

DATA COLLECTION & ACQUISITION

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When implementing a bar code system, the principles of good project management still apply: planning pays dividends.

THINKING ABOUT BAR CODING? HERE'S HOW TO GET STARTED

BY MARTY WEIL

The process of integrating bar coding into a manufacturing environment can be daunting for the uninitiated. Although none of the technologies (or management decisions) involved in the process are overly complex, the immense variety of bar coding equipment, software packages, and standards can be overwhelming. With some guidance, however, the implementation of bar coding can be very rewarding.

According to a videotape series on bar coding produced by the Automotive Industry Action Group (Southfield, MI), the first step toward bar code system implementation is to form a planning team that can answer two key questions. First, is the company responding to a customer request to gather data and print bar code labels in-house, or with an outside printing source? Second, is the company implementing a system using bar coding to collect, process, and report information? How to proceed depends on the answers to these questions.

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Ideally, the team should consist of five to seven people from multiple disciplines such as materials management, production, information systems, finance, process engineering, and product engineering. The AIAG calculates that a company should set aside approximately 16 man-hours per week, per team member, for the duration of the implementation process. The AIAG estimates that it will take approximately one year to develop a comprehensive plan and accomplish all phases of bar code implementation. When developing budgets, the company should also consider the cost of sending team members to study plants with systems in operation.

"Develop a team early on and find an outside resource to assist the team

about selecting outside counsel. "Choose a partner that is committed to the industry and has demonstrated the ability to embrace new ideas and technology and provide an upgrade path for their customers," he says.

The planning team should participate in some formal training before they begin to develop goals for a bar coding system. An understanding of bar code technology as well as robotics, flexible manufacturing techniques, and statistical process control is also useful.

In addition to formal training, there are ample outlets for informal education as well. "Learn about the technology and the applications by going to conferences, attending ID Expo or Scan-Tech, reading periodicals, and most importantly, by talking to other companies that are doing the same thing," says Marilyn Sherry, program manager at AIAG.

"The most powerful thing people involved with the selection of a bar coding system can do is to go out and see what other companies are doing," states Scott Olson, president and founder of EduTEC (St. Paul, MN), a firm that provides education in new technology, methods, and practices. "Visualization is a key learning tool."

To assist planning teams involved in the design of bar code systems, EduTEC offers a project planning kit called The Bar Code Master Plan. It

contains all the components necessary to design and modify an automatic data collection system.

With the help of a planning tool like The Bar Code Master Plan or with the assistance of an outside consultant, the planning team should review the company's current manufacturing and material flow process to determine what problems exist, and how



The Bar Code Master Plan is a hands-on planning system designed to guide users through the complex process of conceptualizing and planning a bar code system.

in the early stages. This can be very beneficial," says Roger Palmer, vice president of technology at Intermec Corp. (Everett, WA). "Later, when equipment selection begins, the task can be handed off to the outside resource with greatest confidence."

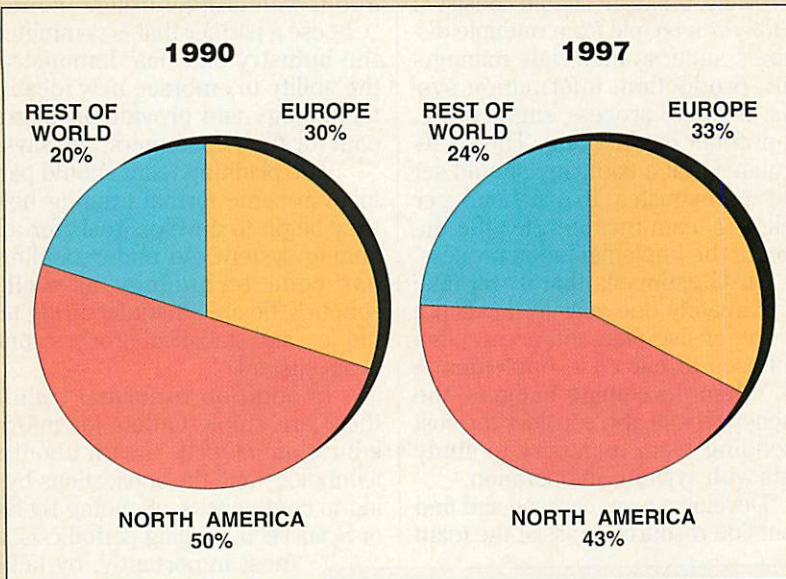
Stuart Itkin, senior director of marketing at Symbol Technologies Inc. (Bohemia, NY), offers advice

Increased Integration and New Applications Drive World Bar Code Equipment Market

Since its emergence in the 1960s, the world bar code market has evolved into a dynamic, installed base of approximately \$3.5 billion. New applications, especially those in manufacturing, are expected to push the annual growth rate for bar code equipment manufacturers to more than 17% through the end of the decade, according to a new report from Frost & Sullivan Market Intelligence (Mountain View, CA).

"In 1989, the bar code market was \$2.2 billion. By 1999, it may reach \$10.5 billion," says Girish Rishi, industry analyst for the market research firm. "Global competition will initiate companies of all sizes to integrate bar coding into their organizations in response to the general trend toward quality control, efficient operations, and controlling costs."

World Bar Code Equipment Market: 1990 and 1997



End-user education will act as a catalyst for bar code growth, while technological advances will assist the evolution of the bar code market."

Now that the market is developing and end users are becoming more knowledgeable, demand for sophisticated software and hardware is on the rise.

"The main demand for bar code equipment will be generated by manufacturing," says Rishi. "Historically, the retail market accounted for the growth of bar code equipment, but we believe this market is nearly saturated."

Frost & Sullivan Market Intelligence estimates that 60% to 70% of the bar code equipment market has yet to be tapped. "Whoever taps a market segment first, engages in end-user education, and designs its products accordingly, will be a big winner in this market," Rishi adds.

Frost & Sullivan Market Intelligence's bar code market report was based on interviews with more than 100 vendors, end users, and distributors of bar code equipment. It encompasses both hardware—in the form of scanners and printers—and software. It also includes bar code consumables such as labels and supplies.

bar coding might solve them.

The AIAG identifies three major phases required to implement bar coding, and it suggests a timetable and budget be developed for each.

In the "feasibility and definition" phase, the purpose, goals, and objectives of current data processing systems are determined. At this stage, the planning team identifies the scope of the process, information needs, and if and where bar coding or any automatic identification technology should be applied.

"Walking through the plant and

looking at how the application of bar coding is going to work is a useful exercise," says Sherry. "Keep asking the questions: who is entering information at this station, and should this task be automated?"

Next, in the "proposal" phase, the emphasis shifts to quantifying benefits associated with bar coding. The planning team identifies areas where more precise control, improved electronic data interchange, better cost control, improved production processing and control, and improved inventory control can be achieved.

Finally, in the "development" phase, the bar code system is specified and decisions about hardware requirements, programming, equipment installations, training, and system testing and evaluation are reached.

This may seem like a lot of planning. But, "the more time you spend planning, the easier will be the implementation of your system," says Neil McDonnell, vice president of marketing at Epic Data Inc. (Richmond, B.C., Canada), which designs, manufactures, and integrates data collection systems.

Another key issue to be considered in developing systems that use bar coding is verification producers. Success or failure of the total system depends on the ability to read the bar codes—don't compromise on the quality of the printed symbols. If verification is not built into the printing source, separate verification equipment and quality control procedures are recommended.

"The most important thing is the bar code label. Therefore, one of the most important elements to any bar code system is the bar code label verifier. Any time you buy a printer, you should buy a verifier," says Itkin of Symbol Technologies. "Quality in a bar code system is critical. Ninety-nine percent of the reason bar codes don't scan properly is because of poor print quality."

When getting started in bar coding, focus on the principles of good project management. The principles are valid for any project or system development with or without bar coding. Coordinate efforts among all of the affected activities within your organization. The data typically bar coded are very basic elements that drive many areas of a company.

At times, bar coding is downplayed in the automation grand plan. In reality, the true power of a bar code system is much more than just a tool for data collection. The scanning of bar codes can direct and monitor the activities of an entire organization. As a result, implementation of systems that use bar coding ultimately becomes a catalyst for improving the fundamental information systems within an organization. MA

Automotive Industry Action Group
 Bar code videotape seriesRC# 61
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