USING QR CODES TO TRACK AND IDENTIFY COUNTERFEIT PRODUCTS

Abstract

The development of a new product or technology always comes with the risk of counterfeiting, something that could affect company revenue and goodwill. QR codes present themselves as a low cost mobile solution that helps enterprises and consumers identify the authenticity of products. This is a convenient track-and-control process as it can be deployed on smartphones and other mobile devices. Although the usage of QR codes for this purpose has been prevalent for a while, this POV highlights how companies can derive instantaneous results and detection that goes beyond mere QR code implementation.

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Introduction

According to the United Nations, the counterfeit market is worth US$ 250 billion a year[1] and growing. Almost every company faces the threat of counterfeiting as it not only hits revenue but also damages brand reputation. Companies often do not recover their R&D investments due to these losses, thus influencing their potential to create impactful products in the future.

There is also a school of thought that believes that counterfeit products fund organized crime in certain countries; this is something that no company of repute would want to be associated with. Counterfeiting puts consumers at risk and certain products can cause serious health risks or even be fatal. On a strictly economic note, with a highly competitive market and shrinking margins, a counterfeit operation directly hits the top line and bottom line of the company and can be detrimental to business longevity.

What are companies doing?

Most companies who value their brand and business have track-and-control mechanisms in place to deter, if not eliminate, counterfeit production and distribution. This includes hologram stickers, watermarks, mass communication, surprise checks, controlled distribution systems, and robust ERP system implementations. The governments also do their bit through central or state regulatory bodies that add another layer of check on counterfeit. On a global scale, United Nations and powerful industry associations work in tandem with local authorities to curb counterfeit activities. However, as the numbers suggest, there is always room for more to be done.

This Point of View (POV) presents to you a low-cost mobile solution that adds one more identification layer to the track-and-control process through the use of Quick Response (QR) codes. This simple solution is easy to deploy and takes advantage of today's ubiquitous smartphones and your everyday mobile applications. Though the use of QR codes in counterfeit deterrence is not new, our POV highlights 'closing the loop,' which is necessary for counterfeit detection to be more effective than mere QR code implementation.

Typical distribution setup

Let's first look at a typical distribution channel (Fig. 1)
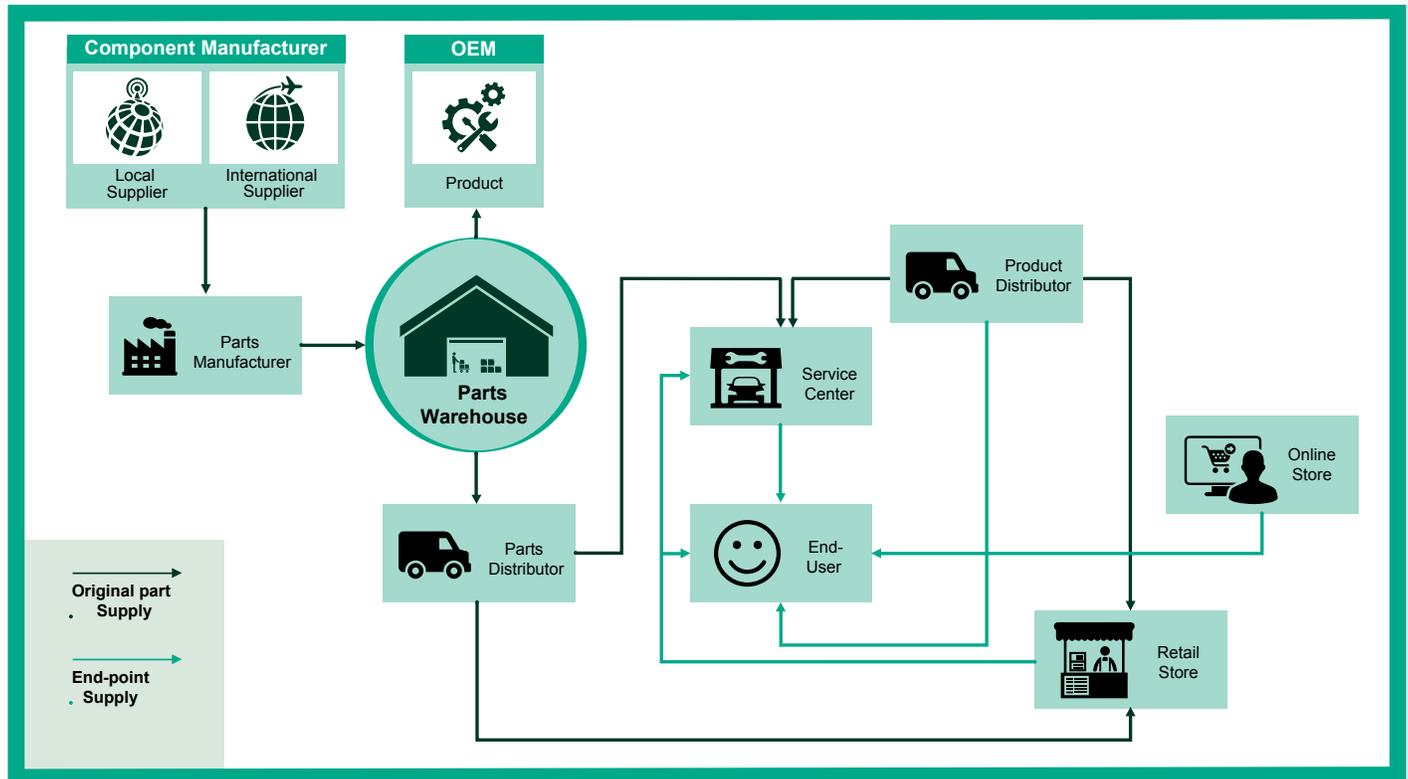

Figure 1 – A typical supply chain organization in a product and service company

The supply chain is a complex sequence of value-adding services that originate at a component manufacturer and terminates with the end user consuming the product or service. The complexity is further compounded with different supply options that may exist in the form of products supplied by original equipment manufacturers (OEM) and after-market product companies. This brings multiple touchpoints for counterfeit activities and is a major concern for most manufacturers of branded goods.

Counterfeit infiltration

OEMs can usually filter out counterfeit supplies that enter their factories through random sampling and other invasive or non-invasive testing methodologies. However, the supply chain outside factory limits is highly prone to counterfeiting and despite best efforts of companies, counterfeiting still exists. As seen in Figure 2, the counterfeit supply can infiltrate into the retail chain and then cause havoc to the OEM's brand image and revenue. This can happen through the physical or the online retail store or even through the service center that is not obtaining its stocks from the OEM's supply chain.
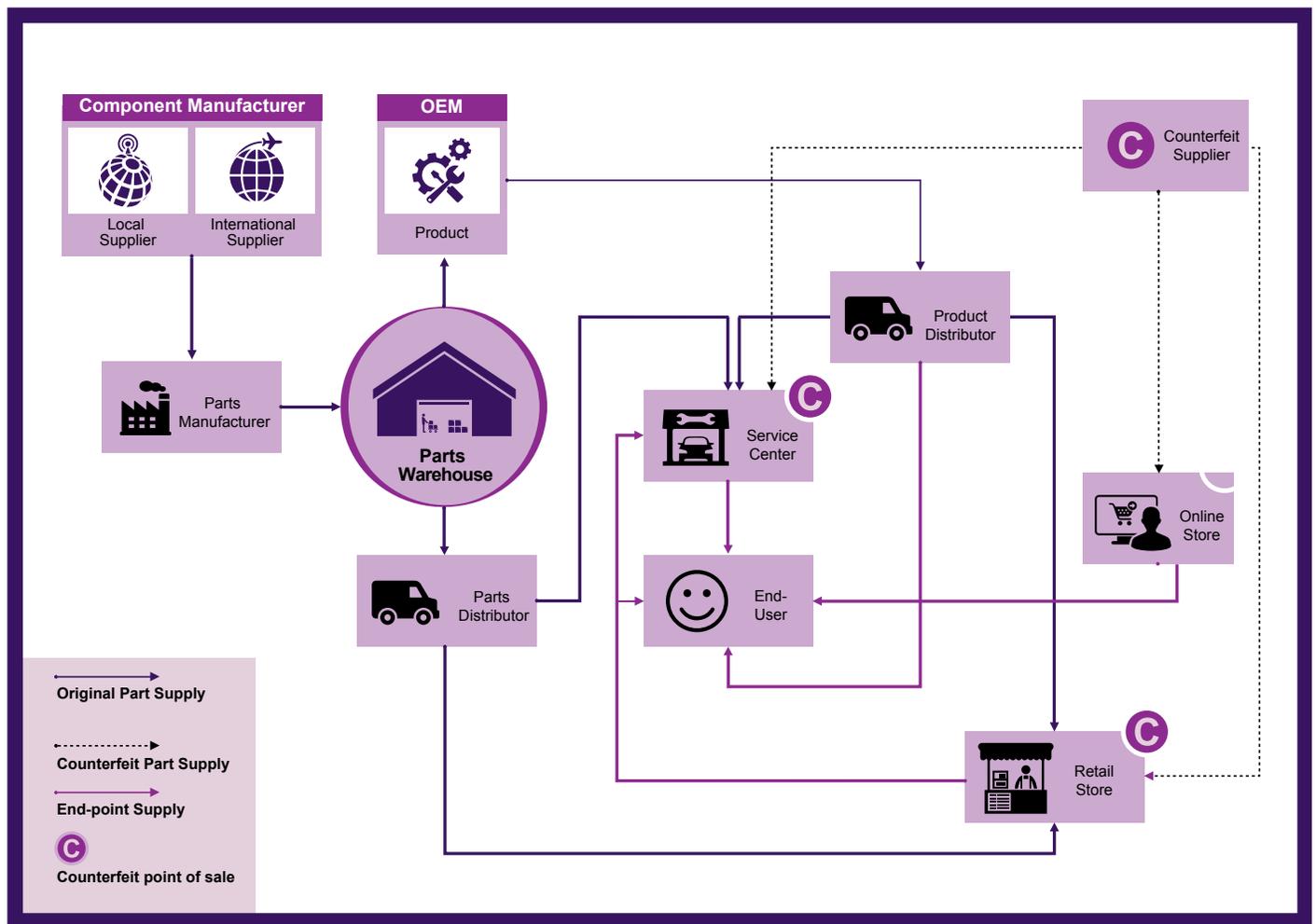

Figure 2 – Counterfeit infiltration in a typical supply chain organization

Fortunately, technology is at hand and can be used to gain more control over counterfeit infiltration. As you will read further, the below solution makes the end user and the sales representative on the field inclusive members of the program to detect and identify counterfeit products. This is an additional layer of identification at the point of sale to curb this menace and provide customers with genuine products.

Solution: Counterfeit identification using QR code on smartphones

The solution involves a simple QR code-based identification that can help the end-user and the company salesman to scan and identify the genuineness of the product by using a smartphone. OEMs can print unique QR codes on labels for their products and product packages. This QR code will contain digital information about the specific product that includes part / product name, model number, factory of manufacture, date of manufacture, batch, and so on. This label will be displayed on the outer package of the SKU so that it is easily accessible for scan by a customer or sales representative. At the manufacturing end, the ERP system will hold these product details along with a history of transactions to enable tracking of the product along the distribution chain.

Sales representative checkpoint:

A company salesman can conduct a random check at a distributor, wholesaler, or a retail point by scanning the QR code on any random package by using his smartphone. The scan will immediately trace the product origins that will be displayed on the smartphone screen. A simple SMS of this detail to a predefined, company-provided, counterfeit detection cell number will bring back results of the last known location of the product. If there is a mismatch between the last known location and the current physical location of the product, a deeper investigation can then be initiated to trace out the SKU genuineness.

Customer checkpoint:

A customer can also verify this information independently at the point of sale. The customer will need a QR code reader application on their smartphones which can be downloaded from the company website or any other safe websites for such readers. The steps are:

- Step 1:
  - Scan the QR code on the product or package using the smartphone's QR code reader application
  - Receive scan results containing basic product details

- Step 2:
  - Send the scan results to the counterfeit detection unit's cell number as an SMS
  - Receive details of the last transacted entity (holding this product as inventory) and location (city or place)

The whole exercise can be completed within a minute and product genuineness can be ascertained by the customer and the company salesman.
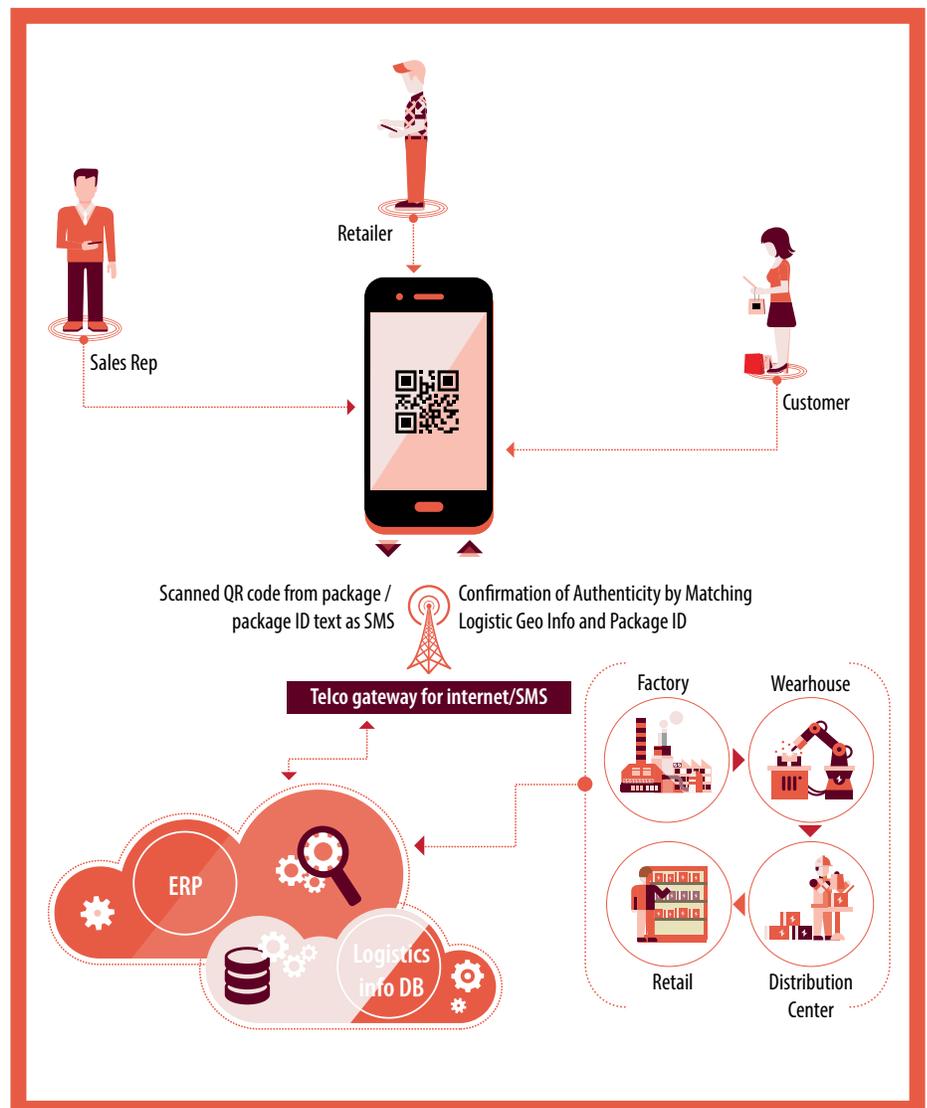
Anti-counterfeit Solution

Figure 3 – Solution to identify and detect counterfeit products in the market

Features of the solution

Counterfeit identification – When a customer sends out the SMS to the predefined number to check product genuineness, it is marked as 'QR registered'. If at a later point in time, multiple SMs are received for the same QR code from a different location or city, then it can be ascertained that a counterfeit is in circulation. This is counterfeit identification as it will tell the company that someone has circulated mass copies of the same QR code and distributed the 'same label' counterfeits in the market. A genuine product will not encounter multiple QR code checks from different locations.

Counterfeit tracking – Once the multiple instances of the same QR code are received by the company, it can make an attempt to reach out to the customer or the sales representative for that area to investigate further on the multiple 'same label' counterfeits. This will help to get closer to the source of the counterfeit. This is counterfeit tracking.

Counterfeit control – Once word gets out about the uniqueness of the QR code labels and product registration by customers, retailers will be wary of selling counterfeit. Since end customers contacting the company (for registration) is out of retailers' control, they will be cautious to not stock spurious products. This will put a further strain on counterfeit distribution and make it unprofitable to trade in QR code-enabled products.

Prerequisites for solution implementation

Customer

- **Smartphones:** Most customers use a smartphone today. These savvy devices could be on any operating system as long as they support a QR code reader application.

- **QR code reader application:** There are many free applications that read QR codes.

Company

- **Packaging process:** Companies will need to change their production and packaging processes to include QR codes on their labels. They will need QR code label, printers and readers to be part of the labelling process. They will also need to determine the parameters that need to be captured on the labels for counterfeit identification.

- **ERP system:** Companies will need their ERP system to track the product even after it leaves the shop floor. During its distribution journey, at every location or transaction, the QR code will be scanned and read so that the company is able to know the exact location and ownership of the product. There may be limitations to track this only till the retailer location, but the customer reward extension (explained further) will take care of the reconciling from the other end.

- **SMS gateway:** The company will need at least a couple of registered mobile numbers for interacting with customers and internal employees. The internal employees will need a number to send QR code details and receive the latest location of the product. The customers will need a mobile number through which they can register their product for discounts or raffle participation.

- **QR code reader application:** The company can also get a QR code reader application built from scratch exclusively for its own employees and customers and host it on their website.

Customer reward extension

It is evident that the customer participation in this exercise is of equal importance as the sales representative participation. In order to motivate the customer to participate, a customer reward program can also be initiated. This will further strengthen the counterfeit identification process. Under this program, customers can be encouraged to register their purchase by scanning the QR code and sending the results as an SMS to a company-specified mobile number. The customers can be rewarded with future purchase discounts or raffles.

Conclusion

In conclusion, we can state that though companies are doing their best to contain counterfeit, there is technology at help to take this further and make it more difficult for counterfeiters to survive in the market. The uniqueness of the QR code is well established and brings forth a strong deterrent to product security from counterfeiting. Our solution not only engages the customer but also passes an important message from the company that it is doing its best and using technology to tackle counterfeit products. This will help in strengthening the brand image further in the minds of customers. A simple smartphone can be a powerful tool in the hands of the customer to keep counterfeiters at bay.

Reference

- 1 - http://www.wcoomd.org/en/media/newsroom/2014/january/united-nations-launches-global-campaign.aspx

Key

OEM	POV	QR code	ERP	SMS	R&D	SKU
Original Equipment Manufacturer	Point of View	Quick Response Code	Enterprise Resource Planning	Short Messaging Service	Research and Development	Stock Keeping Unit

About the Author

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