



UL STANDARDS & ENGAGEMENT ANTI-COUNTERFEITING

Knowledge is Power: Increasing Public Awareness to Reduce Product Counterfeiting



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Introduction: Counterfeiting Risks and Awareness

Counterfeit products—goods or packaging that bear a trademark that is virtually the same as one registered to an authorized owner—are one of the most significant global risks to intellectual property rights owners (Wilson, 2017). Their effects can harm consumers, rights owners, and governments. For consumers, counterfeit products can pose risks to health and safety. For rights owners, counterfeit products can pose risks to profit and innovation. For governments, counterfeit products can pose at least two types of risks. The first of these is loss of tax revenue. The second is expenses to combat counterfeiting, either in enforcing anti-counterfeiting laws or in mitigating its health and safety effects, including the support counterfeiters offer to other criminal activity, including terrorism.

There are many strategies to respond to and prevent counterfeiting. Among these are

- education
- enforcement
- supply chain security
- awareness.

This paper focuses on public awareness regarding counterfeiting and ways to increase it. Awareness has long shaped the risk of and response to product counterfeiting. Previous research (Wilson, 2015) found one reason for a lack of awareness is the lack of understanding that intellectual property rights violations are crimes with victims. Yet buyers are becoming more exposed to counterfeit products and their harms as commerce, particularly online, grows.

Increasing “the public’s general consciousness” about counterfeiting, one law enforcement official noted, “can make counterfeiters’ jobs much more difficult” (Wilson, 2015). This paper seeks to increase that awareness—and to explore why it may not always exist. To do so, we first examine available information on product counterfeiting. We briefly review counterfeit products by type and intent of counterfeiter. We review the sources of counterfeiting risks, including demand for and acceptance of counterfeit products. We then turn to industry and product issues, including how harms of counterfeit products may vary by the type of product, and what this means for awareness efforts. We explore different messages that might be conveyed in anti-counterfeiting efforts, and who might be best positioned to deliver such messages most effectively. We conclude with a summary of what may be done now to increase consumer awareness of product counterfeiting.



The Size – and Growth – of Product Counterfeiting

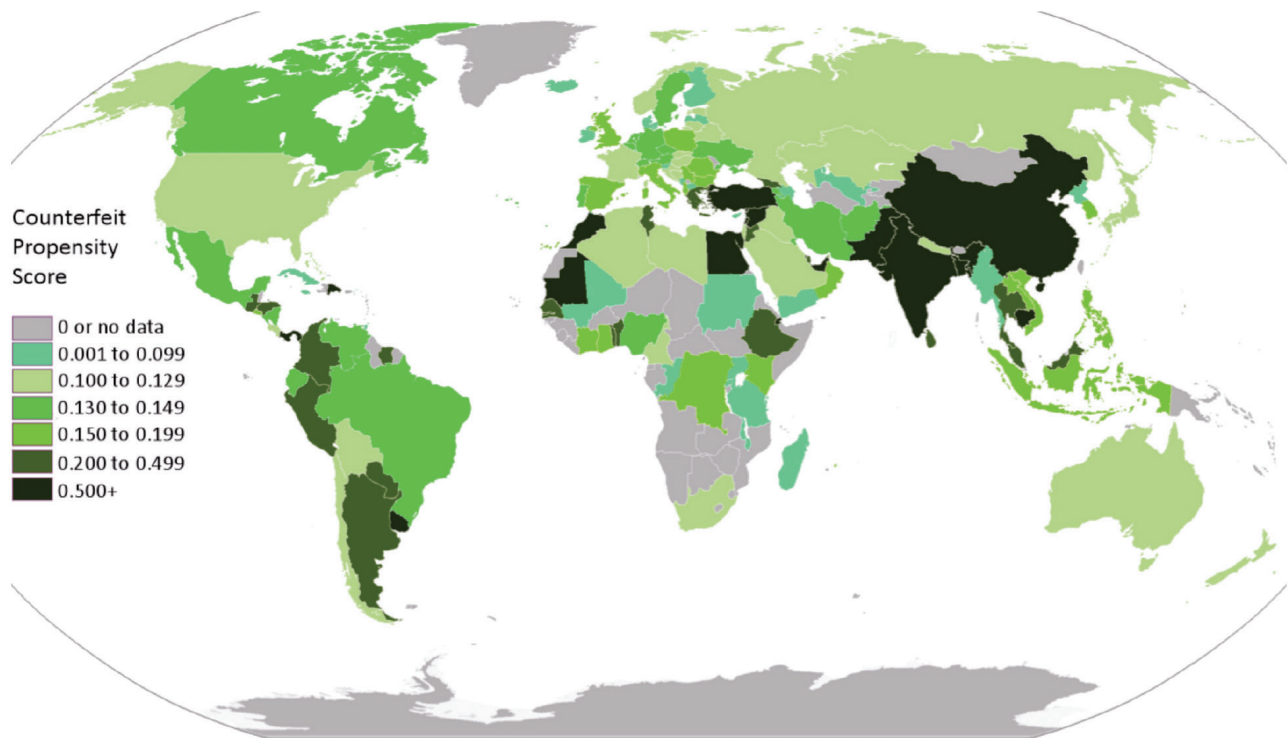
Product counterfeiting is a large and growing problem. The most recent global estimate by the Organisation for Economic Co-operation and Development (OECD) and the European Union Intellectual Property Office (EUIPO) shows that counterfeit and pirated products in 2016 may have amounted to as much as \$509 billion, representing 3.3 percent of world trade (OECD and EUIPO, 2019). This was an increase from 2013 estimates of \$461 billion and 2.5 percent of world trade.

Counterfeiting is a widespread activity. In estimating the propensity of different national economies to export counterfeit products, the OECD and EUIPO (2019) found counterfeiting activity in nearly 150 different nations. While China has long been of concern to anti-

counterfeiting efforts, other nations with relatively high propensity to export counterfeit products are scattered throughout the world, including Africa, the Americas, and Europe (Figure 1).¹ Other nations may also serve as centers for distributing counterfeit goods to other nations (Macolini, 2019). And counterfeiters may produce goods for domestic consumption that do not appear among seized imports.

Counterfeits are present in a remarkable variety of products. The top 20 categories of counterfeit and pirated goods that the OECD and EUIPO (2019) identify include items as disparate as electrical machinery, jewelry, furniture, foodstuffs, perfumes, pharmaceutical products, watches, and tobacco (Table 1).

Figure 1: Counterfeiting Propensity Score, 2016



¹A high counterfeit propensity score implies “that a given economy is reported to be a provenance of high values of counterfeit and pirated products in absolute terms (e.g., USD) or that a large share of total imports from that economy is counterfeit and pirated products” (OECD and EUIPO, 2019, p. 40). For more information, see OECD and EUIPO (2019), especially Appendix A.

²Counterfeit goods are tangible goods that infringe trademarks, design rights or patents; pirated goods are tangible goods that infringe copyright (OECD and EUIPO, 2019).

Table 1: Estimates of Main Counterfeit and Pirated Product Categories, 2016

Product category	Share in global trade of fake goods	Value of fake exports (USD billion)
Electrical machinery and electronics	35.0	138.0
Jewelry	12.6	49.8
Optical, photographic, medical apparatus	6.7	26.7
Clothing, knitted or crocheted	6.3	24.8
Machinery and mechanical appliances	5.0	19.7
Footwear	3.5	13.9
Clothing and accessories, not knitted	3.4	13.6
Toys and games	3.0	11.8
Furniture	2.9	11.5
Vehicles	2.5	10.0
Articles of leather; handbags	2.1	8.5
Other made-up textile articles	2.0	8.1
Foodstuffs	1.6	6.2
Plastic and articles thereof	1.5	6.1
Perfumery and cosmetics	1.4	5.4
Miscellaneous manufactured articles	1.2	4.6
Pharmaceutical products	1.1	4.4
Watches	1.1	4.2
Knitted or crocheted fabrics	0.7	2.6
Tobacco	0.6	2.3

Source: OECD and EUIPO, 2019

Types of Counterfeit Products – and Consumer Understanding of Them

Counterfeit goods vary in how they are presented to the consumer. In particular, they may be deceptive or non-deceptive (Berman, 2008; Cesareo, Pastore, and Williams, 2017). Deceptive counterfeit goods are those that consumers think are genuine. Non-deceptive counterfeit goods are those that consumers likely understand are not genuine articles of the brands whose trademarks the goods bear.

The least-deceptive counterfeits may be those with the lowest prices relative to authentic goods, lack of traditional packaging, or unusual distribution channels (Berman, 2008). Purchasers of luxury watches, handbags, or accessories at low prices in open-air markets understand the products are not the genuine item. In one recent case, a seller of counterfeit goods used social media sites and clandestine meeting spots to sell fake Rolex watches for \$200 to \$300 that, if real, would be worth \$17,000 to \$20,000 (Roustan, 2019).

Other counterfeits may be “reverse-engineered” or

produced from copied design files, often in an attempt to deceive consumers. In one case, hackers obtained disposed hardware or loosely guarded software to devise counterfeit versions of computer games (Koerner, 2018). In another, an engineer stole components of his employer's software to produce a copied version for a firm operating wind turbines (Mayers and LeMieux, 2018).

Deception may increase further with improper labeling of goods that were not properly labeled as second-quality or for destruction. For example, a semiconductor company may mislabel its inferior parts with the logo of a more reputable company whose products commands higher prices (Rako, 2017). Such goods are then sold to an unsuspecting manufacturer that did not see the chips in production. Subsequent failures are then blamed on the more reputable manufacturer, whose logo the faulty products bore.

Finally, current or former suppliers may produce surplus products and sell these without knowledge of the rights owner. Because these goods are made on the same equipment used to produce versions authorized for sale, they can be indistinguishable from genuine articles. Such versions may not, however, be customized for regions in which they are ultimately sold, and leave consumers without warranty rights (Menon, 2016).

Harms of Counterfeit Goods

Harms of counterfeit goods can vary by entity and type of product. Obviously, purchasers of deceptive counterfeits are defrauded from receiving genuine products. They are victims of counterfeit trade.

Purchasers of non-deceptive counterfeits may not see themselves as victims, and it is more difficult to see their victimization. Yet the harms from such counterfeit products are still real. While purchasers of “knockoffs” might not purchase a genuine good, the genuine product manufacturer still suffers damage to its image from a large supply of knockoff goods.

More generally, counterfeit goods can pose three levels of harms: to individuals, to legitimate businesses, and to larger entities such as governments and societies. These may vary by product and intended use, but they may overlap. Table 2 summarizes these levels of harms, which we discuss below. Many harms can affect more than one level.

Table 2: Levels of Harms from Counterfeits

Level	Examples
Individual	<ul style="list-style-type: none"> • Fraud • Health and Safety
Business	<ul style="list-style-type: none"> • Loss of sales • Harm to reputation • Possible warranty, liability, and legal costs • Fraud from unwitting purchases of counterfeit supplies
Government, economy, society	<ul style="list-style-type: none"> • Loss of tax revenues otherwise accrued from sale of legitimate goods • Expense of tax revenues for enforcement • Loss of innovation • Threats to public health • Threats to public security

Individual consumers who purchase counterfeit goods are, especially if they believe they are purchasing legitimate goods, denied the use of legitimate product. Of course, some consumers may still choose to purchase counterfeit goods for other reasons, such as their lower prices. But many direct harms can result from use of counterfeit goods. Counterfeit vaping products, for example, may be responsible for some recent vaping-related deaths in the United States (Kuznia and Sun, 2019).

Legitimate businesses suffer a wide variety of harms from counterfeit products. Both brand owners and authorized retailers may suffer loss of income for legitimate products.

Counterfeits can also affect sales of brands that are less heavily counterfeited. Consumers buying counterfeits of more expensive brands may substitute the counterfeits for purchases of lower-priced genuine brands (Bian, 2018). Brands may suffer loss of reputation from poorly performing counterfeit goods that illegitimately bear their trademark, and even warranty, liability, and legal costs for them. Given that the 100 most-valuable brands in the world are worth an estimated \$2.33 trillion, damage to brand reputation can be immense (Badenhausen, 2019). Counterfeiters also undermine the investments that brands make in research and development. This amount can also be substantial; in 2018, the 1,000 largest global public companies spent \$782 billion in research and development (PwC Strategy&, 2018). Counterfeits cause companies to compete at some level against their own proprietary products offered at lower costs (Macolini, 2019). Businesses themselves can be unwitting purchasers of counterfeit goods and suffer harms from subsequent poor performance of these goods. Contractors for the U.S. Department of Defense, for example, have inadvertently purchased counterfeit goods from suppliers, with these goods then being used as components for products sold to the military (Sullivan and Wilson, 2017).

Finally, larger entities such as governments, economies, and societies may all suffer from product counterfeiting. In addition to being unsuspecting consumers of counterfeit goods, governments must use resources to pursue counterfeiters while losing tax revenues that legitimate products might contribute (for an overview of all the levels of law enforcement that may be involved in pursuing product counterfeit cases, see Heinonen and Wilson, 2012). Governments may have particular vulnerabilities to products in their purchases of goods and services, in part because of the information that counterfeiters can glean from prior public tenders.

Economies are deprived of jobs and innovation when legitimate manufacturers lose the ability to overcome the losses they suffer from counterfeiting. While counterfeit manufacturers may employ workers, such labor is typically unregulated, low-paid, and sometimes even forced, with workers not having the same protections they enjoy in more regulated employment (United Nations Office on Drugs and Crime, 2019). Societies may suffer risks to national security through poorly performing military hardware, public safety through links to criminal activity (United Nations Office on Drugs and Crime, 2019; Sullivan, Wilson, and Kinghorn, 2017), and public health through counterfeit health and safety products (Joshi, 2018).

Assessing Levels of and Means for Improving Consumer Awareness

This paper reviews a sample of research and other publications on what is known about levels of counterfeiting awareness, their harms, and possible future directions for action. The focus is on identifying the need and developing content for proactive awareness, communication, and education to consumers who may buy counterfeit products.

In the next section, we explore sources of demand and supply for counterfeit products. These may include demand for products that can be fulfilled by legitimate or counterfeit manufacturers, cultural acceptance of counterfeit products, characteristics of counterfeit goods such as their profit margins and low risk of detection, and technological advances that are increasing the capabilities of counterfeit manufacturers, particularly in making products more difficult to distinguish from those of legitimate manufacturers.

After reviewing the sources of counterfeit risks, we note some specific industry and product issues. Counterfeit harms can vary by product. Such harms might be direct and immediate, both direct and indirect, or not immediately seen. As a result, different counterfeit products might require different tactics to reduce demand. Consumers, for example, may need more awareness than persuasion to avoid counterfeits that can cause direct and immediate harm. For counterfeits whose harms are more diffuse, consumers may need more persuasion than awareness.

We then discuss identifying and delivering anti-counterfeiting messages. Messages should be both general and specific. Some messages, for example, could cite the general harms of counterfeiting. Others can inform buyers the specific ways they can avoid counterfeits. Different stakeholders have different roles to play in delivering anti-counterfeiting messages. Manufacturers should focus on awareness, product education, and market monitoring, while public bodies should focus on general education, reporting, and enforcement.



Sources of Counterfeiting Risk

Counterfeit risks arise from myriad sources and can be affected by broader trends. Perhaps foremost of these is the demand for products. Counterfeiters, like legitimate manufacturers, seek to fulfill inherent or instilled demand for products. Cultural acceptance may also aid counterfeiters in selling their products. Many consumers knowingly purchase counterfeits, and often do not see why purchasing such products is wrong.

Counterfeiters may be drawn to the field because they can realize the same profits that legitimate manufacturers do—or even more, given that they do not incur all the costs of legitimate manufacturers. Counterfeiting often has a low risk of detection and has been treated leniently as a criminal offense, making the field attractive to criminal organizations.

Finally, technology can facilitate counterfeiting in multiple ways. Low-cost technology, such as 3-D printing, can make counterfeiting

easier to accomplish. Internet technology also expands markets for legitimate and counterfeit goods alike. At the same time, technology may help increase detection of counterfeit products.

The Demand for Counterfeit Products

Among the most-cited reasons for counterfeit purchases is price. Counterfeiters, not having the costs that legitimate manufacturers have, can sell their wares at lower prices. Stolen or counterfeit goods can represent a cost or benefit advantage to the consumer (Albers-Miller, 1999). Quality may only be a minor consideration. For example, nearly three-fourths of respondents to a European survey suggested low price was the main reason for counterfeit cigarette purchases; only 1 percent suggested counterfeit cigarettes tasted better (European Commission, 2016, but see also Macolini, 2019, for a case involving counterfeit tobacco products that were more comparable to legitimate ones).

Consumer preferences for legitimate or counterfeit products may depend on how comparable products are. For example, among products for which there is low parity between counterfeit and legitimate products, that is products for which counterfeits are clearly inferior to genuine products, consumers buying counterfeits are likely to be price-sensitive, while consumers who do not buy counterfeit products are likely to be risk-averse (Tom et al., 1998). Among products for which counterfeits are more comparable to genuine goods, counterfeit purchasers may view themselves as sly shoppers, or enjoy “the hunt” (Bian et al., 2016), while those who avoid counterfeit goods do so for ethical reasons. Motivations for buying (or not buying) counterfeits may vary by the perceived quality of the counterfeit product.

The relationship between product price and counterfeit preference can be nuanced. There is some evidence that while those knowingly purchasing counterfeit goods may be sensitive to price, they may also believe that higher-priced counterfeit goods are of higher quality (de Matos, Ituassu, and Rossi, 2007).



Finally, those who buy counterfeits may become more favorable to future counterfeit purchases (Tom et al., 1998). Being in the presence of other counterfeit shoppers may also boost likelihood of purchasing counterfeits (Albers-Miller, 1999). For some products, conversion from counterfeit to legitimate products may be possible. Buyers of counterfeit luxury goods, for example, may shift from using counterfeit goods as a means to access the community surrounding a brand to acquiring a mix of legitimate and counterfeit goods to becoming an owner solely of legitimate goods (Stöttinger and Penz, 2015; Wilcox, Kim, and Sen, 2009).

Cultural Acceptance of Counterfeit Products

Consumers may be willing to purchase counterfeit goods if they are with others who are doing so (Albers-Miller, 1999). In some extreme cases, entire marketplaces are devoted to the sale of counterfeit goods. In the United States, guides have been published to counterfeit goods for sale on Canal Street in New York (Staley, 2013). In Canada, sales of counterfeit goods at Pacific Mall in Markham, Ontario, have been so widespread that they helped land Canada on counterfeit market watchlists (Office of the United States Trade Representative, 2019). La Salada market in Buenos Aires provides one example of how illicit trade is socially engrained in some areas (Betti, 2017).

More typically, cultural acceptance of counterfeit products may be more diffuse or related to other attitudes. Researchers have long noted consumer attitudes toward lawfulness and the legality of purchasing counterfeit products are associated with consumer likelihood of buying counterfeits (Cordell, Wongtada, and Kieschinick, 1996). Buyers of counterfeit goods may be less likely to view such goods as risky or unethical and more likely to think they can benefit society (Ang et al., 2001). In some nations, leaders can be complicit in counterfeiting, viewing it as a replacement for social programs, and even seeking to force legitimate manufacturers to work with counterfeiters (Macolini, 2019).

Altogether, consumer attitudes toward counterfeits are influenced by perceived risk, previous purchases of counterfeits, attitudes of relatives and friends, personal integrity (e.g., honesty, politeness, responsibility), and need for personal gratification (de Matos, Ituassu, and Rossi, 2007). Recent research (Fejes, 2016) has also found approval of counterfeits by friends and family, opportunity to purchase counterfeits, and positive attitudes toward counterfeit products contribute to the decision to buy counterfeit products.

Lures for Counterfeiters

While the overall counterfeiting trade is small, it is substantial and can be attractive to some producers.

Product counterfeiters are largely unseen competitors who leverage the investments of legitimate manufacturers in research, development, marketing, and distribution to their own advantage (Kinghorn and Wilson, 2013). Counterfeiters have fewer requirements to enter a market than a legitimate producer does. To be successful, legitimate producers need to fund research and development, manufacturing, and marketing and advertising. These generate brand recognition, product demand, and marketplace entry. By providing these for itself, legitimate producers also provide them for counterfeit producers. As legitimate manufacturers expand opportunity for themselves, they also expand them for counterfeiters. Opportunities for counterfeiters can be particularly great when the popularity of a legitimate product exceeds supply.

While counterfeiting is a criminal activity, it can have a low risk of detection and is often treated leniently. Many counterfeiting penalties may be appropriate for individuals producing and distributing counterfeits on their own, but be inadequate for large-scale operations (Macolini, 2019). Counterfeiters may diversify their wares to minimize their risks (Ellis, 2017). They may shift their manufacturing locations (e.g., making counterfeits domestically rather than risk detection of counterfeit goods as they cross borders). In some cases, counterfeiting operations can change locations quickly, evading enforcement (Macolini, 2019). Counterfeiters may also use private courier services to ship their wares, particularly for smaller items (Gibbins, 2017). Tax stamps on some products (e.g., tobacco) might help curb counterfeiting, or provide another means for identifying authentic product, but such stamps themselves may be counterfeit (Chaudhry and Zimmerman, 2017). The low risks of detection, lenient penalties, minimal investments required, and potential for high profit make counterfeiting an attractive target for criminal activity, including terrorists who may rely on it for financing of their activities (Union des Fabricants, 2016).

Efforts to make counterfeiting more difficult can be complicated or time-consuming (Betti, 2017). Legislation can target counterfeiting activities and make penalties for them stronger, but passing legislation is time-consuming. Law-enforcement operations provide a more rapid response but may only address part of the problem or pose only a temporary obstacle. Many counterfeit goods cross borders, but trade treaties often do not consider counterfeiting. Some of these efforts could be made more comprehensive. Trade treaties, for example, could offer a means to address counterfeiting through mutual legal assistance, police cooperation, or joint investigative teams.

Technological Advances

Counterfeiters may benefit from technological advances in two ways. First, low-cost technology makes counterfeiting easier to accomplish. Second, while Internet technology expands markets for legitimate businesses, it also does so for illegitimate ones. At the same time, technology may help increase detection of counterfeit products.

Use of Technology in Making Counterfeit Goods

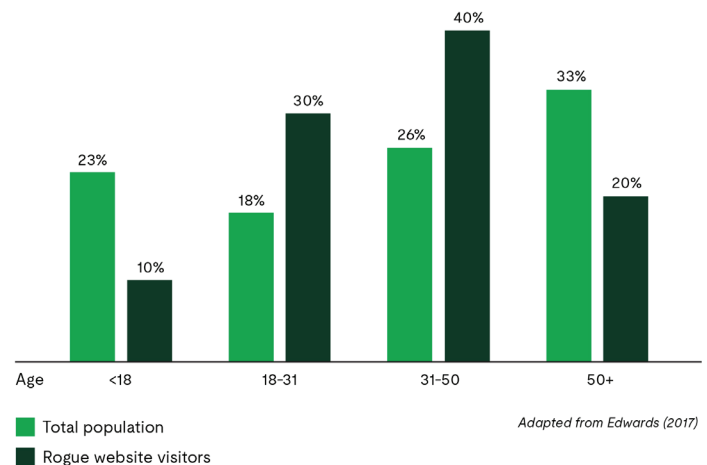
One of the greatest technological concerns in product counterfeiting is three-dimensional (3D) printing. Some brand protection professionals have noted that this could enable parts printing, which in turn would lower the barriers to entry for counterfeiters (Wilson, 2017). Most respondents in an online poll with participants from multiple industries indicated 3D printing is a threat to their brand; respondents from the electronics industry and the medical devices and pharmaceutical industry were most likely to say so (Temperature test: 3D printing, 2018). In extreme cases, individuals can “outsource their whole counterfeiting operation” to suppliers offering to counterfeit brands on business-to-business marketplaces (Macolini, p. 37).

Electronic Commerce and Markets for Counterfeiters

A still greater concern is the expansion of markets for counterfeit goods through electronic commerce. Just as electronic commerce enables legitimate commerce, so it enables illicit commerce. Illicit commerce has been present on electronic commerce since its advent (Tanji, 2017). The global scale of the problem and speed of Internet markets make it difficult to address illicit electronic trade, as do outdated legal regulations.

Counterfeit products might be sold on their own sites (Wilson and Fenoff, 2014) or through legitimate thirdparty marketplaces (Brumley, 2019; Segran, 2019). Buyers who are older or who have higher ethical standards are less likely to buy online counterfeit products, although for some products, such as fashion, customer bases for counterfeit products are growing older (Edwards, 2017). Among U.S. shoppers, persons 18 to 50 are more likely to deliberately visit rogue websites than are persons of younger or older ages (Figure 2). For regulated goods such as tobacco and pharmaceutical products, online purchases are relatively less frequent, but the proportion of illicit online purchases (both counterfeit and others) of such products is relatively high (Kennedy and Wilson, 2017).

Figure 2: Distribution by Age of U.S. Population and Rogue Website Visitors, 2016



Third-party marketplaces are of increasing concern for product counterfeiting. One trade group recently sought to place foreign sites of a leading third-party marketplace on an official U.S. list of notorious markets for counterfeits (Kim, 2019). Legitimate third-party marketplace sites are increasingly recognizing the risk, including statements in regulatory filings. Some also seek to outline responsibilities for marketplaces, sellers, and buyers, with best practices including clear terms of service for sellers and stronger enforcement by platform owners (see, for example, Online platforms, 2017).

An increasing proportion of counterfeit sales is occurring on social media sites. Recent research finding most online transactions of counterfeit goods were complicit found nearly half these purchases involved social media communications, particularly in closed groups (Collopy, 2017). Social media presents a two-fold challenge to anti-counterfeiting efforts: both closed communications and open marketing of counterfeit products may take place on social media sites. Closed communications that leave no traces may be increasing most among younger users (Grammich and Wilson, 2018).

More clandestine counterfeit sales may occur on the “deep” and “dark” web not indexed by regular search engines (Grammich and Wilson, 2018). Only about 10 percent of the Internet is indexed by regular search engines; the remainder is in the deep web. While most of the deep web is legitimate information and activity (e.g., legal documents, organization-specific repositories), the dark web subset, accessible only by certain browsers designed to ensure anonymity, is home to illicit activity, including counterfeit marketing. Botnets, adware, and remote access “trojans” can complicate still further efforts to stem the tide of counterfeiting on the internet (Chaudhry, 2017b).

Finally, cryptocurrencies can enable counterfeiting. When the online “Silk Road” black market was shut down, for example, authorities seized more than 25,000 bitcoins from users, many of which were untraceable (Engle, 2016). Such markets trafficking in counterfeit and other illegal goods could not operate without bitcoins.

How Technology Can Thwart Counterfeiting

Technology can also increase ways to thwart counterfeiters. Technology offers ways for firms to protect their wares throughout the supply chain and to allow consumers to verify product authenticity (Friedmann and Struxness, 2017; Downey, 2017). Artificial intelligence and machine learning can offer legitimate manufacturers more efficient ways to monitor online markets (Grammich and Wilson, 2018). Online education efforts, such as lists of authorized retailers, have been increasing. Rights holders may find some success in scaling efforts for botnet identification, increasing collaboration, or pursuing alternative business models such as voluntary collective licensing (Tanti, 2017). More generally, rights holders may move from reactive activities and toward identifying and offsetting new methods of piracy and leveraging value-added features that only rightsholders can provide. Developing more traditional relationships with online customers may also help (Kinghorn, 2017). Indeed, some new forms of “traditional” relationships may even be formed online. Online groups of product consumers and supporters can offer virtual guardianship for genuine products, including tips on how to identify genuine and avoid counterfeit products (Adams, 2016).



Industry and Product Issues

Virtually any product can be counterfeited. Commonly counterfeited products include electrical machinery, jewelry, furniture, foodstuffs, perfumes, pharmaceutical products, watches, and tobacco.

Just as the use of these products varies, so do the harms that counterfeit versions may pose. Some of the harms may be direct and immediate to consumers or businesses. Others may be more diffuse to society.

Because the harms that counterfeit products may pose can vary, awareness and education should vary as well. For some products that pose immediate harm and danger, awareness and education—teaching buyers about the presence and danger of counterfeits—may be most important. For others whose harms are more diffuse, persuasion—convincing consumers not to purchase counterfeits they may be willing to buy—may be more important.

Table 3: Counterfeit Harms and Communication Strategies

Nature of Harm	Product Examples	Communication Strategies
Direct and immediate	Pharmaceuticals	Eduction & awareness
Both direct and indirect	Machinery and mechanical appliances	Awareness & persuasion
Indirect	Luxury goods	Persuasion

Consumers are unlikely to willingly ingest fake food or medicine whose harms can be immediate. They may only need to know how to identify such fake goods. But they may be more willing to purchase counterfeit luxury products whose harms are not immediately evident. They may need more persuasion than anything else on not buying such objects.

Previous research has suggested that consumers are less likely to purchase counterfeits that represent high investment-at-risk products (Cordell, Wongtada, and Kieshnick, 1996). That is, consumers are less likely to purchase counterfeits of products whose quality can only be evaluated by use. Hence, all else equal, they may be more willing to buy counterfeit footwear, a product with low performance risk, than a watch, a product with higher performance risk.

We consider industry and product issues by the immediacy and directness of risks that counterfeit products may pose. Table 3 summarizes our approach, which we discuss further below. Some products, e.g., counterfeit electronic goods, can cause multiple types of harm depending on the specific good counterfeited.



First, we consider products that can pose direct, immediate harm to consumers. Counterfeits of such products are more likely to be deceptive. Hence, anti-counterfeiting efforts should focus on educating consumers how to identify counterfeits. Second, we consider products, such as electronics, whose counterfeits may pose direct or indirect harm to consumers or businesses. The balance of direct or indirect harm for a given product in this category should shape awareness and education efforts for it, including the balance between awareness and persuasion. Third, we consider products, such as luxury goods, for which counterfeiting harms may not be immediately seen or may be tolerated by the consumer. Communication efforts regarding such counterfeits may require more persuasion than awareness.

After reviewing the more specific issues regarding these different types of counterfeit products, we discuss in the next section identifying and delivering anti-counterfeiting messages to alert consumers on the dangers of counterfeit products.

Counterfeit Products Posing Direct and Immediate Harm

Among all counterfeit products crossing U.S. borders, the U.S. Department of Homeland Security identifies a subset as posing health, safety, and security concerns (U.S. Customs and Border Protection Office of Trade, 2018). These include personal care goods, consumer electronics, eyewear, pharmaceuticals, critical components, automotive and aerospace goods, batteries and machinery, lights and lamps, and perfumes.

We divide these further into two categories: those that consumers may ingest or use directly on their person (e.g., pharmaceuticals) and those that consumers may use in other ways (e.g., consumer electronics). Of the goods most prevalent in the global trade of counterfeit products (see Table 1), four types belong in the category that may cause direct and immediate harm. These are foodstuffs, perfumery and cosmetics, pharmaceutical products, and tobacco. Other items that the OECD and EUIPO (2019) identifies among counterfeits and that we place in this category include beverages and soap.

Counterfeit pharmaceuticals have long been of concern. Substandard, spurious, falsely labeled, falsified, and counterfeit medical products are most prevalent in Asia and Africa, but some dimensions of the harm of the problem remain difficult to measure (Chaudhry, 2017a). A recent review suggested that in low- and middle-income countries the prevalence of substandard and falsified medicines was 13.6 percent overall (and 19.1 percent for antimalarial drugs and 12.4 percent for antibiotic drugs), with estimates of economic impact varying from \$10 billion to \$200 billion (Ozawa et al., 2018). Porous supply chains and networks can exacerbate the problem, as can rogue internet pharmacies. Counterfeit pharmaceutical manufacturing and distribution, with its profits and low barriers to entry in some countries, attracts both formal and informal criminal groups. Within the United States, one analysis found occupational counterfeiters leverage their position as health care providers to abuse patient trust and conceal their deviant acts; some health care professionals use their access to legitimate processes that facilitate counterfeiting (Kennedy, Haberman, and Wilson, 2017).

Though less analyzed, counterfeit beverages and foodstuffs are also prevalent and sold deceptively. One notable case of recent years involved counterfeit shots of an energy drink (Flemming, 2017). The conspiracy originally involved relabeling of product but evolved to include manufacturing. Ultimately, the scheme placed four million counterfeit shots of the energy drink on the market. More recently, counterfeit alcohol, tainted with methanol, jet fuel, or embalming fluid, has been suspected in dozens of deaths in Costa Rica, the Dominican Republic, India, and Nigeria (Eves, 2019; Swahn, 2019).

Food, agricultural, and pharmaceutical firms seeking to address product counterfeiting recognize the challenges they have, as well as the tactics and issues they need to emphasize (Grammich and Wilson, 2018). Such firms are more likely to emphasize customer safety than those in other industries, as well as to emphasize activities such as legal cases, physical inspections, seizures, and training sessions. Previous research has found reducing illicit trade for similar goods increasingly relies on creating consumer awareness, authentication technology, and stronger enforcement (Chaudhry, 2017a).

Counterfeit Products Posing Direct or Indirect Harm

A broader variety of products may pose direct or indirect harm. Such products may include electrical machinery and electronics; optical, photographic, and medical apparatus; machinery and mechanical appliances; and vehicles (see Table 1). Together, these four categories account for nearly half of the global trade of fake goods.

We classify these products together because of the mixture of their harms. Products in this middle category may fail catastrophically or may seemingly function well while posing larger indirect problems.

Counterfeit electrical machinery and electronics is the most prevalent product category in the global trade of fake goods (OECD and EUIPO, 2019). Among counterfeit electronics, integrated circuits, often stripped from recycled electronics, are among the most commonly counterfeited items (Wix and Mahadeo, 2017). Other sources of counterfeit electronics include unauthorized production and fake products (Wagner, 2015). Such parts may sell from \$0.10 to \$100 each—and thereby not draw scrutiny that more expensive parts might (Smith, 2015).

Counterfeit electronic products can pose both immediate and long-term harms. Faulty electronic products pose risks of overheating, fire, or electrical shocks (McCoy, 2018). They may only be detected later in a supply chain or use.

Counterfeit electronic products may falsely bear approval markings (Wagner, 2015). In one case, self-balancing scooters bore a certification mark of a firm that, at the time, did not certify this product (Daniels, 2016). Other cases have included counterfeit

certification labels affixed to phone chargers for which legitimate certifications are available (O'Brien, 2019).

Counterfeit vehicle products offer other examples that may not be immediately detected but can pose catastrophic consequences later. In one recent case, a parts dealer sold 360 counterfeit airbags on eBay, contending the airbags might work in some circumstances, though subsequent testing showed they typically did not inflate properly (Fairbanks, 2019). Other fake car parts may not have immediate catastrophic performance but can lead to lower performance or more expensive repairs later. For example, drivers who use fake spark plugs—which can account for as many as 60 percent of spark plugs for sale over the Internet—may notice decreased engine power, with some such plugs even melting and causing extensive engine damage (Braithwaite-Smith, 2019).

Counterfeit batteries are another product whose faulty performance may not be detected immediately but can still cause larger products to fail catastrophically (Semuels, 2019). Such batteries may work acceptably in larger goods ranging from computers to hoverboards before failing catastrophically, sometimes leading to fires or explosions. Batteries themselves can have multiple components or be sold with genuine products, making detection of counterfeits more difficult.

The balance of possibilities here between direct immediate harm and indirect long-term harm suggest communication efforts here should focus both on awareness and persuasion. Awareness efforts should help consumers identify counterfeit parts and the dangers their use can pose. Persuasion efforts should focus on broad public safety and security effects (for example, sales of counterfeit parts to the military) as well as connections between counterfeiting and other criminal activity, including terrorism and human trafficking.



Counterfeit Products Posing Indirect Harm

Counterfeit products that may not pose immediate harm may comprise the broadest array of counterfeit products. Among the 20 most-counterfeited product categories, for example, are categories such as jewelry, clothing, furniture, handbags, and watches (see Table 1). Other items in this category that are prevalent in counterfeit markets may include tanning or dyeing extracts, furs, carpets, umbrellas, ceramic products, musical instruments, and works of art (OECD and EUIPO, 2019). While a counterfeit umbrella may ultimately fail, it does not pose the same immediate danger to users that counterfeit pharmaceuticals or counterfeit electronics do. Some products in this category—e.g., children’s pajamas made of flammable or toxic material—can ultimately pose direct harm (Macolini, 2019).

This category of counterfeit goods is prominent for younger consumers. A recent survey found apparel, shoes and accessories, and sporting goods (including apparel and merchandise) to be the categories of goods that young consumers in ten nations were most aware of and most likely to have seen counterfeits being sold (International Trademark Association, 2019). Many young consumers cited morals as a reason not to buy counterfeits but more cited low income as a reason to do so. Young purchasers of counterfeits also cited the ability of fake brands to help them “express” themselves as a reason for buying them. At the same time, young consumers avoid counterfeit electronic and cosmetic products because of safety concerns.

Counterfeit luxury goods are perhaps the most analyzed type of counterfeit goods. Counterfeit luxury goods may be deceptive (e.g., overruns, gray-market goods) or non-deceptive (Cesareo, Pastore, and Williams, 2017). Personal and social characteristics, product image, and situational context all influence the demand for counterfeit luxury goods. Counterfeiters exploit meanings associated with authentic brands, particularly those regarding image and status. Counterfeit luxury

goods may yield large profits for small investments and little chance of detection or punishment. Previous managerial responses included hands-off (e.g., avoiding letting consumers know) approaches, prosecution, withdrawal from markets rampant with counterfeits, and warning consumers. More recent approaches have included increasing awareness, creating an action plan, asserting rights, and integrating multiple strategies.

Counterfeits can have mixed effects on legitimate products. Consumers may use counterfeits to substitute for lower-priced genuine brands rather than the higher-priced ones that counterfeiters mimic (Bian, 2018). Counterfeits may also effectively advertise for higher-end brands while substituting for lower-end ones (Qian, 2014). Such counterfeits may compete directly with lower-priced brands while diluting the reputation and value for higher-priced ones.

Recent research has identified marketing appeals that may diminish intent to buy counterfeit goods (Sharma and Chan, 2017). Marketing appeals most likely to reduce intent to purchase counterfeit are those that appeal to consumers wishing to express their central values, who seek to thwart feelings of insecurity, and who seek to organize and categorize their attitudes toward products in a meaningful and consistent manner. Advertising for products that is utilitarian, by contrast, can increase acceptance of counterfeits.

Such appeals go beyond the immediate use of a product. They may also complement broader persuasion appeals on the broader harms of counterfeits. The harms of counterfeit luxury and similar products may not be immediately evident, but they can be widespread, particularly if produced in substandard labor conditions or by those using counterfeit profits for other criminal activity. Anti-counterfeiting messages for such products must focus on broad persuasion.

In the next section, we discuss identifying and delivering anti-counterfeiting messages. Past research has shown how anti-counterfeiting messages should vary in content and delivery, include both general and specific messages, and give different stakeholders different roles to play.

Identifying and Delivering Anti-Counterfeiting Messages

Anti-counterfeiting messages should vary in content and delivery. In some cases, manufacturers of legitimate goods will need to provide specific information on how to identify authentic versions of their products (changing this information as necessary to thwart counterfeiters who learn and adapt). In others, larger associations or governments should stress the broader harms of counterfeit products.

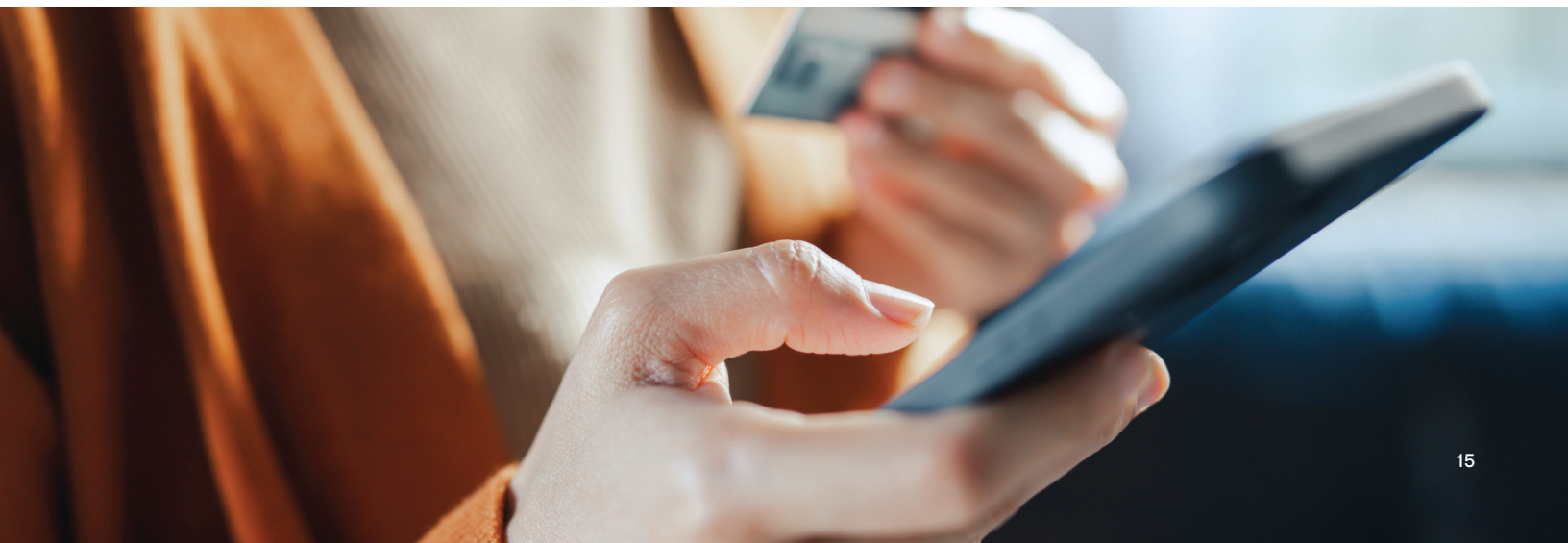
We explore two topics relevant to identifying and delivering anti-counterfeiting messages. First, we discuss how messages to raise anti-counterfeiting awareness should be both general and specific. General messages should stress the broader harms of counterfeiting, such as links to other crimes. Specific messages should stress how purchasers, including businesses themselves, can avoid counterfeits. Second, we discuss how different stakeholders

have different roles to play. While manufacturers should focus on product education, and public bodies should focus on general education, mixed strategies can also help target messages to specific audiences.

Message Content

Often the first step in reducing counterfeit activity is ensuring the targeted firms are aware of the activity (Berman, 2008). Metrics that firms may use to identify possible counterfeiting include sharp decreases in sales; availability of products at discounters or e-commerce platforms; and increases in orders for proprietary components, gray-market activity, returns and warranty claims, or product failure rates. Organizations seeking to respond to counterfeiting incidents should consider (1) pre-crisis planning such as identifying and probing signals of possible incidents, (2) crisis-stage responses of damage containment and recovery, and (3) post-crisis actions of learning what did and did not work well in responding to the incident and how future responses can be improved (Grayson and Evert-Burks, 2016).

Rights-holders need to communicate internally about the counterfeiting risks they face and how to address them. This includes identifying and communicating risks between functions within an organization and partners external to it (McGreevy and Harrop, 2015). Firms should also enlist cooperation from and communicate anti-counterfeiting goals with employees, dealers, and distributors (D'Amato and Papadimitriou, 2013; Kennedy, 2016). Suppliers should be trained to identify counterfeits among their own suppliers and on possible diversion of goods (Stevenson and Busby, 2015). Staff members should be trained to identify suspicious products both within a firm and in the marketplace (Harvey, 1988). Private-public collaboration can help train law enforcement to identify counterfeiters and their product (Liberman, 2012). Because public officials can change, such training may need to be repeated often (Macolini, 2019).



Communications, education, and awareness efforts should encompass nearly every function of a firm. Leading brand protection professionals report that multiple functions should implement communications, education, and awareness techniques (Wilson, Grammich, and Kaeser, 2018; Wilson and Grammich, forthcoming). These functions include not just brand protection, sales, and security functions, but also government affairs, human resources, packaging, procurement, quality assurance, and warehousing and distribution.

Messages for external audiences can focus on product or more general issues. Product messages can show the dangers, including accidents or injuries, of using counterfeit products (Viot, Le Roux, and Krémer, 2014). Consumer education can help buyers differentiate genuine and counterfeit products and the better performance of genuine products (Hamelin, Nwankwo, and El Hadouchi, 2013). Producers can list authorized distributors and retailers. They may also list signs of likely counterfeiting, such as exceedingly low prices, poor packaging, broken product seals, and absence of serial numbers on key parts (Berman, 2008). Specific anti-counterfeiting messages can emphasize penalties for those reselling counterfeit products and the warranty service available to owners of genuine products (Stumpf and Chaudhry, 2010).

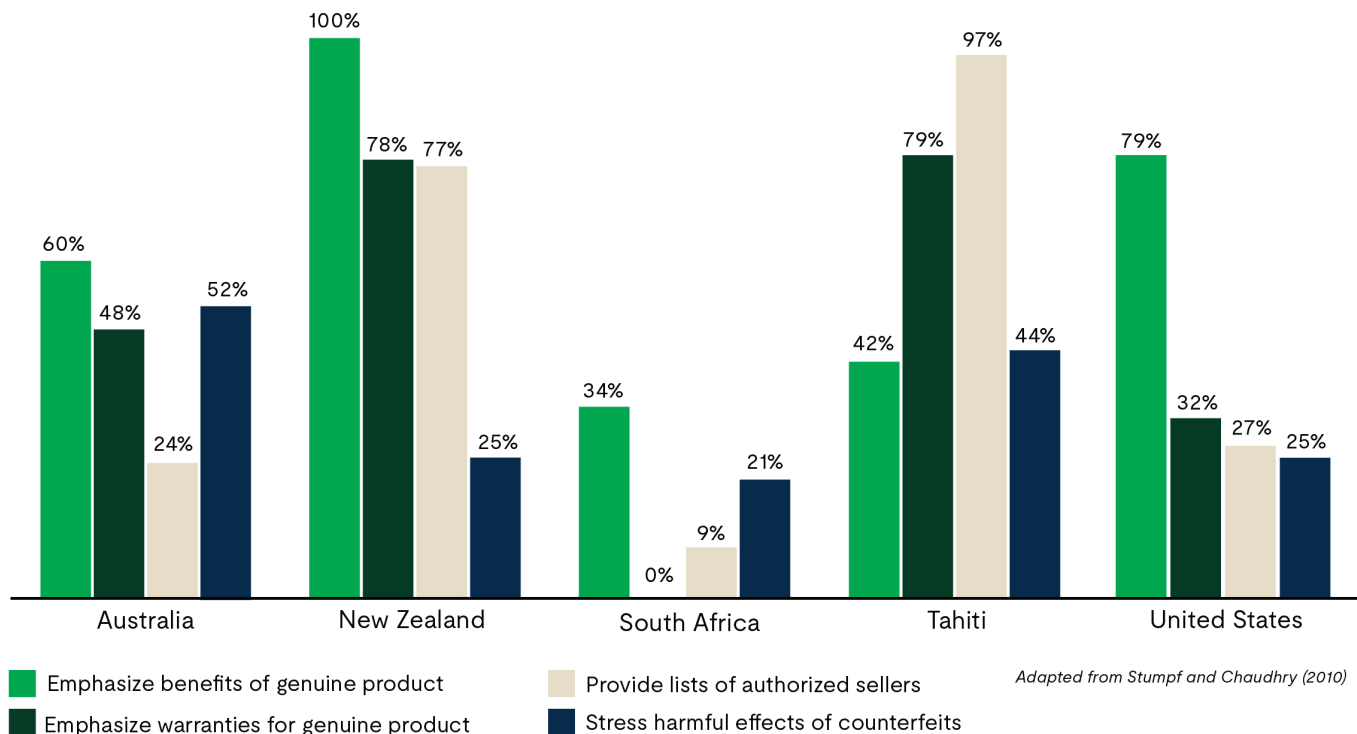
General messages can have specific topics or seek to develop broader anti-counterfeiting attitudes. General messages on specific topics might note criminal penalties for counterfeit trade and successful prosecutions of counterfeiting cases (Stumpf and Chaudhry, 2010). Such messages might note the number of persons who were sentenced for counterfeiting, or the fines that have been imposed for counterfeiting (Viot et al., 2014). Public messages may emphasize that counterfeiting is a criminal act. They can seek to change perceptions that product counterfeiting is harmless and note its connection to other criminal activity and terrorism (Wilson, 2017). Such messages could attach a “human face” to counterfeiting, noting the poor labor conditions in counterfeit factories and the unemployment of workers for legitimate manufacturers (Phau and Teah, 2009). General public messages could also emphasize themes that as the best imitation is not close to the original. For counterfeit luxury products, such messages may emphasize the social embarrassment resulting from detected use of counterfeits.

Consumer-directed anti-counterfeiting messages might incorporate different product-specific and general elements (Cesareo and Stöttinger, 2015). Such messages may be related to the product (e.g., differentiating genuine from counterfeit), communication (e.g., creating awareness of negative impact of counterfeits), distribution (e.g., a list of authorized distributors and retailers), or price (e.g., on price gaps between genuine and counterfeit). Strategies may not be equally applicable. For example, luxury producers may hesitate to use communication messages but endorse awareness campaigns and providing websites and hotlines for consumer information.

Different groups of consumers are also likely to require different communication strategies (Cesareo and Stöttinger, 2015). For customers who cannot afford the full price of genuine goods, genuine goods producers may wish to establish entry-level lines or authorized second-hand marketplaces. For customers who may own both genuine and fake products, awareness messages should focus on the advantages of genuine products. For those who have been victims of counterfeiting, awareness messages should focus on how to identify counterfeits. For those who are most loyal to a brand but wary of becoming victims of counterfeiting, awareness should focus making consumers ambassadors for the brand.

Adapting Messages to Different Markets and Stakeholders

Anti-counterfeiting messages may need to account for differing locations of counterfeit markets. One study of Australia, New Zealand, South Africa, Tahiti, and the United States found substantial variation in the proportion of consumers who knowingly purchase counterfeit products, the motives of sellers and buyers of counterfeit goods, and the perceived effectiveness of differing anti-counterfeiting actions (Stumpf and Chaudhry, 2010). Most business executives in Australia and the United States believed that consumers knowingly purchase counterfeit goods; most in New Zealand, South Africa, and Tahiti did not believe this. Business executives in Australia, New Zealand, Tahiti, and the United States believed counterfeit markets were seller-driven and that the greatest motive for sellers was profit; those in South Africa believed the markets were buyer-driven and the greatest motive for sellers was weak enforcement. Executives cited product attributes as the greatest motive for buyers in Australia, Tahiti, and the United States; those in New Zealand and South Africa most often cited convenience.

Figure 3: Percent of Business Executives by Nation Citing Communications Tactic for Anti-Counterfeiting Action

The differing context of counterfeit markets in each country led to different emphases on communications tactics (Stumpf and Chaudhry, 2010). Business executives cited four communications tactics among possible anti-counterfeiting actions. These were emphasizing the benefits of genuine products, emphasizing warranties of genuine products, providing lists of authorized sellers, and stressing the harmful effects of counterfeiting (Figure 3). In Australia, New Zealand, and the United States, the three most advanced economies of the five studies, executives most emphasized the benefits of genuine products. In Tahiti, with less wealth, executives emphasized providing lists of authorized sellers. In South Africa, where executives saw counterfeit markets as being buyer-driven, no communications tactic was seen as particularly effective.

The proportion of executives in these nations citing each of these four tactics may have changed in the past decade. Yet the pattern remains noteworthy. In some nations, consumers may need to be reminded of the benefits of genuine goods. In others, they may need to know where to buy these goods. In still others, communications tactics may have limited effects.

Recent research on consumers in developing and developed markets further underscores the need for

differing anti-counterfeiting strategies (Eisend, Hartmann, and Apaolaza, 2017). Consumers in developed markets will avoid counterfeit products depending on their propensity toward risk and personal integrity. Those in developing markets will avoid counterfeit products based on their desire for status and in response to positive brand signals. Put another way, in developed countries, convincing consumers of the harms of counterfeit products may be the most effective strategy. In developing countries, convincing them of the risk that counterfeit products can pose to their social status may be more effective.

Perceptions of consumers regarding the effectiveness of anti-counterfeiting messaging can offer guidance for awareness campaigns. Recent research assessed how consumers in Brazil, China, India, Russia, and the United States perceive the effectiveness of five different messages regarding counterfeits (Chaudhry and Cesareo, 2017). The messages related to fear of prosecution, role models offering anti-counterfeiting messages, peer pressure against the use of counterfeits, connections between organized crime and counterfeits, and educating customers on the ethics of counterfeiting. Across all five nations, stressing linkages to organized crime, particularly how counterfeiting can fund terrorism and human trafficking, was at least somewhat effective. Variations of

these messages may boost effectiveness in some areas. For example, leveraging fear of prosecution may be more effective where penalties are greater. Role models chosen to appeal to a specific market might have substantial effects. Educating customers on safety hazards might have more effect than discussing the ethics of counterfeiting. Finally, messages may need to be tailored to consumer complicity with counterfeits.

Different stakeholders will have different roles in counterfeit awareness and education (Yang and Sonmez, 2017). The varying effects of tactics underlines the need for complementary efforts. Manufacturers can warn consumers about the existence of fakes, but this is less effective for complicit buyers. They may persuade governments to enforce anti-counterfeiting laws, but this may not have much effect in the short term. Media messages can increase awareness of the severity of counterfeiting but not affect those who are ignorant of counterfeiting. Education can reduce ignorance of counterfeiting but be expensive and only effective in the long-term. Distributors and retailers could inform manufacturers of existing counterfeits but this might not reduce the supply of counterfeits. Customer reporting can help but would be most effective among those who are most loyal to a brand. Warning counterfeiters of the consequences of counterfeiting may also be effective but would have to be backed by substantial penalties.

The point is not the ineffectiveness of any one strategy but the need for multiple strategies executed by multiple stakeholders. Strategies that are ineffective separately may be effective when combined. Integrated efforts can address nearly all elements of counterfeiting demand and supply but require participation of and support from multiple stakeholders.

Prioritizing Anti-Counterfeiting Awareness

The classification of products we suggest presents a hierarchy for messaging. Overarching this hierarchy is the need to emphasize the criminal nature of counterfeiting, the other criminal activities that benefit from it, and the need for appropriate enforcement is one starting point. Often counterfeiting accompanies other crimes (Macolini,

2019). Combining product counterfeiting cases with these other cases can present ways to increase enforcement of counterfeiting statutes—and awareness of the dangers of product counterfeiting.

Emphasizing the criminal nature of counterfeiting and its wide-ranging effects, while ultimately necessary, is time-consuming. More immediately, anti-counterfeiting efforts should focus on issues of most pressing concern to the public: counterfeits, such as those of pharmaceuticals, that pose immediate dangers to users. Consumers are likely to always want genuine products here, so will be receptive to messages regarding the dangers of counterfeits. Efforts can focus on helping buyers identify where they can purchase genuine goods— and, if necessary, on persuading these locations to provide only genuine goods.

For products that may or may not pose immediate danger, communicating the ultimate danger may suffice for awareness efforts. Consumers may not, for example, understand the immediate danger of buying batteries or automotive parts from online sources that may be counterfeit. But they likely will understand the danger of battery explosions or auto parts failures that can lead to catastrophe.

For products that are less likely to pose immediate or maybe even any physical danger to the user, anti-counterfeiting communication must convey the broad, societal harms that such products can cause. Such communication can include reminding consumers of how such products are made, the legitimate jobs they may eliminate, and the additional criminal activities they may support.

Anti-counterfeiting awareness must also address issues beyond those posed by counterfeit products themselves. Among other issues, this includes opportunities to convert purchasers of counterfeit products to buyers of genuine ones, how peers can influence the purchase of counterfeits, and the socioeconomic characteristics of places where counterfeit products are produced and sold throughout the world. Anti-counterfeiting messages will need to differ by buyer, product, and setting.

Altogether, the challenge in raising anti-counterfeiting awareness is substantial. But the opportunities for doing so are numerous as well.

References

- Albers-Miller, N. D. (1999). Consumer misbehavior: why people buy illicit goods. *Journal of Consumer Marketing*, 16(3), 273-287. <https://doi.org/10.1108/07363769910271504>
- Adams, G. T. (2016). Empowering consumers as capable guardians to prevent online product counterfeiting victimization in the athletic footwear industry: a routine activity perspective. Master's thesis in Criminal Justice, Michigan State University, East Lansing, MI. <https://d.lib.msu.edu/etd/3868>
- Ang, S. H., Cheng, P. S., Lim, E. A. C., and Tambyah, S. K. (2001). Spot the difference: consumer responses towards counterfeits. *Journal of Consumer Marketing*, 18(3), 219-235. [https://doi.org/10.1016/0148-2963\(95\)00009-7](https://doi.org/10.1016/0148-2963(95)00009-7)
- Badenhausen, K. (2019). The world's most valuable brands 2019: Apple on top at \$206 billion. *Forbes*. <https://www.forbes.com/sites/kurtbadenhausen/2019/05/22/the-worlds-most-valuable-brands-2019-apple-on-top-at-206-billion/>
- Berman, B. (2008). Strategies to detect and reduce counterfeiting activity. *Business Horizons*, 51(3), 191-199. <https://doi.org/10.1016/j.bushor.2008.01.002>
- Betti, S. (2017). Key global enforcement issues on illicit trade in goods. In P. E. Chaudhry (Ed.), *Handbook of research on counterfeiting and illicit trade*, Northampton, Mass.: Edward Elgar Publishing, pp. 30-51.
- Bian, X. (2018). Do counterfeits only affect brands that are heavily counterfeited? New insights. *The Brand Protection Professional*, 3(2): 20-21. <https://joom.ag/tEjY/p20>
- Bian, X., Wang, K-Y, Smith, A., and Yannopoulou, N. (2016). New insights into unethical counterfeit consumption. *Journal of Business Research*, 69(10), 4249-4258. <https://doi.org/10.1016/j.jbusres.2016.02.038>
- Braithwaite-Smith, G. (2019, October 7). A dangerous false economy: why you should avoid fake car parts. *Motoring Research*. <https://www.motoringresearch.com/carnews/avoid-fake-car-parts/>
- Brumley, J. (2019, October 12). Amazon has a 'notorious' counterfeit problem. *The Motley Fool*. <https://www.fool.com/investing/2019/10/12/amazon-has-anotorious-counterfeit-problem.aspx>
- Cesareo, L., Pastore, A., and Williams, P. (2017). Counterfeiting luxury goods. In P. E. Chaudhry (Ed.), *Handbook of research on counterfeiting and illicit trade*, Northampton, MA: Edward Elgar Publishing, pp. 193-222.
- Cesareo, L., and Stöttinger, B. (2015). United we stand, divided we fall: how firms can engage consumers in their fight against counterfeits. *Business Horizons*, 58(5), 527-537. <https://doi.org/10.1016/j.bushor.2015.05.007>
- Chaudhry, P. E. (2017a). The challenge of curtailing the escalation of counterfeit pharmaceuticals. In P. E. Chaudhry (Ed.), *Handbook of research on counterfeiting and illicit trade*, Northampton, MA: Edward Elgar Publishing, pp. 157-192.
- Chaudhry, P. E. (2017b). The looming shadow of illicit trade on the Internet: botnets, malware, and malvertising." In P. E. Chaudhry (Ed.), *Handbook of research on counterfeiting and illicit trade*, Northampton, MA: Edward Elgar Publishing, pp. 366-383.
- Chaudhry, P. E., and Cesareo, L. (2017). Fake and pirated: do consumers care? *Journal of Business Strategy*, 38(6), 11-19. <https://doi.org/10.1108/JBS-08-2016-0080>
- Chaudhry, P. E., and Zimmerman, A. S. (2017). Illicit trade in the tobacco sector. In P. E. Chaudhry (Ed.), *Handbook of research on counterfeiting and illicit trade*, Northampton, MA: Edward Elgar Publishing, pp. 223-255.
- Collopy, D. (2017). Social media's impact on intellectual property rights. In P. E. Chaudhry (Ed.), *Handbook of research on counterfeiting and illicit trade*, Northampton, MA: Edward Elgar Publishing, pp. 276-321.
- Cordell, V.V., Wongtada, N., Kieschinick, R.L. Jr. (1996). Counterfeit purchase intentions: role of lawfulness attitudes and product traits as determinants. *Journal of Business Research*, 35(1), 41-53. [https://doi.org/10.1016/0148-2963\(95\)00009-7](https://doi.org/10.1016/0148-2963(95)00009-7)
- D'Amato, I., and Papadimitriou, T. (2013). Legitimate vs illegitimate: the luxury supply chain and its doppelgänger. *International Journal of Retail & Distribution Management*, 41(11/12), 986-1007. <https://doi.org/10.1108/IJRDM-01-2013-0015>
- Daniels, J. (2016). The self-balancing scooter crisis and the enforcement of a certification trademark. *The Brand Protection Professional*, 1(2), 22-24. <https://joom.ag/8AbW/p22>
- de Matos, C. A., Ituassu, C. T., and Rossi, C. A. V. (2007). Consumer attitudes toward counterfeits: a review and extension. *Journal of Consumer Marketing*, 24(1), 36-47. <https://doi.org/10.1108/07363760710720975>
- Downey, M. (2017). The bottle and the blockchain: securing authenticity and proving provenance in a global wine market. *The Brand Protection Professional*, 2(4), 18-21. <https://joom.ag/lrfL/p18>
- Edwards, K. (2017). Who buys fake fashion? *The Brand Protection Professional*, 2(3), 10-12. <https://joom.ag/TNqL/p10>
- Eisend, M., Hartmann, P., and Apaolaza, V. (2017). Who buys counterfeit luxury brands? A meta-analytic synthesis of consumers in developing and developed markets. *Journal of International Marketing*, 25(4), 89-111. <https://doi.org/10.1509/jim.16.0133>
- Ellis, C. (2017). On tap Europe: organised crime and illicit trade in tobacco, alcohol and pharmaceuticals. Royal United Services Institute for Defence and Security Studies, London. <https://rusi.org/publication/whitehall-reports/tap-europe-organised-crime-and-illicit-trade-tobacco-alcohol-and>
- Engle, E. (2016). Is bitcoin rat poison? Cryptocurrency, crime, and counterfeiting (CCC). *Journal of High Technology Law*, 16(2), 340-393. <https://cpb-us-e1.wpmucdn.com/sites.suffolk.edu/dist/5/1153/files/2016/05/Is-Bitcoin-Rat-Poison-Cryptocurrency-Crime-and-Counterfeiting-CCC-1.pdf>
- European Commission. (2016). Public perception of illicit tobacco trade. https://ec.europa.eu/anti-fraud/sites/antifraud/files/eurobarometer_report_illicit_tobacco_trade_en.pdf
- Eves, T. (2019, September 18). Should you be worried about tainted alcohol when traveling? *Wine Spectator*. <https://www.winespectator.com/articles/should-you-be-worried-about-tainted-alcohol-when-traveling>
- Fairbanks, P. (2019, May 9). Fake Chinese airbags that "just may work" send Buffalo parts dealer to prison. *The Buffalo News*. <https://buffalonews.com/2019/05/09/fake-chinese-airbags-that-just-may-work-send-buffalo-parts-dealer-to-prison/>

- Fejes, Z. L. (2016). Investigating consumer demand for counterfeit goods: examining the ability of social learning and low self-control to explain volitional purchase of non-deceptive counterfeit products in an Eastern European college sample. Ph.D. dissertation in Criminal Justice, Michigan State University, East Lansing, MI. <https://d.lib.msu.edu/etd/4316>
- Flemming, J. (2017, June 22). Couple sentenced in scheme to counterfeit 5-Hour Energy shots. Los Angeles Times. <https://www.latimes.com/business/la-fi-counterfeit-5-hour-energy-20170622-story.html>
- Friedmann, P., and Struxness, A. (2017). The ecommerce retail supply chain. The Brand Protection Professional, 2(2), 24-25. <https://joom.ag/E5BW/p20>
- Gibbins, C. (2017). Good things come in small packages, but protecting them is a big challenge. The Brand Protection Professional, 2(2), 20-21. <https://joom.ag/E5BW/p20>
- Grammich, C. A., and Wilson, J. M. (2018). The 2017 A-CAPP Center Brand Protection Strategy Summit: issues and best practices in partnerships, return on investment, and e-commerce. Center for Anti-Counterfeiting and Product Protection, Michigan State University, East Lansing, MI. http://a-capp.msu.edu/wp-content/uploads/2018/05/PAPER-SERIES-2017-A-CAPP-Center-Brand-Protection-Strategy-Summit_Partnerships-ROI-E-Commerce.pdf
- Grayson, A., and Evert-Burks, L. (2016). Crisis mitigation through communication in brand protection. The Brand Protection Professional, 1(2), 26-29. <https://joom.ag/8AbW/p26>
- Hamelin, N., Nwankwo, S., and El Hadouchi, R. (2013). "Faking brands": consumer responses to counterfeiting. Journal of Consumer Behavior, 12(3), 159-170. <https://doi.org/10.1002/cb.1406>
- Harvey, M. (1988). A new way to combat product counterfeiting. Business Horizons, 31(4), 19-28. [https://doi.org/10.1016/0007-6813\(88\)90064-X](https://doi.org/10.1016/0007-6813(88)90064-X)
- Heinonen, J. A., and Wilson, J. M. (2012). Product counterfeiting at the state level: an empirical examination of Michigan-related incidents. International Journal of Comparative and Applied Criminal Justice, 36(4), 273-290. <https://doi.org/10.1080/01924036.2012.721198>
- International Trademark Association. (2019). Gen Z insights: brands and counterfeit products. http://www.inta.org/Communications/Documents/INTA%20Gen%20Z%20Insights_Global.pdf
- Joshi, J. (2018). The doctor is in: counterfeit medications and fraudulent medical care. The Brand Protection Professional, 3(2), 16-19. <https://joom.ag/tEjY/p16>
- Kennedy, J. (2016). Proposed solutions to the brand protection challenges and counterfeiting risks faced by small and medium enterprises (SMEs). Journal of Applied Security Research, 11(4), 450-468. <https://doi.org/10.1080/19361610.2016.1210487>
- Kennedy, J. P., Haberman, C. P., and Wilson, J. M. (2018). Occupational pharmaceutical counterfeiting schemes: a crime scripts analysis. Victims & Offenders, 13(2), 196-214.
- Kennedy, J. P., and Wilson, J. M. (2017). Clicking into harm's way: the decision to purchase regulated goods online. American Behavioral Scientist, 61(11), 1358-1386. <https://doi.org/10.1177%2F0002764217734264>
- Kim, E. (2019, October 1). Amazon sites in France and India should be added to US counterfeit watchlist, says apparel trade group. CNBC. <https://www.cnbc.com/2019/10/01/amazon-sites-in-france-india-should-bemarked-for-counterfeits-aafa.html>
- Kinghorn, R. (2017). Bringing online consumers closer to a traditional relationship. The Brand Protection Professional, 2(1), 21. <https://joom.ag/nwTW/p20>
- Kinghorn, R., and Wilson, J. M. (2013). Anticounterfeit strategy for brand owners. A-CAPP Background, Center for Anti-Counterfeiting and Product Protection, Michigan State University, East Lansing, MI. <http://a-capp.msu.edu/wp-content/uploads/2018/05/BACKGROUND-ANTI-COUNTERFEIT-STRATEGY-FOR-BRAND-OWNERS.pdf>
- Koerner, B. L. (2018). The young and the reckless. Wired. <https://www.wired.com/story/xbox-underground-videogame-hackers/>
- Kuznia, R., and Sun, L. H. (2019, September 25). Potential culprits in mystery lung illnesses: black-market vaping products. The Washington Post. https://www.washingtonpost.com/health/potentialculprits-in-mystery-lung-illnesses-blackmarket-vaping-products/2019/09/24/cb5b708e-d98d-11e9-ac63-3016711543fe_story.html
- Lieberman, J. (2012). Combating counterfeit medicines and illicit trade in tobacco products: minefields in global health governance. The Journal of Law, Medicine & Ethics, 40(2), 326-347. <https://doi.org/10.1111%2Fj1748-720X.2012.00667.x>
- Macolini, C. T. (2019). Counterfeits: war stories and lessons learned—an investigator's perspective. Monee, IL: MIC Worldwide.
- Mayers, J., and LeMieux, M. (2018). Tilting at windmills: your organization's intellectual property is not cabbage. The Brand Protection Professional, 3(4), 10-13. <https://joom.ag/Tr8a/p10>
- McCoy, K. (2018, September 20). How potentially dangerous fake Apple products reach the US consumer market. USA Today. <https://www.usatoday.com/story/money/2018/09/20/how-potentially-dangerous-fake-apple-products-reach-you/695596002/>
- McGreevy, C., and Harrop, W. (2015). Intentional cargo disruption by nefarious means: examining threats, systemic vulnerabilities and securitisation measures in complex global supply chains. Journal of Business Continuity & Emergency Planning, 8(4), 326-345.
- Menon, C. (2016). Are grey goods the real deal? The Guardian. <https://www.theguardian.com/money/2016/jul/09/grey-goods-real-dealimported-sold-unofficially-consumers>
- O'Brien, C. (2019, October 3). Why you should never charge your phone overnight. The Irish Times. <https://www.irishtimes.com/business/technology/why-you-should-never-chargeyour-phone-overnight-14036094>
- Office of the United States Trade Representative. (2019). Special 301 Report. https://ustr.gov/sites/default/files/2019_Special_301_Report.pdf
- Online platforms. (2017). The Brand Protection Professional, 2(2), 27-28. <https://joom.ag/E5BW/p26>
- Organisation for Economic Co-operation and Development and European Union Intellectual Property Office. (2019). Trends in Trade in Counterfeit and Pirated Goods. <https://doi.org/10.1787/g2g9f533-en>
- Ozawa, S., Evans, D. R., Bessies, S., Haynie, D. G., Yemeke, T. T., Laing, S. K., and Herrington, J. E. (2018). Prevalence and estimated economic burden of substandard and falsified medicines in low- and middle-income countries. JAMA Network Open. <https://dx.doi.org/10.1001%2Fjamanetworkopen.2018.1662>
- Phau, I. and Teah, M. (2009). Devil wears (counterfeit) Prada: a study of antecedents and outcomes of attitudes towards counterfeits of luxury brands. Journal of Consumer Marketing, 26(1), 15-27. <https://doi.org/10.1108/07363760910927019>
- PwC Strategy &. (2018). China and Europe post double digit increases in R&D spending.
- Qian, Y. (2014). Counterfeiters: foes or friends? How counterfeits affect sales by product quality tier. Management Science, 60(10), 2381-2400. <https://doi.org/10.1287/mnsc.2014.1932>
- Rako, P. (2017). What's all this mislabeled IC stuff, anyhow? ElectronicDesign. <https://www.electronicdesign.com/analog/what-s-all-mislabeled-ic-stuff-anyhow>

Roustan, W. K. (2019). Couple accused of peddling \$2 million worth of fake designer watches and bags. South Florida Sun-Sentinel. <https://www.sun-sentinel.com/local/palm-beach/boynton-beach/fl-ne-palm-fake-rolex-arrests-20190919-jzw6k6mz2bccclgojy6wfbtpde-story.html>

Segran, E. (2019, October 3). A team of 1,000 major brands are fighting back against Amazon counterfeits. Fast Company. <https://www.fastcompany.com/90412216/ateam-of-1000-major-brands-are-fighting-backagainst-counterfeit-design-on-amazon>

Samuels, A. (2019). When your Amazon purchase explodes. The Atlantic. <https://www.theatlantic.com/technology/archive/2019/04/lithium-ion-batteriesamazon-are-exploding/587005/>

Sharma, P., and Chan, R. Y. K. (2017). Exploring the role of attitudinal functions in counterfeit purchase behavior via an extended conceptual framework. *Psychology & Marketing*, 34(3), 294-308. <https://doi.org/10.1002/mar.20989>

Smith, E. (2015, July/August). Mitigating the risk of counterfeit electronics. *Military Embedded Systems*. <http://mil-embedded.com/articles/mitigatingrisk-counterfeit-electronics/>

Staley, W. (2013, February 8). Canal Street booty: a sampling of counterfeit goods on Counterfeit Row. The New York Times. <https://archive.nytimes.com/www.nytimes.com/interactive/2013/02/10/magazine/nineof-a-kind-purses.html>

Stevenson, M., and Busby, J. (2015). An exploratory analysis of counterfeiting strategies. *International Journal of Operations & Production Management*, 35(1), 110-144. <https://doi.org/10.1108/IJOPM-04-2012-0174>

Stöttinger, B., and Penz, E. (2015). Concurrent ownership of brands and counterfeits: conceptualization and temporal transformation from a consumer perspective. *Psychology & Marketing*, 32(4), 373-391. <https://doi.org/10.1002/mar.20786>

Stumpf, S. A., and Chaudhry, P. (2010). Country matters: executives weigh in on the causes and counter measures of counterfeit trade. *Business Horizons*, 53(3), 305-314. <https://doi.org/10.1016/j.bushor.2010.01.004>

Sullivan, B. A., and Wilson, J. M. (2017). An empirical examination of product counterfeiting crime impacting the U.S. military. *Trends in Organized Crime*, 20(3-4), 316-337. <https://doi.org/10.1007/s12117-017-9306-7>

Sullivan, B. A., Wilson, J. M., and Kinghorn, R. (2017). Illicit trade in counterfeit products: an examination of the opportunity – risk connection. In P. E. Chaudhry (Ed.), *Handbook of research on counterfeiting and illicit trade*, Northampton, Mass.: Edward Elgar Publishing, pp. 13-29.

Swahn, M. H. (2019, July 8). Counterfeit alcohol, sometimes containing jet fuel or embalming fluid, is a growing concern for tourists abroad. The Conversation. <https://theconversation.com/counterfeit-alcoholsometimes-containing-jet-fuel-or-embalmingfluid-is-a-growing-concern-for-touristsabroad-119706>

Tanji, M. 2017. Overview of the magnitude of miracy on the Internet." In P. E. Chaudhry (Ed.), *Handbook of research on counterfeiting and illicit trade*, Northampton, Mass.: Edward Elgar Publishing, pp. 259-275.

Temperature test: 3D printing. (2018). The Brand Protection Professional, 3(3), 16-17. <https://joom.ag/cGrY/p16>

Tom, G., Garibaldi, B., Zeng, Y., and Pilcher, J. (1998). Consumer demand for counterfeit goods. *Psychology & Marketing*, 15(5), 405-421. [https://doi.org/10.1002/\(SICI\)1520-6793\(199808\)15:5%3C405::AIDMAR1%3E3.0.CO;2-B](https://doi.org/10.1002/(SICI)1520-6793(199808)15:5%3C405::AIDMAR1%3E3.0.CO;2-B)

Union des Fabricants. (2016). Counterfeiting and terrorism. https://www.unifab.com/wp-content/uploads/2016/06/Rapport-ATerrorisme-2015_GB_22.pdf

United Nations Office on Drugs and Crime. (2019). The illicit trafficking of counterfeit goods and transnational organized crime. https://www.unodc.org/documents/counterfeit/FocusSheet/Counterfeit_focussheet_EN_HIRES.pdf

U.S. Customs and Border Protection Office of Trade. (2018). Intellectual property rights: Fiscal Year 2018 seizure statistics. https://www.cbp.gov/sites/default/files/assets/documents/2019-Aug/IPR_Annual-Report-FY-2018.pdf

Viot, C., Le Roux, A., and Krémer, F. (2014). Attitude towards the purchase of counterfeits: antecedents and effect on intention to purchase. *Recherche et Applications en Marketing*, 29(2), 3-31. <https://doi.org/10.1177%2F2051570714533474>

Wagner, P. (2015, Spring). Combating counterfeit components in the DoD supply chain. *DSIAC Journals*, 2(2). <https://www.dsiac.org/resources/journals/dsiac/spring-2015-volume-2-number-2/combating-counterfeit-components-dod-supply>

Wilcox, K., Kim, H. M., and Sen, S. (2009). Why do consumers buy counterfeit luxury brands? *Journal of Marketing Research*, 46(2), 247-259. <https://doi.org/10.1509%2Fjmk.46.2.247>

Wilson, J. M. (2015). Brand protection 2020: perspectives on the issues shaping the global risk and response to product counterfeiting. Michigan State University Center for Anti-Counterfeiting and Product Protection. <http://a-capp.msu.edu/wp-content/uploads/2018/05/PAPER-SERIES-Brand-Protection-2020-Perspectives-on-the-Issues-Shaping-the-Global-Risk-and-Response-to-Product-Counterfeiting.pdf>

Wilson, J. M. (2017). The future of brand protection: responding to the global risk. *Journal of Brand Management*, 24(3), 271-283. <https://dx.doi.org/10.1057/s41262-017-0032-x>

Wilson, J. M., and Fenoff, R. (2014). Distinguishing counterfeit from authentic product retailers in the virtual marketplace. *International Criminal Justice Review*, 24(1), 39-58. <https://doi.org/10.1177%2F1057567714527390>

Wilson, J. M., and Grammich, C. A. (Forthcoming). Brand protection across the enterprise: toward a total business solution. *Business Horizons*.

Wilson, J. M., Grammich, C., and Kaeser, R. (2018). Designing a total business solution approach to brand protection. *The Brand Protection Professional*, 3(4), 32-33. <https://joom.ag/Tr8a/p32>

Wix, S., and Mahadeo, D. (2017). Suspect/ counterfeit electronics overview. Sandia National Laboratories. <https://www.osti.gov/servlets/purl/1457933>

Yang, D., and Sonmez, M. (2017). Effectiveness against counterfeiting: four decades of strategic inquiry. In P. E. Chaudhry (Ed.), *Handbook of research on counterfeiting and illicit trade*, Northampton, Mass.: Edward Elgar Publishing, pp. 404-431.