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Something of a pall....

...has fallen over the automatic data capture industry that is causing much comment and consternation.

This negative feeling, which has manifested itself in a number of ways, is most apparent in the depressed value of the shares of stock of many (but certainly not all) of the public auto ID companies. In particular, the recent shock waves generated by the unanticipated poor sales and earnings reports of Telxon and Symbol Technologies have placed the entire industry under a cloud.

The reasons for this attitude change are complex and overlapping. They include:

- The realization that the often-quoted (during the past few years) 20-30% sustained growth of the industry was largely dependent on shipments to the major retail chains. What do you do for encores, however, after system-wide sales of thousands of units have been completed to such giants as Wal-Mart, Kmart, Sears, Federated, Toys 'R Us, Limited, Gap, et al?
- The slow transition from a market-driven to a technology-driven industry. Three years ago (SCAN Jan 90), we wrote that "the key to the success of the 1980s" had been the "opening up of market-driven industry applications" including: the US Department of Defense (LOGMARS) program; the automobile industry's AIAG; non-grocery retail point-of-sale hardware; and the distribution/transportation systems.

We also indicated concern about the slower growth industries -- notably factory-floor automation and the health industry. Our article continued: "We believe that some of the markets which provided the major impetus for the last decade -- government and retail, in particular -- will begin to approach maturation in the next few years....In the coming years, the vendors must move out front to develop the hardware, software and systems that will attract major new markets."

This initiative to move beyond market-driven demand to the creation of new technology-driven applications has not yet happened.



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INCLUDING THE INTERNATIONAL EDITION

- The delays in improving internal corporate operating procedures to reduce costs and improve margins. The automatic data capture industry seemed to thumb its nose at national and international recessions. Reports of continuing annual sales and earnings increases by auto ID companies -- at a time when giant corporations in the automotive, computer and electronic industries were faltering -- was a heady experience.
- The dramatic decline of unit-prices as many auto ID products have become established off-the-shelf commodities. Wands, wedges, laser guns, CCD scanners, verifiers, printers and hand-held data terminals have never been less expensive -- and the bottom may not be in sight. Competition for larger orders is fierce and purchasing agents are smart enough to take full advantage of this situation.
- The slower than expected development of other markets that always seem to be just over the horizon. These unrealized sales opportunities include applications for the factory-floor, transportation, warehouse/distribution and health care.

Adding to the growing disenchantment (notably in the investment community) with the recent performance of automatic data capture companies, for the first time in memory we have been seeing negative articles in the trade press about the auto ID industry's long-range prospects.

In a thoughtful article that has drawn considerable attention (*Automatic ID News*, 12/92), Paul Mathans (market manager for Spectra Physics) opens with the disturbing notion that the auto ID market "may be smaller than popularly believed." Mathans notes: "The auto ID industry has held revenue growth as an article of faith for some years. The industry, pundits argue, can grow forever as more and more industries adopt bar codes and other auto ID technologies."

Mathans sets down specific numbers for annual unit sales and installed bases for laser guns, CCDs, wands and portable data terminals. From this analysis, his somewhat ominous judgment is: "The current level of annual placements and installed units leads me to question the growth potential of the auto ID industry....A simple review of the underpinning demographics argues against unlimited growth."

To Mathans' credit, he supports this premise with a detailed analysis of what automatic data capture achieves and why it is adopted. He then estimates the (non-grocery) market size based on those criteria. He identifies eight industry groups with a "total domestic opportunity of 19 million units." With a 42% "expected average penetration rate," his final market estimate is 8 million scanning units (of which, he says, many have been already sold and installed).

Mathans then concludes: "I believe the facts and the current trends argue that the auto ID market has truly matured."

COMMENT

A careful examination of Mathans' "negatives," -- plus our own analysis -- indicates that these factors could all be transitory. We believe that the potential for growth of automatic data capture usage actually goes well beyond individual industries or current applications. Auto ID is no

longer bound by simply improving the speed and accuracy of data input to a computer. It has opened up new opportunities to develop and expand on a larger scale.

For example, the integration of multiple auto ID technologies into single systems offers a great deal of promise. An illustration of this combination of technologies is the marriage of bar code and radio frequency/data communication techniques (SCAN Dec 92). The rapid embrace by the retail superstars -- Wal-Mart and Kmart -- of scanning combined with RF/DC, has provided the imprimatur and working showcase that has opened up this technology to new industry users.

Exciting new applications will also become available with the further development of two-dimensional symbologies, the miniaturization of laser scanners, the increased versatility of CCDs, and the improved quality and lower prices of thermal printers. All of these innovations will broaden the base of existing markets and open new ones not yet exploited.

At the very end of Mathans' article, having all but shut the door to an unlimited growth market, he swings it wide open again and seems to arrive at a similar conclusion to ours when he advises: "To maintain its historic growth rate, the auto ID industry needs to look beyond the proven applications in manufacturing, warehousing and point-of-sale. Only through the development of innovative applications for non-using industries will the auto ID industry find the opportunity to continue the stellar growth to which it has become accustomed."

The challenge, therefore, is that if the auto ID industry is not fully recession-proof, and if the heady days of automatic 20 to 30% annual volume increases are history, then the word must go out that improved management, marketing and engineering must be brought to bear to solve today's problems.

And, above all, this is not the time to slash R&D budgets. As with any industry that has not yet achieved "maturity," new products and applications will continue to be the mainstay of automatic data capture.

[In a subsequent article, we will discuss the premise advanced by financial analyst E. Gray Glass, in the same December 1992 issue of *Auto ID News*, in which he states: "I see the industry emerging [from the economic downturn] as a much stronger one once the dust settles. The weaker players should be gone. The stronger companies will be better positioned and the customers will benefit as a result."]

Continuing its recent string....

....of negative financial reports (SCAN Nov 92), Telxon has again downgraded its performance prospects for the balance of fiscal year 1993 (ending 3/31/93).

In a mid-December statement, the company said it expected second half revenues of \$101-\$108 million with income from operations "at or near break-even." This would bring anticipated year-end sales results of \$235 to \$242 million and earnings reflecting "an overall loss to break even."

Just two months earlier, the company had predicted that both second half and total annual sales would be \$20 million higher and yearly earnings would be \$1.15-\$1.20/share. The significantly reduced performance forecasts released in December were attributed to "lower than expected sales levels, increased marketing and product development expenses, and one-time, nonrecurring costs."

Adding insult to injury, Telxon is now being sued by shareholders who allege that the company kept the stock price high by issuing misleading projections. These disillusioned investors have also questioned the sale of 60,000 shares of stock this past summer by ex-President Ray Meyo and his successor, Dan Wipff.

All of these negative activities prompted a scathing article in the *Wall Street Journal* (12/28/92). The reported sharp price-cutting that Telxon used to obtain the \$25 million Wal-Mart contract and the inability to replace that sales volume, now that the order has been completed, were quoted as additional reasons for the company's performance decline. "Other customers expected similar treatment," the *Journal* reported, "and price cutting followed, eroding profit margins at Telxon and its major competitors...Telxon mistakenly expected the products it sold to Wal-Mart to become the retail industry standard. Instead of focusing on its next product, the company sat back and waited for orders to flow in. They didn't."

Additional damaging information, obtained from disenchanted investors, surfaced for the first time in the *Journal* article. These allegations involved Bob Meyerson, Telxon's founder and former CEO, who was brought back into active duty with the company following the Board's dismissal of Ray Meyo. According to the article, early in 1992, while he was Telxon's Chairman, Meyerson had received special consulting contracts and substantial investments in his family-controlled business from Telxon. Meyerson responded to the *Journal* that Telxon had tapped him as a consultant in 1989 to aid in the successful restructuring of the company.

Apropos Telxon's problems, we found it interesting to note the parallel paths taken last year in the market share values of the industry's two leading companies:

	<u>Telxon</u>	<u>Symbol Tech</u>
High	\$ 28 1/4	\$ 26 1/2
Low	\$ 11 1/4	\$ 10
Close (12/31/92)	\$ 11 3/4	\$ 12 7/8

This close correlation suggests that investors are tying the two companies together in a common investment evaluation rather than based on their individual performances and prospects.

A general feeling....

....of cautious optimism precedes the important meetings scheduled for later this month to resolve the outstanding issues of AIM International (SCAN Nov 92, Dec 92).

The very sharp differences between AIM/US and AIM/Europe regarding whether AIM International will have only corporate membership (the position of AIM/US) or affiliate membership (the position of AIM/Europe) will be addressed at special

meetings to be held on January 21-22 in Bad Hamburg, Germany. A prestigious contingent will represent AIM/US, consisting of Bonney Stamper (President), Ivan Jeanblanc (past President), Jack Kindsvater (past VP), and Don Anderson (Executive Director).

"We will be meeting with members of the AIM/Europe Council," Anderson told *SCAN*, "and there is every indication that everyone wants a resolution of these issues. There is a sincere feeling among both groups that we can reach an amicable solution. We have had indications from a number of the American and European members that they now feel the 'Bridge Plan' proposed by Joop Oldenbroek would be palatable."

The Bridge Plan is an attempt to bring both the corporate and association membership concepts together under a single organization umbrella. The Bad Hamburg meeting will be the first serious test of whether the two sides will be willing to make the compromises necessary to bring the plan to fruition.

Even before these compromise discussions have begun, however, the AIM/US group has been conducting a search, on its own, to find a new Executive Director of AIM International. Previously, AIM International was administered by the AIM/US staff out of its Pittsburgh headquarters.

The new plan being pushed by AIM/US is to create an independent AIM International staff headed by its own Executive Director from a location to be selected. "Our preference would be for the AIM International headquarters office to be somewhere in the Americas," explains Don Anderson, "but that is not firm. There would be some economies if our Pittsburgh facility were to be the choice, but there are some European candidates for the director's position, so the final decision of the headquarters location is still open at this point."

Meanwhile, in a conciliatory move, AIM/US has extended, for 90 days, its year-end deadline for all of the AIM International affiliates to declare themselves to be licensees of the new AIMI organization under the AIM/US sponsored corporate membership scheme. AIM/US has not softened its stance, however, that those groups which do not affiliate with its version of the new international association will lose the right to use the AIM "mark" as part of their name.

The saga continues.

Lots of action....

....involving patents continues on the legal battlegrounds of the automatic data capture industry.

- o Accu-Sort has sued LazerData for infringing on Accu-Sort's patented DRX decoding technology. First introduced in 1987, DRX (Data Reconstruction) is a method of "stitching" together a full bar code from partial scans. Its chief benefits are derived from being able to scan damaged or truncated bar codes, thus allowing for smaller, less expensive labels.

Accu-Sort also claimed that LazerData had engaged in unfair trade practices, but those complaints were dropped, according to a statement

issued by Accu-Sort, when LazerData "voluntarily agreed to stop using the objectionable materials." Accu-Sort's President, Al Wurz, told SCAN: "They were making disparaging remarks about how bad our system was compared to theirs. They have withdrawn those remarks against us. As for the patent, we are proceeding with the infringement suit, but we would be willing to license them."

- Symbol Technologies and Opticon finally reached an agreement resulting from the court decision, handed down almost three years ago, that Opticon had infringed on Symbol's laser gun patent (SCAN May 90). Opticon has paid Symbol \$1.4 million and has announced that it has become a VAR for a number of Symbol's laser scanners.
- Symbol and Metrologic have received a federal court order to mediate their patent claims against each other. This negotiation is expected to take many months.
- PSC has sued Metrologic based on PSC's patents related to hand-held laser scanners. Metrologic insists that its scanners do not infringe and that the suit was filed in retaliation for Metrologic's recent successes in capturing a portion of PSC's market share.

[In spite of these legal diversions, Metrologic executives claim to be rebuilding their company with new products, new distributors and new personnel. According to President Harry Knowles: "Sales continue to rise [and] our profits are up."]

- No news has emerged about PSC's suit against Spectra Physics for patent infringement (SCAN July 92). The last we heard was that a hearing was scheduled before a judge in Eugene, OR to look over the documents.

While we are covering the subject of patents, we should note the recent article in the *New York Times* (11/13/92) about the incredible success achieved by Jerome Lemelson, the prolific inventor who has 500 patents in his name. He was recently awarded \$100 million by twelve Japanese auto makers in return for licenses under his patents covering the use of robots and bar code scanning systems. Lemelson is now actively suing the American automobile manufacturers under these same patents.

This is the same Lemelson whose bar code scanning patents were aggressively pursued by his agent, Refac Technology, during the late 1980's (SCAN Aug 87; Oct 88; June 89). In November 1988, Refac sued 16 auto ID companies, alleging that they were in violation on one of Lemelson's patents. A number of these companies had signed agreements to pay modest royalties under this patent rather than undergo the time and expense of a legal battle. Nothing ever came of the attempt by the AIM/US legal counsel to enlist some of these companies to launch a coordinated legal defense against the patent.

We have rarely witnessed....

....a total marketing campaign for any product in the auto ID industry that is as intensive as the one launched by Symbol Technologies for their PDF 417 two-dimensional symbology.

First introduced by Symbol in 1989 (SCAN Nov 89, April 90), PDF has recently

been repositioned in the market. It is now being presented as a much more versatile tool than any of Symbol's original concepts. Those initial ideas had included serving as a replacement for one-dimensional bar codes; or as a high-density, high capacity "portable data file"; or even as "paper EDI."

PDF 417 is currently being advanced -- by an entire cadre of corporate specialists -- as a "powerful new paper-based communications protocol for transferring a files' worth of data between the computer systems without rekeying or reentering."

And just so that PDF 417 -- which is in the public domain -- is not perceived as a project being pushed by Symbol alone, the company has working partnerships with 16 vendors who have announced support of the symbology:

- For printing systems (Analog Technology, Bell Data Network Communications, Cognitive Solutions, Comtec, Informix, Monarch Marking, Printronix, Strandware, and Zebra).
- For scanning systems (AccuSort, Bar Code Systems and Intermec).
- For customized application/integration (NRM Computer Systems, Qual/Soft, T4 Systems, and Vocam).

Symbol Tech's Rich Bravman (VP Marketing) and Rob Durst (Senior Director, PDF Business Department) told *SCAN* in a recent interview that the first Beta tests of PDF 417 are under way at the US Air Force (for medical identification) and at a General Motors assembly operation. With the introduction of the PDF 1000 raster scanner (*SCAN* Sept 92), Symbol is pushing for rapid market acceptance.

Which is not to suggest that PDF 417 has already been anointed as the industry standard and that no other 2-D symbology need apply. When Code 39 was first introduced -- and then authenticated by the US government's LOGMARS program -- there were those pundits, ten years ago, who proclaimed that there was no need to look any further. Code 39 filled all of the alpha-numeric, machine-readable requirements, it was suggested, and any additional symbologies would raise the danger of "symbol proliferation." The subsequent introduction and acceptance of Code 128 put that theory to rest. The point is that there will undoubtedly be other 2-D symbologies -- either ones that are already available or will be developed -- which will prove particularly suitable for specific industries and applications.

But, for now, Symbol's full clout is being brought to bear on PDF 417 and the company is trying hard to make it appear as if their symbol is the only game in town.

[Although PDF 417 has been patented, Symbol was careful to place the symbology and its decode algorithm in the public domain. A minor legal stumbling block, however, surfaced when Symbol applied to AIM/US for the publication of a Uniform Symbology Specification (USS). Even though there seemed to be compliance with AIM's policy that it will only issue a USS on symbologies that are in the public domain and accessible to all, a misunderstanding arose.

The problem involved Symbol's stated position that it reserved the right to apply for patents covering other aspects of the use of the 2-D bar code (e.g., a hand-held laser scanner to read the symbol). According to

a Symbol spokesman, this reservation constituted normal corporate patent protection of other developments and is no different than past positions taken by other companies with other symbologies -- notably Intermec and Code 39.

As of January 12, the attorneys for AIM/US and Symbol had worked out their differences; Symbol's position has been sustained and AIM's Technical Symbology Committee was free to move ahead with developing a USS for PDF 417.]

Emerging from a relatively....

....quiet period, Intermec has introduced the JANUS 2010, which it characterizes as an "important breakthrough in data collection technology [and] the world's most advanced hand-held data collection computer."

The features of the JANUS 2010 include:

- o PC-AT architecture with 386 processing power.
- o Microsoft ROM DOS 5.0 operating system.
- o Large 16 x 20-character CGA-compatible display.
- o 101 key keyboard.

Available for shipment in February, the company will be seeking applications in manufacturing, warehousing and retail backroom environments. The JANUS 2010 is expected to be the first in a series of new portables which will feature non-proprietary development and operating environments, and support for industry standard communication protocols.

The latest developments....

....in automatic data collection systems for retailers will be exhibited during the next two months at two important events:

- On January 17-20, in New York City, the National Retail Federation (previously known as the National Retail Merchants Association) will host its 82nd Annual Convention and Expo. Since UPC was adopted by non-grocery retailers in the mid-80's, this event has been the preeminent showcase for retail auto ID systems.
- On February 28-March 3 in New Orleans, the Food Marketing Institute will launch the Supermarket Technology Convention. In the past, companies with technology-related products had to compete at the annual monster FMI Show, which overflowed McCormick Place in Chicago with the latest in dog food, bakery products, can openers and the like.

Now, FMI bills this new event as "the one and only convention and educational conference exclusively focused on technology in the supermarket...from company-wide corporate-to-store systems to in-store merchandising, and financial and front-end systems." A look at the preliminary exhibitor list suggests that most of the auto ID companies with products for food retailers will be there.

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