THE INFLUENCE OF TECHNOLOGY IN ART APPRECIATION AND SALES AS A FACTOR IN THE SUSTAINABILITY OF THE RETAIL ART INDUSTRY

Abstract

This paper will cover many of the ways that technology is affecting the retail art industry, both positive and negative, and come to a conclusion about the overall effect of technology on art appreciation and art sales, and whether the industry will be sustainable in light of these influences. Themes discussed in this paper shall include the economic and sustainable effects of technology on the art market.

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Sustainability

The Brundtland Commission defined sustainable development as “meeting the needs of the present generation without compromising the ability of future generations to meet their own needs” (UNWCED, 1987). Sustainability is the ability to sustain action or life indefinitely. In a business context, many companies apply sustainability via a triple bottom line approach. The triple bottom line involves three bottom lines of focus: people, planet, and profits. A triple bottom line measures the company's degree of social responsibility (people), environmental responsibility (planet), and economic value (profits). Multitudes of real life business cases provide undeniable evidence that sustainable business practices lead to increased profitably in the long term. This paper will apply the triple bottom line approach to the retail art market and find what effects technology has had on the overall sustainability of the market.

Role of Technology in Art

Through the ages, technology and art have been intrinsically linked. From the pyramids at Giza to St Peter’s Basilica, from the most basic sketch to the grandest cathedral, humans build not only for function but also with an eye to form.

Today, the word “technology” evokes a very different meaning. It conjures images of whirling lights and bundles of wires rather than simple machines and hardworking carpenters. Similarly, the word “art” has also undergone a rebirth; it now evokes images of digital art as well as classical paintings and sculpture. Where architecture was perhaps the best example of this marriage of art and technology, today computers are the new face of this union.

Art and technology are inexorably linked in that as one evolves, so does the other. This means not just changes in the way that art is created, but in the way that it is viewed, appreciated

and subsequently sold. There are many ways that technology has influenced the way that we appreciate and buy art. These ways have also impacted art retailers.

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Triple Bottom Line Analysis

How People use Technology for Art

Technology has become a pervasive influence in our society. It has especially influenced the way that we create and appreciate art. More artists are using Photoshop and digital cameras to create and edit pieces than ever before. Artists are also using computers to connect and gain inspiration from each other.

Artists aren't the only ones using technology in new and unexpected ways. The public, museums, and galleries are also using technology in ways that would have seemed impossible as little as thirty years ago. The public is using technology to appreciate and become connected with art. Museums now keep online collections and host online walkthroughs of their facilities, as well as distribute special exhibit media online and market their events to internet audiences. Galleries not only advertise their events online but also sell some pieces through online sales, discover new artists via the internet and preview an artist's collection online. Artists are able to independently market themselves, create a dedicated following for their work, and sell their pieces online without the benefit, or hindrance, of a middleman agent or gallery owner. Artists are also able to use technology as a new medium with which to create art. Consumers are able to

discover many new artists and keep up to date on the latest and greatest accomplishments of their favorite artists.

Environmental Impact

When you analyze sustainability using the triple bottom line approach, you are concerned with three factors: people, planet, and profit. This section shall focus on how technology has made the art market more sustainable as concerns the planet.

Technology has helped to reduce waste in the industry as a whole, and for individual artists. Because of technology and the ability to share and send, traditionally printed media, digitally, less pamphlets and promotional materials are printed. There is also less waste on the part of the individual artist. Artists who use technology are able to create sketches, edit photographs and preview design changes before creating a final product. This allows artists to use fewer materials in their creative process, thus reducing waste. Adobe has created a series of promotional videos, "Make it with Creative Cloud," that demonstrates artists using Adobe's computer programs to edit, preview and test drive a design before printing or building a final product (Adobe, 2013).

Technology has also made some art disciplines more sustainable. In its early years, film and photography both required harsh chemicals to develop negatives and images revealed onto photo paper. The move to a digital medium has greatly reduced the amount of harsh chemicals that were being disposed of down darkroom sinks.

Technology can also reduce the need for travel in the art industry. Previously, art dealers and gallery owners would travel to a client's home in order to assist in deciding which work of art would best suit the client's home and taste. These dealers often brought multiple works with them on these house calls. Today, apps like ArtMatch make it possible for clients to choose a

piece that they like, and then use their phone to visualize the artwork in their home. Digital photography and programs like Photoshop can also be used to remotely assist potential customers in deciding what pieces would look best in their homes, further reducing the need for travel.

Accessibility

The economic impact technology is having on art is perceived as both positive and negative. Technology is making art more accessible to the public, especially to those who do not necessarily understand art, or who cannot afford either the time or the money, to visit galleries or museums. There are various projects currently underway that help art reach the masses. These include the Google Art Project, Artsy.com, Amazon Art, Artsicle, and various phone applications.

The Google Art project has worked with museums around the world in an effort to put great works of art at the fingertips "of people who might otherwise never get to see the real thing up close" (Sood, 2011). At its initial release, on February 1, 2011, over 1000 works of art by more than 400 artists were available for viewing. These images are in super high-resolution, which reveals brushstroke-level detail. This detail allows users to see works at an intimate level that they may not get to experience even if they did visit the works in person. Through the Street View technology, users are also able to "take a virtual tour inside 17 of the world's most acclaimed art museums, including The Metropolitan Museum of Art and MoMA in New York, The State Hermitage Museum in St. Petersburg, Tate Britain & The National Gallery in London, Museo Reina Sofia in Madrid, the Uffizi Gallery in Florence and Van Gogh Museum in Amsterdam" (Sood, 2011). The program also lets users "save specific views of any of the artworks and build [their] own personalized collection. Comments can be added to each painting

and the whole collection can then be shared with friends, family or on the web" (Sood, 2011). On April 3, 2012 the project announced a major expansion which makes available "sculpture, street art and photographs from 151 museums in 40 countries" (Sood, 2012). "The original Art Project counted 17 museums in nine countries and 1,000 images, almost all paintings from Western masters. Today, the Art Project includes more than 30,000 high-resolution artworks, with Street View images for 46 museums, with more on the way" (Sood, 2012). Clearly, this expansion signals that the public is interested in what the project offers and is clamoring for more, as are the museums and galleries who chose to partner with Google on this project.

Google is not the only company trying to make art more accessible, Artsy.net is a website that allows its users to browse through images of thousands of different individual pieces, styles, and mediums of art and from those images, curate a selection of their favorite pieces. Artsy also provides biographies of the artists and features information about art shows at galleries and museums. Some of the works of art featured on Artsy.net are even for sale. Their "mission is to make all the world's art accessible to anyone with an internet connection" (Cleveland, n.d.). "Around 25,000 images of artworks are available to browse by genre, region, medium or style and prospective buyers can filter the artworks for sale by choosing a price range for their purchase. About 300 works are currently selling for under $1,000; some 100 works are available for $1m or more" (G.T, 2013) Users simply have to create an account and Artsy does the rest. The site starts by offering new users images of works or categories and asks them to select the ones that they like or find interesting. Users can then browse works similar to those they like and follow artists and categories they enjoy. Artsy is an interactive way for users to discover new artists and engage with galleries, artists and other art lovers around the world. Artsy's recommendations are powered by the Art Genome Project. "The Art Genome Project is an

ongoing study to map the characteristics (known as ‘genes’) that connect the world’s artists and artworks. There are over 500 genes including art-historical movements, subject matter, and formal qualities. For instance, Artsy might connect Andy Warhol to Damien Hirst via the Pop Culture gene, or Ai Weiwei with Botticelli via the Metaphor/Allegory gene” (Isreal, n.d). Artsy also writes its own open-source projects and shares them with the community. In this way, Artsy utilizes crowdsourcing, which will be discussed later in this paper, to further engage the community and improve their site.

Artsy, however, is not the only site from which to discover and buy fine art via the internet. Amazon Art, allows users to view and buy works of art from their site as if they were buying a book; it even includes the signature Amazon referral service; “Customers who viewed this piece also viewed…” At its inception the site stocked over 40,000 works of fine art from over 150 prestigious galleries and dealers. The pieces on the site “are selected from over 4,500 artists, making Amazon Art one of the largest online collections of original and limited edition artwork for purchase directly from galleries and dealers worldwide” (Wakoba, 2013). The Amazon Art “marketplace is availing fine art from prominent galleries directly to customers at broad range of price points plus easy online access. The store has Folk Art to Impressionism to Modern Art suitable for experienced collectors to first-time art buyers. Customers can browse unique works of art, including photographs from Clifford Ross starting at $200, popular fine art like Andy Warhol’s “Sachiko” for $45,000, historic artwork from Claude Monet including, “L’Enfant a la tasse, portrait de Jean Monet” for $1.45 million and works from iconic artists such as Norman Rockwell’s “Willie Gillis: Package from Home” for $4.85 million” (Wakoba, 2013). Simply put, the marketplace has something for everyone and makes it easy to choose what piece to buy by providing a plethora of information, “the store has high quality images and detailed

information about all the artworks and customers can learn about the work of art, the artist, the provenance and exhibition history and browse additional artworks from the artist or gallery" (Wakoba, 2013).

Artsicle.com is another site that makes art accessible to the public, this site allows you to "try before you buy." What this means is that for a $50 a month, "art lovers can choose a painting, sculpture or print they like from the collections of 30 emerging and more established artists, hang it in their homes and decide whether they like it or not. If they do, they can purchase the art - where prices range from $500 to $5,000. If they don't, they can send it back or rent another one" (Hassan 2011). Artsicle aims to address the fear of buying art online, namely, how to know what will look good in your home. This method lets collectors live with the art for a while and have time to decide whether it's something they really love and want to invest in and live with.

Phone apps have opened up new opportunities to access art with an immediacy and convenience never imagined before. There are a wide variety of phone applications that allow people the ability to create their own art and also, to browse current art collections from an unbelievable number of sources via the internet. Websites like Etsy, and Artsy host their own apps, and companies like Christie's and Sotheby's have also created apps for their customer's convenience. Other apps like Art, ArtAuthority, Behance, Brushes, New York Art Beat, ArtSpotter, Flyer, ArtNear, Adobe Photoshop Express, and ArtMatch are all examples of apps that allow users to create and discover art. Those ten aren't even the tip of the iceberg when it comes down to what is available. A cursory search in the Apple App store for the word "art" yields 2200 results, and yet new apps are being released weekly. Apps currently in existence are constantly updated to keep current with customer needs.

Websites and mobile applications aren't the only players in the game. Programs like Photoshop and FinalCut are making art more accessible to amateurs and enthusiasts. Where before creating and editing film took years of experience in a dark room and lots of investment in equipment and chemicals, now it only takes one digital camera and a program like Photoshop or FinalCut for the average layman to create amateur films and interesting photographs. These programs are becoming essential tools for the professionals too. Students in photography and film classes are increasingly being taught to use these programs rather than cutting and exposing their negatives in a dark room.

The influence of technology on the art industry is becoming so important that conferences are being held where people are discussing what more can be done with technology to make experiencing art more accessible, tactile, and interactive. They are also discussing ways to bring people with disabilities into the experience with us. The Leadership Exchange in Arts and Disability, LEAD, is one such conference. The conference brings "together diverse experts and practitioners from a variety of fields: the arts, education (K-12 and post-secondary), design, exhibition, media, electronic and information technology, online experience and mobile and portable device development and manufacturing – all to advance the development and application of innovative technologies that support the inclusion of people with disabilities in the cultural lives of our world." (About, 2013)

Interestingly, all this easy accessibility via the internet to view art online, learn about artists from home, and experience and collect art from home, has not affected museum attendance numbers. I have not found evidence to suggest that technology and the accessibility of art has affected museum or gallery attendance negatively. Rather, it appears that museum attendance is generally on the rise. Museum attendance numbers have more to do with the

economy, the amount of disposable income, and the type of museum that was being surveyed, than with the level of technology that a museum employs. In fact the American Alliance of Museums reports in their 2013 Annual Condition of Museums in the Economy (ACME) survey, that 52% of museums surveyed report a rise in museum attendance numbers, while only 28% reported a decrease (Katz, 2013).

The Businesses of Art

Technology has had a wide impact on the business of art as well as on societal accessibility. Technology makes vendors more accessible, more transparent and makes the sales process more streamlined. For the big auction houses, such as Christie's and Sotheby's, online bidding has brought in a number of new bidders (Louise, 2013). A Deloitte and ArtTactic report finds that "new online transaction platforms add liquidity to the art market and will broaden the scope and depth of art market data available, which in turn will improve transparency and facilitate more accurate art valuations" (Art, 2013). Kathryn Tully, who writes for Forbes notes that "since sites selling art online are unencumbered by the physical infrastructure of the traditional gallery or auction house, they can also make their commissions lower and the whole business of buying art much cheaper and more accessible" (Tully, 2013).

A report from IBISWorld published on July 2013 estimates that "the Online Art Sales industry in the U.S. is worth about $835.4 million in 2013. The market for online art sales has been growing in line with strong demand from overseas markets and increasing access to internet-based retail outlets. Even as brick-and-mortar art dealers experienced declines during the past five years, online-based art sales have stayed strong" (Everett, 2013). The report also notes that "technological advancements are increasingly allowing firms to display higher-quality images, which give consumers confidence that what they are purchasing actually looks like what

they have seen online. More so, online art sales are shifting toward a more interactive experience where art collectors and consumers can better appreciate art before purchasing it. For example, industry player VIP uses computer technology that allows online visitors to zoom in to examine details of a painting's surface, get multiple views of a three dimensional work, watch videos of a multimedia piece, and even have private chats with art dealers" (Everett, 2013).

Promotion & Social Media

Not only have big galleries and auction houses been using technology to their advantage, but small galleries, museums and independent artists are using technology, the internet, and, social media to improve their daily operations, their promotions strategies, their relationship with their customers, and their security. Social media helps businesses with marketing and customer service which in turn help to build brand awareness and increase sales.

Promotion is more inexpensive than ever now compared to more traditional means of promotion like mailers and posters. Artists, galleries, and museums can promote themselves via the internet to whole new markets of people. With just a few clicks of a mouse and some fancy graphics, you can promote everything from an event, to a website, to a sale that might be running and you can also develop a dedicated following. The potential for market penetration is incredible, it is targeted and inexpensive. Social media has created new techniques for artists and art businesses to promote themselves and their products. Marketing on social media can take a variety of different forms, from targeted marketing to customers who follow the arrival of new products, to mass marketing to anyone within an identified target demographic. Facebook, for example, allows business level users to create a profile for the business and then guides those business level users through creating advertisements that will be displayed to their targeted demographics. Social media has introduced whole new strategies to the marketing discipline.

The same can be said for social media and customer service. Now, customers can voice their satisfaction or dissatisfaction with a particular firm and share their opinions with all their friends and acquaintances with the click of a button. Conversely, companies can also address customer service issues in record time, once they have been alerted to them via the social media site.

One especially unique species of social media are the crowdsourcing sites. In "2011 alone, crowdfunding website Kickstarter raised almost $100m in pledges with more than 27,000 art-related projects" (Gever, 2012). Crowdsourcing is the practice of obtaining needed services, ideas, or content by soliciting contributions from a large group of people, and especially from an online community. Crowdsourcing can be used for a multitude of things, from funding to soliciting volunteers and ideas. Museums are using crowdsourcing to engage the community and solicit ideas, help select future exhibits, and even to solicit volunteers. According to a report by the American Association of Museums, "technology enables broader, deeper, more accessible engagement with a growing universe of amateur experts who may not otherwise be engaged with the museum and may reside halfway around the world" (Merritt & Katz, 2012). One example of museums using crowdsourcing is at The National Library of Finland. "The National Library of Finland created the Digitalkoot project to help digitize millions of pages of archival material. Visitors to the site transcribe old books one word at a time while playing a video game" (Merritt & Katz, 2012).

Security

Security is an area where technology has had some of the most important impact on the art world. Museums, galleries, auction houses and even the pieces themselves are under constant threat from a number of different sources. Some of those sources include theft, forgeries and even a simple touch. New sensors and scanners are being developed daily in order to help

preserve and secure the most precious and valuable works from theft. Though most art heists these days are very low tech operations, the security systems in place alert staff in record time that there is a problem, giving the security personnel more time to try and catch the thieves. Sensors are also protecting pieces of work from every-day damage. The oils on our hands can ruin a very antique piece, which is why museum staff wears gloves when handling many of the works. But people like to get close to art to be able to experience it and commune with it, so infrared sensors are used to create a barrier, that if broken will set off an alarm and alert guards that a piece is being touched. This is just one method of warding off stray hands from pieces of art and securing the work.

Forgeries are also a serious risk to value in the art market. While technology plays a lesser role in helping the con-artists to create their frauds, it does help the FBI and other agencies to inspect suspected fakes and establish their verisimilitude. Technology is not widely used when creating art forgeries. The best forgeries are painted by very talented artists who imitate the original creator's style. Technology like the Google Art Project, with its "brushstroke-level detail" images of thousands of works of art could help forgers by allowing them to more easily imitate the style of an original work. These forgers then use basic chemical processes and tricks to visually age a work to appear to be from the right era.

On the other hand, X-rays, infrared light, paint chemistry analysis, dendrochronology or wood dating, are just some of the technologies used to help discover a forgery from an original (Kent, 2012). Eric Postma has developed a computer program that counts brushstrokes in paintings and analyses colors in order distinguish a genuine painting from a forgery. While the method is still in development, it has successfully identified a forgery from an original (Postma, 2008).

The same infrared and x-ray imaging that is helping to identify forgeries also helps to rediscover works from old masters, which helps us to learn more about the history of our most admired artists. In the case of the self portrait of Rembrandt van Rijn that was donated to British National Trust, the owners never dared to hope that they had an original Rembrandt in their collection. Technology allowed imaging of the painting and revealed that it was indeed painted by Rembrandt. The analysis of the piece revealed that the style and dating was accurate for a self portrait that Rembrandt would have painted at 29 years old. This new revelation increased the value of the work to over 30 million pounds; that is 46.5 million dollars.

Old Meets New

In this section, we will discuss how technology has increased the scope of an entire market. The craft- craze is a well established market. People want to feel like they are making a difference by supporting the little guy rather than the big bad corporation, and they also want to feel like their item is one-of-a-kind. A Businessweek article points out that "although the craft craze is well-established, with sales hitting $31 billion in 2007, it's taking off with a vengeance online" (Green 2008). Wolverson, who writes for Time, explains how the internet vastly expanded the reach of the handicrafts market. He explains that "Yahoo provided digital storefronts and credit-card checkouts, while eBay, Amazon and other online giants promoted the idea of the flea-market millionaire, allowing small-town candle-makers in Utah or Kansas to sell their wares anywhere. But an even bigger turning point came in 2005, when Rob Kalin had the idea that would become Etsy" (Wolverson, 2013). Etsy is a website where small time crafters can create a digital storefront from which to sell their wares and Etsy gets a small percentage of the profits."Etsy found a huge untapped market, and within its first two years it grew to 50,000 sellers and nearly $10 million in sales" (Wolverson 2013). In 2008, Etsy announced a $27

million investment from, among others, Union Square Ventures and Accel Partners, investors in Facebook, Twitter and Tumblr; and in 2012 announced $895 million in sales with over 850 thousand sellers. Although Etsy is the biggest seller, there are other sites like Etsy with similar models but different products and markets. Technology has allowed this established market to reach new, unprecedented heights.

Technology Industry Challenges

For all its benefits, technology poses some challenges to the industry. The first challenge to such rapidly evolving technology is first, the initial cost of installation and second, the cost of upgrade since new and improved technology is released every 6-8 months.

The second challenge is that technology has made copyright infringement much easier; with so many more people creating art, many of whom are not educated about copyright laws, and sharing their works online, a copyright infringer has their pick of interesting and pretty works. This theft of designs reduces the sales income that these artists might earn.

The third challenge comes in the form of privacy issues stemming from social media. Privacy issues are a hot topic in today's media because social media has become such a pervasive influence in our lives. If businesses do not get ahead of these privacy concerns then the solution will be legislated out of their hands.

Conclusion

The advances in accessibility to art and increased profitability, coupled with the absence of significant challenges presented by technology and the reduction in the carbon footprint of the market, all lead to the conclusion that the impact of technology on the art market is in the net positive. It seems clear that this industry has grown significantly because of technology, and that without the continual influx of technology the industry would stagnate.

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