



Barcodes and the Small Business Manufacturer

The small manufacturer that hasn't yet instituted the use of barcodes in their operations can usually cite one of two reasons. One, they just don't see what value barcodes bring to their operations, specifically how can they can save money and increase profits, or two, they started small without barcodes, then grew to a size where now the task of implementing a barcode system seems daunting. Regardless of which camp the non-barcoding manufacturer falls into, they are both missing out on a level of efficiency, productivity, and quality that their competitors are almost certainly taking advantage of.

Barcodes are not to be feared. Nor is the expense of the investment, or the time and resource required to implement a system. Barcode systems are scalable and can be deployed to only specific parts of the operation to start with. Over time they can be expanded to other parts of the operation and the technology deployed can be upgraded as well.

Let's take a look at a barcode system from the perspective of **Who, What, When, Where,** and **Why.**



Who

Any company that utilizes inventory in their operations should be using barcodes. For the purpose

of this paper we're going to focus on the small-to-mid-sized manufacturer.

What does small-to-mid-sized mean? It's purely subjective, but if you purchase raw materials or components and then produce or assemble a finished product, you qualify. Barcodes will improve your efficiency and ultimately save you money.

What

This will take a little more in-depth discussion because now we start talking about what types of barcode scanning technologies are available. To avoid getting too complicated, we'll break it down into three categories that might be considered good, better, and best.

Corded Barcode Scanners

A barcode scanner with a cord that plugs into the USB port on a computer is the simplest and least expensive way to get into some form of barcoding. For less than \$100 you can be scanning barcodes instead of entering data using the keyboard, which, by the way, usually results in a typographical error once in every 300 keystrokes. A barcode scan? One error in every 3 million scans or better. There's no comparison. Plug in a barcode scanner and scan data anywhere you can as opposed to typing it in.



However, you have to have barcodes to scan right? Of course! We'll get to that a bit later, but for now it's important to understand that you could equip your PC workstations with a barcode scanner for a

very modest investment and start reaping the benefits of faster data entry with virtually zero errors.

Batch Handheld Computers

A corded barcode scanner can only go so far... literally. Sometimes the most efficient approach would be to take the scanning device to the work instead bringing the work to the scanner. The best examples might be at the receiving dock or when it comes time to do a physical count. Having a portable barcode scanner would be ideal, which brings us to the "batch" handheld computer...a handheld device with an integrated barcode scanner that has the ability to run a simple program prompting the user to scan barcodes and enter data on the keypad. This scanned or keyed data is stored on the device until such time that the handheld can be connected to a computer via USB and the data can be uploaded, usually in the form of a text file. This file can then be imported into an accounting system or even opened in a spreadsheet program like Excel. A great process to use batch handheld computers would be performing a physical inventory count. Scanning barcodes and keying in quantities is so much faster and virtually error-free when compared to pencil-and-paper methods. Some companies see a reduction in time and labor from days to hours with far more accuracy. And don't discount the time it takes to go reconcile counts that were simply entered wrong during the keypunch process. Almost all of those will go away with barcode scanning.

Beyond the counting process, batch handhelds can be used at receiving or when picking parts for a kit or for an order. The secret to the success of the batch handheld is the program running on it, which can often times be written by the user or may require the assistance of an



integrator. Some devices come with basic software included, or even a "program generator" that allows the user to write their own programs with little or no programming experience.

The bottom line is that the batch handheld computer, with the right programming, can allow you to take the barcode scanner directly to the point of transaction and reap the benefits of faster, more accurate data entry. The cost? Not as much as you might think. You could certainly spend well over \$1,000, but you can just as easily spend a few hundred dollars. It just depends on the type of device you need. How harsh is the environment, how far away do you need to scan the barcodes, how large of a display do you prefer, etc. It can be like selecting a car, only not nearly as expensive. If you can live without "real time" access to your data and a batch handheld seems to be a better approach than a corded scanner, it will pay for itself in no time.

Wireless Handheld Computers

The best way to think of a wireless handheld computer is to start with a batch handheld and then add a Wi-Fi radio. In fact, many wireless devices are just that. Many manufacturers offer the same device in both batch and Wi-Fi versions. The upside to the wireless, or Wi-Fi, device is that it is in constant communication with a server and with every scan or key-press, data is moving back and forth between the two. With a wireless device, as soon as an item is scanned in at receiving, the people in the front office can see it in their inventory or accounting system. With a batch device, that visibility doesn't occur until the device is connected to the computer and the file uploaded. So the key selling feature of a wireless handheld computer is the fact that data concerning your inventory is made available in real time.



The perceived downside to the utilization of wireless devices is cost and maybe even complexity. It's only a perceived downside because the reality is that the return on the initial investment can be quickly achieved if the devices are deployed and utilized properly. Yes, there is an initial investment and some disruption usually in the form of a learning curve, but the benefits in speed and accuracy far outweigh the initial inconveniences.

The handheld devices themselves are going to be more expensive and they must have a Wi-Fi network to communicate over to the server. Fortunately, the cost of installing a Wi-Fi, or 802.11b/g network has fallen dramatically over the years, but should still be installed by professionals skilled in network installation.

Beyond the hardware, utilizing Wi-Fi devices means that the host software running on the server must be capable of supporting mobile devices, meaning that it must be able to send and accept data to and from the Wi-Fi handheld devices, in addition to the PC workstations. This might mean installing new software or adding on a "module" to your existing software that allows it to support mobile devices. The good news is that there are a plethora of choices out there when it comes to software for small business. There are even cloud-based solutions that allow you to effectively lease your software on a per-user basis. While it is not as intimidating as it sounds, it is recommended that you seek professional assistance should you choose to go the Wi-Fi route, especially if you're starting out on a paper-based system. Most software providers have the resources to assist with installation and training, and if not, there are many third party companies that specialize in the deployment of barcode data collection systems. The investment cost will vary greatly depending on how many devices are required and what software is utilized, but whether its \$10,000 or \$100,000 the ROI can be justified through labor savings throughout

the organization, immediate visibility to inventory movement, and improvement in data accuracy...all of which add up to a more efficient, more profitable organization with better tools to conduct business.

The Barcodes

Earlier we skipped over the all-important issue of the barcode. If barcodes aren't already on the inventory, how do they get there? Generally we're speaking of barcodes printed onto labels which are then applied to the inventory items. But how do those barcode labels get onto the inventory? The idea of going through every single



item one at a time, and then applying a barcode label to it, seems far too disruptive and too labor intensive, and it is. Besides, there's a good chance that in an exercise like that, some labels might get applied to the wrong item introducing all sorts of problems. So what to do?

Start at the receiving dock. In fact, back up even before the receiving dock. Can you ask your vendors to apply your barcode labels as they pick your order and before they ship it? If not, you'll have to apply them yourself, but do so at the receiving dock. As items are received in, print the labels and apply them to the product. If there is a bin the product goes in, apply a label to it as well. When you pull stock for production, always pull the items without the barcodes first. Eventually you'll reach a point where there won't be anything left but barcoded items.

Don't even think about deploying the hardware to scan the barcodes for several weeks or a few months or however long it takes to turn over your inventory. Give the barcoded inventory a chance to filter in and the non-barcoded inventory to be consumed. If you're like most

manufacturers you've got inventory that never moves or will take a lot longer than you want to wait, but even if you get 80% of your inventory barcoded using this approach, it's far less disruptive than trying to "barcode blitz" your inventory all at once. Those items that still aren't barcoded when you decide to start using your scanners will have to be handled differently. When you go to pick an item that doesn't have a barcode, you'll have to stop and apply a barcode label then. When it comes time to perform a cycle count or physical inventory count, the same rule applies. If an item doesn't have a barcode label, stop and create a label, then apply it. This may sound like a tedious thing to do during a count, but you'll only have to do it once and never again, and only to a small percentage of inventory. The alternative would be resorting to a "mass labeling" of the remaining unlabeled items, which may be the right choice depending on how many items are left. Regardless, the key is to hold off implementing whichever scanning technology you choose until at least your fastest moving inventory has been labeled.

While you're in the mode of creating and applying barcode labels, consider creating a location label for each area in your warehouse or stockroom you deem to be a useable location. It might be a single bin, or a shelf or maybe even a cabinet. Regardless how you have designed your warehouse, you have probably already designed a location system, even if it's informal. Now barcode it using any system you want, but don't associate any particular item to it. For example you might create and apply a label that says A-3-4 in the barcode. To you that could mean Row A, Rack 3, Shelf 4. You might not use these location labels now, but you should try to implement them as soon as possible. Most inventory software packages allow you to associate a location with an item to help workers locate the item quicker. It's so simple to implement it would be a shame not to.

When

When to implement a barcode system is going to be very subjective depending on the organization and the type of technology you deploy. If you go with corded scanners to begin with, start tomorrow. You're basically just replacing your keyboard for some aspects of your data entry so there's no reason not to do that right away.



If you decide to go with batch handheld computers, you're likely going to start with maybe just one or two applications, like cycle counting or receiving. Again, there's no real reason not to start right away but don't forget to phase in the barcode labels as it was discussed earlier. Until there are barcodes to scan, there's no point in handing out the scanners.

If you go with the wireless (Wi-Fi) approach, things get a little more challenging because you're dealing with issues that cut across the entire organization. You might be installing software that impacts every department and a Wi-Fi network that requires IT resources, both of which might require a fair amount of debugging. If you traditionally have a year-end physical count, it might be better to start the implementation process after the first of the year. Don't risk fouling up an inventory count because a new system hasn't been debugged yet. You're probably going to want to do a physical count after implementation so you can start with fresh counts. This "shake down" would be a little less disruptive than it might be at the end of the year when your accountants are expecting a timely and accurate inventory count. As stated earlier, if you go the Wi-Fi route, don't discount the benefits of bringing in outside resources to help with the implementation. Yes, there is a cost associated with these services, but these people live in this world and know the

pitfalls and what works and what doesn't work. Access to their experience can mean the difference between a successful implementation and a disaster.

Where

Where to implement barcodes is anywhere in your operations where accurate data entry is critical.

- ▶ Cycle Counting
- ▶ Physical Counts
- ▶ Receiving
- ▶ Picking
- ▶ Material Transfers



But look beyond these obvious choices. Barcode labels can be applied to documents as well as inventory. In fact they can be printed directly onto documents...no label required.

- ▶ Job Tracking for work-in-process applications.
- ▶ Time cards
- ▶ Tool Room Check In/ Check Out
- ▶ Serial No./Lot Code tracking

Look for any opportunity from the receiving dock to the front door to utilize barcodes in the place of data entry, especially where the volume or frequency of the data entry makes it prone to errors.

Why

Now that we have talked about all the ways in which barcoding can be used in your small business, why is implementing a barcode system is a good idea for your small business? Not only do barcodes save companies from making errors,



they allow manufacturing to run much more quickly and smoothly than would otherwise be possible. Barcodes make everything traceable and enable dramatic improvements when it comes to speed and efficiency. Scanning one barcode may only save a few seconds, but those seconds begin to add up after time.

Barcode technology isn't just for the corporate enterprises anymore. It's available and affordable to any organization of any size, all of whom can reap the benefits. Start small, test thoroughly, and then scale up over time to get maximum benefits from the technology.



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