Understanding Barcodes
& The Benefits of Using Them

Barcode Scanning Technology is able to help businesses raise warehouse productivity by offering unrivalled accuracy and efficiency within their operations. But exactly what are barcodes and how do they work?

- Different types of barcode

- Benefits of barcode scanning technology

- Role of GS1 UK

These questions and more are answered in this whitepaper as we take an in-depth look at barcodes and how they can be used to streamline everyday processes.

What Is A Barcode?

Offering an unrivalled cost effective method of fast, accurate product identification, barcode technology is widely used across all modern businesses.

In many instances however, companies are often unclear as to how this technology can benefit them and where it can be applied. In this whitepaper, you will find out exactly what barcode technology is, how it works and how it can be used to provide huge commercial and operational benefits.

Essentially a barcode is a patterned code, commonly consisting of numbers and parallel lines of varying widths, which computers can read automatically to identify a product. For example

when an item is sold to customer at a point of sale, a scanner will read the attached barcode, identify the unique number to the relevant product and complete the sale by pulling through the correct price and reducing the held stock figures accordingly. Barcodes can come in various different forms, with different types of barcodes used to serve different purposes depending on the product for which they will be used.
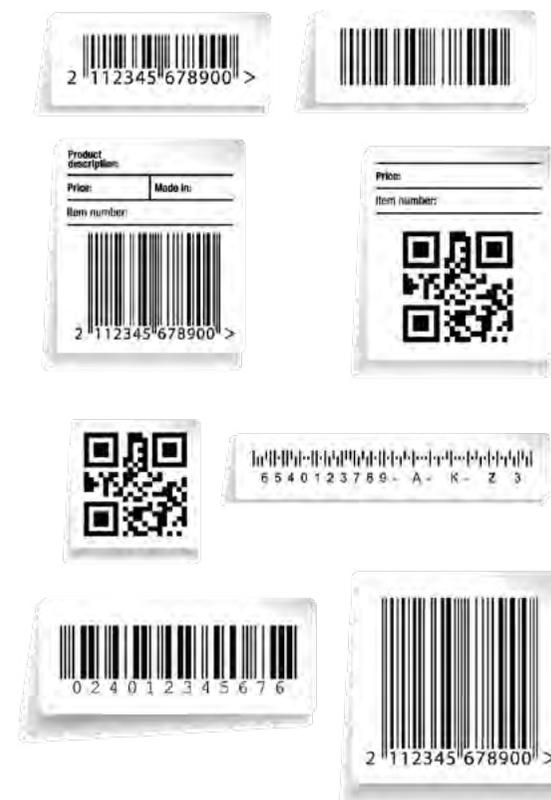
The Types of Barcode You Need To Know

GTIN

A Global Trade Item Number (GTIN) is a globally unique number that is used to uniquely identify a product or service that may be priced, ordered or invoiced at some point in the supply chain. When a barcode is scanned at the point of sale, a GTIN located in the database is found and used to access the necessary information in order for the sale to be completed. Every product has a GTIN, with these coming in one of four different formats:

- GTIN-8 – These are ideally used for very small retail items. For example, a tube of lip or chapstick.

- GTIN-12 – These are ideal for all standard items.

- GTIN-13 – This format is again ideal for all standard items and is also primarily used in EAN-13 barcodes which we will also learn about later.

- GTIN-14 – This format is used on all items that will not be sold at the checkout and contains items that are themselves identified with a GTIN- 8, GTIN-12 or GTIN-13 barcode. For example, this could be a wholesale case of Coke cans.

GTINs are considered one of the essential building blocks of the GS1 system, facilitating efficient scanning at checkout and accurate stock control and order replenishment. Because of this, GS1 recommends that GTINs are in a 14-digit reference field in the database in order to accommodate all GTIN data structures, with leading zeros added in front of the smaller formats.

We will learn more about GS1 and their barcoding standards later.

EAN & UPC

European Article Numbers (EANs) and Unique Product Codes (UPCs) are the two most widely used barcode formats in the world. They are commonly found at retail point of sale as they are purposefully designed for high volume scanning environments. Across all EANs and UPCs, there are four main symbol types:

- EAN-13 (GTIN-13)

- EAN-8 (GTIN-8)

- UPC-A (GTIN-12)

- UPC-E (GTIN-12 on small products)

In addition to these four main symbol types, 2-digit and 5-digit add-on symbols are also defined for specific applications such as books or magazines. These are known as International Standard Book Numbers (ISBNs).

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The Types of Barcode You Need To Know

QR CODES

Quick Response (QR) codes are two dimensional barcodes that don't carry the standard number and line pattern but instead appear in a matrix format. These 2D barcodes use four standardise dencoding modes to store multiple pieces of data. Although previously QR codes were predominantly used for storing web addresses and on carrier shipping labels, these barcodes are now widely used in a number of industries as an accurate and streamlined method of recording product traceability details. These 2D barcodes are also steadily becoming more essential as a means of increasing the efficiency of everyday warehouse tasks as they allow multiple pieces of information to be recorded from just a single scan of one of these barcodes.

What Are The Benefits of Using Barcodes?

GREATER SPEED

Whether it's at a retail or trade counter point of sale or down in the warehouse, using barcode scanning technology can greatly improve the efficiency at which tasks are performed. This is because instead of manually typing in product codes, staff can simply scan an item's barcode in order to instantly find that product within their database. At the checkout, this can massively speed up order processing to allow sales staff, regardless of their experience, to delivery fast, effective customer service. In the warehouse, staff can use barcode scanning devices to achieve rapid picking speeds and ensure goods are scanned in and out of stock as quickly as possible. This not only helps to improve the speed at which orders are turned around, promoting greater order volume handling capabilities.

GREATER ACCURACY

However it is not just huge speed benefits that businesses are able to obtain from using barcode technology but also much greater accuracy levels too. When staff are manually inputting data, there is always the risk of human error, which if occurring often enough can massively impact task performance and possibly incur further repercussions through the supply chain. Barcode scanning technology enables businesses to completely eliminate the risk of human error, ensuring the right products are found so that it is always the right items being booked in, sold, picked and despatched. Using barcode scanning technology can also massively improve the accuracy of stock taking and general warehouse tasks, removing the need for paper notes and Excel spreadsheets containing endless scribbled notes and instead replacing them with highly accurate digital data input.

REDUCED COSTS

By using barcode technology to improve the accuracy and efficiency of everyday tasks, businesses are able to subsequently benefit from lowering their operational costs. Less time and money is spent correcting mistakes that may have occurred or processing customer refunds and instead existing staff are able to be used more effectively. By using barcode scanning devices, staff are able to pick multiple orders at once and speed up point of sale serving times, meaning more orders can be processed and despatched at a faster rate. This allows businesses to achieve greater productivity with the staff they already have, eliminating the need for businesses to employ extra staff or pay for overtime. By being able to not only keep costs down but also increase order despatch rates, businesses can really use barcode scanning technology to increase their overall profitability.

GS1 – Setting Modern Barcoding Standards

With 112 organisations operating across 150 different countries, GS1 are global leaders in providing supply and demand chain standards across a wide range of business sectors.

Their encoded barcodes offer a streamlined method of transferring several different fields of data into a device with a single scan. These include vital information like EAN codes, batch numbers, expiry dates, stock quantities and more. GS1 incorporate the use of both 2D and 1D barcodes, with the encoding in their barcodes referring to the content of the barcode and not its printed characteristics. As a highly effective method of ensuring product traceability is recorded, GS1 barcodes are already widely used in the food and pharmaceutical industries but are quickly becoming increasingly common in other businesses as the use of these barcodes is passed down through the supply chain. Currently, GS1 barcodes are used by over two million companies around the world, including major retailers, popular online marketplaces, food service operators and healthcare organisations, with more than six billion transactions processed using these barcodes each day. Here in the UK, these include the NHS, Boots, Coca-Cola Enterprises, Morrisons, Nestle and Tesco to name a few. The reason that these companies are turning to GS1 barcode technology is that by utilising these within everyday operations, there are a lot of benefits to be gained. By scanning these barcodes to quickly and accurately record all required product details, businesses are able to save time, reduce costs and drive much greater productivity into all processes throughout their supply chain.

Conclusion

By automating processes, increasing accuracy and enabling greater levels of staff productivity and business profitability to be achieved, it is clear that companies should be using barcode scanning technology to their advantage.

By working with top-of-the-range devices and GS1 barcodes, companies can maximise the benefits received from using this technology, ensuring that a quick return on their initial investment is achieved. So if you are not using barcodes within your business at the moment, why not look into this technology further and see how they can help you to massively streamline all aspects of your daily operations.
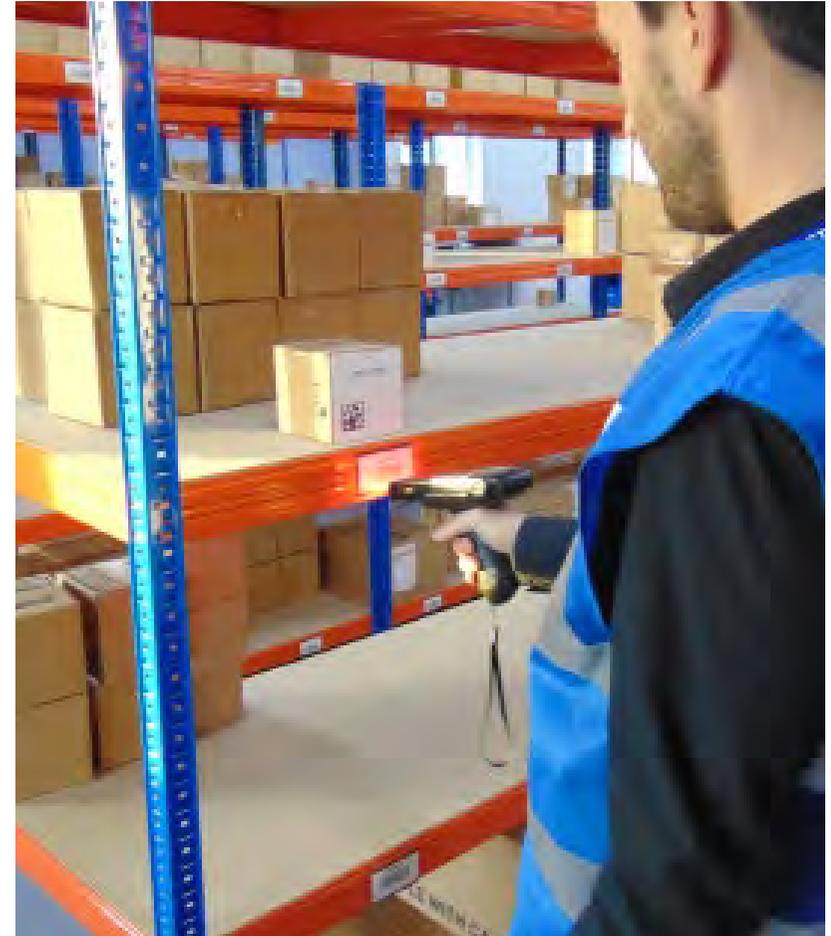
About Us

OrderWise is a comprehensive all-in-one business management solution, designed to help businesses across all industries, sectors and sizes drive increased productivity, accuracy and profitability into every aspect of their daily processes.

Providing extensive functionality to manage all online and offline sales channels, stock control and warehouse management, purchasing, manufacturing and accounting activities, as well as offering fully integrated responsive websites, OrderWise is a complete solution for managing operations from end to end. OrderWise are a UK based company who develop, test, supply, implement and support their business management software from their head offices in Saxilby, and have done for almost 30 years.

OrderWise Key Facts

Companies using OrderWise nationwide	1100 +	OrderWise individual users	15,000 +
New features & functionality **each year**	600 +	Company **founded**	1991
Investments into development **each year**	£2 million +	Staff resources	200 +

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