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Original Citation

Dani, Samir (2016) Has the barcode reached its ‘use by’ date? The Conversation. ISSN 2044-5032

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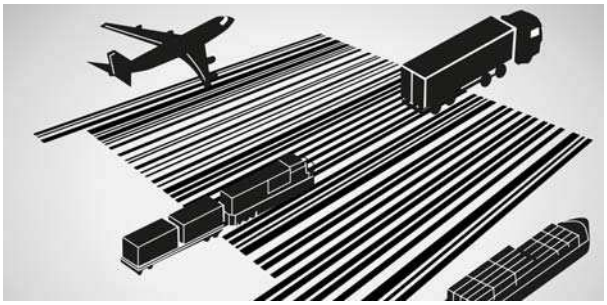

Has the barcode reached its ‘use by’ date?

February 16, 2016 2.36pm GMT

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The ubiquitous barcode has revolutionised the retail industry since its arrival on a packet of Wrigley’s chewing gum in 1974. The black and white striped sticker encodes information about the product that can be easily scanned, speeding up checkout and making logistics easier. But businesses, regulators and shoppers themselves are demanding more information about their products – and this may mean the reign of the barcode is coming to an end.

Supply chains rely on information. Even a small error or omission could create waves through the supply chain, errors that could lead to, for example, costly over or under-stocking, or accidental breaches of regulation or even potentially illegal activity.

In the food industry, for example, considerable information is needed. Knowing what the product is, where it’s come from, how and through whose hands are important details to gain consumer trust and confidence - and in some cases are a legal requirement. Following food scares like the horsemeat scandal and the recent European Union rules that require detailed labelling of 14 allergens on food packaging there is a great deal of information that consumers want to see: ingredients’ source, allergens, details of processing and packaging facilities, and other sustainability information. One approach to combat food tainting and increase traceability is DNA barcoding, where genetic markers taken from the product are used to identify its species exactly.

Now that smartphones with mobile internet access are so common, there’s the potential to create a new approach that could offer all this additional information to the consumer. As systems change, retailers will also benefit from being able to store more information with the product: batch information, sell-by dates, and so on – information that can help them tackle fraud and wastage.

The barcode has developed, with modern variations including the GS1 data bar, or QR codes – a square barcode that can contain much more information, popularised by apps that allow smartphones to scan and process them with built-in cameras. But is not compatible with most current scanners in use. Another approach is RFID chips, which wirelessly transmit information to scanners by radio waves.

An example of a DataBar code, from company GS1. Rohan Zaman, CC BY

So while barcodes are currently the most economic way of storing and transmitting this

A QR code, containing the link for Wikipedia. brdall

information, soon supply chains and consumers will demand more, and a successor will be required.

There are a number of pilot projects being considered by retailers and management consultants to discover which information will be useful for consumers and retailers and how this can best be represented. This will depend on finding something that fulfils the data requirements while being easy to implement and inexpensive. But managing the data that goes into these future barcodes: gathering, storing and securing data that must be entered at various points of the supply chain is a difficult task. While there's huge potential for benefits, collecting more data amplifies the effects of any mistakes.

Incorrect data can travel through the supply chain rapidly, introducing error into the wider network, similar to a tainted food product permeating through various supply chains across international boundaries. For example, the Chinese milk scare saw tainted milk transported as milk powder in many products through a number of countries. Poor stock and batch records means recalling products is difficult or even impossible, as happened with the milk scare or the case of the peanuts infected with salmonella.

Traceability is very important in food and pharmaceutical supply chains, and this is the site of many current innovations. For example, Metro, a German retailer, has launched smartphone app PRO Trace to trace its products. It can identify that a salmon fillet on sale in Berlin arrived in Germany two days before it reached the shop's chiller shelf, and was caught at the Bremnes Seashore fish farm off the coast of Norway a few days before that. Using a GS1 data bar, enough information can be encoded to show all this, and also a map identifying the fishery where it was caught and a detailed description of the species. While Metro introduced the system in reaction to EU regulations aimed at preventing overfishing of particular areas, this information is sought after by customers and chefs alike.

Building a system that can provide this information may mean that manufacturers focus on either improving supply chain efficiency or fulfilling consumer information requirements, but not both. Should the focus be on reducing risks within the supply chain, or providing information for consumers to make an informed choice? Perhaps rather than attempting to create a one-size-fits-all solution, a better approach would be a hybrid, one that offers certain information on the package but relies upon internet-connected smartphones to provide consumers with additional information, embedding links to web pages in QR codes.

In any case it's clear that new ways to store information, verify its accuracy and pass it on is vital for the supply chain to develop further in the 21st century.

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