

Technology and counterfeiting: friends or foes?

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Abstract

Purpose

This paper deals with the relationship between counterfeiting and technology. The aim is to underline the impact of new technologies on brand counterfeiting, answering the question if technology is in favor or against this illegal world. Lastly, it offers some considerations over the role, or “non” role, of the consumer.

Design/methodology/approach

Beginning with an economic analysis of the counterfeiting phenomenon, the author examines how technology can help counterfeiters in their illegal business and later investigates how new technologies provide industry with crucial tools to fight back.

Findings

The analysis has shown that technology and counterfeiting are tied up together. On the one hand, thanks to new technologies, it is becoming easier to make and distribute popular products whose looking is often near-identical to the original ones. On the other hand, rights holders can act to restrict the distribution of counterfeit products by vigorously supervising the movement of their own products throughout the supply chain up to retail sites. Important is the “non” role of the consumer, the 'great absentee' in this technological evolution.

Social implications

The main social implication concerns the “non” role of consumers who are excluded from the most advanced technological tools for four key arguments: technical factor, unawareness of damage caused by buying counterfeited goods, lack of interest of firms in developing anti-counterfeiting technologies for mass consumers and, sometimes, the low level of awareness in law enforcers.

Originality and value

Counterfeiting has become a global business. Technology plays a fundamental role in order to effectively tackle this problem but also in helping counterfeiters. Within this relationship, it is essential to work out the role of consumer in the developing of counterfeiting and his or her “non” role in the use of most sophisticated technologies.

Keywords

Anti-counterfeiting technologies, consumer, counterfeiting, fashion, technology

Paper type

Research paper

1. Introduction

The globalization of markets and the growing competition in international trade have made technology a key factor in the fashion industry, coming to involve all stages of the production and distribution chain (Quinn, 2010; Tortora, 2015).

One of the most interesting aspects of this process is focused on the brand, which represents the real added value of fashion companies. Nowadays, what distinguishes a high-quality product is no longer the material it is made of, the craftsmanship of its production, the originality of its design and the number of items on the market, all elements representing a guarantee of excellence. Promoted by the advent of mass production and the emergence of new markets, the brand has become the only real hallmark for fashion companies.

The brand has subsequently become a symbol of social membership and its intangible value is therefore grown dramatically (Saviolo and Testa, 2002; Fionda and Moore, 2009). This has made counterfeiting highly profitable, making his defense a priority (Cohen and Juggessur, 2009).

In this scenario, the technology has acquired a fundamental function, with an impact on brand counterfeiting that is twofold.

On the one hand, it has made counterfeiting more and more impressive, enabling the availability and the use of low-cost means of falsification easier and making less complex communication and distribution systems: many difficulties of the past to reproduce copies of accessories are de facto overcome.

On the other hand, new technologies provide crucial tools for the industry to fight back.

Firms, thanks to new technologies, possess efficient and innovative means to verify the authenticity of a product, track and trace them, thus allowing for the reconstruction of their history along the whole supply chain.

This dichotomy created by technological development raises a crucial question: who will be the most favorite? Companies and institutions that are on the legal side or criminal organizations for which counterfeiting is a very lucrative business?

2. Counterfeiting worldwide

Counterfeiting is not a simple violation of property rights; besides economic effects (OECD, 2008), due to its impact on sales and licensing, and consequently on market share, resources spent fighting the phenomenon, total evasion of tax and social security contributions, it is more and more important to consider social risks related to health (Izzi, 2008), the exploitation of illegal labor and the undeniable links to organized crime (Mise and UNICRI, 2013). In point of fact on the one hand counterfeiting is a useful method for laundering the proceeds of illegal activities; on the other it is used to fund such activities. To this aim, counterfeiting is a profitable investment area for organized crime, like the trafficking of drugs, the management of prostitution and gambling, the control of illegal immigration (UNOCD, 2013).

To have an idea of the size of the phenomenon we can refer to the last available customs seizure data over the period 2011-2013 collected in a study conducted jointly by the EU Intellectual Property Office (EUIPO) and the OECD (OECD/EUIPO, 2016). In 2013, international trade in counterfeit and pirated goods amounted to up to 2,5 percent of world trade, or as much as 461bn USD; this is the equivalent of drug trafficking. The top five goods categories most frequently seized, in 2013, are shoes, clothing and accessories, leather goods, electrical equipment and vehicle spare parts: it is evident that the world's biggest manufacture of fakes is in the field of fashion. Within Europe, 5 percent of imported goods is fake, mostly originating from low income countries; Hong Kong and China lead the way, followed by Turkey, Syria, Greece, Nepal and Tunisia. 20 percent of seized goods refer to trademarks related to American firms, 14.6 percent of counterfeits are copies of Made in Italy products, followed by France (12.1 percent), Switzerland (11,7 percent) and Japan (8,2 percent).

In Italy, in 2015 counterfeiting involves about €6.9bn of turnover and is growing by 4.4 percent over 2012, loses some 100,515 jobs to the Italian economy and the government has lost about €1.7bn in direct and indirect taxes. Over the period 2008-2015, the total number of seizures was about 432m items; the category most involved was clothing and accessories, representing €2,247m or 32.5 percent of the total (CENSIS and MiSE, 2016).

Fashion companies are obviously aware of the seriousness of the issue and are increasingly engaged in the fight against counterfeiting through coordination and cooperation among all the organizations involved, public and private, national and international (Meraviglia, 2015).

A key concept in this case is the idea of “*credence goods*” (Darby and Karni, 1973), that is goods whose characteristics cannot be observed by consumer directly even after consumption (Dulleck et al., 2011). Ready to wear is the segment of the fashion industry most affected by incomplete information regarding product quality, average price and distribution channel; as a consequence, asymmetric information makes it easier to cheat consumer who unknowingly buys counterfeits, also because the quality of fakes is improving due to the new technologies adopted (Hilton et al., 2004).

On the opposite, when considering true luxury products, there is almost no risk of incomplete information, since the price and the distribution channel allow to distinguish genuine article from copies (Meraviglia, 2015). Nevertheless, another category of consumers are those that knowingly purchase counterfeits according to the meaning they believe they possess to satisfy what are referred to as “cultural” or “psychological” needs. The important is not who we are, but the brand reflects the kind of person the consumer believes himself or herself to be (Kats, 1960; Shavitt, 1989; Perez et al., 2010). Hence this threat requires increasingly sophisticated technologies to safeguard unaware and aware consumers who consider counterfeiting a victimless crime, just to emphasize the lack of information about the many kinds of damage caused (Chaudry and Zimmerman, 2008).

3. How new technologies may favour counterfeiting

Obviously, counterfeiting dates back decades, but with the new methods that technology has made available to reach the consumer, the dimension has increased dramatically. Thanks to the web, counterfeiters take advantage of the largest and most popular distribution chain worldwide that is low cost and available to billions of people. Internet broadens the number of products to choose from. With social networks, websites ad hoc, auction sites, where difficulties in enforcing legislation, certification and control are huge, counterfeiters can display their products to sell online goods that are identical in appearance to the original ones (Chaudhry et al., 2011; Chaudhry, 2012). Moreover, a picture of the original is often displayed and it is not possible to verify the authenticity before delivering (Simpson, 2006; Donà and Garzoni, 2008; Mavlanova and Benbunan-Fich, 2011).

Consumer could recognize counterfeits only after closer inspection by examining quality of materials, logos' features and packaging, but only loyal and brand conscious customers can really identify the differences between counterfeit and authentic products (Gentry et. Al., 2001).

Most luxury goods companies employ individuals to monitor how their products are displayed on the net, but these companies are more concerned with large scale fraud than the individual seller with one or two items on offer.

Pseudo product reviews and fake profiles could be also created on social media to enhance the legitimacy of an item. In this way, people who would never have bought a fake do it unknowingly. The two markets are no longer able to differentiate. Moreover, even those who consciously buy a fake, often enjoys the anonymity and impunity. In addition, the widespread dissemination of information through newspapers, shows, photos, websites, specific television programs make it easier to steal the ideas of others (Ornati, 2011).

E-commerce has now become a means of purchase used by all the major fashion houses with their own websites where they sell single brand products, or through multi-brand sites.

According to Netnames, a brand protection company whose clients include Hermès and Adidas, in 2014 online sales of counterfeits grew by 15 percent (Pike, 2016).

Undoubtedly, benefits are obvious, but at the same time risks are remarkable. If on the one hand more and more consumers make use of this 24hours channel with no costs, on the other hand this means has become an extremely efficient tool to sell fake products; counterfeiters are able to close and open new sites very quickly without losing their customers, and some are so sophisticated that compete with the official ones (OHIM-Europol, 2015). Those looking for on line brands are exposed to the risk of the so-called traffic diversion, being diverted to fake sites, or cybersquatting, that is registering, trafficking in, or using an Internet domain name with bad faith intent to profit from the goodwill of a trademark belonging to someone else.

Moreover, as already mentioned, in internet a key feature belonging to the clothing sector is missing: the ability to "feel" the fabric and try products on; as a consequence, the digital image makes it impossible to distinguish a copy from an original

To support the growing importance of the digital channel as a marketing method, from a survey carried out in 2015 to draw up the list regarding turnover and profitability of the main Italian fashion and luxury groups, a new trend regarding retail emerged for 2016: these groups have moved from a policy based on a race to open more and more new stores in different markets to one based on the closure of existing ones. This change depends not only on a cost-benefit analysis, but on the fact that the Millennials, ie those born between 1980 and 2000 who will be the consumers of the future, are increasingly buying online (Crivelli, 2016). This generation is characterized by an increased familiarity with communication, media and digital technology. To cite an example, Zalando, Europe's biggest online vendor of clothing and footwear, last years shipped 55m orders, its sales reached 3 bln euros, increasing by around 30% a year and investors' shares rose by 19% over the past three months. Zalando has relationships with 1,500 brands (mostly well-known labels) that supply 150,000 articles (Economist, 2016).

Another key role that technology plays in favor of counterfeiting refers to the fact that it has made increasingly difficult to punish counterfeiters; in the past distribution took place in well-defined places, on beach fronts, in flea market stalls or down the streets; now "shop windows" are not only sidewalks but posts of social networks as Facebook, or in general websites as Alibaba (a Chinese e-commerce giant that is expanding also in Europe); in this case it becomes extremely difficult to identify who is responsible and the source of supply (Cesareo and Pastore, 2014a).

In April 2016, Alibaba joined the International Anti-Counterfeiting Coalition (IACC), but some members (i.e Tiffany & Co. and Gucci America) left the group complaining over the sales of counterfeit goods on Alibaba. In May Alibaba's membership was suspended.

Not all jurisdictions around the world protect IPRs in the same way, this can be an issue: some luxury firms (Louis Vuitton, Burberry, Tiffany & Co, Rolex, Fendi, Coach and Hermès to name a few) have legally prosecuted different actors in various countries for allowing the sale of counterfeit luxury products (from physical discount department stores, to online auction websites and search engines indexing fake sites). The verdicts though, have been very different (Cesareo and Pastore 2014b).

For instance, Tiffany & Co. and Louis Vuitton brought eBay to Court in the United States and France respectively, alleging that the vast majority of products sold under their brand was fake; they reached completely opposite results. In France the judgment was in favor of LV; in the USA against Tiffany.

Even if there are differences between national trademark laws, the two cases clearly demonstrate the importance of prosecution of single violations, whether compensation is obtained or not, and coordination among actors in the struggle against counterfeiting.

4. Anti-counterfeiting technologies

On the other hand, technology is a vital tool for businesses in the fight against counterfeiting. The technology market itself suffers from information asymmetry, thus obliging firm to have information about available solutions to select the most suitable for their product. Indeed, there is no an appropriate technology fitting all firms and all sectors; each firm should choose consciously beginning from a deep

knowledge of its production chain and the industry in which it operates, in order to identify weaknesses and then be able to cope with.

Innovation and research are a strong discriminating factor between original and counterfeit: a dynamic company will be able to create original products with frequency and, as a result, will reduce the possibilities and profitability of falsifications. The presence of counterfeit products of poor quality causes producers of original goods to offer new products of better quality at a higher price (Qian, 2014). First of all, integration among all stages of the production and distribution chain is favored by information and communication technologies (Ict).

The key issue is the collection, analysis and spread of information from the consumer to the production stages in ever shorter time and its "transformation" in new collections whose creation takes place in a few weeks thanks to new and advanced technology solutions (Hermes Lab, 2001).

While internet makes counterfeiting easier, on the other hand there are several software such as MarkMonitor, Cyveillance and BrandDimensions, able to monitor websites to detect those which illegally make use of others' identity (Berman, 2008). For investigating the online marketplace, different companies are now offering ad hoc services and software able to scan internet and specific websites for fraudulent listings; they provide an ongoing monitoring of online storefronts and auctions by using web-crawling technology (ie Netnames, OpSec and Envisional). In the case of illegal websites and illegal products sold on auction websites, companies can ask for Internet service providers' (ISPs) collaboration in blocking the websites, removing domain names and shutting down infringers' accounts. However, such solutions can be adopted mainly by business owners in order to protect their trademarks (Mavlanova and Benbunan-Fich, 2011).

EBay is the largest online marketplace where people can make direct transactions. EBay does not control and cannot verify that sellers have the right or the ability to sell or distribute the items listed in their advertisements but is committed to protecting the intellectual property of the property rights holders. To this end, in its 'Replicas, counterfeit items and unauthorized copies' policy, it explains that "*products sold on the website can bear a company's official brand name or logo as long as the products were lawfully made by, for or with the consent of the company*".¹

To such aim, in 1997 eBay has created the Verified Rights Owner program (VeRO) to enable holders of a right to intellectual property (such as copyrights, trademarks or patents) to report listings that infringe intellectual property rights claiming they are the most knowledgeable to recognize original products, in return for an agreement to remove infringing items and suspend related accounts. There are several firms working with the VeRO program: they report listings not conforming with the program norms, and often cooperate with authorities in further investigations (i.e Tecnoconsulting and Protect Veritas in Italy, SNB React in the Netherlands, OpSec Security Plc in Germany, Markmonitor, Mediasentry, CPA, Trademar management in the United States). Some luxury brands have joined the

¹vero.ebay.it

program (such as Burberry, Chanel, Gucci America, Montblanc) while others (such as Louis Vuitton and Fendi) have not since they believe it simply shifts the burden of monitoring sales to the brand holder (Cesareo and Pastore, 2014b).

In addition, national and international agreements should be considered between ISPs and brand product suppliers to prevent the marketing of fakes and remove quickly those already on sale. Moreover, a further tool consists of trustmarks that certify the originality of an e-commerce site.

As to the anti-counterfeiting systems it is necessary to do some classifications. First, from a physical point of view, the instrument can lean on internal supports of the product (fiber), on the product or on the packaging. In addition, on the one hand there are those available to verify the authenticity of the product and of the package, that is, to ensure that a product is really what is declared to be; on the other hand, there are those allowing for the traceability (and complementary localitation), that is the opportunity to record and trace the whole history of the product and the identity of those involved in the different stages of the production and distribution process. Among these devices there are those not visible to the naked eye (covert technologies) made with special inks, or chemical or mechanical methods: in this case customers are neither able to detect nor verify covert devices' presence; and those visible (overt technologies), making it easier for users to authenticate products, such as holograms, labels and codes (Li, 2013). Some are low cost and easy to use, others are highly sophisticated and expensive. To cite some example: holograms, special inks and RFID technology.

Hologram is a photographic recording of a laser light that enables the three-dimensional image of the holographed subject to be displayed.

As to inks, there are those heat-reactive or light-reactive that are used both on the products and on the packaging. These elements change color when exposed to heat or light, respectively. There are also no visible inks which may be made visible with particular devices, and inks that become evident when in contact with particular substances.

Another type of device is the plastic tag that is a microscopic particle with up to ten layers of different colors, whose sequence determines the code. Hypothetical codes are about 4.5 billion. Tags are applied to the product or packaging in different ways.

As to the RFID technology (from the acronym radio-frequency identification), in this context refers to a method of identification and automatic storage of information, also very complex, regarding different products (Asanghanwa, 2007).

Specifically, the system consists of an RFID tag (or transponders), which can be very small as a grain of rice, allowing a large amount of information to be added at each step of the supply chain; a reading and/or writing device called reader (or interrogator), which other than reading, can write information and then provide for the updating of the chip. Finally, there is an information system that manages and, transfers data if necessary. An advantage of this new technology compared to the label, is that the reader does not need to obtain the optical visibility, and works in extremely short times (the radio tags can be inserted in the product and read in several items simultaneously).

It is possible to realize RFID in many different typologies: inserted into labels quite similar to those normally used in clothing or in the form of stickers to be applied on the cardboard packaging of products. Another advantage is the ability to read, in the same container, the code of tens or hundreds of labels in a time of a few seconds, and then transmit it to the management information system.

The tag becomes an identification system that can keep trace of the history of a product from the processing stage and then be used interactively throughout the supply chain up to the retail distribution and, in some cases, up to the consumer (Gallante and Tartaglione, 2008).

Since pre-fall 2014, RFID microchips were inserted into the soles of the vast majority of Ferragamo's women's shoes; as of Spring/Summer 2016, RFID chips were included in all of Moncler's products, (Pike, 2016).

To cite other examples of sophisticated technology specifically designed for the textile industry, reference may be made to those able to mark raw fibers prior to each subsequent processing stage and, later, verify if garments have been made with the type of fiber declared on the label. This kind of technology is more and more useful since natural fibers are often produced in one country, while the subsequent processing steps are carried out in others, increasing the risk of falsification and use of lower quality fibers compared to those declared (UNICRI, 2016).

An example of this technology is the "Signature T DNA" which is a system of identification based on morphological and physiological characteristics of the natural fiber; this marking remains bound to fiber even after washes with water, solvents, alcohol and is resistant to heat, cold, abrasion, and other environmental extremes.²

Another issue that should be taken into consideration is the economic side of information; before adopting a particular system each company has to perform a cost-benefit analysis: on the one hand it should evaluate intangible costs related to the application of the particular tool and recording of information; on the other intangible costs related to the time required for such operations and to the percentage of risk involved, since an always successful system is impossible and therefore the lower the risk the higher the cost. As to revenues they are difficult to quantify accurately: different factors should be considered: the market share that is met illegally subtracting revenue to the company, then gains from increased sales, but at the same time it is necessary to understand if those who cannot buy a fake product anymore, then would buy an original. It is therefore an estimate (Gallante and Tartaglione, 2008).

Clearly, technology is not only an authentication and traceability tool in the fight against counterfeiting, but it is also a means to monitor the implementation of national and international laws and regulations and a way to quickly link all those involved in combating counterfeiting; it makes possible to increase the efficiency and effectiveness of monitoring authorities, police, public agencies that with advanced

²http://www.adnas.com/signature_T

computer systems can obtain information critical to the enforcement activities. Once again fundamental is the public-private cooperation to improve the knowledge and disseminate all kind of information.

5. The “non” role of the consumer

Several studies in the academic literature confirm the importance of consumer role in the development of counterfeiting (Grossman and Shapiro, 1988; Bloch et al., 1993; Eisend and Schuchert-Guler, 2006; de Matos et al., 2007; ICC and BASCAP, 2009; Phau and Teah, 2009; Kim and Karpova, 2010; Koklic, 2011; Romani et al., 2012; Yoo and Lee, 2012, Baghi et al., 2013).

In this research, strong demand and consumer complicity are seen as the main causes of the growth of this phenomenon worldwide. To these, other scholars have added the attitude called 'anti big business' or 'Robin Hood' syndrome (Nill e Shultz, 1996; Kwong et al., 2003).

According to this thesis, large multinational firms take advantage of their dominant market position practicing excessively high prices and therefore consumers find in this kind of behaviour a moral justification for buying fake.

This paper investigates the consumer role in the fight against counterfeiting, with a particular focus on the benefits deriving from the use of new technologies. It is not an easy issue, as the final consumer is the great absentee in any strategy to fight counterfeiting based on the use of new technologies (Cesareo and Stoettinger, 2015).

A large number of firms in their websites often indicate call centers numbers or e-mail addresses where consumer can inquiry if a product is original or a seller has been authorized, and report the purchase of a fake. These data are processed through an authentication system (BrandWatch Technologies, Certilogo, Opsecm) by which they insert special code on a global online identification platform to verify the product authenticity. From Autumn/Winter 2013 to Spring/Summer 2014, Certilogo worked with Stone Island and Versace to tag products with authentication technology. For Stone Island, this cooperation resulted in 3,000 customer alerts of fakes and identified 18 production lines. As for Versace, 1,740,000 products were tagged across 130 countries, 2,117 alerts were generated and five lines identified (Pike, 2016).

Nevertheless, consumers are excluded from the most advanced technological tools; there are four key arguments explaining what can be considered a clear “non-role”.

First of all, there is a technical factor: in one way both tools and procedures implemented by big firms are costly, therefore it's hard to obtain a widespread diffusion, at least in the short period; in another way the utmost complexity of their functioning makes them very difficult to use for people (like most consumers) who don't have a high level of technical education. Even those who manages to use these tools find hard to interpret the results.

The second argument is the lack of understanding of damage caused by buying counterfeited goods (Chaundry and Zimmerman, 2008). The vast majority of potential buyers of a fake brand ignores (or most likely pretends to ignore) that his or her behavior helps organized crime. The whole economy of

fake is strongly controlled by organized crime. This criminal rings make huge profits from the production and distribution of counterfeit items but they also control the whole chain that brings a fake good from the factory to the shops or the streets. Along this chain a vast series of crimes are committed, from the exploitation of labor (including minors) to the laundry of 'dirty' money down to a huge number of 'petty crimes' (AACCP, 2004; ACG, 2008; UNICRI, 2011; MiSE and UNICRI, 2013). This scenario should trigger a social alarm at any level of civil society, starting a virtuous circle mobilizing all the resources against the phenomenon of counterfeiting. But the unawareness of the deep involvement of the organized crime into this kind of activity makes people think that buying fake items is not ethically and morally wrong (Chaundry and Zimmerman, 2008).

Another argument is the supposed lack of interest of firms in developing anti-counterfeiting technologies with easy-to-use interfaces, allowing mass consumers to get familiarized with them. The real issue is clear: developing such tools, which require extensive researches and costly software, is not worthwhile. Top brands producers are persuaded that potential buyers of fake goods wouldn't be interested in any case in purchasing the original ones. Those who buy counterfeit items do it in order to gain (or try to) a higher social status but the price gap with the originals is too wide: the vast majority of buyers of a fake brand does not have the financial capability to purchase the same 'genuine' item from a regular seller (Phau and Min, 2009; Wilcox 2009). Therefore, this kind of consumer even if cannot find in the black market or Internet any fake item wouldn't even consider the possibility to purchase a brand item from a legitimate vendor. Big firms, though have the capability to invest in developing anti-counterfeiting software and devices relatively easy to use, prefer, to a certain extent, to withdraw from fighting the commercialization of fake goods on the mass market.

Finally, the role of institutions must be taken into consideration.

Over the past two decades, great steps have been made in the field of labeling in areas such as food. In any supermarket the consumer can verify in a simple and immediate way composition and origin of each food item on sale. This is the result of a joint action, also at European level, by governments and associations that have succeeded both to mandate a comprehensive and understandable labeling system, and to develop and consolidate at all levels of society the awareness that such systems are the best guarantee for the health of the consumer.

With regard to counterfeiting, there are undoubtedly more complex obstacles to overcome, but there is no doubt that actions taken by official institutions are not still sufficient. Moreover, the lack of awareness and understanding about the phenomenon and its consequences is something consumer often share with law enforcers, many of whom still regard counterfeiting as an offense which scarcely deserves their precious time and resources (UNICRI, 2010). Under Italian law the consumer of a counterfeit product commits no crime but is merely liable to a fine of between €100 and €7,000.³

³Art 17(ii), Corporate Internationalization & Energy Act, Law No. 99 of 23 July 2009.

6. Conclusions

The analysis has shown that new technologies play a twofold role towards the phenomenon of counterfeiting, which affects the fashion industry on large scale as the top three goods categories most frequently seized are shoes, clothing and accessories.

On the one hand they indeed help the industry of fake.

Counterfeiters, as a matter of fact, take huge advantage of the widespread diffusion of Internet that has become the largest and most popular distribution channel: on the web fake products appear quite identical to the original ones and can be sold worldwide. Moreover, the 'digital market' has made more and more difficult to punish counterfeiters as it is extremely problematic to identify the source of supply and the commercial network.

On the other hand, new technologies are an important aid in the fight against counterfeiting, though there is no a single appropriate technology fitting all firms and all sectors.

Nevertheless, the fashion industry is making use of technical progress to develop useful tools allowing them to oppose counterfeiting. Effective software has been developed and implemented in different fields: from product traceability throughout the supply chain, its identification and authentication, up to the monitoring of markets.

However, some issues remain unresolved.

The most important regards the role of the consumer, the 'great absentee' as he or she does not benefit from the technological evolution, not owning enough money to purchase hi-tech tools that are too costly, nor having adequate skills to use the new and sophisticated technologies and to interpret the results.

Moreover, the general unawareness of the criminal dimension of counterfeiting, that is still widely perceived as a socially neutral phenomenon, is a huge limit to a more active role of consumers.

Another unresolved issue is the difficulty that public institutions face when trying to implement efficient laws against counterfeiting. Legislations are in general weak and incomplete, especially in terms of enforcement.

Finally, it should be considered the role of large companies in the struggle against counterfeiting.

Given the growing threat of online infringement and difficulties of law enforcement, companies are acting autonomously in different ways: monitoring the virtual markets on an ongoing basis, informing consumers about the legitimate distribution and purchasing channel, obscuring websites and asking for more cooperation from ISPs and big player on the on-line market such as E-bay and Alibaba. The implementation of new technologies that ensures high production standards and guarantees customers on the genuineness of the product, is not always associated with an equally strong commitment in developing anti-counterfeiting tools with easy-to-use interfaces which can be utilized also by mass consumers. Many top brands seem to think that fighting the commercialization of fake goods on the mass market is not worthwhile.

In the end, new technologies are undoubtedly an adequate means to protect the originality of the production, but at the same time are a tool used by those who want to take illegal profit. The battle is open and the outcome is uncertain.

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