

How to

Unlock
the
Power of your
ERP System

with

Bar Coding

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*“Bar coding is this year’s
success story here at Acme—
we’ve been able to make more,
ship more, and sell more,
and still bring down
our costs...”*





Introducing Acme



Victor, the VP of Manufacturing at the Acme Tricycle Works, was at his desk reviewing his notes. “We’ve had a good year,” he thought. “Acme is a leader in tricycle manufacturing, supplying the largest toy retailers with half a dozen models. The High Flyer, our latest, is this year’s hottest model in the industry.

“We’ve been able to make more, ship more, and sell more, and still bring down our costs,” noted Victor. “Adding electronic data capture—bar coding—to our ERP system was the right decision.”



In a couple of weeks, the Acme Tricycle Company was going to receive an Award of Excellence from the Toy Manufacturers’ Association.

Victor had been asked to accept the award on behalf of the company. It would be a pleasure.

His thoughts were interrupted by a knock on the door frame—the VP’s door itself was seldom closed. It was Martin, the Manufacturing Manager and head of the project team that brought in bar code data capture. He held a cup of coffee in one hand and a report in the other.

“Top of the morning to you, Victor,” said Martin with his customary good cheer.

“You’re just the fellow I wanted to see,” said Victor. “I’m working on my speech to the Toy Manufacturers’ Association, and I’m hoping you’ll be able to refresh my memory on bar

coding. For starters, I'm citing bar coding as this year's success story here at the Acme Tricycle Works—but correct me if I'm wrong."

"Not at all," said Martin, entering the office. "Upgrading to an Enterprise Resource Planning system was the right move, and bar code data capture goes hand-in-hand with ERP. Bar coding gives us real-time information to maximize the power of our ERP system. And it's virtually error-free."

"Error free?"

"Yes," said Martin. "The error rate for manual data entry is about one character per 300. But bar code readers are virtually error-free."

"I'll add that to my speech," said Victor, jotting down a note.

"In the past year," continued Martin, "we've installed bar coding in Warehousing, Production, Stores, Shipping, and Receiving. And we're planning to expand our use even more."

"Because it's quick and easy to install?" asked Victor.

"That was one of my biggest concerns when we started," said Martin. "You know I didn't have any extra people to assign to a lot of programming. We needed something we could purchase off-the-shelf."

"And we found it?"

"Yes," replied Martin. "We found it from Connectware. They provided the middleware that allowed us to quickly integrate bar coding throughout our plant. We started by installing bar coding in specific departments, and for our most common transactions. Then, we easily added more bar code readers and transactions as users grew familiar with the technology."

"And how long did the whole thing take to pay for itself?" asked Victor, who naturally kept a wary eye on the bottom line.

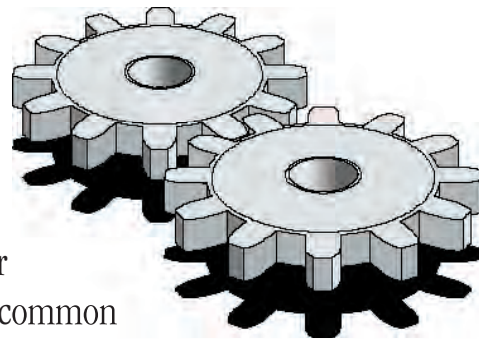
"About six months," said Martin. "A pretty typical payback period for Connectware's clients."

"Well, it sounds great. But isn't it an overstatement to at-

Bar codes are versatile

Bar codes have been used on everything from live honeybees to food supplies on the Russian space station, for everything from tracking cows in a pasture to aligning NASA's largest satellite dish.

ID Systems,





Bar coding gives a competitive edge

When you begin to use bar codes coupled to RF data collection in your company, you will acquire the competitive edge of world-class performance that everyone else is racing toward.

APICS – The Performance Advantage, August 1995

tribute all the benefits to bar coding?” asked Victor, playing devil’s advocate for a moment. “What about our ERP system itself?”

“The ERP system is great!” exclaimed Martin. “But remember how it was before bar coding?”

“Our plant was full of guys writing down numbers on scraps of paper, walking over to a terminal, and waiting for it to free up so they could type in their data.

“Now, employees scan a bar code with a reader, and our system is automatically updated with error-free information. It’s a lot faster.”

Martin explained there are other advantages too.

By putting the power to interact with your ERP system in the hands of your employees, bar coding reduces paperwork, frees up time, and dovetails with your manufacturing processes.

“So what you’re saying is that our ERP system was a step in the right direction, but it took bar coding to unlock its full potential,” said Victor.

“I couldn’t have said it better,” agreed Martin. “But let’s go on a tour, and I’ll show you hands-on how bar coding benefits us in every area of the company.”

“Lead the way,” said Victor. “And I want you to explain it all to me as if I’m brand new to bar coding.”

Still talking, the two men crossed the short courtyard between Acme’s offices and the main manufacturing plant.

*“Decision-makers
get information in a
timely, efficient, and accurate
manner. So the business is
more agile and ready
to grow...”*



Saving Money by Saving Time

Victor the VP and Martin the Manager stepped out onto the factory floor of the Acme Tricycle Works. As usual, it was a hive of activity. Parts were moving from Stores to assembly lines, and finished tricycles were moving from assembly lines to the Warehouse, or directly to the Shipping dock.

“Do you hear that?” said Martin, beaming with pride.

“Hear what?” replied Victor.

“It’s the sound of a paperless shop floor,” smiled Martin. “What a difference! In the old days, it was pretty much impossible to keep up with our orders using index cards and clipboards. The ERP system was a quantum leap over our old system, all right, but without bar coding it was still operating in history mode.”

“How do you mean?” asked Victor.

“Well, you know that we had to enter data manually, at the end of the day—sometimes even later—so our information

was always after the fact,” answered Martin. “Sometimes collecting the data even got in the way of making the product! Now data collection is a matter of course: an employee picks up a part, scans the code and presses a button or two. And it doesn’t interrupt our work.”

“So,” said Victor, “the ERP system creates an inter-departmental flow of information, putting the whole company under one umbrella. And bar coding complements that by linking the movement of materials and resources to our ERP system.”



“Exactly,” agreed Martin. “Decision-makers like us get information in a timely, efficient, and accurate manner. So the business is more responsive and agile than ever.”

“What about for employees?” asked Victor.

“Employees love it,” replied Martin. “Without bar coding, a quarter of an employee’s time is spent walking to and from entry terminals. And that’s not counting the time spent looking for a pencil! Bar coding eliminates all that.”

The Acme Tricycle Works had installed a variety of bar code readers. There were portable Radio Frequency (RF) readers in Production, Stores, Shipping and Receiving. Plus, there were RF readers mounted on forklifts—so that when the drivers picked up a pallet, they could scan a label without getting down from the truck. Some readers were designed to scan from quite a distance, so there was less climbing and stretching.

Martin explained that regardless of the location of the bar code reader, each one works the same way. They read data from a bar code label, decode the information, and transmit it to the network by radio link.

Connectware’s software translates the raw data produced by the bar code reader into formatted information for the ERP system.

“Since it’s a live connection, we have on-line data validation and updates,” said Martin.

“But the information doesn’t just go one way,” prompted Victor. “Our users get some feedback, right?”

“Oh yes,” agreed Martin. “The user gets immediate feedback: confirmation, error messages, and so on. Again, Connectware acts as the go-between.”

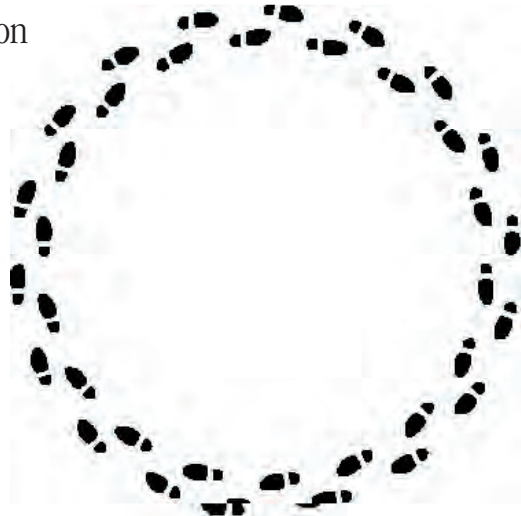
“So apart from the scanning, it’s exactly like typing at a terminal?”

Bar coding is better than key- boarding

*Keyboarding
accuracy: 1 error
per 300 keystrokes.*

*Bar code scanning
accuracy: 1 error
per 3 million scans.*

**APICS – The Performance
Advantage**, August 1995





Bar coding is faster than key- boarding

*Keyboarding speed:
up to 100 words a
minute.*

*Bar code scanning
speed: up to 1,700
words a minute.*

**APICS – The Performance
Advantage**, August 1995

“Not exactly. A scanner has a small display screen, and Connectware takes advantage of every pixel with a well-designed interface,” explained Martin. “With Connectware, users see only the fields that interest them. Plus, a lot of fields are already filled in with default values. That saves time too.”

“They only see what they need to see, and get the job done faster,” summed up Victor.

“That’s one of the things that people like,” said Martin. “And adding more readers is fast and easy. So the Acme Tricycle Works is ready to grow! grow! grow!”

As they walked, they continued to discuss the advantages of bar

coding. For example, everyone who needs one can have his or her own scanner—so no more line-ups. Personnel can enter and update data in real time as they work. They’re connected directly to the ERP system, no matter where they are in the facility. All in all, Connectware made it a snap to transform the raw data from the bar code reader into information ready for the ERP system.

“Let me show you how bar coding paid off in Production,” suggested Martin.

“I’m all ears,” said Victor, as they walked further into the tricycle factory.

*“Having real-time information
from the assembly lines
has helped streamline
our operations, and really in-
creased our on-time
deliveries...”*





Empowering Production

Victor and Martin approached the Production area. Sparks were flying from a welder's torch as he made some modifications to a new tricycle prototype.



They arrived at an assembly line, where a forklift truck had just delivered some plastic bins filled with tricycle parts.

The bins held all the wheels, seats, pedals, and other parts needed to make up a complete order of tricycles.

“Another order for our High Flyers,” Victor said. “I can tell by the frames.”

“Yes, they do look a lot different from our Red Devils and Tricky Trikers,” agreed Martin.

“All these parts have just been picked and issued to the shop floor from Stores. And notice—there’s no paper in this bin... all the information on these parts has been scanned, and updated in our ERP system.”

“So no one can drop the paperwork on the floor and lose it,” suggested Victor.

“Right. With bar coding, we save time at every step in the assembly process

now—and we have a better idea what’s going on,” said Martin.

They turned and surveyed the scene. This whole area of the plant was overseen by Ellie, an experienced employee. Her job was to make sure there was a steady supply of orders ready to be built. As they watched, Ellie pushed the new bins along the roll-

ers to the first workstation.

“Here’s where the speed and reliability of bar coding really pay off,” said Martin.

They watched as a worker bolted the rear wheels to the first High Flyer frame. Next he picked up a portable scanner and scanned two big bar code labels from a menu showing the list of operations he could do at his station. This told the system that his operation was complete on another frame, and that he was sending it down the line.

In no time, the partly-built frame was rolling down the line to the next station.

“That’s a Shop Floor Move transaction,” Martin reminded Victor. “Let’s ask Ellie about it.”

He waved.

“Say, Ellie, we were wondering . . .” began Martin.

“ . . .if there really is a Santa Claus?” she grinned.

“Actually, it’s about how you like our new bar code system.”

“Well, the guys like using the readers a lot more than standing in line for a terminal, or trying to decipher each other’s scribbles. That’s for sure,” she said.

“Plus, there’s no more tags to get mixed up. We always know exactly where every item is, up to the second, so we can see the status of all orders. And if we ever have to shuffle around production for a rush order—”

“Like last week!” said Victor.

“—we can easily do it,” she agreed.

“We can also track a particular customer’s order through each step, right down to the minute. This has really increased our on-time deliveries. In the old days, if we had to put a rush on an order, we might have to search through the whole plant just to find it.

“And that’s no fun!” she called as she walked back to the start of the line to see to the next order.

Victor and Martin continued along the assembly line, watch-

Scheduling production to cut costs

Most manufacturers are striving to cut costs by scheduling their production lines to fill current orders rather than building up “just in case” inventories.

Advanced Manufacturing Research (AMR), quoted in



Hand-in-hand with JIT

Just-In-Time manufacturing demands timely and accurate information, which paper-based systems are too slow and error-prone to provide. Bar coding works hand-in-hand with JIT.

ing as other hands attached the seat, front wheels and pedals, bell, and handlebar grips. Several times, the employees scanned their work order menus to do more Shop Floor Moves.

At the final station, a worker scanned one last sheet, then plunked the finished tricycle into an open box. As he walked to a nearby printer, it produced a bar code label.

“This is called Assembly Completion,” noted Martin.

“At this point, our ERP system automatically prints a label showing the model number and assigning a

serial number for that trike. And even before that label goes on the box, the system knows that trike has been built and transferred to Finished Inventory.”

The worker slapped the label on the side of the box, and carried the box to a special location a short distance away. Soon it would be whisked away by another forklift truck.

“I’m always amazed how fast we can build a trike,” said Victor. “And it looks like having real-time information from the assembly lines has streamlined our operation even more.”

“I’d say so,” agreed Martin. “Plus, it gives us a better view into our whole plant, so everyone can see right away what’s happening.”

“Now we can react faster than we ever could before,” said Victor. “And that’s all because we added bar coding to our ERP system.”

“Correct,” said Martin. “Now let’s go over to Stores and see some more.”

*“Our records are so accurate,
we may be able to eliminate
our annual inventory count!”*





Savings in Stores

The two men walked a few steps over to the plant's Stores. Sylvia, the Stores specialist, arrived on the scene carrying a hand-held bar code reader. She scanned a bar code on a shelf, counted the items it held, and entered the count using the keypad on the scanner. Martin called her over.

"Hi Sylvia," said Martin.

"Checking inventory?"

"Doing a cycle count," said Sylvia.

Martin turned to Victor. "Automated cycle counting was our number one priority for Stores."

"Before bar coding, I wasn't too fond of this part of the job," admitted Sylvia.

"But bar coding has put an end to all that scribbling on thick printouts. Doing a cycle count with a portable scanner is really painless!"

Martin explained a few other benefits that had been brought to his attention.

With accurate data entering the ERP system, tracking inventory was easier, and buyers no longer had to rely on gut feeling to determine how much material to



order—they had the figures, and they knew they were right.

“My boss says inventory levels are no longer a mystery,” Sylvia chipped in. “We know exactly what we have, and where it’s needed, so we don’t need extra buffer inventories to avoid shortages in manufacturing.”

“What about that time of year that always comes too soon?” asked Victor.

“The company picnic?” joked Martin.

“No!” exclaimed Victor. “The physical inventory!”

“It’s not a problem any more. It’s five times faster with one tenth the labor,” replied Martin.

“Needless to say, it’s a lot more pleasant. In fact, our records are so accurate, we just might be able to eliminate the annual inventory count some time soon.”

“That would be a dream come true,” interjected Sylvia.

“The overall effect from bar coding is quite amazing,” Martin continued. “An accurate, timely, and error-free flow of information into our ERP system gave us faster inventory turns and lower handling costs. And it even helped us to reduce our inventory.”

“Lot control is important here at the Acme Tricycle Works, and more and more products are requiring it,” said Victor.

“But it’s expensive. I hope bar coding has helped out there?”

“There’s nothing in our ERP system that bar coding can’t improve,” replied Martin.

“We track our ball bearings using lot control—after all, we wouldn’t want a wheel to come off one of our trikes when a toddler was on it. We like to know where the bearings were produced, and which tricycles they go into. Bar codes contain all the information we need to track the products from origin to point of use.

“Again, it’s the speed, accuracy, and real-time value of the information that pays off with bar coding.”

High-octane results

Without bar coding, an ERP system is rather like a high-performance racing car filled with low-grade gasoline... it may run, but you won't see the kind of high performance you expect!



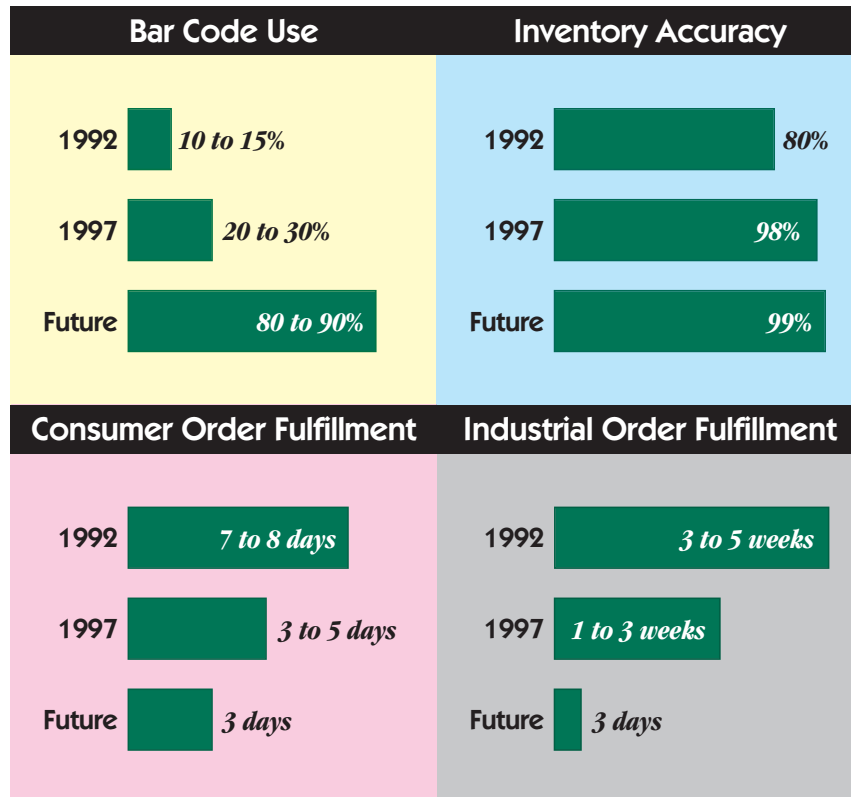
“We all know that high inventory levels can tie up money uselessly,” said Victor. “And reducing overhead is money in the bank. It sounds like bar coding has resulted in big savings in Stores.”

“It has indeed,” agreed Martin. “But let me show you Shipping, where things are really shaping up.”

Information is power

The more information you have on your inventory, the shorter your order turnaround time will be, as these charts reveal.

Scan Tech News,
June 1997



“In shipping, our travel time is down, and there’s less need to check orders. We have fewer lost or incorrect orders—and fewer returns...”



Shaping Up in Shipping

“I love this part of the plant,” said Martin, as a forklift zipped by with a pallet of tricycles boxed up and ready.

“You love Shipping?” asked Victor, incredulous.

“There’s just so much going on!” said Martin, pointing to another worker, high in the air, picking an order using a vehicle-mounted bar code reader.

“It’s the most labor-intensive part of the operation, you know. Our order pickers spend three-quarters of their time just walking or driving around the shelves. Plus there’s verifying orders, finding lost orders, handling returns, and re-shipping incorrect or incomplete orders. That’s a lot of overhead!”

“And you like that?” said Victor. “I like the improvements we made,” said Martin. “Bar-coded order picking and shipping brings it all

together. Travel time is down, and there’s less need to check orders. We have fewer lost or incorrect orders and fewer returns. At \$500 in overhead per incorrect order, it didn’t take long for bar coding to pay for itself here!”

Martin wasn’t exaggerating. When he joined Acme Tricycle Works, Shipping was as traditional as possible. There was no ERP system, and employees filled orders manually, using printouts of customer POs. Where stock was missing, it was



noted on the PO by hand. Just before an order went on the truck, someone scribbled down the part numbers. Shipping labels were cranked out on a typewriter. It was a traditional system, with plenty of room for traditional errors.

The ERP system helped a lot. But bar coding was the icing on the cake.

“Now data gets into the system as the goods move,” said Martin. “There are far fewer mistakes, since the data is accurate each time.”

“Sounds great in theory,” said Victor. “But is it easy to use?” Martin didn’t answer. Instead, he turned and waved down a passing forklift, driven by Norm, a new employee.

“Say Norm,” said Martin. “You just came to us a couple of weeks ago from a place that had no bar coding, right? Victor is curious to know if you see a difference at Acme.”

“I’ll tell you,” said Norm. “When I started here, I thought ‘this place is huge, how on earth am I going to find anything?’ But this bar code reader shows the line items in order by the shortest picking route—an intelligent pick list, I think it’s called. And there’s no stopping at a crowded terminal to type an endless series of numbers. As soon as I scan the location and the part number, I know right away if I’ve got the right product. Filling orders is a snap!”

“Our ERP system didn’t even support intelligent pick lists,” added Martin. “But Connectware did. So in this case, bar coding can actually extend the functionality of the ERP system.”

“That sounds great!” commented Victor.

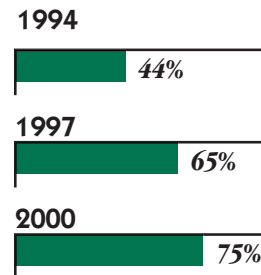
“Industry estimates for filling an order range from 15¢ to \$8 per line item,” said Martin. “Intelligent pick lists really shave down that cost.”

Martin and Victor made their way to the Shipping dock. Emma, an experienced employee, was overseeing the loading of orders onto waiting trucks.

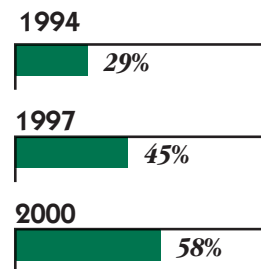
“Hi guys,” Emma said as the two men approached.

Bar coding flourishes in warehouses

Volume of warehouse throughput done with bar coding:



Number of all warehouses automated with bar coding:



Automated Data Collection Market Study,
AIM USA



Better customer relations

Bar code labels are an important part of customer relations, because they look more professional and provide vital information.

Manufacturing Systems,
February 1997

“The High Flyer is selling like hot cakes! Come to help load a few trucks?”

“We were just remarking how smooth and efficient everything is in Shipping these days,” said Martin.

Emma stepped up to a pallet loaded with boxes. Each box was labelled with a bar code. When an order was ready to go, each

label was scanned, the pallet was shrink-wrapped, a label was printed for the shipment, and the packing slip was generated automatically.

“It used to take minutes and minutes of typing to get all that into the system,” said Emma. “Now it’s bing! bang! boom! All it takes is a few seconds of scanning.”

Martin pointed out that since the packing list and invoice are generated using the scanned data, they reflect the actual shipment.

“Shipping is an area where it’s easy to make a mistake,” said Emma. “But with bar code labeling we catch 99% of them before they leave the dock.”

“If you take a close look at a box,” said Martin, “you’ll notice an extra bar-coded label. That’s for customers with bar coding at their end—compliance labeling, it’s called. Our biggest customers require it. Since we already use bar coding, it costs us little, and provides a great deal of customer satisfaction. Our customers can simply scan those labels as part of their Receiving process.”

“Improved efficiency . . . fewer lost orders . . . employee satisfaction . . . and value-added service for our customers. Sounds like higher sales and lower costs to me!” said Victor.

*“Receiving by bar coding
is saving us lots of time.
What took minutes before
now takes us
only seconds...”*





Rapid Receiving

Victor and Martin made their way from Shipping to the Receiving area. Here, the object was to receive and process incoming goods as quickly and accurately as possible, then get

them to Stores or the shop floor with minimum delay. As in the other areas of the company, bar code scanning was the key to acceleration in Receiving.

“Don’t tell me that this is your favorite part of the company too!” Victor said.

“I remember your complaints in the days before bar coding!”

“Suggestions, Victor, they were suggestions!” smiled Martin. “I never complain!”

“At any rate, looks like everything’s running more efficiently than it used to,”

said Victor, who got a kick out of putting Martin on the spot.

Martin reviewed how the company used to receive items manually. It had been fairly typical.

When a shipment arrived, the receiver pulled the packing slip and compared it to a printed version of the open purchase order. He or she visually checked the order, noting any discrepancies to enter into their system some time later.

Labels were printed for the goods, and they were sent to Stores, or directly to the shop floor, as needed.



“Sounds pretty straightforward,” said Victor. “And as the order comes in, the other departments receive the information—uh, some time later.”

“It *can* be straightforward,” agreed Martin. “But it’s error-prone and time-consuming. The shipment might contain the wrong items but get OK’d anyway. Or a discrepancy might be missed—in manual systems, it takes a trained eye to identify items. Plus, there’s always the chance the wrong numbers might be typed into the system. When incorrect data slips by and items go to stock, it’s difficult to trace the error. There’s no way of knowing if goods received have been checked.”



“How did bar coding help?” asked Victor.

“Bar coding makes it easy to receive goods,” said Martin. “You’ll notice how each box arrives with a bar code label already attached. That’s because we asked *our* suppliers for compliance labeling as well. Now the employee walks through the Receiving area scanning the bar codes with a portable RF scanning device.”

“What kind of information is on the labels?”

“Everything. Order number, product number, lot number, quantity—it’s all bar coded for immediate and error-free entry into our database.”

“That’s a lot of information,” commented Victor.

“And very useful too,” said Martin. “But don’t forget, scanning a bar code is much faster than entering data manually. All in all, receiving by bar coding is saving us 75% of the time it used to take. What took minutes before now takes us only seconds.”

“Remind me how we convinced our suppliers to put bar

Six factors in choosing bar code labels

1. Product

The size and shape of the products to be labeled

2. Bar Code *The size and type of bar code to include*

3. Graphics

Graphic elements: color, logo, or pictures

4. Description

Human-readable elements: company or product name, shipping or handling information

5. Environment

Environmental and surface conditions for the label

6. Printing

Printed in-house, or pre-printed



Portable tools

If your employees move around to do their jobs, their tools should move with them.

ID Systems
1994 Buyer's Guide

codes on their packaging,” said Victor.

“Don’t you remember? You signed the letters,” said Martin.

“I sign a lot of letters,” sighed Victor. “It doesn’t mean I remember them all!”

“All right then,” smiled Martin. “We sent out letters of compliance to our largest suppliers, using the 80/20 rule—20 percent of our suppliers furnish 80 percent of our material. We specified the information and the format we wanted. We also gave them a time frame. As our system came

up, the labels came in . . .”

“—and we were off to the races,” interrupted Victor. “I can see that in Receiving, bar coding really reduced our overhead, improved our efficiency, and unlocked the power of our ERP system.”

“And we’re not done yet! As you’ll see,” added Martin, “it’s easy to expand, too.”

*“Next, we’re going to add
bar coding to some more areas
of our ERP system—and mak-
ing these changes will be fast,
easy, and cost-effective
to do...”*





Easy Expansion

The two men began making their way back to Victor's office. "We'll have to take another stroll in a few months to compare bar coding now with bar coding then," Martin said.

"I've seen your proposals for expansion, and I must say they look good," said Victor.

"Thanks," said Martin. "As you know, we have plans to add new transactions and to bar code some other areas. Since enter-



ing data into the system doesn't get in the way of doing the job, we're going to tap into areas of our ERP system where we haven't been taking full advantage."

"Isn't that going to be difficult?" asked Victor.

"Not with our system," said Martin. "It's a matter of adding bar codes to the appropriate processes."

"For instance, we'll be putting bar codes on all our power tools, and then scanning them as workers borrow them from the tool cage. We figure adding this function—asset tracking—will pay for itself pretty quickly. And once we've implemented it in one plant, we can easily make the same changes in all the rest."

"Speaking of which, I hear Mexico is going pretty well."

"Sure is!" said Martin. "All we had to do was change the prompts to Spanish. Connectware is designed to support multiple languages."

“So that was a simple change to make?” asked Victor.

“Sure was,” replied Martin. “Remember, Connectware is the *middleware* between the bar code hardware and our ERP system. So a change to the user interface on the scanner is fast and easy to do.”

“Without a lot of programming...” hinted Victor.

“Yes,” said Martin. “It’s cost-effective, fast, and easy—and it’s put us light years ahead of the competition.

“All the most popular transactions were already supported by Connectware. We started with the ones we use every day. Each time we wanted to expand our system, we simply added new transactions at our own pace,” he added.

“So there aren’t many bar code integration packages like it out there?” asked Victor.

“No way!” said Martin.

“Connectware isn’t bragging when they say they have the only off-the-shelf solution for quick and easy bar coding for ERP systems.”

“But I seem to recall we customized some transactions ourselves,” noted Victor. “Why didn’t we develop the whole solution in-house?”

“We could never have hoped to develop the expertise that walked in the door with Connectware. And we wouldn’t have wanted to. This project would have taken us months and been a real gamble. Instead, it took us weeks and was a sure thing.”



Sharing your costs

Off-the-shelf software from Connectware will simplify the task of integrating bar coding with your ERP system. And the costs for a generic solution will be shared among hundreds of other users—giving you a faster payback.



“Well!” said Victor. “Fast and easy, all popular transactions supported off-the-shelf, and far more cost-effective than doing it ourselves. You’re really preaching to the converted!”

Martin winked. “I thought I was,” he said smiling.

*“We’ve seen that bar coding
is not complicated to imple-
ment or to use.*

*In our case, it’s actually easier
than the system
we had before...”*





Putting It All Together

Martin accompanied Victor the short distance across the courtyard back to his office.

“Thanks for your time,” said Victor. “It’s one thing to

imagine the possibilities of bar coding, but it’s quite another to see it hard at work. When you first brought up the idea, I admit I was sceptical, but there’s no doubt in my mind now—bar coding is the way to go!”

“No one is eager to make changes,” said Martin. “But I think we’ve seen that bar coding isn’t complicated to implement or to use. In our case, it was

actually easier to use than the system we had before.”

“So let me get this straight,” said Victor. “The benefits of bar coding extend all the way from the shop floor to the decision-maker, correct?” Victor made a list. He labeled it “Benefits of Bar Coding” and it looked like this:

Benefits of Bar Coding

- ✓ Reduces errors
- ✓ Streamlines operations for better use of time, people, and materials
- ✓ Gets ERP system out of history mode and into real-time mode

“So at the corporate level,” Victor continued, “a bar code data capture system is the key to providing management with timely and accurate information. It improves decision-making and yields a more efficient organization. Tell me again: bar coding is how much more accurate than manual data entry?”

“It’s thousands of times more accurate than scribbling down notes and typing them into a computer,” said Martin.

“That’s great,” said Victor, scribbling down another note. He raised his head and extended his hand.

“Well, thanks again, Martin.”

Martin said goodbye and returned to his duties. Once Martin had left his office, Victor made one final list. This one he entitled “Benefits of Connectware”:

Benefits of Connectware

- ✓ Off-the-shelf package for rapid implementation
- ✓ All popular transactions already supported
- ✓ Easy to tailor for our specific needs

Then he went to work on his speech in earnest. A few minutes later, Victor leaned back in his chair, and reviewed his notes:

“It is with great pleasure that I accept this award of excellence from the Toy Manufacturers’ Association.

“Today I’d like to tell you how we streamlined our operations, increased our profitability, and became a world-class manufacturer with a tough-to-beat competitive edge. At the same time, we extended the supply chain to achieve an intimate partnership with our suppliers and customers.

The bottom line...

The use of bar coding enhances productivity and inventory accuracy by providing real-time control, validation of completed tasks, less paperwork, and elimination of data-entry errors.

Manufacturing Systems,
February 1997



“In short, I’d like to tell you how bar coding unlocked the power of our ERP system . . .”

Victor glanced at his wall, where he’d framed a cherished memento: a photo of his first tricycle, from when he was five years old.

“It looks like I’ll have to move my picture,” he thought.
“I need to make space on my wall for that award!” ■

*“The next step depends on you:
whether you’re keen to get
started on your bar coding
project, or still researching the
possibilities...”*



Where Do You Go From Here?

Now that you've heard all about bar coding at Acme, what's the next step? That all depends on you. If you're keen to get started on your bar coding project, and can't wait to hear more, we welcome your call to

(514) 287-1854

We will rush you a complete literature pack that includes all the technical information you need. And if you'd like to speak with one of our Account Managers about how to put Connectware's technology to work for your company, we'd be happy to help.

Another great way to find out more about Connectware is to visit our Web site at

www.connectware.ca

You'll find success stories on our clients, technical specs on our products, and more. You can order a literature pack from our Web site as well.

Or, if you're still researching the possibilities of bar coding, you may want to follow the magazines that cover this subject. We've listed the best resources and tips on the next pages.

Good luck with your research!



*“Here are some helpful books,
magazines, on-line resources,
and tips to help you
on your way...”*





Further Resources

Books

The Bar Code Book—Reading, Printing, and Specification of Bar Code Symbols *Roger C. Palmer*

An in-depth collection of information about bar code technology and applications. Excellent background on bar code symbology, but not much about linking bar coding to ERP systems.

Helmers Publishing Inc.
174 Concord Street
Peterborough, NH 03458
(603) 924-9631

Lines of Communication *Craig K. Harmon*

This book provides an excellent introduction to bar codes, including a brief history, principles of the technology, detailed information on all commonly used bar code symbologies. It contains information on industry standards, printing, scanning technologies, and EDI. One chapter deals with the creation of a corporate bar code task group, and another profiles a number of real-world bar code applications.

Helmers Publishing Inc.
174 Concord Street
Peterborough, NH 03458
(603) 924-9631

Magazines

APICS – The Performance Advantage

The monthly magazine for all members of APICS, the Educational Society for Performance Management. Covers how to enhance the competitiveness, productivity, and profitability of your operations.

2555 Cumberland Parkway, www.apics.org *or*
Suite 299 www.lionhrtpub.com/APICS.html
Atlanta, GA 30339
1-800-392-7294 or
(770) 431-0967, ext. 201

ID Systems

The magazine of automated data collection, and a good source for learning more about bar coding.

174 Concord Street, www.idsystems.com
Peterborough, NH 03458
(603) 924-9631

Manufacturing Systems

Information technology for manufacturing managers, with a strong emphasis on ERP systems. Regular coverage of data collection topics.

191 South Gary Avenue www.manufacturingsystems.com
Carol Stream, IL 60188
(630) 665-1000

Scan Tech News

A part of **Modern Materials Handling** magazine, **Scan Tech News** covers automated data collection solutions for manufacturing, warehousing, and distribution.

275 Washington Street www.scantechnews.com
Newton, MA 02158
(617) 964-3030

On-Line

Introduction to Bar Code Technology

Intermec Corp.

www.intermec.com/datactr/intro.htm

Understanding Radio Frequency Data Communication

Intermec Corp.

www.intermec.com/datactr/radio.htm

Cost Justification of an ADC System

Intermec Corp.

www.intermec.com/datactr/cost.htm

Complete On-Line Library on Bar Coding

ISIT

www.isit.com

Introduction to Barcodes

The Barcode Software Center

www.mecsw.com

Connectware for ERP Systems

Connectware

www.connectware.ca

Associations

AIM USA

AIM USA is the industry association representing all the varied and multi-faceted interests that drive the automatic identification and data capture (AIDC) industry. Its primary mission is to educate users on integrated technology solutions using barcodes, RFID, RF data communications, consumables, magnetic stripes, and many more. AIM USA publishes a Sourcebook which includes basic technology overviews, case studies, applications, and future trends as well as a listing of AIM members.

AIM USA

*634 Alpha Drive
Pittsburgh, PA 15238
(412) 963-8588
www.aimusa.org*

Tips on Your Bar Code Project

Your firm will have good company in your move to bar code data capture.

According to a recent study by the Business Research Group, the market for automated data capture is growing by 20% every year. And by learning from the experiences of other firms, you can help ensure a smooth transition and a quick payback for your company's investment.

Here are some helpful tips we have gathered to help you on your way.

And when you're ready to unlock the power of your ERP system with bar coding, remember that Connectware provides one-stop shopping: a turnkey system with bar code data capture hardware, off-the-shelf software, and quick integration services. You'll be up and running in less time than you ever expected!

Five steps to a successful bar coding system

1. **Consider the users.** Get practical, easy-to-use equipment. Collect data your users really need to see.
2. **Organize your data.** Design useful reports and charts.
3. **Include two-way communication using RF.** Remember that a conversation is better than a monolog.
4. **Recognize the time value of information.** Traditional MIS systems showed you what happened last week. Move to real time to see what's going on right now!
5. **Don't just replace paper with electrons.** Skip unnecessary steps. Let the software validate entries for you.

ID Systems
1994 Buyer's Guide

The future of ADC

*Overall market for automated data capture: \$5 billion
Growth rate: 20%
or \$1 billion a year*

The Emerging ADC Market,
Business Research Group

The four cornerstones of successful RF

1. **Coverage:** Use a site survey to evaluate RF coverage throughout your site.
2. **Response Time:** Consider transaction data size, processing power, transmission speed, and number of RF channels.
3. **Connectivity:** Make sure to achieve a seamless connection, and a good user interface for your environment.
4. **Partnership:** Evaluate the vendor's ability to deliver a system that meets your requirements. Do your homework. Visit reference sites. Talk with actual users. Ask hard questions. Find out the truth about your future partner's ability to deliver.

Bar Code Quarterly,
July 1997

To buy or not to buy?

The worst mistake you can make is putting off a decision because you're sure next year there will be a better or cheaper product. You're right—there probably will be. But in the meantime, your company can save a lot of cash with the units on the market today.

ID Systems,
July 1993

*“Bar coding can work
in any type of manufacturing,
and it’s just as powerful
in a warehouse or
distribution
center...”*





About Acme Tricycle Works

Acme Tricycle Works is like thousands of other manufacturing companies. It could be in any town, anywhere. We created this fictitious company to help explain something very real: the practical benefits of bar coding.

Up until a couple of years ago, Acme was wrestling with the same challenges that face many firms—clerical errors, outdated procedures, and islands of automation, with no overall integration between the different parts of the company. They had customers, and they needed to grow, but it was tough to do.

So they installed an ERP system to provide a new level of integration to the company. Some of their manual procedures went away, and more parts of the business were brought under the same system. But to realize the full benefits of their ERP system—to really unlock its power—they needed to take one more step: to bring in bar code data capture in some key areas. Martin was able to show the benefits to Victor; they put together their system with the help of Connectware, and the results speak for themselves!

Acme is an assembly operation, putting together frames, wheels, and seats to create finished tricycles. But bar coding can work equally well for any type of manufacturing, and it's just as powerful in a warehouse or distribution center.

And it can work for you!



*“When you’re ready to
unlock the power of your
ERP system with bar coding,
remember Connectware,
and you’ll be up and running
in less time than you
ever expected!”*





About Connectware

Founded in 1992, Connectware provides quick and easy, off-the-shelf bar code data capture for ERP systems. Connectware has done hundreds of successful installations in mission-critical areas such as receiving, inventory management, production control, and shipping. Our satisfied clients include AT&T, Black & Decker, Coca Cola, and hundreds more.

With headquarters in Montreal, a growing number of Solution Centers, and a worldwide network of resellers and business partners, Connectware is the leading player in data capture software for ERP.

When you're ready to unlock the power of your ERP system with bar coding, remember that Connectware provides one-stop shopping: a turnkey system with bar code data capture hardware, off-the-shelf software, and quick integration services. You'll be up and running in less time than you ever expected!

www.connectware.ca

“ This book is a must read for companies who are failing to get the most out of their ERP system.

It gets right to the heart of explaining how bar code technology can help companies get or maintain a competitive edge. ”

Larry Roberts,
President and CEO, AIM USA

Come on a guided tour of the Acme Tricycle Works to see bar coding in action in all key areas of the company: Receiving, Stores, Production, Warehousing, and Shipping.

Learn how bar coding enabled Acme to unlock the power of their ERP system, and transform their operation into an award-winning, world-class competitor!



\$10.95 in USA
\$14.99 in Canada