

# Packaging expert sees a social revolution in the evolving barcode

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Electronic identifiers such as the barcode (left) or QR code (right) are evolving in complexity and capability, Morris said. Credit: Scott Morris

What if you could trace the history of everything you buy back to its origins? Using your smart phone camera, you could learn what factory made the ingredients in your heart medication, what country grew the corn in your breakfast cereal, or even how to recycle the phone. You could follow the whole life cycle of a product and everyone who handled it along the way to ensure that the medicine you're taking isn't counterfeit and the food you're eating is safe.

This reality is on the horizon, said University of Illinois [food science](#) and [human nutrition](#) professor Scott Morris, an expert on the history and evolution of packaging and author of "Food and Package Engineering," a new textbook published by Wiley Blackwell. Barcodes, the familiar

black-and-white labels on packages that began as a means to scan prices or track inventory, are evolving into a broader class of identifiers in new and startling ways, said Morris, who also is a professor of agricultural and [biological engineering](#) at Illinois. As the technology advances, these electronic identifiers allow access to more information about the contents and history of products and are opening new channels of communication between buyers and sellers.

The [QR code](#), a new species of two-dimensional barcode that can be scanned with a cell phone, now supplies a direct link between the shopper in the store and information about the scanned product online.

"Customers' experience and interaction with packaging are undergoing radical and unprecedented changes," Morris wrote in an article in [Packaging World Magazine](#) early this year. "Emerging now is a more complex system that includes an entire [peer group](#) of customers giving continuous, real-time analysis of the product."

Manufacturers and retailers are trying to take advantage of this new technology-driven interaction, but they are also struggling to cope, Morris said. The shopper has unprecedented power to identify the best products at the best prices he or she can find. And those who are unhappy with their purchases can let the world know about it in real time.

Companies have a lot at stake – and a lot to gain from more sophisticated barcodes, Morris said. Those who embrace the changes can quickly enlist the online crowd to help develop their products and packaging. And identifiers that capture the life history of each package and its contents can dramatically enhance the security, accountability and traceability of the items people purchase and use every day, he said.

Most people are surprised to learn, for example, that pharmaceutical

companies in the U.S. rarely track their inventory once it leaves the manufacturing plant, Morris said. This has resulted in a gray market of drugs that are stolen and redistributed. (In one famous case in March, 2010, thieves cut [a hole in the roof](#) of a warehouse owned by Eli Lilly & Co. and made off with \$75 million in prescription drugs.) Some of these items go to other countries and some end up on pharmacy shelves in the U.S. via unscrupulous distributors, Morris said.

A more sophisticated system could help identify and isolate contaminated drugs, foods or other dangerous products anywhere in the supply chain, Morris said, limiting harm to customers and reducing liability for producers.

If used properly, a global identification system would increase efficiency and profits, expanding the "just-in-time" delivery of goods to retailers. It also would allow companies to get a more detailed picture of the locations, preferences and buying habits of customers, Morris said.

Even though barcodes, QR codes and even RFID tags (which are read by radio waves rather than scanners) are available, Morris said, the structure of the actual identifier is a work in progress. Several organizations, in particular GS1, the global consortium that allocates barcodes, are developing new standards for these identifiers.

"The format is not the issue here," Morris said. "The issue is, what information can be carried with a physical object, and what use do we make of it? That's where it really gets interesting. Because then you're not just dealing with a can of soup, a bottle of pills or an aircraft part. You're dealing with the whole global economy all at once."

**More information:** The book, "[Food and Package Engineering](#)," is available online.

Provided by University of Illinois at Urbana-Champaign

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