Volume X Number 1                                                    September 1986

We had been aware....

....of the significant growth of automatic identification in Japan during the past few years, but we have been unable to obtain too many details. Now, thanks to the cooperation of Mr. K. Asano, Executive Director, and Ms. H. Sekikawa, Chief Researcher of the Distribution Code Center (DCC), we have much more information.

DCC is the Japanese EAN affiliate. It operates under the guidance of the Ministry of International Trade and Industry -- better known as MITI -- which is responsible for many Japanese high tech developments. With this pedigree, the DCC has considerable influence with bar coding, OCR, credit cards, electronic communications and equipment development.

- The rapid growth of EAN and OCR in Japan follows a structured and well-defined pattern similar to other major developments in that country. For example, DCC had identified and projected periods of time during which the technology would develop: 1976-79 for the preparation and experimental period; 1980-82 the introduction period; 1983-84 the diffusion period; 1985-onwards for the development period. Although these periods were defined many years in advance, the growth of DCC membership paralleled the predictions. By March, 1982 the DCC had only 217 members. As of August, 1986 the total had grown to 22,000, and the current growth rate is anticipated at 8,000 per year.

- There is no tradition of conflict between OCR and EAN bar coding in Japan, since both are controlled by the DCC. Japanese Industrial Standards (JIS) were published for EAN bar coding in 1978, and for OCR-B coding in 1980. (Note that Japan opted for OCR-B and not OCR-A). There are now over 6,000 EAN scanning stores and 5,000 OCR scanning stores in Japan.

- Products were classified as "food and grocery," for which EAN bar codes were nominated; or "clothing" (including electrical appliances, books, magazines, records, toys, sports goods and other general merchandise) for which OCR-B was designated.

- As source marking increased, however, it became obvious to the DCC that a dual standard was necessary. It is easier to apply EAN bar codes to general merchandise than was originally thought possible, and many products

are now being sold in both scanning environments. A dual system, incorporating the EAN bar code and corresponding OCR-B encoded characters, was therefore set forth by DCC.

- In one interesting application, EAN bar coded customer identity cards (called "Z" cards) are being used by the Zennishoka Voluntary Chain of 100 food stores. Z Card has been treated as if it were a member of DCC and was issued a separate "manufacturer's code." Each customer was then assigned an "item code." At the end of each sales transaction, the Z Card is scanned by the retail store. The Zennishoka chain maintains a detailed customer data base which is used to target sales promotions and for direct marketing programs.

- The DCC is also responsible for the credit card standard. As yet only magnetic and OCR-B scanning have been incorporated, but the DCC is studying how it can adapt the EAN bar code for general credit cards.

The organization publishes a great deal of information for its members in the form of bulletins, newsletters and special reports. We will continue to monitor this information, to maintain close contact with DCC, and to watch for developments in bar code scanning in non-retail sectors in that country.

## The August 5 press conference....

....was probably necessary, but it did seem anti-climatic -- probably because we had been following the story so closely over the past few months (SCAN July 86, Feb 86). The National Retail Merchants Association (NRMA) elected to make a formal announcement of the loud and clear decision reached by its Board of Directors on June 11, 1986 that it endorsed UPC "as the preferable voluntary standard for the general merchandise industry."

The NRMA staff, which had been adamantly supporting OCR-A for 13 years, obviously does not want the change to be too sudden or dramatic. Some retailers had bought OCR-A equipment, based on NRMA recommendations, and they couldn't be left high and dry overnight. The compromise that was engineered and announced to the press changed the unequivocal position of the Board, and included a limited dual standard: for those who "have not yet adopted a source marking technology" UPC was endorsed; for those vendors "who have adopted OCR-A/UVM, the NRMA endorses a transition period of dual vendor source marking embodying both UPC and OCR-A to be followed by the emergence of UPC only, at an appropriate time when industry conditions warrant."

*COMMENT*

*It was a difficult press conference to sit through quietly. The statement that was made that the changes in technology over the last few years now make UPC suitable for the NRMA retailers just doesn't hold up. The gratuitous remark by one of the NRMA vice presidents that retailers can adopt UPC now that consumer resistance has abated was sheer nonsense. The backing and filling explanations as to why OCR-A failed were unconvincing. The reluctance to reveal the number of stores that adopted OCR was embarrassing.*

*But we did sit quietly and made no comment at the meeting -- and anyone that knows us knows how difficult that must have been.*

<u>One</u> <u>of</u> <u>the</u> <u>key</u> <u>players</u>....

....in any discussion about non-supermarket retail automation systems has to
be the largest retailer of them all. <u>Sears</u> <u>Roebuck</u> <u>&</u> <u>Company</u> made a commitment
in the mid-1970's to OCR-A. After the expenditure of tens of millions of
dollars for equipment and installation (over 20,000 readers were purchased), the
system lies mostly unused. If the Sears move to OCR had been successful, the
entire retail automation scene may have been different.

Sears is unique. It employs the largest price-look-up (PLU) system of any
retailer in the world. Its systems are based on an established internal alpha-
numeric product numbering structure. A very large percentage (over 70% and
growing) of their merchandise is private label.

During the recent development at <u>NRMA</u> and the ad hoc <u>Crafted</u> <u>With</u> <u>Pride</u> <u>in</u> <u>the</u>
<u>USA</u> meetings (SCAN July 86), Sears sat on the sidelines as an interested
observer. The company did not sign any of the statements endorsing UPC, and has
taken no public position.

We called Lyle Heidemann (National Manager of Merchandise Systems) at the
Sears Tower in Chicago for an updated reading. We had a frank discussion of the
direction the company may take. His unequivocal statement "We support bar
coding" was offered without hestitation. The company has not decided how they
can support UPC, because of their current numbering system and PLU files, and
feels that for them, going to UPC (version A) means starting back at square one.

Obviously, Sears is not going to rush into a new technology without exhaustive-
ly studying the alternatives. Based on these factors, some industry watchers
from outside the company think Sears will have to go Code 39, and that it will
happen soon. The impact of their decision, whatever it is, will be significant.

<u>In</u> <u>yet</u> <u>another</u>....

....of their market studies, this one titled "Non-Keyboard Entry,"
<u>International</u> <u>Resource</u> <u>Development</u> <u>(IRD)</u> has undertaken a review of all of the
technology options available. The study includes current market analyses and 10
year forecasts on: graphics data entry devices; the mouse market; POS
terminals, ATM's, and mag stripe and smart cards; optical character recognition
and page scanners; machine vision and vision and image data entry; touch
screens, joysticks and miscellaneous devices; voice recognition; bar code data
entry systems. Quoting from the Executive Summary:

> "The punch card (invented by Hollerith in the 1870's) helped solve what has
> since become an essential problem for each succeeding generation of com-
> putational devices: the data entry bottleneck....The development of the
> digital computer made the input bottleneck far worse than anyone thought
> it could become....(and its) ever-increasing power, speed and capacity....
> outstripped the ability of people using electro-mechanical devices to
> enter information....The theme of this report is this: microcomputer
> technology will continue throughout the next decade to make possible very
> inexpensive, increasing intelligent and more powerful non-keyboard entry
> devices....At present, leading non-keyboard technologies are bar coding
> and OCR. Bar coding has done very well during the 1980's because it is a
> simple, easy to understand, convenient technology for which large groups
> of powerful industries have set standards....At present the market for
> non-keyboard entry devices is a healthy $2.15 billion. Although growth

rates for various segments will fluctuate during the next decade....the overall market will grow steadily. It may reach $4.6 billion during 1995."

*COMMENT*

*We have reported on previous IRD studies, some of which isolated and emphasized bar code scanning to a greater degree. The information they contain is often interesting and useful -- but the 10 year forecasts are somewhat dangerous. We've tracked a number of them over the last few years and they wind up being inaccurate and even contradictory when we compared different reports published by IRD themselves. The danger is that the statistical information is picked up in the press, by financial analysts and others and soon becomes folklore -- quoted as if it were established and proven fact rather than informed guesses, at best.*

The study costs $2,100 from IRD, 6 Prowitt Street, Norwalk, CT 06855; 203/866-7800.


A somewhat different approach....

....is taken by another organization specializing in management/industry reports. Find/SVP has published their version of The Bar Code Systems Industry.

This report comprises a compendium of facts from many sources and includes a well-rounded history of the technology with comparisons with other automatic ID methods. It makes an attempt at estimating the size of the current and future markets, but hedges the estimates to an extent that makes them almost unusable: "The quantification of anticipated growth is difficult as there is no good base from which to project, and the directions and types of growth are broad and relatively unspecified. The market in 1985 is a subject of conjecture and is thought to be somewhere between $600 and $700 million. Growth is guessed to be anywhere from about 20%/year to 50%/year. It is most likely at the lower end."

Unlike most studies of this type, the material delves deeply into the technology itself with sections on detailed discussions of symbologies, equipment, various industry standard applications and a broad survey of users options. It winds up almost as a textbook primer on bar coding, with the final chapter devoted to brief overviews of some "typical companies" in the industry: Computer Identics, Gulton, H-P, Intermec, Moore, NCR, Symbol Technologies and Telxon.

*COMMENT*

*Although the report is wide ranging and covers just about all areas, it tends to be non-specific: it offers alternatives, but makes no recommendations; refers to what "some" retailers may be doing without naming or quantifying them; sidesteps being pinned down to forecasts by poor-mouthing the current base data and applying a useless range of growth rates.*

Your copy will cost $985 from Find/SVP, 500 Fifth Avenue, New York, NY 10110, 212/354-2424.

In a continued....

....erosion of sales and profits, Computer Identics reported its third straight quarter of lower revenues and increased losses.

| COMPUTER IDENTICS | 3 months ended 6/30 | | 6 months ended 6/30 | |
|---|---|---|---|---|
| | 1986 | 1985 | 1986 | 1985 |
| Revenues ($000) | $2,116 | $3,673 | $4,094 | $6,319 |
| Net Income (Loss) ($000) | (829) | 249 | (1,379) | 371 |
| Net Income (Loss)/Share | *(.16) | .05 | *(.27) | .08 |

* (Our estimate -- C/I does not publish loss per share figures.)

This performance is "disappointing" says President David Collins, who cites
the reasons as "the consequence of the decision made in the third quarter 1985
to sell to the industrial market through a direct sales staff and to seek a
large U.S. Army contract for a portable bar code system." (An interesting
sidelight: Collins has told us that the bid preparation costs for this contract
exceeded $1 million. The award has not yet been made, although the Army had
predicted a decision months ago. The other bidders were Martin-Marietta,
Sperry, IBIS and Syscom.)

He goes on to cite his positive outlook for the balance of this year and
beyond: there is already a dramatic increase in the new order rate; orders are
being filled for the laser gun product acquired from Spectra Physics, which C/I
is now producing in-house; the broadening of distribution in western Europe
through the establishment of Computer Identics S.A. in France.

Collins told us that although the company will not show a net profit for 1986,
he does expect to be in the black for the fourth quarter -- with or without
the government contract. He expects the transition period of switching from
distributors to a direct sales force to be completed this year, and for
significant improvement in next year's sales and earnings. "Our plan is to
become a world leader in bar code scanning -- among the top 2 or 3 companies in
this industry."

## Continuing with its improved....

....performance, MSI Data finally seems like a company that has reawakened and
is moving ahead purposefully. The latest financial data is but one indication
of this improvement:

| MSI DATA | 3 months ended 6/30 | |
|---|---|---|
| | 1986 | 1985 |
| Revenues ($000) | $15,442 | $13,767 |
| Net Income (Loss) ($000) | 191 | (377) |
| Net Income (Loss)/Share | .07 | (.15) |

The company also reports on a number of current programs underway: new
relationships with end users, OEM's, VAR's and suppliers; a new agreement with
Motorola to purchase their radio frequency products to be used in conjunction
with MSI's portable data collection devices; a letter of intent with a major OEM
serving the factory floor data collection marketplace; five major customers in
various stages of pilot tests of new products.

According to Charles Strauch, President and CEO, "We are very pleased with the
overall progress of our repositioning program and the significant improvement of
our financial results. This is a direct result of our cost reduction efforts
and improved pricing. We are fortunate that our market is growing and that we
have a line of new products which has excellent market appeal."

Continuing its program....

....in what Chairman John Blackert characterizes as "a significant step in Photographic Sciences becoming a major factor in the bar code scanning market," the company has completed its acquisition of Optel Bar Code Systems (SCAN June 86). Optel is a producer of laser diode scanners; Photographic Sciences supplies film masters and bar code verification equipment for the bar code market, as well as other products for other markets.

The company has been pursuing and implementing acquisitions over the past couple of years in both bar coding and other product areas. It just raised $2.4 million in venture capital and opened up a new bank credit line of $1.7 million to finance acquisitions, new production equipment and working capital.

We received the....

....fiscal year 1986 (ended June 30) financials from Symbol Technologies just as we were closing this issue. The results were so favorable we decided to squeeze them in. The company's sales are up by two-thirds and earnings more than quadrupled over their previous year.

| SYMBOL TECHNOLOGIES | 3 months ended 6/30 | | Fiscal Year ended 6/30 | |
|---|---|---|---|---|
| | 1986 | 1985 | 1986 | 1985 |
| Revenues ($000) | $7,312 | $4,058 | $23,177 | $13,927 |
| Net Income ($000) | 1,011 | 251 | 2,361 | 518 |
| Net Income/Share | .17 | .05 | .43 | .12 |

The U.S. Department of Defense....

....is proposing revisions to its MIL-STD 1189A (better known as LOGMARS) and a first draft is out for review and comment. (Replies were requested by August 29 for this August 1 draft but since additional drafts will be forth-coming, it is not too late to request your copy and add your suggestions.)

One major change proposed for this specification involves ultra-high density code 39's of up to 15.5 characters per inch for special applications. This brings the nominal width of the narrow bar ("X") down to .0044" with a bar height of .0625". The smallest bar code, therefore, comes out to be about 1" x 1/16" overall. These ultra-high densities are to be used only for closed-loop applications where direct marking is required on the material rather than the package. Other changes to the standard are contained in the expanded Article 6 "Notes of Importance."

Direct your comments in writing or by phone to Stuart Crouse, AMCPSCC, Attn: SDSTO-TA (Crouse), Tobyhanna, PA 18466-5097; 717/894-7146.

The growth of retail scanning....

....in France has been rapid -- and has taken a few strange turns. The number of scanning stores has doubled to 1,319 in the twelve months ended June 1986. These stores run the gamut from the largest hypermarkets to the smallest cash and carry convenience-type outlets. Over 10% of the stores specialize in general merchandise. The four leading eqipment vendors and their market share

in France are: Hugin-Sweda (29%); NCR (25%); TEC (16%); IBM (13%).

Because of the wide range of store sizes and formats, all of the available scanner types are in use: flatbed slots, wands, hand-held lasers and CCD's (charged coupled devices). This changing mixture of scanning devices has had its impact on two aspects of source-marking. First, the early preponderance of light pens brought with it little resistance to truncated symbols, which are problems for omnidirectional slot scanners. Second, retailers using CCD scanners are finding that their limited size capability makes it impossible to scan some of the larger symbols.

Gencod -- the French EAN affiliate -- has stood by the EAN specification, pointing out that truncation is undesirable, that all symbols between 80% and 200% are acceptable, and warning retailers to be aware of the limitations of the some of the CCD scanners.

## The recent announcement....

....in the UK that Datachecker/DTS had been awarded the contract for scanning installations in all 860 branches of W. H. Smith stores highlights the level of commitment to EAN scanning by European general merchandise retailers. W. H. Smith is the leading UK retailer of books, magazines, records, stationery and greeting cards. They now have 29 scanning stores with an additional 26 to go live this year. The remaining 800 store installations will be spread over the next three years.

Smith's EPoS set-up is typical of the complex nature of European chain store scanning. The savings at the checkout do not cover the capital investment. The majority of the benefits come from the use of the sales information. For Smith to achieve this, they required fairly sophisticated store software, with price look-up for 100,000 products in the largest stores. In addition, one of Europe's largest retail-based communications networks will link the stores to a major new headquarters computer system. According to Martin Cutler, Divisional Director Management Services, "The store system provides comprehensive stock control features as well as automatic order generation and the processing of goods received; daily links exist with a central data base."

## Many UK companies use....

....generic packaging for outer cases; i.e., a single carton or box common to many different products. This reduces the cost of materials and simplifies scheduling and stock holding of packaging. But there is a snag: bar coding, based on the contents, must be applied in-plant at the time of packaging. Because shrink-wrapped trays of products are common in the UK, the ANA (the UK/EAN affiliate) set up a research project to investigate printing ITF-14 (the interleaved 2/5 outer case symbology) onto polyethylene shrink film using ink jet print technology.

We have read the report of the long investigations and were impressed by the thoroughness of the three levels of practical research: pilot study, laboratory study, and production environment studies. The report goes into some detail and concludes that ink jet can be used for outer case bar coding. Based on this report, some modifications are being proposed to the EAN review panel on outer cases.

## We had been aware....

....of the significant growth of automatic identification in Japan during the past few years, but we have been unable to obtain too many details. Now, thanks to the cooperation of Mr. K. Asano, Executive Director, and Ms. H. Sekikawa, Chief Researcher of the Distribution Code Center (DCC), we have much more information.

DCC is the Japanese EAN affiliate. It operates under the guidance of the Ministry of International Trade and Industry -- better known as MITI -- which is responsible for many Japanese high tech developments. With this pedigree, the DCC has considerable influence with bar coding, OCR, credit cards, electronic communications and equipment development.

- The rapid growth of EAN and OCR in Japan follows a structured and well-defined pattern similar to other major developments in that country. For example, DCC had identified and projected periods of time during which the technology would develop: 1976-79 for the preparation and experimental period; 1980-82 the introduction period; 1983-84 the diffusion period; 1985-onwards for the development period. Although these periods were defined many years in advance, the growth of DCC membership paralleled the predictions. By March, 1982 the DCC had only 217 members. As of August, 1986 the total had grown to 22,000, and the current growth rate is anticipated at 8,000 per year.

- There is no tradition of conflict between OCR and EAN bar coding in Japan, since both are controlled by the DCC. Japanese Industrial Standards (JIS) were published for EAN bar coding in 1978, and for OCR-B coding in 1980. (Note that Japan opted for OCR-B and not OCR-A). There are now over 6,000 EAN scanning stores and 5,000 OCR scanning stores in Japan.

- Products were classified as "food and grocery," for which EAN bar codes were nominated; or "clothing" (including electrical appliances, books, magazines, records, toys, sports goods and other general merchandise) for which OCR-B was designated.

- As source marking increased, however, it became obvious to the DCC that a dual standard was necessary. It is easier to apply EAN bar codes to general merchandise than was originally thought possible, and many products