



Smart Labels and Packaging

White paper



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As if today's business climate weren't competitive enough, global brands are losing billions of dollars in sales to an entirely new type of competitor: one that plays by a different set of rules and demonstrates little, if any, regard for consumer safety, tax laws or intellectual property.

These new competitors are, of course, counterfeiters. Criminal enterprises that manufacture counterfeit versions of branded products—from prescription drugs to aircraft parts, baby formula to golf clubs. Generally, one can expect that any high-margin product is being counterfeited somewhere, whether in a nondescript warehouse in the Midwest or a gleaming office park in Asia.

It is believed that sales from these fake products total into the hundreds of billions of dollars. Chances are, many of these brands could be your clients, and as they lose sales, your company loses orders for labels and packaging.

The cost of counterfeiting cannot be summed up in mere financial terms. In many instances the consequences have been thousands of injuries and deaths, attributed to fake medicines and ingredients, as well as counterfeit after-market maintenance and repair parts for cars, trucks and aircraft.

And, as the need for brand protection grows, there are likely many opportunities for the converter to preserve, lose or increase business as global brands insist on smarter packaging to support them in the fight against counterfeiters.

A bull market for counterfeit goods

The market for brand protection—particularly in consumer and regulated products, such as prescription medicines—is emerging rapidly. Recently brand owners have begun to grasp product fraud's magnitude and its impact to a brand's bottom line, reputation and trust.

Few products or brands are immune to counterfeiting. In fact, most fraudulent products are sold as branded products. Criminals are technologically savvy at producing and selling convincing fakes or obtaining illicit overruns from legitimate factories. Increasingly difficult to ignore is that product fraud is widely believed to be the equivalent of 6 to 10 percent of world trade. In many markets more than 50 percent of products sold are counterfeit.

A cursory study of packaging for consumer products indicates that enterprises are now spending \$3 billion to protect themselves, their brands, their products and consumers through security printing on packaging.

International Chamber of Commerce estimate:
\$300–600 billion in fraudulent goods sold
annually—that’s 6–10% of World trade.
In the United States, fraudulent product
sales are estimated at \$250 billion.

HP sees other trends driving the demand for brand protection products and services:

- **U.S. tort law.** Manufacturers are exposed to civil penalties if they cannot:
 - Distinguish their products from counterfeit or otherwise adulterated products
 - Prove they had no reason to know that counterfeit versions of their products were being sold
 - Prove that, with knowledge of fraudulent activities ongoing, they were doing everything possible to protect consumers
- **Criminal law.** In many countries, manufacturers are exposed to criminal sanctions if negligence can be proven relevant to protecting consumers from known product fraud.
- **Regulations.** FDA, state governments and governments and agencies around the world specify requirements for companies to take action to protect consumers.
- **Aversion to increased government regulation.** Governments have indicated the willingness to force the actions of industries unwilling to self-regulate to protect consumers.

As consumers, regulators and lawyers become increasingly aware of the threats and damages these products present, the enterprise is compelled to act.

When brands decide to fight back

However, when an enterprise succeeds at protecting its products, counterfeiters don’t go away, they simply move on to exploit a less-protected product or a more complacent brand management team. For the brand manager, a pragmatic and achievable goal is not to stop product fraud but rather to ensure that it doesn’t happen again to his products or clients.

HP believes the fight against counterfeiters can be won. The tools, tactics, technologies and resources exist, and winning results are documented, even if winning results are not always made public. In time, a winning anti-counterfeiting campaign can yield a return on investment in the 200 to 400 percent range or even greater.

A new weapon: smart packaging

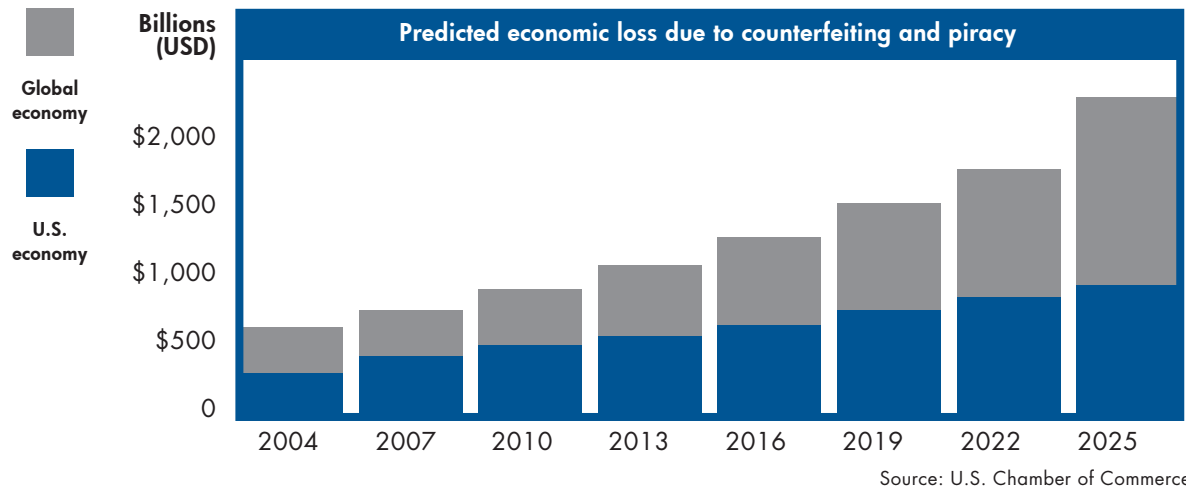
In the past, product packaging was designed to deter counterfeiters. But manufacturers know all too well that packaging by itself can’t stop anything for long. Typically, any new feature added to your packaging will be duplicated by criminals within months, if not sooner. Consider that the single most protected pharmaceutical drug is probably the single most counterfeited. There is a better way.

Take the first step

To get started, a return on investment (ROI) analysis can provide useful metrics. This exercise forces an objective perspective when determining the size and scope of the problem or opportunity. Additionally, this approach can guide your company in specific strategies and the appropriate resource allocations. We see this as the first step.

To create a useful and accurate ROI, research is required to determine many things, including the magnitude of lost revenues and profits, where the losses occurred and from which products, as well as understanding the extent of economic losses and risks resulting from fraud’s effects on brand equity. Other considerations include measuring warranty costs and deciding which strategies, tools, partners and resources are best suited to your specific challenges.

Figure 1. The driving forces behind counterfeit products



Today’s smart labeling and packaging (SL&P) is designed and built to fulfill a different mission.

It is not designed to stop fraud. Rather, it is designed to enable people to detect fraud rapidly. The sooner fraud is detected the easier it is to determine its source of origin. Once the source is determined, we have the opportunity to eliminate that source. It is expected that criminals will gravitate toward products that are less protected, thus putting their “labs” at less risk of being confiscated by law enforcement.

Today’s smart packaging will allow consumers and organizations to ensure that the products they purchase, consume or administer have arrived via a legitimate supply chain.

The essential roles and functionalities of SL&P and the converter

SL&P can be designed, built and deployed with numerous functionalities to support:

- Smart and secure supply chains
- Track and trace
- E-pedigree
- Authentication
- Anti-counterfeiting
- Forensics

These functionalities do not require radio frequency identification (RFID) technology, which makes them affordable for most products regardless of how inexpensive. Obviously, RFID-enabled SL&P and non-RFID SL&P have strengths and weakness. And there can be benefits to using a hybrid, merging both RFID and non-RFID technologies to produce SL&P.

Barcode symbols and/or RFID tags give SL&P its digital functionality and intelligence. These technologies can serve as a repository for data, although in practical terms, they have limitations in this capacity. To be leveraged fully, the data on the label must reside within a secure database. Ideally, a “mirrored” version of the label, inclusive of barcode and/or tag data and other data, resides in this database where it can be complemented with other data specific to that single unique label or pack. Barcodes and tags support serialization—a significant, critically important and exciting capability.

Serialized alphanumeric sequences are essential too, as it is important that every SL&P unit produced be unique with its own identity. When every pack is unique and the counterfeiter makes a copy, he can only copy that one—because **serialized** is not the same as **sequential**. Serialization is powerful and versatile. In fact, soon serialized codes will be used by brands for one-to-one marketing as well. HP expects serialization to become a core competency at most converting companies.

Furthermore, we believe that SL&P built to help protect products from fraud will have the following attributes:

- **Affordability.** The benefits from incremental sales, gained at the expense of counterfeiters, will justify the incremental costs to “smarten up” labeling and packaging.

Figure 2. Counterfeiting: opportunity size and scope

Percent of fraud attacked	5%	15%	25%	40%	50%
Incremental spend to remediate (\$ millions)	760	2,227	3,784	6,054	7,568
Incremental packaging spend (\$ millions)	160	480	800	1,270	1,600

- **Dual existence.** One version will exist on the product and the other will reside within a secure database.
- **Intelligence.** Advances in technology will drive numerous new functionalities, support stronger interfaces with databases, and complement analog graphics with other technologies.
- **Serialization.** Every item will be unique.

What's more, we see SL&P being sourced from suppliers with a level of security sufficient to protect against fraud—and rapidly detect it.

For the converters, adding to all this complexity will be the need to regularly change the technology sets for each product, replacing legacy (or compromised) technologies with newer or superior technology. This is essential to stay one step ahead of counterfeiters.

Similar to serialization, the ability to acquire, master and incorporate the latest brand-protection technologies into its products will become an essential competency for the converter. The pipeline for such innovations is full, with companies around the world developing and marketing all manner of technologies and solutions. The ability to discover, qualify and rationalize these early on will be crucial.

Getting started

To choose to make SL&P is to choose a new strategic initiative for your company. So what can converters do to be positioned for SL&P? They must do three things well:

1. Require sales and marketing teams to network more broadly with client companies.
 - Purchasing managers may be disconnected from the need for SL&P needs and may not immediately see the value sufficiently to reconcile the incremental prices for this packaging.
 - Also, your staff should speak often with people in roles such as: executive management, brand management, risk management, corporate and brand security officers.

2. Develop capabilities and credentials as a secure printing facility.
3. Adopt process capabilities to produce SL&P that supports:
 - Smart and secure supply chains
 - Track and trace
 - Authentication
 - Forensics

At some point in the near term, a company is going to support your clients with the labels and packaging that are smart enough to enable brand protection or regulatory compliance needs and strategies. The technology exists today to help you retain those clients and deliver the SL&P capabilities they need.

By taking a critical look at your brand, implementing the appropriate processes and practices, and making wise investments in SL&P technology, your business will be well prepared to withstand the challenge of a new breed of competitor: the counterfeiter.

About the author

Ray Dickinson, a senior business development manager with the HP Health and Life Sciences division, has more than 15 years experience in the printing and converting space. He leads the development and marketing of the HP brand protection, track and trace, and authentication solutions. Dickinson earned his Bachelor of Science degree from the University of Delaware and is certified in Production and Inventory Management (CPIM) by the American Production & Inventory Control Society.

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