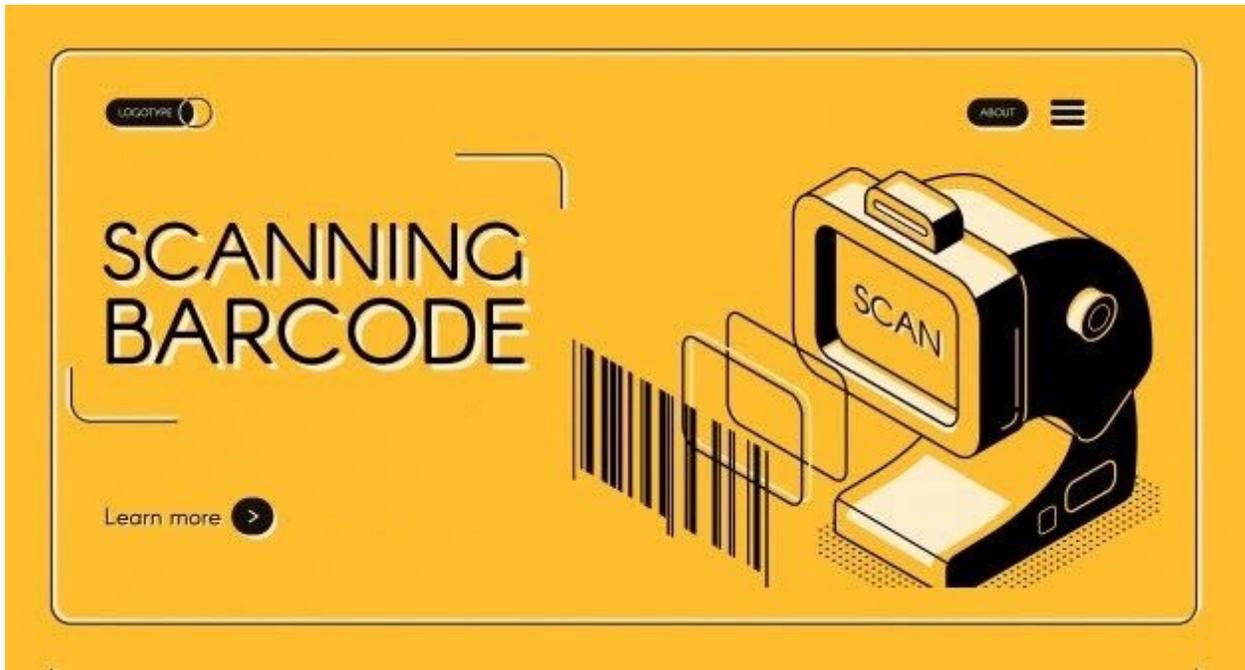

The Comprehensive Guide To Barcodes: 2020 Edition

The Comprehensive Guide To Barcodes: 2020 Edition	1
History Of Barcodes	4
Why People Need Them For Storing Goods	5
Different Types Available In The Market	6
International Bodies Engaged In Barcode Standardization	8
The Future Ahead: Will It Survive The Fresh Competition	9
Use It In Your Firm: Thumbs Up Or Down	11
Summing Up	12



Barcodes are one of the most popular methods used for the identification of stored items in the world. Everywhere we go right from buying apparels to grocery, and even electronics have barcodes on them. They have surfaced as the game changers for businesses dealing in a considerable volume by virtually eliminating the room for error. Probably, they saved billions of dollars since adoption, and if you are wondering what they can do for you, you are at the right place. In this article, I am going to discuss barcodes and everything related to them in detail.

I have never seen a barcode in my life. -No man ever in the 21st century

Dive in deeper to explore the world of vertical stripes!

History Of Barcodes

Bernard Silver conceived this concept. As a graduate student, he heard a local food chain president asking research staff at Drexel Institute of Technology to design automation solutions for reading product information. He later shared this solicitation with his friend Normal Woodland as they started their research.

Inspired by Morse Code, they designed the prototype for which they filed a patent in 1949, and it was later granted in 1952. However, it achieved commercial success only until the '70s, with the supermarkets adopting them slowly. Their invention didn't save much money directly, which discouraged businesses from the beginning. Though [studies](#) later proved it quite lucrative as it helped supermarkets increase their revenue by 10-12% and save 1-2% of their operating costs. In the '80's, even the US Defense ministry adopted them as they went mainstream.

Since then, they have taken over everything that is stored on supermarket shelves to godowns and warehouses. Even today, e-commerce giants rely on barcodes for [inventory management](#).

Why People Need Them For Storing Goods

How many times have you faced this situation in your life: "Many times, I try to find out the remote, and it isn't visible until someone picks it up from right in front of me!" Probably a majority of our readers share similar experiences. This is caused due to lack of working memory capacity. Perhaps, this phenomenon isn't too serious unless it's the world cup finals, but what about employees working at warehouses? This doesn't sound pleasing to the ears. Errors in fetching the right thing or frequent delays made by employees could result in substantial losses to the businesses.

Also, most of the items today are stored in corrugated boxes. It is not possible to open them and check their particulars. Simply writing down the descriptions isn't an option either, even though we have the OCR technology installed today. In the past, it was even more impractical to expect an American to read descriptions in German or Russians to read Japanese for apparent reasons. So, a relatively simple yet effective technology was needed to serve these requirements. Barcodes act as a tool for identifying products as they display all the required information within a small area. You can just scan the code, and it automatically generates the encoded data. This leads to another problem solved by them. Did we just talk about an increase in sales, reduction in thefts, and reduction in operating costs? All of them are availed by the data generated by using barcode scanners. The firms can understand the demand-supply ratio, track goods throughout their product lifecycle. This information discloses vital insights regarding the business, which otherwise would never surface.

Wrigley's chewing gum holds the record for being the first item rolled out of a grocery store with a barcode! -[Source](#)

Have you seen barcodes on FMCG products or even on vegetables and fruits? Well, apart from solving the problems mentioned above, they also help in tracing the entire batch in case a single unit is found problematic. This equally applies to spare parts and everything else that hails from the mass production system.

Different Types Available In The Market

Today, barcodes are available in various configurations. All of them are customized to meet the individual needs of businesses and their stakeholders. However, due to globalization and consumerism, they got standardized to a large extent. They needed to serve a vast number of companies, distributors, and retail agents. On the other hand, standardization also contributed to cost reduction as the firms could process a large number of items from different makes with the same equipment.

In the below sections, I am going to list down the different types of barcodes along with their applications. They are divided into the following main categories:

1. 1D
 - a. Numeric
 - b. Alpha-Numeric
2. 2D

Have a look at the below table for detailed description:

1D	
Sub-Type	Numeric
Name	Application
UPC Codes	Used Extensively Across The Globe
EAN Codes	Similar To UPC, Suited For POS Systems
Industrial 2 Of 5 codes	Older System And Out Of Fashion Due To Less Data Storage
Standard 2 Of 5	Improved Form Of Industrial 2 Of 5 And Currently Obsolete
Interleaved 2 Of 5	Slightly Advanced Than Industrial 2 Of 5 With Limited Reception
POSTNET	It Is :Limited To Postal Services In The United States Of America
Code 11	Low Security, It Is Used By The Telcos And Also Called As USD-8
Codabar	Used By Logistics Companies And Blood Banks In USA, Also Known As USD-4
Sub-Type	Alpha-Numeric
Name	Application
Plessey Code	Used At Supermarkets And Libraries
Code 39	Defense, Automobile Industry, And Other Non-Retail Purposes

LOGMARS	Military Grade Adaption Of Code 39 In The US
Code 128	Advanced Version Of Code 39 And Used Widely In Shipping/Packaging Business
Code 93	Compact Version Of Code 39, Used By Canadian Postal Network
2D	
2D	
Name	Application
QR Codes	QR Codes Are The Most Widely Used Forms Of 2D Barcodes As They Store Unprecedented Amount Of Alpha-Numeric Data With In-Built Three Level Security
Data Matrix	Used In America And Europe In Aeronautical And Electronics Industry, Possesses High Density
PDF417	Popular For Managing Official Documents And Identity Proofs
Aztec	Primarily Used For Ticketing In Transportation And Aviation Industry As They Can Be Scanned At A Faster Rate

Also, I am putting down the list of recognized authorities that control and conduct the use of the above-mentioned configurations. They are active in different industries and geographies. Complying to their norms is essential for fostering ease of trade. It also curbs the complexities and costs associated with multiple standards within the same sector.

International Bodies Engaged In Barcode Standardization

- AIM Global (Association for Automatic Identification and Mobility)
- International Organization for Standardization (ISO)
- International Warehouse Logistics Association (IWLA)
- Organization for Data Exchange (ODETTE)
- American National Standards Institute (ANSI)
- Automotive Industry Action Group (AIAG)
- The Environmental Protection Agency (EPA)
- The Federal Highway Administration (FHWA)
- Japan Auto Parts Industries Association (JAPIA)
- Japan Automobile Manufacturers Association (JAMA)

The Future Ahead: Will It Survive The Fresh Competition

Have you ever wondered that if software like [Google Lens](#) these days can identify objects so quickly, what industrial purposes can it serve? Yes, we are talking about distinguishing the items in production facilities and throughout the supply chain using such advanced technologies. Image recognition, RFID, and NFC are three major contenders that can have an impact on the barcode market shortly.

RFID (Radio-frequency identification) technology has evolved as one of the most successful means of long-distance verification tools available. Many countries have implemented it to collect toll taxes on highways and preventing vehicle thefts. Using them in warehouses will result in tremendous ease of operating, but the cost factor is the biggest challenge we face in doing so. These RFID chips are far more expensive than a simple barcode sticker and will require heavy investment to implement it throughout the supply chain. I feel that the value they deliver at the current financial costs will continue to make their adoption hard.

Koreans were fond of the amazing Barcode Battler which literally used barcodes as gaming elements. [-source](#)

NFC (Near-field communication) is a wireless technology that works in relatively smaller proximities of upto 10 cm. This is a better alternative to RFIDs since smartphones can interact with this technology. In my view, it is a stronger contender to barcodes as it lowers the financial entry bar. Image recognition can go well, but there is a grave problem: you can't work with similar items, and fixing the cost-discount factor is also far from possible. At the current maturity levels, it cannot differentiate among a million similar things, and perhaps without any markings, it will remain impossible.



I find two factors leaning in favor of the barcodes in the longer term: Firstly, they serve their purpose at highly competitive prices, and secondly, replacing them is not a necessity. Putting things in black and

white, unless people are benefited genuinely by any of the above-mentioned alternatives, I don't see barcodes going anywhere. Today, many firms are also using digital barcodes embedded in the entire product packaging. This means that you can scan the object from any angle around its surface, and it will function as a normal one. Thus, I feel that though the 1D variant is going obsolete, 2D and digital barcodes are not going anywhere in the near decades.

Use It In Your Firm: Thumbs Up Or Down

If you are not using them currently, I want you to know one thing. Unless you are dealing in extremely low quantity or delivering order-based products, you are missing a lot of advantages. They are equivalent to assets when it comes to unleashing data. They can also help you analyze your marketing ventures through printed collaterals/ads. You should go for them if:

- You have a fast-paced supply chain.
- You work in huge volumes, and storage is required at any stage of the supply chain.
- Your product is stored with similar ones supplied by other companies.
- Your products sell along with other similar and dissimilar products like in clothing shops or grocery marts.
- Data regarding demand-supply fluctuation is beneficial for your business.
- You need to keep track of your assets.
- Your products are at the risk of becoming unfit for use, like in the case of edible items.
- You have to manage a massive inventory of parts that are assembled to form different products.

These situations depict the need to include barcodes as a part of your operational methods. I feel that most firms will have to use them when they grow to a certain level.

Summing Up

We looked at a lot of aspects of barcodes and how they impact businesses. One thing I will like to tell my audience at the end is to focus on business intelligence generated. If your firm can benefit from business intelligence, barcodes will definitely play a smaller or larger role in the process. They have not only helped save billions of dollars over these years but also facilitated countless business decisions. I hope that you find this article useful to understand barcodes and do share your views in the comments section.

[Take a free 14-day trial of Orderhive!](#)
