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Trademark Licensing: Fashion Forward Protection against 3D Printing

**TRADEMARK LICENSING: FASHION FORWARD
PROTECTION
AGAINST 3D PRINTING**

Naomi E. Abraham¹

ABSTRACT

In recent years, 3D printing has become more prevalent in United States manufacturing. This emerging technology is used in the biotechnology industry, the food industry, and will soon enter the fashion industry. Even though it is still a rarity reserved primarily for fashion shows, there will be a time when 3D printed cotton and thread are finally perfected and made available for home use. Once this technology is available for home use in a few years, fashion brands will likely feel threatened by infringing articles of clothing.

Lawyers currently estimate that millions of dollars of intellectual property protection will be lost due to 3D printing infringers and 3D printed counterfeit items. The fashion industry is severely threatened by the increased ease of counterfeiting through this technology, especially with its emphasis on logos and brand awareness. Because it is inevitable that 3D printing will have a significant role in the manufacturing process, the fashion industry should take advantage of this innovative idea by entering into trademark license agreements.

This article discusses how trademark protection is best suited for the fashion industry and how trademark licensing is the most

¹ Many thanks to the staff of the University of Denver Sports and Entertainment Law Journal for its dedicated editorial assistance. I am deeply grateful to Professor Christine Farley for her valuable insight throughout the writing process. I owe a special thank you to Anju Thomas for her endless support during law school. Most importantly, I thank my parents, Abraham and Rebecca Vadakara, for their unconditional love, support, and encouragement throughout my life and legal career.

practical solution to protect fashion brands against infringement due to 3D printing. Trademark licensing offers a reasonable solution to allow 3D printing manufacturers to 3D print authentic branded items for sale and it allows consumers to correctly identify the source of the good.

I. INTRODUCTION

President Obama once noted that, “3D printing... has the potential to revolutionize the way we make almost everything.”² The popularity of this technology is increasing through a national push to modernize manufacturing in addition to a new wave of startups that make 3D printed materials and objects more accessible to consumers.³ To date, companies are offering a wide variety of 3D printed items including food, airplane parts, and human organs.⁴

On March 4, 2013, Dita Von Teese wore a fully 3D printed gown⁵ made out of a flexible wearable “fabric,” which was created from layers of fine powdered nylon.⁶ Following Von Teese’s debut, 3D printing became attractive to fashion designers because it promised quicker and cheaper manufacturing, customization, and a trend of 3D clothing designs.

With the ease of manufacturing items at home, there are increasing concerns for trademark protection in the fashion industry regarding

² President Barack Obama, 2013 State of the Union (Feb. 12, 2013).

³ Jeremy Hsu, *3D Printing: What a 3D Printer Is and How It Works*, LIVESCIENCE (May 21, 2013, 12:57 PM), <http://www.livescience.com/34551-3d-printing.html>.

⁴ See, e.g., *30 Things Being 3D Printed Right Now*, THE GUARDIAN (Jan. 29, 2014, 7:40), <http://www.theguardian.com/technology/2014/jan/29/3d-printing-limbs-cars-selfie>.

⁵ Duann, *Revealing Dita Von Teese in a Fully Articulated 3D Printed Gown*, THE SHAPEWAYS BLOG (Mar. 5, 2013), <http://www.shapeways.com/blog/archives/1952-Revealing-Dita-Von-Teese-in-a-Fully-Articulated-3D-Printed-Gown.html>.

⁶ Dan Howarth, *3D-Printed Dress for Dita Von Teese*, DE ZEEN MAGAZINE (Mar. 7, 2013), <http://www.dezeen.com/2013/03/07/3d-printed-dress-dita-von-teese-michael-schmidt-francis-bitonti/> (“The laser ‘sinters’ the nylon into form, a process known as select laser sintering.”).

authenticity and quality control. The ability to precisely imitate a design, in particular, creates a huge potential for counterfeits. There is also the danger of producing low-quality items that infringe upon a high-quality brand, such as a fake purse.⁷ A fake 3D printed Chanel purse is shown in Figure 1:

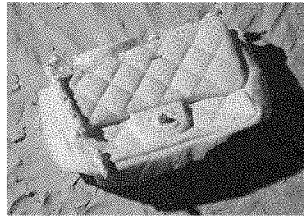


Figure 1⁸

Fashion brands have begun to seek various forms of intellectual property protection to deter others from infringing on their products. This article ultimately argues that the fashion industry should turn to trademark protection through the use of licensing agreements to protect their brands against the threat of 3D printing

A trademark is a symbol used to indicate the source of goods, like a brand name or a logo.⁹ Trademark licensing is a “contractual agreement that permits the use of a trademark by persons other than the trademark owner.”¹⁰ By licensing their trademarks to select 3D printing companies, consumers are less likely to be confused as to the source of a 3D printed item and more likely to avoid deception by counterfeiters attempting to pass off fake merchandise as authentic.

The sector of the fashion industry that this article most applies to is the “accessible brands” sector. “Accessible brands” are fundamentally the companies that would be more open to licensing based on their availability in multiple locations, like its own flagship stores, department stores, and online.

⁷ *3D Printing, Copyright Nightmare or DIY Heaven?*, THE BUSINESS OF FASHION (Oct. 23, 2012), <http://www.businessoffashion.com/2012/10/3d-printing-copyright-nightmare-or-diy-heaven.html>.

⁸ *Id.*

⁹ Lanham Act, 15 U.S.C. §1127 (Westlaw 2009).

¹⁰ *Quality Control and the Antitrust Laws in Trademark Licensing*, 72 YALE L.J. 1171 (1963) [hereinafter *Quality Control*].

II. TRADEMARKS AND THE INTEGRATION OF 3D PRINTING INTO FASHION

The introduction of 3D printing into the clothing manufacturing process, as well as family households, will only amplify the issue of trademark infringement through counterfeit merchandise, online fraud, and bad faith business practices. To understand the recommendation for heightened trademark protection via licensing in the fashion industry, it is necessary to review current trademark protection issues, 3D printing in fashion today, and licensing agreements.

A. What is a Trademark?

A trademark is a “word, name, symbol, device, or other designation . . . that is distinctive of a person’s goods or services and that is used in a manner that identifies those goods . . . and distinguishes them from other goods.”¹¹ Examples of famous trademarks include Google, Apple, Gillette, Disney, and McDonald’s.¹² The primary purpose of trademark law is to prevent the likelihood of confusion among consumers as to the source of a product while incentivizing trademark owners to invest in the quality of their products in order to maintain their goodwill.¹³ A trademark, therefore, functions as an indicator of consistent product quality, whether it is manufactured in-house by the trademark owner or by an authorized licensee.¹⁴

¹¹ 15 U.S.C. § 1127 (Westlaw 2009).

¹² *The World’s Most Valuable Brands*, FORBES, <http://www.forbes.com/powerful-brands/> (last visited Jan. 31, 2015).

¹³ See *Park ‘N Fly, Inc. v. Dollar Park & Fly, Inc.*, 469 U.S. 189, 190 (1985) (justifying trademark protection to secure the goodwill of a business and to protect consumers to distinguish among competing products).

¹⁴ 3 MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 18:55 (4th ed. 2014).

B. Trademarks in Fashion

Trademark protection is the most valuable intellectual property asset owned by a fashion enterprise.¹⁵ Fashion's dependence on trademark law is reflected by significant trademark developments, including the use of color as a trademark, product packaging and product design, trade dress, dilution by blurring, and secondary liability for counterfeit items.¹⁶ The fact that the value of fashion depends on the allure of a brand and that this allure is protected by intellectual property law provides enough incentive to litigate these trademark infringement cases.¹⁷

The price of a T-shirt mostly depends on its brand name.¹⁸ Since the 1860s, designers began using marks as a way to authenticate their designs and avoid counterfeits.¹⁹ During "logomania,"

¹⁵ Charles E. Colman, *An Overview of Intellectual Property Issues Relevant to The Fashion Industry*, 2012 WL 167352, 1 (2002) ("trademark protection tends to eclipse other forms of intellectual property protection in the fashion world.").

¹⁶ See *Christian Louboutin v. Yves Saint Laurent*, 696 F.3d 206 (2d Cir. 2013) (ruling that Christian Louboutin could trademark the color red for the sole of the shoe). See *Tiffany Inc. v. eBay Inc.*, 600 F.3d 93, 104 (2d Cir. 2010) (explaining that contributory infringement is when a "manufacturer or distributor intentionally induces another to infringe a trademark, or if it continues to supply its product to one whom it knows or has reason to know is engaging in trademark infringement). See *Louis Vuitton Malletier v. Dooney & Bourke, Inc.*, 500 F.Supp.2d 276, 278–80 (S.D.N.Y. 2007) (ruling that trade dress, "the total image of a product... such as size, shape, color or color combinations," could be a claim for dilution by blurring, when someone "willfully intended to trade on the recognition of the famous mark."). See also *Wal-Mart Stores Inc. v. Samara Bros., Inc.*, 529 U.S. 205 (2000) (ruling that clothing design could be distinctive when secondary meaning was shown, thus qualifying as a trademark).

¹⁷ Colman, *supra* note 15, 15 at 1.

¹⁸ Christina Passariello, *What Do Armani, Ralph Lauren, and Hugo Boss Have in Common? Bangladesh*, THE WALL ST. J. (Jul. 1, 2013 8:54 AM), <http://www.wsj.com/articles/SB10001424127887323998604578567522527553976>.

¹⁹ See Erin Cunningham, *Counterfeit Culture Moves Beyond Canal Street*, REFINERY 29 (Dec. 3, 2014 6:30 PM), <http://www.refinery29.com/2014/12/78905/fit-museum-counterfeit-clothing> (discussing how designers signed their names on their labels, trademarked their names, and added thumbprints to their creations to guarantee authenticity).

logos became a status symbol as well as the latest fashion trend, which then lead to a rise in counterfeit merchandise.²⁰

Coco Chanel once said, "[f]ashion should slip out of your hands. The very idea of protecting the seasonal arts is childish. One should not bother to protect that which dies the minute it is born."²¹ It seems that society agrees with Ms. Chanel, demonstrated by the lack of intellectual property protection for clothing and the current existing counterfeit market responding to consumer demands.²²

Greater intellectual property protection through new legal and business practices would benefit consumers, businesses, and the fashion industry. With the increased sale of counterfeit merchandise over the Internet, one in six bargain hunters are duped by the perceived quality of an alleged authentic item.²³ Counterfeiters can even replicate the packaging, which increases a consumer's likelihood of confusion as to the item's source and authenticity.²⁴ In December 2014, the United States Customs and Border Protection Mobile Intellectual Property Enforcement Team uncovered a planeload of counterfeit designer merchandise valued at nearly \$3

²⁰ Chavie Lieber, *Why the \$600 Bil Counterfeit Industry is Still Horrible for Fashion*, RACKED (Dec. 1, 2014), <http://racked.com/archives/2014/12/01/counterfeit-fashion-goods-products-museum-exhibit.php> ("Logos drive a purchase because when people carry items like logoed bags around, it's a status symbol that they have the latest fashion trend.").

²¹ *Id.*

²² *See id.* (quoting Susan Scafidi as the fashion industry's lack of protection in the U.S. is questioned and criticized).

²³ *MarkMonitor Shopping Report: Fall 2014*, MARKMONITOR SHOPPING REPORT (2014), https://www.markmonitor.com/download/report/MarkMonitor_Shopping_Report-2014.pdf.

²⁴ Laura Gurfein, *'Operation Treasure Hunt' Seizes \$2 Million in Counterfeit Goods*, RACKED (Dec. 10, 2014), http://ny.racked.com/archives/2014/12/10/knockoff_goods_seized_queens.php.

million dollars.²⁵ It is estimated that if the confiscated goods were sold at retail price, their authentic counterparts would have brought in approximately \$450,000 to the rightful intellectual property owners.²⁶ As the prices for designer goods continue to get higher, so does the drive for fakes.²⁷

Intellectual property owners “lose approximately 10% of their top-line revenue to counterfeiters each year,” which is between \$500 billion and \$600 billion dollars annually, which is twice the estimated annual profits from the sale of illegal drugs worldwide.”²⁸ Rightful fashion owners are suffering from lost profits. To demonstrate, if all of the seized counterfeit goods in 2013 were actually authentic, their retail value would have risen by 38%, a total of \$1.74 billion dollars.²⁹ While there are some existing incentives to halt counterfeiting, more needs to be done.³⁰

²⁵ Julianne Escobedo Shepherd, *Feds Seized \$450K of Designer Fakes at JFK This Month*, JEZEBEL (Dec. 26, 2014 3:10 PM), <http://jezebel.com/feds-seized-450k-of-designer-fakes-at-jfk-this-month-1675324195>.

²⁶ *Counterfeit Designer Merchandise Seized by CBP*, U.S. CUSTOMS AND BORDER PROTECTION (Dec. 23, 2014), <http://www.cbp.gov/newsroom/local-media-release/2014-12-23-000000/counterfeit-designer-merchandise-seized-cbp>.

²⁷ *See Outer Limits: The Cost of Luxury Products*, LEDBURY RESEARCH (Nov. 17, 2014), <http://www.ledburyresearch.com/ledbury-news/outer-limits-the-cost-of-luxury-products> (stating that Carrie Bradshaw’s Manolo Blahnik stilettos increased from \$500 in 2000 to \$1,000 now in 2014). *See also* Shepherd, *supra* note 25 (reiterating that as the price of luxury goods inflates, so does the drive for fake goods).

²⁸ *See* Roxanne Elings, Lisa D. Keith & George P. Wukoson, *Anti-Counterfeiting in the Fashion and Luxury Sectors: Trends and Strategies*, in *Anti-Counterfeiting 2013: A Global Guide*, WORLD TRADEMARK REVIEW 33, 34 (2013).

²⁹ Juliana Escobedo Shepherd, *NYPD Raid Just Made it a Lot Harder to Get a Cheap (Fake) Handbag*, JEZEBEL (Dec. 10, 2014 3:10 PM), <http://jezebel.com/nypd-raid-just-made-it-a-lot-harder-to-get-a-cheap-fak-1669275227>.

³⁰ *See* Andrea Felsted, *Fashion Fights Back Against Counterfeiting*, FINANCIAL TIMES (Nov. 28, 2014), <http://www.ft.com/cms/s/0/4ca2d6c4-749d-11e4-b30b-00144feabdc0.html#axzz3N72NAk2A> (bringing attention to the ethical issues of buying fakes); *see also* *Man Sentenced to 46 Months for Conspiracy to Traffic Counterfeit Goods*, DON’T BUY FAKES (Nov. 24, 2014), <http://dontbuyfakes.com/news/man-sentenced-to-46-months-for-conspiracy-to-traffic-counterfeit-goods> (reporting that a man was sentenced to 46 months in

By the 1950s, both the manufacturing and distributing process became easier through licensing agreements,³¹ marking the beginning of society's advancements disrupting the fashion world.

C. What is 3D Printing?

3D printing is known as additive manufacturing, which is a method of joining together materials to create 3D objects, joining them layer by layer.³² The most simple way to explain the process of 3D printing is by comparing it to an ink-jet printer. Instead of copying a two-dimensional picture, a 3D printer operates according to a Computer Aided Design ("CAD") of a three-dimensional object.³³ The 3D printer breaks down the CAD into a series of thin two-dimensional slices and each slice constructs a single layer of the three-dimensional object.³⁴ Instead of ink, the 3D printer uses powder that is then heated together by a laser.³⁵ This process then repeats itself layer upon layer until completing the final product, a three-dimensional object.

D. 3D Printing in Fashion

Intellectual property attorney Harley Lewin (attorney for Christian Louboutin in *Louboutin v. YSL*³⁶) stated, "the threat of counterfeiting was nothing compared to the threat of this new [3D

prison and must pay \$625,826 in restitution for conspiracy to traffic counterfeit goods).

³¹ See *The Big Business of Fashion Counterfeits*, THE DAILY BEAST (Dec. 24, 2014), <http://www.thedailybeast.com/articles/2014/12/24/the-big-business-of-fashion-counterfeits.html> (explaining that by 1956, many European couturiers had licensed to American manufacturers and department stores, even though they remained leery of unlicensed copiers).

³² Julian J. Johnson, *Print, Lock, and Load: 3-D Printers, Creation of Guns, and the Potential Threat to Fourth Amendment Rights*, 2013 U. ILL. J.L. TECH. & POL'Y 337, 338 (2013).

³³ Eli Greenbaum, *Three-Dimensional Printing and Open Source Hardware*, 2 NYU J. INTELL. PROP. & ENT. L. 257, 271 (2013).

³⁴ *Id.*

³⁵ Jeffrey T. Leslie, *The Internet and Its Discontents: 3-D Printing, the Commerce Clause, and a Possible Solution to an Inevitable Problem*, 17 SMU SCI. & TECH. L. REV. 195, 197 (2014).

³⁶ *Christian Louboutin v. Yves Saint Laurent*, 696 F.3d 206 (2d Cir. 2013).

printing] industry.”³⁷ New technology and the Internet combined, in particular, have a history of threatening intellectual property by contributing to the increase in counterfeiting.³⁸

“3D printing and fashion just recently met a couple of years ago, but their friendship is off to a promising start.”³⁹ 3D printing is most notably presenting itself on the runway. At the annual Victoria’s Secret Fashion Show in 2013, model Lindsay Ellingson strutted 3D printed Angel Wings with Swarovski crystals.⁴⁰ That same year, New York City’s Fashion Week featured 3D printed pieces by Katya Leonovich, which were very well received.⁴¹ In 2015, MecklerMedia hosted the first 3D printed fashion show held in New York, showcasing top 3D pieces from all over the world.⁴² There are even entire fashion weeks dedicated to displaying 3D printed clothing.⁴³ Recognized accessible brands, like Nike and

³⁷ Lauren Sherman, *Proenza Schouler CEO Shirley Cook Hates ‘Get the Look for Less’ Stories*, FASHIONISTA (Jan. 18, 2013), <http://fashionista.com/2013/01/proenza-schouler-ceo-shirley-cook-counterfeiting>.

³⁸ See Nicole Giambarrese, *The Look for Less: A Survey of Intellectual Property Protections in the Fashion Industry*, 26 *TOURO L. REV.* 243, 278 (2010) (explaining that better technology and the Internet account for the increased counterfeiting because of high-quality scanners and the ability to find any and all product information needed to counterfeit).

³⁹ Rachel Hennessey, *3D Printing Hits the Fashion World*, FORBES (Aug. 7, 2013, 7:38 PM), <http://www.forbes.com/sites/rachelhennessey/2013/08/07/3-d-printed-clothes-could-be-the-next-big-thing-to-hit-fashion/>.

⁴⁰ Lauren Indvik, *Victoria’s Secret Angel Dons 3D-Printed Wings for Fashion Show*, FASHIONISTA (Nov. 14, 2013), <http://fashionista.com/2013/11/victorias-secret-3d-printed-wings>.

⁴¹ Scott J. Grunewald, *Katya Leonovich Debut’s 3D Printed Clothing Line at New York Fashion Week*, 3D PRINTING INDUSTRY (Sep. 10, 2014), <http://3dprintingindustry.com/2014/09/10/katya-leonovich-debuts-3d-printed-clothing-line-new-york-fashion-week/>.

⁴² See Keith Nelson Jr., *Inside One of the First 3D-Printed Fashion Shows in America*, DIGITAL TRENDS (Apr. 7, 2015), <http://www.digitaltrends.com/features/inside-new-yorks-3d-print-fashion-show/#/28>.

⁴³ Dhani Mau, *How 3-D Printing Could Change the Fashion Industry for Better and For Worse*, FASHIONISTA (Jul. 19, 2013), <http://fashionista.com/2013/07/how-3-d-printing-could-change-the-fashion-industry-for-better-and-for-worse> (noting that designers recently staged the first ever 3D printed fashion week in Malaysia).

New Balance, are keeping up with the trend by testing and manufacturing 3D printed materials for shoes to improve performance and to offer customization.⁴⁴

Meanwhile, mini-manufacturers, such as Continuum, are working to enable people to design and 3D print their own apparel.⁴⁵ It is clear that designers consider 3D printing an eventuality rather than an experiment.⁴⁶ For example, companies like Thingiverse and Shapeways have already established themselves as marketplaces for 3D printed apparel.⁴⁷ While not everyone can proudly wear a 3D printed shirt yet, the technology is “SO close.”⁴⁸

3D printing promises to integrate itself into the manufacturing process.⁴⁹ Even though 3D printed thread seems a long way

⁴⁴ Alexander C. Kaufman, *3D Printing Gets Foot in the Door at Footwear Companies like Nike (NKE) and New Balance*, INT’L BUS. TIMES (Jun. 18, 2013, 10:19 AM), <http://www.ibtimes.com/3d-printing-gets-foot-door-footwear-companies-nike-nke-new-balance-1311723> (explaining that Nike is testing a lightweight plate for shoes and New Balance is creating individual cuts of shoes for different elite runners as a test to make customized shoes for consumers). See also Tyler Koslow, *New Balance Announces 3D Printed Midsoles in New Running Shoe Line*, 3D PRINTING INDUSTRY (Nov. 19, 2015), <http://3dprintingindustry.com/2015/11/19/new-balance-announces-3d-printed-midsoles-in-new-running-shoe-line/> (announcing that New Balance and 3D Systems are collaborating to release a high performance running shoe that is created with a 3D printed midsole, and this new project is the most functional use of 3D printing by any major footwear company at least in 2015).

⁴⁵ *Continuum*, CONTINUUM, <http://www.continuumfashion.com/> (last visited Feb. 11, 2015).

⁴⁶ Jasmin Malik Chua, *Iris van Herpen Debuts World’s First 3D-Printed Flexible Dresses*, ECOUTERRE (Jan. 24, 2013), <http://www.ecouterre.com/iris-van-herpen-debuts-3d-printed-dresses-at-paris-couture-fashion-week/>.

⁴⁷ *Thingiverse*, THINGIVERSE, <http://www.thingiverse.com/> (last visited Feb. 11, 2015); See also *Shapeways*, SHAPEWAYS, <http://www.shapeways.com/> (last visited Feb. 11, 2015).

⁴⁸ See Mansee, *Shapeways in 2014: A Year in 3D Printing and What’s Next for 2015*, THE SHAPEWAYS BLOG (Dec. 29, 2014), <http://www.shapeways.com/blog/archives/19390-shapeways-in-2014-a-year-in-3d-printing-and-whats-next-for-2015.html?li=home-yir>.

⁴⁹ *New 3D Printing Center Aims to Boost US Manufacturing*, LIVESCIENCE (Aug. 16, 2012, 3:05 PM), <http://www.livescience.com/22443-3d-printing->

off, comfortable clothes made of alternative 3D printed materials created specifically for fashion are currently underway.⁵⁰ Society is embracing the idea of household 3D printers for convenience, customization, social status, and necessity.⁵¹

i. When Can I Start 3D Printing at Home?

Until there is an efficient, cost-effective method to 3D print cotton or weave cotton thread, 3D printed fashion will remain a style showcased at New York City Fashion Week and not casually worn by consumers.⁵² Even though individuals all over the world are currently experimenting with wearable 3D printed materials, finished 3D printed products are not yet a reality and it will still take some time for them to enter the market.⁵³ However,

boost-manufacturing.html (reporting that in 2012, President Obama granted \$30 million to the National Additive Manufacturing Innovation Institute to “strengthen American manufacturing.”).

⁵⁰ Mau, *supra* note 43. See Jelmer Luimstra, *This Is a 3D Printer That Can Print Clothes*, 3DPRINTING.COM (Apr. 18, 2014), <http://3dprinting.com/news/3d-printer-can-print-clothes/> (revealing that Electroloom printed comfortable clothing); see also Hennessey, *supra* note 39 (reporting that Materialize invented “TPU - 92A-A,” a printing material designed specifically for use in the fashion industry).

⁵¹ Mau, *supra* note 43 (revealing that someone conceptualized a clothing printer that would be a closet hanging on a wall; an old shirt could be put in and a new shirt would print out).

⁵² Jelmer Luimstra, *Tomorrow’s Reality: Weaving Cotton into 3D Printing Techniques*, 3D PRINTING (Feb. 15, 2014), <http://3dprinting.com/products/fashion/tomorrows-reality-weaving-cotton-3d-printing-techniques/>.

⁵³ See generally Sarah Anderson, *German Scientists Study Possibility of Textiles Made via 3D Printing, Find Surprising Results*, 3D PRINTING (Oct. 29, 2014), <http://3dprint.com/21630/german-3d-printed-textiles/>. See Tyler Koslow, *Unique Knitting Machine Takes Cue from 3D Printing for Custom Knit Fashion*, 3D PRINTING INDUSTRY (Nov. 5, 2015), <http://3dprintingindustry.com/2015/11/05/unique-knitting-machine-takes-cue-from-3d-printing-for-custom-knit-fashion/> (showcasing how 3D printers can knit, thereby transforming the classic conception of knitting to an innovative technique); see also Tyler Koslow, *Feel Confident & Comfortable with 3D Printed, Custom-Fitted ‘Mesh Lingerie’*, 3D PRINTING (Nov. 30, 2015), <http://3dprintingindustry.com/2015/11/30/62680/> (introducing mesh lingerie).

where there is a will, there is a way, and trademark owners should expect to see cotton infringements one day.⁵⁴

Once an efficient method of 3D printing cotton is available, manufacturers may be eager to use it for either efficiency or customization. Manufacturers are already using it for the “wow” factor, even if it is for individual pieces of a shoe.⁵⁵ Overall, customization in apparel appeals to consumers because of its personalization capabilities, better fit, and improved comfort.⁵⁶ However, some maintain that 3D printing “remains a hobbyist-driven enterprise with a high barrier [of] entry.”⁵⁷ For example, considering one 3D printing shoe company called 3dshoes.com, its website clearly states that “dozens of revisions” might be required and the only available materials are foam, plastic, resin, titanium, gold, or platinum.⁵⁸ Additionally, 3D printed products could be limited to seven or eight inches and produced at very slow rates, sometimes causing consumers to become frustrated if the 3D printer jams.⁵⁹ However, once the technology improves, manufacturers will increase the variety of materials and their methods will be perfected.

⁵⁴ Felicity Kinsella, *Scan It, Print It, Wear It: The Future of Fashion is 3D*, RICHES, <http://www.digitalmeetsculture.net/article/scan-it-print-it-wear-it-the-future-of-fashion-is-3d/> (last visited Feb. 12, 2015).

⁵⁵ See Jelmer Luimstra, *Adidas 3D Prints Lace Locks in a Giant Shoebox*, 3D PRINTING (Feb. 2, 2015), <http://3dprinting.com/products/fashion/adidas-3d-prints-lace-locks-giant-shoebox/> (reporting that Adidas is printing lace locks in a new project).

⁵⁶ See Daniel Blurris, *3D Printed Shoes: A Step in the Right Direction*, WIRED (Feb. 12, 2014, 2:50 PM), <http://www.wired.com/2014/09/3d-printed-shoes/>.

⁵⁷ Peter Hanna, *The Next Napster? Copyright Questions as 3D Printing Comes of Age*, ARS TECHNICA (Apr. 5, 2011, 12:35 AM), <http://arstechnica.com/tech-policy/2011/04/the-next-napster-copyright-questions-as-3d-printing-comes-of-age/1/>.

⁵⁸ *3D Shoes*, 3DSHOES.COM, <http://3dshoes.com/order-shoes/> (last visited Feb. 12, 2015).

⁵⁹ Charles W. Finocchiaro, *Personal Factory or Catalyst for Piracy? The Hype, Hysteria, and Hard Realities of Consumer 3-D Printing*, 31 CARDOZO ARTS & ENT. L.J. 473, 489 (2013).

Once 3D printing enters the manufacturing process, it is only a matter of time until it enters the home.⁶⁰ It seems that a new and inexpensive 3D printer is created by the minute, so there may come a time when it is cheaper and more efficient to print clothing at home.⁶¹ However, there are two setbacks to acquiring a household 3D printer. First, it would be difficult to print an entire outfit rather than just the textile and users might not want to assemble it. Second, users may be disappointed with the quality of the textile or product.⁶² The at-home photo printer is the best example of a new technology that consumers were unhappy with because the quality never met the standard of professionally printed photos.⁶³ Additionally, consumers often found it burdensome to purchase the necessary ink and paper and not significantly less expensive because of the additional required materials.⁶⁴ The results of equally expensive but lower quality photos resulted in the declining sales of at-home photo printers⁶⁵ and 3D printers could share the same fate.

Furthermore, consumers must wait for 3D printed thread before at-home use can occur. However, as the variety of materials and quality of products continue to increase, and the prices

⁶⁰ *The Future of Open Fabrication*, OPEN FABRICATION, <http://www.openfabrication.org/> (last visited Feb. 12, 2015) (explaining that 3D printing manufacturers are trying to bring the resources to the home).

⁶¹ Mau, *supra* note 43.

⁶² Mau, *supra* note 43 (noting that printing an entire is difficult, but 3D printing “textiles’ might be easiest”).

⁶³ See Joseph C. Storch, *3-D Printing Your Way Down the Garden Path: 3-D Printers, The Copyrightization of Patents, and a Method for Manufacturers to Avoid the Entertainment Industry’s Fate*, 3 NYU J. INTELL. PROP. & ENT. L. 249, 307 (2014) (discussing the introduction of at-home photo printers).

⁶⁴ *Id.* at 298 (explaining the inconveniences combined with the overall inefficiency).

⁶⁵ *Id.*; see also John C. Arkin, *Market Share Trend in US by Printer Manufacturer*, PRINT COUNTRY, <http://printerinkcartridges.printcountry.com/printcountry-articles/printer-ink-cartridges-information-facts-downloads/market-share-trend-in-us-by-printer-manufacturer> (last visited Jan. 13, 2016) (stating that printer shipments for the first half of 2009 showed a 20.2% decline compared to the first half of 2008 while in 2006, the 4.2% decline in U.S. printer shipments was attributed to poor photo printer sales).

continue to decrease, users may begin to resort to 3D printing for their new fashion articles.⁶⁶

E. Trademark Licensing

With the inevitability of accessible 3D printed fashion, it is crucial for fashion brands to find the best way to protect their marks and prevent counterfeiting.⁶⁷ Brands will soon be forced to tackle a variety of issues concerning quality control, image reputation, and authenticity.⁶⁸ Trademark law is the source of brand protection for these issues and should continue to be so, primarily through trademark licensing.

The basic principle of trademark rights depends on the ability of the trademark owner to exclude others from using a similar mark on a confusingly similar or identical product.⁶⁹ This “right to exclude” also comes with the ability of the trademark owner to authorize third parties to use the trademark on related or different products under specific conditions, otherwise known as a trademark license agreement.⁷⁰ A trademark license agreement usually includes different terms and conditions, such as exclusiveness, geographical scope, advertising, manufacturing and product quality, and royalties owed to the licensor.⁷¹

⁶⁶ See Ben Depoorter, *Intellectual Property Infringements & 3D Printing: Decentralized Piracy*, 65 HASTINGS L.J. 1483, 1485 (2014) (3D printers “promise to make households largely self-sufficient”).

⁶⁷ See Mau, *supra* note 43 (determining that designers will inevitably use 3D printing because of the benefits of shorter lead times, the ability to produce in smaller quantities with less waste, easier experimentation, and customization).

⁶⁸ See Mau, *supra* note 43 (explaining that brands must confront these issues because consumers would manipulate the original designs, and quoting Altringer, this “is likely to send big brands, who dedicate huge portions of their budgets to controlling quality and brand image, into a tailspin.”).

⁶⁹ Irene Calboli, *The Sunset of “Quality Control” in Modern Trademark Licensing*, 57 AM. U. L. REV. 341, 348 (2007).

⁷⁰ *Id.*

⁷¹ *Id.*

Trademark licensing was initially introduced and permitted under the “quality theory” by imposing an affirmative duty on licensors to take reasonable measures to prevent consumer deception.⁷² Trademark licensing also fulfills the “guaranty theory” requiring that the trademark owner exercises control over the quality of the licensee’s product, thus guaranteeing consistency.⁷³ By utilizing trademark licensing agreements, licensors ensure that all products bearing the same mark maintain the same quality by setting quality control requirements for licensees.⁷⁴ Specifically, §§14 and 45 of the Lanham Act explicitly set forth the conditions for valid trademark licensing.⁷⁵ Thus, a trademark owner can either prevent all others from using the trademark or authorize its use to a third party via licensing.

By the 1920s, trademark licenses for clothing manufacturers became legal.⁷⁶ Since then, trademark licensing has become a very popular modern business practice due to its numerous incentives, including the maximization of brand image in the market, market production, and the value of the licensor’s good will or notoriety.⁷⁷ Now, licensing is the most-used distribution practice for clothing. In 2010, retail sales of licensed merchandise based on fashion brands and designers were approximately \$16.98 billion dollars.⁷⁸

⁷² Radiance A. Walters, *Partial Forfeiture: The Best Compromise in Trademark Licensing Protocol*, 91 J. PAT. & TRADEMARK OFF. SOC’Y 127, 128 (2009) (explaining that trademark law policy transformed from a “single source theory” that forbade licensing to the “quality theory,” which permitted licensing as long as the licensor exercised adequate control over the trademark).

⁷³ *Quality Control*, *supra* note 10, at 1177 (defining the “guaranty theory” as an assurance of quality).

⁷⁴ Calboli, *supra* note 69, at 344–45.

⁷⁵ See Lanham Act, 15 U.S.C §§ 1064, 1127 (Westlaw 2009).

⁷⁶ See generally *B.B. & R. Knight, Inc., v. W.L. Milner & Co.*, 283 F. 816 (1922. See generally *H. Freeman & Son v. F.C. Huyck & Son*, 7 F. Supp 971 (1934).

⁷⁷ Walters, *supra* note 72, at 130. See also *Quality Control*, *supra* note 10, at 1173. See also Calboli, *supra* note 69, at 343.

⁷⁸ See *Why Selective Distribution Makes Sense for a Luxury or Premium Business*, CREFOVI (Dec. 9, 2014), <http://crefovi.com/articles/fashion-law/selective-distribution-makes-sense-luxury-premium-fashion-business/> [hereinafter CREFOVI]; See also Licensing Letter, *Fashion Licensing Down 6%, But Many*

i. When Licensing Leads to Loss of Trademark Rights

“Naked licensing” occurs when a trademark owner does not exercise sufficient control over the licensed mark ultimately leading to trademark abandonment.⁷⁹ The most prominent case establishing the standard for what constitutes naked licensing is *Eva’s Bridal v. Halanick Enterprises*.⁸⁰ Judge Easterbrook affirmed that the plaintiffs abandoned the “Eva’s Bridal” mark through naked licensing by not exercising “reasonable control over the nature and quality of the goods, services, or business on which the [mark was] used by the licensee.”⁸¹ It is assumed that when a licensor does not exercise sufficient control over the mark, the trademark no longer guarantees consistent product quality, thus resulting in consumer confusion and deception.⁸²

ii. The Line for Naked Licensing

In determining whether naked licensing has occurred, courts will ask whether the licensor’s control was sufficient under the circumstances to guarantee that the licensee’s goods have met the expectations created by the trademark.⁸³

Courts have noted that it is extremely difficult to define how much control a licensor should exert to qualify as sufficient control over the mark.⁸⁴ The court in *Coca-Cola Co. v.*

Properties Perform Well (Sum is Smaller than the Parts?), HIGHBEAM BUSINESS (May 2, 2011), <https://business.highbeam.com/435360/article-1G1-255839422/fashion-licensing-down-6-but-many-properties-perform>.

⁷⁹ See *Eva’s Bridal v. Halanick Enterprises*, 639 F.3d 788 (7th Cir. 2011). See also Lanham Act, 15 U.S.C. § 1127 (Westlaw 2009).

⁸⁰ See *Eva’s Bridal v. Halanick Enterprises*, 639 F.3d 788 (7th Cir. 2011) (amounting to abandonment by not requiring licensees to operate the business in any particular way and not giving the licensor the ability to supervise how the business was conducted or how the mark was used).

⁸¹ *Id.* at 789.

⁸² Calboli, *supra* note 69, at 345.

⁸³ *Eva’s Bridal*, 639 F.3d at 790.

⁸⁴ See, e.g., *Fuel Clothing Co. v. Nike, Inc.*, 7 F.Supp.3d 594, 606 (2014) (explaining that licensing standards vary depending on the marketplace).

J.G. Butler & Sons found that Coca-Cola exercised exceedingly sufficient standards in controlling their mark when it came to licensing the mark to bottle manufacturers.⁸⁵ Coca-Cola selected one bottling company as its sole exclusive customer and licensee in a specific territory for use in local companies.⁸⁶ Coca-Cola set the standard and procedure by which the beverage would be bottled, and supervised it through an inspection department.⁸⁷ The inspection department sent inspectors to collect samples of the product from the plant, to test the water used in the process of creating the product, and to inspect the sanitary conditions of the plant.⁸⁸ Additionally, in *Kentucky Fried Chicken v. Diversified Packaging*, the court noted that retention of a trademark to avoid abandonment requires only minimum quality control and proving otherwise is an extremely heavy burden.⁸⁹ The plaintiffs in *Eva's Bridal*, however, lost their mark because they exercised no control whatsoever over the mark.⁹⁰

III. THE BEST INTELLECTUAL PROPERTY PROTECTION AGAINST 3D PRINTING IN FASHION IS TRADEMARK LICENSING

This article: (1) discusses how 3D printing calls for heightened intellectual property protection; (2) compares patent, copyright, and trademark protection in the context of 3D printing; and (3) suggests a trademark licensing agreement is the best source of protection for the fashion industry against the threat of 3D printing. Overall, it is suggested that intellectual property owners seek multiple forms of protection against 3D printing to receive the greatest scope of protection.⁹¹

⁸⁵ *Coca-Cola Co. v. J.G. Butler & Sons*, 229 F. 224 (E.D. Ark. 1916).

⁸⁶ *Id.* at 227.

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *Kentucky Fried Chicken Corp. v. Diversified Packaging Corp.*, 549 F.2d 368, 387 (5th Cir. 1977) (insinuating that distributing supplies under the franchisor's approval may have amounted to adequate control).

⁹⁰ *Eva's Bridal*, 639 F.3d at 791.

⁹¹ See Skyler R. Peacock, *Why Manufacturing Matters: 3D Printing, Computer-Aided Designs, and the Rise of End-User Patent Infringement*, 55 WM. & MARY L. REV. 1933, 1949 (2014) (arguing that groups succeed in obtaining greater

A. 3D Printing Demands Intellectual Property Protection

It is predicted that by 2018, 3D printing will result in the loss of at least \$100 billion dollars per year in intellectual property.⁹² The clothing industry in the United States alone was valued at \$225 billion dollars in 2012.⁹³ With the reduced cost of 3D printers and its increasing material and build capabilities, home manufacturing of 3D printed materials will substantially affect the fashion industry.⁹⁴ Consumers will soon be able to manufacture ordinary counterfeit items and it will become a mainstream practice like peer-to-peer file sharing and music copyright.⁹⁵ Therefore, instead of allowing counterfeiters to use the technology for infringement, the fashion industry should preemptively take advantage of the technology.⁹⁶

Intellectual property protection faces three problems against 3D printing. First, the anonymity of unauthorized 3D printing in illegally downloading CAD files or purchasing infringing

security for their intellectual property by seeking multiple forms for one product).

⁹² *Gartner: 3D Printing to Result in \$100 Billion IP Losses Per Year*, 3DERS, <http://www.3ders.org/articles/20131014-gartner-3d-printing-to-result-in-100-billion-ip-losses-per-year.html> (last visited Feb. 17, 2015) [hereinafter *Gartner*].

⁹³ *Size of the Global Apparel Market in 2012 by Region*, STATISTA, <http://www.statista.com/statistics/279735/global-apparel-market-size-by-region/> (last visited Feb. 17, 2015).

⁹⁴ *Gartner*, *supra* note 92.

⁹⁵ See Depoorter *supra* note 66, at 1493.

⁹⁶ See Haritha Dasari, *Assessing Copyright Protection and Infringement Issues Involved with 3D Printing and Scanning*, 41 AIPLA Q.J. 279, 317 (2013) (explaining that granting licenses is an opportunity for intellectual property owners to resolve an economic inefficiency by providing users with this legal and accessible option). *Cf.* Jim Motavalli, *Four Market Disruptors*, SUCCESS (Jan. 14, 2014), <http://www.success.com/mobile/article/four-market-disruptors> (discussing how the Keurig was seen as a disruptive technology to the coffee market and coffee retail market, but brands soon embraced the technology for its own benefit. In the first two years of its partnership with Keurig, Starbucks sold more than 850 K-Cups, observing that the K-cup category grew nine times faster than the regular coffee market).

products is difficult to detect.⁹⁷ Second, the realization that there is a low probability of getting caught for illegal infringement will generate a greater number of infringements.⁹⁸ And third, as infringement pervades society, the probability of any individual getting caught reduces even further.⁹⁹ As with the digital music industry, users of 3D printing may also adopt a liberal viewpoint on what can be copied without considering the intellectual property rights of others.¹⁰⁰ Given that this liberal viewpoint may become the social norm, any enforcement measures might induce a counterproductive “backlash” on society’s view of intellectual property owners.¹⁰¹

It is typical of intellectual property owners to be hostile towards new technology because it disrupts current legal practices.¹⁰² There was a time when people worried that the VCR, as a disruptive technology, would lead to uncontrollable copyright infringement. In *Sony Corp. v. Universal City Studios*, the Supreme Court permitted its use because it was capable of substantial non-infringing purposes.¹⁰³ Similarly, the 3D printer is also capable of substantial non-infringing purposes. In particular, the *Sony* Court also noted that “[c]reative work is to be encouraged and rewarded, but private motivation must ultimately serve the cause of promoting broad public availability.”¹⁰⁴ If these new creative and innovative works must eventually be made publicly available, it is then

⁹⁷ See Depoorter *supra* note 66, at 1496 (explaining that it will be just as difficult to detect as music and movie downloading).

⁹⁸ See Depoorter *supra* note 66, at 1496.

⁹⁹ See Depoorter *supra* note 66, at 1496.

¹⁰⁰ See Depoorter *supra* note 66, at 1501 (explaining that developing this liberal viewpoint will result in the loss of IP rights).

¹⁰¹ See Depoorter *supra* note 66, at 1501.

¹⁰² See Storch, *supra* note 63, at 252 (noting that artists and creators complain “bitterly about a new technology and its harm”).

¹⁰³ See generally, *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984). See Erin Carson, *3D Printing: Overcoming the Legal and Intellectual Property Issues*, ZD NET (Aug. 1, 2014), <http://www.zdnet.com/3d-printing-overcoming-the-legal-and-intellectual-property-issues-7000032252/> (explaining that the weight of this case is heavy enough to predict that 3D printing will be accepted because it is capable of substantial non-infringing purposes as well).

¹⁰⁴ *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984).

the duty of intellectual property law to determine how the new invention and owner's rights can live in harmony.

B. How Do I Keep Others from Stealing My Fashion Design? The Answer is Not Found in Copyright or Patent Law

i. No One Likes Copyright Protection, Especially

Copyright law does not protect fashion.¹⁰⁵ When questioned on how to protect intellectual property for clothing, fashion attorneys will agree that a fashion idea can simply not be afforded copyright protection.¹⁰⁶ Fashion law generally cannot depend on copyright protection because of the “useful articles doctrine,” the lack of practical remedies, and the negative public opinion based on previous experiences of copyright's reaction to new technology.

First, copyright protection is not available to useful and functional articles under the “useful articles doctrine.”¹⁰⁷ Even though many individuals consider fashion to be more ornamental than functional, clothing is considered a useful article.¹⁰⁸ 3D printed clothing will therefore be considered a useful article and not protected under copyright law. Copyright's limited application to certain aspects of fashion design, like a drawing, photo, or individual design element, creates a void that trademark law fills.¹⁰⁹

¹⁰⁵ Giambarese, *supra* note 38, at 244 (“Currently, there are no copyright protections for fashion designs in the United States.”).

¹⁰⁶ Colman, *supra* note 15, at 11. *See also* Copyright Act, 17 U.S.C. §102(b) (Westlaw 2014) (“In no case does copyright protection for an original work of authorship extend to any idea.”).

¹⁰⁷ Copyright Act, 17 U.S.C. §102(a) (Westlaw 2014).

¹⁰⁸ Colman, *supra* note 15, at 22. *See* Giambarese, *supra* note 38, at 251 (stating that clothing is considered to be a “useful article.”).

¹⁰⁹ Colman, *supra* note 15, at 3–4 (discussing how trademark law suggests trade dress protection as an attempt to fill the void that copyright protection leaves). *Chosun Int'l Inc. v. Chrisha Creations, Ltd.*, 413 F.3d 325, 328 (2005) (if a useful article incorporates a design element that is physically or conceptually

Second, there is no ideal legal recourse under copyright protection in fashion law or current 3D printing situations. In *Jovani Fashion v. Cinderella Divine*, Jovani had copyright protection for its catalogs with photos of dresses it designed and sold.¹¹⁰ The court granted the defendant's motion to dismiss based on the useful articles doctrine because copyright protection only applied to the pictures and not the physical designs of the dresses.¹¹¹ In the case of 3D printing, courts seem unlikely to rule differently from the *Jovani Fashion* case. The fashion article, even if illegally obtained from a CAD file, would still be considered a useful article.

3D printer enterprises, such as Shapeways or Thingiverse, have a safe harbor defense under the Digital Millennium Copyright Act ("DMCA") so long as they post a policy stating they will take down infringing material if the copyright holder requests it.¹¹² If future copyright cases concerning 3D printing excuse infringements by way of the safe harbor defense, it would be futile for fashion designers to seek copyright protection because of the lack of a real remedy.¹¹³

Finally, there is a negative perception of excessive copyright measures due to its history in the music industry and its initial reactions to 3D printing. The shutdown of Napster specifically demonstrates how important it is for intellectual property owners to effectively handle infringement situations to avoid

separable from the underlying product, the element is eligible for copyright protection).

¹¹⁰ See generally *Jovani Fashion v. Cinderella Divine, Inc.*, 808 F.Supp.2d 542 (S.D.N.Y. 2011).

¹¹¹ *Id.* at 552.

¹¹² Carson, *supra* note 103 (explaining that the safe harbor defense allows popular characters to be sold on Shapeways until the copyright holder asks that they be taken down).

¹¹³ See Stephen Carlisle, *Copyright Blog Update: Meet the New and Improved "Whack-A-Mole"*, NOVA SOUTHEASTERN UNIV. (Oct. 30, 2014), <http://copyright.nova.edu/blog-update-whack-a-mole/> (defining the "whack-a-mole" issue, where infringing material is immediately reposted on the offending website even though the owner sent a take down notice on the same infringing material).

criticism.¹¹⁴ In the Napster era, the public believed that copyright enforcement was unfairly targeting college students and forcing them to settle claims or face expensive litigation.¹¹⁵ In two notable cases, copyright infringement claims of hundreds of thousands of dollars were successfully brought against a single mother and a university student for downloading a handful of songs.¹¹⁶ Even though it is not clear if any money was actually collected, the ultimate consequence was a backlash against the music copyright industry because the public felt that the award was disproportionate and excessive.¹¹⁷ Excessive copyright measures in 3D printing could repeat a backlash against the fashion industry and encourage more infringement on designs.

The first incident of an infringing 3D printed item involved copyright infringement of the Penrose Triangle.¹¹⁸ Schwanitz, the designer, offered to sell copies through Shapeways¹¹⁹ when a few weeks later, a former Shapeways intern reverse-engineered the design and released his schematic on Thingiverse, allowing anyone to download it for free.¹²⁰ Schwanitz then initiated a DMCA takedown request, which was the world's first documented complaint over 3D printing. Thingiverse initially complied but later reposted the schematic after Schwanitz withdrew the DMCA request.¹²¹ Schwanitz was forced to withdraw his request due to heavy criticism over the validity of his copyright claim to a design based on something in the public domain and

¹¹⁴ Carson, *supra* note 103 (discussing that one lesson of the near-disastrous effect of copyright in the music industry was how existing institutions should consider users when confronted with infringement).

¹¹⁵ Depoorter, *supra* note 66, at 1499.

¹¹⁶ See *Sony BMG Music Entm't v. Tenenbaum*, No. 07cv11446-NG, 2009 U.S. Dist. LEXIS 115734 (D. Mass. Dec. 7, 2009); see *Capitol Records, Inc. v. Thomas-Rasset*, No. 06-CV-01497 (MJD/LIB), 2009 WL 2030495 (D. Minn. June 18, 2009).

¹¹⁷ Storch, *supra* note 63, at 273.

¹¹⁸ Finocchiaro, *supra* note 59, at 478.

¹¹⁹ Finocchiaro, *supra* note 59, at 478.

¹²⁰ Finocchiaro, *supra* note 59, at 478.

¹²¹ Finocchiaro, *supra* note 59, at 478.

eventually gave permission to Thingiverse to post the schematic.¹²² A more recent uproar over copyright protection and 3D printing concerns Katy Perry's Left Shark at the 2015 Super Bowl halftime show performance. Shortly after the performance, Left Shark replicas were made available on Shapeways.¹²³ Perry's attorneys sent cease and desist letters to Shapeways alleging copyright infringement.¹²⁴ Generally the public's response to this situation ranges from confusion, at best, to detestation.¹²⁵ Unfortunately, copyright is already off to a rough start with 3D printing, as this instance warns that premature regulation could smother creativity and innovation.¹²⁶

Within copyright law, the fashion industry could obtain injunctions requiring Internet Service Providers ("ISPs") to prevent access to websites that offer infringing CAD files (similar to the music and film industries).¹²⁷ Copyright owners could also license their material. However, proving copyright infringement in the fashion industry is notoriously difficult, and trademark law is fashion's most-used form of intellectual property protection, so recourse through copyright law is ultimately a weak suggestion.¹²⁸

¹²² Finocchiaro, *supra* note 59, at 478.

¹²³ See *Left Shark*, SHAPEWAYS,

<http://www.shapeways.com/product/PHEKBV6E2/left-shark> (last visited Feb. 22, 2015).

¹²⁴ Stacy Zaretsky, *Katy Perry's Biglaw Firm Sends Out 'Left Shark' Cease and Desist Letter*, ABOVE THE LAW (Feb. 6, 2015, 11:55 AM),

<http://abovethelaw.com/2015/02/katy-perrys-biglaw-firm-sends-out-left-shark-cease-desist-letter/>.

¹²⁵ *Id.* (quoting individuals questioning whether Left Shark is copyrightable because it might be a "useful article," describing the letter as "bullying", and stating that "dictators...are much easier to deal with.").

¹²⁶ Finocchiaro, *supra* note 59, at 479.

¹²⁷ Hilary Atherton, *3D Printing: Predictions for the Fashion Industry*, BIRD & BIRD (May 5, 2014),

<http://www.twobirds.com/en/news/articles/2014/global/brandwrites/3d-printing-predictions-for-the-fashion-industry>.

¹²⁸ Colman, *supra* note 15, at 14.

ii. Fashion is Over Patent Protection

Patent protection for fashion is limited to design patents and, less frequently, utility patents.¹²⁹ The major issues with the patent process are that it is very costly and often too long for fashion companies because clothing trends change almost monthly.¹³⁰ Additionally, even if the patented style is a timeless design, the patent offers protection for no more than twenty years.¹³¹

In 3D printing, the fashion industry may seek to patent the CAD files.¹³² It makes sense to protect the source of infringement rather than expend time and resources to track down infringers.¹³³ Although, it should be noted that the CAD file may not be eligible for a patent if it is no longer considered a novel invention.¹³⁴ Furthermore, it appears to be public opinion that

¹²⁹ Sheppard Mullin, *Patent Your Patent Leather: Patent Protection for the Fashion Industry*, FASHION APPAREL LAW BLOG (Jan. 28, 2008), <http://www.fashionapparelblog.com/2008/01/articles/ipbrand-protection/patent-your-patent-leather-patent-protection-for-the-fashion-industry/>.

¹³⁰ Giambarese, *supra* note 38, at 246. See Kal Raustiala & Christopher Sprigman, *The Piracy Paradox: Innovation and Intellectual Property in Fashion Design*, 92 VA. L. REV. 1687, 1704-05 (2006) (stating that an approval for a design patent can take up to eighteen months).

¹³¹ *How Long Does Patent, Trademark or Copyright Protection Last?*, STOPFAKES.GOV, <http://www.stopfakes.gov/faqs/how-long-does-patent-trademark-or-copyright-protection-last> (last visited Feb. 18, 2015) (explaining that a utility patent is usually granted for twenty years).

¹³² Bryan J. Vogel, *IP: 3D Printing and Potential Patent Infringement*, INSIDE COUNSEL (Oct. 29, 3013), <http://www.insidecounsel.com/2013/10/29/ip-3d-printing-and-potential-patent-infringement> (revealing that the U.S. Patent and Trademark Office has received more than 6,800 applications related to 3D printing).

¹³³ Peacock, *supra* note 91, at 1934 (explaining that monitoring the distribution of CAD files makes more sense than IP owners attempting to prosecute each infringer).

¹³⁴ See generally *Patent Requirements*, BITLAW, <http://www.bitlaw.com/patent/requirements.html> (last visited Feb. 19, 2015).

CAD files should be shared freely, with websites promising and promoting access to CADs.¹³⁵

Another option for the fashion industry is to seek a business method utility patent for a new method of shopping utilizing technology and 3D printing.¹³⁶ However, even if patent protection is granted, the short-term protection of twenty years is inadequate protection.

The seemingly futile results of patent protection might be the reason some companies are foregoing any intellectual property protection altogether. For example, Lego bricks does not hold a patent on its ordinary blocks and smaller companies are using 3D printers to create Lego-style pieces.¹³⁷ Currently, Lego maintains a Lego Digital Designer CAD program, where users can upload custom designs that Lego manufacturers will create and send to the user.¹³⁸ It is possible to imagine Lego extending this program to allow users to 3D print their custom designs at home.¹³⁹ The fashion industry could also utilize a similar program, allowing users to 3D print clothing in their own homes. The issue this process presents is that companies utilizing these programs have the option to price discriminate by charging one price in stores, a second price at home, and a third price to subscribe to unlimited printing.¹⁴⁰ Even though this pricing method is legal, it might be prohibitively expensive for consumers. When given the option of 3D printing an expensive patented article of clothing or illegally obtaining a free CAD file with a low probability of getting caught, users may be more likely to choose the latter.

¹³⁵ See, e.g., Ricardo Bilton, *Expanding Beyond 3D Printed Guns, DEFCAD is Officially the Anti-MakerBot*, VENTURE BEAT (Mar. 11, 2013, 1:05 PM), <http://venturebeat.com/2013/03/11/defcad-anti-makerbot/> (stating that the website will not take down or remove anything, ever).

¹³⁶ See Colman, *supra* note 15, at 21 (suggesting a business method for electronic fashion shopping, in light of increasing technology and decreasing available patent protections).

¹³⁷ Storch, *supra* note 63, at 285.

¹³⁸ *Digital Designer*, LEGO, <http://ldd.lego.com/en-us/> (last visited Feb. 22, 2015).

¹³⁹ Storch, *supra* note 63, at 286.

¹⁴⁰ Storch, *supra* note 63, at 286.

iii. Trademark Law is Fashion's Classic Form of Protection

Trademark protection is not only important to fashion because of the lack of copyright or patent protection, but because the source of the good is what makes fashion valuable.¹⁴¹ Fashion brands spend millions of dollars on advertising to build a favorable reputation and exclusivity surrounding their brand name, which consumers are drawn to.¹⁴² Brand names and logos are important to the fashion industry because of their economic value.¹⁴³ And because companies invest so much time and resources in their marks and reputation, it is a principle of trademark law to ensure that no third party free rides on their mark through trademark infringement.¹⁴⁴

At its most fundamental level, trademark protection serves two purposes. First, trademarks offer brands incentive to invest in their mark and sell consistent, high-quality goods. Second, trademarks prevent consumer confusion as to the source of the item.¹⁴⁵ These principles of trademark law make the prevention of counterfeit items a top priority, as counterfeiting is the most serious type of trademark infringement.¹⁴⁶ For fashion, a cause of action for trademark counterfeiting has the benefits of a clear legal standard, damages, seizure of the counterfeit goods, and the potential for severe criminal penalties.¹⁴⁷

¹⁴¹ Colman, *supra* note 15, at 25.

¹⁴² Colman, *supra* note 15, at 25 (explaining that fashion companies spend millions of dollars on runway shows and advertising to create exclusivity, which consumers are drawn to for fantasy or quality).

¹⁴³ *Intellectual Property in the Fashion Design Industry*, CENTER FOR FASHION ENTERPRISE, 12 (Mar. 2012), available at <http://www.fashion-enterprise.com/wp-content/uploads/2015/05/CFE-IP-DesignRights-Download1.pdf> (revealing that H&M was worth \$16,459 billion and Zara was worth \$8,065 billion in 2011).

¹⁴⁴ See Colman, *supra* note 15, at 25 (explaining that trademark law attempts to ensure that no third party “free-rides” on the magic of their brand’s goodwill).

¹⁴⁵ See Colman, *supra* note 15, at 25

¹⁴⁶ See Colman, *supra* note 15, at 25, 55.

¹⁴⁷ See Colman, *supra* note 15, at 55.

Applied to 3D printing, any 3D printed object with a logo might infringe on the rights of the trademark owner.¹⁴⁸ Even if it is printed without a logo, trademark owners can seek recourse through trade dress infringement.¹⁴⁹ But if 3D printing becomes so accessible that everyone has the latest design at the click of a button, users will print out trademarks as a distinguishing element because no one likes to wear the same thing as everyone else.¹⁵⁰ Therefore, if consumers print the trademarks to distinguish their clothing, trademark owners will have a clear legal recourse.¹⁵¹ Furthermore, third parties offering infringing 3D printed products would most likely make the CAD files available online.¹⁵² Recently, a United Kingdom court in *Lush v. Amazon* limited the extent to which third parties can use trademarks in keyword advertising and a website's search engine for links that lead consumers to items not originating from the trademark owner.¹⁵³ Even though this case did not involve 3D printing, this decision should leave trademark owners hopeful for a similar outcome concerning infringing 3D products available online.¹⁵⁴

C. Next Season's Line of Trademark Licenses

Licensing is starting to trend in the 3D printed world. In 2014, Hasbro partnered with Shapeways and offered licenses to artists to create fan art based on My Little Pony.¹⁵⁵ This licensing

¹⁴⁸ Depoorter, *supra* note 66, at 1487.

¹⁴⁹ Depoorter, *supra* note 66, at 1487. *Contra* Raustiala, *supra* note 130, at 1703 (stating that clothing designs will rarely be protected by trade dress because the design elements must be "source designating" rather than merely ornamental).

¹⁵⁰ Atherton, *supra* note 127.

¹⁵¹ Atherton, *supra* note 127 (explaining that there is a clear legal recourse because printing a trademark is direct trademark infringement).

¹⁵² Atherton, *supra* note 127.

¹⁵³ Colin Sawdy, *UK: Lush v. Amazon*, MONDAQ (Mar. 1, 2014), <http://www.mondaq.com/x/296274/Trademark/Lush+v+Amazon>.

¹⁵⁴ Colman, *supra* note 15, at 54 (suggesting that trademark owners should be hopeful for clear remedies as case law develops because a court could decide that secondary liability applies to search engines and 3D printing).

¹⁵⁵ *Introducing SuperFanArt*, SHAPEWAYS, <http://www.shapeways.com/discover/superfanart?li=home-mlp-learn-more-announcing-partnership> (last visited February 19, 2015); *See generally* Elizabeth A. Harris, *Hasbro to Collaborate with 3-D Printing Company to Sell Artwork*, N.Y. TIMES (July 20, 2014),

partnership between Hasbro and Shapeways should be a model to all future 3D printing partnerships. Specifically, as noted earlier, if 3D printing manufacturers, like Shapeways, create and provide products following existing intellectual property laws and practices, everyone benefits.¹⁵⁶ Through trademark licensing, the licensor gets money from the license, the designer gets money for their creativity (i.e., the artist who designs the 3D printed item), and the 3D printing manufacturer makes money to manufacture the products.¹⁵⁷ It should be noted that the 3D printing manufacturer avoids trademark infringement by 3D printing the item with a license. Most importantly, this existence of a license makes it clear that manufacturers will not 3D print infringing items in absence of a license. The license also speaks to the legitimacy of the intellectual property.

i. The Public Will Respect Trademark Licenses

The most important benefit of licensing is that consumers will know that the licensed products are authentic, thus satisfying the principal purpose of trademark law, which is to prevent consumer confusion as to the source of the goods. The public response to licensing is also expected to be positive, as Hasbro's license is regarded as "brilliant and really open-minded."¹⁵⁸

There was once a time when the music industry felt threatened by digital music in iTunes. In 2010, the 9th Circuit ruled that songs downloaded from iTunes are licensed and not purchased.¹⁵⁹ The court's reasoning explained that when an indi-

<http://www.nytimes.com/2014/07/21/business/hasbro-selling-my-little-pony-fan-art.html>.

¹⁵⁶ See Carson, *supra* note 103 (explaining that every party to a licensing deal benefits because of publicity over innovation and revenue).

¹⁵⁷ See Carson, *supra* note 103.

¹⁵⁸ Carson, *supra* note 103.

¹⁵⁹ F.B.T. Prods., LLC v. Aftermath Records, 621 F.3d 958, (9th Cir. Cal. 2010). See also Ethan Smith, *iTunes Songs Aren't Purchased, but 'Licensed,' Court Rules*, WALL ST. J. (Sep. 7, 2010, 1:42 PM),

vidual purchases a song, they have purchased a license to play that song in accordance with the terms and conditions on authorized devices.¹⁶⁰ Through this licensing agreement, the profits are split fifty-fifty between the artist and the label.¹⁶¹ Even though this case focused on copyright protection in music technology, this reasoning can easily be applied to trademark protection in 3D printed fashion. For example, when downloading CAD files to print an article of clothing, the consumer would not be purchasing the item as much as he is granted the license to print the item from a specific device for his sole authorized use (ideally, the terms of the license would not permit the individual to resell the clothing). Consumers do not seem to notice the strings attached in this type of licensing agreement, so the public is unlikely to react negatively.¹⁶²

There has yet to be a court decision specifically addressing trademark infringement in 3D printing. However, there have been a few copyright disputes involving 3D printing. One conflict arose when an engineer, Todd Blatt, created a CAD design for an “alien cube” from the movie *Super 8* and uploaded the file to Shapeways.¹⁶³ He then received a cease-and-desist letter from Paramount, the producers of *Super 8*. Within 24 hours of his upload, Paramount had already licensed the right to produce replicas of the alien cube to another party¹⁶⁴ and saw Blatt’s upload and potential sales as competition for their licensee.¹⁶⁵ In the end, Blatt took down his design.¹⁶⁶ This conflict proves that a licensee’s right to manufacture products under a properly licensed mark will most

<http://blogs.wsj.com/digits/2010/09/07/itunes-songs-arent-purchased-but-licensed-court-rules/>.

¹⁶⁰ Genevieve Burgess, *Are Your iTunes Really Yours? Bruce Willis and Eminem are on the Case*, PAJIBA (Sep. 6, 2012),

http://www.pajiba.com/think_pieces/are-your-itunes-really-yours.php.

¹⁶¹ *Id.*

¹⁶² *See id.* (observing that if a consumer isn’t even affected by a license’s restrictions, it is unlikely to cause an uproar).

¹⁶³ Finocchiaro, *supra* note 59, at 479.

¹⁶⁴ Finocchiaro, *supra* note 59, at 479 (noting that it is expected and common practice for third party manufacturers to respect licensing agreements).

¹⁶⁵ Finocchiaro, *supra* note 59, at 479.

¹⁶⁶ Finocchiaro, *supra* note 59, at 479 (noting that Blatt complied because he respected the other licensing agreement).

likely be respected and any other party's attempt to compete will result in expensive litigation in a losing case. A valid license agreement proves the legitimacy of the intellectual property that exists in the product and the associated rights of both the licensor and licensee.

ii. Fashion Licenses

A landmark decision in 1975, *Boston Professional Hockey Association v. Dallas Cap & Emblem Manufacturing*, recognizes the importance of preventing consumer confusion in trademark licensing clothing brands.¹⁶⁷ In that case, Boston Hockey refused permission to Dallas to use its logo on clothing, but Dallas manufactured the clothing with the Boston Hockey logo regardless.¹⁶⁸ The 5th Circuit decided that Dallas created a likelihood that consumers would identify and associate them with Boston Hockey by duplicating Boston Hockey's trademark and selling the clothing to the public.¹⁶⁹ The court continued to recognize that the logo was a "triggering mechanism for the sale" of the clothing and that this triggering mechanism was enough to establish trademark infringement through association and not confusion as to the source of the goods.¹⁷⁰ This case serves as a reminder to 3D printing manufacturers that courts are not reluctant to establish trademark infringement through the unpermitted use of logos. Therefore, 3D printing manufacturers are encouraged to seek permission to use the mark through license agreements.

Besides naked licensing, designers also worry about exclusivity and adequate quality control when contemplating licensing deals. A cautionary tale is the one of Halston, one of the

¹⁶⁷ See *Boston Prof'l Hockey Ass'n v. Dallas Cap & Emblem Mfg.*, 510 F.2d 1004 (5th Cir. 1975) (demonstrating that a party's interest in exclusively manufacturing a logo is an interest protected by trademark law).

¹⁶⁸ Calboli, *supra* note 69, at 381.

¹⁶⁹ Calboli, *supra* note 69, at 381 (demonstrating that trademark law even protects the association of logos).

¹⁷⁰ Calboli, *supra* note 69, at 381.

first luxury designers to embrace licensing.¹⁷¹ Once known as the “premier fashion designer of all America,” he signed licensing deals with JC Penny.¹⁷² Soon thereafter, his designs were available to women of all income levels in various products like eyeglasses, luggage, and Girl Scout uniforms.¹⁷³ However, with so many licenses, he was unable to control all of the deals.¹⁷⁴ The important licensing lesson here is not naked licensing, but how the inability to control the quality and execution of the products can lead to lost exclusivity, which can also ruin a brand’s image. Fashion brands, in particular, must be cautious in what they 3D print. Mainly because one of the primary benefits of 3D printing is lower cost, labels should be highly selective in what they wish to 3D print, with which manufacturer, how many items to produce, and how long the goods should be available for. In reality, the possibility of relinquishing all control factors is why luxury fashion labels are starting to avoid licensing agreements, exert greater control over their licensing deals, or buy back their licenses altogether.¹⁷⁵ There is a strong argument that licensing deals are out of fashion because of the lack of control involved. There is, however, an equally strong argument that designers could exercise total control over every part of the process by licensing with just one reputable 3D printing manufacturer.

iii. Avoiding Naked Licensing

A licensor of a trademark must exercise at least some control over the mark to avoid abandonment through naked

¹⁷¹ *Fashion Law 101 - Are Licensing Agreements Right for my Brand?*, WIGS AND GOWNS, <http://wigsandgowns.co.uk/are-licensing-agreements-right-for-my-brand/> (last visited Feb. 28, 2015).

¹⁷² *See id.* (stating that he was given this title because after designing First Lady Jacqueline Kennedy’s pillbox hat for her husband’s inauguration in 1961).

¹⁷³ *See id.* (admitting that the availability of items to all women through various products downgraded his brand in the view of the elite New York fashion stores).

¹⁷⁴ *Fashion Law 101 - Are Licensing Agreements Right for My Brand?*, WIGS AND GOWNS, <http://wigsandgowns.co.uk/are-licensing-agreements-right-for-my-brand/> (last visited Feb. 28, 2015).

¹⁷⁵ *See id.* (explaining that Victoria Beckham does not use licensing agreements and controls everything in house, Ralph Lauren reacquired its licenses to exercise greater control over branding, and Burberry bought back its licenses).

licensing. It is therefore recommended that fashion businesses license their brand names by engaging in exclusive licenses and by being consistent with their past licensing practices.

In fashion, it is common for a licensor to have different licenses for different products, such as one licensee for footwear and another licensee for jeans.¹⁷⁶ However, it is best to have one exclusive license when licensing a brand name to a 3D printing manufacturer. One favorable outcome in having one exclusive license is that when the products are debuted in department stores, there will only be one sign indicating the brand and the 3D printing manufacturer rather than many different signs with the brand and the different 3D printing manufacturers that created the goods. This scenario envisions accessible brands, like Ralph Lauren, dedicating a small part of their given floor space of department stores to their new line of 3D printed clothing. Another advantage of granting one exclusive license to one 3D printing manufacturer is that it reduces the likelihood that consumers will be duped into buying infringing and unauthentic items. By fashion brands highly publicizing their new partnerships, consumers will know that they will need to go directly to the store or the fashion company's website to get the authentic items.¹⁷⁷ 3D printing manufacturers that later attempt to sell infringing merchandise will be caught and enjoined from selling the items.

To preempt new issues from arising in 3D printing licenses, trademark owners should abide by the stringent standards set out in *Coca-Cola v. J.G. Butler & Sons*.¹⁷⁸ In *Coca-Cola*, the inspection department examined the product before and after the beverage went through carbonization.¹⁷⁹ In 3D printing cloth-

¹⁷⁶ GUILLERMO C. JIMENEZ & BARBARA KOLSUN, *FASHION LAW: A GUIDE FOR DESIGNERS, FASHION EXECUTIVES, & ATTORNEYS*, 120 (2d ed. 2014).

¹⁷⁷ See, e.g., Celia Shatzman, *Get a First Look at the Lilly Pulitzer for Target Collaboration*, *FORBES* (Jan. 7, 2015), <http://www.forbes.com/sites/celiashatzman/2015/01/07/get-a-first-look-at-the-lilly-pulitzer-for-target-collaboration/> (demonstrating that collaborations are highly publicized in anticipation of consumer interest).

¹⁷⁸ *Coca-Cola Co. v. J.G. Butler & Sons*, 229 F. 224 (E.D. Ark. 1916).

¹⁷⁹ *Id.*

ing, fashion brand owners should examine the CAD file as displayed on the computer, a sample of the 3D printed cloth, and the final product before it is shipped and sold in the marketplace. Just as the plaintiff in *Coca-Cola* monitored the plants, fashion brands should monitor the quality of the 3D printers and thread. The more rigorous fashion brand owners are in monitoring their mark in the 3D printing scene, the more likely a court will not find naked licensing, thus preventing third parties from using the mark due to trademark abandonment.

IV. SET THE TREND OF TRADEMARK LICENSING

Once 3D printing clothing is a common practice, the most reasonable safeguard against counterfeits is trademark licensing. It is important to assess the reality of 3D printing for both manufacturing and home use and the practicality of engaging in license agreements.

The fashion industry is likely to engage in trademark licensing because of its well-established reliance on it. Under current practices, if different manufacturers decided to engage in 3D printing, fashion designers could license their marks through selective distribution, according to qualitative criteria.¹⁸⁰ The criteria and control over licensees in 3D printing must be just as consistent as the control in other types of licenses to avoid a licensing disaster.¹⁸¹ Following rational licensing policy, the fashion industry could avoid deceiving the public, maintain consistent quality, and foster innovation.¹⁸²

¹⁸⁰ See generally CREFOVI, *supra* note 78 (“Selective distribution is a useful tool at the disposal of the supplier since it can refuse to sell to those dealers that do not comply with the set criteria . . . it allows a supplier to select dealers according to criteria which are mainly qualitative, and to consequently ensure a commercialisation within conditions which befit the prestige of the luxury products.”).

¹⁸¹ Mark Ritson, *The Poisoning of the Calvin Klein Brand*, BRAND STRATEGY INSIDER (Sept. 18, 2008), http://www.brandingstrategyinsider.com/2008/09/the-poisoning-o.html#.Vp6Q_1MrKHp (explaining how Calvin Klein unfortunately licensed in over forty different categories, which confused consumers as to the value of the good, and it was ranked last in status among wealthy American women in 2001).

¹⁸² See *Quality Control*, *supra* note 10, at 1190.

The most critical inquiry for the validity of licensing is whether licensors maintain control over product quality and whether the products conform to any fixed standard.¹⁸³ It seems completely possible for fashion brands to license their marks to 3D printing manufacturers and then continue to control the quality of the 3D printed materials through supervision and approval before the goods enter the marketplace.

A. Designing the Trademark License

Trademark owners in fashion must provide a licensing option to 3D printing manufacturers. As previously discussed, a licensing agreement benefits the licensor, the 3D printing manufacturer, and the artist designing the item.¹⁸⁴ The validity of the trademark license is determined by the trademark owner's control over "the nature and quality" of the licensed products.¹⁸⁵

Licensing agreements provide endless opportunities to form valuable partnerships. For example, one woman raised \$8.5 million dollars for her orthotic shoe company, SOLS.¹⁸⁶ As a 3D printing manufacturer, she could bring a lot of goodwill to her business by partnering with a popular shoe brand, like Nike. Even if Nike has no interest in embarking on its own division of orthotic shoes, the company might be willing to license their mark to extend the variety of products they offer, thus effectively enhancing Nike's goodwill and reputation. Additionally, this is an innovative business plan for Nike, comparable to Hasbro's well-received innovative licensing partnership. SOLS also plans to operate through a mobile application that takes six photos of an individual's foot and then extrapolates a series of data and measurements that are used

¹⁸³ Calboli, *supra* note 69, at 365.

¹⁸⁴ Carson, *supra* note 103 (explaining that the benefits include increased revenue).

¹⁸⁵ Calboli, *supra* note 69, at 355.

¹⁸⁶ Denise Restauri, *Meet the Woman Who's Using 3D Printing to Make Your Shoes Cool and Comfortable*, FORBES (Oct. 23, 2014, 4:12 PM), <http://www.forbes.com/sites/deniserestauri/2014/10/23/meet-the-woman-whos-using-3d-printing-to-make-your-shoes-cool-and-comfortable/>.

to create a pair of orthotic shoes.¹⁸⁷ New fashion companies, aware that they are disrupting an industry, could partner with popular brand names to immediately gain a respectable reputation, while the popular brands get the benefit of participating in an innovative process by extending the variety of their products with less wasteful costs and materials.¹⁸⁸

Every intellectual property license agreement contains paragraphs concerning the scope of the license granted, specifications of the intellectual property, royalties, duration, and termination rights. In fashion, the licensor should engage in agreements that are consistent with past practices.¹⁸⁹ The importance of consistency applies to royalty rates, appropriate channels of distribution, and advertising efforts.¹⁹⁰ The 3D printing manufacturer should be the exclusive licensee for manufacturing the 3D printed clothing¹⁹¹ and the brand, as a licensor, should limit the specifications of the intellectual property to just the brand name (i.e., its trademark).¹⁹² Specifically, royalties should be consistent with how the licensor has determined royalties in past license agreements, which includes deciding whether the royalties are to be paid up-front in a lump sum or through running royalties. The 3D printing manufacturer should be prohibited from printing anything other than what the fashion designer orders and should also be prohibited from sublicensing. A licensor should have one exclusive licensee because increased channels of distribution (i.e., more than one manufacturer) intensify confusion as to who is behind the brand. The appropriate channels of distribution and advertising efforts are extremely important to maintain the fashion brand's exclusivity

¹⁸⁷ *Id.*

¹⁸⁸ *Id.*

¹⁸⁹ JIMENEZ, *supra* note 176, at 128.

¹⁹⁰ JIMENEZ, *supra* note 176, at 123 ("Royalty rates in fashion licenses commonly range from 5 to 15 percent of a revenue stream").

¹⁹¹ See RAYMOND T. NIMMER, LICENSING OF INTELLECTUAL PROPERTY AND OTHER INFORMATION ASSETS, 3 (2007) (defining an "exclusive" license as an agreement that gives the licensee exclusive rights to the licensed subject matter).

¹⁹² JIMENEZ, *supra* note 176, at 120 (noting that licensing the brand is the most common approach).

and overall brand image.¹⁹³ By the licensor maintaining total control over the advertising, brand image will not become tarnished by advertising to the wrong consumers. Also, by the licensor retaining total control over the distribution, consumers will be less likely to be confused as to which products are authentic, given that fake products will eventually be found online or through other venues that the brand does not use.

V. CONCLUSION

3D printing is making its debut into the manufacturing process and soon into the home, no matter how disruptive intellectual property owners say it is. Even though 3D printed cloth is not yet widely available, fashion brands should prepare for how to protect and control their trademarks. Copyright and patent protection do not seem to offer the best protection concerning the threat of 3D printing and even less so when it involves fashion brands. Although it has its drawbacks, trademark licensing is a prevalent practice for businesses that thrive on brand recognition, and it should continue to be utilized in 3D printing. Trademark law is the most reasonable form of protection because it grants the longest period of protection, it benefits all the parties involved, and the public perception of this measure is likely to be positive because it is not an aggressive tactic. Therefore, trademark licensing is definitely the most fashionable way to tackle the threat of 3D printing.

¹⁹³ JIMENEZ, *supra* note 176, at 127 (explaining that in the case of a luxury good, the licensor will want to avoid inappropriate distribution because these sales could “cheapen” brand reputation).