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If the buzz-words at last year's....

....SCAN-TECH 87 were "portable data collection terminals," "two dimensional symbologies," and "systems integrators" (SCAN Nov 87) -- then this year's hot buttons in Chicago, on November 1-3, were "corporate mergers," "Quick Response" and "alternative auto ID technologies."

SCAN-TECH 88 just oozed success and prosperity: Attendance was dramatically up (final figures exceeded 10,000 versus last year's 7,200); exhibit booths were larger and more elaborate; "power" breakfasts and hospitality suites were buzzing with new corporate deals. (Symbol Technologies went all out with a special Ray Charles concert to which they invited everyone at the conference.)

For the most part, however, there was little to be seen in the way of break-through technological developments. There were many product improvements, new systems applications and a general feeling of industry maturity. The exhibitors seemed to be concentrating on what the visitors needed -- and the visitors were much more focused on specific applications requirements.

We'll elaborate on those "hot button" topics we referred to above to see if we can provide an overview and a flavor of what went on at SCAN-TECH 88.

SCAN-TECH 88

The corporate merger talk, of course, centered around the successful Symbol Technologies' acquisition of MSI Data (SCAN Oct 88), and Telxon's withdrawal from the bidding. After our meetings with executives of all three companies, including a long chat with Telxon's President Ray Meyo, it's tempting to conclude, as someone commented: "There were no losers -- Symbol, MSI and Telxon can all claim victory and look forward to a stronger future."

Although Telxon was beaten in its bid to acquire MSI, Meyo put a positive light on the outcome: "If it couldn't be us," he stated, "then the next best candidate, as far as we are concerned, was Symbol! I was especially concerned," Meyo explained, "that MSI Data might be purchased by a Japanese company, with very deep pockets, who could finance a major MSI expansion."

The unusual three-cornered agreement that followed the Symbol/MSI merger turned out to be fairly complex, but the net result, after we cut through all of the legal jargon, looks like this:

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1. MSI and Telxon dropped their lawsuits against one another (depriving their lawyers of millions of dollars in potential legal fees).

2. Telxon will prepay Symbol a net amount of $5 million for a five-year license under MSI's patents. According to Meyo's reckoning, this comes out to about 1% of the sale of the patent-related products that Telxon expects to sell during that period.

3. Telxon agreed to purchase, on a non-exclusive basis, $40 million worth of Symbol and MSI products over the next five years -- starting at $4 million next year and increasing, in $2 million increments, each year thereafter. (As a point of reference, Telxon bought about $3 million worth of hand-held laser scanners from Symbol during the current fiscal year).

Actually, it's much too early for anyone to be able to choose any winners or losers. If, as Meyo predicts, Telxon meets his 1989 goal of $150 million in profitable sales, and goes on to reach $500 million in annual revenues at the end of five years, then his company cannot be viewed as anything but a winner.

Symbol and MSI recognize that they have a critical year ahead of them. They must successfully consummate the marriage, which they hope will energize them to grow at an even faster rate than before. According to Rich Bravman, Symbol's VP Marketing, integration is planned in four steps: First, the "cross-education" of the staffs of both companies to familiarize them with each other's products; then the consolidation of some field sales and service facilities; this will be followed by the integration of new product development and R&D efforts; and finally, a realignment of management units and personnel.

[The Symbol tender offer expired on November 2, at which time over 87% of the stock of MSI had been tendered at $23/share, and that acquisition became a fait accompli. The ink was hardly dry on that deal when Symbol and MSI announced the acquisition of Vectran Corp., a 13-year old, privately held, Pittsburgh-based supplier of RF mobile data radio terminals and industrial control equipment. The price was 246,000 shares of Symbol common stock (about $4 million). MSI had negotiated the acquisition of Vectran prior to its merger with Symbol.]

While we're on the subject of mergers and acquisitions, a "Leveraged Buyout" (LBO) was announced at SCAN-TECH 88. Norand, the Cedar Rapids-based auto ID company, which was a wholly owned subsidiary of publicly-held Pioneer Hi-Bred International, separated from its parent company and took itself "private" with the help of an investor group led by Donaldson, Lufkin & Jenrette.

In addition to the venture capitalists (and Pioneer Hi-Bred, which retained a portion of the equity of the new company), the new owners will include members of the Norand management team: Robert Koenig, VP Manufacturing; Tom Miller, VP Marketing; and Robert Warn, VP Sales. Arnold Sunde, who had been President and CEO of the company, will retire, after a short transition period, and will be replaced by Robert Hammer, whose most recent position was with Celanese Corp.

Norand's core products are portable data collection systems and handheld radio terminals for route accounting, inventory management and warehouse data management. For its last fiscal year (ended 8/31/88), sales were $68.8 million with net profit before taxes of $10.1 million. According to Miller: "We see our future growth in bar code scanning and RF applications and expect to significantly increase our international operations."

SCAN-TECH 88

The recent retail automation explosion -- as evidenced by the Quick Response (QR) concept -- was our next major focal point at SCAN-TECH 88. QR is based on the use of bar code scanning and electronic data interchange (EDI). Its intent is to establish closer communication links between the manufacturers and retailers in order to sharply reduce the turnaround time between the sale of merchandise to the consumer and its replenishment on the retailers' shelves.

The QR topic was closely examined in a number of seminars and was evident in many of the exhibit booths. As the non-grocery retailers embrace these new QR systems -- to improve efficiency, lower inventories and raise profits -- bar coding will no longer be confined to front-end scanning alone. All merchandise will be scanned as it leaves the suppliers, arrives at the various warehousing locations and works its way out the front door of the retailers.

In recognition of the importance of this new concept, AIM and VICS have jointly renamed and refocused the brand-new SCAN TECH/RETAIL Conference (SCAN July 88) which will now be known as the Quick Response Conference. The QR Conference will be held in Dallas March 21-22, 1989 and Bob Martin (Wal-Mart) and Rich Bravman (Symbol Technologies) will co-chair the event. For more information, contact AIM, 1326 Freeport Road, Pittsburgh, PA 15238; 412/963-8588.

SCAN-TECH 88

The alternative auto ID technologies (the last of the SCAN-TECH 88 hot buttons we referred to at the top of this section) were Radio Frequency (RF) and Voice Recognition (VR). The use of VR is still somewhat limited -- but when the technology and the application fit, the results are impressive. At an automobile assembly plant inspection station, for example, where the inspector is actively moving around the vehicle with both hands busy, entering data by simply talking into a headset can be fast and efficient.

There were three companies at SCAN-TECH demonstrating VR: Westinghouse, Verbex, and a new company, Vocollect. The systems are still relatively expensive (Westinghouse quoted $7,500 for a "starter" set), with restricted vocabulary capabilities, but it is an intriguing auto ID technology that is almost sure to find success in certain niche markets.

Radio Frequency, on the other hand, is an alternative technology that is strongly positioned to move more rapidly into many applications. As we were cautioned by Bob Scarenge, Marketing Manager of LXE (a division of Electromagnetic Sciences, Inc.), any analysis of RF must carefully distinguish between its uses in identification (RFID) as opposed to data communication (RFDC). RFDC companies talk about vehicle-mounted terminals, baud rates and base stations -- RFID firms relate to readers (or receivers), tags (or transponders) and smart cards.

Some companies, such as LXE which has specialized in RFDC for over 15 years, feel that the data communications problems encountered in typical warehouse and factory locations are not readily solvable by companies whose major expertise may be in product identification. According to Scarenge: "RFDC addresses the on-line, real-time capture and transmission of data, on the factory floor and in the warehouse, where such timely information is critical to operations."

RFID is similar to bar code scanning in that both employ "readers" to capture data contained on tags or labels. RFID's advantage is its ability to read information which is either too far away, or not visually accessible, for bar code scanning.

It is inevitable, however, that all three technologies will overlap and intersect in many application areas. Key representatives of the US Department of Defense -- which has a keen interest in systems which will incorporate data capture via bar codes and/or RFID, and immediately transmit the data to its ultimate destination via RFDC -- were touring the exhibit booths in Chicago searching out new approaches to this project. [Note: The interaction of these technologies will be the subject of the Future Forum Conference (SCAN Sept 88) which is sponsored by the Bushnell Consulting Group and scheduled for November 29-December 1 in Arlington, VA.]

It is most gratifying each year....

....to be able to elect individuals and organizations who are to receive the special industry awards made by *SCAN* Newsletter and the Automatic Identification Manufacturers (AIM). This year's awards were particularly well-placed.

- The oldest of these honors, dating back to 1982, is the Don Percival Award, a joint presentation made by *SCAN* and AIM to an individual or organization from the user community. This year's selection was Jack Loeffler of the Ford Motor Company. Loeffler joined the Automotive Industry Action Group (AIAG) when it was founded in 1983 and served as Co-Chairman of the AIAG Bar Code Project Team. It was this committee which developed the Shipping/Parts Identification Label Specifications for the auto industry, and which introduced the concept of the multiple bar-coded label incorporating the important Data Identifiers. Loeffler was placed on loan to the AIAG as its full-time Assistant Managing Director for two years starting in 1985.

  Loeffler has been an industry spokesman appearing before many groups to educate and promote the use of bar coding. His most recent corporate assignment, at Ford World Headquarters, involves the coordination of EDI and bar coding between Ford and their suppliers, which has developed into the largest computer project in the automotive industry.

  The 1988 Percival Award presentation was made at SCAN-TECH 88 in Chicago, just prior to the opening day keynote address. In his graceful acceptance speech, Loeffler singled out his wife, Jean, and his "other boss," Tom Bass (Ford's Corporate Production Planning and Control Manager), for their help in allowing him the time and latitude to pursue his extracurricular activities for the automatic identification industry. We were pleased to hear the many comments at SCAN-TECH complimenting us on our choice for this award.

- The Dick Dilling Award, presented by AIM, honors an individual from among the vendor companies who has made significant contributions to the industry and to that trade organization. David Allais has been selected as the 1988 recipient in recognition of his work as one of the original thinkers in the bar code industry. The Dilling Award ceremony will be at AIM's annual meeting in Tucson in December. (See below for more on David Allais).

● The <u>SCAN</u> <u>Newsletter</u> <u>International</u> <u>Industry</u> <u>Achievement</u> <u>Award</u> is for noteworthy contributions to the bar code scanning industry in Europe. This year's selection is <u>Brent</u> <u>Jones</u> of the Hudson Bay Company. Jones was the founding Chairman of the <u>UK</u> <u>Auto</u> <u>ID</u> <u>User</u> <u>Association</u>, the first such independent user organization in the world. He has been a frequent speaker at AIM/Europe seminars -- most recently at SCAN Moscow. The formal award presentation was made on October 12 by *SCAN*'s International Editor Paul Chartier at SCAN-TECH Europe in Dusseldorf.

<u>It may turn out that</u>....

....<u>David</u> <u>Allais</u>' career at Intermec was a victim of the obsession of the US investment community with short-term financial results (SCAN Dec 87, Aug 88). For the past 20 years, Allais had held top executive positions with Intermec. As the company's President and Chief Executive Officer, he guided Intermec through its growth years to where it became the largest company in the industry devoted solely to bar code scanning systems. Last year, after relinquishing his management positions, he was appointed Chief Scientist for the company. As we learned, in a recent interview, he had not been happy in that role and he left last month to form Allais & Associates.

Allais sees his new consulting organization as one which will provide user solutions, including development of the system concepts followed by actual implementation. He maintains that bar codes have not yet passed the "Gee, whiz" phase, which he thought would have been over by the mid-1980's. "There is still a great deal of education required," he says, "and companies must understand what bar coding can do for them."

As for his descent from the heights at Intermec during the past three years, Allais attributes many of his problems to the concern of some major shareholders with the short-term financial results during fiscal years 1985 and 1986. Intermec was going through a reorganization at that time and, he maintains: "Some of the investors became impatient during the transition period when sales and profits were not meeting expectations."

Intermec brought in Phil Arneson (who left last April after about 6 months) followed by John Paxton, presumably as "professional managers" to run the company. Allais was gradually replaced as President and CEO and ultimately relieved of all operating responsibilities. Allais says: "I hung around long enough to make sure that the company was in secure hands and that it would continue under the strong leadership of Paxton, whom I admire." Allais has been retained as an Intermec consultant.

Allais is acknowledged as being one of the true innovators in bar code scanning. He developed the Code 39 and Interleaved 2/5 symbologies which, except for UPC/EAN, are the most widely used bar codes in the world today. The last symbology introduced by Allais was <u>Code</u> <u>49</u>, the first two-dimensional machine-readable code ever conceived (SCAN Nov 87). That was a year ago and there have been delays in implementation. There have also been complaints that Code 49, which was designed specifically for high density applications, was too complicated and required more memory than was convenient for the printing and reading hardware.

We asked Allais to comment about the Code 49 delays and also about the new, directly competitive, Code 16K, just introduced at SCAN-TECH 88 by Ted Williams (see below). Allais was clearly not too happy about the fact that there would now be two similar symbologies. He contends that this might confuse and delay implementation by those who require a high density symbol -- specifically the health and printed circuit board industries. He feels that memory size is no longer an issue in computer design, and he maintains that one year is not a long time for a new symbology to take hold. Allais reminded us that it took Code 128 (another Ted Williams development) over 7 years before it was adopted for any meaningful industry applications.

Allais & Associates, Box 806, Lynnwood, WA 98046-0806; 206/670-2643.

Do we actually need another....

....high-density, two-dimensional symbology? Ted Williams emphatically be-lieves that we do, and that's why he introduced Code 16K. Williams, President of the recently formed Laserlight Systems (SCAN July 88), says that he was prompted by members of the AIM Technical Symbology Committee, and by others in the industry, to come up with a two-dimensional bar code symbol that was simp-ler than Code 49. He takes nothing away from the fact that the two-dimensional concept was conceived and developed by David Allais of Intermec. He does maintain, however, that: "Code 49 requires too much memory and is too complex, and after one year there was still no equipment available to print it."

The story that was being bruited about at the SCAN-TECH 88 show was that Williams sat down and designed his Code 16K in one weekend. The symbology is based upon Code 128 (which Williams developed about 7 years ago) with UPC characters at the beginning and end of each row. There are 2 to 16 rows of information, each comprising 5 alphanumeric (or 10 numeric) characters.

As with Code 49, this "stacked" bar code symbology was designed for ultra high density applications. Williams makes no bones about the fact that Code 16K is an alternative to Code 49 and that it "resolves an inherent Code 49 problem requiring bar code printing and reading equipment to contain large amounts of memory for the encoding and decoding table." According to Williams, both Welch Allyn and Printronix have already printed symbols in the new Code 16K format.

Laserlight Systems, 900R Providence Highway, Dedham, MA 02026; 617/329-3090.

The investment community's interest....

....in automatic identification has increased noticeably during this past year, with the Symbol/MSI merger certainly highlighting the industry's visibility. Up to now, however, most of this fiscal attention by the financial types has been on the four perceived public leaders: Intermec, MSI, Symbol Technologies and Telxon. Recognizing this limited perspective, David Collins and his Data Capture Institute (DCI) arranged a full-day program, Auto ID Finance 88, which was presented on November 1 in Chicago (concurrent with SCAN-TECH 88).

Collins assembled the top executives of 12 public and private companies who he felt represented a cross section of the auto ID industry. "Some of these firms," he stated, "are stable leaders in this field -- others have been chosen for a recent successful innovation or for their unusual technical promise."

There were 6 <u>public</u> companies: Printronix, Telxon, Symbol Technologies, Intermec, Checkpoint and Graphic Technologies; and 6 <u>private</u> companies: Hand Held Products, Catalina Marketing, Teklogix, Cotag International, Laserlight Systems and International Imaging Materials. Each corporate officer took 30 minutes to describe his products, organization, financials and future plans. The audience of about 35 analysts and venture capitalists paid their way in to be able to spend the day improving their understanding of the industry while learning about specific opportunities among some emerging companies.

The financial objectives of the private companies were varied. <u>Hand Held Products</u> stated: "While [we are] not seeking additional investment at this time, we are interested in determining options available in anticipation of potential future needs." <u>Cotag</u>, with 1988 sales at $3.8 million, was looking for $2.5 million in financing from private investors. <u>International Imaging</u>, with the most specific plan of all, is currently offering up to 1,000 shares of its common stock to accredited investors for $15,000 per share.

Collins has not yet decided whether to make Auto ID Finance meetings an annual event at future SCAN-TECHS. DCI, Box 1625, Duxbury, MA 02331; 617/934-7585

<u>In one of the most innovative</u>....

....educational efforts in the automatic identification industry, since the SCAN-TECH shows were introduced in 1982, the <u>University of Notre Dame</u> and independent consultant <u>Ed Shadd</u> have announced <u>Bar Coding-89</u>. This will be a 2-day nationwide, "Interactive Teleseminar," via <u>satellite hookup</u>, that will cover the technology, applications and benefits of bar code scanning.

The joint production effort by Shadd and Notre Dame will be aired March 7-8, 1989, and will originate from the university's modern TV facilities (WNDU, a prime-time NBC affiliate). According to Henry Frailey, Director of Continuing Education: "Our ongoing satellite educational seminars involve over 40 participating companies and organizations with 120 remote viewing locations."

Shadd has advised *SCAN*: "The program is designed for bar code scanning hardware, software and systems suppliers and users. It will provide specific information for all functional disciplines including manufacturing, distribution, finance, marketing/sales and trade organizations."

Preliminary plans for the event include: Interviews with key executives from vendor and user companies; on-site analyses of operating installations; expert panel discussions of industry standards; real-world projections of cost benefits; and a general technology review to bring everyone up-to-date on the latest developments. Provisions will be made to allow for live 2-way questions and answers from attendees at remote locations.

Information on costs, schedules and downlink site registrations can be obtained from Dr. Peter Lombardo, Associate Director for the Center of Continuing Education, University of Notre Dame, Notre Dame, IN 46556; 219/239-7005.

Details of the seminar content, including a preview video tape, are available from Ed Shadd (716/235-3253) and from Henry Frailey (219/239-5796).

We were most impressed....

....with the scope and variety of the seminars at <u>SCAN-TECH</u> <u>Europe</u> <u>88</u> on October 11-13 in Dusseldorf. We counted almost 50 presentations -- only 9 of which were delivered by Americans, who tended to dominate the platform at some previous European shows.

AIM/Europe had decided on a radical departure in their "Basics Course" seminar, which was presented in video form this year. The quality and content of the video were excellent. A copy was given to each delegate and will be made available to others as educational material.

[There were 100 exhibitors at the much expanded show. A slight embarrassment for the Comecon countries occurred when two Hungarian companies were unable to set up their exhibits. Their displays and equipment were still being held in the USSR following SCAN-Moscow which had been completed 3 weeks earlier. Although other Western European companies had had the same difficulties, they had managed to scrape together substitute display units for their booths.]

There were two special feature areas showing automatic identification in the health care and automotive industries. The European Health Industry Foundation (EHIF) exhibit attracted large numbers of delegates to see the latest advances in bar coding in a hospital environment. Conversely, the area devoted to the automotive industry -- which was based on the ODETTE Standard -- was well planned and laid out, but attracted considerably fewer people. The irony is that the ODETTE Standard has been accepted by the European automotive industry and is moving ahead rapidly, while there are still important "political" complications in the health sector inhibiting any significant progress.

Dusseldorf provided high quality facilities for the exposition. It is in the center of a large market, and in a location geared to European travel. The exhibitors were strongly divided between those who feel that Dusseldorf should become the permanent site for SCAN-TECH Europe, and those who prefer a new venue each year. In 1989, the conference will be in The Hague in The Netherlands, but AIM/Europe must still decide about siting the show in the future.

It was hard to believe....

....that <u>John</u> <u>Hill</u> had been away from the automatic identification industry for so long. "It had not occurred to me," he noted in a recent interview, "that I had been out of the bar code mainstream for 10 years -- I hasten to add, however, that it has never left my bloodstream." Hill was one of the founders and Chairmen of the Automatic Identification Manufacturers (AIM) when that organization was still a section of the Material Handling Institute (MHI) in the mid-1970's.

Hill is now VP and General Manager of western operations for Tompkins Associates, a Raleigh, NC-based consulting firm, specializing in material handling, facilities planning, warehousing and manufacturing automation. We welcome him back to active participation in this industry. Tompkins Associates, 10096 Soquel Drive, Aptos, CA 95003; 408/722-6700.