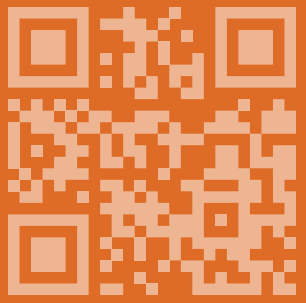
How 2D Scanning Can Benefit Your Business



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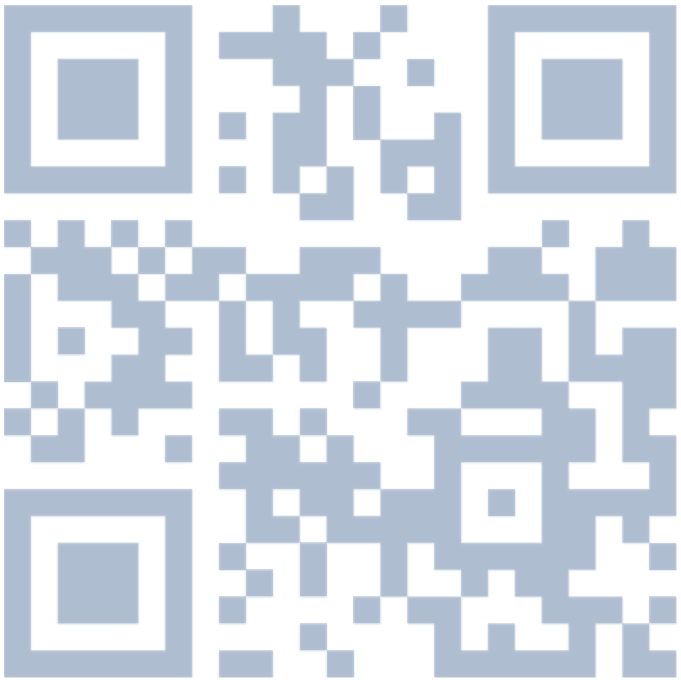


WHAT YOU'LL LEARN

- **2D scanning** vs. traditional laser scanning - what are the advantages?
- How 2D scanners can **improve the efficiency** of your current applications and give you new ways to use barcodes in your business

SCANNING BASICS: FROM LASER TO IMAGER

Whether you're aware of it or not, barcodes are one of the most influential technologies of the 20th century. The simple black and white bars you find on every product have helped usher in a level of efficiency that has allowed for large scale tracking around the globe. Many businesses would not be possible to run without the humble barcode. Keeping track of anything accurately is almost unimaginable without barcodes.

Historically, laser-based scanners were used to read barcodes. These laser scanners are still found in many applications today. While there have been advances in the speed and accuracy of laser scanners, the technology is still essentially the same it was when it was first developed in the '70s.

Today however, there are two technologies used in readers for barcode scanning: lasers and imagers. **Imagers** offer several improvements over the traditional laser while also providing important new capabilities, such as being able to read 2D barcodes. Imagers may have been used only in special cases in the past, but today, the advantages they provide over lasers can help **improve almost any scanning application**.

Choosing the right scanning solution can be a confusing process. Many times, a particular scanner will "work" for your particular scanning needs, but it may not be the most productive choice. Knowing the advantages of each scanning technology will help you choose a scanner that will provide

TECHNOLOGY: LASER SCANNERS

Lasers have been used for barcode scanning since the very beginning. They've been the industry standard for reading linear (1D) barcodes due to their reliable performance and low cost. Walk into any retail store from the supermarket to the local convenient store and you'll find laser scanners hard at work.

At this point, almost everyone intuitively knows how to use a laser scanner. Line up the red line with the barcode and pull the trigger. Easy!

Their simplicity and ease of use are a big part of what makes them so valuable. They may be available in a variety of form factors, like the standard handheld gun, presentation models that don't require triggering, and in-counter units you see at the grocery store - but they all work the same way.

HOW EXACTLY DO THEY WORK THOUGH?

With a laser scanner, as you aim the laser horizontally across the black and white bars in the code, it is either absorbed (black lines) or reflected (white spaces). When you pull the trigger, the reflected light is picked up by the scanner to determine the pattern of the code and the information embedded in it. Think of it like a switch turning on and off really fast.

For standard linear barcodes, this has been a **reliable** and **economical** scanning method. However, when you start dealing with poorly printed codes that do not reflect/absorb the laser properly, a laser scanner won't provide a good read. Likewise, when trying to read a code, you have to make sure the laser line crosses the full code. If part of the code is damaged or you scan at too much of angle, you won't get a positive read.

Laser scanners may be the most common, but they do have their limitations. For light volume scanning or applications where the barcodes are always perfect, a laser scanner is hard to beat. In reality though, many applications will run into limitations of this technology. This is where the advances in imaging scanners can be the right solution for you.

TECHNOLOGY: IMAGING SCANNERS

While they may be the new kid on the block, **imaging scanners** (imagers) have quickly gained popularity is many applications. From retail check-out to the medical field, imagers are being used for their added capabilities and aggressive reading.

To best understand the differences imagers bring to the table we should first know how they work.

Imagers vary from laser scanners in that instead of trying to read reflected light off of the barcode, the imager **takes a picture** of the barcode. They are optimized to distinguish the high contrast black and white barcodes which are quickly analyzed to decode the information. It may seem that this process would be slower than laser scanning at first. However, the past several years have seen the technology and decoding algorithms become smart enough to be just as fast, if not faster, than traditional lasers.

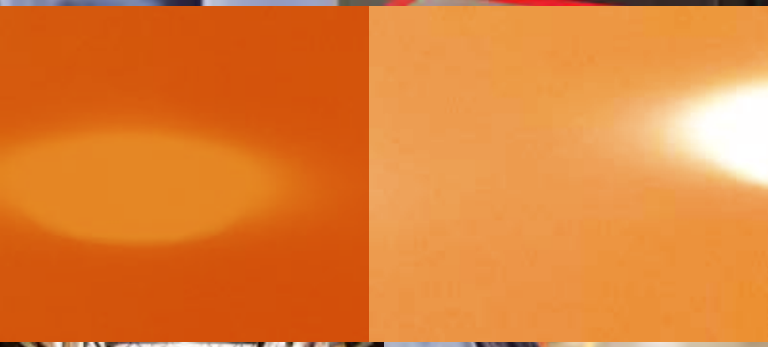
The **first advantage** an imager has is that since it is not relying on reflected light, **it can read a barcode in any direction on any surface** - printed or on a screen, upside down, or sideways! The imager does the work for you by knowing how the code should be read once the image is captured. This translates into faster scans since you no longer need to line up the scanner line exactly across the code. Just get the code in front of the scanner and pull the trigger.

You can also read codes that are damaged or poorly printed, which is something that laser scanners would never be able to. Imagers have a greater tolerance when the print isn't quite dark enough or faded since they are processing images instead of reflected light. In the case of damaged codes, if there isn't a clean straight line across the code a laser can't read it. An imager is **smart** enough to still extract the information from the code as long as it can be read somewhere in it.

Another big **advantage** imagers provide is that they can read any type of barcode. 1D, stacked, 2D, and even postal barcodes are not a problem. If you need to read a variety of barcode types, the 2D imager is an obvious choice. However, even if you are not using 2D or stacked codes today, being able to read them allows you to expand how you use barcodes and scanning in your business.

One last thing to keep in mind is that there are technically two types of imagers. **Full 2D** imagers can read any code while **linear imagers** are optimized for 1D codes only. When you only want a basic replacement for a laser scanner, the linear imager will give you the advantages of an imager at the same cost as laser. 2D imagers will be more costly, but they will also allow you to scan other types of codes.

If you're looking to improve the **speed** and **efficiency** of your current scanning application, you will see immediate results by switching over to an imager. They may be a little more expensive, but their benefits add up to a better, more capable scanning process.



EXPANDING BARCODE FUNC-TIONALITY WITH 2D SCANNING

With an imager, your business can start using 2D barcodes in new ways that you can't with linear barcodes.

Some of the most common alternate uses for imagers are:

Age Verification – Scan the stacked barcode on a driver's license to confirm it's valid and the age of the individual with a single scan. Protect your business from fines, legal costs, and lost time with a simple, accurate scanning solution.

Customer Account Creation – Using the same code on a driver's license, you can quickly collect all the contact information of a customer. Create a customer account or fill out a credit application without inconveniencing your customers or employees.

Couponing – Email or text your customers a 2D barcode coupon that you can easily scan at the POS right off their phone screen. Using 2D codes makes tracking the coupon usage much easier, with unique codes for each customer and promotion.

Event Ticketing – Similar to coupons, tickets can be issued electronically and then scanned off of a phone screen. With no printed ticket involved, you reduce overall costs and the possibility of fake tickets.

Image Capture - Since imagers are actually a type of camera, many models can also take basic photos. Depending on your application needs, your scanner can help document damages, capture a signature on a form, or even photo ID a person by acting as a camera as well.

BARCODE SCANNING IN YOUR BUSINESS

Pretty much every business uses barcodes in some way today. Scanners are a core component in every scanning and tracking application and ultimately impact the success of your scanning application. Having the wrong or inferior scanner in place will **limit** how effectively you can use barcodes.

Laser scanners may historically have been the most common type, but that doesn't mean they are always the best choice for your application. Though they may be a little more costly, imagers provide a host of performance and functional advantages over lasers. These differences can determine whether or not you use barcode scanning in the most productive way for your business.

Get the most out of barcode scanning in your business. Just pull the trigger!

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