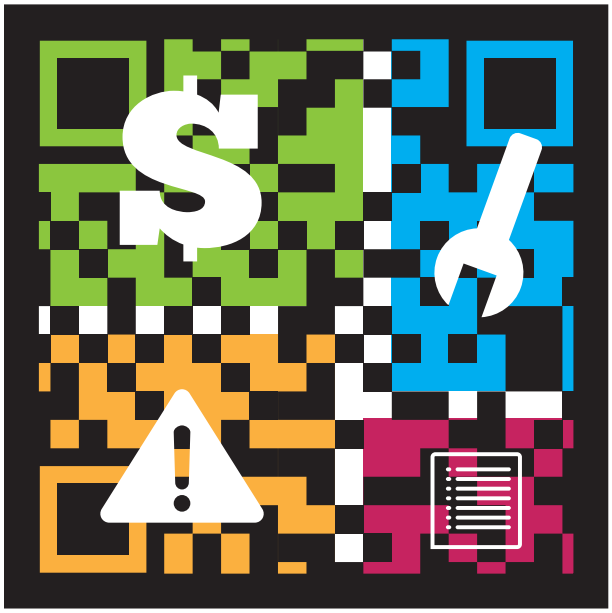


CRACKING THE QR CODE

Imagine scanning the side of a recovered asset and immediately having all the key information for dismantling or refurbishing it. An in-development initiative aims to work with OEMs to bring to life such recycling-bolstering possibilities.

BY KEN JACOBSEN AND RON LEMBKE

QR codes are everywhere, and increasingly, they are used for much more than just linking a consumer to a mobile website for marketing purposes.

Companies are increasingly using QR codes for logistics efficiency, storing product numbers and other information within the coding so that downstream entities have easy access to the data.

A single QR (quick response) code is capable of storing up to 4,000 characters, which means a business can conceivably store a great deal of information on the side of a product or its packaging, immediately readable by any supply chain partner. But when it comes to deciding how to store this information, every company is making up its own system. This is muddying the process, cutting off many prospective logistics users from potentially business-boosting data.

In February of this year, the standards committee of the Reverse Logistics Association (RLA) released a product labeling protocol that helps streamline QR code access when it comes to repair, returns and recycling. It has standardized field content that can expedite the delivery of information relevant to both consumers and logistics professionals. The system is being called sQRrl (short for "smart QR codes for reverse logistics,) or alternatively, standard QR codes for reverse logistics. The innovation enables scanners, even on smartphones, to access important information related to a product's life cycle. This could clearly have large implications for the electronics recycling community.

All the info

QR codes outpace traditional bar codes for this type of application in a number of ways. Bar codes are great for forward logistics but lack the data capacity to do more than identify the product, and they are typically disposed of with packaging. A QR code can present four times more data than a bar code. The RLA Standards Committee has designed a protocol that will optimize the use of this scannable label and provide arbitrage for a global standard so that consumers, logistics professionals and recycling entities can all access pertinent information.

Under sQRrl, the QR code label is placed on the product in addition to the packaging. Often when a product makes its way for repair, refurbishing or recycling, it won't even power on, which means there is no way to know the details of the components inside without investing labor to investigate something that may have zero value. A QR code on the outside of the casing of an electronic asset could allow a worker to know the product's model number, memory capabilities, processor type and speed as well as whether any hazardous materials are present. In the case of a terminally damaged product, recycling professionals would be able to assess the value without even opening it up.

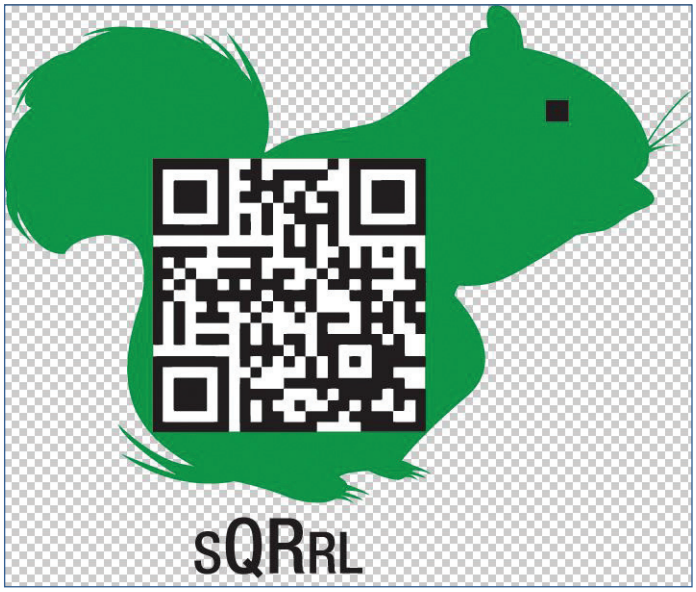
The project is starting with a QR code format that has sufficient capacity for useful data and is scannable by most smartphones worldwide. The protocol is technology agnostic, meaning it could be deployed via other scannable systems such as RFID, or the data could be stored in the internal memory of any type of scanning device.

Each original equipment manufacturer (OEM) determines which fields of data are pertinent to the product in question. The manufacturer also has the option of making the information available to consumers, or only to logistics professionals, or encrypted for internal use. The manufacturer selects the fields they choose to populate, designs the code and prints the label onto each product and, optionally, product packaging. The RLA is working with vendors to assure that the labels are readable (scannable) by free smartphone applications as well as by standard scanners on the market, like you might see at a large-scale conference or in retail settings.

Information conveyed to professionals or field service personnel could include product data sheets, product configuration information, hazardous materials, compliance information for various standards and installation guides.

Wouldn't it be useful to scan for weight of recyclable materials, or the date of manufacture? Newer products would be candidates for refurbishing. Now add geo-tagging into the mix: A consumer who has finished using the product scans the label for recycling information. The system searches online, finds the closest electronics recycling outlet and pops up a map with directions. Eventually, consumers could even post their used products and open up a bidding process for refurbishers and recycling companies.

There are no fees or royalties to manufacturers of hardware products to use the sQRrl system, but the RLA is creating tools, available for licensing that will generate appropriate labels in camera-ready formats. These tools will enable manufacturers to create labels and proprietary fields that are continually synchronized and updated. The licensing of these tools is optional, but recommended.



The sQRrl protocol aims to more easily bring product information to vendors handling items at the end-of-life stage. Scan the code above for more information.

Room for evolution

Within the system, an infinite number of fields are possible that would give OEMs freedom to include any information that would be relevant to downstream handlers. The system is beginning with about 70 defined fields, and it's expected specific industries will from time to time identify missing fields. There are also two proprietary fields for OEMs in the current standard, and more will be provided if there is demand. However, the RLA Standards Committee envisions this standard to be dynamic and is open to suggestions for fields that would be of general interest to industries or product groups. The fields should pertain to either the forward- or reverse-logistics phase of the product life cycle, including product repair, return or recycling. While this system was created with the reverse-logistics industry in mind primarily, it is expected fields will be added to extend the usefulness of the label to other stakeholders, including those involved with marketing, inventory and sales tracking.

The innovation is copyrighted by the Reverse Logistics Association, and the group has established a process for modifying the fields that is open to professional input. However, RLA retains the exclusive rights to modify or upgrade the list of fields. It is deemed to be fair use for any manufacturer of hardware products of any nature to create labels that use the schema for their internal use on products that they produce or cause to be produced.

It is also considered to be fair use for any product refurbisher or system integrator to create a label using this schema that supplements or replaces OEM information, providing that any such secondary labeling be clearly distinguishable from the label of the original manufacturer and in no manner appears to deceive or misdirect.

However, it is not considered fair use to create a generalized tool to create labels using the reverse-logistics QR code schema that is marketed as a tool for creating labels.

Tools for the trade

Producing labels that conform to the standard requires some technical discipline. The RLA has produced a tool to facilitate the process while assuring technical compliance with the standard. The RLA

label generation tool, which can be accessed online, produces custom labels for each product in a camera-ready format.

The tool works by first providing a menu of potential fields. The manufacturer selects the fields desired and populates them with the product-related data. Since the amount of data that can be stored in a label is often restricted by the quality of printing and scanning devices, the tool also warns the manufacturer if a created label needs to be printed in a larger size. If the manufacturer wishes to encrypt data for internal use, a special version of the reader will be required as well as a subscription to RLA's restricted access manager.

The RLA label generation tool is licensed on an annual basis with full support and maintenance. There is a one-time setup fee.

Additionally, the RLA provides for download three code readers – one for consumers, one for logistics professionals and one for organizations using encrypted data. All will be available through Apple's iTunes and Google Play app stores. The consumer product is free, and it is also expected other QR code readers currently available will add RLA label coding compatibility as the proliferation of the RLA solution continues.

The RLA professional reader, meanwhile, has special features that make it a valuable tool for all logistics, field service and recycling professionals. Manufacturers decide which fields will only be available to those using the reader. In addition, the reader may be customized to display selected fields while ignoring others. A receiving dock professional, for instance, may only be interested in serial numbers.

Join the conversation

The RLA Standards Committee holds an online meeting once a month using WebEx. You do not have to be a member of the RLA to participate, and many people have contributed to the direction of this committee thus far. To find out the schedule of meetings and instructions for joining, head to www.rla.org/sqrrl. If you have specific input about the QR code protocol, send an email to sqrrl@rla.org or tools@rla.org. Also, scan the QR code on page 24 to learn more.

Next steps

RLA is evangelizing for manufacturers to adopt this protocol. Backers of the concept know electronics recycling professionals influence end-of-life policies at OEMs, and RLA requests support for this project. Further, the group seeks input for all aspects of the industry regarding field titles and content that would be useful. See the sidebar for more information on bringing your important voice into the development process. ESN

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