the LBO, the company sold all of the patents, technology, product and sales rights for their Thermabar Printer to Tohuku Ricoh last Fall (SCAN Oct 87). Ricoh was to move all manufacturing to Japan; RJS retained marketing rights for the product in North America and Europe. Terms were not disclosed.

In its latest move, RJS has sold its entire film master operation -- production and marketing -- to Stork Graphics Inc. (a division of Stork Screens of Holland). Stork has been connected with this product for a number of years as the exclusive distributor of the RJS film master generator throughout the world (except North America and the UK).

"The new RJS," according to VP Richard Mahmarian, "will remain in the bar code scanning field as a stronger company." Its product line will now comprise three bar code verifier models (Codascan, Autoscan and Inspector), which it will continue to manufacture; and Ricoh's thermal printers and other scanning hardware, which it will distribute for that Japanese company. RJS will now have 5 full-time salesmen supporting a network of indirect sales organizations. Mahmarian categorizes the current company as a "lean and mean machine." We are "expecting large orders for the Thermabar printers and anticipate a dramatic turnaround in sales and earnings," he added.

The company will not discuss any specifics about new products, marketing plans or sales forecasts. Neither would Mahmarian say whether the sale of the two product divisions has generated enough cash to satisfy the LBO debt -- but rumors suggest that it's probably close. He explained that management will have a firmer grasp on where the company is headed when they complete their Three Year Strategy Plan, currently being developed.

Unlike the health industry in the United States....

....the hospitals, drug manufacturers and pharmacies in the United Kingdom have agreed to use the EAN code and symbol for all products. By April of this year, all vendors are to have code numbers assigned to their health related products and to have them registered with the appropriate national agency. (The system permits UPC or EAN, thus assuring international compatibility, since many drug products used in the UK come from the US and other European countries.)

The move to EAN bar coding has been strongly favored by the UK drug manufacturers. They see it as a single common standard for all customers, be they independent drug stores, large chains or the hospital service. With that solid support, the nationalized health service moved ahead to set an early date (April 1988) to register all numbers, in anticipation of product bar coding.

The drug manufacturers have also backed a major program for "original pack dispensing" (aka unit-dose packaging), which enables unique codes to be applied to each dosage. The new system will support scanning operations for the many drugs which are prescribed and dispensed in hospitals.

Another link in the development of hospital automation has been electronic data interchange (EDI), which is considered a vital element for future hospital systems. The move to register the EAN code numbers is the first step to bar coding, and also to EDI. A system based on the EAN code and symbol will insure consistency and accuracy in the information entered on each order and also in the electronic transmission of those same orders. It is estimated that by saving the equivalent of just a few days' inventory, hospitals and vendors will cut their costs by millions of pounds.

The UK decision to go with the UPC/EAN system should have an impact at all levels of pharmaceutical distribution throughout the world, including an upsurge in source-marking, the growth of retail and health authority scanning, and the implementation of EDI systems.

We have received updated information....

....on the SCAN TECH/Japan and Europe shows to flesh out last month's report (SCAN Jan 88).

The SCAN TECH/Japan show in Tokyo last November was sponsored by AIM/Japan and was supported by the powerful Ministry of International Trade and Industry (MITI). It was held in conjunction with the IC and Laser Card Exhibition. Of the total 21,000 visitors attending both shows, 8,000 had registered specifically for SCAN TECH -- to visit the booths of 51 exhibitors and attend the seminars.

The opening address was delivered by Mr. Takashi Nakagami, Chairman of AIM Japan, who welcomed the visitors and projected a future trend that promises an "accelerated increase" in the use of bar code scanning in retail and industrial applications. At one of the key seminars, Kyosuke Asano, Executive Director of the Distribution Code Center (the Japanese EAN affiliate organization) spoke on the "trend of systematizing the material distribution in view of bar codes."

One exhibit that drew special attention was Dai Tech Inc. which introduced a bar coding scheme capable of handling Kanji (Japanese characters) for the first time. Since the scanning unit can read out the bar codes, expressed directly in Kanji, a system is said to be possible without a master file or code conversion table.

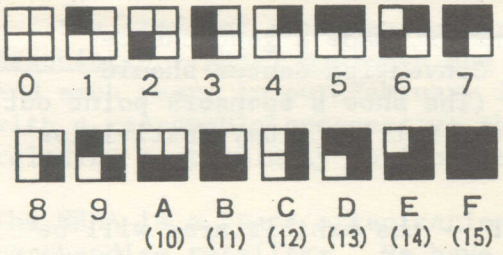
In Europe, the original schedule, that called for SCAN TECH/Europe 88 to be held in Brussels in November, has been revised. AIM/Europe, the show's sponsor, was so pleased with the results at Dusseldorf last year (SCAN Jan 88), that the 1988 show has been re-scheduled for that same city. Although all of the speakers on the advanced bar coding session in Dusseldorf were European, we

want to point out that there were others who traveled halfway around the world to make presentations. These notables included Shizuo Kawanami, Shingi Ohki and Masami Tawara from Japan; and Richard Meyers, Dave Czaplicki, Richard Bravman, Malcolm Bibby and Lt. Col. James Severson from the US.

A correction on the dates for SCAN TECH/UK should also be noted: it is now scheduled to take place on June 21-23 in Birmingham.

The European debut....

....of the Calra Code was made at SCAN TECH/Europe this past December. Invented two years ago by Makoto Tomioka, founder of Calra Systems Ltd. of Japan, this unique Code is based on a square block subdivided into 4 square segments. By printing a segment, or leaving it blank, 16 arrangements (0-9 and A-F) are possible. (See illustration.)



The story behind the Calra Code goes something like this: Tomioka, who ran a print shop in Tokyo, reportedly had difficulty printing bar codes and was tired of his customers' complaints that his symbols did not scan. According to the Calra Systems chronicle, "This motivated Mr. Tomioka to invent a new code system that required much less accuracy and cost in printing than the bar code."

As described by the company, by employing the binary equivalents (1,2,4,8), the Calra block can encode binary information from 0000 to 1111. Greater encoding power results when two blocks are combined, providing a hexadecimal equivalent. By direct encodation at the hexadecimal level, a 5-double-block Calra Code can allow one trillion different combinations. The minimum block size is 1.2 mm. (.048").

The inventor envisions encoding a full set of the 60,000 Chinese characters used in the Japanese language, and affixing a Calra Code to each character in a dictionary to be hand-scanned for data input to a word processing system. *[See the above report on the Dai Tech approach to the same challenge, using standard bar code technology.]* According to Tomioka, the Calra block structure lends itself to scanning with CCD devices and other raster scanning techniques.

The presentation of the Calra Code at SCAN TECH/Europe marked the worldwide launch of the concept. Patent applications, filed by Tomioka in 16 countries, have since been assigned to Calra Systems Limited. The company's capitalization appears low at 40 million yen ($270,000), but it is anticipated that stock will be issued later this year at about 3 times that value.

Shizuo Kawanami, Vice President Operations, told us that the company is receiving outside corporate and financial backing. He indicated that Mitsubishi and NEC have been signed on for co-development and also for distribution in Japan, Europe and the United States. Other large corporate partners, according to Kawanami, will be announced in the near future.

Calra Systems Limited, Kanda Ogawacho 1-8, Owariya Building, Chiyodaku, Tokyo 101 Japan; telephone 03/258-4181.

The next big US conference....

....dedicated to automatic identification, is ID Expo, scheduled for April 20-22, 1988 in Boston. Because this will be the first national auto ID exposition to be held in the Northeast, it is expected to draw a large crowd of "virgin visitors."

> [Interestingly, of the sites selected for the 9 SCAN-TECH and ID Expo shows since 1982, only 2 (Baltimore and Cincinnati) have been east of the Mississippi -- while 4 of the other 7 have been in California. This show may offer an opportunity to tap new regional markets.]

We think that ID Systems Magazine, the show sponsors, made a good choice. Boston is a great town, and the remodeled Hynes Convention Center should provide good exhibitor and visitor facilities. (The show's sponsors point out that those who arrive early can participate in the Patriot's Day festivities and Boston Marathon on April 18.)

This will be the largest of the ID Expo's so far -- the exhibit area will be three times the size of last year, and over 150 companies have reserved space. The seminar program includes more than 50 sessions over the three-day period: Day 1 focuses on technology; Day 2 on applications; and Day 3 on special topics. As with their previous two shows, ID Expo will cover all of the automatic identification technologies, including bar coding, RF, voice, OCR, smart card and touch screen/light pens.

Expocon Management Associates, 3695 Post Road, Southport, CT 06490; 203/259-5734.

You can now obtain your copy....

....of the long-awaited revised UPC Shipping Container Code and Symbol (SCS) Specification Manual (SCAN May 87).

The major change in the specification is the renaming and expanded use of the first digit of the 14-digit interleaved 2/5 code and symbol. It is now called the Packaging Indicator (PI). The PI can take the value of "0" if the SCS item number is different from the UPC in the package; or the values of "1" through "7" to designate various packaging levels.

This new PI concept has already been embraced by the office products industry, and there are strong indications that it will be widely used by others. The Manual costs $30 and can be obtained from the Uniform Code Council, 8163 Old Yankee Road, Dayton, OH 45459; 513/435-3870.

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